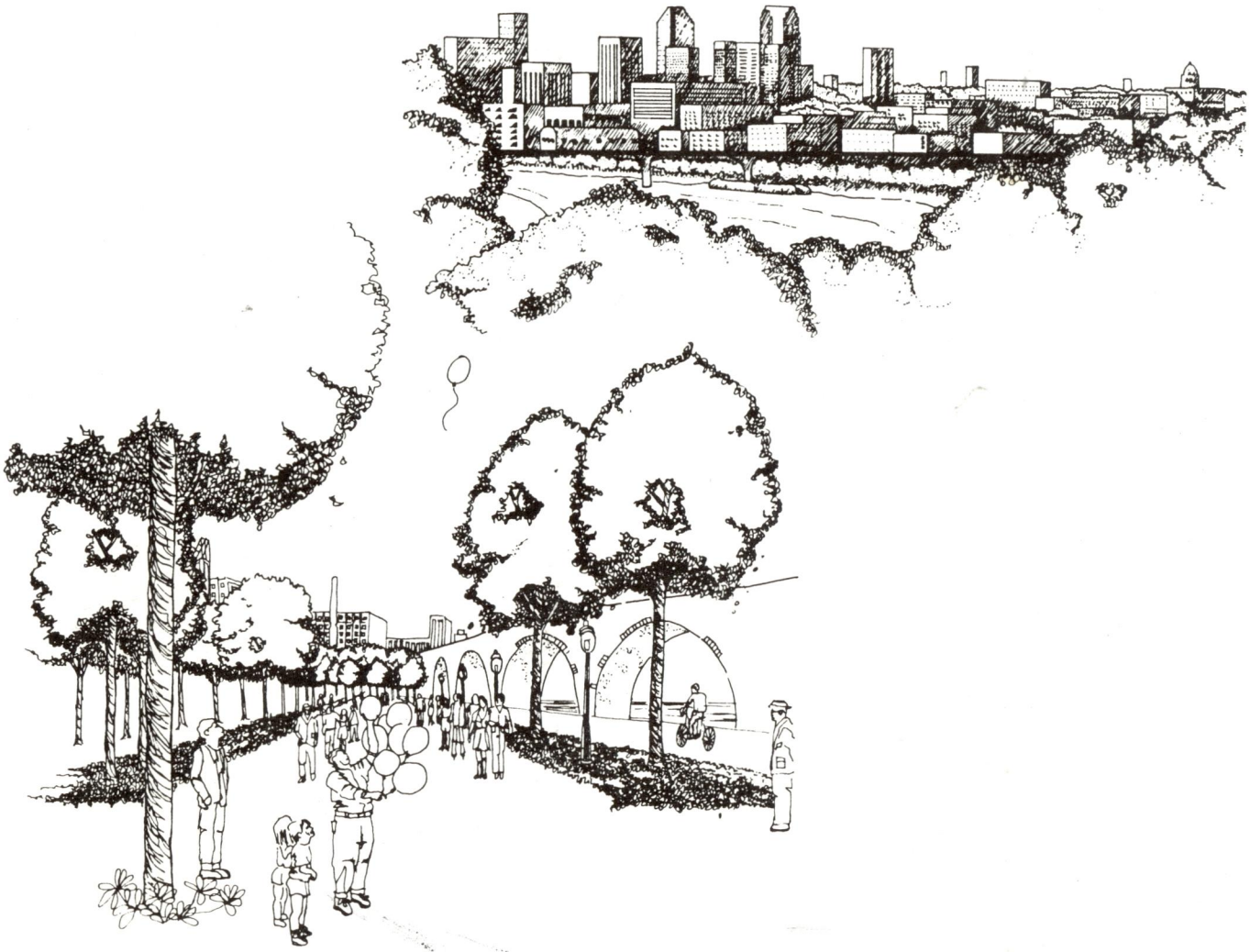
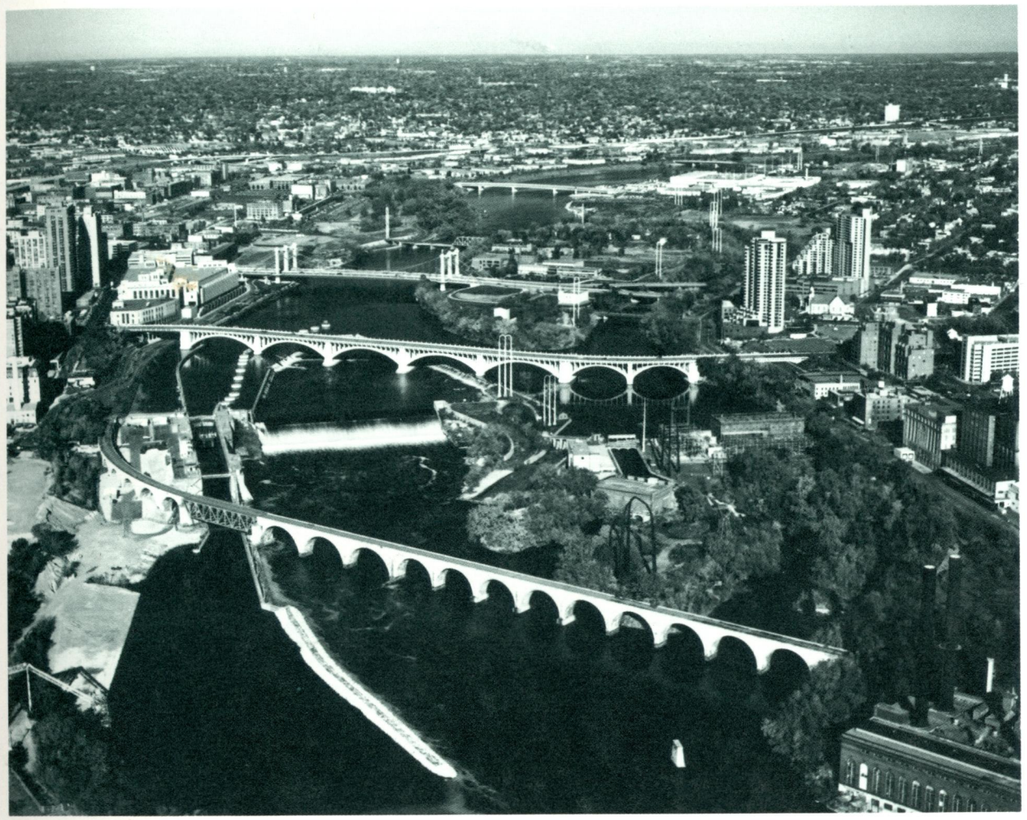
Draft
Comprehensive Management Plan
Environmental Impact Statement



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National River and Recreation Area • Minnesota

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Draft
Comprehensive Management Plan
Environmental Impact Statement

June 1993

MISSISSIPPI

National River and Recreation Area
Anoka, Ramsey, Washington, Dakota, and Hennepin Counties, Minnesota

The Mississippi National River and Recreation Area was designated by Congress in 1988. The Mississippi River Coordinating Commission was established by the act to ensure local assistance to the secretary of the interior in planning for the national river and recreation area. The legislation provided for extensive federal, state, and local coordination in managing the river corridor and its nationally significant historical, recreational, scenic, cultural, natural, economic, and scientific resources.

The basic visions identified for the national river and recreation area would promote partnerships between the corridor's political entities and various constituencies to create the desired future and achieve the legislative purpose for the 72-mile-long corridor through the Twin Cities area.

This draft comprehensive management plan and draft environmental impact statement provides a proposal that emphasizes a balanced approach to resource protection and use in the river corridor. Alternatives offer a range of options for issues identified in the plan. A no-action alternative (A) is included to facilitate comparison. Alternative B would emphasize greater resource protection than the proposal; alternative C would emphasize greater use and development than the proposal. Impacts of the proposed plan and the three alternatives are assessed in this document. Both positive and negative impacts to the natural, cultural, and socioeconomic environments are assessed.

Public involvement in the planning process for the Mississippi National River and Recreation Area is critical to the success of this plan. Please send your comments on this document to:

Superintendent, Mississippi National River and Recreation Area
175 East Fifth Street, Suite 418, Box 41
St. Paul, MN 55101
612-290-4160

Prepared by
Mississippi River Coordinating Commission and National Park Service

United States Department of the Interior · National Park Service · Denver Service Center



Looking downriver toward the Twin Cities of Minneapolis and St. Paul we see the Mississippi as a quiet country river, but the Mississippi is many rivers as it passes through this metropolitan corridor; a bustling river, a quiet river, a natural river, and an altered river; a river for commerce, a river for people . . . in short, the Mississippi is a river great in diversity and great in its challenge.

SUMMARY

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

The Mississippi National River and Recreation Area includes 72 miles of the Mississippi River and four miles of the Minnesota River and encompasses about 54,000 acres of public and private land and water in five Minnesota counties, stretching from Dayton to just south of Hastings.

For many years the people of the Minneapolis/St. Paul metropolitan area have managed the resources of the Mississippi River corridor as it runs through their cities. This management has preserved the river in good condition so that people want to live near its banks and businesses choose to locate near its shores. At the same time, with the emphasis on lakes in the Twin Cities metro area, the Mississippi River was for many years an undiscovered resource. In 1988 Congress charged the secretary of the interior (through delegation to the National Park Service) with coordinating the efforts of the federal, state, and local governments to keep this 72-mile section of the Mississippi corridor in good condition and enhance its resources. Congress also mandated that a Mississippi River Coordinating Commission be appointed to assist the secretary in developing an integrated resource management plan for the national river and recreation area. The commission was appointed by the secretary in May of 1990 and has worked in partnership with the National Park Service and many other agencies and groups to develop a proposal for managing the river corridor.

Congress directed the commission to assist the secretary, the state of Minnesota, and local units of government to develop policies and programs for:

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

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

This draft comprehensive management plan and draft environmental impact statement provides a proposal and three alternatives that offer a range of options to guide the management and use

of this section of the river. Major issues include land resource protection efforts, commercial navigation needs, park land and recreation facility opportunities, and the role of the National Park Service in preserving, interpreting, and managing the national river and recreation area corridor. The plan, as directed by the legislation, is a conceptual policy and program-level document concentrating on corridorwide issues. Except for proposed NPS facilities it does not address site-specific issues.

After a great deal of study and consultation and after receiving and considering comments from a wide range of individuals and groups, the commission and the NPS study team developed a draft plan that provides a framework to balance and coordinate natural, cultural, and economic resource protection, visitor use, and development activities. It would minimize adverse effects on the river corridor and conflicts between users while providing for a broad spectrum of land and water uses and managed growth. Corridor management policies would be applied in a practical manner with individual communities retaining flexibility to respond to unusual situations in special ways providing that the resources identified in the MNRRA act are protected. The most significant visual resources would be protected and restored where practical, including historic structures and landscapes. The river corridor would have continuous public or private open space along the shoreline area to the maximum extent practical and it would be connected to the downtowns and neighborhoods by open space and trails. This continuous open space may be a combination of public parks, trail corridors, and private land along the river that is retained as, or restored to, green space. It would be as wide as some of the existing major regional parks along the river or could be as narrow as the 40-foot shoreline preservation setback area. Except in existing commercial and industrial developments, downtown areas, and historic districts, the riverfront and bluff area would appear mostly natural from the river and its shoreline areas (as observed from the opposite bank). In downtown areas and historic districts development would be more visible but still complement the aesthetics of the river corridor, appealing to area residents and serving as an attraction to visitors to the metro area. Where the natural appearance has been altered in other areas, design guidelines and programs would be established to encourage the restoration of shoreline to a more natural appearance.

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

Commercial navigation activities would be continued. Decisions about activity expansion would be based on a balance between desired area resource characteristics and river system capacity.

Decisions about commercial navigation uses would be based on resource values, emphasizing minimal impact on aquatic life. Local governments would continue to designate areas suitable for barge fleeting in corridor plans that are consistent with this plan. The Corps of Engineers and Minnesota Department of Natural Resources (DNR) would review these community plans for conformity with the commercial navigation policies in the MNRRA plan.

A wide range of visitor use (interpretation and recreation) activities would be encouraged that would emphasize selected areas. A variety of passive and active resource-related recreational activities would continue to be available to visitors in the corridor. These include fishing, boating, canoeing, hiking, bicycling, jogging, picnicking, birding, taking photographs, and participating in interpretive and educational programs.

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

There are two major interpretive facilities planned: (1) a primary information and orientation center at Harriet Island opposite downtown St. Paul, and (2) a cooperative information and orientation center near downtown Minneapolis. The St. Paul/Harriet Island facility would be combined with the MNRRA administrative headquarters, strategically located to continue extensive interaction with the government agencies included in the MNRRA partnership.

Two smaller cooperative interpretive centers (contact stations) are also planned, one in Hastings and another at Coon Rapids dam, each with a different interpretive emphasis and potential visitor experience.

The National Environmental Policy Act requires that alternatives be evaluated for proposed federal actions, and this document analyzes three alternatives to the proposed plan.

Alternative A (no action) would continue existing resource protection activities, land and water management, and visitor use programs. No overall comprehensive plan would be adopted for the river corridor, and local communities would continue to manage the river with minimal coordination and cooperation. Political boundaries would continue to delineate different management regulations, so individual segments within the 72-mile stretch of the Mississippi River would be managed according to different plans.

Alternative B would place a greater emphasis on resource protection, more restrictive land management (with only selective new development), and emphasize passive recreation activities. Efforts for resource protection would be coordinated between the National Park Service and existing state, federal, and local programs, with the Park Service taking the lead on protection of the natural and cultural resources.

Alternative C would place greater emphasis on the use and development potential of the corridor; increased tourism and new commercial and industrial development would be

encouraged to a greater degree. There would be less land management activity in alternative C, and visitor activities would emphasize more active recreation. Nationally significant resources would be protected under existing laws, regulations, and policies, and they would be marketed more intensively to stimulate visitation.

Impacts of the proposed plan and the three alternatives are assessed in this document. Both positive and negative impacts to natural and cultural resources, visitor use, and socioeconomic environments are analyzed. If corridor communities adopt and enforce the land use management and open space policies in the plan, sensitive resources in the corridor would be protected, a natural appearance would be preserved (and restored in some areas), and improvements would be made to recreation and open space opportunities in the area. A table summarizing the impacts of the alternatives is included in this document and should be referenced for an overview of environmental consequences.

Many individuals, organizations, and agencies have contributed to the planning process. Work groups made up of local technical experts assisted the commission and National Park Service team in developing visions, collecting data, and making recommendations for the plan. Public meetings and several newsletters have offered opportunities for public involvement. Opportunities to comment and influence the eventual outcome of the plan for the Mississippi National River and Recreation Area continue and comments on this document are encouraged during the public review period.

ALTERNATIVES SUMMARY BY ISSUE

Issue	Proposed Plan	Alternative A	Alternative B	Alternative C
General Concept	Balance use and preservation needs	No action	Emphasize more resource preservation	Emphasize visitor use and development
Land Use/Landscape Character Concept	Preserve and restore natural appearance of shorelines and bluffs; protect historic areas; preserve economic resources; provide setbacks and screen new uses with vegetation	Continue existing land use trends and landscape character mixture	Stress protection of natural, cultural, and existing economic resources and open space preservation; minimize new uses	Encourage new high-quality development; add new uses with design excellence stimulating tourism
Riverfront Area Land Use (w/in 300 feet of shore)	Emphasize river-related and river-enhancing uses; no change to existing development	No new policy on river-related uses near river	Strictly river-related uses; phase out inconsistent uses	No new policy
Barge Fleeting Areas	Monitor effects; activity expansion would balance desired resource characteristics and river system capacity	No additional management action	Freeze existing areas pending additional research on impacts and alternatives; map all potential new areas	Add fleeting areas per demand while protecting significant sensitive resources
Open Space	Provide a continuous linear open space where feasible; acquire threatened sensitive resources	Add some additional park land per existing local plans	Provide maximum open space protecting sensitive areas and emphasizing resource protection	Acquire some park land for recreation and tourism needs
Park Land Ownership	Minimal NPS land; additional local park land	No additional NPS land; additional local parks per existing plans	Significant NPS land ownership, including transferring major parks to NPS	No additional NPS land; additional local parks per existing plans plus some additional lands
Resource Management	Balanced resource protection and use; increase pollution reduction efforts; protect cultural and economic resources; coordinate research	No additional action; monitor corridor activities	Stress resource protection and pollution reduction; extensive research efforts	Promote greater use of corridor resources with protection under existing laws and regulations
Visitor Use	Provide broad range of activities in appropriate areas	Continue existing types of use with no coordinated management	Emphasize passive visitor use activities	Emphasize active recreation use
Park Service Development/ Cooperative Interpretive Facilities	NPS interp./admin. facility in St. Paul and cooperative interpretive center in Minneapolis; coop. contact stations near north and south ends of corridor	No NPS facilities	Similar to proposal but more extensive NPS interpretive and recreational facilities	No NPS facilities; extensive local recreation facilities
Management Concept	Extensive partnerships	Existing programs; may lead to MNRRA deauthorization	Stronger NPS role in corridor management	Minimal NPS role in corridor management
Land Use Management/ Monitoring Option	NPS develops agreements with Metropolitan Council to review local plans and DNR to review local actions for conformance to MNRRA plan	No additional monitoring	NPS/Local partnership to monitor plans and actions for plan	Metropolitan Council provides all local land use monitoring services for plan

CONTENTS

Purpose of and Need for the Plan 1

Project History 1
Issues Addressed in this Plan 3
Purpose and Visions for the Area 10

Alternatives Including the Proposed Action 15

Proposed Plan 17
- Land and Water Use 18
  - Planning Assumptions 18
  - General Land and Water Resource Protection Concept 19
  - Land Use and Protection Policies 20
  - Open Space and Trails 30
  - Commercial Navigation 34
  - Management Zoning 38
- Resources Management 39
  - Natural Resource Management 39
  - Cultural Resources Management 42
  - Economic Resource Management 47
  - Recreation Research Needs 48
- Visitor Use and Interpretation 49
  - Visitor Activities and Recreational Resources 49
  - Visitor Use Management 50
  - Interpretation, Education, and Visitor Services 52
- General Development 61
  - National Park Service Facilities in the Corridor 62
  - Other Facilities in the Corridor 73
- National Park Service Operations 74
  - National Park Service Staffing Needs 74
  - Maintenance 74
  - Cooperating Association 74
- Plan Implementation 75
  - General Concept for Implementation 75
  - Partner Roles 76
  - Coordination and Consistency 79
  - Compatibility With Other Plans and Programs 83
  - Water Quality 84
  - Costs and Priorities (Financial Plan) 85

Alternative A (No Action) 88
- General Concept 88
- Land and water use 88
  - Land Resource Protection Concept 88
  - Land Use and Protection Policies 88
  - Open Space and Trails 88

Commercial Navigation 89
Management Zoning 89
Resource Management 89
Natural Resource Management 89
Cultural Resource Management 90
Economic Resource Management 90
Visitor Use and Interpretation 90
General Development 90
Park Operations 93
Plan Implementation 93
Costs and Priorities 93
Funding 93

Alternative B 94
General Concept 94
Land and Water Use 94
Land Resource Protection Concept 94
Land Use Protection Policies 94
Open Space and Trails 95
Commercial Navigation 96
Management Zoning 96
Resource Management 96
Natural Resource Management 96
Cultural Resource Management 97
Economic Resource Management 97
Visitor Use and Interpretation 97
Visitor Activities and Recreational Resources 97
Visitor Use Management 98
Interpretation, Education, and Visitor Service 98
General Development 99
National Park Service Operations 99
Plan Implementation 99
Partner Roles 99
Coordination and Consistency 99
Costs and Priorities 100

Alternative C 101
General Concept 101
Land and Water Use 101
Land Resource Protection Concept 101
Land Use and Protection Policies 101
Open Space and Trails 102
Commercial Navigation 102
Management Zoning 103
Resources Management 103
Natural Resource Management 103
Cultural Resource Management 103
Recreation Research Needs 104

Visitor Use and Interpretation 104
Visitor Activities and Recreation 104
Visitor Use Management 105
Interpretation, Education, and Visitor Services 105
General Development 105
National Park Service Operations 105
Plan Implementation 106
Partner Roles 106
Coordination and Consistency 106
Permitting and Regulatory Authorities 106
Costs and Priorities 106

Affected Environment 109

Natural Resources 111
Geology and Physiography 111
Mineral Resources 112
Soils 113
Vegetation 113
Fish and Wildlife 114
Threatened and Endangered Species 116
Water Resources 120
Wetlands 122
Climate 122
Air Quality 123
Noise Pollution 123
Cultural Resources 123
Mississippi River Overview 123
Site-Specific Information 128
Existing Visitor Use/Interpretive Programs 131
Recreation Use Patterns and Facilities 131
Outdoor Recreation in Minnesota, the Twin Cities Area, and the Mississippi National River and Recreation Area 131
Future Demand For Recreation 133
Interpretive Facilities/Programs 133
Socioeconomic Resources 134
Commercial Navigation 137
Socioeconomic Conditions 138
Visual Resources/Land Use 143
Visual Character Analysis 143
Existing Land Use and Zoning 152

Environmental Consequences 155

Environmental Consequences 157
Impacts of the Proposed Plan 159
Impacts to Natural Resources 159
Impacts to Cultural Resources 162
Impacts to Visitor Use 163

Impacts to Economic Environment 164
Cumulative Effects 167
Impacts of Alternative A (No Action) 168
Impacts to Natural Resources 168
Impacts to Cultural Resources 170
Impacts to Visitor Use 170
Impacts to the Economic Environment 170
Cumulative Effects 171
Impacts of Alternative B 171
Impacts to Natural Resources 171
Impacts to Cultural Resources 173
Impacts to Visitor Use 173
Impacts to the Economic Environment 174
Cumulative Effects 175
Impacts of Alternative C 175
Impacts to Natural Resources 175
Impacts to Cultural Resources 176
Impacts to Visitor Use 177
Impacts to the Economic Environment 177
Cumulative Effects 178

Consultation and Coordination 179

Public Involvement in the Planning Process 179
Legal Compliance Status 180
National Environmental Policy Act 180
Section 7 of the Endangered Species Act 180
E.O. 11988 Floodplains and E.O. 11990 Wetlands Compliance 180
Section 106 of the National Historic Preservation Act 181

List of Agencies and Organizations to Whom Copies of the DEIS Will Be Sent 183

Appendixes, Selected References, Glossary, Index 189

A: Legislation 191
B: Geographic Information System 200
C: Sample Design Guidelines 203
D: Workgroups 212
F: National Park Service Staffing Needs 216
G: Headquarters Space Needs 220
H: Previous Efforts to Address Regulatory Issues 221
I: Additional Socioeconomic Data 222
J: Permitting and Regulatory Authorities 224
K: Interpretive Concept for Harriet Island Center 227

Glossary of Terms 235
Selected References 241
Index 243

TABLES

Comparison of Existing State Regulations with Proposed MNRRA Plan 27
MNRRA Interpretive Facilities 65
Alternatives Comparison by Major Plan Element 107
Threatened or Endangered Species 119
Population and Growth Rates of State, Twin Cities, and Counties, 1980-2010 139
Population by Racial Categories, 1990 140
Median Household Income 141
Land Use in the Corridor 152
Zoning in the Corridor 153
Land Use/Zoning Analysis 153
MNRRA Acreage Figures According to County 154
Summary of Environmental Consequences: Proposed Plan and Other Alternatives 158

MAPS

Region 5
Corridor Boundary 7
Development Areas Cross Section 21
Open Space Opportunities 31
Barge Facilities 35
Sensitive Natural Areas 43
Cultural Resources 45
Interpretive and Educational Facilities 63
Harriet Island Development Concept Plan 71
Existing Parks and Trails 91
~~Undeveloped Land Zoned for Urban Uses 145~~
Visual Resources Analysis 147
Undeveloped Land Zoned for Future Development ~~149~~ 145
Land Use, Geographic Information Systems 203

ZONING 149

PURPOSE OF AND NEED FOR THE PLAN

The purpose of this document is to present a proposed comprehensive management plan (CMP) for the Mississippi National River and Recreation Area (MNRRA), alternatives to the proposal, and an analysis of the environmental consequences of the proposal and alternatives. The final plan will provide guidance on managing the corridor for the next 10-15 years. The draft comprehensive management plan with accompanying draft environmental impact statement (EIS) is intended to inform members of the public and the secretary of the interior of the potential impacts of implementation of the proposal or any of the alternatives. Following public review of the document, comments will be addressed, needed revisions and additions will be made, and the Mississippi River Coordinating Commission and the National Park Service will submit the plan to the secretary of the interior and governor of Minnesota for review. A final environmental impact statement will be issued by the National Park Service after public review of the draft environmental impact statement and the governor's review. The secretary will be asked to clear the final plan and final EIS for publication prior to approving the plan. The final EIS will be released to the public for 30 days before the secretary formally approves the plan and a record of that decision is issued. The final decision on whether to approve the comprehensive plan will be made by the secretary based on the governor's recommendations on the draft plan, consideration of the adequacy of public participation throughout the project, and other factors specified in the MNRRA act.

PROJECT HISTORY

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

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

Congress directed the commission as a coordinator and advisory organization to assist the secretary, the state of Minnesota, and local units of government, to develop policies and programs for:

(1) the preservation and enhancement of the environmental values of the area
(2) enhanced public outdoor recreation opportunities in the area

[1]Throughout this document the terms "preserve" or "protect" should generally be interpreted to mean "preserve, protect, and enhance" when referring to resources.

(3) the conservation and protection of the scenic, historical, cultural, natural, and scientific values of the area
(4) the commercial use of the area and its related natural resources, consistent with the protection of the values for which the area was established as the Mississippi National River and Recreation Area.

The final management plan is scheduled for completion in early 1994. The Park Service and the commission would then coordinate with others to prepare more detailed strategies and work to implement the plan for the corridor. This would include a broad spectrum of partners, including state and regional agencies, local governments, and the private sector.

As the Mississippi River flows through the Twin Cities metropolitan area, it changes dramatically in character from natural areas to intense industrial use and back again. Travelers on the river see woodlands, parklands, factories, barges, residences, farms, historic buildings, bridges, wildlife habitat, and the skylines of two large cities. The extensive amount of natural vegetated shoreline is unusual for an urban area. The historic resources are also very impressive considering the dynamic growth and development in the region.

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

The river corridor remains a remarkably natural retreat in the midst of a major metropolitan area, due largely to the efforts of committed citizens and local government efforts over the years. One of the first was that of Horace Cleveland, who planned an extensive, linked park system focusing on the river, streams, and lakes. This provided the framework that is still used today to provide open space along the river and to connect the streams and lakes to the river. In recent years the river has benefitted from a growing public recognition of the value of this resource. Open space, recreation, and entertainment improvements are drawing people back to its banks in greater numbers. For about 20 years the state of Minnesota has required special efforts to regulate land use in the corridor and to protect its resources, and in 1988 congress established the Mississippi National River and Recreation Area and directed a joint federal, state, and local program to coordinate efforts to preserve important natural, cultural, and economic values in the corridor and to guide growth and development.

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

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

In 1980, in response to continuing concern about the fate of the river, the Metropolitan River Corridors Study Commission was created by Congress to recommend ways to protect and manage the resource values of the three rivers in the metro area. This study analyzed the management of the Mississippi River and found it lacking in both consistency and coordination. The 1986 study report provided the basis for many of the proposed management policies in this plan. While the study commission found that much work, thought, and expense had already gone into preserving, protecting, and enhancing the river's resources, it also found that a more concerted effort was needed to provide an overall vision for the river and to protect it. As a result of the study commission's efforts and those of many dedicated citizens, Congress created the Mississippi National River and Recreation Area as a unit of the national park system in 1988.

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

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

ISSUES ADDRESSED IN THIS PLAN

A number of issues were identified by the commission, the National Park Service, and the public during the scoping phase for this plan. Details of the scoping process are included in the Consultation and Coordination section. Most of the issues had been recognized for many

years. This list covers only those problems that seem to be most appropriately addressed in a comprehensive plan, based on guidance provided by legislative direction and NPS policy. This is a brief introduction to the issues, which are more thoroughly addressed in the body of the document.

- There is a need for a corridorwide vision for the river – one that all units of local government endorse and actively implement. The final plan should provide that vision, produced through a partnership of government agencies, the public, and the commission.

- There is a need for a consistent and comprehensive management philosophy for the corridor, regardless of the management form finally chosen.

- The legislation clearly establishes the concept of partnership management with additional coordination and using existing state and local programs, but it allows some leeway in implementation. The 1988 legislation also allows flexibility in the role of the National Park Service in managing the corridor. This has been a major issue during the planning process. While there is general agreement that the Mississippi National River and Recreation Area is not a traditional unit of the national park system, there could be a stronger federal presence or management could rely more on existing authorities, state agencies, and local governments.

- As use of the river and adjacent lands in the corridor grows, there is increasing potential for conflicts between uses.

- Barge transportation and fleeting is a well-established traditional use recognized in the MNRRA legislation, the activities provide a major contribution to the metro area economy, and adequate fleeting space is vital to the commercial navigation industry. Some people have contended that the level of barge fleeting is excessive, and that fleeting activities cause environmental impacts. Others contend that fleeting is not excessive and that greater environmental damage is caused by recreational watercraft. Barge fleeting has been a major issue identified by the public, and the MNRRA act requires that the plan include a program that provides for the management of barge fleeting consistent with the findings and purposes of the legislation. Maintaining navigation improvements, such as the 9-foot channel, is also recognized in the legislation because it is critical to the commercial navigation industry, but it requires periodic dredging and a need for material placement sites in the corridor.

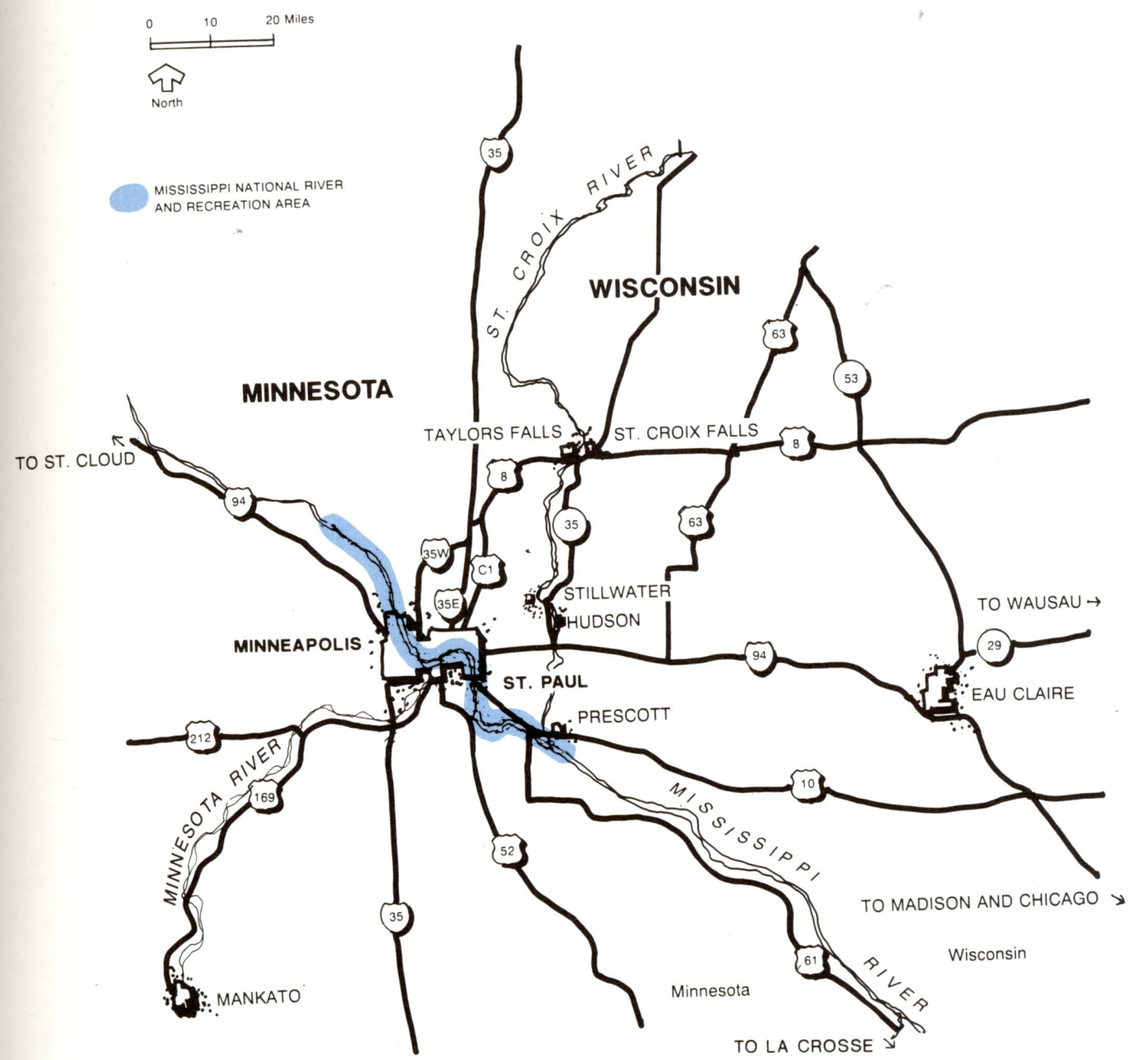
- The corridor includes many outstanding vistas, areas of scenic beauty, and tranquil places in the midst of a great urban area. These scenic and aesthetic resources can be adversely affected by uncontrolled development, incompatible design, high speed roads, and poor land use practices.

- Unrestricted development on the slopes or near the edge of bluffs causes soil erosion and diminishes the quality of the view from the river or opposing overlooks. Residences are often built near the bluff line to take advantage of river views. Bluffs have also traditionally been used for underground storage in the Twin Cities area, which has some unavoidable impacts to the bluff face.

REGION

MISSISSIPPI NATIONAL RIVER & RECREATION AREA

United States Department of the Interior
National Park Service
DSC • MAR 93 • 607 • 20014A



CORRIDOR BOUNDARY

MISSISSIPPI NATIONAL RIVER & RECREATION AREA

United States Department of the Interior
National Park Service
DSC • MAR 93 • 607 • 20006A

RAMSEY
CROW RIVER
RUM RIVER
ANOKA CO
DAYTON
ANOKA
COON RAPIDS
CHAMPLIN
BROOKLYN PARK
FRIDLEY
BROOKLYN CENTER
HENNEPIN CO
RAMSEY CO
MINNEAPOLIS
ST. PAUL
MINNEHAHA CREEK
MISSISSIPPI RIVER
SOUTH ST. PAUL
MENDOTA HEIGHTS
WASHINGTON CO
NEWPORT
MINNESOTA
WISCONSIN
INVER GROVE HEIGHTS
ST. PAUL PARK
COTTAGE GROVE
ST. CROIX RIVER
MINNESOTA RIVER
DAKOTA CO
ROSEMOUNT
HASTINGS
MISSISSIPPI RIVER

• Degradation of the natural shoreline appearance can be caused by unregulated development, erosion, adjacent roads, and other land use activities. However, some development along the shoreline in urban waterfront areas is appropriate.

• Indigenous vegetation along the shoreline, in wetlands, and along the bluffs is important to the visual character of the corridor and support of natural systems. Unrestricted development can strip vegetation if established regulations and guidelines are not followed.

• Preserving cultural resources, including historic and ethnographic resources and prehistoric sites, is supported by many agencies and groups; however, new development or disuse has caused the loss of many important resources. The potential impacts of land use policies on historic resources is a concern of the historic preservation community.

• Significant improvements have been made in wastewater treatment in the Twin Cities area. However, water quality is still a major concern. Issues range from toxic wastes to sedimentation. Fish are contaminated with heavy metals, contact recreation is not advised, and nonpoint source pollution is a chronic problem, especially in the lower part of the river corridor. The primary nonpoint source pollution input is from agricultural runoff outside the corridor into the Minnesota River, which enters the Mississippi at Fort Snelling State Park about five miles upstream from downtown St. Paul. The Minnesota Pollution Control Agency is attempting to address the nonpoint problems on the Minnesota River, but it is a very complex issue that will take extensive time and funds to correct.

• Direct loss of habitat has occurred because of competing interests and uses such as recreation and commercial development. Direct and indirect loss of wetlands has been due to ground water depletion and water diversion from wet areas.

• Considerable public land already exists, but the amount and distribution of open space needed to protect the river's resources and to provide for the corridor's many uses continues to be a major issue. As water quality improves, recreational facilities and open space along the river will increase in importance. There is also a question regarding who should manage additional open space in the corridor. Local park plans contain proposals to acquire additional lands along the river. The National Park Service currently administers about 43 acres of federal land on several small islands and one upland parcel that are scattered throughout the MNRRA corridor. However, there are no current efforts to actively manage these areas. The amount of additional NPS-managed land in the corridor, if any, is a major issue to be resolved in this plan.

• The MNRRA legislation listed the importance of economic resources along with other more traditionally cited national park system resources, and the plan must "recognize existing economic activities in the area and provide for their management." "Nationally significant economic resources" are not defined in the legislation. The act charges the commission with developing "policies and programs for the commercial utilization of the corridor consistent with the values for which the area was established." New development competes with existing activities for scarce land and access to the river, and it may adversely affect the preservation of existing economic resources in the corridor. The amount of new economic development in the corridor,

types of uses, and locations for new commercial and industrial activities are issues to be addressed in the plan. New development needs must be weighed along with natural, cultural, and economic resource protection needs. The challenge is to find a way to define and achieve balance among natural, cultural, and economic resource preservation, visitor use needs, and new development activities in the corridor.

- The impact of proposed land and water use policies and open space acquisition on economic activities in the corridor is a major concern of some communities and members of the metro area business community.

- The interpretive program emphasis, the need for additional facilities, coordination of interpretation and visitor services, gaps in existing interpretive and environmental education programs, and the most appropriate service providers must be determined for the area.

All significant corridorwide issues raised by the public that were within the scope of the MNRRA legislation are addressed in this plan. One issue raised periodically during the course of this planning process but not addressed in the plan is the concern that this project is the first step by the National Park Service to gain control of the entire Mississippi River from Lake Itasca to the Gulf of Mexico. There is a separate study currently being undertaken by an independent congressionally established commission, the Mississippi River Study Commission, to determine the feasibility of designating the entire river as a national heritage corridor. The National Park Service is providing some staff assistance to that commission, but it does not control the results of the study. A national heritage corridor, if so recommended by that commission, would have to be established by Congress. National heritage corridors are not units of the national park system.

An alternative for a more traditional national park also was identified early in project scoping. It would include broad NPS land ownership in the corridor, extensive land restoration, and a dominant NPS presence in corridor management. This alternative is not analyzed in this document because it would be outside the legislative intent for MNRRA and is not feasible given the existing ownership and development pattern in the Twin Cities area.

The MNRRA plan also does not address site-specific issues on non-NPS land in the corridor. This is a comprehensive management plan providing a long-range vision for the area, broad concepts and a framework for coordination, and corridorwide policies and programs that would provide guidance on solving future site-specific issues. It is beyond the scope of the plan and would be in conflict with the cooperative spirit of the legislation to attempt to resolve all current site-specific land use conflicts in the corridor.

PURPOSE AND VISIONS FOR THE AREA

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

the planning process to reflect public input and the evolving direction provided by the commission. They are listed in the order that resources are listed in the act.

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

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

Visions: (in the future we would see that . . .)

The public has opportunities to learn about historic, ethnographic, and archeological resources in the corridor through interpretive and educational programs.

The significant historic, ethnographic, and archeological resources of the corridor are preserved and protected.

Archeological, ethnographic, and historic preservation, enhancement, and interpretation reflect the diversity of the people who have lived in the river corridor.

The MNRRA corridor is an exemplary role model for historic preservation and adaptive use of historic structures.

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

All developments and programs are sensitive to the physical limitations of historic and archeological resources.

Purpose: enhance opportunities for public outdoor recreation, education, and scenic enjoyment.

Visions:

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

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

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

Public use areas are easily accessible and safe.

Residents and visitors are able to traverse the entire length of the corridor by foot and bicycle.

Public access is provided to a range of natural and cultural resources in ways that do not damage resources or violate the rights of private landowners.

Recreational and educational opportunities provided in the corridor reflect the cultural and ethnic diversity and varying physical and financial abilities of residents and visitors.

Special features are identified, developed, and promoted as tourist destinations consistent with the protection of cultural, natural, and economic resources.

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

Purpose: preserve, enhance, and interpret natural resources.

Visions:

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

Significant natural resources in the corridor are preserved and enhanced.

All developments and programs are sensitive to the limitations of natural resources.

Significant natural resources that have been adversely impacted in the past are restored.

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

The river through the MNRRA corridor has water quality that meets state and federal fishing and swimming standards.

Air quality in the corridor meets state and federal standards.

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

Purpose: provide for continued economic activity and development.

Visions:

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

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

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

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

Economic development activities that take advantage of the corridor's attributes are encouraged in a manner that does not degrade the natural or cultural resources.

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

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

Purpose: improve the public's understanding of the river and promote public stewardship of its resources.

Visions:

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

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

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

The public has an understanding and appreciation of the multiple uses and purposes of the river.

Opportunities are provided to learn about and experience corridor resources.

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

Visions:

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

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

The MNRRA corridor has an identity that connects it to the greater cultural, economic, political, and natural systems of the area.

The Mississippi is recognized as one of the world's largest river systems, as a significant historic and modern transportation corridor, and as a place that attracted human settlement.

Opportunities are provided for local residents and visitors to discover the Mississippi River and its stories.

Communities support the MNRRA plan and participate in the coordination of activities.

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



Tour boat on Mississippi River in the Twin Cities

PROPOSED PLAN

This alternative constitutes the proposed comprehensive management plan (CMP) and proposed general management plan for the Mississippi National River and Recreation Area. The proposed plan is the preferred alternative of the commission and the National Park Service (NPS). It is also the "minimum requirements alternative," as defined by NPS planning guidelines, to meet legislative mandates and NPS policy to effectively manage the corridor. The following sections cover land and water use, resource management (including natural, cultural, and economic resources), visitor use and interpretation, general development needs, park operations, and plan implementation strategies.

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

This is a conceptual, policy and program-level plan concentrating on corridorwide concerns. Except for proposed NPS facilities, it does not address site-specific issues. Alternatives to the proposed plan are described in the sections that follow the proposal. The alternatives analyzed in this document provide a range of possible plans within the scope of the MNRRA legislation.

GENERAL CONCEPT

After a great deal of study and consultation and after receiving and considering comments from a wide range of individuals and groups, the commission and National Park Service study team developed a draft plan that provides a framework to coordinate natural, cultural, and economic resource protection, visitor use, and development activities. It would minimize adverse effects on the river corridor and conflicts between users while providing for a broad spectrum of land and water uses and managed growth. The most significant visual resources would be protected and restored where practical, including historic structures and landscapes, shorelines, wetlands, steep slopes, and other sensitive resources. The river corridor would have continuous public and private open space along the shoreline area to the maximum extent practical and it would be connected to the downtowns and neighborhoods by open space and trails. Local governments would update their land use plans for the corridor to conform with this plan. Additional open space and trails would be acquired and developed by local governments. The National Park Service would develop a major interpretive center and headquarters in St. Paul, and cooperate on establishing a major interpretive center in Minneapolis and smaller interpretive stations in Hastings and at the Coon Rapids dam.

While it is important for communities to show strong support for the MNRRA plan and provide consistency in river corridor management, it is recognized that individual communities must retain flexibility to address unique issues and special situations. Policies proposed in this plan must be implemented in a practical manner considering the specific issues in particular cases. Practicality and feasibility would be part of all the policies and actions that follow. This should not, however, diminish the overall commitment to

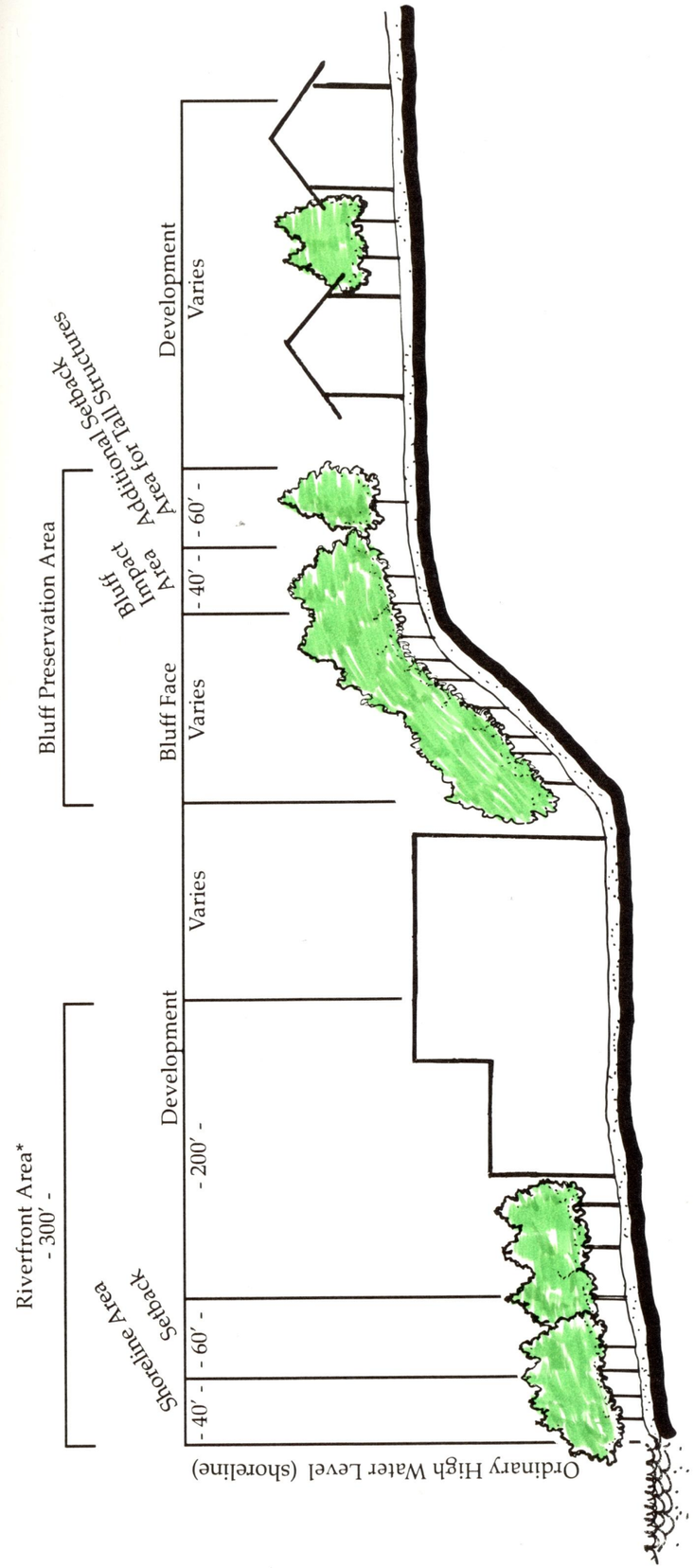
community land use regulations. It is also understood that much of the corridor is developed and cannot and should not be restored to a natural state. This plan recognizes existing development and concentrates on managing new uses and, where practical, increasing the amount of vegetation along the riverbank in existing developed areas. Nothing in this plan would deprive corridor landowners of all use and enjoyment of their land. Local governments would continue to have primary land use planning and control responsibilities. Metropolitan Council staff would provide assistance to local governments on plan development and revision to achieve conformance with this plan. Similarly, DNR staff would provide technical advice and assistance to local governments in revising and administering zoning controls to conform to this plan.

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

Land Use and Protection Policies

General Policy. Decisions about land use and development in the corridor would be based on area resource characteristics implemented through local plans. Land use location decisions for development proposals would be based on a balance between resource protection, visitor use, and development needs in the corridor. Resource protection (including existing natural, cultural, and economic resources) would be the primary determining factor in case of a conflict. Currently undeveloped land areas in the corridor would continue to appear open from the river and its shoreline areas (as observed from the opposite bank), although there could be intensive development away from the shoreline. New developments would in most cases be clustered near similar developments in the most appropriate places in the corridor and would be consistent with local plans. Wherever practical, degraded shorelines would be restored to a more natural appearance. The river corridor is characterized by a mosaic of urban development and natural areas. To ensure preservation of this unusual landscape, several of the policies below concentrate on protection of bluffs and riverfront areas (see section sketch).

Riverfront improvement is strongly encouraged by this plan. New uses should be located to improve the appearance of existing and expanded uses where practical. This plan does not exceed existing local requirements that prevent structures subject to setbacks from being rebuilt if damaged by fire or natural disaster. The plan encourages wise use of floodplain lands, including relocation of structures that are damaged by flood; however, it does not go beyond existing federal, state, and local policies for enforcing floodplain management standards on private lands. Unlike many floodplain management programs where the long-term goal is to remove structures from the 100-year floodplain, this plan is to preserve existing conditions. Structures that do not meet setback and height standards in this plan could be rebuilt on the same footprint if destroyed by fire or natural disaster unless



SECTION: DEVELOPMENT AREAS

*Area subject to locational policies 1-4

prohibited by federal, state, or local policies.

New land use and development in the riverfront area (the first 300 feet back from the river) would include those activities relating to or requiring a location next to the river, activities preserving historic structures located along the river, or activities enhancing the riverfront. A variety of high-quality, river-related, sustainable, and nonpolluting uses could exist near the river. These would include recreational, educational, residential, commercial, and industrial uses. Sensitive areas (including shorelines, floodplains, wetlands, endangered species habitat, steep slopes, bluff lines, and significant historic and archeological sites) would be buffered from other land uses. A narrow natural area along the shoreline would be protected, and cultural resources would be preserved. The shoreline area adjacent to the downtown sections would be more structured, including public plazas and more formal landscape designs consistent with an urban setting. Shoreline treatments in historic districts would preserve cultural resources and enhance their interpretation. Existing riverfront improvement programs would be continued. The riverfront areas would be more accessible from the downtown areas of the Twin Cities and would be more heavily used with the addition of recreational and retail uses such as restaurants, cultural facilities, and special events. People would be able to safely walk along the river, and views of the river would be available from areas away from the shoreline.

The approach to land resource protection in the corridor envisions several levels of management:

(1) The most significant scenic, cultural, or natural resources, including scenic and trail easements, would be acquired by local governments.

(2) Location criteria for the placement of new land uses would be developed with the intent of protecting the most significant resources and would be incorporated into local zoning ordinances.

(3) Resource protection and site development policies would result in increased protection of wetlands, floodplains, wildlife habitat, historic districts, etc. The requirements could be incorporated into existing local zoning ordinances and plans.

(4) Design guidelines would be administered at the local level. A sample set of design guidelines is provided in appendix C. The Metropolitan Council and the Minnesota Department of Natural Resources would work with communities to further develop these guidelines and apply them to specific areas.

(5) Public education about the value of corridor resources and the importance of their protection would result in better care of the river and its shoreline.

Detailed Policies. Following are detailed land use policies that would be implemented if this draft plan is approved. The location policies discussed below are intended for new development in the corridor, while site development policies are intended for both new development and substantial expansion or redevelopment. Several policies are intended to preserve the most significant visual resources, such as the shoreline area, bluffs, and historic districts. Most existing residential, commercial, and industrial development in the corridor would not be significantly changed by this plan. The plan would also allow businesses and industries in the corridor to expand existing facilities if the expansion is consistent with

resource protection and site development policies. New development would occur in accordance with building setbacks and landscaping guidelines and would include trail easements and other site stipulations identified by local governments.

Communities in the corridor would incorporate the policies articulated below when updating their plans. As long as the plan's visions are achieved and resources identified in the act are protected, communities could tailor policies to the specific resources in their section of the river. State legislation would be sought to require community plans to be updated to conform to this plan. The Park Service, Metropolitan Council, and Department of Natural Resources would work with communities to apply the policies below until community plans are certified as in conformance with this plan. Most of the policies listed below were taken from one or more of the local critical area plans. Local zoning ordinances would be updated as needed to comply with the plan. There would be a standard variance procedure included in local ordinances.

Location Policies

(1) Give special emphasis to the relatively narrow zone of land along the river. This is because of its proximity to the river, its concentration of significant natural, cultural, and economic resources, its greater recreation use potential, and the potential for serious adverse effects if it is not properly managed. This area is consistent with the state-regulated shoreland area along rivers in Minnesota. All new development in the riverfront area (defined as the first 300 feet back from the river's ordinary high-water level (see section sketch) should have a relationship to the river, a need for a river location, or the capability to enhance the river environment. This policy would protect many values referenced in the MNRRA act, including existing economic resources. Uses that would replace inconsistent activities and enhance resources identified in the act are encouraged in the corridor. Uses are encouraged that demonstrate that they would enhance the riverfront area through excellence in design, extensive resource protection measures, landscaping that exceeds standard requirements, preservation and restoration of a natural shoreline appearance, and providing physical and visual access to the river from adjacent areas and continuous public access along the shoreline. Areas behind existing levees would be an exception to this 300-foot riverfront use policy because they are normally physically and aesthetically cut off from the river and usually already heavily committed to industrial uses. This exception would not apply to additional areas that are afforded flood protection behind new levees, and the proposed riverfront policy would be in affect. Following are examples of the types of uses that would be acceptable along the riverfront:

- recreational activities and facilities that are based on water and related land use and that capitalize on an attractive river setting

- industry that requires the river for its function, such as those with commercial navigation or water appropriation needs

- housing that preserves the natural shoreline appearance and provides river access to residents and the public

- office buildings that blend with the surrounding environment, preserve the natural shoreline appearance, and provide pedestrian access along the river for office employees and the public

- open space for passive recreation or for the preservation of natural resources

- retail, entertainment, and commercial uses that provide public access along the river and complement the riverfront area by enhancing visitor enjoyment, understanding, and stewardship of the river and its history

- public facilities, treatment plants, or utilities that require or would benefit from the river location

- educational facilities related to the river

- preservation, historic resource interpretation, and adaptive reuse of significant historic structures

- commercial navigation improvements and river transportation facilities

- low speed scenic or parkway roads with extensive landscape development

Activities that do not relate to the river, that do not need a river location, that do not contribute to the riverfront environment, or that would have detrimental effects on corridor resources should be located outside the riverfront area. These activities could be located in the corridor, but should be outside the 300-foot riverfront area subject to local zoning. Existing uses that do not relate to the river, do not need to be located near the river, or do not enhance the riverfront would be encouraged to relocate outside the 300-foot riverfront area; however, wholesale redevelopment of the riverfront area is not envisioned. The following uses are examples of the types of activities that would normally be discouraged from locating in the riverfront area:

- general industry and warehousing that do not need access to the river

- general commercial and services

- parking lots not related to the primary land use

- outdoor storage uses

- high speed parallel arterial roads or highways

- utilities not requiring a river location

- parallel aboveground utility lines

These uses would be excepted from this policy if it can be demonstrated that they would (1) have no adverse affects on the river corridor, (2) enhance resources identified in the act, and (3) generally improve land use in the riverfront area through excellence in design, extensive resource protection, landscaping that exceeds standard requirements, a program of natural shoreline preservation and restoration, a commitment to provide physical and visual access from adjacent areas, and a continuous public trail along the river in the shoreline setback area.

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

(3) Convert inconsistent riverfront land uses to consistent ones if owners move away. If the land meets criteria for open space acquisition, encourage owners to leave the space open; otherwise, appropriate private redevelopment should occur. Nothing in this plan would prevent owners of inconsistent land uses from selling or leasing their property for the same or similar land uses if consistent with local plans or ordinances.

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

(5) Emphasize residential and open space land uses in the upper river corridor (above the I-694 bridge at Fridley).

(6) Encourage a greater variety of land use activities with additional open space in the lower river corridor (below the I-494 bridge at the city of South St. Paul).

(7) Continue a wide variety of land uses in the middle portion of the corridor (between I-694 and I-494). Encourage high quality and sustainable open space, public plazas, historic landscapes, interpretive facilities, and residential, commercial, and industrial development in the corridor subject to location policies and local land use plan objectives.

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

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

Site Development Policies

(1) Provide uninterrupted vegetated shorelines where practical along the Mississippi and its tributary streams and ravines to preserve a natural look from the river and the opposite shore, to facilitate wildlife movement along the river, and to provide connections to adjacent natural areas.

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

• Preserve a narrow zone along the shoreline with an undisturbed area 40 feet back from the river (ordinary high water mark), or restore natural vegetation where practical along the shoreline (except where necessary for water access or maintenance and construction of levees). When expanding existing uses located in this area, locate expansions as far back from the shoreline as practical and consistent with existing uses.

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

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

• Preserve the bluff impact area, which would be an area 40 feet back from the bluff line, in a natural state or restore natural vegetation in order to screen development.

• Provide additional setbacks in an additional 60-foot area (for structures over 25 feet tall), for a total bluff preservation area of 100 feet from the bluff line.

• Reduce visual impacts and protect views of the river and from the river and its shoreline areas by establishing maximum building heights for the bluff line and riverfront preservation areas:

- within 100 feet of the bluff line - 25 feet
- within 200 feet of river - 25 feet
- within 300 feet of river - 40 feet
- beyond the areas above - no restrictions except those in existing local zoning codes

Table 1 compares existing state requirements to protect sensitive resources and manage land uses to those proposed in this plan, which were developed to achieve the purposes identified in the MNRRA act.

TABLE 1: COMPARISON OF EXISTING STATE REGULATIONS WITH PROPOSED MNRRA PLAN

	Existing Plans & Regulations	Proposed Plan
Riverfront location criteria	Critical area - N/A DNR Shoreland Rules - 300 feet	300-foot setback from shore for nonriver-related or enhancing uses
Setback from shoreline	Up to 200 feet rural[2] 50 feet - 100 feet urban[2,3]	100 feet
Setback from bluff line	40 feet[2] 30 feet[3]	40 feet (100 feet for structures over 25 feet high)
Building heights in riverfront area	25 feet Residential[3] 35 feet Residential[2] 4 stories - Rural commercial[2]	25 feet high for structures 100-200 feet from river 40 feet high for structures 200-300 feet from river
Bluff face restrictions	Generally limited or no construction on 12% to 18% slope[2]	No disturbance on slopes over 12%

(3) Minimize the cumulative impacts to natural, cultural, and economic resources that result from many individual land development projects being implemented over time. Techniques

[2] Critical Area Program

[3] DNR Shoreland Rules

would be developed to measure cumulative impacts and respond to significant undesirable effects.

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

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

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

(6) Encourage shoreline area preservation and restoration.

- preserve native vegetation or encourage revegetation
- use native and other compatible floodplain vegetation in redevelopment projects
- develop a cooperative program for revegetating existing denuded areas along the shoreline
- use extensive native vegetation, including native trees and shrubs, in the more formal landscape treatments appropriate in the downtown areas
- use a comprehensive metropolitan area riverbank cleanup program
- develop and improve design guidelines for shoreline areas
- use native or natural-looking materials to stop bank erosion to the maximum extent possible; provide technical assistance on desired bank stabilization techniques

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

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

(9) Remove vacant, nonhistoric structures that are not needed for consistent uses in the riverfront area.

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

(11) Increase the capacity of existing bridges in preference to constructing additional bridges, except where new bridges are included in approved metropolitan area plans. Develop parallel architecturally compatible bridges next to existing bridges to increase capacity instead of new, separate bridge crossings in the same traffic corridor.

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

(13) Work to increase and restore wildlife habitat in development projects. To ensure that there is adequate nesting habitat for peregrine falcons, development should be adequately set back in areas near cliffs that are considered potential nesting sites.

(14) Maintain the ability to view the river from existing open space and developed uses by not significantly obstructing views with proposed development.

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

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

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

Variance Policy

Variance procedures for local government ordinances adopted to implement policies in this plan would be established by communities in consultation with the Department of Natural Resources. The variance procedures would be in accord with state statutes and would include the following criteria:

- The results of the variance would not circumvent the purpose, visions, and intent of the MNRRA plan or other approved plans and regulations.
- The variance would not adversely affect significant resources in the corridor and the resources of the river valley would still be adequately protected with the variance.
- The property owner would not have reasonable use of the land without the variance.
- The variance request is not based solely on economic considerations.
- The variance request would not have adverse impacts to the surrounding properties.
- There are no reasonable alternatives to the variance request.

Variances would be handled though the established local variance procedure. The results of variance hearings would be reviewed by the Department of Natural Resources.

Open Space and Trails

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

In addition to the public open space in the corridor there is extensive private open space near the shoreline that gives the appearance of a natural corridor when viewed from the river. The actions presented in this plan are intended to balance different land uses and resource protection needs while maintaining the natural appearance of the shoreline.

The Twin Cities metro area has one of the most extensive urban trail systems in the country. It links the river, its tributary streams, and the many lakes in the region. Plans to extend the system the length of the corridor have existed for many years.

With the exception of the northern stretch of the river, it should be possible to provide a continuous trail along or near the river, building on the existing system. Much of the south end of the corridor still lacks continuous trails, but Dakota County and many of the cities on the right-descending side of the river have plans to complete a trail to connect to trails in St. Paul. On the left-descending side of the river there are currently no local government plans to provide a trail along or near the river. The MNRRA plan will be coordinated with the comprehensive regional trail plan that is currently being prepared by the Metropolitan Council.

Open Space and Trails Concept. This concept is based on the visions articulated above that promote a system of linear parks connected by the river and a continuous trail system allowing travel along the entire length of the corridor. The open space concept shown on the Open Space Opportunities map is built on the plans of local governments with additional land recommended to achieve continuity where practical. The recommendations resulted from an analysis of the character of vacant land near the river done in consultation with local governments. The map does not show proposed land acquisition but only potential open space opportunities. The actual amount of open space would probably be considerably less, depending on local initiative and funding limitations. The proposal is to provide up to 50% matching grants to state and local governments to acquire lands shown on the map. This program would be contingent on congressional funding. Initial meetings have been held with local governments to discuss the feasibility of the proposal and more coordination would be necessary to further develop the open space and trails concept. This funding program would complement and be coordinated with other grant programs in the metropolitan area to ensure that available park land acquisition and development funds are used in the most efficient and



OPEN SPACE OPPORTUNITIES FOR PARKS & TRAILS

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effective manner. Key trail connections would be emphasized in the open space program. The National Park Service would work closely with local governments in the corridor to achieve the open space and trail development policies identified in this plan.

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

Public Land Ownership. Most proposed and existing public lands, including associated historic structures, would be acquired or maintained by local units of government or the state. Proposals for additional public land would be developed cooperatively with these units of government, and land would be acquired as funds became available. National Park Service land acquisition would be limited to (1) acquiring land needed for an NPS interpretive facility as identified below, (2) using the authorized condemnation authority though procedures specified in the MNRRA act only when important sensitive areas are severely threatened by irretrievable loss and no other alternative for resource protection is available, or (3) selected parcels that a unit of government donates to the National Park Service if that unit of government and the Park Service, based on the advice of the commission, determine the land would be best owned by the Park Service. The Park Service and the commission would work with other agencies to monitor potential open space opportunities and encourage acquisition of most proposed public lands in the corridor. Local parks would remain in existing ownership. The Park Service would be a minor public land manager in the area, having direct responsibility only for managing a small parcel of land immediately surrounding an NPS interpretive facility. The Park Service would transfer management of its island lands to other public entities with nearby lands.

Proposed Policies & Actions:

(1) Use the following criteria for funding open space acquisition grants. Priority would be given to proposals that meet one or more of the following:

- protects a resource that cannot be protected by other means
- contributes to a continuous vegetated shoreline
- connects existing open space and trails
- provides open space near the river, connects to a site along the shoreline, or provides an overlook to the river

- contains a threatened sensitive resource
- relocates an inconsistent land use
- takes advantage of an abandoned right-of-way
- provides passive open space
- implements the regional open space plan

The unit of government receiving the grant should also be implementing the other elements of the MNRRA plan.

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

(3) When developing parks and open space in natural areas, design the sites to preserve most of the land in a natural state.

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

(5) Require new major private developments and all public facilities to provide appropriate public trails and river access where specified by this plan or other community corridor plans.

(6) Provide pedestrian and bicycle paths to the greatest extent practical, developing separate alignments in heavily used areas to reduce conflicts. Ensure access across all new and rebuilt bridges.

(7) Use abandoned railroad rights-of-way when available and monitor potentially abandoned railroad property for possible trail development or other open space needs.

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

(9) Prevent lands acquired with federal recreation grant assistance from being converted to uses other than public outdoor recreation and open space.

Commercial Navigation

Commercial navigation provides an economical, safe, and energy-efficient form of transportation. It provides the Twin Cities region and upper Midwest with a vital link from the nation's agricultural heartland to domestic and international markets. Barge operations comprise about 1% of the metropolitan area's economy. The terminals in the region are a focal point for shippers that serve a large part of the upper Midwest. River terminals in the Twin Cities region annually handle 15 million-20 million tons of commodities. The river system provides efficient transportation to and from the region, including:

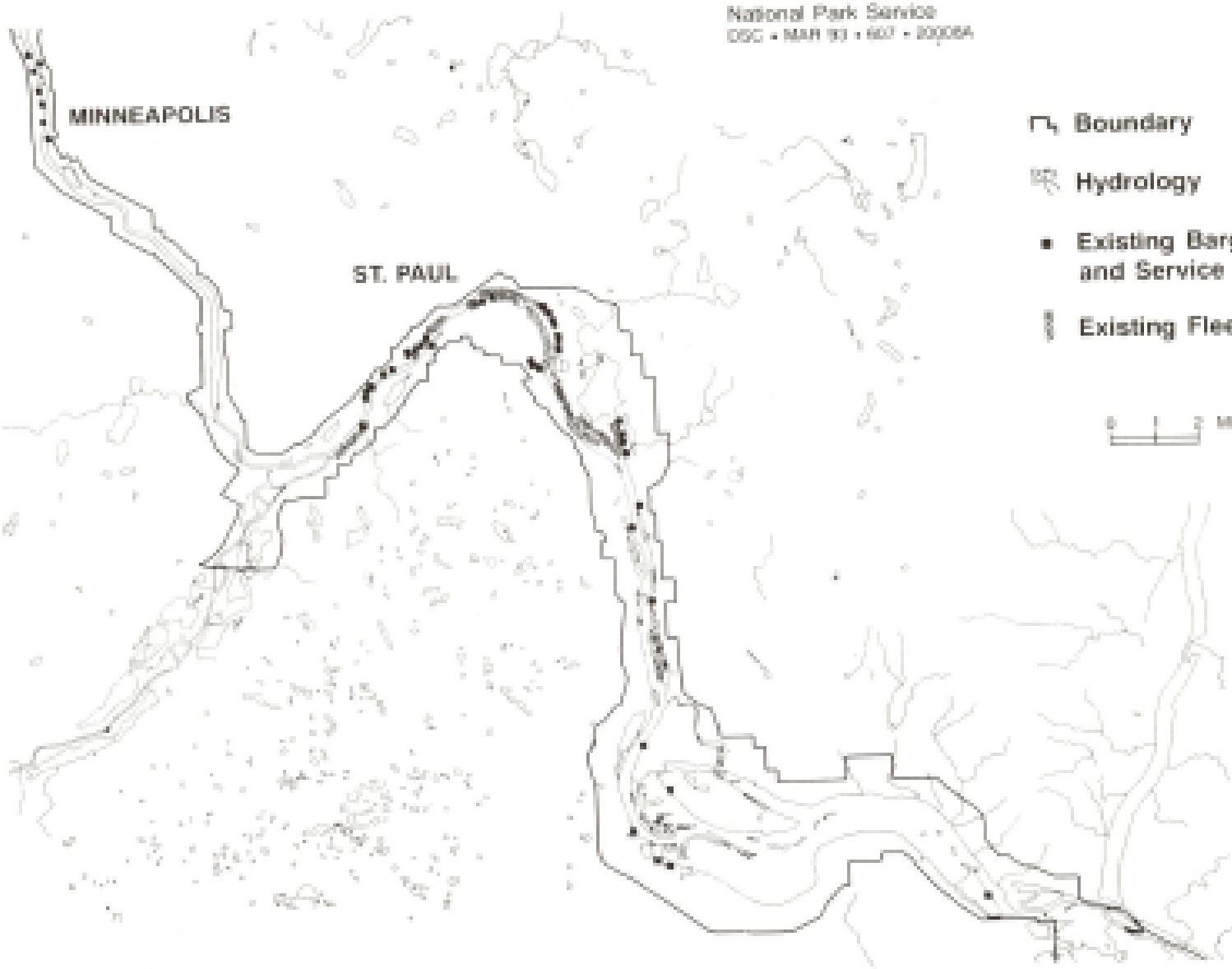
- grain and mill products shipped to processors and export terminals at the mouth of the river near the Gulf of Mexico

- other major long-haul southbound shipments include coal, potassic fertilizer, scrap iron, and petroleum coke

EXISTING BARGE TERMINALS AND FLEETING AREAS

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- inbound shipments of coal, phosphatic fertilizer, salt, petroleum products, chemicals, cement, steel, and pipe

- large local movements of sand and gravel and petroleum products

Major barge transportation system elements include terminals, truck and rail transfer facilities, fleeting areas, local towing, barge cleaning, barge and towboat repair services, line haul towing, the 9-foot navigation channel, the lock and dam system, and other government services and facilities. Existing barge terminals and fleeting areas are shown on the Barge Facilities map.

Barge traffic levels in the year 2010 are projected to be approximately the same as they were in the mid-1980s. According to one study, traffic declined in the early 1980s, but a turnaround was projected and expansion of barge fleeting capacity was predicted for about 1995 (Temple, Barker & Sloan 1987). A more recent study (Fruin 1992) indicated that traffic growth was slower than projected by the 1987 study. Commercial navigation is well-established in the corridor; it is expected to grow, but not dramatically during the life of this plan.

This proposal would achieve visions stressing the need to recognize the Mississippi as a working river, continue barge fleeting areas, and balance the needs of commercial and recreational river traffic. Commercial surface-use activities would be continued. Decisions about activity expansion would be based on a balance between desired area resource characteristics and river system capacity. Decisions about commercial navigation uses would be based on resource values, emphasizing minimal impact on aquatic life. Local governments would continue to designate areas suitable for barge fleeting in their corridor plans that are consistent with this plan. The Corps of Engineers and Minnesota Department of Natural Resources would review these community plans for conformity with the commercial navigation policies in the MNRRA plan. Specific fleeting area proposals would continue to require permit approval by the Corps of Engineers and the Minnesota Department of Natural Resources. The National Park Service would review all specific proposals for conformance with the MNRRA plan. A general review would be done periodically by the Mississippi River Coordinating Commission and the National Park Service to confirm that the cumulative activities are consistent with the findings and purposes of the MNRRA act and that the plan is being implemented. Local governments, the Department of Natural Resources, and the Corps of Engineers would have the lead in implementing the following policies.

Proposed Policies & Actions:

(1) Continue barge fleeting activities while protecting natural, cultural, and other economic resources. Set up monitoring programs to evaluate potential needs and impacts and allow for adjustments to existing fleeting areas or the establishment of new areas if needed to accommodate additional growth. Evaluate management alternatives to expanding existing areas or creating additional commercial fleeting areas.

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

(3) Evaluate the potential for bank erosion caused by towboat wakes before making decisions to locate new (or relocate existing) barge fleeting areas.

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

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

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

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

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

There is a misconception by some people that barge fleeting is not regulated. Local governments have the authority to identify and regulate the locations of permanent barge fleeting areas through community plans and ordinances. All specific proposals for barge fleeting areas are reviewed by the Minnesota Department of Natural Resources under state law and the Corps of Engineers pursuant to Section 10 of the Rivers and Harbors Act of 1899 and coordinated with the U.S. Coast Guard. Barges must not present an impediment to navigation (either commercial or recreational) and must not damage the integrity of the river.

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

Management Zoning

Of the approximately 54,000 acres in the corridor, less than 50 acres would be owned by the National Park Service under the proposal. It is beyond the legislative mandate of this plan to cover all 54,000 acres in the corridor with an NPS management zoning scheme. The Harriet Island site (about five acres) would be classified as a park development zone (see discussion below regarding interpretive facilities). The 10 islands and one small upland parcel currently

administered by the Park Service (totaling about 43 acres) would be managed as natural zones through a cooperative approach.

RESOURCES MANAGEMENT

This section discusses the general strategy for addressing resources management in the Mississippi National River and Recreation Area. Following completion of this comprehensive management plan, the National Park Service would work with other partners having a major interest in resource management in the corridor to prepare a more detailed resources management plan (RMP) for the area. The resources management plan is an implementation plan prepared to detail research needs and proposals for managing resources in the corridor. While the National Park Service usually prepares one combined plan covering all resources in an area, in this case it may be necessary to split the document into smaller, more manageable pieces that would later be combined into a complete resources management plan.

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

Natural Resource Management

Pollution. Pollution, especially water pollution, was identified as an important issue for the corridor during the scoping phase for this document. This plan has a vision that existing air and water quality pollution control standards would be met throughout the corridor, and the river should be swimmable and fishable through the entire 72-mile length. This plan encourages an emphasis on air and water pollution prevention and increased efforts for control and cleanup where necessary to address existing problems as outlined in the policies listed below. Increased monitoring and enforcement would be provided by agencies currently responsible for managing air and water quality in the corridor. Programs would be supported to improve enforcement of point and nonpoint source pollution standards. Pollution prevention and control policies should focus on nonpoint sources because of the relatively greater impact it now has on the river. Active cleanup efforts would also be undertaken to clear away waste and debris along the shoreline. Existing federal, state, and local agencies that are currently responsible for implementing the federal Clean Water Act and the Safe Drinking Water Act and all other entities with an interest in water in the corridor would be asked to implement the policies below that are specific to water quality. The Minnesota Pollution Control Agency (MPCA) would have a lead role in this effort.

Proposed Policies & Actions:

(1) Ensure compliance in meeting existing standards and provide incentives for reducing air and water pollution and exceeding federal and state standards. Efforts would be made to prevent new sources of pollution, improve the fishery in the river, eliminate the need for fish consumption advisories, and protect drinking water supplies.

(2) Reduce runoff through coordinated efforts to update development standards for major new construction and redevelopment projects and by promoting increased stormwater retention in new construction and redevelopment projects.

(3) Develop educational programs to inform private landowners, businesses, and industries about practices that would prevent pollution and help protect the Mississippi River watershed.

(4) Ensure strict enforcement of existing pollution control regulations. Increase cooperative ventures with industry to prevent or minimize pollution at the source through incentives and voluntary standards.

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

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

(7) Seek cleanup of corridor lands that are adversely affecting or may adversely affect the river environment.

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

(9) Reduce the use of salt on area roads by encouraging greater use of sand or other alternatives (consistent with safety needs) and more frequent street sweeping to decrease runoff.

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

(11) Advocate an accelerated conversion to double-hull barges and encourage efforts to reduce the potential for spills from rail cars and tanker trucks carrying hazardous cargo through the MNRRA corridor.

(12) Complete the cleanup of contaminated sites more quickly by encouraging a higher priority rating for corridor state and federal Superfund sites.

(13) Increase efforts to achieve swimmable and fishable water quality standards throughout the corridor.

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

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

(16) Support pollution prevention and control plans for the metropolitan area, including the Metropolitan Council's interim strategy to control nonpoint source pollution.

(17) Ask watershed management organizations to establish ongoing water quality monitoring programs to determine the types, loadings, and sources of pollutants being discharged to the river from each tributary, and develop programs to prevent and control these pollutants as part of their revised plans.

(18) Require all marinas to have dumping stations to help prevent the discharge of human waste into the river.

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

(20) Review federal regional air quality permits to assist in preventing further deterioration of the corridor's air quality from pollution sources inside and outside the MNRRA boundaries.

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

(22) Support existing programs to prevent, better manage, and decrease the volume of toxic wastes and toxic materials existing in the river corridor. Support additional efforts that would prevent the creation of new sources of toxic emissions to the air and water in the corridor.

(23) Work with the Minnesota Pollution Control Agency to identify ways to support and supplement efforts to prevent and control sources of pollution, especially phosphorus, and improve the water quality in the Minnesota River, which is a major source of pollution in the Mississippi.

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

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

Threatened and Endangered Species. In accordance with the Endangered Species Act, endangered and threatened species would continue to be protected in all areas under NPS jurisdiction. The National Park Service has consulted with the U.S. Fish and Wildlife Service and would continue to consult with them on the management of listed species. A coordinated effort would be undertaken to preserve and protect threatened and endangered species in the national river and recreation area corridor. The National Park Service would coordinate with

the U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources to further identify and protect federally and state-listed species and their habitats.

Natural Resource Research Needs. Acquisition of additional natural resource baseline data and incorporation in the GIS database would be the primary focus of natural resource research activities in the Mississippi National River and Recreation Area. A natural resource focus group reported on research needs in the area. Recommended research areas include the status and condition of endangered species, special ecosystems and habitats, ecological information on biological communities, and mineral resources. The focus group report is on file at MNRRA headquarters in St Paul. Specific research needs will be determined in the forthcoming resource management plan.

Cultural Resources Management

The cultural resources of the area consist of evidence of past activities on or near the river. These include burial mounds, campsites, village sites, and ethnographic resources that illustrate the nature of the occupation by Native Americans. The fur trading period, early settlement, and later urbanization, as well as agricultural and industrial activity on or near the river, are included in historic districts, national historic landmarks, national register properties, and locally designated historic sites. Additional properties that have not yet been evaluated lie within the corridor boundaries. The area continues as a dynamic working river with constant change.

The MNRRA boundaries contain more than 60 sites that are either on or eligible for the National Register of Historic Places. The lands currently owned by the Park Service have no national register properties.

All currently listed national register properties or those properties that have been determined eligible by the Minnesota Historic Preservation Office for national register listing have been identified, and their locations have been plotted on the cultural resources map and entered in the geographic information system (GIS) database.

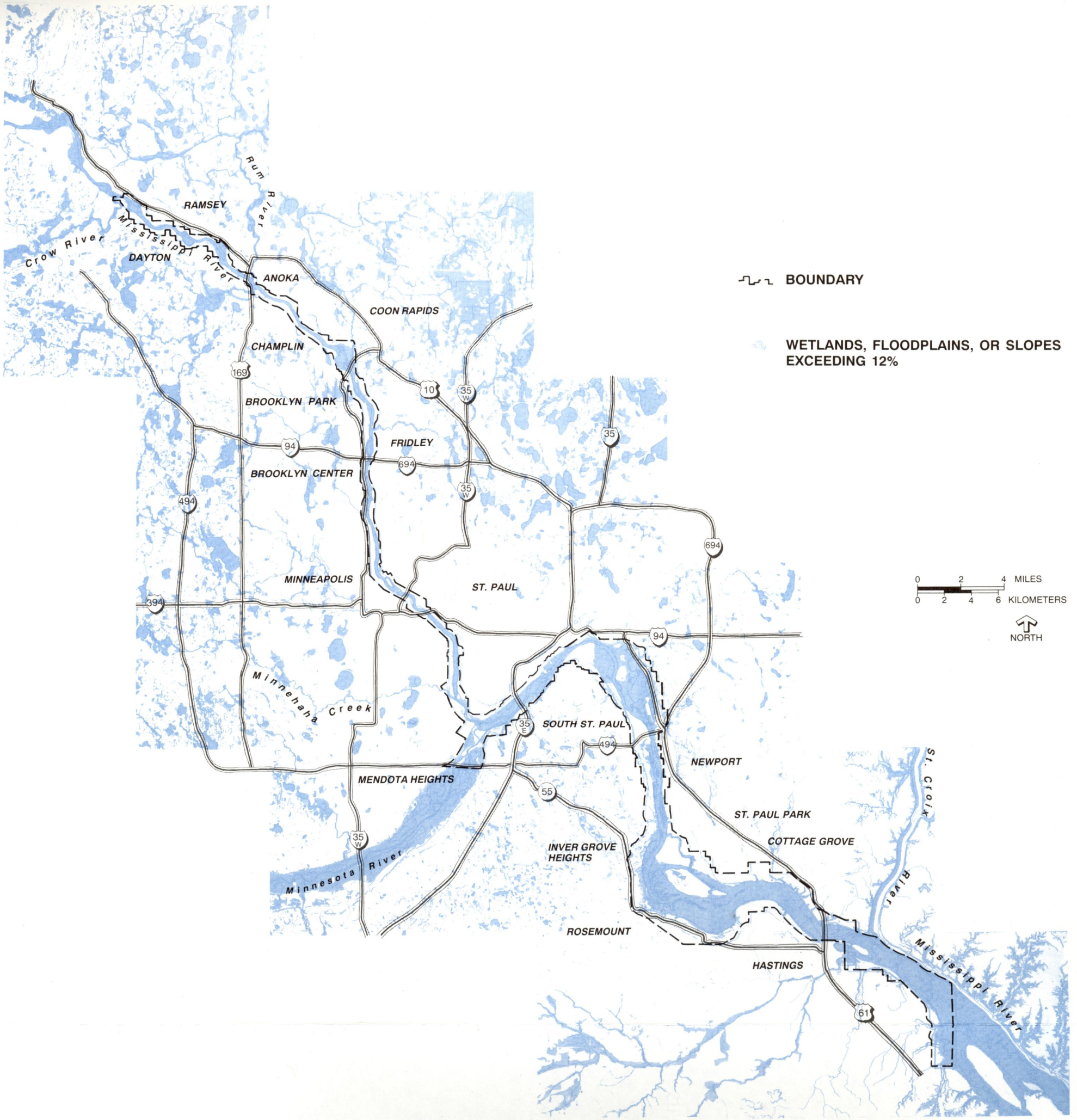
Proposed Policies & Actions:

(1) Continue the historic use of historic properties, particularly where interpretation of historic themes is planned, in preference to changing the use, even though the change may be compatible with the historic character of the resource. Develop incentives to retain historic uses where feasible and in compliance with environmental laws and regulations.

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

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

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

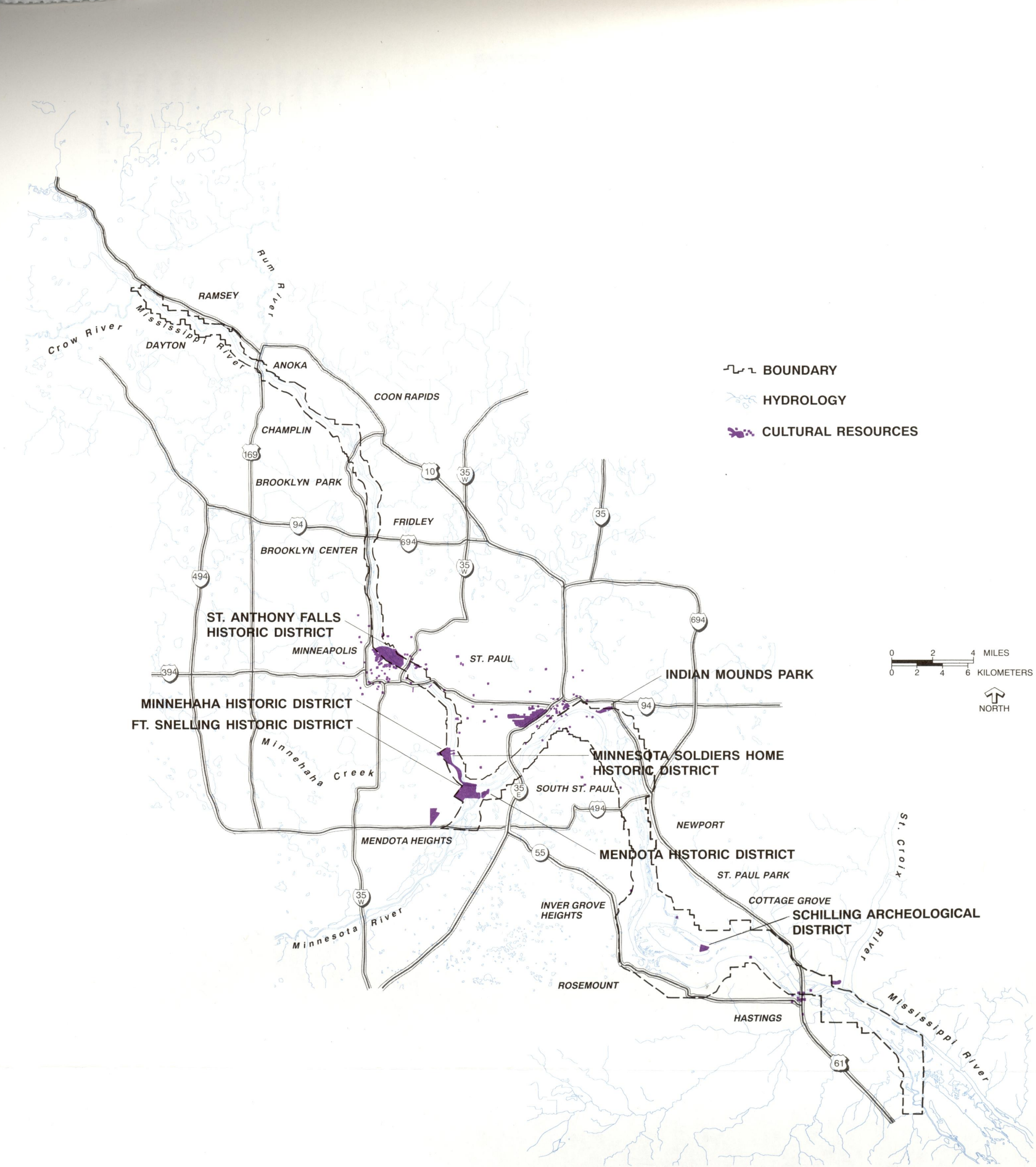


SENSITIVE NATURAL AREAS

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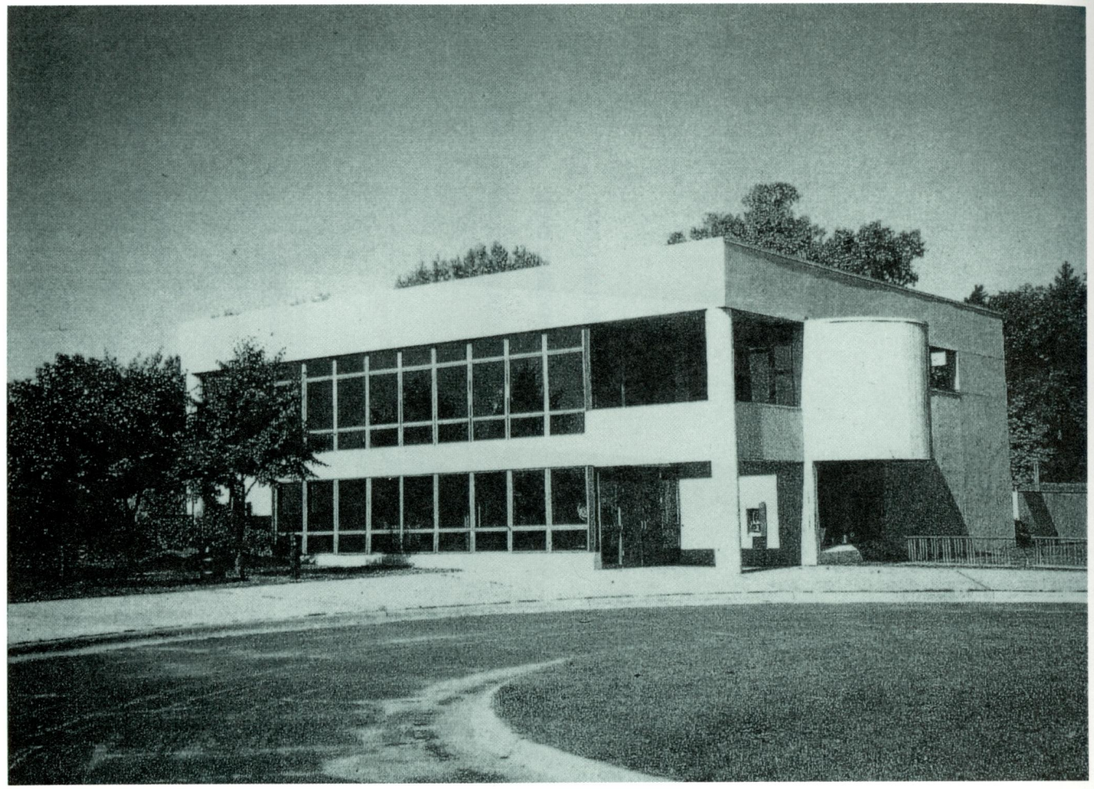


CULTURAL RESOURCES

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Coon Rapids interpretive center

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

Cultural Resource Research Needs. While available data were compiled for this plan, a comprehensive inventory of potential properties eligible for the National Register of Historic Places should be conducted for the corridor either by the Minnesota Historic Preservation Office or a federal, state, local, or private group in the area. A complete inventory of all historic resources within the boundary of the Mississippi National River and Recreation Area is needed to provide an adequate database for future MNRRA resource management. Potential cultural landscapes were not identified as an issue during the scoping phase for this plan and no cultural landscapes are included in the current inventory. However, this would be addressed during the resources management plan process and appropriate inventories scheduled if determined necessary.

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

The identification of sites of importance to Native Americans remains to be done. No comprehensive listing of these sites now exists.

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

Economic Resource Management

The MNRRA legislation listed the importance of economic resources along with other traditionally cited national park system resources, and the plan must "recognize existing economic activities in the area and provide for their management." "Nationally significant economic resources" were not defined in the legislation. The act charges the commission with developing "policies and programs for the commercial utilization of the corridor consistent with the values for which the area was established." Extensive economic resource data was collected and mapped for this plan. Land use and zoning data, barge facility information, and numerous socioeconomic factors were included. Existing economic resources in the corridor should be more intensively inventoried and evaluated. The National Park Service would encourage and facilitate this research, which would be carried out primarily by others. A more thorough inventory is needed following plan approval to assist in plan implementation. The inventory should be preceded by more analysis (based on the legislative history), agreement on the definition of "economic resource," and a comprehensive identification of what should be included in the inventory.

Proposed Policies & Actions:

There are several proposed policies and actions in other sections of this plan that address economic resource management. These include:

- preserve riverfront land for economic uses that rely on the river
- protect historic buildings for adaptive reuse
- continue existing land uses in the corridor
- allow redevelopment and expansion of corridor businesses
- encourage sustainable economic activities that improve the quality of life
- promote tourism in the corridor
- continue barge fleeting areas and allow for some expansion in fleeting activity
- interpret the working river
- encourage special events that draw people to the river
- increase visitor access and recreational use in the corridor
- minimize National Park Service land acquisition
- encourage riverfront improvement with a wide variety of land uses
- encourage local land use control and local economic development activities
- promote streamlining regulations for new development and redevelopment activities

Economic Resource Research Needs. Additional research and data collection would be done for economic resources. An inventory of the number of jobs in the lower river was completed by Metro East Development Partnership during this planning process. This could be updated and expanded to include the entire corridor following agreement on definitions and a complete listing of research needs. There is a need for new forecasts and analyses of barge traffic trends by commodity and by terminal. Along with additional analyses and a comparison of barge transportation costs with competing modes, an assessment should be made of the long-term effectiveness of barge transportation and its impact on regional commodity producers and consumers. Previous barge fleeting requirements analyses and studies on the direct, indirect, and induced economic impacts of commercial navigation should be updated.

Research should include more detailed analysis of local government expenditures for parks and recreation resources, surveys, and analysis to determine recreation and other economic benefits and estimates of visitor recreation and tourism expenditures in the corridor.

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

Recreation Research Needs

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

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

VISITOR USE AND INTERPRETATION

Visitor Activities and Recreational Resources

A variety of passive and active resource-related recreational activities would continue to be available to visitors in the MNRRA corridor. These include fishing, boating, canoeing, hiking, bicycling, jogging, picnicking, taking photographs, birding, and participating in interpretive and educational programs.

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

Recreational and residential users share the river corridor with commercial river traffic and industry below the I-694 bridge. Commercially operated excursion boats show residents and tourists the river from St. Anthony Falls to Hastings. Pleasure boats power past Pigs Eye and climb the locks as far as Minneapolis. Industrial uses are found along several stretches of the river, most commonly in North Minneapolis and from St. Paul downstream to Cottage Grove.

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

River-related recreational opportunities would be extensive along the riverbanks. Places for hiking, biking, or jogging along a riverside trail, picnicking, or just sitting in one of the many parks in the corridor would continue to attract people to the river. The river is a magnet for terrestrial and aquatic recreation and this would be enhanced.

The primary direct involvement of the National Park Service in visitor activities would be through interpretive and educational programs, orientation to available services, education for low-impact recreation, impact monitoring, marketing research, and interpretive training for visitor contact personnel.

Proposed Policies & Actions:

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

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

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

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

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

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

Visitor Use Management

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

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

Various proven frameworks exist that could be used for monitoring resource quality in the corridor. These include visitor impact management, limits of acceptable change, quality upgrading and learning, and the recreation opportunity spectrum. The Park Service also has a pilot program underway to develop a system to address visitor use planning and management in NPS areas. All of these approaches define indicators and standards of quality.

Indicators are measurable variables that define the quality of the resource condition and visitor experience. Standards specify the desired or acceptable conditions of indicator variables. Determinations of carrying capacity are then made by monitoring the condition of the those variables. When indicator variables do not meet the standards specified, capacity has been exceeded and prescriptive management action is normally necessary to bring indicators back into compliance with standards.

In association with development of a visitor use management program, an *ad hoc* task force would be convened under the leadership of the Metropolitan Council, Department of Natural Resources, and the National Park Service. Any interested community or agency with parkland in the corridor would be invited to participate in the task force. The task force would work to define desired conditions and appropriate indicators and standards for parklands in the corridor. A monitoring framework would be established. The task force may follow one of the established systems or develop another strategy. Desired conditions and objectives would vary for specific areas of the corridor and would require different capacity thresholds.

Proposed Policies & Actions:

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

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

(3) Provide additional pedestrian and bicycle paths in the corridor to the greatest extent practical, separating facilities in heavily used areas and ensuring paths across all new and rebuilt bridges.

(4) Acquire abandoned railroad rights-of-way for trail development or other open space needs.

(5) Encourage water surface-use regulations such as no-wake zones on the main channel and in backwater areas to protect selected shorelands from erosion and reduce conflicts among recreational activities on the river while not significantly affecting the existing commercial navigation industry.

Water surface-use regulations (speed limits, no-wake rules, horsepower limits, etc.) are adopted by local government ordinances. Before an ordinance can take effect, it must be reviewed by the Department of Natural Resources and found consistent with statewide standards. If the rule is to affect areas in more than one county or city, essentially identical ordinances must be adopted by all local governments with jurisdiction (both sides of the river, for example, although if a county adopts the ordinance it would not also have to be adopted by the affected cities). Once an ordinance is in place, it would be enforced by any law enforcement agency with jurisdiction, including the Department of Natural Resources.

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

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

Interpretation, Education, and Visitor Services

Interpretive and educational activities and facilities would 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 would play a significant role in interpreting corridor resources and providing visitor services. The Park Service would construct one interpretive center/headquarters, cooperate with partners to develop another, assist in staffing and programming two other smaller interpretive facilities, conduct interpretation and education programs at several places throughout the corridor, and design and produce interpretive media. While the Park Service would have a lead role in interpretive planning, much good work is already being done in the corridor and partnerships would play a significant role in

providing and coordinating visitor services and interpretation. These actions would 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 would be prepared to implement the comprehensive plan. This would provide additional details on corridor interpretive facilities, specify media and estimate their costs, and detail interpretive program needs. It would be developed in cooperation with all the key interpretive agencies and organizations in the corridor.

Visitor Experience. Experiences that would allow MNRRA visitors to best enjoy and appreciate and learn and benefit from their visit are listed below. Achieving these experiences would involve partnerships, interpretive facilities and media, and interpretive and educational activities. 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
- 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. Interpretive themes are the key ideas and stories that would be interpreted for corridor visitors. There is an almost endless list of stories and messages that could be conveyed about the Mississippi River. Primary interpretive themes culled from these multiple perspectives are the key points that park visitors should have the opportunity to learn.

(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 effect the river. It drains over half of the United States and has the second largest drainage basin in the world. It bisects the

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

(2) Humans have had a 10,000-year relationship with the upper Mississippi. People have lived on the banks of the Mississippi for many thousands of years. Minneapolis and St. Paul owe their origins to the Mississippi and continue to thrive on the river today. Industry, recreation, and tourism contribute to the area's economy while natural areas and parkland contribute to the high quality of life for the residents of the urban corridor. Where the flour industry once drove the economy, manufacturing, high-tech business, and commodity transportation are now leading the way.

The commercial navigation industry has historically played a significant role in the region's economy. Barges carry many goods to and from the region. Barges are an important part of a larger transportation system (including railroads and trucks) and can frequently be seen on the river.

The Mississippi River has spiritual significance to many people, especially Native Americans. Their relationship with the river has endured over the years.

(3) We must care for the Mississippi. The Mississippi needs our help and concern. It has been significantly impacted 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, nonpoint 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, trail development, public access, barge fleeting, safety, zoning, landscape and building design, and transportation systems. Increased public knowledge and sensitivity would result in better decisions and policies affecting the river.

(4) Shaping the river: glacial and human forces. The geological life of the Mississippi started about 12,000 years ago in the meltwater 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 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 metropolis is located where it is today because of the river. The Mississippi River provides power, drinking water, cooling water, waste dilution and dispersal, and an economical method for transporting many commodities. These benefits have affected settlement patterns, industry, and commerce far from the riverbanks. The lock and dam system improved modern transportation on the river, and the locks and dams support many uses, including recreational boating.

For thousands of years, American Indians built their villages beside the river, hunted animals and gathered plants in its bottomlands, and fished its waters. The river later attracted European-American fur traders, settlers, soldiers, and tradesmen. At St. Anthony Falls (the only waterfall on the Mississippi between Lake Itasca and the Gulf of Mexico) the river powered saws that ripped logs into planks and beams. Later, water turbines ran flour mills, and Minneapolis became the flour milling capital of the country. Historic remains of past activities on the river increasingly need preservation.

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 nonpoint 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 nonnatives has had serious and sometimes devastating effects on river ecosystems.

Preserving and restoring biological diversity is an NPS goal for the national park system. Achieving that goal at the Mississippi National River and Recreation Area would 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, molluscs, 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, sociocultural, 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 would 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, would provide information and orientation to corridor resources, recreational opportunities, and visitor services. Orientation would be accomplished mostly through interpretive media (books, brochures, maps, video), print media (newspapers, magazines), and electronic multimedia systems. Intended audiences would include area residents, national and international visitors, and national and international tourism organizations. Orientation services would be available at four interpretation centers, unattended kiosks, bulletin boards, wayside exhibits, and through outreach programs. Orientation would include information about other units of the national park system.

Interpretation:

The National Park Service, in partnership with other groups, agencies and individuals, would interpret major corridor themes, concentrating especially on areas not covered by existing programs or facilities. Four staffed interpretive centers would house interpretive media such as exhibits, videotapes, and publications. Wayside exhibits and trail brochures would interpret outdoor resources and

views. Interpretive programs would include guided walks, slide programs, seminars, lectures, river tours, and living history. These facilities and programs would 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, would provide coordination and provide a forum for issues relating to visitor use and resource management of the corridor. With the variety of interpretation, 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 would be provided in a number of ways. A committee composed of groups and individuals active in interpretation and education would be one means. The Park Service would play a lead role in such a committee. Additional coordination would 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, would 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 would include programs for schools and scout and community groups, and public seminars and workshops relating to corridor issues and stories. Activities would relate to corridor themes or resource management issues. Outreach programs would target nontraditional audiences to increase access to MNRRA resources and experiences and meet existing needs. 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 would be dispersed along the corridor to best serve visitors and interpret resources. At the same time, the facilities would provide a central focus for the National Park Service identity in the corridor. MNRRA interpretive facilities would 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 and with seminar 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

The Mississippi National River and Recreation Area interpretive facilities would perform a variety of specific functions. The following four functions would be best performed by the National Park Service:

- provide focus and identity for the Mississippi National River and Recreation Area and the National Park Service
- provide overview interpretation of all themes and their relationships
- 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

Other functions 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:

- 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 basic idea in this plan is that 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 Minnesota Science Museum, 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 would require sufficient critical mass to attract visitors.

For purposes of this document, critical mass is defined as including the combination of experiences that would 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 would require fewer attractions inside to attract an audience. Conversely, a site in an area devoid of existing attractions would need a larger profile to entice people to visit. Critical mass might 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 critical mass 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 vision for the balanced preservation and 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 would require a more intensive and extensive combination of interpretive media and conducted activities than is usually required at NPS visitor centers. 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 to be developed after the comprehensive plan is final.

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

The center at Harriet Island in St. Paul would be developed and operated by the National Park Service in close cooperation with the city of St. Paul. The city would provide land and adjacent site improvements. Additional partnerships with complementary programs such as science museums, zoos, or recreational or educational organizations would be actively pursued. The Park Service would encourage other similar entities (such as a museum, recreation site, or educational program) to locate nearby, establishing "external critical mass."

The cooperative centers (Minneapolis, Hastings, and Coon Rapids dam) would be developed through partnerships. In Minneapolis the National Park Service and one or more local agencies would share responsibility and funding for the steps needed to complete the project. Each agency would continue to meet its mandate. The apportionment of center operations would be developed in follow-up planning. These centers could actually be linked with associated facilities programmatically.

The associated centers would be existing facilities such as nature centers, park visitor centers, or museums whose location, mission, and activities match MNRRA goals. The National Park Service might 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.

The St. Paul and Minneapolis centers would be staffed year-round, while the northern and southern centers would probably only be staffed seasonally.

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 relating to the corridor. The National Park Service would accomplish parts of each visitor experience goal through partnerships with these groups and individuals.

National Park Service staff would maintain an inventory of recreation, visitor services and tourism activities, organizations, and facilities in the corridor and nearby areas. The Park Service would maintain direct and active liaisons with groups, agencies, and individuals providing recreational services. It would 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 would 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 internships, fellowships, tutorials, mentor programs, etc.) and research projects themselves could be accomplished cooperatively.

Interpretation and Education Activities. Interpretation and education programs at all four centers would 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 would be stationed or give programs at all four areas and would supervise NPS interpretation, education, orientation, and visitor services operations. The National Park Service would play a significant role in providing training for interpreters (including volunteers) from other agencies.

The National Park Service would take a lead role in interpretation and education activities at the St. Paul/Harriet Island center. As shown in table 2, major themes interpreted would include aquatic ecology, natural history, stewardship, and the working river. These themes would 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 would take place around the center and at nearby areas such as Lilydale Park.

Access to the river would 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 with 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 might 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 would add to the knowledge and appreciation of the Mississippi River. Additional ideas for interpretive programs at the Harriet Island center are contained in appendix K.

Because the location and functions of the Minneapolis/St. Anthony interpretive center have yet to be finally determined, and several feasibility issues remain, an interim site would 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 would 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 in this area would 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 St. Anthony.

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 area. Programs would concentrate on the resources around the centers but would deal with the bigger picture as well. Environmental and heritage education programs would serve primarily schools and groups from nearby areas. Orientation to the Mississippi National River and Recreation Area and nearby attractions would be available at Hastings and the Coon Rapids dam. Interpretive media would supplement the activities in the center on the east side of the Coon Rapids dam. Interpretive programs would be offered in and around all four sites.

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

Proposed Policies & Actions:

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

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

GENERAL DEVELOPMENT

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

provide more detail about these facilities and those provided by other partners in the corridor.

National Park Service Facilities in the Corridor

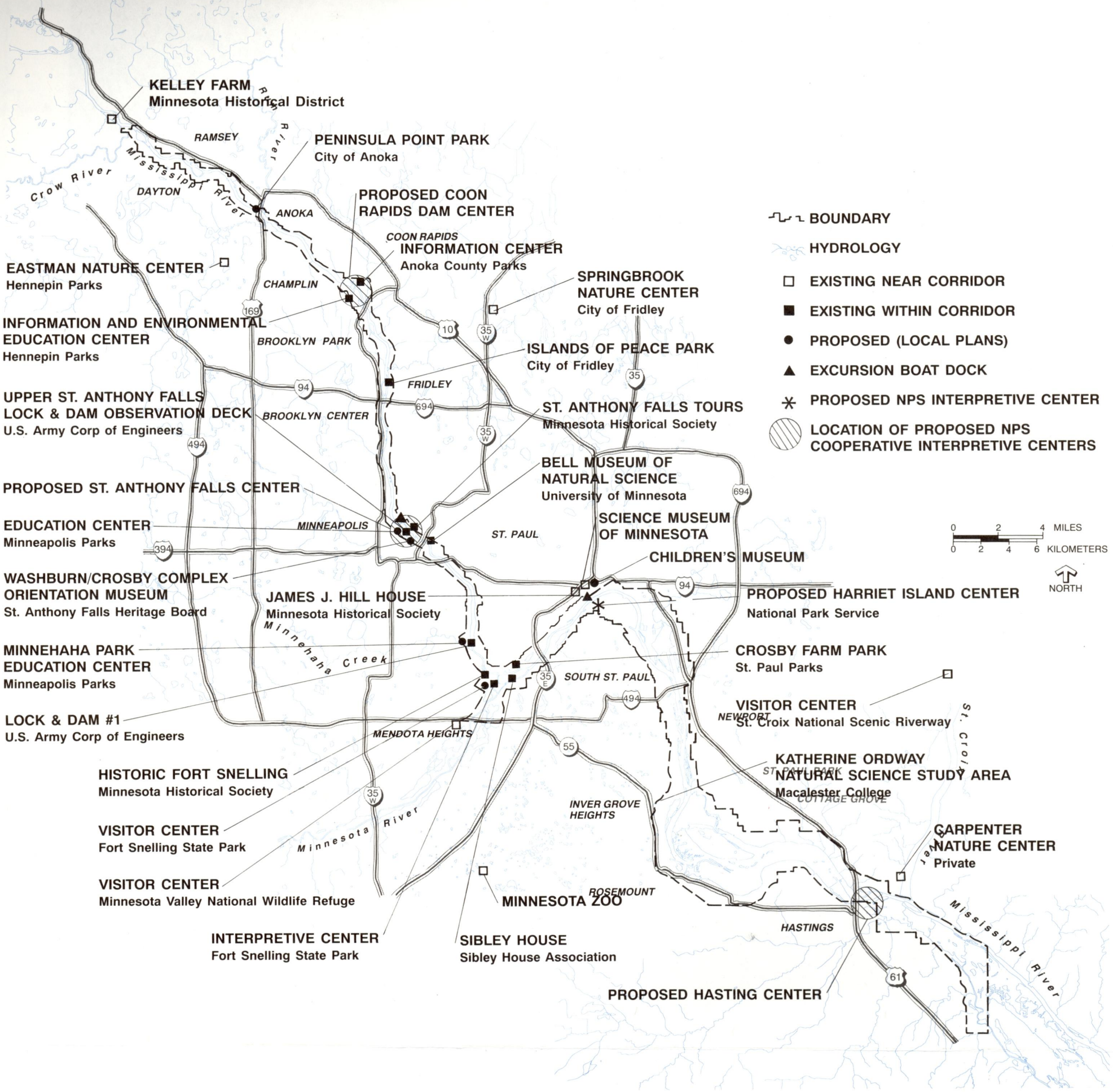
Because of the unusual nature of the corridor and the proposed management concept, NPS facilities would be limited to interpretive centers and administrative offices. With the partnership arrangement and extent of local interpretation, these would be cooperative ventures, with only one interpretive center owned and operated by the National Park Service. Based on the audience, site analysis, functions of each facility, and the potential partners, a system of interpretive facilities is proposed. Table 2 illustrates these facilities and factors leading to this scheme. This proposal capitalized on the excellent interpretive work already being done in the corridor and seeks to fill the interpretive gaps and offer coordination of existing interpretive facilities, activities, and programs.

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

Two smaller cooperative interpretive centers (contact stations) are planned, one in Hastings and another at Coon Rapids dam, each with a different interpretive emphasis and potential visitor experience (see Interpretive and Educational Facilities map).

Potential Partner Roles. Table 2 identifies lead partners based on area of expertise and the extent of activity involved. For instance, in the Coon Rapids dam area, both Anoka County and the Suburban Hennepin Regional Park District have interpretive activities and facilities. Therefore, they would take the lead in the operation of the joint facility. In Hastings the National Park Service is working with the city to identify other potential partners.

Funding would be arranged between the partners, with the National Park Service assuming responsibility for that share of the facility occupied by or needed for NPS interpretive functions. In addition, the National Park Service could supply staff and design assistance. The following table illustrates how this arrangement might work.



SELECTED EXISTING & PROPOSED INTERPRETIVE AND EDUCATIONAL FACILITIES

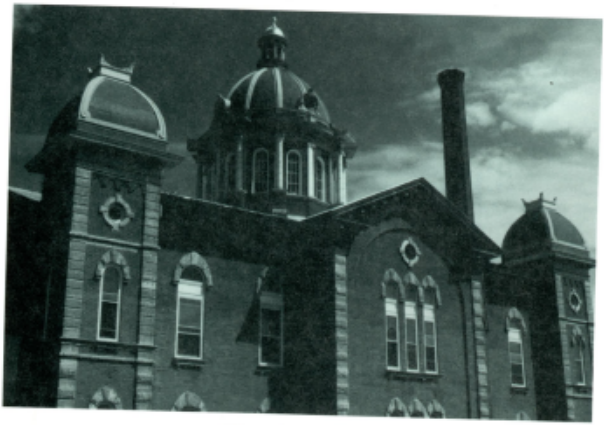
MISSISSIPPI NATIONAL RIVER & RECREATION AREA

United States Department of the Interior
National Park Service

DSC • MAR 93 • 607 • 20004A



Washburn-Crosby mill complex



Old courthouse in Hastings

TABLE 2: MNRRA INTERPRETIVE FACILITIES

LOCATION	MINNEAPOLIS	ST. PAUL	ANOKA AREA	HASTINGS
Potential lead agency	City and/or state historical society	NPS	Anoka County/Hennepin Park District	Hastings
Potential partner roles	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	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	City has lead; NPS provides some staff and exhibit design assistance
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
Audience	International, U.S. regional, and local	International, U.S., regional, and local	Regional, local	Regional, local
Major themes	Primary: • Shaping the river - glacial and human forces • Humans and the river, a 10,000-year relationship • MNRRA is a nationally significant resource (cultural emphasis) • We must care for the river Secondary: •All plants and animals in the corridor are interdependent	Primary: • 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 • MNRRA is a nationally significant resource (natural emphasis) • As a working river, the river's influence extends far	Secondary: • All plants and animals in the corridor are interdependent • Humans and the river, a 10,000 year relationship (Native American emphasis) • We must care for the river	Secondary: •The Mississippi is one of the world's greatest rivers; humans must care for the river •Humans and the river, a 10,000 year relationship (river town emphasis)
Primary functions	Interpret cultural resources, orientation to MNRRA, orientation to NPS, outdoor walking tours, historic preservation, environmental and heritage education	Big Miss picture, focus/identity, natural history themes, orientation to MNRRA, orientation to NPS, outdoor experiences, interpretive media, environmental and heritage programs	Orientation to MNRRA, environmental and heritage education	Orientation to MNRRA, environmental and heritage education
Major location advantages	St. Anthony Falls area-historical context, visual excitement, urban experiences, connections to entertainment and historic and cultural resources, park system, and an opportunity for adaptive reuse	Harriet Island area - visibility, road access and parking potential, flexibility in design, connection to natural resources, river access for recreational boats, commercial river traffic, adjacent tour boat landing	Near upper end of corridor, major roads, canoe route	Near lower end of corridor, near major highway and historic downtown, near dam overlook, parks, and trails, offers good example of riverfront rehabilitation
Funding	Cooperative; NPS provides its share of construction and staffing; exhibit and facility rehabilitation design assistance	City provides land and adjacent improvements; NPS provides facility construction, operation, maintenance	Cooperative; NPS provides some staffing & exhibit design assistance	Cooperative; NPS provides some staffing & exhibit design assistance

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

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

St. Paul

After reviewing several alternative locations, a preferred site on Harriet Island has been jointly identified by the city of St. Paul, the commission, and the National Park Service. This site offers the opportunity for a rich visitor experience because of the site's connection to downtown, natural areas in Lilydale, access by water, and nearby attractions such as the Paddleford tour boat operation. It has a distinct identity and a history of recreation use that would augment the desired identity that this facility would provide for the entire corridor. It also integrates well with St. Paul's cultural corridor concept and proposed riverfront improvement programs. It could also provide the catalyst for other riverfront redevelopment projects.

Minneapolis

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

Each partner developed a proposal for their contribution to the development of the preferred site and to the three alternative sites. This step was included to focus on the partnerships that would be needed at some of the sites to make their development possible. The National Park Service conducted a concurrent analysis of the sites (based on the criteria listed above).

When the analysis was complete, the Washburn/Crosby complex (a national historic landmark) was identified as the preferred site. The Northern States Power Main Street Station was chosen as a fully acceptable option. However, the analysis also identified concerns that would have to be resolved before either of these sites could be developed as an interpretive facility. Examples of the concerns include safety and health issues and uncertainties about structural soundness. Other sites may be evaluated later if these sites prove infeasible.
While answers to the concerns continue to be sought, an interim strategy would be implemented to provide interpretation and information in the St. Anthony Falls area. A small

information center in a location that can be made useable without great expense would be established. Interpretive and educational programs could be planned for other locations in the St. Anthony Falls area. A portable interpretive exhibit that could be erected at various locations in the area would also be produced. The exact site for the interim information center would be chosen with the St. Anthony Falls partners. Possible sites include the Fuji-ya building, St. Anthony Main, Army Corps of Engineers lock observation area, the Crown Roller Mill building, or a moveable, tent-like structure.

Hastings

NPS staff also worked with city of Hastings staff to gather information for an inventory of possible interpretive center sites and to review the sites. The information function would be located in the old courthouse (now being renovated for city offices) in a space on the first floor near the rotunda. Major advantages of this space are the visibility of this site from U.S. Highway 61, location in an historic building near the historic downtown district and river, and visibility and ease of access for people conducting business with the city.

The locations for the education, interpretation, and services functions have not been determined. Although there is a public meeting room that may be available for some educational programming in the courthouse, many of these functions would take place elsewhere.

Other sites in the Hastings area that were considered include the current city hall, the LeDuc House owned by the Minnesota Historical Society, and historical residences west of downtown.

Anoka Area

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

Interpretive functions would be placed in all three sites. NPS staff would cooperate with Anoka County staff in providing information at the visitor center on the Anoka side of the Coon Rapids dam. The National Park Service would also provide assistance with interpretive exhibits in this facility. Cooperative interpretive and educational programming that complements programs already being provided by partners would be offered at all three sites. Information/interpretive kiosks or waysides would be installed as a part of the development of Peninsula Point Park. Other visitor services such as restrooms and first aid would be provided by partners.

Facility Needs. Following are proposed long-range space needs for the four interpretive facilities discussed above (sizes are approximate and subject to change).

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

The interpretive center on Harriet Island would be built and maintained by the National Park Service. Partnerships with complementary programs would be sought to increase the critical mass at this site. The National Park Service would also be responsible for site improvements at the Harriet Island facility. These include parking, landscape development, and utility connections within NPS property boundaries. Additional details on the Harriet Island center are provided in the following section.

Responsibilities for the other three centers would be shared by partners. In the St. Anthony Falls area, the National Park Service would jointly operate an interpretive center with one or more partners. The portion of space and building remodeling costs to be allocated to each partner has not been determined. For purposes of this draft, half of the costs would be assumed to be paid by the National Park Service and half by partner(s). Since the total size of this center is relatively small compared to the size of the existing buildings at the preferred site, other attractions would have to be found to occupy the remaining space and enable comprehensive redevelopment.

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

At Hastings and the Coon Rapids dam area there would be no costs for building rehabilitation, as it is assumed that existing facilities would be used or space would be provided by partners.

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

Harriet Island Development Concept

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

interpretive facility and the related portions of Harriet Island Park has been jointly prepared by the city of Saint Paul and the NPS staff and is described below. (see Harriet Island Development Concept map and cross-section sketch)

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

The site offers a number of opportunities for design and has advantages of proximity to nearby features and potential linkages to adjacent resources. The city plans numerous park improvements that would enhance access to and from the site and would greatly improve the appearance of the area. A bike and pedestrian trail would replace a road that is currently on top of the levee (construction by the Corps of Engineers and the city), linking the site to downtown, an existing promenade to the east, and Lilydale Park. In addition, a riverwalk is proposed by the city along the river. The site would be linked to this feature, giving direct access to the shoreline. It is located near two marinas and a tour boat operation, providing opportunities for related visitor activities that could be linked by road and trail. The site is part of the city's cultural corridor, which is an area of St. Paul with many civic, cultural, and historic facilities. Finally, the Wabasha Street bridge is scheduled for replacement in the next few years, offering an opportunity to improve pedestrian and bicycle access from downtown St. Paul and generally improve the aesthetic environment in the area.

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

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

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

- The city of St. Paul would transfer about five acres to the National Park Service for the interpretive center (see Harriet Island Interpretive Center Development Concept map).

• The site and building relationship to river would be maximized through facility design, placement, and orientation.

• A multi-level building would be constructed, locating administrative headquarters, storage, and classrooms on the bottom floors and the interpretive facility on the top floor in order to provide the best views of the river and downtown.

• Water would be used as a unifying element, through architectural treatments for the exterior and the interior of the building and continuing though the interpretive displays, which could include aquatic displays .

• Direct visual and physical connections to the river would be provided using windows on the river side, a plaza focused on the river, and a view preservation area between the building and the river, which would be kept clear of parking and major structures and a path to the river.

• The site would be intensely landscaped to screen less desirable views and to soften the effects of a relatively large NPS building.

• Windows would focus on good views in the area and minimize undesirable views.

• Parking lots providing a total of about 100 spaces would be located on either side of the building to avoid large expanses of asphalt and would be convenient to either approach to the building. The west parking lot would be used for bus parking and by the city for overflow parking during peak activity periods.

• City plans to revegetate the back of the levee would be followed by the National Park Service on its lands. Landscaping on the site would generally be native to the river valley, and may reflect riparian character in order to demonstrate revegetation techniques.

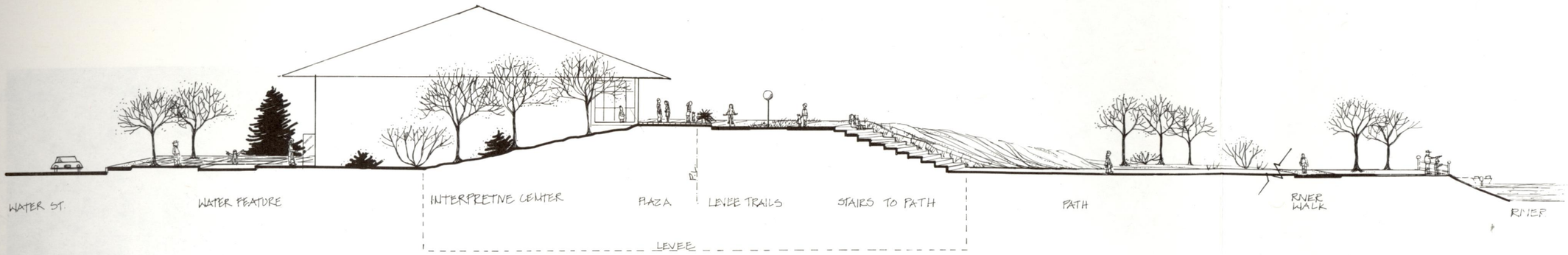
• The building entry would be designed to be as inviting as possible, incorporating a plaza with a water feature that would tie into the interior to overcome the effect of the road approaches.

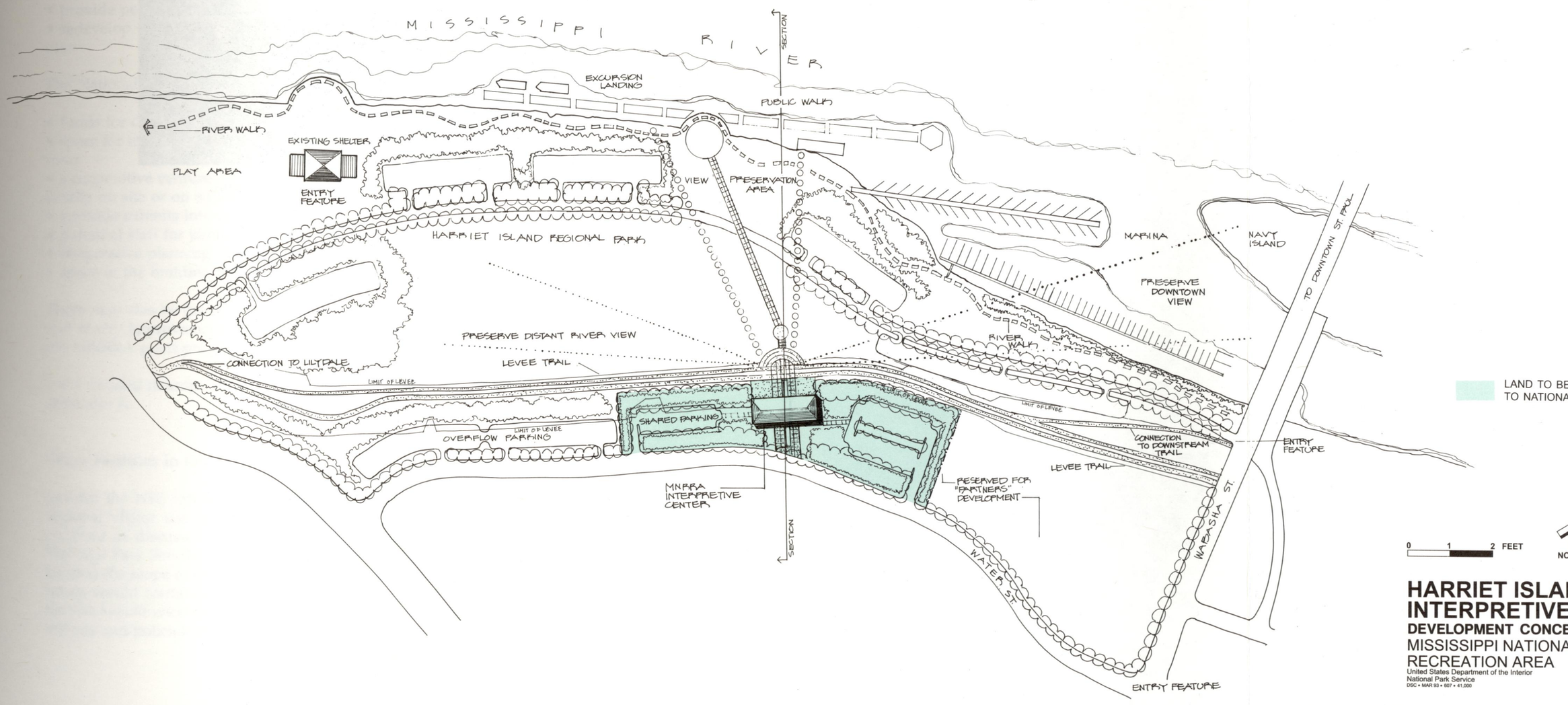
• Building design would reflect the river and its urban setting. It should not be designed in a rustic park architectural style.

• The building and site improvements would incorporate and demonstrate sustainable design – such as the use of recycled materials, construction of permeable parking surfaces for aquifer recharge, high energy efficiency, and water conservation.

• The building and site would be designed to provide total accessibility in compliance with the Americans With Disabilities Act and related federal laws and regulations.

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





HARRIET ISLAND INTERPRETIVE CENTER

DEVELOPMENT CONCEPT PLAN

MISSISSIPPI NATIONAL RIVER & RECREATION AREA

United States Department of the Interior
National Park Service
DSC • MAR 93 • 607 • 41,000



View of downtown St. Paul from Harriet Island

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

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

The National Park Service would provide:

- funds for design, construction, and operation of the center and its immediate environs
- space for temporary exhibits that would be available for community exhibits related to the river
- a cooperative venture with a major partner for an expanded or complementary interpretive facility on site or on adjacent lands
- wayside exhibits interpreting the river
- potential staff for joint interpretive programs
- cooperative planning for interpretive facilities and functions with the city
- space in the building for the city of St. Paul

There may also be grants available through the National Park Service for up to 50% of the cost of city improvements on adjacent lands in the Harriet Island/Lilydale Regional Park if the MNRRA grant program is funded by Congress.

For a detailed description of interpretive media and activities at the Harriet Island center see appendix K.

Other Facilities in the Corridor

Besides the NPS interpretive facilities, there would continue to be many other local and regional visitor use facilities in the MNRRA corridor. Local interpretive facilities would continue as discussed in the section on interpretation, sometimes in conjunction with the National Park Service interpretive facilities, but most would be independently operated. It is beyond the scope of this plan to provide detailed facility needs for the entire corridor. These needs would continue to be the prerogative of local and state agencies. The National Park Service would encourage recreational and interpretive facilities that are consistent with the visions and policies contained in this comprehensive plan. The NPS staff would work with

other entities to provide advice on park and open space development that best meets the intent of this plan.

NATIONAL PARK SERVICE OPERATIONS

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

National Park Service Staffing Needs

The estimated NPS staffing needs for the Mississippi National River and Recreation Area are about 32 full-time equivalent positions at an estimated annual cost of about $1.3 million, which includes salaries, benefits, and support costs (equipment, utilities, etc.). Estimated costs are subject to change based on the final role established for National Park Service and other partners in managing the corridor as documented in the final comprehensive management plan and follow-up implementing plans. This is a long-range staffing concept that would take several years to implement. Support staff for the Mississippi River Coordinating Commission are included in this estimate. Other than one administrative clerk, these commission support duties are spread among several existing (and proposed) NPS staff members. Descriptions of work to be done by additional staff and a table showing existing and proposed NPS staff are found in appendix F.

Maintenance

As the National Park Service would only own one facility, a full scale maintenance staff and program would not be necessary. Maintenance of the St. Paul interpretive facility and surrounding grounds would be contracted to local building maintenance and landscaping businesses. The private businesses would perform all custodial, repair, lawn care, landscaping, and snow removal services.

Maintenance of the interpretive facilities at Minneapolis, Coon Rapids, and Hastings would be the responsibility of the building owner.

Cooperating Association

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

PLAN IMPLEMENTATION

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

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

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

General Concept for Implementation

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

The Metropolitan Council would assist local governments with modifications to their comprehensive plans to ensure consistency with this plan and regional goals. The Department of Natural Resources would assist local governments with ordinance modifications to conform with modified comprehensive plans, and would oversee local government implementation of those ordinances. The National Park Service and the commission would review major proposals and land use decisions that have potential for significant impact. The National Park Service and the commission would facilitate multiagency discussion of major issues. The National Park Service is the primary advocate for national interests in the corridor and has mandated review responsibilities for federally funded or permitted activities. The Park Service

would also have major roles in providing interpretive leadership and allocating grants (if funds are provided by Congress).

A common concern during the planning process was the imposition of another layer of government bureaucracy. That concern would be satisfied with this plan, because the Metropolitan Council is already involved in comprehensive plan modification issues and the Department of Natural Resources is already involved in land use ordinance matters. The existing critical area program review by the Environmental Quality Board would be eliminated.

Partner Roles

The major partners have a number of roles in implementing the comprehensive management plan. There are many other agencies and organizations, such as the Minnesota Pollution Control Agency, that would be critical to the success of the plan. The following includes descriptions of selected partners, which are not listed in priority order.

The Commission. The 1988 MNRRA legislation directs the commission to assist the secretary of the interior in reviewing and monitoring implementation of the plan by other federal, state, and local agencies. It also authorizes the commission to recommend modifications to the plan. The commission has only the power to advise on permits and land use decisions, but it would serve as a forum to bring involved organizations together to discuss major land and water issues in the corridor. The commission would receive reports from the National Park Service, Metropolitan Council, and Department of Natural Resources and would make reports to the secretary of the interior on the progress of plan implementation. The Park Service would continue to provide funding and staff services for the commission. The major functions of the commission would be to:

- act as catalyst and facilitator for local efforts
- monitor progress toward plan implementation
- recommend modifications to the comprehensive plan and prepare draft amendments
- recommend legislation needed to implement the plan
- review major land use decisions for conformance to the plan
- raise issues to the public and to state government
- serve as a forum to resolve disputes
- advise the secretary of interior and the governor on the progress of plan implementation
- provide recommendations on follow-up implementation plans prepared by the Park Service and other corridor partners

The National Park Service. The Park Service would monitor general implementation progress along with the commission. The National Park Service would have the lead role in interpretive activities for the corridor. The Park Service would offer various types of technical assistance to communities on matters related to the river corridor or plan implementation. The Park Service would also administer the grants program authorized by the enabling legislation and would assist local governments in identifying and seeking other funding that could be used for river corridor projects that are compatible with this plan. The Park Service, working with the commission and other agencies, would develop more detailed plans, such as a resource management plan and visitor use management plan. The major functions of the National Park Service would be to:

- provide general oversight on the progress of plan implementation with commission
- prepare more detailed plans with advice from the commission
- issue grants to implement the plan
- provide the lead role in interpretive planning, media production, publications, and exhibit development
- provide the major role in developing an interpretive center and cooperating on other interpretive facilities
- coordinate interpretive services and provide missing programs
- provide technical assistance, such as on historic preservation techniques
- serve as federal and state grant information clearinghouse
- review major land use proposals and all federal, federally funded, or federally permitted proposals
- provide staff for the commission
- act as catalyst and facilitator for plan implementation along with the commission
- liaison with other units of government on corridor issues
- implement the MNRRA plan on NPS lands

The Metropolitan Council. State legislation would be recommended that would require that all local plans and actions be consistent with the corridor plan. The Metropolitan Council would implement that state legislation, conducting a review of local comprehensive plans for consistency with the corridor plan. The council would direct and assist local governments with those plans needing modification, would coordinate review of draft plan amendments, and would provide technical assistance, including small planning grants, to local governments. In reviewing draft plan amendments, the council would seek comments from the commission and the Park Service, and especially from the Department of Natural Resources, because the department would be responsible for monitoring land use implementation. The MNRRA act requires that the National Park Service contract with the state or a political subdivision to review community plans and amendments for conformance to the comprehensive management plan. The Park Service would develop an agreement with and provide funds to the council to accomplish its responsibilities, including:

- provide technical assistance to help communities bring their plans into compliance with the comprehensive management plan
- assist local governments in amending their plans
- review local plans for conformance to the MNRRA plan
- monitor progress toward comprehensive plan implementation
- recommend modifications to the comprehensive management plan to address local government concerns
- recommend state legislation needed to implement the plan
- oversee regulatory streamlining efforts

The Department of Natural Resources. State legislation and rule adoption is recommended to require that local governments adopt and enforce ordinances consistent with the corridor comprehensive management plan, local comprehensive plans, and agency rules. The Department of Natural Resources would develop a model ordinance and would oversee and assist local government adoption and enforcement of ordinances. State legislation would give the Department of Natural Resources certification authority over local decisions. The Mississippi River Critical Area Program would be transferred to the Department of Natural Resources from the Environmental Quality Board and be enforced by the Department of

Natural Resources during the interim period before consistent local ordinances are adopted; at that time, the Critical Area ordinance for that community would be nullified. In reviewing draft local ordinance amendments, the Department of Natural Resources would seek comments from the commission and the Park Service and especially from the council since the council would be responsible for the plans on which the ordinances are based. The MNRRA act requires that the National Park Service contract with the state or a political subdivision to review local ordinances and monitor enforcement and other land use implementation actions for conformance with the comprehensive management plan. The Park Service would develop an agreement with and provide funds to the Department of Natural Resources to accomplish its responsibilities under this plan. This agreement would also confirm that the state would implement the MNRRA plan on its lands in the corridor. The Department of Natural Resources would:

- develop model ordinance and adopt rules to implement land use management portions of the MNRRA plan
- review development proposals for conformance to the comprehensive plan
- monitor overall progress toward plan implementation
- review variances for conformance to the plan
- recommend state legislation needed to implement the plan
- implement the MNRRA plan on its lands

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

- continue lead role on regulation of commercial navigation
- lead streamlining efforts for commercial navigation regulation
- report to commission on efforts to implement the MNRRA plan
- implement the MNRRA plan on its lands

Local Governments. Local governments would be the primary vehicle for implementing the land use management and open space portions of this plan, and local control of those authorities would be retained. State legislation would be sought to require that local planning and actions be consistent with this plan. Land use management would continue to be the responsibility of local governments, but their actions would be subject to concurrence by the Metropolitan Council (plans) and the Department of Natural Resources (actions). Local governments would continue to have the lead in local economic development planning activities. They would:

- revise plans and ordinances to conform to the MNRRA plan
- continue day-to-day implementation of land use controls
- acquire and develop parkland and build trails
- receive acquisition and development grants, if implementing plan
- conduct economic development activities

- operate local parks and interpretive facilities
- implement the MNRRA plan on their lands

Private Sector. The citizens and businesses in the metropolitan area are critical to the success of the MNRRA plan. Concern has been expressed by some parties interested in the river that the plan would hurt their interests. It is hoped that by working cooperatively to develop a joint understanding of the problems and a shared vision for the future of the corridor, citizens and businesses would recognize the benefits a coordinated plan could bring to everyone in the area. If implementation proceeds, the commission and partner agencies would make a major effort to enlist the help of businesses and landowners in corridor activities, including pollution prevention, bank cleanup, trail building, enhancing economic resources, and public education. Much has already been done by local industry for the good of the river, and this could be a sound basis for more. The private sector would:

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

Coordination and Consistency

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

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

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

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

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

There is a perception that the procedures for obtaining permits required by local, state, and federal agencies are onerous, confusing, and redundant. There seems to be no one authority or source of information on a number of river-related subjects. This perception is widely held by industry and even by local government officials. Those officials also mentioned that they are being impacted negatively by new mandates, without corresponding funding. The streamlining section addresses these issues. Some of the problems are currently being addressed by local, state, and federal agencies; activities resulting from the MNRRA plan would build on work that is ongoing.

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

• design guidelines — corridor partners (see sample design guidelines in appendix C)

• oversight and coordination of local land use decisions — metropolitan council and Department of Natural Resources

• review of federal activities — the National Park Service and other partners

• coordination of corridor activities — the commission and National Park Service

• streamlining of permits and regulations — a temporary task force

• coordinated land use plans and regulations consistent with the MNRRA plan — Metropolitan Council and Department of Natural Resources

In addition, the state legislature would be asked to require that all local plans and ordinances be made consistent with this plan.

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

While the previous reports and studies list a large number of governmental bodies with many responsibilities, this section of the plan concentrates on those with direct regulatory authority. This does not negate the importance or impact of planning and management efforts of nonregulatory agencies, nor does it exclude such efforts from coordination and consolidation. Several models for planning coordination currently exist among MNRRA governments and could be expanded. Examples of coordination of direct regulatory responsibilities also exist among MNRRA governments that can be used as models for the future by all levels of government. The existing efforts to coordinate permitting and other direct approval roles would be part of the foundation for the interagency coordination proposal. In December 1992 the governor of Minnesota directed all state agencies to review their programs and eliminate or reduce rules and regulations affecting Minnesota business (E.O. 92-15).

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

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

An effort to address streamlining the regulatory structure should address the following needs:

• a mechanism to expand cross-program coordination based on a river system perspective that fulfills congressional and other legislative mandates

• a mechanism to address funding priorities from a river system perspective

• the time involved in obtaining permits

• duplication of effort

• the results of state agency action pursuant to the governor's executive order to reduce regulations

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

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

While such general permits may require specific authorizing legislation, other regulatory actions on a smaller scale could be streamlined. Great opportunity lies in reducing redundancy of federal, state, county, and municipal permits or approvals. Recommendations could be made to change state legislation regarding delegating review authority and cooperative agreements.

In order to address these issues, the following initial strategies for streamlining would be pursued:

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

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

(3) A small task force consisting of representatives of local governments, the Metropolitan Council, Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, and an industry representative could be charged by the governor with improving the process in a limited time frame.

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

Several publications exist that could serve as models, such as the DNR *Shoreland Development Guide*. This effort could include completing a corridorwide set of design guidelines.

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

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

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

Compatibility With Other Plans and Programs

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

Local and Regional Plans and Programs. The most pertinent local plans and programs consist of the cities' and townships' critical area plans, local zoning ordinances, local comprehensive plans, parks and recreation plans, and special area plans, such as the St. Paul Riverfront Plan. These have been analyzed and the cities have been asked for input. Some inconsistencies were pointed out during this process, and have been resolved. However, since this plan contains a few policies that are more restrictive than some existing critical area plans, these existing plans would have to be revised. After the comprehensive management plan is completed, local governments would be asked to review and update their critical area plans and ordinances, which would be reviewed by the Metropolitan Council, the Department of Natural Resources, and the National Park Service to determine consistency. If inconsistencies exist, the Metropolitan Council and the Department of Natural Resources, working under agreements with the Park Service, would work with the unit of government to resolve the inconsistency. This includes the possibility of amending the MNRRA comprehensive management plan.

The Metropolitan Council's *Recreation Open Space Plan* is an important regional plan. The MNRRA plan envision's more local land acquisition along the river than contained in the current Metropolitan Council plan. It is anticipated that the regional plan would be updated to reflect the more ambitious open space concept articulated in this document. There have been no conflicts identified with the Metropolitan Council's regional development framework.

A representative of the Metropolitan Council serves on the Mississippi River Coordinating Commission and has been asked to review this document for consistency with regional plans.

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

Metropolitan Land Use Planning Act and Metro Governance Act
Shoreland Management Program
Minnesota Floodplain Act
Waters and Watercraft Safety Act
Metropolitan Surface Water Act
Minnesota Critical Area Act and Governor's Executive Order 130
Minnesota State Comprehensive Outdoor Recreation Plan
Wetland Conservation Act

There have been no conflicts identified with these plans and regulations. In addition, members of the commission include representatives of the Minnesota Department of Natural Resources, the Minnesota Historical Society, and the Minnesota Environmental Quality Board. These members have been asked to review the plan for consistency or potential conflicts with their agencies' plans.

Federal Plans and Programs. No conflicts have been identified between this plan and other federal agency plans for the corridor. Plans specifically reviewed were:

Minnesota Valley National Wildlife Refuge Master Plan
Upper Mississippi Land Use Allocation Plan (Corps of Engineers)

The commission includes members from the U.S Fish and Wildlife Service and the Corps of Engineers, who have been asked to review this plan for consistency with their plans and programs.

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

Water Quality

The MNRRA legislation, section 703(i)(2)(d), requires a statement on coordinated implementation regarding the provisions of the Clean Water Act and Safe Drinking Water Act. The provisions that pertain to the surface waters would continue to be implemented by existing federal, state, and local agencies, with oversight by the MNRRA commission to ensure that water quality standards are met and improvement in overall water quality in the corridor is achieved. Specific policies and actions are discussed in the resources management section above.

Costs and Priorities (Financial Plan)

Following are estimated costs to implement the proposed plan. This section constitutes the financial plan referred to in the MNRRA legislation, section 703(i)(2)(B).

Development. NPS development costs would be incurred for the St. Paul/Harriet Island interpretive/headquarters facility and the Minneapolis/St. Anthony Falls interpretive facility. Development costs cannot be estimated in great detail at this time. Estimates provided below are "class C," which means they are based on general size assumptions and the cost of constructing similar facilities in the Midwest. The Harriet Island building would be first priority because it would provide the primary center for corridor orientation and area headquarters. It would total about 19,000 square feet at a cost of about $8,347,000 for construction, furnishings, interpretive exhibits, and site development, including construction supervision and contingencies. Site surveys and design costs (advance and project planning costs) would add about $1.6 million to this cost. The facility development costs would break out approximately as follows:

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

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

The St. Anthony Falls interpretive facility would be the second priority for NPS development. The total costs of that facility can not be estimated until additional details are worked out with the partners in that area. Assuming a 12,000-square-foot facility, of which half would be funded by the Park Service, the NPS construction and interpretive display development would total about $2,286,000, which includes construction supervision and contingencies for 6,000 square feet of this space. Because a specific space has not been identified, this was estimated as if it were equivalent to a new building. Actual costs may be significantly higher or lower than this estimate, depending on the condition of the space selected for the interpretive center and potential historic preservation treatment needs. Park Service facility and interpretive exhibit design costs would be about $460,000 for this center (NPS share), again assuming new construction cost equivalency.

NPS wayside exhibits in the corridor would cost about $180,000, including design and production.

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

National Park Service Operations. Total annual salaries for Park Service staff when the area is fully operational would be about $831,000. Benefits add, on average, about 30% to salaries. Total staff benefits would be about $249,000. The staff would also need support materials and services (such as equipment, travel, and training). Support materials and services should total about $208,000 (or about 25% of salary). Thus, total annual personnel costs would be about $1,288,000. Support for the Mississippi River Coordinating Commission is included in this figure.

The cost of maintaining the St. Paul interpretive center and surrounding grounds is estimated at about $180,000 per year. This includes contract custodial, general repair, lawn care, landscape upkeep, and snow removal services.

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

Land Acquisition. There would be no costs for NPS land acquisition as the proposed plan is written. The land for the interpretive center/headquarters facility in St. Paul would be donated by the city of St Paul. Pursuant to Secretarial Order 3127 the site would be surveyed for hazardous waste. Cleanup costs, if any, would be borne by the city. Land for interpretive facilities in Minneapolis, Hastings, and Coon Rapids would be owned by other partners. There is the possibility that land acquisition costs would be incurred if eminent domain proceedings are required to protect threatened resources under the terms of the MNRRA legislation and this plan; however, eminent domain would be used only as a last resort in very limited circumstances, and any associated costs cannot be estimated at this time.

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

Funding. Funding for plan implementation would come from federal grants, state and local programs, donations from the private sector, and appropriated increases in the NPS operating budget. Funds from these sources would be sought through the normal budget process and administered by the Park Service in consultation with the commission. If funded by Congress, the Park Service would provide direct grants for up to 50% of the cost for public land acquisition and development by other entities for projects that conform to the MNRRA plan. The Park Service would also serve as a clearinghouse to suggest other federal grant programs available to local communities. However, other federal funds could not be used to provide the local 50% match for the program authorized in the MNRRA legislation.

The commission would stimulate fund raising activities by others to implement the visions and policies contained in the plan. The National Park Service would seek congressional authorization for a more general authority, if determined necessary during review of this plan, to make a broader range of grants available. This might include a range of local government activities that would be carried out to implement the plan. Priorities for these grants would be developed if the broader authorization is granted.

Following are alternatives to the proposed plan. The text emphasizes where the alternatives differ from the proposal. Where the alternatives are the same as the proposal the text is normally not repeated. Due to the conceptual nature of the proposal and the extensive reliance on cooperation and coordination for the MNRRA plan, alternatives cannot be developed in great detail at this time.

ALTERNATIVE A (NO ACTION)

GENERAL CONCEPT

The no-action alternative would continue existing trends and plans for the corridor. No overall comprehensive plan would be adopted for the river corridor, and local communities would continue to manage the river with existing coordination and cooperation efforts. Political boundaries would continue to delineate different management regulations, so individual segments of the 72-mile stretch of the Mississippi River would be managed according to different plans and programs.

LAND AND WATER USE

Land Resource Protection Concept

This alternative would continue existing city and county land use programs. No comprehensive land use management concept would be implemented for the 54,000 acres in the river corridor. Continuous open space would only be found where it already exists or where planned by individual communities, such as Minneapolis and St. Paul. There would be no comprehensive attempt to maintain a natural appearance from the river or its approximately 275 miles of shoreline in the corridor.

Land Use and Protection Policies

Land use, including riverfront location decisions, would be based on local plans without an overall concept or a consistent land use or site development policy. There would be no coordinated policy to encourage selective use of the approximately 8,500 acres within the 300-foot wide riverfront area as described in the proposed plan. Some communities currently require that development along the river be related to the river, but others have no such requirement. Setbacks vary and other resource protection regulations differ. No new incentives would be developed to encourage industries that no longer rely on the river to relocate away from the riverfront.

Minnesota DNR shoreland and critical area rules and local ordinances would continue to govern shoreland development, including setbacks and vegetative clearing. Some local requirements might continue to be stricter than the statewide standards.

Open Space and Trails

Open Space and Trails Concept. Open space development would take place pursuant to local plans without a comprehensive vision or coordinated plan for the river corridor. Ownership of existing public recreational land would not change. Neighborhood links to the river and access for persons with disabilities would be developed on an individual site basis rather than as part of a corridorwide initiative. Trails would be developed based on existing local and regional plans (see Existing Parks and Trails map).

Land Acquisition Concept. Existing local plans for land acquisition would be implemented, which would add about 2,000 acres to the existing 4,600 acres of public parkland in the corridor. No coordinated, corridorwide effort would be made to acquire continuous open space through the riverfront area. There would be no National Park Service/Mississippi National River and Recreation Area land acquisition grant program as authorized in the MNRRA legislation. Bicycle and pedestrian paths would continue to be developed in some areas but not in others.

Public Land Ownership. Acquisition of land for public open space and recreation would take place according to the individual plans of the political jurisdictions with no special coordination efforts in the river corridor. There would be no additional NPS lands in the corridor. As in the proposed plan, individual communities would be the primary public park landowners in the corridor.

Commercial Navigation

Commercial navigation would continue under existing management. The existing permitting system would continue. Existing barge fleeting along nine miles of shoreline would continue under different local jurisdictions, and impacts would vary. No coordinated effort would be undertaken to identify additional barge fleeting areas. No criteria would be designed for coordinated decision making for fleeting locations. Barge fleeting areas would increase based on the results of individual permit requests.

Management Zoning

There would be no NPS land or management zoning in this alternative.

RESOURCE MANAGEMENT

Natural Resource Management

Pollution. Under this alternative there would be no additional emphasis on pollution prevention due to a comprehensive MNRRA plan; existing pollution control standards would continue, but no increased monitoring or enforcement would be provided. No new legislation would be sought to control pollution as a result of a MNRRA plan, nor would additional incentives be likely for pollution reduction. Fertilizer and pest control chemicals would continue to be used in residential and agricultural areas based on existing guidelines and regulations. Corridorwide noise standards and sources would not be evaluated. There would be no coordinated efforts to improve standards, education, and enforcement throughout the river corridor.

There would be no overall policy discouraging the use of salt on icy roads. No additional effort would be made to prevent floating debris from entering the river. National Superfund priorities would not change for corridor sites as a result of this plan. Spill prevention and emergency response plans would remain as they are, and existing water quality monitoring programs would continue.

Threatened and Endangered Species. Existing policies and programs for the preservation and protection of threatened and endangered species would continue with no corridor-specific coordination efforts or additional input from the National Park Service. There would be no increased habitat management in the corridor resulting from a MNRRA plan.

Natural Resource Research Needs. There would be no MNRRA resource management plan to determine further research needs specific to the river corridor.

Cultural Resource Management

Corridor cultural resources would be subject to existing plans and programs. No comprehensive management strategy would be adopted for the corridor. There would be no MNRRA resource management plan to determine further research needs specific to the river corridor.

Economic Resource Management

Federal, state, and local policies and regulations would continue to guide economic resource protection. The recent state recognition of the inseparable connection between a healthy environment (intact ecosystems) and economic activity would assist in the development of a framework for sustainable development. There would be no additional effort to increase tourism and associated visitor activities in the corridor.

VISITOR USE AND INTERPRETATION

Under this alternative tourism and visitor use would continue to be guided by state and local efforts without additional coordination or input from the National Park Service or the Mississippi River Coordinating Commission. Current services would continue. Current user conflicts would be addressed using the present management structures. There would be no coordinated effort to plan for and manage recreational use in the corridor.

The responsibility for interpretation would remain with existing entities. No new programs would be developed that portray the national significance of the Mississippi National River and Recreation Area. There are many excellent programs at present, which would continue, and many opportunities exist for coordination between state and local programs and facilities. Any such coordination efforts would be the responsibility of the existing agencies with no single agency taking the lead.

GENERAL DEVELOPMENT

In this alternative no NPS interpretive centers would be built and no cooperative centers would be established. No NPS headquarters would be constructed. Other development would proceed according to local plans. There would be no coordinated effort for park and recreation development, and no National Park Service/Mississippi National River and Recreation Area grant program.



EXISTING PARKS AND TRAILS

MISSISSIPPI NATIONAL RIVER & RECREATION AREA

United States Department of the Interior
National Park Service

DSC • MAR 93 • 607 • 20007A

PARK OPERATIONS

There would also be no change in NPS staff, and administrative offices would continue to occupy leased space in St. Paul.

PLAN IMPLEMENTATION

Policies and programs now being implemented or planned by local jurisdictions and state and federal agencies would guide action in the river corridor.

This alternative would require significant changes in the MNRRA legislation by Congress, as it would not meet basic mandates in the act. This could entail disbanding the Mississippi River Coordinating Commission and rescinding the mandates for a MNRRA plan, including those regarding coordination of policies and programs and consolidation of permits.

Monitoring and review activities by the National Park Service could continue or these duties could be rescinded by congressional action.

Ultimately, Congress could deauthorize the Mississippi National River and Recreation Area, removing the national designation and ending all further MNRRA activities.

Costs and Priorities

No federal funding for new activities would be needed to implement this alternative. Current programs would continue, as needed, for NPS operations, interpretation, and GIS assistance. No additional federal funding would be required. Raising and acquiring funds for local programs would remain the sole responsibility of the implementing agencies.

Funding

No additional federal funding would be provided. State and local agencies could continue to apply for parkland grant funds through the federal Land and Water Conservation Fund.

ALTERNATIVE B

GENERAL CONCEPT

This alternative would emphasize greater natural, cultural, and economic resource protection and enhancement, increased open space preservation, more rigorous riverfront policies, greater shoreline restoration, and an emphasis on passive visitor use. Efforts for resource protection would be coordinated between the National Park Service and existing state, federal, and local programs, with the Park Service taking the lead on protection of the natural and cultural resources. While alternative B has some elements of a more traditional national park, it would still involve a major partnership effort consistent with the MNRRA legislation.

LAND AND WATER USE

Land Resource Protection Concept

Under this alternative, MNRRA activities would focus greater attention on the protection of the natural, cultural, and existing economic resources in the 54,000-acre corridor. Economic development activities would continue to be the responsibility of existing state and local programs, as in the proposal. The National Park Service would guide and coordinate the efforts of local, state, and federal agencies in resource protection, open space, and passive visitor use activities. In the event of conflicts between resource management goals, natural and cultural resource preservation would be given preference. Solutions that address all aspects of the resources in the corridor would be sought.

Greater open space would be encouraged than in the proposed plan, and developments would be designed to appear more natural from the river. The natural appearance and function of sensitive features would be protected or restored. Further degradation or alteration of these features would be strongly discouraged.

Land Use Protection Policies

These policies would be strengthened by implementing programs and guidelines to actively protect, maintain, and restore the natural appearance of the river, wetlands, bluffs, vegetation, and shorelines. Cultural resources would also receive more protection, and preservation would be encouraged to a greater degree than the proposal. There would be a more extensive land acquisition program than in any other alternative. Regulations would be enacted and enforced for land use locations, designs, and construction. Currently undeveloped areas, totaling about 19,000 acres, would be kept open and used for recreation to the maximum degree possible. It is recognized that the actual amount of public open space in this alternative would still be far less than the 19,000 acres that are currently agricultural or vacant lands. Alteration of bluffs, shorelines, wetlands, or the floodplain would be prohibited in this alternative.

The riverfront policy in alternative B would be more restrictive than in the proposal or the other alternatives. The first 300 feet back from the river (about 8,500 acres total) would be reserved exclusively for open space and river-dependent land uses. Terminals, marinas, and

similar activities would continue to be allowed, but other uses would favor open space and recreation activities. Shoreland restoration would be stressed more in this alternative to provide a continuous, wide, and heavily vegetated area along the river wherever possible. Setbacks would be more restrictive. Land use policies would place greater emphasis on resource protection; inconsistent uses in the riverfront area would be phased out, and funds would be provided for purchases of such uses. No river-dependent uses would be developed in conjunction with open areas or in isolated or unrelated sites, and none would impair public access to or views of the river. Only native vegetation or natural-appearing materials would be used to halt bank erosion. New river-dependent uses would be clustered or would replace uses not dependent on a river location.

Vacant, nonhistoric structures in the riverfront area would be recommended for removal if no new use or site improvements were implemented. Economic uses would be discouraged along the riverfront unless they were traditional, river-related uses. Historic structures would be rehabilitated or adaptively reused to maximize preservation and interpretation.

The bluff line policy would be more restrictive in alternative B than in the proposal or other alternatives. The entire first 100 feet back from the bluff line would be preserved in a natural state or revegetated to screen development in order to minimize visual impacts and protect views.

Open Space and Trails

Open Space and Trails Concept. More extensive open space and trail development would be provided in this alternative than in the proposal. The general concept is similar to the proposal but on a larger scale. The amount of open space to be acquired in this alternative cannot be determined at this time. The amount of undeveloped land in the corridor is about 19,000 acres. Of that, over 9,000 acres are already zoned for future development, and it is likely that pressures will grow to rezone and develop additional lands as the Twin Cities region grows. If this alternative is selected, the National Park Service would work with state and local agencies to identify and cooperatively assure maximum open space opportunities for the corridor.

Pedestrian and bicycle paths would be emphasized to a greater degree in this alternative. The first 300 feet back from the riverfront would be preserved as open space to a much greater degree than in the proposal or other alternatives, and this area would be the top priority for land acquisition. Open space acquisition criteria would place a greater emphasis on natural and cultural resource protection. Abandoned railroad rights-of-way would be aggressively acquired for trail development or other open space needs. Easements would be required in new developments for future trail corridors as in the proposal.

The downtowns would continue to appear more structured than the rest of the corridor, although more natural-looking designs would be encouraged in this alternative. There would be an increase in corridor-related activities for residents and visitors. As with the proposal, efforts would be made to integrate neighborhoods and activity centers into the corridor.

Land Acquisition Concept. The National Park Service would take a much greater role in promoting additional park land acquisition in the corridor, including direct NPS land acquisition. Many existing parklands would be voluntarily transferred to the National Park Service through donations by local governments. It is likely under this alternative that the

Park Service would cooperate with existing land management agencies and share management of many parks, open spaces, and trail corridors.

Commercial Navigation

Commercial navigation activities and barge operations would continue to operate at current levels and existing fleeting areas would be protected. There would be a freeze on new fleeting sites, and existing fleeting areas would be maintained in their current state, which occupy about nine miles of shoreline in the corridor. New areas would only be allowed if research verified the necessity of the action and documented that there would be no adverse effect on natural or cultural resources. Comprehensive planning would include identification and mapping of all proposed fleeting sites in the corridor before any new ones are approved. No-wake zones and other surface use regulations would be established and enforced. The National Park Service would also cooperate with the commercial navigation industry and respective permitting agencies to ensure that natural and cultural resources are not impaired by current activities.

Management Zoning

Much more land would be managed by the National Park Service than in the proposal, although it is impossible to quantify at this time. With exceptions for developed areas, NPS landownership would be primarily in the natural environment or historic preservation category.

RESOURCE MANAGEMENT

The National Park Service would focus on natural and cultural resource management and have a greater leadership role in research and coordination than in the proposal. The general management strategy for addressing resource management is somewhat similar to the proposal except the Park Service would more actively manage and monitor resources, provide greater technical assistance, administer larger grants, and develop extensive cooperative agreements. The Park Service would also provide expanded information clearinghouse functions, coordinate and administer research grants, and actively conduct scientific research.

Natural Resource Management

Pollution. The National Park Service would more actively encourage strict enforcement of point source pollution control regulations throughout the entire corridor, setting up its own supplemental air and water quality monitoring program to identify noncompliance and pursue corrective action. Nonpoint source pollution would be reduced through extensive NPS and cooperator education programs and promotion of the use of native species that do not require fertilizers or pesticides. Contemporary construction techniques and new techniques for stormwater retention would be encouraged to reduce runoff. A larger program of coordinated cleanup efforts would take place along the length of the corridor under NPS leadership, which would be expected to improve the scenic quality of the area, reduce pollution, and improve wildlife habitat. The National Park Service would stress the reduction

of sediment toxins to levels that would allow removal of all fish consumption advisories in the corridor. Every effort would be made to attain swimmable and fishable water quality in the entire corridor. The National Park Service would work more extensively with other agencies to speed the cleanup of the Minnesota River.

Threatened and Endangered Species. Protection of threatened and endangered species would be a high priority. An extensive NPS effort to identify and protect species and their habitat would be undertaken, including NPS land acquisition for habitat protection. The National Park Service would take more of a leadership role in habitat management for all species in the corridor under this alternative.

Natural Resource Research Needs. Research needs and actions in this alternative would be greater than the proposal. The National Park Service would actively conduct research that focuses on maximum natural resource protection. A coordinated effort would be made to identify these research needs, develop an information clearinghouse, administer research grants, and provide technical assistance. The data base of the NPS geographic information system (GIS) would be expanded to meet greater corridorwide research needs. An inventory of existing research and programs would also be conducted and coordinated with new research efforts.

Cultural Resource Management

Research needs and management actions for cultural resources would be greater than the proposal, and there would be an increased emphasis on cultural resource protection. Historic uses of historic structures would be encouraged as would adaptive compatible uses that would not damage the significance of the resource in any way. If necessary for adequate protection of cultural resources, new state, federal, or local legislation would be sought. Direct NPS acquisition might be used to protect the most significant resources.

Economic Resource Management

Economic resource protection would be undertaken in this alternative as in the proposal, but most management activities would continue under existing federal, state, and local programs. New economic development would be encouraged only when compatible with resource protection objectives. There would be additional economic research but it would be limited to baseline data collection on the significant existing economic resources in the corridor. Identification of natural and cultural resource research needs would include an exploration of their effects on economic resources.

VISITOR USE AND INTERPRETATION

Visitor Activities and Recreational Resources

Visitor activities and recreational resources would be similar to the proposal, but would have a greater emphasis on passive recreation activities and minimal impact on corridor resources. Activities consistent with high levels of resource protection would be encouraged. Visitor use levels would minimize impacts to corridor resources. A visitor use management plan would

be prepared that would establish activity zones for visitor activity and access and more aggressively control visitor use. Activities that would cause minimum impact include contemplation of nature, hiking, and fishing. Increased motorcraft activity would be limited to desired levels.

The use of canoes, rowboats, kayaks, or other boats without motors would be encouraged. More liberal use of no-wake zones would also be encouraged to provide additional quiet zones in the corridor and protect shorelines. Tour boats and other visitor-oriented commercial enterprises would also be promoted. Conflicts between uses would be settled in favor of those less damaging to the environment.

Visitor Use Management

A visitor use management plan would be prepared as in the proposal but with a greater emphasis on resource protection and minimizing conflicts between users. Visitor activities would be limited to protect natural resources but would include hiking, biking, canoeing, cultural education, nature study, fishing, and quiet contemplation.

Recreational motorboating and marina expansion would be controlled, and some areas would become inaccessible by boat. No marina or boat ramp development would be allowed until the visitor use management program was final. Activities would be designed to emphasize stewardship and resource protection with selective access. Area characteristics, resource quality, and potential impacts would all be evaluated before appropriate visitor uses would be determined. Activities would vary according to the nature of the resource and the location; resource-related special events and major interpretive activities that contribute to an understanding of corridor resources would be emphasized.

Access would be provided at levels and locations consistent with maximum resource protection. Some sensitive natural and cultural resources might have access restricted to insure their integrity but could be visible from adjacent areas. Parkland site development would emphasize natural conditions (cultural in historic areas). Trail access would be provided in all new development.

Interpretation, Education, and Visitor Services

Interpretive activities would be similar to the proposal with a greater emphasis on enhancing knowledge of resource values and protection needs. The interpretive emphasis would stress stewardship of corridor resources. Threats to the resources would be detailed and emphasis would be placed on the need for greater protection efforts. Examples of wise stewardship would be portrayed and activities that degrade the environment would be listed. Restoration demonstrations would be given. NPS-operated tour boats would be used to aid in interpretation for visitors and school groups.

GENERAL DEVELOPMENT

The National Park Service would develop a interpretive center in St. Paul as in the proposal. The Park Service would also have a more direct responsibility for interpretive centers in Minneapolis and interpretive contact stations in Anoka County and Hastings.

More emphasis would be placed on care of the resources in the corridor and on preserving the species that are dependent upon a clean and thriving Mississippi River. More waysides and kiosks would be provided than in the proposal. They would be placed at a variety of sites and would have more direct NPS involvement.

NATIONAL PARK SERVICE OPERATIONS

A larger National Park Service staff would be required than in the proposal due to the increased role in corridor management. Numbers cannot be estimated until additional information is available on the amount of land to be managed, extent of resource management responsibilities, and the direct responsibilities for facility management, but it would be considerably greater than in the proposal. Administrative headquarters would be located at the NPS facility in St. Paul as in the proposal. District ranger stations would be established in outlying areas; the numbers and locations would depend on the amount of land managed directly by the Park Service.

In this alternative the National Park Service would have an increased role in law enforcement on the river, with concurrent jurisdiction on both the river and NPS lands.

PLAN IMPLEMENTATION

Under this alternative the National Park Service would have more direct authority to implement the resource management, visitor use, and development components of the comprehensive management plan and would work with other entities to ensure plan implementation. For example, additional federal or state legislation could grant the National Park Service the authority to require permits for certain land use activities, such as major development proposals in the corridor. The Park Service would continue to monitor all activities in the corridor pursuant to existing mandates in the MNRRA act.

Partner Roles

The National Park Service would take a more direct role in the management and protection of most publicly owned park resources in the Mississippi National River Recreation Area in this alternative. The National Park Service would work with other agencies to develop a detailed land acquisition plan. Implementation of the comprehensive management plan would be achieved by the Park Service in cooperation with other entities.

Coordination and Consistency

In addition to actions cited in the proposal, coordination and consistency would be accomplished under this alternative by:

• a federal requirement for local plans to conform to the MNRRA plan

• MNRRA commission veto power over major developments determined to be detrimental to corridor resources

• a National Park Service-led effort to streamline and coordinate permitting and regulatory actions

• additional federal legislation to grant regulatory authority to the Park Service or the commission

• greater leadership and oversight on commercial navigation management activities by the National Park Service and the commission

Costs and Priorities

Most necessary funding would come from federal appropriations to the National Park Service. It would be supplemented by other federal and state grants and donations issued to the local and state governments to implement the plan.

Due to the conceptual nature of the alternatives and their dependence on cooperation by others in the corridor, detailed cost estimates cannot be developed at this time. It is likely that the cost of this alternative would be significantly higher than the proposal due to its more active NPS role, additional NPS park land acquisition, enlarged NPS land grant program, and need for more NPS staff. If this alternative is selected as the preferred alternative for the final plan, more detailed cost estimates will be developed within one year of final plan approval.

ALTERNATIVE C

GENERAL CONCEPT

The promotion of active recreation and tourism in the MNRRA corridor is a primary focus of alternative C. This alternative would provide for greater levels of development with the same high quality design standards as in the proposal or alternative B. No significant new land use policies would be proposed or encouraged. As in the no-action alternative, the individual corridor communities would continue to delineate different land use management regulations, so individual segments in the MNRRA corridor would be managed according to different plans and regulations, without significant efforts for consistency. The MNRRA visitor use and interpretive plan would serve in a similar manner to the proposal to guide and assist certain aspects of those plans, such as parks and recreation planning.

LAND AND WATER USE

In this alternative, the most significant resources would be protected, enhanced, and marketed to stimulate recreation and tourism. Alternative C would provide for a greater variety of development, using high visual quality standards throughout the corridor, with locations to be determined more by the market, subject to existing local controls and site development guidelines. Existing legal authorities or limited land acquisition would be used to protect the most significant resources. A maximum level of river access would be provided.

Land Resource Protection Concept

Locations of various land uses would be determined by local governments, including consideration of economic development opportunities, especially commercial recreation and tourism opportunities. Some land would be acquired to provide increased public recreation and tourism. Development location decisions would be based to a greater degree on economic development opportunities, consistent with basic resource protection stressing nationally significant resources. Design guidelines would be used to ensure attractive developments that stimulate tourism and encourage quality business. Technical assistance could be provided by the National Park Service, Metropolitan Council, or other agencies to encourage desired land uses.

Land Use and Protection Policies

Recreation and tourism development would be emphasized and other compatible development would be encouraged. New uses would be clustered to reserve some open space. As in the proposal, new uses should be compatible with adjacent uses. The amount and location of open space would be determined by recreation demand, particularly tourism needs.

There would be no new riverfront policy for land use in the approximately 8,500 acres within 300 feet of the shoreline in the corridor. No additional natural shoreline restoration would be

encouraged and bluffs would receive protection under existing state and local programs and ordinances.

Existing state and local setback restrictions and height limits would continue with less coordination and consistency than in the proposal or alternative B. Design guidelines would be developed for the corridor and local agencies would be encouraged to adopt them to ensure quality individual developments. Adaptive reuse of historic structures would be encouraged to ensure attractions for tourists and to preserve the most significant cultural resources in the corridor. Visual impacts would be important in this alternative but would be regulated on a local basis.

Open Space and Trails

The primary emphasis in this alternative would be the promotion of recreation and tourism in the area. There would be some additional public park land acquisition, but the preference would be placed more on larger noncontiguous parcels to support active recreational pursuits and less on continuous open space along the river. Land acquisition by the most appropriate public entity would be encouraged, especially when the land would serve to promote active recreation and increased tourism. No additional NPS lands would be acquired and existing NPS holdings would be transferred to another agency.

Some additional open space would provide for the desired visitor experience and encourage tourism, but it is expected that this would be somewhat less overall than in the proposal and considerably less than in alternative B. Overlooks would be provided for river viewing at strategic locations. Additional pedestrian and bicycle paths would be provided, although a continuous trail would be a lower priority.

The priorities for land acquisition would be, in order of importance, public recreation, public river access, loop trails (including motorized vehicle trails) in large blocks of land, and lands that would assist local economic development by promoting tourism. Resource protection acquisitions would be limited to nationally significant resources immediately threatened by development.

Commercial Navigation

Commercial navigation would continue under existing management. No new regulations would be adopted. Barge operations and fleeting areas would accommodate market demands while protecting nationally significant resources. The present permitting system would continue with the minimum additional involvement by the National Park Service to meet the requirements of the MNRRA legislation. Existing barge fleeting along nine miles of shoreline would continue under varying local jurisdictions. Criteria for decision making for fleeting locations and other issues would result from other coordination efforts. Conflicts would be minimized between commercial and recreational river traffic through expanded educational programs.

Management Zoning

There would be no NPS land in this alternative and therefore no NPS management zoning.

RESOURCES MANAGEMENT

The NPS role in science and resource management would be somewhat similar to the proposal, except limited to minimum monitoring of corridor-related resource issues and coordination of scientific information related to the corridor. The National Park Service would lend some technical assistance, such as providing information for the preservation of historic structures to encourage adaptive reuse.

Natural Resource Management

Under this alternative existing pollution control standards would be enforced. A system of incentives for reducing pollution below existing standards would be provided. The NPS staff would act as a clearinghouse for information on innovative techniques to reduce pollution. Educational programs would be developed to inform private landowners, businesses, and industries about practices that would protect the river environment.

Resource management would continue to be the responsibility of existing federal, state, and local entities. Coordinated cleanup efforts would take place along the length of the corridor to make it more attractive to visitors, but no particular efforts would be coordinated to reduce the use of salt or of fertilizers and pesticides in general. Attaining swimmable and fishable water quality along the entire corridor would not be a high priority for the area, but would be a continuing goal based on existing state and federal programs and the probable increase in tourism that would result.

Protection of threatened and endangered species is required under federal law and would be done, but with no increased efforts by NPS staff. No intensive effort to identify such species and protect them in the recreation area would be undertaken, but existing agency programs would continue and each locality would conform to existing laws and regulations. Wildlife observation, particularly of rare species, could be promoted to attract visitors to the area.

Research needs would be similar to the proposal. In addition, research would be conducted on coordinating resource protection with increased visitor use.

Cultural Resource Management

Management of cultural resources would be much the same as in the proposal, although the priority for resource preservation would be somewhat lower. Historic structures would be restored or adaptively reused as needed to increase visitor interest in the area and its story.

Restoration and preservation of historic and other cultural sites would be guided by their potential as visitor attractions more than in the proposal. Research needs would be similar to the proposal with a lower priority for comprehensive surveys.

Economic Resource Management

Increased tourism and visitor use would be a major focus of this alternative. Natural and cultural resources would be protected because they are powerful attractors for tourist dollars. Economic interests along the corridor would be encouraged to protect the area. The priority to preserve existing economic resources would be higher than in the proposal, and new economic development would help to ensure the economic health of the corridor.

Like the no-action alternative, federal, state, and local policies and regulations would continue to guide economic development; in addition, except that recreation and tourism development would be encouraged. Cooperation would be facilitated between existing visitor services and industry to promote river corridor recreational opportunities.

In addition, the coordination and streamlining of regulatory and management programs as mandated by Congress and described in the proposal would be pursued.

Recreation Research Needs

Recreation research needs would be greater than in the proposal. In addition, the National Park Service would conduct more research on how to increase recreation and tourism in the corridor. For example, research linking improved water quality to increased recreational use and visitor expenditures in the area would provide an incentive for further pollution reduction. Market research on the types of recreation desired by visitors and on methods of attracting more visitors would be done.

VISITOR USE AND INTERPRETATION

Visitor use and interpretation programs would be similar to the proposal with the following exceptions. More active types of recreation would be encouraged. Expanded access to the river for recreational craft would be promoted, including canoes and small motorcraft such as fishing boats. Educational programs for recreational boaters of all types would be added. Additional water safety monitoring and enforcement activities would be pursued contingent on funding.

Visitor Activities and Recreation

This alternative would emphasize more active recreational activities, such as power boating. However, an extensive mix of experiences for visitors would also be provided throughout the corridor. Historic resources would be publicized to attract visitors. Diverse activities (from nature study to shopping) would be promoted. Transportation into and through the corridor would be provided, with maximum possible access by trail and road, including access for snowmobiles and off-road vehicles. New developments would be required to provide trail access. Activity zoning would be used to reduce conflicts.

Visitor Use Management

As in the proposal, a visitor use management plan would be prepared by the National Park Service and other entities in the corridor. The plan would use area characteristics, resource quality, economic benefit, and potential impacts to evaluate the types and levels of activity appropriate for specific areas. Visitor activities would be as varied as possible and would include hiking, boating, biking, snowmobiling, canoeing, cultural education, nature study, fishing, and shopping.

Recreational boating and controlled marina expansion would be encouraged. Activities would be designed for maximum possible economic benefit to the corridor. Resource-related special events and major interpretive activities that contribute to an understanding of natural and cultural features would be encouraged and could bring significant tourist traffic into the area.

Access would be provided at all possible levels and locations consistent with resource protection. Neighborhoods would be integrated into the corridor and access to parks, open space, activity centers, and historic resources would be similar to that of the proposal.

Interpretation, Education, and Visitor Services

The widest possible range of experiences would be provided consistent with the protection of significant resources. The interpretive emphasis would include more efforts to address the working river and the history of human interactions with the river for economic benefit.

GENERAL DEVELOPMENT

Information stations run by local agencies would be located throughout the corridor and would stimulate visitor activities and tourism. The main role of the National Park Service would be to market the area resources and stimulate visitor use though publications and other nonstructural means. Other entities would be encouraged to build and operate major visitor centers to attract people and provide interpretation stressing the working river. Numerous associated interpretive sites would be located in the corridor. Boats would be available for tours, and the Park Service would provide training for tour operators. Additional recreational facilities and related services would be needed to accommodate increased visitor use. These would be developed by the private sector and local agencies.

NATIONAL PARK SERVICE OPERATIONS

All entities would continue current responsibilities for planning, staffing, and program implementation. The Park Service role would be limited to technical assistance (if requested) such as program planning and media design or coordination of interpretive program information between areas. Overall staffing levels could be similar to the proposal. While there may be less need for land use management expertise, there is a possibility that more seasonal interpreters would be needed to accommodate increased visitor use and cooperative interpretive efforts. NPS staff would include more marketing and tourism expertise. Administrative headquarters would continue to occupy leased space in St. Paul.

PLAN IMPLEMENTATION

Existing federal, state, and local responsibility for resource management and interpretation would continue, as in the no-action alternative. Implementation of the plan would be accomplished mainly through cooperative agreements between state and local units of government. The National Park Service would play a minimal role in management of the corridor but could serve as a facilitator between communities along the river and provide technical assistance and some leadership in interpretation and visitor use management.

Partner Roles

Cooperative agreements between all responsible entities would be used to implement the comprehensive management plan. The NPS role would be as a facilitator rather than as a land manager and implementor. The commission would have an advisory role, until it "sunsets" in 1998.

State and local agencies would continue their existing roles, as in the no-action alternative.

In this alternative the National Park Service would develop an agreement with the Metropolitan Council only (without the Department of Natural Resources) to provide monitoring of land use planning and control in the corridor.

Coordination and Consistency

There would be no major effort aimed at coordination and consistency, although NPS staff would provide a minimal level of coordination activity. The NPS staff would work with existing tourism agencies to coordinate and supplement their programs.

Permitting and Regulatory Authorities

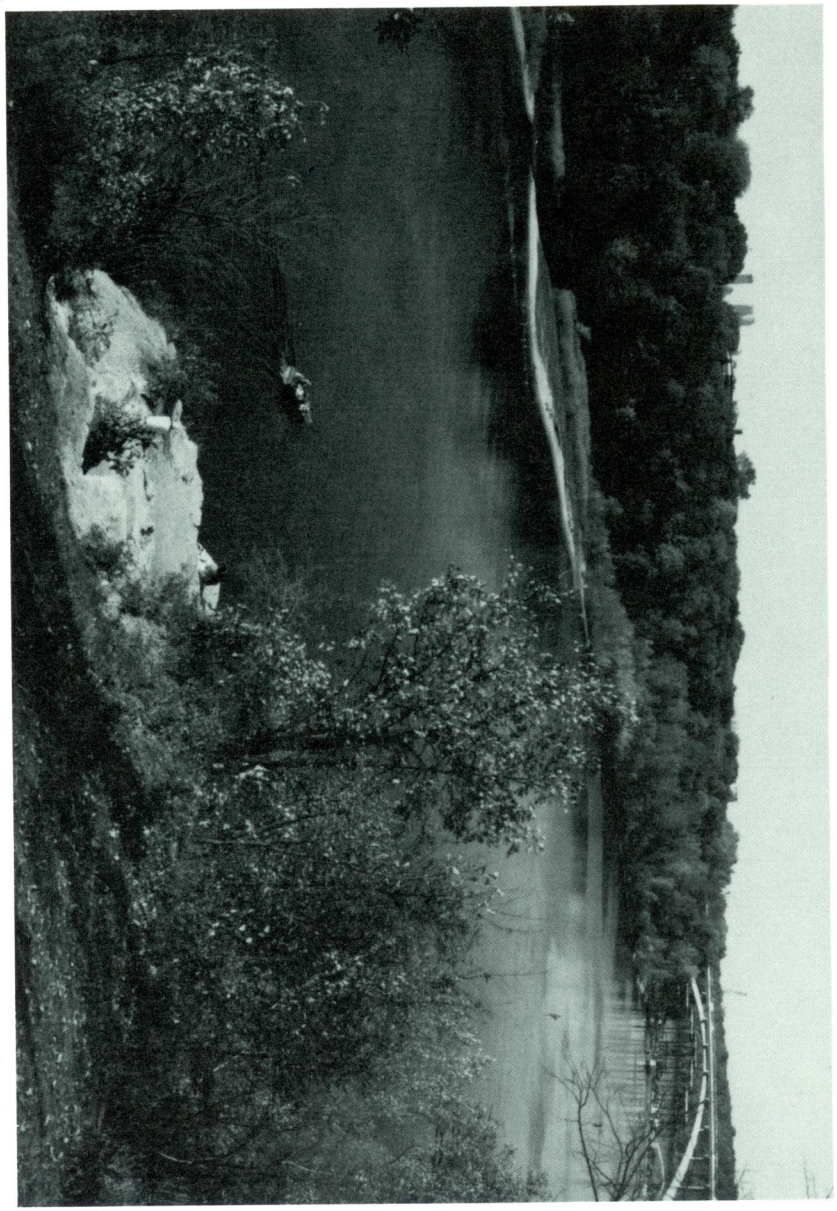
This alternative would be similar to the proposal, and there would be more extensive efforts to streamline the regulatory process to encourage high quality development and historic building preservation projects by corridor developers.

Costs and Priorities

All development, operation, and maintenance of facilities along the corridor would remain the responsibility of the existing management agency. Funding would come primarily from state and local entities and the private sector. The National Park Service could serve as a coordinator for existing federal grants and assistance programs and as an administrator of small grants for qualifying projects. There would be no costs for NPS land acquisition or development. The grants program would probably be similar to the proposal with greater emphasis on local park land development for recreation and tourism and less on land acquisition.

Major Plan Element	Proposal	Alternative A (No Action)	Alternative B	Alternative C
Concept	•integrate and coordinate use, resource preservation, and development	•no additional coordination efforts; continue existing policies and programs	•emphasize resource preservation with some more use and development	•emphasize visitor use and tourism; protect significant resources
Land and Water Use	•coordinate resource protection/land use •continue existing uses •reserve 300 feet riverfront area for river-dependent & river enhancing uses •protect shoreline and bluff •additional open space by local governments •monitor barge fleeting	•existing agencies continue to base decisions on individual policies •no corridorwide coordination efforts or regulations •continue existing barge fleeting policies	•greater open space than proposal •emphasize natural shoreline appearance •300 foot shoreline area for river-dependent uses only •phase out nonriver-dependent uses within 300 feet •protect bluff area •freeze barge fleeting areas	•land use, usually no action •encourage new, high-quality development •promote design excellence stimulating tourism •provide additional open space, focus on recreation & tourism •growth in barge fleeting per demand
Resource Management	•increase efforts to reduce pollution •coordinate research by existing agencies •Monitor resource threats •NPS provides coordination, technical assistance, GIS,	•continue existing programs •no new efforts to reduce pollution or improve monitoring •sustainable development will rely on state programs	•encourage pollution prevention, cleanup, enforcement •NPS more active in mgmt. and monitoring •increase emphasis on resource protection •continue economic resources/uses under existing management	•emphasize existing pollution control programs •promote recreation and tourism •resource protection to attract visitors and meet minimum legal requirements •continue nonrecreation uses
Visitor Use and Interpretation	•provide broad range of activities in appropriate areas •NPS lead role to coordinate efforts •NPS develops interpretive programs that focus on national significance of all corridor resources	•state and local efforts continue with no additional coordination efforts •user conflicts handled by existing management structure •existing interpretation programs continue without additional coordination	•emphasize passive visitor use activities with minimum impact •increased monitoring and use regulation •educational programs same as proposal •NPS lead role to coordinate interpretive programs	•emphasize active recreation use and increased tourism •provide additional access for boaters •increase safety education, enforcement •provide interpretive programs with greater emphasis on tourism and working river
General Development	•NPS interpretive/admin. facility in St. Paul, cooperative interpretive facility in Minneapolis; contact stations at Coon Rapids Dam and Hastings area •additional local facilities	•no NPS visitor centers, other interpretive facilities developed per local plans	•develop extensive NPS interpretive and recreational facilities •install additional waysides and kiosks •support additional local facilities	•no NPS visitor centers; other interpretive facilities per local plans •support additional recreational facilities
National Park Service Operations	•expand NPS staff in planning & resource management, interpretation & administration •develop administrative office at St. Paul interpretive center	•no increase in NPS staff •continue to lease space for NPS administrative office	•expand NPS staff •add'l. NPS staff for increased monitoring and land management activities •NPS concurrent mgmt. jurisdictions on river	•possibility increased seasonal staff for increased recreation and visitor use •add expertise in marketing and tourism
Plan Implementation	•extensive partnerships, •coordination & oversight by MRCC/NPS •agreements with others to review plans and actions for conformance to MNRRA plan	•existing policies and programs continue •no grant program •possible deauthorization of MNRRA by Congress	•extensive partnerships •NPS more direct role in resource management •NPS monitor activities as mandated in legislation under agreements with local governments	•extensive partnerships •agreements with another agency to monitor land activities as mandated in legislation •stronger NPS role in recreational development

AFFECTED ENVIRONMENT



The Mississippi Gorge in the Twin Cities

AFFECTED ENVIRONMENT

From its source at Lake Itasca in northern Minnesota, the Mississippi River flows south some 2,400 miles to the Gulf of Mexico near New Orleans. The Mississippi National River and Recreation Area corridor includes 72 miles of the Mississippi and adjacent lands (see Boundary map). Also included are four miles of the Minnesota River and adjacent lands upstream from its confluence with the Mississippi. Dayton marks the northern limit of the Mississippi National River and Recreation Area; the southern limit is about 4 miles south of Hastings.

The Mississippi National River and Recreation Area draws a curve through the heart of Minnesota's Minneapolis/St. Paul metropolitan area. The boundary includes approximately 54,000 acres of public and private land and the river and incorporates land in five counties — Anoka, Ramsey, Washington, Dakota, and Hennepin. Two major tributaries enter the Mississippi in the MNRRA corridor – the Minnesota and the St. Croix rivers. Together these three bodies of water are sometimes called the "tri-river" system.

To assist in understanding the alternatives and their impacts, more detailed information is provided for Harriet Island and the St. Anthony Falls area, which are the two primary areas identified for possible visitor interpretation centers for the Mississippi National River and Recreation Area. Harriet Island is located on the west shore of the Mississippi opposite downtown St. Paul. The St. Anthony Falls historic district straddles the Mississippi River near downtown Minneapolis, encompassing approximately 800 acres.

NATURAL RESOURCES

Geology and Physiography

The heart of the Mississippi River corridor is a bedrock depression known as the Twin Cities basin, a depression filled with a series of sedimentary rocks overlain by a cap of recently deposited glacial drift (Anfinson 1984). During the early and middle Paleozoic Era (600 to 430 million years ago), a shallow sea covered the region. The upper three rock layers were deposited by an Ordovician Period sea that encroached on eastern Minnesota from the west about 500 million years ago. The lowest of these three upper strata is the St. Peter sandstone, which is a very soft white rock that is up to 155 feet thick near the center of the basin. Above this is the Glenwood shale – a soft, grey layer that reaches depths of 16 feet southeast of Minneapolis but is only a few feet thick in the vicinity of St. Anthony Falls. The uppermost rock layer is the Platteville limestone, a relatively hard formation that is 35 feet thick beneath much of Minneapolis, but rapidly thins and bevels upward to the north in the central riverfront area. In the late Paleozoic and Mesozoic Eras (600 to 65 million years ago), sedimentary layers continued to build and erode. Later this sandstone proved ideal for the formation of numerous natural caves, primarily in the St. Paul area.

Glaciers advanced and retreated over eastern Minnesota several times during the Pleistocene ice age. These forces formed and changed the course of the incipient Mississippi River. Between 14,000 and 12,000 years ago, the last of the glaciers retreated from the Twin Cities area. As the glaciers north of Minnesota continued to melt, the engorged Mississippi River

formed a waterfall where the river encountered the hard Platteville limestone. The waterfall, now known as St. Anthony Falls, moved slowly up the Mississippi during the next 10,000 years, through St. Paul, and toward its present location in downtown Minneapolis. As the soft rock beneath the limestone was gradually undercut at the brink of the falls, the limestone collapsed and the falls slowly moved upriver.

Climate and environmental change accompanied the final melting of the ice sheets at the end of the Pleistocene after about 8,000 B.C. Fluctuations in rainfall and temperature occurred. The modern geographical positions of the major life zones were approximated, and the modern meander pattern of the Mississippi River developed as sea level rose.

The central portion of Minneapolis is topographically characterized by a relatively flat terrain bisected by the Mississippi River gorge. The flatness of the downtown area is a sharp contrast to the hills west, south, and east. This flat land is due to the erosion and deposition caused by glacial meltwater. Below St. Anthony Falls, the river created a true gorge with 100-foot-high cliffs of limestone and sandstone on either side of the river. Intersecting the river at various points were ravines; some of the ravines were cut by surface streams while others developed due to the collapse of subterranean caves cut in the soft St. Peter sandstone by groundwater seepage.

Using information contained in the GIS database, slopes greater than 12% in the corridor equal about 5,500 acres or approximately 10% of the corridor's 54,000 acres.

Mineral Resources

The Mississippi River corridor in the Twin Cities area has been and continues to be an important area for mining industrial minerals. As the ice age glaciers receded from Minnesota, the flood of meltwaters cut the modern river valley, exposing the bedrock from which certain industrial minerals are mined. As these meltwaters abated, they deposited the sand and gravel that is presently mined from the river terraces.

Aggregate is derived from two major sources in the metropolitan area (Meyer and Jirsa 1984). Surficial deposits of sand and gravel, or natural aggregate, are the primary source. These are deposits of rock detritus broken down and sorted by the actions of glacial ice and running water. A second and increasingly important source is carbonate (limestone and dolomite) bedrock, which is converted to aggregate by blasting and crushing.

An inventory of aggregate resources in the seven-county metropolitan area (Meyer and Jirsa 1984) delineated a wide variety of aggregate deposits. Lands deemed inaccessible to the aggregate industry (lands in urban development, in parks and public open space, and in the St. Croix Scenic Riverway) and bedrock deposits less than 10 feet thick were not included in the inventory. Exposed bedrock formations in the metropolitan area include Decorah shale, Platteville formation, St. Peter sandstone, Prairie du Chien group, Jordan sandstone, St. Lawrence formation, and Franconia formation. Both the Prairie du Chien and the Platteville have been quarried in the seven-county metro area for over 100 years. Sand and gravel and bedrock deposits were recorded and mapped for all five counties in the study area.

Soils

The predominant soils in Anoka County are level to undulating, excessively drained to very poorly drained soils that are dominated by fine sands throughout. These soils are well suited to urban development, moderately well suited to farming, and provide sites for recreational facilities. The population of the metro area is growing rapidly; areas that were recently used for farming have virtually all been converted to nonfarm uses.

Dakota County contains a large number of distinctly different soils. Most of these soils formed in glacial deposits or in loess that varies in properties and age. Some soils formed in weathered bedrock and recent alluvium.

Soils along the Mississippi River north of Minneapolis are nearly level to undulating, coarse and moderately coarse textured and developed in deep sand.

Washington and Ramsey Counties have dark colored and light colored, level to very steep soils that formed in loess or glacial material. Most of the soils in Ramsey County have been altered by urbanization and other activities of man.

Prime Farmland. Prime farmland is defined as the land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Prime farmlands have an adequate and dependable water supply, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. The slope ranges mainly from 0% to 6%. Prime farmland has been identified by the Soil Conservation Service (1980) only in Dakota County, which bounds the Mississippi River from the Spring Lake Park area to Hastings. Nearly 54% of Dakota County meets the soil requirements for prime farmland, but most of this is in the southern part of the county away from the river.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. None has been identified in the MNRRA corridor.

Hazardous Waste Sites. The Park Service (NPS 1992) has compiled a list of hazardous waste sites within or near the MNRRA boundaries. This list was taken from the *MPCA Master Facility List* and the *Superfund Permanent List of Priorities*. There are 114 sites; 10 are in Anoka County, 27 in Dakota County, 27 in Hennepin County, 41 in Ramsey County, and 9 in Washington County. Of the 114 sites, 19 are on the state *Superfund Permanent List of Priorities* and six are on the national Superfund list.

Vegetation

Three major biomes meet in Minnesota — tallgrass prairie, northern coniferous forest, and eastern deciduous forest. The Mississippi National River and Recreation Area passes through the eastern deciduous forest and tallgrass prairie biomes. The vegetation types that define these biomes are distributed on the landscape according to climate, soil, and landform patterns. Historically, land adjacent to the Mississippi River between Dayton and Hastings was covered mainly by oak woodland and brushland. This vegetation type ranged from small groves of trees mixed with open prairie to a chaparral-like community of scrub forest and

dense shrub thickets. The dominant trees were bur oak and northern pin oak. Other vegetation types included floodplain forest, upland prairie, and maple-basswood forest.

Floodplain forests are especially well developed in the Mississippi River valley. The lowland sites occupied by these forests are subject to periodic flood and drought. Spring floodwaters enrich the soil as they deposit silt over the forest floor. Silver maple, American elm, green ash, black willow, and cottonwood are the dominant trees, with poison ivy and stinging nettle the characteristic understory plants. The original distribution of this forest type has not been greatly modified. Intact floodplain forests are often the only large pieces of native habitat remaining in heavily agricultural areas.

Tallgrass prairie once covered one-third of the state, occupying a wide variety of landforms such as morainic hills, steep bluffs, and rolling plains. Along these landforms, there is a predictable change in dominance of a few major prairie grasses. In general, prairie cordgrass and bluejoint dominate the wet lowlands, big bluestem and Indian grass occupy the deep fertile soils of the moist uplands, and little bluestem and sideoats grama live on the thin soils of dry uplands. Throughout the upland prairie are numerous wetland communities dominated by sedges and rushes rather than grasses.

Minnesota's maple-basswood forests are dominated by elm, basswood, sugar maple, and red and white oak, and can be found at the western edge of the deciduous forest biome of eastern North America. The boundaries of maple-basswood forest were largely controlled by the frequency of fire. The dominant trees are highly fire sensitive and were restricted to areas where natural firebreaks such as the Mississippi and its tributaries prevented the spread of fire from adjacent prairie lands. After more than a century of European settlement, nearly all the natural communities composing the three major biomes have been substantially altered.

The Minnesota Natural Heritage Program (MDNR 1991) has identified additional natural community types in the corridor – mixed oak forest, dry sand prairie, bluff prairie, wet blacksoil prairie, dry cliff, moist cliff, sand beach riverine subtype, submergent and emergent marsh, and calcareous fen.

Landcover data derived from 1988 satellite imagery for the corridor identified 14,863 acres (28%) forest; 8,174 acres (15%) crop/field/pasture; 5,917 acres (11%) sparse tree/shrub; and 11,021 acres (21%) water. The other 28% is developed land.

Numerous exotic plants are found in the corridor, such as the aquatic Eurasian watermilfoil, purple loosestrife, and many landscape plant species typical of an urban setting.

Fish and Wildlife

The area contains a variety of wildlife habitat. The presence of wildlife is a major attraction of the area.

Aquatic Habitat. The Mississippi River within the national river and recreation area exhibits diverse habitat types. Between Dayton and Anoka the river has free-flowing segments characteristic of those found between Brainerd and Minneapolis. Similarly, the reach from below the Coon Rapids dam to Fridley is typified by shallow, relatively clear water and

coarse stream substrates such as gravel and rubble. These substrate types are productive for many aquatic organisms. Where the upper Mississippi River navigation system begins at Minneapolis, stream habitats show greater complexity, but substrates become predominantly fine grained except for the areas immediately below navigation dams and artificial wing dikes. The main channel is the only portion of the river through which large commercial craft pass.

The river upstream from Minneapolis has few off-channel riverine habitat types, although the mainstem stream is a highly productive environment. Within the navigation system, inundation by dams increased an already diverse aquatic habitat. Habitats found here can be classified as tailwater, navigation pool, river, lake, pond, slough, main channel, main channel border, and side channel. Approximately 100 species of fish are known in the management area.

Many fish species live in the backwaters and side channels of the Mississippi River. Predominant commercial species are catfish, carp, and bigmouth buffalo. Typical gamefish are northern pike, largemouth bass, and bluegill. Deeper water areas with sufficient flows in these habitat types provide wintering areas for largemouth bass, walleye, sauger, crappie, northern pike, and bluegills. Aquatic vegetation found in backwaters provides spawning habitat for northern pike during spring high water. Bluegills, bullheads, largemouth bass, buffalo, and carp are common species found in sloughs and side streams year-round, although numerous other species depend on these areas as spawning and juvenile nursery sites.

Commercial fish species present include sturgeon, paddlefish, freshwater drum, and channel catfish. Lake sturgeon and paddlefish are no longer fished commercially in Minnesota. Predominant gamefish are walleye, sauger, smallmouth bass, and white bass. Fish-eating birds such as gulls, bald eagles, and ospreys use the main channel. Mergansers and some diving ducks and some fur bearers also use the area.

Tailwater areas provide valuable habitat for a number of fish species because of their available food sources and fast, highly oxygenated water. A trophy fishery is found below the Ford dam. However, fish in the river are contaminated with PCBs and advisories are posted for fish consumption.

River lakes, ponds, side channels, and sloughs are used by migratory water birds, including ducks, geese, swans, egrets, and herons. Resident wildlife using these aquatic environments include muskrat, beaver, mink, otter, and raccoon. In addition, these areas serve as feeding locations at certain times of the year for migratory raptors.

Active colonial waterbird nesting sites are located at Gore Wildlife Management Area, Ravenna township, in pool 3; and at Pigs Eye Scientific and Natural Area, St. Paul, in pool 2. As of January 1991, a third site on lower Grey Cloud Island was inactive. These heron and egret rookeries are important to great blue heron, great egret, black-crowned night heron, yellow-crowned night heron, little blue heron, and double-crested cormorant.

Exotic Species. The European zebra mussel, an exotic species that resembles a freshwater barnacle, has spread quickly from the Great Lakes into the inland river system. In September 1991 they were discovered in the Mississippi River near LaCrosse, Wisconsin, and since then

The kitten-tail plant (*Besseya bullii*) is a midwestern endemic and is considered rare or endangered. More than half of the historically known population of this species in Minnesota was located on the bluffs and terraces of the St. Croix, Mississippi, and Minnesota river valleys where they converge in what is now the Minneapolis-St. Paul metropolitan area. Only five of the 21 documented sites are known to survive. Distribution of the species is limited to a discrete habitat type that is regionally uncommon and frequently exploited. Because of these geographical and ecological restrictions, the kitten-tail has always been uncommon. However, it has recently suffered a significant decline because of habitat loss, and its survival is a matter of immediate concern. Habitat threats include gravel mining, limestone quarrying, landfills, and industrial development. The kitten-tail plant prefers the gravelly soils of dry prairies, bluffs, and high-lime prairies commonly found along major river valleys.

Recent records of Hill's thistle (*Cirsium hillii*) in Minnesota indicate it is not nearly as common as it once was. This decline appears to be widespread due to the general loss of habitat that resulted from the conversion of prairies to agricultural production. The Minnesota populations are largely restricted to the transition zone between the major forest and prairie biomes. Populations are typically small and remote but are apparently stable where their habitat is protected. Hill's thistle typically prefers dry, sandy, or gravelly soil in prairies, savannas, and open woods.

Ginseng (*Panax quinquefolium*) is a woodland herb native to mesic forests in eastern North America. Commercial exploitation has resulted in numerous local extirpations and a contraction of range. The fragmented condition of forest habitat may prohibit the natural reestablishment of this species in heavily harvested areas. Because of the serious rangewide decline, the harvest and trade of ginseng is now controlled by international treaty. The species lives in loamy, subneutral soil in undisturbed hardwood forests.

Eared gerardia (*Agalinis auriculata*) also has suffered a recent decline caused by loss of habitat. There are only three records from the state – all from wet meadows in the lower Minnesota River valley where development pressure is very high. The preferred wet meadow habitat type of the eared gerardia can often be found in complex mosaics with wet prairies and occasionally with fens. They are typically located at the base of river bluffs or on terraces where calcareous groundwater is discharged.

Like most prairie species, the western prairie fringed-orchid (*Platanthera praeclara*) suffered a decline when the prairies were converted to crop production. It is now threatened with extinction throughout its range. The few plants that still survive are restricted to small, isolated colonies that are widely separated by cultivated land. Other factors contributing to the decline of this species in Minnesota include the widespread use of herbicides, cattle grazing, and gravel mining of beach ridges. *P. praeclara* grows on moist, calcareous, or subsaline prairies and sedge meadows.

Although relatively widespread in the northeastern U.S., the tubercled rein-orchid (*Platanthera flava* var. *herbiola*) appears to be rare or threatened throughout most of its range. Minnesota lies at the extreme northwestern edge of that range and contains a limited amount of suitable habitat. The wet, acidic prairies and meadows and wet depressions where this orchid can grow are especially vulnerable to land conversion. The expanding residential, agricultural, and commercial activities in east-central Minnesota are particularly devastating. The species can also exist in sandy or peaty habitats along lakeshores or in swales.

The state-listed Illinois tick-trefoil (*Desmodium illinoense*) is largely restricted to midwestern prairies; it reaches the northern limit of its range in Minnesota and is very rare. The marginal prairie habitat and northern climate in Minnesota may simply be unsuitable for this species. The few populations recorded in Minnesota are very small and remote and are usually in association with transitional or successional communities. A general decline of *D. illinoense* is presumed to have followed the dramatic disappearance of the prairie ecosystem, which probably served as the primary habitat of this species.

Plaintain-leaved sedge (*Carex plantaginea*), also listed by the state, appears to be one of the rarest sedges in Minnesota and may no longer survive in the state. The state's two known historic populations have not been relocated and probably no longer exist.

TABLE 5: THREATENED OR ENDANGERED SPECIES

Common Name (Scientific Name)	Federal	State
Animals		
Loggerhead shrike (*Lanius ludovicianus*)	C2	T
Peregrine falcon (*Falco peregrinus*)	E	E
Bald eagle (*Haliaeetus leucocephalus*)	T	T
Higgins eye mussel(*Lampsilis higginsi*)	E	E
Blanding's turtle (*Emydoidea blandingii*)	C2	T
Uncas Skipper (*Hesperia uncas*)		E
Plants		
Ginseng (*Panax quinquefolium*)	C2*	SC
Kitten-tail(*Besseya bullii*)	C2*	E
Sedge (*Carex formosa*)	C2	PE
Hill's thistle (*Cirsium hillii*)	C2	SC
Eared gerardia (*Gerardia auriculata*)	C2	E
Western prairie fringed-orchid (*Plantanthera leucophaea*)	T	E
Tubercled rein-orchid (*Habenaria flava* var. *herbiola*)	C2*	E
Tooth-cup (*Rotala ramosior*)		PT
James polanisia (*Polinisisia jamesii*)		E
Cross milkwort (*Polygala cruciata*)		E
Linear-leaved sundew (*Drosera linearis*)		T
Valerian (*Valeriana edulis*)		T
Wild petunia (*Ruellia humilis*)		E
Illinois tick-trefoil (*Desmodium illinoense*)		T
Plantain-leaved sedge (*Carex plantaginea*)		PT
Rock clubmoss (*Lycopodium porophilum*)		T
Margined rush (*Juncus marginatus*)		PT
Slender naiad (*Najas gracillima*)		PE
Tall nut-rush (*Scleria triglomerata*)		E
Twisted yellow-eyed grass (*Xyria torta*)		T
Sullivants milkweed (*Asclepias sullivantii*)		T
Tuberous Indian-plantain (*Cacalia plantaginea*)		T
Sterile sedge (*Carex sterilis*)		T

Common Name (Scientific Name)	Federal	State
Beaked spike-rush (*Eleocharis rostellata*)		T
Hair-like beak-rush (*Rhynchospora capillacea*)		T
Whorled nut-rush (*Scleria verticillata*)		T

Status:
* Indicates former status
E Endangered species are those whose prospects for survival are in immediate danger because of a loss or change of habitat, over-exploitation, predation, competition, or disease. Immediate assistance is needed to prevent extinction.
T Threatened species are those who may become endangered if conditions surrounding the species begin or continue to deteriorate.
C2 Federal category 2 (a species proposed for federal listing, but additional biological information is usually required before a status determination can be made.
PE Proposed endangered (not a legal designation)
PT Proposed threatened (not a legal designation)
SC Special concern species (not a legal designation)

Water Resources

Surface Hydrology. Even with its relatively flat terrain, Minnesota gives rise to three of the great drainage systems of North America. Within the borders of state, the Mississippi River drainage system drains central and southern Minnesota; the St. Lawrence/Great Lakes system drains the northeast; and the Hudson Bay system drains the northwest. The boundaries of these systems limit plant and animal species distribution. However, within drainage systems, rivers and streams provide corridors for species migration and dispersal.

Minnesota can be divided geographically into nine watersheds that are biologically distinct with respect to the distribution of riverine organisms. The Mississippi National River and Recreation Area spans three of these watersheds: the Mississippi River above Coon Rapids Dam; the St. Croix; and the Mississippi River below Coon Rapids Dam. The divisions between watersheds are controlled by naturally formed boundaries and by manmade structures that act as barriers to biological dispersal. Waterfalls and dams separate what would otherwise be continuous watersheds.

The commercially navigable section of the Mississippi River has a series of regulated pools created by low dams built primarily in the 1930s. The dams were designed to maintain water levels for navigation and have no effect on flood flows. High water is normally during spring snowmelt and rains, and low flows are in late summer through winter. When floods occur, the gates of the dams are opened and the river flows freely. The channel width on the Mississippi River is 300 feet except at bends, where additional width is provided.

Water Quality. The Mississippi River is the primary source of drinking water for most of the Minneapolis-St. Paul metropolitan area as well as the depository for 85% of the treated wastewater. The Mississippi River in the MNRRA corridor has water quality problems because of exceedances of discharge standards, urban runoff, and contaminated sediments. The Minneapolis-St. Paul metropolitan area has water quality problems because there is a considerable pollutant load, including pesticides, heavy metals, hydrocarbons, and phosphates from various metropolitan area sources and from the Minnesota River.

The region's groundwater supplies are in danger of contamination. Almost all suburbs in the metropolitan area rely on groundwater; however, hazardous waste sites in and near the

MNRRA corridor are contaminating aquifers and effectively reducing the amount of groundwater available for the drinking water supply. Oil spills are a potential threat to the area's water supply.

Water quality goals set by the Minnesota Pollution Control Agency (MPCA) and required by the Clean Water Act, call for the Mississippi River to be suitable for warmwater fisheries and aquatic recreation, including boating and swimming.

The primary determinant of whether a body of water is classified as swimmable is the fecal coliform count in the water. Based on this criteria, the water quality of the river is acceptable for swimming except in the Minneapolis-St. Paul metro area, which includes much of pool 2. Throughout most of the river corridor (St. Anthony Falls to below the St. Croix River) fish consumption advisories prevail, although Minnesota has classified the Mississippi River as partially or fully supporting the fishable use (UMRBA Report, 1989). The state of Minnesota does not consider fish consumption advisories when determining fishable use support, which is based on fish tissue data. The state advises no fish consumption for high risk groups of people.

The degraded fishery resource is an indicator of sediment quality problems, since sediment is one of the major sources of contaminants in fish and sedimentation is one of the most significant threats to the long-term health of the river ecosystem. Erosion is widespread throughout the river basin, with sediment sources including the region's extensive agricultural and forest products industry, its urban areas, and the banks of the river and its tributaries.

The upper Mississippi River is vulnerable to sedimentation not only because it drains such a vast land area, but because its system of locks and dams inhibits the river's natural sediment transport capacity. As a result, the river corridor has some sediment accumulation. Sedimentation in backwater areas has resulted in a loss of habitat diversity. Sediment also accumulates in portions of the main channel, requiring annual dredging.

Bottom sediments in the river are contaminated, and these sediments are resuspended by motorboats, especially towboats and barges.

During recent years the quality of the water has improved considerably in much of the Mississippi National River and Recreation Area. To address the major water pollution problem, a major combined sewage overflow control plan was mandated in the 1980s for completion by the end of 1995. This plan entails separating the sewage and stormwater in the metro area, which will eliminate untreated discharges from combined storm and sanitary sewers that overflow into the Mississippi River during rainfall and snowmelt. Even with the separation of the sewers, stormwater will continue to enter the river untreated, depositing pollutants from urban and agricultural runoff. These nonpoint pollution sources, especially agricultural runoff from the Minnesota River and other streams and tributaries that flow into the Mississippi, may become a major problem affecting water quality in the Mississippi.

The state has assigned a major part of the responsibility for addressing nonpoint pollution in the metro area to watershed management organizations. Each of these is to prepare a plan addressing water resource goals and problems, including water quality issues. The Metropolitan Council has been directed by the legislature to develop target loading for each watershed. The Council is also preparing a plan to reduce nonpoint pollution in the

Minnesota River. The Minnesota Pollution Control Agency is coordinating a related effort in the Greater Minnesota portion of the basin. Both will be completed in 1993-94.

Floodplains. Information on 100-year floodplains along the corridor has been obtained from Federal Flood Insurance Rate maps developed by the Federal Emergency Management Agency and entered into the MNRRA GIS database (see Sensitive Natural Areas map). These maps identify areas that would be inundated by a 100-year flood.

Approximately 50% (27,073 acres) of the MNRRA corridor is in the 100-year floodplain. Floodplain maps are not available for all municipalities along the river, therefore the actual percentage could be higher.

While most of the Harriet Island regional park is in the 100-year floodplain, the proposed interpretive facility site is behind the levee outside the floodplain. All sites being considered for the St. Anthony Falls area are outside the floodplain except the NSP Main Street Power Station.

Wetlands

The construction of the lock and dam system on the Mississippi River significantly altered the natural river system, initially creating hundreds of additional acres of wetlands, as well as creating a series of sediment-trapping pools.

Increasing numbers of wetlands in the river corridor are lost by draining or filling. The survival of some wetlands, such as the calcareous fen near the expanding Seneca wastewater treatment plant on the Minnesota River, is threatened from a process known as "dewatering," or removal of underground water.

Forty percent (21,525 acres) of the corridor is classified as wetlands (see Sensitive Natural Areas map) and 231 types of wetlands have been recorded. In the MNRRA corridor, the full spectrum of open water, emergent, submergent, scrub/shrub, and forested marshes can still be found. Numerous islands, backwater lakes, ponds and sloughs, and side channels provide diverse habitat for fish, wildlife, and plant species found living in and along the river. This habitat is key to the survival of threatened and endangered species such as Higgins eye freshwater mussel, peregrine falcon, bald eagle, and the kitten-tail plant.

The Harriet Island interpretive facility site in St. Paul is not in a wetland, and all facility sites being considered in the St. Anthony Falls area of Minneapolis are not wetlands. The Northern States Power Main Street Station is in the Mississippi River floodplain.

Climate

The subhumid, continental climate in the five-county area is cold and snowy in winter and quite warm with occasional cool periods in summer. About 70% to 75% of the annual precipitation falls between April and September. Occasional tornadoes and severe thunderstorms are usually localized and of short duration.

Air Quality

Air quality is a major concern in the Mississippi National River and Recreation Area because the corridor passes through a large and growing metropolitan area. Mobile and stationary sources contribute to air quality degradation.

The corridor is in a class II clean air area as designated under the Clean Air Act. This means that moderate, well-planned industrial growth may be permitted in the river corridor as long as the class II maximum allowable increases (increments) for particulate matter, sulfur dioxide, and nitrogen dioxide are not exceeded. Air quality violations in the corridor are mainly exceedances for carbon monoxide from vehicles and exceedances for particulate matter, sulfur dioxide, lead, and ozone at commercial/industrial sites.

Noise Pollution

Noise levels along the corridor are varied, with relative tranquility in some reaches (above Coon Rapids dam), the typical urban sounds in more developed areas, and seasonal sounds of motorboats in other areas. A portion of the corridor is in the flight path of two airports and is subject to high decibel sound levels generated by low flying aircraft. This may affect the biological resources of the corridor, but research has not been completed to assess these affects.

CULTURAL RESOURCES

Mississippi River Overview

Prehistory. Human occupation of North America began at approximately the same time as the glaciers retreated from the Twin Cities area. A variety of flaked stone projectile points from the Paleo-Indian era (including a Clovis point on the Minneapolis riverfront and Folsom points in southern Anoka County) have been found. Some Plano points in the Minnesota Historical Society's Lewis collection are from a site below Indian Mounds Park. Most of the points from the St. Paul area resemble Dalton points that were originally defined in Missouri. Such points may have been made as early as 7000 B.C.

The final melting of the ice sheets at the end of the Pleistocene after about 8000 B.C. set the modern geographical positions of the major life zones, and the modern meander pattern of the Mississippi River developed as the glacial melt waters receded. Large mammals, including the mammoth, the giant beaver, and certain species of bison, became extinct and were not replaced.

The Archaic stage (ca. 6000 B.C. to 800 B.C.) brought a proliferation of regional tool traditions that indicate adaptation to local environments. Typical artifacts include chipped and ground stone tools, atlatls, grinding stones, copper knives, and various styles of projectile points. Late in the stage, fully grooved axes, bannerstones or boatstones, and tubular pipes were added to the material culture. In southern Minnesota, settlement began concentrating in river valleys, especially where broad floodplains offered rich and varied subsistence. Some cultigens were also introduced; river bottom gardens would have been well watered and easy to till.

The Woodland period (ca. 900 B.C. to 900 A.D.) saw the emergence of cord- and fabric-marked ceramics and the construction of burial mounds and other earthworks. The earliest Woodland ceramics found in Minnesota are thick-walled conoidal vessels with exterior cordmarking and decoration limited to fingernail impressions on the rim. Some of these have been found in the Grey Cloud Island vicinity.

Stone crypts and clay death masks found in a 19th-century excavation at the Indian Mounds Park site suggest the northwesternmost extension of Hopewell influence. The collapse of the Hopewell Interaction Sphere about 400 A.D. led to the development of numerous regional traditions collectively called Late Woodland. Horticulture began to play an increasing role in subsistence, and settlements became more permanent. The introduction of the bow and arrow is evidenced by smaller projectile points.

The Late Woodland period ended about 900 A.D. in southeastern Minnesota with the appearance of people who practiced the intensive maize horticulture associated with the Middle Mississippian and Oneota traditions – a culture distinct from the Woodland. These people lived in large villages made up of permanent houses that were often protected with wooden palisades. Most village sites were on river terraces above fertile floodplains where corn and other crops were grown. Some shell-tempered pottery typical of this culture has been recovered from Indian Mounds Park and the village site below it.

Early European Exploration and American Occupation. The first recorded visit to the area by Europeans came in 1680. Bands of Dakota Sioux regularly traversed the area, although no villages were recorded in the immediate vicinity until nearly 100 years later. One of these bands, traveling southward from a settlement at Mille Lacs, brought along two French captives – Father Louis Hennepin and Antoine Augelle. They portaged around the falls of the Mississippi, and Hennepin named the cataract after his patron saint, St. Anthony of Padua.

The next explorer to describe his impressions was the New Englander Jonathan Carver in 1766. The Dakota were moving south under pressure from the Ojibway (Chippewa) tribe to the north, and Dakota villages were being established in the Minnesota and Mississippi River valleys. In the 1780s and 1790s British fur traders regularly frequented the area, and the junction of the two rivers became a recognized trading rendezvous.

In 1805 Lieutenant Zebulon Pike, on an expedition to the source of the Mississippi, held a council with leaders of the Dakota at the mouth of the Minnesota River and arranged for purchase by the United States of two parcels of land – one at the mouth of the St. Croix and the other extending up the Mississippi from the mouth of the Minnesota, including the Falls of St. Anthony. No further action was taken until after the War of 1812, when the government, seeking to consolidate control over its northwestern frontier, moved to establish a fort. In 1819 the land purchase at the mouth of the Minnesota River was renegotiated by Major Thomas Forsyth, but the exact boundaries remained vague. In the same year Colonel Henry Leavenworth and a detachment of the 5th Infantry arrived to begin construction of the fort.

An encampment called Cantonment New Hope was established below what later became Mendota, but work was delayed by flooding and epidemic illness. In 1820 Leavenworth was replaced by Colonel Josiah Snelling, who moved the troops to higher ground and laid the cornerstone for the fort that would bear his name. During the next 20 years Fort Snelling was

the focus for Euro-American activity in Minnesota. Steamboats, which first reached the fort in 1823, soon replaced canoes and keel boats in bringing military supplies and personnel along with other travelers up the Mississippi; the troops constructed a sawmill at St. Anthony Falls; the trading post at Mendota became the center for American Fur Company operations in the area; a number of mixed blood families and some refugees from the British settlement on the Red River became squatters on the military land; and missionaries arrived to establish a school and farms among the Dakota.

White Settlement and Growth of Communities. Treaties signed in 1837 with the Dakota and Ojibway tribes ceded the left-descending side of the Mississippi to the United States and opened it to white settlement. The first good landing point for steamboats below the fort became the site of a thriving village and took the name St. Paul. In 1849 it was made the capital of Minnesota Territory. St. Paul remained the highest point on the Mississippi to which large riverboats could ascend. It became a transfer point for fur trading and a supply point for other kinds of business and industry. During winter freeze-up most activity was suspended.

Another result of the 1837 treaty was the surveying of the Fort Snelling military reservation and the designation of fixed boundaries. When this was done, care was taken to exclude the left-descending bank of the Mississippi at the falls, thus making a valuable waterpower claim available for private preemption as soon as the treaty was ratified. Franklin Steele, sutler at the fort, was the first to establish ownership. In 1847 he constructed a dam across the left-descending channel of the falls below Nicollet Island and erected a sawmill. This became the nucleus for a small town platted in 1849 with the name St. Anthony.

Meanwhile the right-descending bank of the falls remained in limbo as part of the military reservation. It was occupied by the abandoned government mills and a collection of squatters, who were constantly in peril of being evicted. The situation was not rectified until 1855, when pressure from local politicians influenced Congress to pass a bill that allowed retroactive preemption by existing settlers rather than putting the land up for public auction. In 1856 the community was incorporated as Minneapolis.

Sawmills and other businesses developed rapidly on both sides of the river, all based on the mechanical technology of the time, which utilized the power of falling water by connecting waterwheels with machinery on shore through an elaborate system of shafts, pulleys, and belts. This was soon replaced in Minneapolis by a more efficient but capital-intensive system of tunnels that directed the rushing water to the mills. In 1855 the first bridge built across the Mississippi River at Nicollet Island joined the two communities, and in 1872 they were consolidated into a single city.

During these years St. Paul continued as the center of government and a hub of transportation. Steamboat arrivals reached a peak in the late 1850s, and the town at the head of navigation on the Mississippi was connected, first by trails and territorial roads and soon by railroads with Lake Superior, the Red River, and the vast agricultural regions to the west. In 1865 its levee was graced with a state-of-the-art warehouse erected for James J. Hill & Co.

Settlement also took place both above and below these two centers on the river. Above the falls in 1847 John Banfill built a residence (now known as the Locke House). Banfill laid out a townsite called Manomin, which is now part of the city of Fridley.

Below St. Paul, across from the mouth of the St. Croix River, Alexis Bailly built a trading post in 1850. The Treaty of Mendota, negotiated the following year with the Dakota, opened the area to white settlement, and the site of Bailly's business soon became the town of Hastings. Waterpower supplied by the falls of the Vermillion River combined with logs from the St. Croix pineries and wheat from the farms of Dakota County to make Hastings into a modest milling center during the 1850s and 1860s.

Damming the Falls of St. Anthony. For several millenia the falls had been moving upriver and were slowly drawing toward the end of the natural limestone ledge that created them. Industrial use greatly accelerated this process. Millions of board feet of logs floated down the Mississippi each year and hammered away at the natural stone apron, periodic floods undermined it, and in the late l860s workers started digging a tunnel beneath it to channel water toward riverside industries. In 1868 the river broke through the limestone, swept into the tunnel, and threatened to collapse the falls.

Frantic emergency measures delayed the destruction, but the permanent solution involved massive government assistance and a decades-long effort by the U.S. Corps of Engineers. By 1884 a 40-foot by 1,850-foot dike that served as an apron had been placed across the falls, and two protective dams were constructed.

Growth of Industry. Development and change in both industry and transportation were rapid during the last 30 years of the 19th century. The spread and consolidation of railroads during the 1870s was climaxed in 1878 by the completion of Hill's St. Paul, Minneapolis, and Manitoba line, which funneled grain from the Red River Valley and the plains of Manitoba to flour mills at the St. Anthony Falls. In response, 15 new flour mills and an assortment of other industrial facilities were constructed along the right-descending riverfront in Minneapolis, and by 1880 the city led the nation in flour milling. The next decade saw the building of the Pillsbury A Mill, briefly ranked as the world's largest, and the completion of Hill's Stone Arch Bridge, which still curves across the river below the falls.

Sawmilling and many other industries gradually moved away from the crowded area around the falls. The improvement of steam power and, toward the end of the century, the development of hydroelectric power, facilitated this dispersion.

Improving the River. While railroads played an important role in developing the river's industrial potential, they had a disastrous impact on its status as a transportation route. By the mid-1870s railroads competed with river traffic. Rail transportation was cheaper, faster, and more dependable than water. From 1880 to 1920 there was a long, steady decline in river traffic. Discriminatory rail rates and the purchase of wharf and barge facilities by railroad companies to eliminate river competition increased the trend.

Attempts to revive river transportation were in response to pressure from riverside communities and economic interests and the result of widespread resentment of the monopoly power wielded by railroads. Government programs of dredging, snag removal, and bank stabilization continued over many years. At one point during this period it was said that the upper Mississippi "has a 5-foot channel, 6-foot ambitions, 9-foot possibilities, a great history, and a dwindled commerce."

In 1918, as a wartime measure, the United States government went into the inland shipping business by operating a federal barge line on the lower Mississippi. During the 1920s this service, which concentrated on the efficient hauling of bulk freight, was extended to the upper river. A deeper channel was needed to handle modern steel barges, and in 1927 the Army Corps of Engineers was authorized to assess the feasibility of a 9-foot channel between St. Louis and St. Paul. The Corps drew up a plan calling for a series of locks and dams to provide slack-water navigation and a 9-foot depth. In response to pressure from Minnesota representatives in Washington and the need for public works to create employment during the depression, the program was adopted. Construction of the system of 26 locks and dams was substantially completed in the 1930s. It served the nation during World War II and has become the basis of a major revival in river transportation over the past 40 years. A final milepost was reached in 1963 when the upper harbor project was completed, allowing shipping to bypass the St. Anthony Falls and making Minneapolis a riverport.

The River as a Metropolitan Presence. As early as 1872 landscape architect Horace W. S. Cleveland presented a recommendation to the St. Paul city council to provide for parks that would give views of the Mississippi River and for boulevards that would connect St. Paul and Minneapolis along the river. These ideas were not acted on until 1883 when Charles M. Loring secured Cleveland's services and began to implement the proposals. Loring's commission purchased land for parks, including the land around Minnehaha Falls, and planning began for development of a scenic parkway linking the falls and the Minneapolis lakes. Land on both sides of the river, from the University of Minnesota to Fort Snelling, was secured for a parkway. A foundation was laid for a historic and cultural presence in the life of the Twin Cities.

During the 1920s the industrial vitality of the Minneapolis riverfront began to decline. Sawmilling had ended with the exhaustion of Minnesota's forests. Flour milling started to move elsewhere. Railroads were giving way to highways, automobiles, and trucking. Decay set in, and the tall, impressive cluster of stone buildings that had been the milling district at the falls emptied. In St. Paul, industry was scattered along the river, but on the floodplain opposite the downtown area, a tightly knit ethnic community had taken root. Generally regarded as a slum and subject to repeated flooding, the West Side flats had been home to successive waves of immigrants. By the 1950s the area was the center of a small but vital Hispanic community, with significant remnants of early Jewish and eastern European settlement.

For years historic preservation was seen only in terms of earlier and more romantic objects. Private efforts early in the century had rescued the stone houses built in 1836 at Mendota by Henry H. Sibley and Jean Baptiste Faribault. Public affection centered on the ivy-draped round tower and other remnants of early Fort Snelling, which had been treated with benign neglect until the 1950s. Proposed destruction of those remnants for highway construction in the early 1960s alerted the community to the need for preservation.

The historic reconstruction at Fort Snelling and the establishment of Fort Snelling State Park provided a foundation for spreading park development and preservation efforts in both directions along the river during the 1970s and 1980s.

Site-Specific Information

Historic properties (sites, structures, and historic districts) are numerous in the vicinity of the Mississippi National River and Recreation Area. Of the 197 known, 60 are within or partially within the legislative boundaries of the Mississippi National River and Recreation Area. These properties are either on the National Register of Historic Places or the Minnesota State Historic Preservation Office considers them eligible for the national register. In order to provide an understanding of the resource variety in the corridor, the section below describes a selected list of properties that are national historic landmarks, historic districts, or nationally significant sites and structures (as identified on the national register forms), organized by county. Anoka County does not have any sites that fit these categories. All known historic sites were mapped and entered into the MNRRA GIS database. A comprehensive inventory of archeological sites in the corridor is not available.

Dakota

Fort Snelling (See Hennepin County for Fort Snelling Historic District)

Fort Snelling-Mendota Bridge
Location: Minnesota Highway 55 over Minnesota River
City or Township: Mendota
National Register Status: National
Significance Statement: This 1926 bridge replaced a ferry operating between Mendota and Fort Snelling. According to American bridge authority David Plowden it "is usually considered to be the most sophisticated design for a concrete arch built in the 1920s." Another bridge expert, Carl Condit, has written that "the whole complex of ribs, spandel posts, and long deck has a finely articulated quality that has seldom been matched in American bridge design." This is significant in the areas of engineering and transportation.

Mendota Historic District
Location: Vicinity of Willow Street and Minnesota Highway 13
City or Township: Mendota
National Register Status: State
Significance Statement: Contains several buildings dating back as early as 1835. The district includes the Church of St. Peter's, Henry H. Sibley House, Jean Baptiste Faribault House, and the Hipolite DePuis House. This area is significant in the area of agriculture, commerce, philosophy, politics/government, religion, and transportation.

East Second Street Commercial Historic District
Location: East 2nd Street, two blocks from river
City or Township: Hastings
National Register Status: Local
Significance Statement: The district contains relatively unaltered commercial buildings and a retail area that served the needs of the community since the mid-19th century. The area is significant in the areas of architecture and commerce.

West Second Residential Historic District
Location: West 2nd Street, two blocks from river

City or Township: Hastings
National Register Status: Local
Significance Statement: The district contains relatively unaltered residential buildings that date back to around the mid-19th century. This area is significant in the area of architecture.

Hennepin

University of Minnesota Old Campus Historic District
Location: Vicinity of University and 15th avenues southeast and Pillsbury Drive
City or Township: Minneapolis
National Register Status: State
Significance Statement: This historic district contains structures that were constructed as part of the university from 1886-1907. The significance of these buildings is in the area of architecture.

Minnehaha Historic District
Location: Vicinity of Hiawatha and Minnehaha avenues and Godfrey Road
City or Township: Minneapolis
National Register Status: State
Significance Statement: This district contains early park and open space development. This district is significant in the areas of architecture, commerce, community planning, conservation, literature, and transportation.

Minneapolis Warehouse (Historic) District
Location: Roughly bounded by 1st Avenue North, 1st Street North, 10th Avenue and 6th St.
City or Township: Minneapolis
National Register Status: State
Significance Statement: This area is significant for its contributions to commerce and architecture that date back to 1865.

Cappelen Memorial Bridge
Location: East Franklin Avenue over Mississippi River
City or Township: Minneapolis
National Register Status: National
Significance Statement: This bridge is significant for its engineering. It was constructed between 1919 and 1923 and is one of a series of concrete arch bridges constructed in the Twin Cities area. This technology was later used throughout the nation.

Chicago, Milwaukee, Saint Paul, and Pacific depot, freight house, and train shed
Location: 201 3rd Avenue South
City or Township: Minneapolis
National Register Status: National
Significance Statement: Significant for its architecture and engineering as well as its importance to commerce, industry, and transportation. The construction on this structure dates from 1879, 1897, and 1898.

Washburn A Mill Complex
Location: 1st Street South at Portland Avenue
City or Township: Minneapolis

National Register Status: National Historic Landmark
Significance Statement: This complex symbolizes the revolutionary technological and organizational innovations that the Washburn Crosby Company contributed to the American milling industry. The birth and subsequent development of General Mills into the first truly national milling company took place in the complex. The Washburn A mill is the only structure that remains of the original Minneapolis milling complex established by Cadwallader C. Washburn. It was constructed in 1874 and rebuilt in 1879-80. The National Historic Landmark properties include the Washburn A Mill and wheat house, A Mill office, utility building, Humbolt Mill, elevators, and five small structures. This complex suffered a major fire in 1990 that seriously damaged the mill. The city stabilized the walls and is seeking a developer to rehabilitate the structure. Because of the 1990 fire the Washburn A mill building is now considered a threatened structure in the national historic landmarks program.

Pillsbury A Mill
Location: 116 3rd Avenue Southeast
City or Township: Minneapolis
National Register Status: National Historic Landmark
Significance Statement: Symbolizes the role of Minneapolis as the chief flour-milling center of the United States from 1880 to 1930. The six-story mill is still being used by Pillsbury.

Fort Snelling Historic District
Location: Bounded by Minnehaha Park, the Mississippi River, the airport and Bloomington Road
City or Township: St. Paul Vicinity
National Register Status: National Historic Landmark
Significance Statement: Fourteen stone buildings and two log structures, built on a site recommended by Zebulon Pike, became an important post on the edge of European-American settlement in the old northwest. It is one of the few such posts with substantial remains from the period. Later, additional lands were used as a training center in the Civil War and World Wars I and II. The historic landmark includes 800 acres that contain nearly 125 structures constructed between 1819 and 1969 and represent these various periods.

Minnesota Soldier's Home Historic District
Location: Roughly Minnehaha Avenue, Godfrey Parkway and the Mississippi River
City or Township: Minneapolis
National Register Status: State
Significance Statement: Buildings designed to resemble well-known resort hotels and spas. The contributing historic structures were build between 1888 and the late 1930s.

St. Anthony Falls Historic District
Location: Vicinity of Mississippi River between Plymouth and South 10th Avenues
City or Township: Minneapolis
National Register Status: State
Significance Statement: This historic district includes many sites and structures that relate to the historic use of the falls for production of power. This district contains structures that date back to 1848 and is significant in the areas of architecture, commerce, industry, and transportation. Contributing structures include the Main Street Power Station and the St. Anthony Main complex. The Washburn A mill complex and Pillsbury A mill are national historic landmarks found in this district.

Ramsey

Irvine Park Historic District
Location: Vicinity of Ryan Avenue, Chestnut, Sherman, and West 7th streets
City or Township: St. Paul
National Register Status: State
Significance Statement: An area of homes built during the period of 1848 to 1900, this district is significant in the areas of architecture, commerce, communications, community planning, conservation, education, and engineering.

Washington

Schilling Archeological District
Location: South of Cottage Grove
City or Township: Cottage Grove
National Register Status: State
Significance Statement: This archeological site contains Woodland and Mississippian influences.

EXISTING VISITOR USE/INTERPRETIVE PROGRAMS

Recreation Use Patterns and Facilities

The following section provides a general overview of the recreation use patterns of the Mississippi National River and Recreation Area (MNRRA). Use patterns are primarily treated in the context of the Twin Cities metropolitan area and statewide use patterns. When possible, data specific to the corridor is used.

Recreational facilities in the area are diverse and provide numerous water-based opportunities such as boating, swimming, and fishing. Land-based facilities include picnic areas, parks, trails, educational centers, playgrounds, and cultural or historical attractions. Some stretches of the river are relatively undeveloped and provide the opportunity for solitude in a natural setting.

The array of recreational opportunities in the Mississippi River corridor mirrors the statewide spectrum in many ways. Use patterns are also similar.

Outdoor Recreation in Minnesota, the Twin Cities Area, and the Mississippi National River and Recreation Area

Research by the Minnesota Department of Natural Resources (1985-86) produced information regarding the number of hours devoted to various outdoor recreation activities statewide. The survey results demonstrated the importance of outdoor recreation to the quality of life in all regions of Minnesota.

Minnesotans enjoy a wide variety of outdoor activities (figure 1). Walking, hiking, biking, fishing, and driving were the most popular activities in 1985, constituting 50% of the 225

annual activity hours per resident. The study also determined that nearly 75% of all recreation activity takes place within one-half hour from the place of residence, so there is more demand for recreation near large urban areas (MNDNR 1990).

Recreation patterns specific to the Twin Cities metropolitan area have been examined. Twenty-five park areas were studied; seven are in the vicinity of the Mississippi River corridor. These parks include Hidden Falls, Minnehaha Park, Minnehaha Parkway, Coon Rapids Dam, Crosby Farm, Harriet Island, and Fort Snelling State Park. When visitors were asked to rank the importance of a list of activities to their visit, they consistently identified relaxing, walking, picnicking, biking, and sunbathing as their primary reasons for visiting the park. Secondary attractions included nature study, running, sightseeing, using playgrounds, playing sports and games, swimming, boating, and fishing.

A more recent study (Lime 1992) focused more directly on the types of activities enjoyed within the MNRRA boundaries. This study identified land-based activities as the dominant use of the MNRRA corridor (figure 2). Driving for pleasure is the most common activity in the metropolitan area and MNRRA corridor. Sixty-two percent of the population surveyed enjoyed a drive within the MNRRA boundaries during 1989-1992. Although much of this travel may be related to work or general travel, it was considered "pleasure driving" by the respondents.

Walking, hiking, and jogging are very popular within MNRRA boundaries with a majority of the metropolitan population (54%) having participated in these activities in the area during 1989-1992. This constituted 63.8% of the metropolitan population that walked, hiked, or jogged for recreation during that time period.

The historic sites are also important attractions, and they drew 48% of the metropolitan population during 1989-1992. Consistent with the metropolitan council studies, picnicking, nature studies, and biking are also popular.

There was relatively little canoeing and fishing in the MNRRA corridor during 1989-92 (figure 3). There may be a lack of awareness regarding the quality and availability of access, and there may also be concerns about water quality.

Concerns about the water quality in the Mississippi have been expressed by boaters and the general public. A majority of metropolitan residents (62%) feel the water quality is less than good. Similar sentiment exists statewide, where 52% of the boaters surveyed identified water quality as a barrier in using the Mississippi River between the metropolitan area and the Iowa border (Lime et al. 1989).

Mississippi River boating levels in and below the Mississippi National River and Recreation Area are similar. Thirty-nine percent of the boaters statewide operated a boat on the Mississippi River between the Twin Cities and Iowa during 1983-1988 (Lime et al. 1989). In the metropolitan area 34.5% of the motorboaters used the Mississippi in the Twin Cities during 1989-1992.

Future Demand For Recreation

The Minnesota Department of Natural Resources predicts that walking, hiking, golfing, and nature study will increase as the population ages (figure 3) (MNDNR 1990). Walking and nature study are already among the most popular activities within the Mississippi National River and Recreation Area boundaries.

Water-based activity may also increase. Lime et al. (1989) report that 44% of the boaters in the metropolitan area would like to boat more often on the Mississippi River. This desire to visit the river is more likely to result in actual visitor use if water quality improves, more information about boating on the Mississippi River becomes available, and access is improved.

Interpretive Facilities/Programs

Many programs are offered at interpretive facilities and parks within the MNRRA boundaries. Environmental and heritage education programs for schools and organized groups allow students to sample the quality of the water, explore forest communities along the river, and study first hand the development of St. Anthony Falls.

Outdoor exhibits provide another type of interpretation. Highway plaques, wayside exhibits, and interpretive panels tell stories of the people and the Mississippi. Brochures, newsletters, and special publications tell various parts of the river story.

The primary interpretive facilities and programs in the Mississippi National River and Recreation Area are:

Coon Rapids Dam: Anoka County operates a visitor center and programs on the left-descending side of the river. Suburban Hennepin Regional Park District operates a visitor/education center with programs on the right-descending side of the river.

St. Anthony Falls: The Minnesota Historical Society offers guided history tours of the area.

Upper St. Anthony Falls Lock and Lock and Dam #1: The Army Corps of Engineers provides visitors with the opportunity to view the operation of these locks; displays provide interpretation.

Fort Snelling History Center and Reconstructed Fort: The Minnesota Historical Society provides exhibits and a film in the center; interpretation focuses on fort life in 1827.

Fort Snelling State Park: The Minnesota Department of Natural Resources operates a visitor center and provides interpretive and environmental education programming.

Crosby Farm Nature Park: The city of St. Paul operates a visitor center and provides interpretive and environmental education programming.

Sibley and Faribault Houses: The Sibley House Association provides tours of these houses of famous Minnesotans.

Katherine Ordway Natural Science Study Area: Macalester College operates a field station used by its students in a wide range of studies. Education programming is provided for the public.

Paddleford Packet Company provides commercially operated boat tours on the river. These include interpretive programs about the river corridor.

Facilities near the MNRRA corridor include historic houses, and farms, nature centers, museums, and interpretive trails.

SOCIOECONOMIC RESOURCES

The Mississippi River was for many years the primary economic resource of the Twin Cities area. St. Paul, located at the head of navigation on the river where the tributary flow of Trout Creek descended through the high, unbroken bluffs lining the upper Mississippi, developed as a transshipment point between steamboat and rail transportation. Fifteen miles upstream, St. Anthony Falls first provided power for pioneer lumber milling and later for the flour processing industry. During more than 140 years of settlement, the economic uses to which the Mississippi River has been put as it flows from Dayton to the confluence with the St. Croix have changed dramatically, but throughout modern settlement history, the Mississippi has been a working river.

Today, many of the industries that once depended on direct proximity to the river for waterpower have moved away from the river, led by changes in power technologies, transportation infrastructure, and workforce accessibility. The milling activity that once made Minneapolis the "Flour City" now is located in Buffalo, New York; much of the city's riverfront houses industrial activities that bespeak a glorious past but not a vibrant present.

East of downtown St. Paul the hundreds of spurs and sidings that served the warehousing and wholesaling activities at the break-of-bulk point between the Mississippi River and the railroads have dwindled to a few tracks, serving a handful of remaining customers in the Trout Creek valley, who today have little need for river access. Instead of carrying the passenger and freight traffic of the past, the Mississippi today is a highway for bulk goods and a recreational resource for pleasure boaters, nature lovers, and those seeking a respite from urban life. Strong reminders of the importance of the river to the local economy do remain in St. Paul, from the Ford Plant in the northwest to the railroad humping yard below Mounds Park east of downtown.

In the northernmost reaches of the MNRRA corridor, large homes line the banks of the impoundment created by the Coon Rapids dam. Further south, where the Mississippi broadens as it is joined by the Minnesota and St. Croix rivers, marshes, low-lying islands, and sand bars dominate, interspersed with industrial sites dependent on barge transportation and rail access.

Much of the MNRRA corridor appears undeveloped when viewed from the river, so it would be easy to underestimate the amount and importance of the economic activity that remains from earlier times or that has been developed more recently. Over 108,000 jobs are located in the corridor, representing 8.3% of the job base in the seven-county metropolitan region.

There are also those jobs located elsewhere that are based on the economic activities in the corridor. Barge transport of fertilizer and agricultural chemicals into the corridor, and crops out of it, play a key role in farm production in the upper Midwest. Every job in the corridor also creates multipliers as wages enter the local economy. The magnitude of these multiplier effects varies with sector of the economy and requires an input-output analysis for estimation of total impacts.

Recreation has a positive effect on the state and metropolitan area economy. The estimated economic impact of outdoor recreation in Minnesota in 1985 was in excess of $3.0 billion. Of this figure, over $625 million was related to recreation in the metropolitan area. This represented approximately 1% of the total metropolitan area economy. Data are very limited on specific economic impacts and benefits of recreation in the MNRRA corridor.

In Minneapolis the Mississippi River changes character dramatically. In the northern part of the city the remnants of the river's industrial past can be found. Many parcels are currently used for light and general industrial purposes.

The historic center of Minneapolis, the Gateway district, has become an urban renewal area. The effective center of the city has moved many blocks south of its old location at Bridge Square. Nevertheless, there is considerable interest in Minneapolis in further redeveloping the downtown riverfront with a variety of residential and office uses. The Minneapolis Community Development Agency hopes to expand residential areas and office development along the river corridor, providing a critical population that would boost downtown economic activity.

A number of existing planning and development agencies have been working on the redevelopment of the Minneapolis portion of the Mississippi River for several decades. These agencies, especially the Minneapolis Community Development Agency and the Minneapolis Park and Recreation Board, have made significant investments in the Mississippi River corridor during the past ten years. Completed public/private partnership developments, ranging from those that cost over $100,000,000 (Riverplace, Cowles Printing Plant) down to several projects that have been completed for less than $1,000,000, have totaled almost $500,000,000 (about $82,000,000 in public funds). Adding in two completely public facilities (the main post office expansion and the Minnesota Supercomputer Center) brings the total expenditure to almost $560,000,000 ($146,000,000 public funds). Land has been acquired and development is pending on an additional 10 projects in the Minneapolis Central Riverfront area, with an existing investment of about $150,000,000 ($30,000,000 in public funds) (MCDA 1992).

Institutional uses, including the University of Minnesota and several hospitals, are found along the river downstream of downtown Minneapolis. While there are few functional reasons for either to be located on the river, the amount of existing institutional investment makes it extremely unlikely that they could or would move from their present locations.

Between the University of Minnesota and Ford Parkway, the Mississippi River passes below beautiful bluffs. In this area there are public access and parklands, which enhance the residential quality of life and property values for those who live along the river. These residential areas are among the more desirable in the city, which is reflected in their relatively high valuations. Residential properties in the MNRRA corridor contribute significantly to the

local tax base (City of Minneapolis Department of Public Works - Engineering Design Division 1992).

The Mississippi River still plays an important economic role in St. Paul. Although the river is no longer the major transportation artery for passenger and consumer goods, it still carries much of the bulk cargo through the Twin Cities area. Equally important, major economic entities are located in the MNRRA corridor in St. Paul, responsible for approximately 10,000 to 15,000 jobs (Minnesota Department of Jobs and Training 1992b).

The corridor also accounts for significant property taxes in Ramsey County. A list of the 500 top property tax-paying properties includes 23 that are in the MNRRA corridor in Ramsey County. In 1990 these properties generated approximately $9 million in property taxes for the county, on property worth an estimated $153 million (Ramsey County Department of Property Records and Revenue).

There are significant amounts of tax exempt property in the corridor. The amount of tax-exempt property in St. Paul increased from 21.0% ($1,747,839,100 on a total real property valuation of $8,317,744,182) in 1986 to 22.7% ($2,101,127,900 on a total real property valuation of $9,235,765,752) in 1992. Between 1986 and 1992 the estimated market value of tax exempt property in the city increased by 20.2%; the corresponding figure for taxable real property was an increase of 11.0% (City of St. Paul Department of Planning and Economic Development 1992).

St. Paul and Minneapolis have a high percentage of tax-exempt property within their borders. For instance, Bloomington's tax exempt property represented about 9.6% of the estimated market value of all real property in the city in 1986, compared to 21.0% for St. Paul and 21.6% for Minneapolis. High percentages of tax-exempt property affect several additional municipalities in the MNRRA corridor, including Coon Rapids (30.8%, or $444,179,600 of $1,441,236,424 total real property in 1986) and Anoka (City of St. Paul Department of Planning and Economic Development 1992).

The MNRRA corridor includes taxable and tax-exempt property in the communities through which it passes. In many instances communities already have a large proportion of the corridor in tax-exempt categories. Based on the information in the National Park Service GIS data base for MNRRA, existing public land, which represents the vast majority of tax-exempt land, accounts for 15.8% of the corridor, or 21.7% of all land (excluding water bodies) in the corridor.

There is evidence that open space and parklands play a role in enhancing economic benefits in the corridor. The impact of property values on lands neighboring recreation sites is dependent on the specific location and type of land use near the recreation area. However, some research suggests there is a relationship in some situations. Research conducted in Boulder, Colorado; Lubbock, Texas; and Philadelphia, Pennsylvania, suggests that there are identifiable zones around parks, greenbelts, and trails that create positive impacts to property values. In certain instances the presence of a park accounted for 4% of total land value up to one-half mile from the park.

Commercial Navigation

One of the most direct uses of the Mississippi River for economic activity is commercial navigation, specifically the movement of goods by barge. Commercial navigation provides the Twin Cities region with low-cost transportation of bulk goods to and from the central U.S. and foreign markets. As the effective head of navigation on the Mississippi River, local terminals have a large hinterland, extending especially north and west of the Twin Cities to include portions of the Dakotas and Canada. The river system is particularly important for the shipment of bulk commodities, both interregionally and intraregionally. Principal commodities include grain and associated products; southbound shipments of coal, potassic fertilizer, petroleum, and coke; inbound shipments of coal, phosphatic fertilizer, salt, petroleum products, and chemicals; local movements of sand and gravel, and petroleum products (Temple, Barker & Sloane [TBS] 1987).

Elements of the barge transportation system in the Twin Cities area include terminals, intermodal connections to truck and rail systems, fleeting areas, local and linehaul towing, and cleaning and repair facilities. The Temple, Barker & Sloane study used 1984 as a base year for analysis of commercial navigation activity. During that year almost 23 million short tons were handled by barge terminals in the Twin Cities area – 47% in Ramsey County, 20% in Scott County, 16% in Dakota County, 13% in Washington County, and 5% in Hennepin County. The direct impact of river navigation services on the Twin Cities was estimated at $200 million in 1984, supporting about 2,500 jobs in the seven-county metropolitan region (TBS 1987). Total economic impact (direct, indirect, and induced economic effects) was $348 million for Minnesota, $332 million for the metropolitan region, $139 million for Ramsey County, $52 million for Dakota County, $27 million each for Scott and Washington counties, and $13 million for Hennepin County in 1984 dollars.

Statewide, river navigation services provided (directly and indirectly) almost 6,000 jobs (5,300 in the Twin Cities region). However, as a capital-intensive activity, the employment impact was much less than the overall economic impact. In 1984 commercial navigation provided 1.0% of the Twin Cities' regional economic activity, and 0.6% of the state's activity. Wages were 0.5% of regional nonfarm personal income for the Twin Cities area and 0.3% for the state. Employment represented 0.4% of regional nonfarm employment for the Twin Cities area and 0.35% for the state.

Commercial river navigation is essential to several of the state's most important economic sectors, including agriculture, construction, and energy. If river transportation were not available for major commodities in these economic sectors, producers and consumers would pay an additional $74 million (in 1984 dollars) annually (TBS 1987).

After a period of increasing shipping activity, river navigation underwent a period of declining commodity transport during the 1980s. Current projections are that shipping will increase at a rate of about 1.9% per year for the next twenty years (U.S. Army Corps of Engineers 1992). Temple, Barker & Sloane project a total economic impact increase of about 0.9% per year between 1990 and 2010 after a decline in the 1980s. Economic impact of commercial navigation in the Twin Cities region in 2010 is projected to total $123 million in sales, employment of 5,235 people, $121 million in wages, and taxes of $17 million. Measured in 1984 dollars, this impact is less than 1% over 1984 levels (TBS 1987). Total barge traffic

declined, however, from 22.9 million tons in 1984 to 18 million tons in 1989. Recovery is slow and is expected to lag behind that forecast.

Commercial navigation affects the river corridor in noneconomic ways as well. Negative impacts are mainly environmental, associated particularly with direct and indirect pollution of the waterway and the effects of cleaning barges and towboats. The industry claims that progress has been made in reducing the pollution associated with barge cleaning, both in terms of the amount of water used and the return of contaminated water to the river. Techniques developed locally have been adopted in other locations. The barge industry also notes its achievements in promoting water safety, visually monitoring water quality, identifying spills, and contributing to necessary cleanups when problems arise. The technology and implementation of cleanup procedures has advanced considerably in the past decade, as awareness of the short- and long-term effects of contamination have spurred the industry to respond to public concerns.

Another major aspect of commercial navigation is the need for fleeting areas for barges. Temple, Barker, and Sloane noted that there is adequate capacity for terminal facilities in the Twin Cities portion of the Mississippi River to meet projected commodity flows through the first decade of the 21st century, but that barge fleeting in an urban area could become problematic. In 1984, the historic peak for grain shipments (15.4 million tons), barge fleeting capacity was strained. Temple, Barker & Sloane projected a need for additional barge fleeting capacity, particularly in the St. Paul section of the river, by 1995, depending on the actual amount and timing of grain shipments. They noted, "If additional fleeting cannot be provided in St. Paul, barge tows will have to be made and broken further downstream, resulting in higher costs and slower service. River transportation costs – specifically for grain shipments – could rise by as much as $1.9 million per year. . ." (TBS 1987). Fruin notes that railroad deregulation has led to increased competition for coal and grain hauling. Coal is now delivered to power plants in the Twin Cities area directly by unit trains, without barge transshipment. Railroads can now ship grain by unit trains to export via the west coast, competing with barge transportation via the Mississippi River to the Gulf (Fruin 1992).

Socioeconomic Conditions

According to state law, Minnesota townships near a large city can assume many powers held by incorporated cities. All four townships with land in the Mississippi National River and Recreation Area possess the available urban powers and are in many ways legal municipalities, though they retain a rural physical character.

In addition to the counties, cities, and townships, the Metropolitan Council holds certain authorities granted by the state legislature. The Minneapolis/St. Paul metropolis is referred to as the Twin City Metropolitan Area (TCMA), or simply the Twin Cities area. The Twin Cities include seven counties. Two counties, Carver and Scott, have no land in the MNRRA corridor, but all the cities are highly interdependent. Thus, it is important to include all the counties in a profile of the region.

Population. Over 50% of Minnesota's residents live in the Twin Cities metropolitan area and almost 25% live in Hennepin County. No other county's population approaches that of Hennepin. The nearest is Ramsey, with less than half the population of Hennepin.

All five MNRRA counties grew in population in the past decade. The central counties of Hennepin and Ramsey grew at rates of 9.7% and 5.7% respectively. The rate of growth varied greatly, ranging from Ramsey County's 5.7% to 41.7% in Dakota County. Population growth in the state and in the Twin Cities area is expected to continue at a lower overall rate through 2010.

At the city level, growth rates varied from -25.1% for Mendota, a city of 164 in 1990, to +87.1% for Champlin. Generally, the central cities and first-ring suburbs experienced slow or no growth while the outer suburbs saw moderate to high growth. Populations of the MNRRA cities are listed in table 9.

Table 6: Population and Growth Rates of State, Twin Cities, and Counties, 1980-2010

	1980	1990	rate	2000	rate	2010	rate
Minnesota	4,075,970	4,375,099	7.3%	4,600,397	5.1%	4,755,934	3.4%
TCMA	1,985,873	2,288,721	15.3%	2,560,000	11.9%	2,765,000	8.0%
Anoka	195,998	243,641	24.3%	284,540	16.8%	312,200	9.7%
Carver	37,046	47,915	29.3%	62,620	30.7%	73,650	17.6%
Dakota	194,279	275,057	41.7%	341,980	24.3%	394,530	15.4%
Hennepin	941,411	1,032,431	9.7%	1,109,120	7.4%	1,164,220	5.0%
Ramsey	459,784	485,765	5.7%	504,610	3.9%	516,450	2.3%
Scott	43,784	57,846	32.1%	76,910	33.0%	95,800	24.6%
Washington	113,571	145,896	28.5%	180,180	23.5%	207,050	14.9%

Source: Minnesota figures from State Planning Department; others from Metropolitan Council, derived from U.S. Census

Race. The population of the seven-county metropolitan area is over 90% white (table 7). No single minority category comprises more than 4% of the population of the area as a whole. However, the nonwhite proportion is significant in some communities.

At the county level the minority proportion of the population is much larger in some places than in others. In both Hennepin and Ramsey counties, over 10% of the population is minority. The city of Minneapolis has over 22% minority and in the city of St. Paul the proportion is 17%. The cities of Brooklyn Center and Brooklyn Park each have nearly 10% minority populations followed by the cities of Maplewood (5%) and Fridley (4%).

TABLE 7: POPULATION BY RACIAL CATEGORIES, 1990

	TOTAL	White	Black	Amer Ind, Eskimo, Aleut	Asian, Pacific Islander	Other	Hispanic*
Minnesota	4,375,099	4,130,395	94,944	49,909	77,886	21,965	53,884
TCMA	2,288,721	2,096,659	89,459	23,340	64,583	14,680	36,716
Anoka	243,641	236,791	1,289	1,865	2,934	762	2,269
Carver	47,915	47,167	103	112	444	89	252
Dakota	275,227	264,854	3,411	893	4,643	1,426	4,025
Hennepin	1,032,431	922,321	60,114	14,912	29,588	5,496	13,978
Ramsey	485,765	427,677	22,674	4,509	24,792	6,113	13,890
Scott	57,846	56,583	267	362	534	100	407
Washington	145,896	141,266	1,601	687	1,648	694	1,895

Source: Minnesota figures from state planning department; others from Metropolitan Council, derived from U.S. census
*Note: In this data Hispanic is an ethnic category, not a race. Hispanics transcend more than one racial category. The population in this column is also represented in the race columns.

Statewide and across the metropolitan area, the largest minority is Black, followed by Asian/Pacific Islander, American Indian/Eskimo/Aleut, and Other. Hispanics make up between 1% and 2% of both the Minnesota and the metropolitan area populations. This order is not necessarily mirrored in the counties and cities. Anoka County has more Asians (1.2%) and American Indians (0.8%) than Blacks (0.5%). Ramsey County also has more Asians (5.1%) than Blacks (4.7%). In contrast, Washington County has almost equal numbers of Blacks and Asians (1.1%) while Hennepin County has twice as many Black residents (5.8%) as Asian (2.9%).

The greatest concentrations of minorities are in the cities of Minneapolis and St. Paul. In Minneapolis, 13% are Black, 4.3% Asian, and 3.3% American Indian. In St. Paul, proportions are 7.4% Black, 7.1% Asian, and 1.3% American Indian.

The figures illustrate the population diversity found across the communities. Differences exist between distinct neighborhoods in individual cities, especially in the central areas.

Income. Median household incomes are listed in table 8 for the state, metropolitan area, and the seven related counties. The median household income for the region as a whole ($36,678) is higher than the median for the state ($30,909). All seven counties have higher medians than the state. However, differences are seen between the counties. Medians range from a high of $44,122 in Washington County to $32,043 in Ramsey County.

TABLE 8: MEDIAN HOUSEHOLD INCOME

Minnesota	30909
TCMA	36678
Anoka County	40076
Carver County	39188
Dakota County	42218
Hennepin County	35659
Ramsey County	32043
Scott County	40798
Washington County	44122

Source: Minnesota figures from state demographer; others from Metropolitan Council, derived from U.S. census; metropolitan area median is a weighted average of the seven counties' medians. Figures are in 1990 dollars.

Even greater variation exists across the individual cities and towns of the region. Mendota Heights has the highest median household income at $60,514. The lowest is Minneapolis at $23,324.

Poverty. Of the seven counties, only Ramsey at 11.4% exceeds the state's 10.2%. Poverty levels in the different minority categories show variation from community to community. With few exceptions, poverty is much more prevalent among minority populations than among whites.

Employment. The state of Minnesota saw an increase in covered employment of 20.5% from 1980 to 1990. The TCMA saw growth of 23.3%. "Covered employment" is the number of employees covered by unemployment compensation, reported by job site rather than place of residence. Covered employment accounts for all but 3%-4% of total employment.

Statewide, most jobs exist in trade, services, manufacturing, and government in descending order.

See appendix I for additional socioeconomic information, including population below the poverty level and employment by industrial sector.

TABLE 9: POPULATIONS OF MINNESOTA, TWIN CITIES, AND MNRRA COUNTIES AND CITIES

	1980	1990	change	2000	2010
Minnesota	4,075,970	4,375,099	7.3%	4,600,397	4,755,934
7-County Twin City Metropolitan Area (TCMA)	1,985,873	2,288,721	15.3%	2,560,000	2,765,000
Anoka County	**195,998**	**243,641**	**24.3%**	**284,540**	**312,200**
Anoka (city)	15,634	17,192	10.0%	17,700	17,800
Coon Rapids	35,826	52,978	47.9%	63,500	69,500
Fridley	30,228	28,335	-6.3%	28,500	29,000
Ramsey (city)	10,093	12,408	22.9%	15,600	17,700
Carver County	**37,046**	**47,915**	**29.3%**	**62,620**	**73,650**
Dakota County	**194,279**	**275,057**	**41.7%**	**341,980**	**394,530**
Hastings (part)	12,811	15,440	20.5%	17,600	19,800
Inner Grove Hts.	17,171	22,477	30.9%	27,500	33,000
Lilydale	417	506	21.3%	540	570
Mendota	219	164	-25.1%	170	180
Mendota Heights	7,288	9,431	29.4%	10,800	12,150
Nininger Twp.	774	805	4.0%	830	840
Ravenna Twp.	1,683	1,926	14.4%	2,050	2,150
Rosemount	5,083	8,622	69.6%	14,800	22,300
South St. Paul	21,235	20,197	-4.9%	21,000	21,700
Hennepin County	**941,411**	**1,032,431**	**9.7%**	**1,109,120**	**1,164,220**
Brooklyn Center	31,230	28,887	-7.5%	29,000	30,500
Brooklyn Park	43,332	56,381	30.1%	65,500	71,000
Champlin	9,006	16,849	87.1%	22,500	25,500
Dayton (part)	4,000	4,392	9.8%	4,700	4,850
Minneapolis	370,951	368,383	-0.7%	370,500	373,000
Ramsey County	**459,784**	**485,765**	**5.7%**	**504,610**	**516,450**
Maplewood	26,990	30,954	14.7%	33,000	33,500
St. Paul	270,230	272,235	0.7%	275,000	280,000
Scott County	**43,784**	**57,846**	**32.1%**	**76,910**	**95,800**
Washington County	**113,571**	**145,896**	**28.5%**	**180,180**	**207,050**
Cottage Grove	18,994	22,935	20.7%	29,500	33,500
Denmark Twp.	1,140	1,172	2.8%	1,250	1,250
Grey Cloud Twp.	351	414	17.9%	490	560
Hastings (part)	16	5	-68.8%	0	0
Newport	3,323	3,720	11.9%	3,950	3,950
St. Paul Park	4,864	4,965	2.1%	5,100	5,200

Only cities with land in MNRRA are listed, so sums of city populations will not equal total county populations. Populations for 2000 and 2010 are projections. Source: Metropolitan Council

VISUAL RESOURCES/LAND USE

Visual Character Analysis

The most significant visual features of the corridor, as seen from the river and shorelines, are identified in order to determine the land and resource protection measures necessary to preserve them (see Visual Resource Analysis map).

The river corridor has a relatively natural appearance through much of its 72-mile length. Confined in a steep, heavily wooded gorge through much of the metropolitan area, its lush bottomlands and wooded slopes also provide wildlife habitat. The activities of the area's 2.5 million people are not often seen or heard from the river. Behind the forests or beyond the bluff top lies a sprawling landscape of highways, shopping centers, industries, airports, and residential areas. This sense of being away from it all while actually being in the midst of a metropolitan area is remarkable. When human activities are visible, they are diverse. Travelers on the river see natural areas, factories, homes, dense forests, urban plazas and skylines, trails, parks, farms, barges, and wildlife. The character of the river itself changes, too, from a broad flat floodplain to a narrow river held in by a steep gorge, from calm water to roaring falls. General observations about the character of the entire corridor include:

- Visibility of the river: The river cannot be seen from many areas. This is usually due to vegetation, high bluffs, and existing development along the shore.

- Access to the river: Roads, railroads, industrial uses, large buildings, and single-family subdivisions provide barriers to the river, as do floodwalls, levees, and grade differences.

- Open space: There is extensive open space throughout the corridor. In downtown Minneapolis continuous open space has been planned for over 25 years and the city has been successful in acquiring and developing extensive open space along the riverfront. In downtown St. Paul public open space development has not always been a priority. A continuous 15-mile open space corridor is currently planned for both cities. Elsewhere in the corridor, much of what is perceived as open space could be developed.

- Vegetation: The heavily vegetated shoreline and wooded bluffs add to the corridor's natural character. The exceptions to this rule are the major residential and industrial areas and the Minneapolis and St. Paul downtowns. Vegetation often hides intense development and gives the impression of open space.

- Landforms: The major landforms in the corridor range from open to closed landscapes consisting of wide flat floodplain valleys, narrow valleys with steep bluffs, and wide valleys with more distant bluffs. There are a number of creeks and rivers feeding the river, each with its own character. Some of these offer physical connections to the river. The major identifiable features are the river, shoreline, floodplain forest, wooded bluffs, islands, and backwater areas.

Character Reaches. Despite the diversity, some broad patterns can be identified. Major visual factors include landforms, land use and development patterns, open space, river character, water use, habitat, visibility, and views. The river changes in character from north to south.

Crow River to North Minneapolis — The upper reach of the Mississippi river corridor is held in a broad, flat floodplain in this section, with no visible bluffs but with extensive vegetation along the shoreline. The river is enclosed with vegetation but becomes wider above the Coon Rapids dam. There are some excellent parklands, but there is minimal access to the river for autos or pedestrians. The river is not visible from most areas, with the exception of residential areas or parks. In the upper reaches there are good examples of floodplain forests.

Uses of the lower portions of this reach (below Anoka) are primarily residential. The older developments appear to fit into the land better than the newer, more visible subdivisions. There are numerous private boat docks and stairs leading from residences to the river. There are few commercial and industrial uses visible. Commercial navigation does not extend to this reach of the river, but motorboats and canoes and other boats are popular. The pool above the Coon Rapids dam offers motor boating, fishing, and water skiing. Above the pool and below the dam, the river is shallow and is suitable only for canoes and small motor boats.

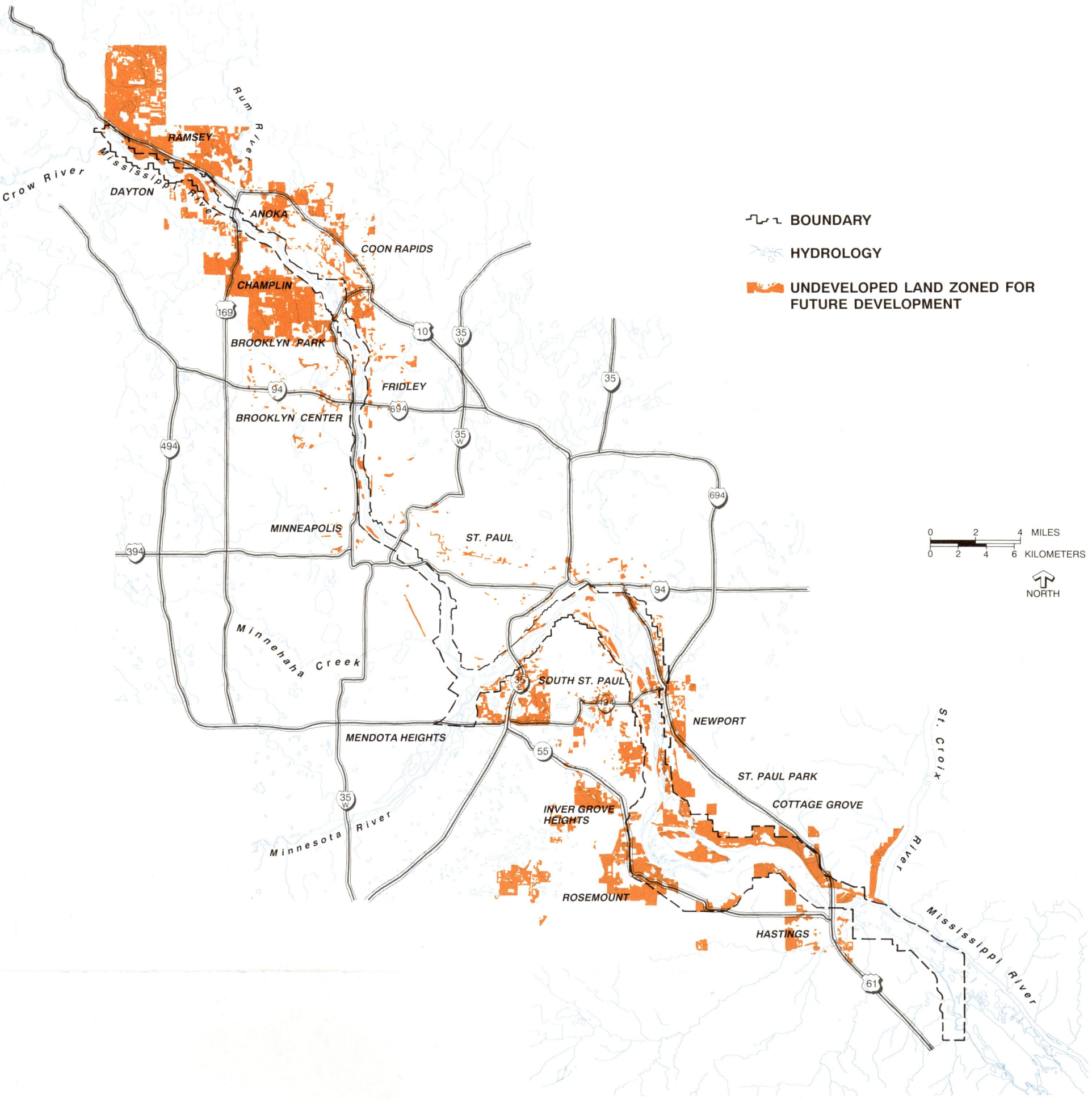
Significant visual features include the floodplain forest, vegetated shorelines, islands, and the Coon Rapids dam.

Minneapolis Area - This reach of the river may be the most diverse, with land uses ranging from intense industrial areas to relatively natural urban parks. Warehouses, small barge fleeting areas and terminals, and other water-related industries occupy large stretches of the river from the I-694 bridge to downtown Minneapolis. These areas have no significant vegetation. The area from the Hennepin Avenue bridge to the gorge offers views of this landmark bridge, urban plazas, St. Anthony Falls, two locks and dams, and many historic buildings. The downtown area riverfront is being developed with continuous urban parks, entertainment, residential uses, and adaptive reuses of historic structures. In some sections, though, the downtown is almost cut off from the river. The railroad lines, the street pattern, and several very large buildings block off the connecting streets.

Significant visual features include the Minneapolis skyline, distinctive bridges, mill district historic buildings, the falls, the stone arch bridge, the riverfront parkland, and the upper lock and dam.

The Gorge to St. Paul - This section is a unique mix of natural and urban scenery and the hub of commercial river activity. The gorge is a very scenic natural area with almost continuous open space and thick vegetation that leads into the intense industrial and downtown development in St.Paul. The steep bluffs and thick vegetation in the gorge result in an enclosed feeling until the river moves out into a broad floodplain with steep bluffs, punctuated in rock cliffs near St. Paul. Land in the gorge mostly publicly owned (University of Minnesota, city, and state), and the natural qualities of the corridor are preserved. Development is set back far enough from the bluff line with enough vegetation to render it almost invisible from the river outside the downtown area. Biking, walking, running, and cross-country skiing are popular in this area due to the almost continuous open space and trail system.

The Corps of Engineers operates lock and dam 1 (Ford Dam) in the area. The Minnesota River enters the Mississippi in this stretch with heavy sediment loads, which adversely affect water quality. The Fort Snelling area is not only scenic, with extensive open space, but rich in history. Limited barge traffic and small fleeting areas can be found, increasing in size and intensity as one moves downstream. Just before entering downtown St. Paul, extensive



UNDEVELOPED LAND ZONED FOR FUTURE DEVELOPMENT

MISSISSIPPI NATIONAL RIVER & RECREATION AREA

United States Department of the Interior
National Park Service

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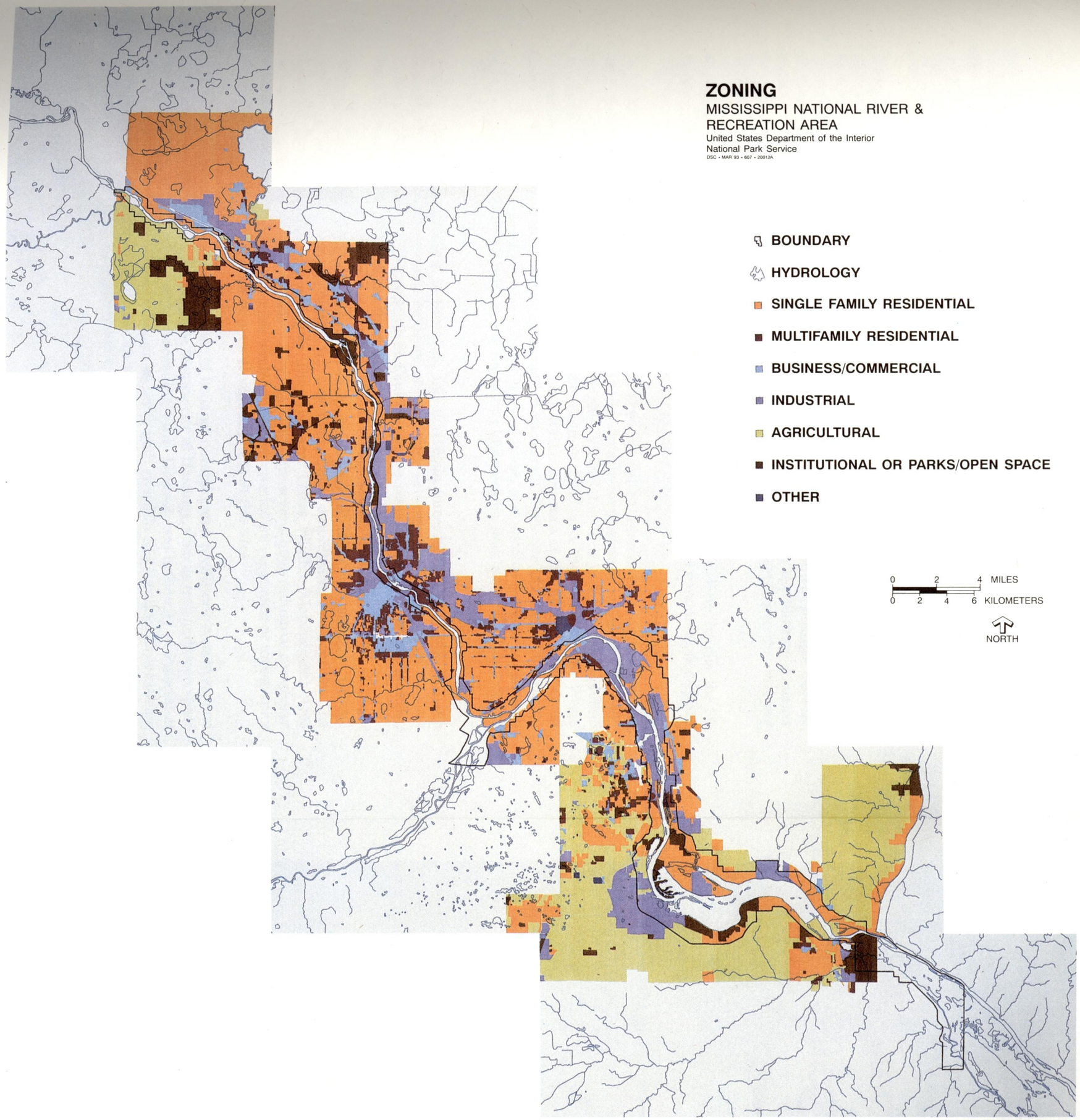


VISUAL RESOURCE ANALYSIS

MISSISSIPPI NATIONAL RIVER & RECREATION AREA

United States Department of the Interior
National Park Service

DSC • MAR 93 • 607 • 20005A


ZONING
MISSISSIPPI NATIONAL RIVER &
RECREATION AREA
United States Department of the Interior
National Park Service
DSC • MAR 93 • 607 • 20012A
BOUNDARY
HYDROLOGY
SINGLE FAMILY RESIDENTIAL
MULTIFAMILY RESIDENTIAL
BUSINESS/COMMERCIAL
INDUSTRIAL
AGRICULTURAL
INSTITUTIONAL OR PARKS/OPEN SPACE
OTHER
0 2 4 MILES
0 2 4 6 KILOMETERS
NORTH

industrial development appears, much of it abandoned. Railroads, roads, and steep bluffs cut off much of the city from the river, although there are plans to move many of the barriers. On the right-descending shore there is extensive open space, with Lilydale and Harriet Island parkland dominating the landscape, and there are some adjacent commercial recreation opportunities. On the right-descending side of the river the bluffs and cliffs offer a scenic backdrop for the river, and development on the top of the bluff is mostly unobtrusive.

The downtown skyline on the left-descending side of the river is particularly dramatic, but pedestrians are physically isolated from the river by roads, parking structures, and the bluff. Several large buildings, the most notable of which is the West Publishing Company, block the river view from downtown areas. However, because the St. Paul riverfront has not yet been redeveloped, increased visual and actual connections to the river may still be possible. Several plazas visually connect the river to the city. Outside of downtown, the blufftop contains several attractive parks that serve surrounding neighborhoods. Connections to the river are physically difficult but offer stunning views.

Significant visual features include the wooded bluffs, islands, Fort Snelling, barges, the St. Paul skyline, wildlife, distinctive bridges, large natural areas, and broad panoramic floodplain views.

Below St. Paul (from Mounds Park downstream) - The river valley becomes broader downstream from downtown St. Paul, with extensive industrial development, some of which is not visible due to vegetation, and some of which is highly visible due to a lack of any shoreline vegetation. Significant developments include Holman Field and the Metropolitan Waste Treatment Plant, which treats 85% of the area's waste. This area is the hub of commercial navigation, with terminals, fleeting areas, and service areas. Pig's Eye Lake is in this stretch, with its wastewater treatment plant, barge fleeting areas, and wildlife habitat. It provides foraging and roosting habitat for many birds, including eagles, and has a significant heron rookery.

Braided river channels begin in this area, and floodplain forest habitat is found on many islands. Indian mounds provide evidence of prehistoric settlement. The skyline of St. Paul often dominates the view. Below South St. Paul the area becomes much more natural looking, with wooded bluffs visible in the distance.

This section contains large amounts of open space and vacant land, with sensitive natural resources. Backwaters provide habitat for mammals, birds, amphibians, and reptiles. The Spring Lake backwater is an example. The 4,100-acre Gores Wildlife Management Area encompasses the backwater area below Hastings. There are several huge industrial complexes in this reach, some of which are visible while others are screened by vegetation or topography from the river. Large homes can be seen along the bluffs in this area.

Grey Cloud Island is significant because of its large natural areas, prehistoric resources, and large mineral extraction operations. The historic city of Hastings, with its trail and open space along the riverfront, is on the right-descending bank. Downstream is the city of Prescott at the mouth of the St. Croix. Several marinas serve both rivers in this location. Downstream from Hastings the wooded bluffs are up to 390 feet high and appear mostly undeveloped. Boating is the dominant recreational activity.

Significant visual features include downtown Hastings, open space, bluffs, Spring Lake, Grey Cloud Island, agricultural land, distant views, the lock and dam, and the mouth of the St. Croix.

Planning to maintain the most significant visual features and encourage visually appealing development is the most realistic approach in a largely developed area. This analysis has identified significant visual features: the river itself, barge operations, wooded bluffs, floodplain forest, vegetated shoreline, wetlands, wildlife, the three downtowns that front on the river, and the many historic structures in the Twin Cities area, particularly the exciting array of resources in the St. Anthony Falls area. The plan uses these important visual features to provide a framework for land use, resource protection, and visitor use.

Constraints and Opportunities. After over 140 years of human use and development, the Mississippi corridor appears remarkably natural from the river. The opportunity to preserve this character at least visually is still there. It is possible for existing vacant land to appear open or natural even if developed. It is possible to provide a continuous public open space corridor along much of the river in the long term, building upon the excellent system already in place in many areas. Vegetation could be preserved, providing habitat and visual relief. There are still opportunities for downtown riverfronts to be further revitalized, capitalizing on the historic resources and open space potential. There is an unusual opportunity for all levels of government to cooperate to achieve these visions and for landowners to help promote the public benefits of the plan. Areas that are perceived as visually appealing, safe, and well planned attract people and business to a community.

Existing Land Use and Zoning

In order to recommend policies for the MNRRA plan, existing land use and zoning rules were inventoried and analyzed. The following maps and tables show existing land use and zoning in the corridor, followed by a brief discussion of the implications of the existing situation.

TABLE 10: LAND USE IN THE CORRIDOR

LAND USE	ACREAGE	%
Single family residential	6,127	11%
Multi-family residential	407	1%
Commercial	444	1%
Industrial	4,018	7%
Public	3,030	6%
Parks and recreational	5,928	11%
Agricultural or vacant	19,096	36%
Water bodies	14,677	27%
No data	53	0%

Note: Information for this table is from the MNRRA Geographic Information System. Original data source: 1990 air photos interpreted and digitized by the Metropolitan Council. Water bodies are greater than reported in the 1988 land cover map (developed from satellite imagery), due to drought conditions in that year and differences in the resolution of the data sources.

The Land Use map (appendix B) and table 10 show the corridor's existing land use. There are several significant land use characteristics worth noting in the corridor. One is the large

amount of park and recreation land. Another is the significant amount of vacant or agricultural land, which totals 36% of the land in the corridor, much of which may be subject to development, as discussed below.

TABLE 11: ZONING IN THE CORRIDOR

ZONING	ACRES	%
Single-family residential	15,727	29
Multi-family residential	1,458	3
Business/commercial	1,001	2
Industrial	8,601	16
Agricultural	2,783	5
Institutional/or parks and open space	4,077	8
No data (river, water bodies,etc)	20,103	37

Note: does not include all parks and open space, as some communities do not zone parks separately.

Table 11 shows zoning in the corridor. The largest zoning category is single-family residential. Much of this acreage is undeveloped but zoned for future development. The amount of undeveloped industrially zoned land is also significant (over 4,000 acres). Much of the vacant land presently appears as visual open space in a rural environment. If developed without sensitivity to the significant visual features as discussed above, the results could be detrimental to the visual character in the corridor.

TABLE 12: LAND USE/ZONING ANALYSIS

	ACRES
Entire Corridor:	
Total land area in MNRRA corridor (total area minus water)	39,102
Agricultural or vacant land zoned for future development in MNRRA corridor	9,368
Undevelopable (wetlands and slopes 12%+)	1,553
Developable land zoned for future development in corridor	7,815
Riverfront Area:	
Total land in corridor within 300′ of river	8,455
Agricultural or vacant land zoned for future development within 300′ of river	1,708
Undevelopable (wetlands and slopes 12%+) within 300′ of river	800
Developable land zoned for future development within 300′ of river	908

The Undeveloped Land Zoned for Future Development. Table 12 shows agricultural or vacant lands zoned for future development. This provides a good indication of the amount of land that could be developed for urban/suburban types of uses in areas that may presently be perceived as open space by the public. The table also shows land that should be considered undevelopable (wetlands and steep slopes). When these wetland and steep slope acres are subtracted, there are still over 7,800 acres of undeveloped land that could be developed in the corridor under current zoning, most of which is in the south end of the corridor. Much of this is currently zoned for low-density residential use, but will be lost as perceived open space if the corridor is developed under current zoning. To give some perspective on this figure, there are currently about 8,500 acres of existing public parks and open space in the corridor.

The Undeveloped Land Zoned for Future Development map shows areas in the corridor that are not now developed but could be converted under current zoning. It shows agricultural or vacant lands that are subject to urban/suburban development. The undeveloped land

UPDATE to TABLE 12: LAND USE/ZONING ANALYSIS

Riverfront Area:	ACRES Orig.	Modified
Total land in corridor within 300′ of river	8,455	16,355
Agricultural or vacant land zoned for future development within 300′ of river	1,708	2,485
Undevelopable (wetlands and slopes 12%+) within 300′ of river	800	1,098
Developable land zoned for future development within 300′ of river	908	1,387

Modified figures are based on 300′ zone PLUS floodplain areas within MNRRA corridor.

United States Department of the Interior

NATIONAL PARK SERVICE
Mississippi National River and Recreation Area
175 Fifth Street East, Suite 418, Box 41
St. Paul, Minnesota 55101-2901

IN REPLY REFER TO:
D181(MISS)

February 24, 1994

Memorandum

To: Mississippi River Coordinating Commission

From: Superintendent, Mississippi National River & Recreation Area

Re: Acreages of developable land zoned for development including state shoreland areas beyond 300 feet

Below are acreage figures for Table 12 showing both the original land areas within 300 feet as well as modified acreage figures which include state shoreland areas within the MNRRA corridor which are beyond 300 feet (floodplain areas).

UPDATE to TABLE 12: LAND USE/ZONING ANALYSIS

Riverfront Area:	ACRES Orig.	Modified
Total land in corridor within 300′ of river	8,455	16,355
Agricultural or vacant land zoned for future development within 300′ of river	1,708	2,485
Undevelopable (wetlands and slopes 12%+) within 300′ of river	800	1,098
Developable land zoned for future development within 300′ of river	908	1,387

Modified figures are based on 300′ zone PLUS floodplain areas within MNRRA corridor.

JoAnn M. Kyral

zoned for development that is not excluded for sensitive area status is considered developable for purposes of this analysis. Floodplains were not excluded from these areas because under existing federal floodplain management regulations and typical local ordinances, most floodplain areas can be developed if certain stipulations are followed (such as elevating buildings above the 100-year floodplain). If they were excluded there would be about 6,000 acres that would still fall in this category.

Relatively little undeveloped (but zoned for development) land is in the 300-foot riverfront area, which is subject to locational policies discussed in the plan. There are about 8,500 total acres of land within 300 feet of the river along the entire 72 miles of the corridor. This is about 22% of the total land area (based on 1990 aerial photos). When the existing 100-foot state critical area shoreland building setback is subtracted from this area, only about 5,500 acres remains, or about 14% of the corridor that would be subject to the riverfront policy. Of the 8,500 acres within 300 feet, only about 1,700 acres are undeveloped land zoned for future development. Of that, only 908 acres are developable lands currently zoned for future development and only about 600 acres of that could be built on under the existing 100-foot state setback requirement. About 800 acres of the undeveloped lands zoned for future development within 300 feet of the river are in wetlands or slopes greater than 12%. In addition, much of the riverfront area is in the 100-year floodplain and therefore even the 908 acres would be subject to greater development constraints under existing federal, state, and local floodplain regulations than other lands in the corridor outside the 300-foot area. It is recognized that some lands currently zoned for agriculture or other nonurban use will eventually be zoned for more intensive use, and the 908-acre figure would increase somewhat.

TABLE 13: MNRRA ACREAGE FIGURES ACCORDING TO COUNTY

County	NPS-Owned Land (acres)	Other Public Land (acres)	Private Land (acres)	Water Bodies (acres)	Total MNRRA Land and Water (acres)
Anoka	8	661	2296	960	3925
Dakota	16	1990	13282	6071	21359
Hennepin	2	2113	3972	1914	8000
Ramsey	18	3561	3746	2088	9412
Washington	0	125	7313	3642	11079
Total	43	8450	30608	14674	53776

Source: NPS GIS database (note: totals may not add up due to rounding).



Barge fleeting near downtown St. Paul

ENVIRONMENTAL CONSEQUENCES

The Mississippi National River and Recreation Area Comprehensive Management Plan covers a large and dynamic urban area. The plan includes only one proposal for direct NPS land acquisition and interpretive facility development. Other parts of the plan are heavily dependent on coordination and partnerships for implementation. Few of the specific elements of future land use in the corridor are known at this time. The legislation encourages the coordination of activities and provides a management framework to guide development in the corridor. The proposal and alternatives identify broad management guidelines and policies, and except for interpretive centers they contain no site-specific proposals. In many cases the plan relies on enforcement of regulations already in place and incremental change would relate to improvements in enforcement, coordination, and cooperation. Environmental consequences are extremely difficult to quantify because few tangible elements are known. This requires that, except for the Harriet Island interpretive center, the environmental consequences be developed at a more general, subjective level of analysis than an individual project would normally involve. The Harriet Island interpretive center is well enough understood to facilitate environmental decision making.

This impacts analysis presents an overview of potential impacts relating to the proposed concept under each alternative. More detailed environmental assessments would be written by the implementing agency for site-specific proposals (such as grant or permit applications) at sites other than the Harriet Island center. Other than the commitment of the Harriet Island site for an interpretive center, there would be no known irreversible or irretrievable commitment of resources in the plan.

Impacts of the proposed comprehensive management plan are presented first. The impacts of the alternatives follow and are more succinct because the discussions stress where environmental consequences would differ from the proposal. Table 14 summarizes the impacts of the proposal and alternatives for the comprehensive management plan.

TABLE 14: SUMMARY OF ENVIRONMENTAL CONSEQUENCES: PROPOSED PLAN AND OTHER ALTERNATIVES

Value	Proposed Plan	Alternative A (No Action)	Alternative B	Alternative C
Water Resources	Reduced water pollution	No effect	Greater pollution reduction	Minimal effect
Air Quality	Improved air quality	Continued intermittent exceedances of some pollutants	Greater pollution reduction	Minimal effect
Soil and Vegetation	Increased revegetation of river banks with native species; encouraging erosion prevention measures would retain soils	Continued clearing of banks in some areas and associated erosion; inconsistent steep slope and bluff line protection with associated vegetation and soil loss	Greater revegetation of river banks; increased use of erosion control measures, implementation of monitoring system	Some loss of vegetation due to increased development
Wildlife	Increased protection of dwindling wildlife habitat in corridor	Continued loss of wildlife habitat to development	Greater protection for wildlife habitat areas	Possible loss of habitat to encouraged development
Threatened and Endangered Species	Increased protection for threatened and endangered species	No effect	Greater protection for threatened and endangered species/habitat in corridor	Minimal effect
Cultural Resources	Increased adaptive reuse of cultural resources	Continued deterioration of some cultural resources	Increased protection of cultural resources	Increased adaptive reuse of cultural resources
Economic Environment	Minimal impacts; some lost opportunities due to open space acquisition and land use controls	No effect	Greater adverse effects	Greater economic benefits
Commercial Navigation	Minimal effect	No effect	Restricted expansion of barge fleeting areas	No effect; barge fleeting areas would expand as needed for demand
Recreational Use	Increased recreational opportunities, both passive and active	No effect	Limited increase of recreation use, primarily passive	Expansion of recreation use emphasizing active uses to stimulate economic growth
Cumulative Effects	Beneficial effects	No beneficial effect	Beneficial effects	Minimal beneficial effect

IMPACTS OF THE PROPOSED PLAN

This proposed plan would encourage the adoption of policies that would advocate land and water uses that minimize adverse effects on the river corridor and conflicts between users while providing for a broad spectrum of activities and managed growth. The most significant visual resources would be protected and restored, including historic structures and landscapes, shorelines, wetlands, steep slopes, and other sensitive resources. The river corridor would have continuous public and private open space along the shoreline, and it would be connected to the downtowns and neighborhoods by open space and trails. Local governments would update their land use plans for the corridor to conform with this plan. Additional open space and trails would be acquired and developed by local governments. There would be minimal NPS land acquisition. The National Park Service would develop a major interpretive center and headquarters in St. Paul, and cooperate on establishing a major interpretive center in Minneapolis and smaller interpretive stations in Hastings and at the Coon Rapids dam.

Impacts to Natural Resources

Geology/Mineral Resources, Physiography, Soils. Shoreline bank erosion would be reduced due to less disturbance in the shoreline protection area, an area of about 1,300 acres within 40 feet of the river. This would also result in less sedimentation and improved habitat for aquatic resources. The protection of up to 5,500 acres of steep slopes in the corridor that are greater than 12% would result in reduced soil loss from erosion and increased habitat. Increased protection of bluff lines would have a similar impact.

Development of new trails in the corridor would require some minor alteration of the topography through minimal cutting and filling. Removal of vegetation during construction periods could cause some temporary localized increases in erosion and sedimentation. This problem would be minimized by avoiding construction in highly erodible areas and by using control structures. Careful design and engineering techniques would be used in areas where soils are poorly suited to development. Increased trail use could result in soil erosion on unpaved trails, and there could eventually be congestion problems that could cause people to move off developed trails and affect soil erosion on nearby areas.

The Harriet Island interpretive facility would require regrading of the 5-acre site to make it useable for the intended purposes, but it is already disturbed by existing industrial activities and care would be exercised during the construction process to minimize soil erosion.

There would be no adverse effects on prime or unique farmlands because they would either be used for agriculture under guidelines prepared by the Soil Conservation Service or otherwise protected. Proposed NPS interpretive facilities would have no affect on prime farmland.

Vegetation. If the land management policies are adopted and enforced by local governments, vegetation would be preserved or restored in most of the 1,300-acre shoreline protection area and on up to 5,500 acres of slopes greater than 12% in the corridor. Additional vegetation would be protected in the bluff setback area, but the number of acres cannot be estimated with existing data.

The abundance and diversity of vegetation in the corridor would increase due to the land protection policies and design guidelines. More unique natural communities would be protected and restored, resulting in improved habitat diversity.

The existing vegetation at the 5-acre Harriet Island interpretive center site consists mainly of early emergent growth of marginal quality. The quality of vegetation at the site would be improved by increasing the diversity and abundance to reflect native species of that area. The Harriet Island interpretive facility site in St. Paul would have little affect on vegetation. Every effort would be made to preserve the limited amount of valuable vegetation in place on this previously developed site.

The Saint Anthony Falls interpretive facility would use an existing building and little if any site disturbance would result.

The use of native plant species is encouraged by the proposal, and nothing in this plan would add to the spread of aggressive exotic plant species in the corridor.

Fish & Wildlife, Threatened and Endangered Species. Increased recreational use by resident and tourist populations would cause some disturbance to wildlife. Since the primary boating season does not coincide with either the spring or fall waterfowl migration, no significant impacts to migrating waterfowl are predicted. This may change if seasonal recreational boaters seeking to avoid crowds shift times of peak use away from the summer months to the spring and fall. Any additional boating traffic would mainly increase on the already heavily used main channel and main channel border. The shallow backwaters and side channels where most of the wildlife habitat and sensitive species are located would be minimally impacted. With increased boating traffic in the main channel, though, there could be some increase in side channel and backwater traffic – boaters seeking to avoid busier areas. Increased recreational boating has a minor potential to degrade fish and wildlife resources. Increased boating is not expected to significantly alter the recognizable negative effects of boat wake erosion, noise, and physical disturbances.

There would be some affects on the abundance and diversity of fish and wildlife resources (habitat and species numbers) in the area. Further losses of these resources would be retarded and some increases in fish and wildlife abundance and diversity could be expected if all proposed land protection policies and design guidelines are implemented. The restored vegetated shorelines (along the Mississippi and its tributary streams and ravines) and additional open space would increase the amount of habitat, and wildlife would be attracted to and move more freely between adjacent natural areas. There would be minimal impacts to fish and wildlife in the corridor from proposed NPS facility development; some construction activities, such as trail, interpretive center, and parking construction, would result in a minor loss of habitat. Improved water quality would improve fish and wildlife habitat in the river. The site for the proposed Harriet Island interpretive center is currently used for light industrial purposes and has little value to fish and wildlife. Extensive landscape plantings on this site by the National Park Service would improve its habitat value somewhat.

The proposal encourages the use of native plants and improvements in water quality, which should both encourage native wildlife inhabitation. There would be no expected increase in the spread of exotic animal species in the corridor as a result of the proposal.

There are twelve threatened and endangered species in the corridor (see table 5). There would be no impacts to any of those species as a result of actions under the proposal. Land use management, open space, and visitor use policies would have no adverse impacts to threatened and endangered species and should enhance potential habitat. Each site proposed for development of an interpretive center would be surveyed for the presence of threatened or endangered species or their critical habitat before any construction would begin. There are no known threatened or endangered species at the Harriet Island site. In the event that it is later determined that a federally listed species could be affected by actions under this plan, formal consultation would be initiated with the U.S. Fish and Wildlife Service.

Floodplains and Wetlands. The proposed plan would help protect floodplains and wetlands in the corridor. If floodplain management policies were adopted and implemented by corridor communities, there would be no major impacts to the 27,000 acres of floodplains, or on the floodplain values, from development in the corridor. The proposed plan identifies the floodplain as a sensitive resource and encourages local governments to regulate development in the floodplain areas. These facilities should not displace appreciable quantities of water or enlarge the floodplain. Trails in the floodplain could be relocated, but that would not provide the same experience that is available near the river.

The proposed NPS center at Harriet Island and cooperative interpretive centers at Coon Rapids Dam and Hastings would not be located in floodplains or wetlands and would not adversely affect floodplain or wetland values. The Minneapolis/St. Anthony Falls center, if located in the Washburn-Crosby complex, would also not be in a floodplain or wetland nor affect these values. The NSP Main Street plant is located in the floodplain and if that site is selected for the St. Anthony Falls area interpretive center, additional floodplain compliance procedures would need to be completed. Development of boat launching and takeout facilities by local and state agencies would be in areas that are in the 100-year floodplain. The National Park Service has determined in its floodplain management guidelines that boat launches are compatible uses of floodplains. The intent of these facilities is to provide access to water recreation activities. To accomplish this, the facilities must be near the water. These actions are therefore excepted from compliance with Executive Order 11988, "Floodplain Management." These facilities should not displace appreciable quantities of water or enlarge the floodplain. None of the existing 21,500 acres of wetlands in the corridor would be disturbed, degraded, or altered as a result of the proposal because it supports strong compliance with existing state and federal wetland protection policies and regulations.

The proposed land management policies are expected to have no long- or short-term adverse effects associated with occupancy or modification of floodplains or wetlands. Rather, these values would be enhanced by cooperative efforts with other agencies and landowners to protect floodplains and wetlands. Interpretive programs and recreational activities would further the public's appreciation of floodplains and wetlands, which should improve attitudes and care of the resources.

Water Quality. Additional recreation use in the corridor would have minimal effects on the water quality in the river, especially when compared to existing point and nonpoint pollution in the river. The beneficial effects of the water pollution policies in the plan would be contingent on the success of the Minnesota Pollution Control Agency and other agencies responsible for water quality in their efforts to address the major pollution sources affecting the corridor. Most nonpoint source pollutants affecting water quality would continue to come from sources outside the MNRRA corridor. The National Park Service and commission in

coordination with regulatory agencies might reduce outside pollution threats. Under the proposal, point source regulatory requirements would be attained and nonpoint pollution and runoff would be reduced, resulting in improved water quality, a healthier fishery, and improved fishing and swimming conditions.

Air Quality. A minor increase in air pollution would result from the increased motor vehicle and boat use related to increased visitation and recreation in the area. Point and nonpoint sources of air pollution would continue to impact air quality. Increased visitation under all alternatives would have some impact on air quality and noise. These increases would be insignificant, especially when compared to existing air pollution sources in the metropolitan area.

When interpretive center construction is underway, there could be a minor, short-term reduction in air quality in the immediate construction area due to fumes and dust. No significant impacts to air quality would continue over the long term.

Section 118 of the Clean Air Act requires federal agencies to meet all federal, state, and local air pollution control requirements. No air quality standards would be exceeded. The proposal would have an insignificant effect on air quality in the MNRRA corridor. Continued NPS participation in reviewing federal regional air quality permits would assist in preventing deterioration of the corridor's air quality from pollution sources outside the MNRRA boundary.

Noise and Visual Quality. The proposed interpretive facilities would cause some minor increases in noise due to anticipated increases in traffic at the sites.

Additional recreational use in the corridor would cause increases in noise; however, these would be insignificant, especially when compared to the existing background noise in a large urban area.

A mostly vegetated shoreline, the screening of developments from the river, and building setbacks would protect and restore a more natural appearance and improve the visual quality along the river.

Impacts to Cultural Resources

Nothing in this plan would contribute to the degradation or loss of cultural resources. Increased interpretation and preservation information would result in a greater awareness of the value of cultural resources. This could lead to greater support for preservation of the 60 properties on the National Register of Historic Places (or determined eligible for the register) within the MNRRA boundaries. This includes three national historic landmarks, three national register properties identified as nationally significant, and about 10 historic districts.

Shoreline treatments in areas with historic districts or historic properties could be tailored to the needs of the historic landscape and would contribute to the preservation of these properties.

Rehabilitation of historic properties would be effective in preservation; however, the amount of public and private funding available is limited in comparison to the need for rehabilitation. This is likely to result in the continued loss of some properties that are lower priority.

Land use and resource protection policies in the plan could discourage some businesses (e.g. manufacturing) from moving into historic properties in the corridor, while other businesses (e.g. retail and entertainment) could be attracted by such policies. While exceptions are made for the use of historic buildings in the location policies, prospective occupants might be deterred due to a perceived increase in government regulation in the corridor.

At the site selected for interpretive and administrative facilities in St. Paul, there are no known cultural resources. The area is already significantly disturbed from recent industrial use and levee construction. The development of walkways, parking areas, buildings, and utilities for the interpretive center could uncover unknown archeological resources, which would demand mitigation. Consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation would be undertaken following more detailed site surveys and if any resources are uncovered during construction.

If a new building were constructed in St. Paul, it could create a different structure density in the area, but there is no presence of historic resources at the site, nor is it located near historic properties or known prehistoric sites. Construction of contemporary structures could alter and impact the visual character of a yet undefined cultural landscape.

Development of an interpretive center in the St. Anthony Falls Historic District would contribute directly to the preservation of the adaptively used structure and indirectly to other historic buildings in the corridor through interpretation and education programs and media.

The cooperative interpretive centers would be located in existing structures and would not adversely affect cultural resources.

Impacts to Visitor Use

Recreational use of the corridor would increase under the proposal — especially activities such as hiking, bicycling, boating, canoeing, wildlife viewing, photography, and educational field trips. It is expected that this increase would be comprised mostly of regional residents, but it also would include additional tourist populations. Much use would involve unstructured public visitation; there would also be a significant increase in structured educational activities such as school field trips. Previously underrepresented groups such as minorities or inner-city residents would benefit from targeted outreach programs.

In addition to increased educational activities, there would be an improved quality of services. This would be due to enhanced coordination of interpretive services (minimizing duplication and supplementing deficiencies), the addition of interpretive facilities and enhancement of existing ones, the design and installation of interpretive media, and the offering of personal services such as interpretive talks, guided hikes, and water ecology programs.

Along with increased interpretive activities and facilities would come increased awareness and concern for environmental protection. The regional public would become better informed of issues affecting the corridor and better able to participate in developing optimum solutions.

Increased personal accountability should result in reduced levels of vandalism and other destructive behavior, and increased citizen monitoring of environmental and social conditions.

Increased use would cause impacts to recreational resources. Large increases in numbers of boats and canoes could detract from scenic values for some viewers (a small increase would probably have few impacts to scenic values). Increased trail use could cause crowding on unpaved trails, particularly in the Minneapolis gorge.

An increase in demand for commercial services and products would follow. Recreational users need food, lodging, equipment, training, orientation, and group associations. Part of these needs would be filled by governmental units (the National Park Service and other agencies would improve orientation services and offer expanded environmental education programs), and a significant portion (such as equipment rentals, boat rides, food, and lodging) would be provided by the private sector.

Impacts to Economic Environment

This section concentrates on a series of economic issues raised during the scoping process for this document regarding the potential effects of the plan on corridor business activities. While it covers all aspects of the proposal, it concentrates on proposed land use, resource protection, and land acquisition policies, which were identified as major concerns during scoping efforts for the document. The conclusions were based in part on a report prepared by the University of Minnesota on the impacts of the proposal and alternatives (Miller 1992) and on other data and literature on the subject.

Costs of Complying with Land Use and Environmental Protection Policies (Existing or Proposed). Additional costs of compliance might affect businesses in the corridor. Additional resource protection would be achieved through enforcement of existing legislation, new regulations, and design guidelines. Businesses already must plan for compliance with existing regulations although inconsistent enforcement may have allowed some businesses to avoid the costs of these regulations. To the extent that new regulations or more consistent enforcement results, some firms and/or governmental units might incur additional costs or choose to locate elsewhere. Just the perception that there are additional regulations could deter some firms from locating or expanding in the corridor. A major area of concern has been the stipulation that the riverfront area (about 8,500 acres within 300 feet of the shore) be reserved for river-related or river-enhancing uses. This stipulation would increase the current 100-foot setback (state critical area rule) to 300 feet for some new buildings, such as general manufacturing and warehousing structures. Some businesses considering a corridor location might choose not to incur the extra costs of complying with this setback requirement and could locate or expand elsewhere — in or outside the metropolitan area. The total cost and relocation impact is difficult to predict, because it would depend on the cooperation received by local governments in adopting and enforcing proposed (and existing) policies. Also, the decisions of businesses are made based on many factors, only one of which is compliance with land use and environmental policies.

The proposed 300-foot riverfront policy would affect a relatively small area of undeveloped (agricultural or vacant) land currently zoned for future development. Using 1990 data entered into the NPS GIS database, of the 8,500 acres in the riverfront zone there are about 1,700 acres in the corridor that fit into this category. Of this, only about 900 acres are not in wetlands or

on steep slopes (greater than 12%). It is recognized that additional areas might be rezoned for future development at a later date, and this area would tend to grow. However, it would be expected to remain a relatively small portion of the MNRRA corridor, and the overall economic impact should be relatively modest. See Existing Land Use and Zoning section in the Affected Environment chapter for a more detailed description of these data.

Lost Opportunities for Expansion Due to Land Acquisition for Parks and Open Space. The actual economic impacts to individual firms and government jurisdictions would depend on the level of recognition given to the role of economic activities in particular locations in the MNRRA corridor and the actual extent of land removed from private use. To the extent that the plan is oriented toward corridorwide consistency, impacts to local businesses and municipalities have the potential to be greater. Conversely, a greater emphasis on local decision making and needs with a higher degree of flexibility in formulating and implementing the proposal would be likely to mitigate negative economic impacts. The proposal follows the latter approach, recognizing that the corridor varies in its opportunities and constraints for park land expansion, and different strategies for the acquisition of land for parks and open space would be pursued. There are currently about 4,600 acres of parkland in the corridor, and about 2,000 acres of additional parkland acquisition is planned by local governments. The actual amount of additional public land acquisition resulting the MNRRA plan can not be determined at this time, but it would be a relatively small percentage of land in the corridor, including a relatively small portion of undeveloped land zoned for future development.

Business Displacement. Existing business displacement is not anticipated under the proposal. The plan explicitly permits land uses currently located along the river to continue at existing sites, which would protect existing economic resources in the corridor. The costs of complying with regulations for new or major expansion is addressed above. There is a possibility that some businesses might choose to relocate to other areas rather than comply with existing or proposed policies.

Nonreplacement of Businesses. Some loss of economic activities in the corridor could take place through attrition. Whether this would result in a significant economic impact depends on several factors. First, if the businesses were unsuccessful for reasons having little or nothing to do with other MNRRA activities, nonreplacement could be economically sound and market-driven. Second, if the businesses move to alternate locations in the metropolitan region, there would be no net loss of regional jobs or economic multipliers but merely a redistribution of their locations. While this could have substantial consequences on individual communities, the effect on the overall economy of the region would be minimal. It is not known how many businesses would remain in the area or leave the metropolitan area.

A wide variety of land uses are permitted in the corridor, subject to local zoning, but nonriver-related or nonriver-enhancing uses should be located out of the riverfront area (the first 300 feet back from the river). Since a state-mandated 'setback area' of 100 feet already exists, this new guideline represents an additional 200 feet of partially restricted use area, or only about 600 acres in the corridor under current zoning.

If an owner of an inconsistent land use desires to move away from a river location, the proposal encourages redevelopment of the riverfront to a consistent private use or to a public use. It is important to remember that the proposal does permit activities currently located

along the river to remain in their current sites, effectively protecting the current economic resources in the corridor.

Job Loss (and Economic Multiplier Loss) Incurred if Businesses are Displaced. Under the proposal most jobs would be retained in the corridor or regional economy; others might be lost permanently. However, given the expansion capability for existing uses, significant business displacement is not anticipated under the proposal. There is also the potential for additional job creation, which is discussed in other sections below.

Effects on Barge Operations. Impacts to barge operations would be minimal unless significant increases in levels of barge fleeting activities are experienced. Under present forecasts, it is uncertain if or when such levels might be reached (Fruin 1992). The river-related land use policy would reserve limited land in the riverfront area for activities requiring a river location. Many of these are industries that traditionally use commercial navigation services. This would help protect a limited important economic resource in the corridor.

Loss of Tax Base from Land Acquisition. Minimal direct federal land acquisition for MNRRA activities is anticipated. If there is direct federal acquisition of land, tax base losses would be partially mitigated by payments in lieu of taxes for any federal land. It is important to note that payments in lieu of taxes only apply to land acquired at the federal level; to the extent that political jurisdictions at nonfederal levels remove land from the tax rolls, such payment would not apply, and there would be a loss of tax base without mitigation. Most land acquisition would be by local entities for which payments in lieu of taxes would not apply. The total amount of land to be removed from the tax roles can not be estimated at this time, but would be a relatively small portion of the corridor, and an insignificant amount of the tax base in the metropolitan area.

The proposal envisions assisting local governments in acquiring additional open space along the river. In most of the municipal jurisdictions, the total increases in tax-exempt land should be relatively small. Much of the land is already planned for public use. Removal of additional properties from the tax rolls as a result of the MNRRA plan would probably have a relatively modest impact on individual communities. Impacts would be greater to communities (especially townships) in the lower river area because a greater number of local open space acquisitions are envisioned in that portion of the corridor. The total impact on the tax roles cannot be predicted at this time.

Change in Land Values due to Amenity Effects. Generally, increases in land values could be expected on lands close to protected corridor environments. Residential lands located near areas in which habitat and scenic values are preserved are particularly expected to increase in value. The magnitude of the increase cannot be predicted at this time. Higher land values would translate into increased property tax revenues for local communities but would also increase tax burdens on individual property owners.

Effects of Additional Tourism. Additional tourism would be expected. The total amount of additional tourism would vary depending on whether the MNRRA corridor serves as an attractor or an attraction. Attractors are environments or activities that serve to bring additional tourists to the Twin Cities area. They represent tourist dollars entering the local economy that would not be present were the environments or activities not in place. Attractions are environments or activities that are used by local residents and individuals who have come to the region for other reasons (including a desire to see other attractors).

It is more likely that the resources and activities associated with the MNRRA corridor would serve as attractions rather than attractors. Thus, the MNRRA would primarily serve to redistribute tourism revenues in the Twin Cities area, and there would be a minimal increase in the amount of new tourism revenues in the region. However, new attractions in the Twin Cities area would encourage longer visits by tourists, which could increase the money spent during their stay. The total amount of additional tourist traffic in the area as a result of this plan cannot be predicted at this time.

Facility Maintenance and Construction Benefits for Local Communities. Facility maintenance and construction expenditures might increase slightly in local communities. The amount of such expenditures would depend on the type and number of facilities built. The National Park Service would construct an interpretive center and headquarters facility at a cost of about $8.4 million and cooperatively develop another interpretive facility at a cost of about $2.3 million. If local communities were to build park facilities, construction would temporarily contribute to the economics of the area. The total amount of construction impact cannot be estimated at this time. While construction contracts could be substantial, they would probably be relatively small in comparison to other construction activities in the metropolitan area.

Positive Impacts of Improved Quality of Life in Attracting and Retaining Businesses. Preserving and enhancing the environmental and recreational value of natural and cultural resources contributes to quality of life in the Twin Cities area. The importance of quality of life in an area is cited as a major factor in business location decisions. The proposal would enhance quality of life in the Twin Cities area, and therefore can be expected to have a positive economic impact without substantially reducing the opportunity for economic activity.

Preservation of Economic Resources. The proposed comprehensive plan has a basic concept, which is rooted in the MNRRA legislation, to preserve existing economic resources in the corridor. Existing businesses and industries would be minimally affected by the proposal because the land use and land acquisition policies are aimed primarily at new development and at mostly undeveloped land. The river-related land use policy would help protect a very limited resource — about 150 acres of undeveloped riverfront property zoned for commercial and industrial use — for those businesses and industries that most need access to the river, such as barge terminals, marinas, etc. In that sense it would protect a rare resource from uses that could be located elsewhere in the corridor or metropolitan area. Existing businesses in the MNRRA corridor would be minimally affected by regulations that would deprive an owner, temporarily or permanently, of essentially all use and enjoyment of the land. New land use restrictions would permit alternative uses of the land and would allow useful development within reasonable business expectations.

Cumulative Effects

In analyzing cumulative effects, other agency plans for the corridor were reviewed for consistency. No major conflicts with the proposal were identified. There are no anticipated major adverse cumulative impacts when this proposal is assessed as an addition to other

proposals for the corridor. The cumulative adverse effects on corridor resources that result from many individual projects being developed over time would be minimized. The National Park Service would continue to expand and improve its monitoring program to consider cumulative impacts. There would be a positive cumulative impact from cooperative management — the combination over time of funds, staff, and operations/services. Cooperative management should reduce the extent and magnitude of resource use conflicts in the long term.

The only foreseeable irreversible or irretrievable commitment of resources would be for the construction of the St. Paul visitor center on Harriet Island. The resources affected would be in a disturbed environment adjacent to areas used for warehousing and light industry.

IMPACTS OF ALTERNATIVE A (NO ACTION)

Under this alternative there would be no comprehensive management plan for the Mississippi National River and Recreation Area. Implementation of other plans and programs would occur and growth and development would continue in the corridor; change would take place without oversight from the National Park Service or the commission. It is possible under this alternative that there would be insufficient justification for continued NPS involvement, and Congress could choose to deauthorize the area and remove it from the national park system.

Impacts to Natural Resources

Geology/Mineral Resources, Physiography, Soils. Impacts of development on soils would continue under current state and local authorities without a coordinated management program. There would be no additional efforts resulting from a comprehensive plan for MNRRA. Shoreline bank erosion would continue, resulting in greater sedimentation and degraded habitat for aquatic resources. Development on steep slopes and bluff lines would continue, which is regulated to varying degrees in different communities and results in greater soil loss from erosion and reduction and degradation of habitat. The actual amount of impact can not be estimated at this time.

Any development on prime and unique farmlands would result in the irretrievable loss of these lands.

Vegetation. Vegetation in the corridor would continue to be affected under current state and local programs, which vary in their degree of protection for corridor lands. There would be no coordinated effort for a revegetation program in the corridor, and existing revegetation programs would continue in their present format.

Fish and Wildlife. Lack of a coordinated approach to increasing recreational use of the river corridor has the potential for overall increased pressure on plants and animals and their habitats. As use of the main river channel increases, there would be some additional disturbance of vegetation and wildlife on the shoreline. Fish, mussels, and other wildlife living in the river would continue to be negatively impacted by siltation from accelerated bank erosion and resuspension of bottom sediments, both of which are caused by recreational use of the shore and increased boat wakes. General recreation impacts to fish and wildlife

species and habitat, however, would likely be insignificant when compared to impacts caused by other activities in the corridor.

Growth in commercial, industrial, and/or recreational activity could affect sensitive species in two ways. First, resources might be directly impacted by development activities such as facility construction. Second, the additional related traffic on the river could impact threatened and endangered species and their habitats. Increased boating would insignificantly add to the recognizable negative effects of boat wake erosion, noise, and physical disturbances.

Floodplains and Wetlands. The 27,000 acres of floodplains and 21,500 acres of wetlands in the river corridor would continue to be protected under existing federal and state regulation. Some areas without the extra emphasis that the MNRRA plan would provide might be lost by draining or filling for development activities, including marina expansion and other water development projects, residential and commercial development, and agricultural conversion. The survival of some wetlands, such as the calcareous fen near the expanding Seneca wastewater treatment plant on the Minnesota River, which is threatened by removal of underground water, could be jeopardized.

Perhaps more of a concern than the total amount (acreage) of habitat lost each year along the Mississippi corridor would be the loss of habitat diversity, or the number of different habitats and their relative abundance in a community. Lack of a comprehensive plan and a small MNRRA staff would continue the loss of habitat diversity.

Water Quality. Certain types and densities of recreational boating activities would continue to degrade water quality, increase erosion along shorelines, resuspend sediments, degrade wildlife and fisheries habitat, and have other impacts to the riverine environment. However, these impacts would be minimal compared to other existing nonpoint pollution, industrial discharges, and other land use activities that degrade water quality in the river.

Nonpoint pollution sources, especially agricultural runoff from the Minnesota River and other streams and tributaries that flow into the Mississippi, would continue to be a major problem if managed under existing programs without the extra emphasis that a MNRRA plan and program would provide. Bottom sediments in the river are contaminated, particularly by PCBs and heavy metals from surface runoff and industrial discharge. These sediments are resuspended by motorboats, especially towboats and barges. Fish in the river would continue to be contaminated and fish consumption advisories would remain in effect for most of the river in the Mississippi National River and Recreation Area. Interpretive and educational programs on water pollution would not be provided by NPS, and the resulting benefits would not occur.

Air Quality and Noise. Increased levels of commercial, industrial, and recreational activities would adversely affect air quality. Noise levels along the corridor would continue or increase. Recreational activities would cause minor impacts relative to other activities in the corridor. There would be no extra emphasis added to current efforts to prevent and reduce air pollution and noise in the corridor.

Impacts to Cultural Resources

Fragmented preservation efforts would continue with a greater likelihood than the proposal that only a few properties would be maintained while others were lost.

The five municipalities (Minneapolis, St. Paul, Newport, Cottage Grove, and Hastings) would continue enforcement of local heritage preservation ordinances and local review processes for historic properties. Those areas without local heritage preservation ordinances would continue to treat historic properties on a case-by-case basis. There would be no extra emphasis provided by a MNRRA plan to protect important cultural resources and no coordinated approach by MNRRA staff to preserve resources in the corridor. NPS technical assistance for the preservation of cultural resources would also be less likely, resulting in an increased loss of cultural resources.

The amount of funding for cultural resources would be limited to present sources and no coordinated effort to secure additional funds would be made.

The historic use of properties along the river would continue or diminish based on the sites' market viability. Historic properties would continue to be lost as various businesses relocated away from the river.

The entire MNRRA corridor would lack a comprehensive preservation policy and focus for cultural resource preservation.

Inventorying of cultural resources would continue on a sporadic and localized basis as funding became available.

Impacts to Visitor Use

Recreational use of the corridor would increase somewhat, primarily due to population increases in the metropolitan region and the continuing activities of existing state and local interpretation and recreation programs. This increase could be reflected both in resident and tourist populations. Without increased funding for state, county, or city agencies, educational activities would continue at present levels.

The quality of services, public awareness of environmental issues in the corridor, and depreciative behavior in the corridor would continue under current trends.

As with the proposal, increased recreational use could cause crowding and impacts to scenic values. A slight increase in demand for commercial recreation and visitor services could accompany increased use. No coordinated effort to manage visitor use would be made in the corridor.

Impacts to the Economic Environment

No additional tourism would be expected beyond that drawn by a notation on the NPS system map.

The no-action alternative would place no additional restrictions on the location or expansion of existing economic activities. Inconsistent enforcement would benefit those businesses that choose not to comply with existing restrictions.

With no additional protected open space (beyond existing local plans) there would be no additional enhancement to land values related to open space protection.

No additional facilities would be built and there would be no infusion of additional construction or maintenance money due to the corridor.

Limited riverfront property would not be preserved for uses that need the land most, such as barge terminals and marinas.

Cumulative Effects

Because the corridor would not have a comprehensive plan, coordination would be more difficult and adverse cumulative impacts would be more likely.

IMPACTS OF ALTERNATIVE B

Impacts to Natural Resources

Under alternative B the National Park Service would take a more direct role in the management and protection of most publicly owned park resources. There would be additional beneficial effects on natural resources from greater single-agency management versus the proposal's multiagency management approach. To fully achieve NPS management objectives under this alternative, virtually all interests in open space land need to be in public ownership and transfers of public lands in the corridor to the National Park Service would be maximized. There would be a concomitant need to increase staff and funding levels to accommodate a more ambitious natural resource management program.

An active land acquisition program would increase protection of threatened resources, views, and sites, benefiting fish and wildlife and their habitat.

Stricter enforcement of development criteria, control of water use activities, and limited visitor recreational activities would provide added protection to natural resources, potentially resulting in further increases in the abundance and diversity of fish and wildlife.

The 300-foot riverfront protection zone, consisting of about 8,500 acres, would have a greater positive effect on wildlife habitat, a pollution buffering effect of wetlands, a continuous trail network adjacent to the river, and a restored shoreline area.

Geology/Mineral Resources, Physiography, Soils. Shoreline bank erosion would be reduced to a greater degree than in the other alternatives. There would be less disturbance in the approximately 1,300-acre shoreline protection area as a result of the more aggressive shoreline protection and revegetation program. There would be reduced sediment loads and improved aquatic habitat. The increased protection of up to 5,500 acres of steep slopes and more

restrictive protection for bluff lines would result in reduced soil loss from erosion and increase habitat value as compared to the other alternatives.

Vegetation. An extensive vegetation restoration program would be implemented to establish a nearly natural shoreline along the approximately 275 miles of shoreline in the corridor, and greater efforts would be made to provide vegetation in the 300-foot wide riverfront zone. Attempts would be made to restore locally extinct and extirpated species that in turn would increase biological diversity in the corridor.

Fish and Wildlife, Threatened and Endangered Species. The habitat for fish and wildlife would be analyzed and monitored more rigorously than in the other alternatives to determine the quality of habitat in the corridor. Once habitat quality is determined, more intensive programs would be developed to ensure maintenance of habitat at the highest attainable level. One attainable goal would be removal of all fish consumption advisories by reduction of suspended toxins in sediment loads. Threatened and endangered species would be more extensively inventoried and closely monitored in cooperation with the Department of Natural Resources and the Fish and Wildlife Service to determine the extent of critical habitat in the corridor. Access to critical habitat areas would be limited, which would preserve the areas for wildlife habitat.

Water Quality. The stricter pollution prevention measures under this alternative would result in greater attainment of improved water quality and fishable and swimmable waters. Efforts would also be undertaken to maintain a more consistent water quality standard at all points in the corridor.

Floodplains and Wetlands. This alternative would strongly discourage alterations of the 27,000 acres of floodplains and 21,500 acres of wetlands in the corridor; however, development of boat-launching and takeout facilities might be at least partially sited in areas that are in the 100-year floodplain. The National Park Service has determined that activities of this type are compatible uses of floodplains. The intent of these facilities is to provide access to certain recreational activities that cannot be accomplished without their proximity to the water. These actions are excepted from compliance with Executive Order 11988, "Floodplain Management." These facilities should not displace appreciable quantities of water or enlarge the floodplain. Trails in the floodplain could be located elsewhere, but that would not provide the same experience that is available near the river.

All wetlands in the corridor would be more likely to be preserved under the more aggressive wetland protection emphasis in this alternative. Areas that were historical wetlands would be restored to the greatest extent possible, resulting in the greatest level of wetland area of all the alternatives. The extent of wetland protection under this alternative can not be quantified at this time. Additional wetland protection would assist in improving water quality by providing a greater natural filtration system of water before it enters the river's mainstem.

Air Quality, Noise and Visual Quality. The impacts to air quality would be similar to the proposal. There would be some increased effort to maintain and improve air quality under this alternative beyond those in the proposal, but improvements in air quality can not be quantified in this document.

Impacts to Cultural Resources

Greater interpretation and preservation information under this alternative could result in the saving of more resources than in the proposed action or any other alternative.

As in the proposal, shoreline treatment in areas with historic districts or historic properties and open spaces would contribute to preservation of these properties. The increased emphasis on vegetated shorelines in this alternative might come into conflict with the desire to preserve or restore historic landscapes that were devoid of vegetation during the period of significance.

Rehabilitation of historic properties would be more strongly promoted, resulting in more effective preservation of those resources. The greater amount of funding and technical assistance by the National Park Service for this activity would provide greater protection than that offered in the proposal or other alternatives. Some lower priority properties could still be lost.

More restrictive land management policies in this alternative could discourage some businesses (such as manufacturing) from using historic properties in the corridor, while other businesses (such as retail and service) could be attracted by such policies.

As in the proposal, the change in the historic use of properties could impact interpretation as well as result in the gradual degradation of historic properties as new uses supersede historic ones. The site selected for the interpretive and administrative facility in St. Paul, the construction of walkways, parking areas, and buildings could disturb unknown archeological resources. A more complete determination of impacts would be determined upon completion of a site-specific archeological survey. Monitoring during construction would also ensure that significant cultural material was not lost.

As in the proposal, if a new building is constructed, it could add to the structural density in the area. Construction of contemporary structures could alter and impact the visual character of a potential cultural landscape.

The greater emphasis on cultural resource protection and enforcement of preservation laws in this alternative would result in greater inventorying and protection for cultural resources in the MNRRA corridor.

Impacts to Visitor Use

Recreational use of the corridor would increase more than in alternative A, but less than in the proposal. Actual increases in use can not be predicted at this time, but are not expected to be large relative to existing visitor use levels in the corridor. This increase would be reflected both in resident and tourist populations and would include both unstructured public visitation and structured educational activities. User diversity would also increase.

As in the proposal, there would be improved interpretive and educational services and increased awareness and concern for environmental protection throughout the watershed. Increased personal accountability would result in reduced levels of vandalism and other destructive behavior and increased citizen monitoring of environmental and social conditions.

Resource impacts would increase with increased use and decrease with increased stewardship; there could be a balance between these influences. Increases in demand for commercial recreation services and products would also increase.

The increased priority for resource protection would reduce some opportunities for active recreation, particularly those requiring developments such as trails, marinas, etc. On the other hand, the greater effort to acquire open space would encourage more purely resource-based activities such as hiking and birding.

Under this alternative, the National Park Service would operate the four interpretive centers and may not be able to assist associated facilities with interpretive media to the same degree as in the proposal. This would potentially restrict the effectiveness of partnerships in coordinating and delivering quality interpretation and recreation services in the corridor.

Impacts to the Economic Environment

The impacts of alternative B to the regional economy are generally the same as the proposal with some increases as explained below.

There would be a minimal amount of land acquisition by the National Park Service or local governmental bodies in order to prevent other economic uses of land in the corridor. The resource preservation emphasis in this alternative is somewhat more likely than the proposal to encourage set-asides and restrictions on the location or expansion of existing economic activities and would place a greater emphasis on relocating existing inconsistent uses outside the riverfront area. From a corridorwide perspective, there is considerable land available for expansion of economic activities. However, from the perspective of individual municipalities, which often must compete with other governmental jurisdictions for economic development, loss of local expansion opportunities could theoretically have an impact on the tax base. With the implementation of a 8,500-acre 300-foot-wide zone adjacent to the river, all undeveloped land in the zone would be available only for development that requires a riverfront location. This would restrict economic activities more than the proposal or the other alternatives, although much of the corridor would still be available for other activities. Increased protection of all wetlands and floodplains in this alternative would diminish development opportunities somewhat. The actual amount of impact on business in the corridor cannot be predicted at this time.

Under this alternative, more land would be removed from the tax roles for open space than in the proposal; however, some of this loss would be offset by payments in lieu of taxes due to the increased NPS land ownership in the corridor. The overall impact on the local tax base can not be predicted, but as in the proposal, it would be relatively minor when compared to the tax base in the metropolitan area. Small communities would be more affected than large cities, with the greatest impacts being felt by townships in the lower river where the potential for increasing the property tax base is very limited.

The expansion of barge fleeting would be limited to existing fleeting areas under this alternative, potentially adding to the cost of shipping grain and other commodities to and from the Twin Cities area. Growth that would result in such pressure was not forecast until the mid to late 1990s, but with slow recovery in commodity shipments, it is uncertain when, if ever, real limits would be placed on fleeting. Commercial navigation would continue as an

important economic activity in the MNRRA corridor, without suffering greatly from additional costs or regulation. Far greater impacts can be expected from continued competition with other transportation modes, especially rail, and from changes in international market conditions, which affect bulk shipments of grains.

Cumulative Effects

As in the proposal, cumulative impacts would be minimized, and there may be more beneficial effects than in the proposal because a greater emphasis would be placed on resource protection in alternative B.

IMPACTS OF ALTERNATIVE C

Impacts to Natural Resources

Under alternative C the National Park Service would play a reduced role in the management of the corridor, so natural resource protection might be a lower priority than other competing (economic) resources. Resource protection, including pollution prevention, would be encouraged by as yet undefined incentives and economic opportunities, so it is difficult to predict specific impacts to natural resources. Economic factors driving resource preservation would result in more disjunct resource preservation programs, which would be developed on a more site-specific or community-specific basis.

The most probable effects of this alternative would be less undisturbed land, less habitat preservation, and less consistent protection of riverfronts, shorelines, bluff lines or slopes. The full impact on these important resources is difficult to determine at this time.

Geology/Mineral Resources, Physiography, and Soils. More land in the MNRRA corridor would be developed for economic activities than under the proposal or alternative B, and there would be an increased potential for impacts to soils. Increased development would require measures to minimize soil erosion and sedimentation in the river and its tributaries.

Any development on prime and unique farmlands would result in the irretrievable loss of these lands.

Fish and Wildlife, Threatened and Endangered Species. Growth in commercial, industrial, and/or recreational activity could affect sensitive species in two ways. First, resources located at or near the proposed development might be directly impacted by any subsequent activity, such as construction. Second, the additional related traffic on the river could impact threatened and endangered species and their habitat. Increased boating activity would magnify the recognizable negative effects of boat wake erosion, noise, and physical disturbances. The impacts to these resources would be greater than the proposal or alternative B, but the difference would probably be minor relative to existing impacts to the fish and wildlife resources in the river corridor.

Floodplains and Wetlands. Under this alternative the impacts to floodplains and wetlands would be similar to the proposal, but with the reduced emphasis on resource protection, there might be some additional impacts to floodplains and wetlands, and fewer acres of wetlands

would be restored. The actual amount of impact cannot be estimated, but would probably be relatively minor due to the existing local, state, and federal programs to protect these resources, especially wetlands, which are a very high priority for protection under existing regulations.

Water Quality. Some additional adverse effects on water resources could result from greater development and resource-use activities in this alternative, including runoff from impermeable surfaces and chemical runoff from fertilizers. Adverse impacts could be mitigated by better construction techniques and farming practices. Water quality could be affected by runoff from increased mining in the recreation area.

Recreational boating activities would continue to have a minor impact on water quality, cause minor increases in erosion along shorelines, resuspend some sediments, degrade wildlife and fisheries habitat somewhat, and have other minor impacts to the riverine environment, especially when compared to other activities in the river corridor.

Air Quality, Noise, and Visual Quality. In a manner similar to the no-action alternative, increased levels of commercial, industrial, and recreational activities would adversely affect air quality in the corridor. Noise levels along the corridor would remain high and could increase. The amount of increased impact cannot be estimated at this time. However, these impacts would probably not be major, especially when compared to existing levels air pollution, noise, and visual intrusions in the metropolitan area.

Impacts to Cultural Resources

As in the proposal, increased interpretation and preservation information could result in the saving of resources that are currently being lost.

Flexibility in shoreline treatment based on economic emphasis in areas with historic districts or historic properties would result in less preservation of these properties than in the proposal or alternative B.

Rehabilitation of historic properties would effectively preserve them; however, the limited amount of funding available in comparison to the need for rehabilitation could result in the loss of some properties that are on the lower end of priority lists. This loss would be greater than in the proposal or alternative B.

Policies resulting from the plan's implementation could discourage some businesses (i.e. manufacturing) from using historic properties in the corridor, but this would be less than in the proposal or alternative B. Other businesses (e.g., service) would be attracted by such policies.

The change in the historic use of properties could impact interpretation as well as result in the gradual degradation of historic properties as new uses supersede historic ones.

In the site or sites selected for interpretive and administrative facilities, the construction of walkways, parking areas, and buildings could disturb unknown archeological resources. A more complete analysis of impacts would be made upon completion of a site-specific archeological survey. This would be the same as in the proposal and alternative B.

If a new building is constructed in a historic area, it would add to the structural density of the area. Construction of contemporary structures could alter and impact the visual character of the cultural landscape. It is more likely that resource degradation would take place in this alternative due to the reduced emphasis on resource protection.

Impacts to Visitor Use

Recreational use of the corridor would increase under this alternative and could be greater than under the proposal or alternative B. There would be more extensive opportunities for commercial recreational development and greater levels of public recreational development and use depending on the levels of funding provided for local recreation facility projects.

In the absence of new programs and facilities, awareness of and concern for environmental protection would increase only if environmental problems became worse. Levels of vandalism and depreciative behavior would probably stay about the same.

Increased economic activity with fewer guidelines would cause impacts to recreational resources. Recreational activity could cause increased crowding and visual impacts.

There would be some increased demand for commercial services and products. Services such as equipment rentals, boat rides, food, and lodging would be provided by the private sector.

Impacts to the Economic Environment

The impacts of alternative C to the regional economy are generally similar to the proposal, such as increased tourism due to corridor resource preservation and enhancement. There would be increases in land values proximal to protected open space (although less land is expected to be acquired for open space under this alternative). The emphasis on active recreation and tourism promotion could increase visitation to the corridor by people outside the local economy, which would create greater economic gains to the metropolitan area. Tourism increases (and thus economic input) could be greater under this alternative than the proposal, resulting in higher levels of economic income than under any other alternative.

As compared to the proposal, which allows only river-related and enhancing development for new uses in the 8,500-acre riverfront zone (within 300-feet of the river), there would be less impact to business in the corridor. No additional restrictions would be applied in the riverfront area, and the broadest range of developments could occur, similar to the no-action alternative A. The adverse economic impacts in this alternative would be less than the proposal and alternative B, which is even more restrictive in the riverfront area. However, none of the alternatives would cause major adverse impacts to the metropolitan economy. In alternative C scarce riverfront property zoned for commercial and industrial uses would occupy sites that should be preserved for river-related uses, diminishing the availability of an economic resource for businesses that need it most, such as barge terminals or marinas. Currently there are only about 150 acres of undeveloped land zoned for industrial use within 300 feet of the river in the MNRRA corridor.

Inconsistent businesses could be replaced subject to the same circumstances as the proposal. However, there would be no restrictions on the kinds of economic activities considered

consistent with a riverfront location in the MNRRA corridor. This, combined with the likelihood of less land protected in open space, would result in a greater opportunity for business expansion. However, any expansion in the corridor would be influenced far more by market conditions than by the MNRRA plan.

With fewer environmental restrictions and more liberal land use requirements, there should be fewer costs imposed upon some businesses than in the proposal or alternative B. These costs cannot be estimated at this time but would be relatively minor compared to existing costs for business location decisions.

Greater consideration would be given to the need for expanded barge fleeting space if such need arose in the future. Therefore, this alternative would have less potential adverse impacts to the towing industry than the proposal or alternative B. However, the future growth in fleeting needs is uncertain at this time, and existing areas may be sufficient to handle growth in the next 10-15 years.

Cumulative Effects

Cumulative impacts would be greater than in the proposal or in alternative B because in this alternative cumulative impacts would be less of a concern to managing agencies. They would be less than in alternative A (no action) because there would be a comprehensive plan for the corridor and a more extensive tracking program for impacts to the corridor than at present.

CONSULTATION AND COORDINATION

PUBLIC INVOLVEMENT IN THE PLANNING PROCESS

This draft comprehensive management plan is the product of an extensive public involvement effort undertaken by the Mississippi River Coordinating Commission and the National Park Service. The 22-member commission includes representatives from several federal, state, and local agencies, and the general public of the area. The commission held more than 10 public meetings during the last three years, and members of public were provided with opportunities to speak at each one. Many people spoke. In addition, National Park Service personnel worked extensively with other interested parties through informal meetings and telephone contacts.

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

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

Conceptual alternatives grounded in these visions were developed for public review based partially on input received. They were issued for public review in a second newsletter published in March 1992. A postage-free response form was also included in that newsletter to facilitate public feedback. A special round of meetings was held with local government representatives from communities in the corridor during that period. The resource protection alternative and the alternative emphasizing a wide range of uses and activities in the corridor were almost equally supported. There was little enthusiasm for the alternative emphasizing economic development. Among the management options there was a clear preference for the alternative that emphasized equal responsibility among the partners. One of the most distinct preferences was for strengthened pollution control. Another was a clear preference for a variety of visitor activities and access.

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

A "notice of intent" to prepare an environmental impact statement (EIS) was published in the *Federal Register* on July 14, 1992, and public input was solicited on EIS issues throughout the remainder of the year.

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

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

LEGAL COMPLIANCE STATUS

National Environmental Policy Act

This draft environmental impact statement (DEIS) was prepared pursuant to the National Environmental Policy Act and its implementing regulations and guidelines. As stated above, a notice of intent to prepare an environmental impact statement was published in the *Federal Register* in July 1992. A *Federal Register* notice will be published announcing the availability of this document, and public meetings will be held during the public comment period. Following public review of this draft, the National Park Service will work with the commission to address comments and develop a final environmental impact statement and a record of decision.

Section 7 of the Endangered Species Act

Because the corridor includes species listed on the federal endangered and threatened species list, the National Park Service has been informally consulting with the U.S. Fish and Wildlife Service. Lists of species were obtained from the Fish and Wildlife Service and the Minnesota Department of Natural Resources. Species locations were entered in the GIS data base. Policies were developed to protect species and data were used in the analysis of alternative interpretive facility sites. The Fish and Wildlife Service regional director sits on the commission and all project documents were reviewed by his staff. This draft is intended to further facilitate informal consultation under section 7. If it is later determined that actions under this plan could have significant adverse effects on a federally listed species, formal consultation would be initiated with the U.S. Fish and Wildlife Service.

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

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

Section 106 of the National Historic Preservation Act

The National Park Service has a basic responsibility to seek preservation and protection for significant cultural resources within the boundaries of units of the national park system. The National Park Service also supports the secretary of the interior's guidelines as they relate to adaptation of historic resources. Because the corridor includes buildings and districts listed on the National Register of Historic Places, the National Park Service is consulting with the Advisory Council on Historic Preservation (ACHP) and the Minnesota State Historic Preservation Officer (SHPO) pursuant to the programmatic agreement, including a review of the task directive and project newsletters. Available data on cultural resources were gathered and sites mapped in the GIS data base. Policies were developed to protect cultural resources and the data were used in the analysis of alternative interpretive facility sites. The state historic preservation officer is a member of the commission and she or a representative of the Minnesota Historical Society has attended all commission meetings and commented on project documents. This draft environmental impact statement is intended to facilitate further consultation under section 106.

Following is a tentative list of actions contained in the proposed action and a notation as to need for additional SHPO/ACHP review after this plan becomes final.

(1) The most significant NPS action proposed in this plan that could potentially affect resources on the national register is the proposal to acquire land and build and manage a new interpretive center/headquarters facility in St Paul. The proposed site at Harriet Island does not contain any known cultural resources, but it would be surveyed for possible archeological resources prior to facility construction. This project would not require SHPO/ACHP review after the plan is finalized, except as might be required under existing procedures during follow-up planning and site surveys.

(2) The cooperative interpretive facility in Minneapolis would involve adaptive use of a historic structure. A final site has not yet been selected. SHPO/ACHP review would be required when a site is selected and enough is known about the adaptive use to facilitate review. If possible this will be done prior to completion of the plan and the consultation documented. If not, additional consultation will occur after the comprehensive management plan is completed.

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

(4) The proposed site for the cooperative interpretive facility in Hastings is the old courthouse, which is listed on the National Register of Historic Places, but the National Park Service would occupy existing space and this proposal should not have any affects on the building. NPS involvement would be limited to staffing and exhibits. If this facility has the potential to impact cultural resources, additional SHPO/ACHP review would be sought.

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

(6) Land and water use management and pollution control activities in the corridor would continue to be the responsibility of local governments and other state and federal agencies. The National Park Service would not have a permitting authority and therefore these activities would not require SHPO/ACHP review in addition to their current responsibilities.

(7) The National Park Service (acting for the secretary of the interior) has authority in the MNRRA legislation to give grants for state or local land acquisition and development consistent with the plan. It is uncertain how much funding may be available for this program, and specific projects are not listed in the plan. Any grants that could affect cultural resources would be subject to additional SHPO/ACHP review.

During public review of the draft, additional consultation will take place between the National Park Service and the Minnesota Historic Preservation Officer and Advisory Council on Historic Preservation to determine what additional 106 compliance will be needed from actions resulting from this plan. The final plan will contain a list of projects similar to the above, including compliance requirements as agreed to by the National Park Service and Minnesota Historic Preservation Officer and the Advisory Council.

LIST OF AGENCIES AND ORGANIZATIONS TO WHOM COPIES OF THE DEIS WILL BE SENT

There are over 1500 entries on the mailing list for this project. All persons on the mailing list will be given an opportunity to receive the document. The National Park Service is circulating the draft to the following agencies and organizations. A complete listing of individuals receiving the document is available at park headquarters.

County Government

Anoka County
Dakota County
Hennepin County
Ramsey County
Washington County

Local Government

City of Anoka
City of Brooklyn Center
City of Brooklyn Park
City of Champlin
City of Coon Rapids
City of Cottage Grove
City of Dayton
City of Fridley
City of Hastings
City of Inver Grove Heights
City of Lilydale
City of Maplewood
City of Mendota
City of Mendota Heights
City of Minneapolis
City of Newport
City of Ramsey
City of Rosemount
City of South St. Paul
City of St. Paul
City of St. Paul Park
Denmark Township
Grey Cloud Island Township
Minneapolis Parks & Recreation Board
Nininger Township
Ravenna Township

State Government

Board of Water & Soil Resources
Department of Natural Resources
Department of Trade & Economic Development

Department of Transportation
Environmental Quality Board
Minnesota Army/Air National Guard
Minnesota Historical Society
Minnesota House of Representatives
Pollution Control Agency
State Planning Agency
University of Minnesota

Regional Government

Metropolitan Council
Metropolitan Parks & Open Commission
Metropolitan Mosquito Control District
Metropolitan Waste Control Commission
Minnesota/Wisconsin Boundary Area Commission
Suburban Hennepin Regional Park District

Federal Government

Advisory Council on Historic Preservation
Department of Agriculture
  Soil Conservation Service
Department of Commerce
Department of Energy
  Federal Energy Regulatory Commission
Department of Health and Human Services
  Federal Emergency Management Agency
  General Services Administration
  Small Business Administration
  Department of Housing and urban Development
Department of the Army
  U.S. Army Corps of Engineers
Department of the Interior
  U.S. Fish & Wildlife Service
  Bureau of Indian Affair
  Bureau of Land Management
  U.S. Geological Survey
  Bureau of Mines
Department of Transportation
  Federal Aviation Administration
  Federal Highway Administration
  Federal Transit Administration
  U.S. Coast Guard
  U.S. Maritime Administration
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APPENDIXES, SELECTED REFERENCES, GLOSSARY, INDEX



Stone arch bridge in Minneapolis

TITLE VII—MISSISSIPPI NATIONAL RIVER AND RECREATION AREA

Minnesota. Water Historic preservation

Subtitle A—Mississippi National River and Recreation Area

FINDINGS AND PURPOSES

16 USC 460zz.

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 purposes of this subtitle are:

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

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

(3) To provide a management framework to assist the 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 the 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 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 MINRA/80,000 and dated April 1987. The map shall be on file and available for public inspection in the offices of the Department of the Interior in Washington, District of Columbia, and in the offices of the Metropolitan Council of the Twin Cities Area in Saint Paul, Minnesota.

Public information. District of Columbia. Federal Register, publication.

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

MISSISSIPPI RIVER COORDINATING COMMISSION

16 USC 460zz-2.

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

(1) The Director of the National Park Service, or his designee.

(2) The Chief of the Corps of Engineers, or his designee.

(3) The Director of the Fish and Wildlife Service, or his designee.

(4) Three individuals, from recommendations by the Governor of Minnesota, to represent the Minnesota Department of Natural Resources, Department of Transportation, and Minnesota Environmental Quality Board.

(5) One individual, to represent the Minnesota Historical Society.

(6) 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 for 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 of the scenic, historical, cultural, natural and scientific values of the Area.

(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 local, 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 a regular basis with appropriate officials of any local government or 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 their review. The Governor shall act on the plan within 90 days and shall submit the plan to the Secretary along with any recommendations. The Secretary shall approve or disapprove 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 therefor, 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

section 703. 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 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 subdivisions 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 local governments having jurisdiction over any areas to which the management plan applies.

Contracts.
State and local governments.

(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 detemines 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 sections 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 the 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 noncommerical 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 in 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 such rivers. 16 USC 460zz

(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 (GIS) are computer tools used to store, retrieve, display, and manipulate spacial resource information. In a geographic information system, 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 the Mississippi National River and Recreation Area planning effort and 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 to the MNRRA GIS database. 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 the planning effort are described below.

Areas along the river with significant interpretive potential were identified by looking for "clusters" of interesting resources having good access. To do this, 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 landcover, 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 GIS was then used to determine the municipality where these lands lie. Potential park acquisition opportunities were then refined with input from affected municipalities.

The GIS 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. To do this, proposed (zoned) land use was superimposed over existing land use. The GIS 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 proposed policies or actions on resources were identified with the GIS. 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 GIS 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: U.S. 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)

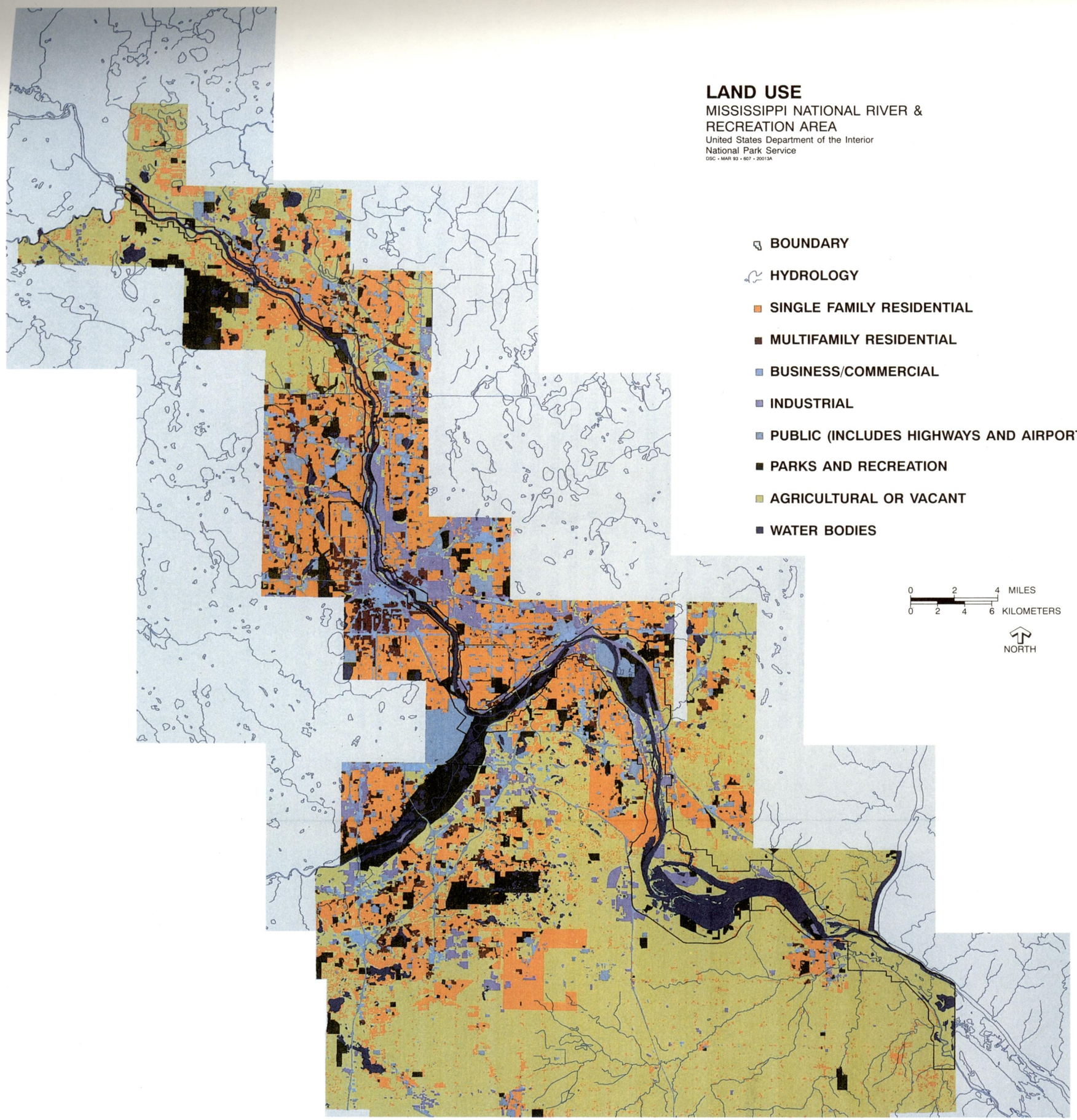
Wetlands
Source: U. S. Fish and Wildlife Service National Wetland Inventory (1:24,000 scale, 1991-1992 data)

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)


LAND USE
MISSISSIPPI NATIONAL RIVER &
RECREATION AREA
United States Department of the Interior
National Park Service
DSC • MAR 93 • 607 • 20013A
BOUNDARY
HYDROLOGY
SINGLE FAMILY RESIDENTIAL
MULTIFAMILY RESIDENTIAL
BUSINESS/COMMERCIAL
INDUSTRIAL
PUBLIC (INCLUDES HIGHWAYS AND AIRPORTS)
PARKS AND RECREATION
AGRICULTURAL OR VACANT
WATER BODIES
0 2 4 MILES
0 2 4 6 KILOMETERS
NORTH

APPENDIX C: SAMPLE DESIGN GUIDELINES

INTRODUCTION

A set of sample design guidelines are contained in this appendix. There is some repetition 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 in the plan. The National Park Service, Metropolitan Council, and Department of Natural Resources would 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 would 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 framework.

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. On the other hand, some guidelines are so important to resource protection that they would be incorporated into local zoning ordinances; these are marked with an asterisk (*). The guidelines are based on work done previously by the various cities in the corridor for the critical area programs, augmented by policies from the MNRRA plan. The guidelines below generally concentrate on the riverfront area (300 feet back from the shore), the bluff preservation area, historic areas, and sensitive natural areas.

When working on projects involving cultural resources these guidelines should be used in conjunction with the *Secretary'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 clustered to protect and enhance natural resources.

Shoreline Area

Development can fit near the shoreline if properly located, designed, and screened while maintaining a relatively natural appearance along the shoreline. A narrow vegetative strip along the shoreline would 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 would 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

• Development should be designed and located to fit its context, whether downtown, in a natural area, or in an historic area.

• The natural appearance of the shoreline should be preserved where it exists and restored by providing vegetative screening.

• 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.

• 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.

•Development should be clustered to give the appearance of more open space and to preserve resources.

• 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, 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.* In natural areas, 40 to 100 feet from the shoreline should remain relatively undisturbed.* If disturbed,

landscape using native plant materials. Minimize bluegrass in this area. Retain mature trees. Small view windows to the river may be left open, or selectively pruned.

• In natural or open areas, development should be designed to be unobtrusive through building placement, material colors, vegetative screening, height, scale, and mass.

• 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).

• Native plant materials, including trees, shrubs, and ground cover, should be used for erosion control (see plant list). 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

• 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.

• Removal of vegetation is discouraged, particularly along the shoreline, bluff face, in wetlands, and on floodplains. Clearcutting 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.*

• Vegetation may 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 other areas. Development can 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 12% 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 25 feet set back an additional 60 feet.

- Only minimal disturbance, such as landscaping, play areas, or patios is 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

- 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 (100 feet)*
- 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

- Nonaccessory 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).*

- 40 feet from the bluff line (plus additional setback of 60 feet for buildings over 25 feet – see architectural guidelines).*

Accessory Parking

- 100 feet from the ordinary high water line and 40 feet from bluff line.*

- Signs 100 feet from the shoreline and bluff line.*

Erosion Control

Erosion and sedimentation should be minimized by:

• Development suited to the site, soil conditions, and existing drainage patterns.*

• New development would not increase water runoff rates or decrease the absorption rate of storm water.*

• Natural erosion control devices should be used rather than structural devices such as culverts, ditches, and walls.*

• 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 and water that infiltrates the water table or aquifer should be as high after development as it was before.*

• Erosion control measures should make maximum use of natural vegetation.*

• Fill should be stabilized with plant material, and in no instance should fill exceed 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 feasible.*

• Walls should be no higher than 5 feet and should be constructed of wood or natural stone. If walls are terraced, the space between the terraces should 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, such as downtown Minneapolis, St. Paul, and Hastings, 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

• Buildings in the riverfront area (which must be set back at least 100 feet from the river) should not exceed the following heights:

25 feet within 200 feet of the river
40 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 25 feet, with an additional 60 feet of setback for buildings over 125 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)

Guideline

• 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 be limited to scenic drives and parkways providing recreational access to the river using the following:

•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*

• 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 appropriate to the setting.

• Bridges should be designed with sensitive 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). New or renovated bridges should include the traditional arches as an integral part of the design. Whenever possible, historic bridges should be renovated, rather than replaced.

• Utility lines should be placed underground.

TIPS FOR HOMEOWNERS

(This is a sample only.) In addition to meeting the guidelines that incorporate the 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 law states that the most restrictive applies. Impact to 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 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) can 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 would cause the least site disturbance.

APPENDIX D: WORKGROUPS

Listed are organizations & 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 & 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, & Leisure Studies
Tourism Center
Wildlife

State Government

Department of Natural Resources
Department of Trade & 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 & Recreation Board
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 & Wildlife Service

Other Organizations

Center for Urban & Regional Affairs
Hastings Historic Preservation Commission
Mankato State University-Dept. of Recreation
Minnesota Indian Affairs Council
North Metro Convention & 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 Miss River Basin Assoc

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 RHA of 1937 extended the northern reach to UMR 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 RHA of 1892 and a 9-foot channel up to mile 14.7 with the RHA 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 OSIT 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 Sec. 404(b)(1) guidelines of the Clean Water Act and National Environmental Policy Act. The Corps 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 MOU. The state may also require a separate permit if they determine that placement at a site may result in significant adverse impacts. The Corps has a long-term 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 derrick barge Hauser and Wade and similar contractor 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 may be used to dredge at the turning basin at the head of navigation.

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

Sediment contamination and water quality from dredging operations are a concern 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 conducts periodic sediment sampling and analysis of historic dredging locations to document the sediment quality. A404(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 is a 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 change based on the final role established for National Park Service and other partners in managing the corridor as documented in the final comprehensive management plan and follow-up implementing plans. It should be emphasized that this is a long-range staffing concept that would 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 (INCLUDING EXISTING STAFF)

MNRRA TOTALS	Salary (1992$)[1]	Benefits (est. 30%)	Staff Support (est. 25%)[2]	FTE	Total Staff Costs
ALL DIVISIONS	$836,944	$250,847	$209,040	32.5	$1,296,829

[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 & ADMINISTRATION

Position	Grade	Salary (1992$)[1]	Benefits (est. 30%)	Staff Support (est. 25%)[2]	FTE
EXISTING AUTHORIZED STAFF					
Superintendent	GM-13	$46,210	$13,863	$11,553	1.0
Administrative Technician	GS-05/06	21,027	6,308	5,258	1.0
Clerk Typist (Stay-in-School)	GS-01	4,897	1,469	1,224	0.4[3]
ADDITIONS TO STAFF					
Administrative Officer	GS-07/09	$28,584	$8,575	$7,146	1.0
Maintenance Management Coordinator	GS-09	28,584	8,575	7,146	1.0
Administrative Clerk (MRCC)	GS-05	9,433	2,830	2,358	0.5
Clerk Typist	GS-04	16,862	5,059	4,216	1.0
DIVISION TOTALS		$156,137	$46,679	$38,901	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.
[3] Positions filled under the Stay-in-School program do not count towards FTE statistics.

DIVISION OF PLANNING AND RESOURCE MANAGEMENT

Position	Grade	Salary (1992$)[1]	Benefits (est. 30%)	Staff Support (est. 25%)[2]	FTE
EXISTING AUTHORIZED STAFF					
Division Chief, Outdoor Recreation Planner	GS-12[3]	$41,451	$12,435	$10,363	1.0
Cartographic Technician (GIS)	GS-07/09	28,584	8,575	7,146	1.0

ADDITIONS TO STAFF					
Community Planner	GS-11	$34,585	$10,378	$ 8,646	1.0
Resource Management Specialist (Natural)	GS-11	34,585	10,378	8,646	1.0
Community Planner/Landscape Architect	GS-09	28,584	8,575	7,146	1.0
Outdoor Recreation Planner	GS-09	28,584	8,575	7,146	1.0
Resource Management Specialist (Cultural)	GS-09	28,584	8,575	7,146	1.0
Grants Assistant	GS-07	23,366	7,010	5,842	1.0
Planning Technician	GS-05	18,866	5,660	4,717	1.0
DIVISION TOTALS		$267,459	$80,161	$66,798	9.0

DIVISION OF INTERPRETATION AND VISITOR SERVICES

Position	Grade	Salary (1992$)[1]	Benefits (est. 30%)	Staff Support (est. 25%)[2]	FTE
EXISTING AUTHORIZED STAFF					
Division Chief, Park Ranger	GS-12[3]	$41,451	$12,435	$10,363	1.0
ADDITIONS TO STAFF					
Environmental Education Specialist	GS-11	$34,585	$10,378	$8,646	1.0
Park Ranger (Volunteer Development)	GS-09	28,584	8,575	7,146	1.0
Supervisory Park Rangers	GS-09	57,168	17,150	14,292	2.0
Park Rangers (Environmental Education)	GS-07	93,464	28,040	23,368	4.0
Clerk Typist (Scheduling)	GS-05	18,866	5,660	4,717	1.0
Park Rangers (Interpretation)	GS-05	75,464	22,640	18,868	4.0
Park Rangers (Interpretation)	GS-04	33,724	10,117	8,431	2.0
Park Rangers (Interpretation)	GS-03	30,040	9,012	7,510	2.0
DIVISION TOTALS		$413,346	$124,007	$103,341	18.0

[1] All salary figures are based on step 3 for the full performance level.
[2] Support includes required equipment, travel, training, and other miscellaneous items.
[3] Position would receive a one grade increase over the existing level. Salary noted is for the higher grade level

Following is a list of new positions organized by division.

Division of Management and Administration

Administrative Officer — This position would be needed to coordinate budget tracking, personnel, contracting, purchasing, and related administrative programs. These programs would become increasingly complex as the area develops. This position would supervise and receive support from the existing administrative technician position.

Maintenance Management Coordinator — This position would oversee contracting of maintenance services for the St. Paul interpretive center and would coordinate internal maintenance programs such as cyclic and repair/rehabilitation for the center. The person would also be responsible for maintenance of the park's radio and alarm systems. The incumbent would provide consultation and technical assistance to corridor partners on road/trail design and other park construction, and would lead inspections of construction projects funded via the grants program. The position would also be responsible for the area's energy conservation and recycling programs.

Administrative Clerk (Mississippi River Coordinating Commission) — This part-time position would provide administrative support to the coordinating commission and assist the superintendent on commission matters.

Clerk Typist — This position would provide general administrative support to all divisions, and would staff the area's communication center.

Division of Planning and Resource Management:

Community Planner - This position would coordinate National Park Service monitoring and review programs. The incumbent would supervise the community planner/landscape architect and the outdoor recreation planner. Responsibilities would include review of plans to ensure compliance with the comprehensive management plan, assistance to local communities in updating plans to achieve compliance, and helping communities identify projects for possible grant funding. The position would coordinate NPS review of major proposals in the corridor.

Community Planner/Landscape Architect — This position would assist the community planner with the activities outlined above. The incumbent would be the primary contact for assistance related to the design guidelines and would provide technical design support to communities on park development and construction projects.

Outdoor Recreation Planner — This position would assist the community planner with activities outlined above. The incumbent would coordinate preparation of a visitor use management plan and would establish a monitoring program to provide baseline data on recreational activities in the river corridor.

Resource Management Specialist (Natural) — This position would monitor natural resource issues in the corridor and would coordinate the collection and distribution of pertinent data about natural resources. The incumbent would provide technical assistance on natural resource management issues and would help identify projects for possible grant funding. The incumbent would also coordinate NPS review of pertinent permit applications and would establish a information clearinghouse for persons desiring more information on river-related permits. The position would also be responsible for inspections and reports on National Natural Landmarks assigned to the area for monitoring.

Resource Management Specialist (Cultural) — This position would monitor cultural resource issues in the corridor and would coordinate the collection and distribution of pertinent data about cultural resources. The incumbent would provide technical assistance on historic preservation and other issues related to cultural resources and would help identify projects for possible grant funding. The position would coordinate the area's section 106 and section 110 programs and would be responsible for inspections and reports on national historic landmarks assigned for monitoring.

Grants Assistance — The position would be responsible for coordinating and processing grant applications (P.L. 100-696). The incumbent would provide assistance to communities in preparing grant applications. The incumbent would help communities identify other possible sources of grant funding to accomplish projects compatible with the management plan. The position would coordinate with other park staff to develop a system for assessing grant applications.

Planning Technician — This position would provide technical support to all division personnel and programs.

Division of Interpretation and Visitor Services

Environmental Education Specialist — Responsible for program development, educator training, and quality control of environmental education program. Oversees scheduling of environmental education programs.

Park Ranger (Volunteer Development) — Develops volunteer programs in the corridor. Identifies volunteer opportunities in coordination with other corridor agencies and organizations. Recruits, trains, evaluates, and recognizes the contributions of volunteers.

Supervisory Park Rangers — Manages daily operations at a major interpretive facility and one satellite facility.

Park Rangers (Environmental Education) — Presents environmental education programs on multiple themes to a wide variety of audiences. Presents interpretive programs for the general public.

Clerk Typist (Scheduling) — Schedules programs for schools and the general public. Responsible for mailing pre- and post-visit materials to schools.

Park Rangers (Interpretation) — Operate interpretive centers and provide on-site interpretive programming.

APPENDIX I: ADDITIONAL SOCIOECONOMIC DATA

Percentage of Residents Below Poverty Level

	TOTAL	WHITE	BLACK	AM IND ESK AL	ASIAN PAC ISL	OTHER	HISPAN
Minnesota	10.2	8.7	36.8	43.7	31.7	31.7	25.6
7-County Metro	8.1	5.6	37.1	40.6	32.3	23.8	19.4
Anoka County	5.3	4.9	40.3	23.4	7.3	16.7	9.6
Carver County	4.9	4.8	20.7	27.8	0	0	6.0
Dakota County	4.3	4.1	13.7	13.1	6.6	15.4	12.3
Hennepin County	9.2	6.1	38.0	47.3	27.0	23.1	20.2
Ramsey County	11.4	7.3	38.4	34.2	48.6	28.8	23.2
Scott County	4.1	3.9	24.1	12.8	16.7	2.1	18.6
Washington County	4.4	4.0	26.3	21.6	7.9	14.2	14.5

Source: State Demographer's Office and Metropolitan Council, estimates based on 1990 census

Average Annual Covered Employment by Industrial Sector, Calendar Year 1990

	Agriculture Forestry Fishery Mining	Construction	Manufacturing	Transport, Communic, Public Util	Trade	Finance, Insurance, Real Estate	Services	Govt
Minnesota	25470	79772	397781	101175	520365	122358	512222	302362
TCMA	7400	47647	250884	69488	320107	94309	336210	156399
Anoka Co.	719	4368	19556	2472	22685	2384	14997	10124
Carver Co.	210	707	7242	733	2498	492	2762	2405
Dakota Co.	1293	4783	18890	6403	33223	5719	19836	12322
Henn Co.	3118	24797	120797	46835	184397	63902	210356	78250
Ramsey Co.	943	9520	72444	10302	61857	18901	75662	43958
Scott Co.	288	1519	3680	705	4825	421	4653	2377
Wash Co.	831	1954	8289	2040	10634	2497	7958	6990

The table shows "Covered Employment" from employers' reports on the number of employees covered under the Minnesota Employment Services Act (unemployment compensation).

Sources: Minnesota Department of Jobs & Training
Metropolitan Council

PERCENTAGE OF AVERAGE ANNUAL COVERED EMPLOYMENT LOCATED IN THE TWIN CITIES AND EACH COUNTY, 1990

	Agri,Forestry, Fishery,Mining	Construction	Manufacturing	Trans, Comm, Public Util	Trade	Fin, Insur, Real Estate	Services	Govt
TCMA % of MN	29%	60%	63%	69%	62%	77%	66%	52%
Anoka Co.								
% of MN	3%	5%	5%	2%	4%	2%	3%	3%
% of TCMA	10%	9%	8%	4%	7%	3%	4%	6%
Carver								
% of MN	1%	1%	2%	1%	0%	0%	1%	1%
% of TCMA	3%	1%	3%	1%	1%	1%	1%	2%
Dakota Co.								
% of MN	5%	6%	5%	6%	6%	5%	4%	4%
% of TCMA	17%	10%	8%	9%	10%	6%	6%	8%
Henn Co.								
% of MN	12%	31%	30%	46%	35%	52%	41%	26%
% of TCMA	42%	52%	48%	67%	58%	68%	63%	50%
Ramsey Co.								
% of MN	4%	12%	18%	10%	12%	15%	15%	15%
% of TCMA	13%	20%	29%	15%	19%	20%	23%	28%
Scott Co.								
% of MN	1%	2%	1%	1%	1%	0%	1%	1%
% of TCMA	4%	3%	1%	1%	2%	0%	1%	2%
Wash Co.								
% of MN	3%	2%	2%	2%	2%	2%	2%	2%
% of TCMA	11%	4%	3%	3%	3%	3%	2%	4%

APPENDIX J: 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 & Harbors Act, 1899. The corps also regulates the discharge of dredged or other fill into all waters of the U.S. under section 404, Clean Water Act. In addition, no section 404 permit may be issued by the Corps without a section 401 certification from the MN 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 has been 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 will be addressed in the plan. The MNRRA act mandates that the National Park Service review all federally funded or permitted activities in the corridor.
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. USCG enforces some pollution control laws, sets bridge height standards, and inspects barges and recreational and commercial vessels.
U.S. Fish & Wildlife Service (USFWS)	The Fish and Wildlife Coordination Act of 1934 mandates all federal agencies to consult with USFWS on permit and license applications. Section 7 of the Endangered Species Act mandates all federal agencies to consult with USFWS to ensure that actions will not jeopardize endangered species. These responsibilities make the USFWS a significant player in MNRRA regulatory activities.
Department of Energy	
Federal Energy Regulatory Commission	The Federal Energy Regulatory Commission has jurisdiction over all nonfederal hydroelectric power 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 can 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 EPA retains oversight and may reinsert its authority if it determines a state is not doing an adequate job. In addition, EPA may veto a Corps 404 permit if it deems necessary, 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.

AGENCY	Permits or Other Direct Regulatory Authority/Responsibility
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 EQB. The agency writes standards for local critical area plans and reviews and approves all plans or amendments for compliance with the standards.
Department of Natural Resources (DNR)	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 lands or waters. 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 mandatory by state law, and also establishes zoning standards along state-designated wild and scenic rivers. The department also investigates fish kills and assesses damages from polluters.
Minnesota Pollution Control Agency	The pollution control agency has responsibility for ensuring compliance with state and federal standards for all discharges into the air, land, or water. It exercises its regulatory authorities through an extensive list of permits as well as review processes. Air quality is protected through general air quality permits (for point source emissions), indirect source permits (e.g., parking ramps), and open burning permits. Waste disposal is regulated through solid waste facility permits as well as through permits for hazardous material regulating storage, disposal, and treatment. Before any activity can 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 (NPDES) permit for any point source that discharges into waters of the U.S. is a federal permit, authority for which has been delegated to the agency. The agency also establishes standards for noise emissions and for general air quality.
Board of Water and Soil Resources	This board approves the establishment of special local tax districts, called watershed districts, which have regulatory authority over water management.
Minnesota State historic Preservation Office (SHPO)	The State Historic Preservation Officer (SHPO) is responsible for preserving historic sites through nomination to the National Register of Historic Places. The SHPO also comments on federally funded or permitted activities under section 106 of the National Historic Preservation Act. The SHPO is housed at the Minnesota Historical Society.

AGENCY	Permits or Other Direct Regulatory Authority/Responsibility
Regional Agencies	
Metropolitan Council	The Metropolitan Council was created by the state legislature to do long-range planning for the seven-county metropolitan area. The council reviews projects for consistency with its development guide for regional systems (such as highways, transit, airports, sewers, and parks) and can 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 & Open Space Commission, and the Metropolitan Waste Control Commission. The Metropolitan Airports Commission has broad authorities over airports in the Metropolitan Area. It controls the international airport that abuts the Mississippi National River and Recreation Area near the confluence of the Minnesota River. Holman Field on the downtown St. Paul riverfront is also subject to MAC authorities over flight patterns and airport management. Through the Metropolitan Council, the airports commission is required to promulgate aircraft noise zones based on appropriate noise levels for each land use. Local governments are then required to incorporate these standards into local controls. This is the only instance where Metropolitan Council land use measures must be adopted by other bodies. The Parks & Open Space Commission has no regulatory powers. The Metropolitan Waste Control Commission is not a regulatory agency. However, the commission owns all waste treatment systems in the metropolitan area and, through review, approval, and funding of local sewer management plans, serves in some ways as a de facto regulatory body.
Counties, Cities and Townships	There are 21 cities and four townships in the five Minnesota counties that encompass the MNRRA corridor. Local governments have broad planning and regulatory control over development in the corridor. Each of these political entities have regulatory power over land and water use through a variety of departments, agencies, commissions, etc. Minnesota state law gives these local governments primary authority over land use regulation. Local governments are often responsible for enforcement of standards written by state and county level agencies or the state legislature.

APPENDIX K: INTERPRETIVE CONCEPT FOR HARRIET ISLAND CENTER

PRELIMINARY PROGRAM FOR INTERPRETIVE MEDIA AND ACTIVITIES

General Functions

The Harriet Island Center would 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 would 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 would be interpreted to some degree at this center. However, themes 1, 5, 6, 7, and 8 would be emphasized at this area because it is the primary MNRRA center and resources nearby enhance the ability to tell certain stories.

(1) **International significance:** The Mississippi is one of the world's great rivers.

(2) **History:** Humans have had a 10,000-year relationship with the upper Mississippi.

(3) **Stewardship:** We must care for the Mississippi.

(4) **The shaping of the river:** Glacial and human forces have shaped the river.

(5) **The working river:** As a working river, the Mississippi's influence extends far from its shoreline.

(6) **Diversity:** The MNRRA corridor includes a variety of organisms and ecosystems; improved biological diversity is a goal.

(7) **Interdependence:** All living things (including humans) in the MNRRA corridor are interdependent.

(8) **National Park System:** The resources of the MNRRA corridor are nationally significant; the area is a unit of the national park system.

Audience

The Harriet Island Center would 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 would take this into account, and provide changing experiences in addition to more traditional approaches. The location also means that potential visitors would 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 would have an expanse of windows. Visitors would 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 would be kept away from windows, and treatments such as ultraviolet-reducing films on windows would be considered. Since this is a northern exposure, and the exhibits would not be rich in artifacts, accommodation between views and artifact conservation should not be too difficult.

The center would have several areas for visitors:

Area	Approx. Square Feet
Lobby	1500
Exhibits	3500
Library	1500
Book sales/storage	1000
Temporary Exhibits	400
A/V Alcove	300
Auditorium (100 seats)	1600
Classrooms/Meeting Rooms (2)	1000

There would be additional space in the building for restrooms, utilities, and circulation that would bring the total interpretive center portion to 12,000 square feet. There would 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) would include a vestibule, information counter, seating, and an orientation area. There would 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 would be established immediately upon entry into the building.

The orientation area would orient visitors to recreational resources in and around the MNRRA corridor, and to visitor services such as food and lodging. Most of the space would be devoted to recreational opportunities; visitor services information can be handled with a brochure rack, computer, and/or a notebook with compiled listings.

Exhibits

Exhibits would be multisensory, many would be interactive or participatory, and they would offer enjoyable experiences to the diverse audiences that would use this center. In part because of the strongly urban setting and clientele, the experiences would be more interactive, experiential, and, perhaps, contemporary than exhibits found in many national park service visitor centers. There would be computers, live fish, video, and virtual reality experiences. There would 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 would be interactive; there would be opportunities for more passive, intellectual, and contemplative experiences as well. Many visitors would find themselves unable or unwilling to take in everything in one visit, thus encouraging return visits. Temporary exhibits would also provide new attractions to metropolitan residents. Alcoves would help focus activities for educational groups and feature specialized videotapes.

Visitors would 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 would be represented; pool, riffle, and benthic communities, wetlands, tributary streams, lakes, urban river, farmland river, recreational river

(3) **Welcome to the National Park System** – how, where, when and why to visit national parks; trip planning assistance; MNRRA 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 Minnesota Science Museum would be sought for developing and operating the ecology wing.

Specific exhibit and other media recommendations would be developed later in the interpretive plan, which would 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**

Here are explored 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," would be a major emphasis. Visitors would be able to learn how the river provides transportation, energy, cooling, and waste disposal for millions. They would 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 would be to help visitors enjoy safe and low-impact recreational activities in and around the Mississippi National River and Recreation Area. Exhibits can 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 would 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 would 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 would see multiple perspectives, better understand the relevance to their lives, and might 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 can be interpreted with photographs, paintings, sketches, poetry and other literature, and music.

Visitors would 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 would also be available for further discussions.

(2) **Ecological Communities of the Upper Mississippi**

Visitors would 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 we can restore and maintain biological diversity.

Unlike bison, elk, or marmots in Yellowstone or Rocky Mountain national parks, the aquatic life of the Mississippi National River and Recreation Area are mostly inaccessible. Even anglers catch only the top of the food chains. This center would 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, molluscs, crustaceans, and plants. Microscopes would reveal the smaller residents ranging from insects and worms to single-celled creatures. Interpretation would 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 would 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 would have access to current scientific research on ecological systems of the upper Mississippi, concentrating especially on the MNRRA corridor but including related areas as well. This could be provided through a variety of media and programs. Changeable exhibit modules could present up-to-date research with photographs, text, and video. An alcove with a lab table, tanks, counters, and benches could host a variety of talks and demonstrations by staff and docents. Library resources would 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 as well as out-of-state tourists, this center can offer needed services that would 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 would 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 would learn why MNRRA is part of the national park system and the similarities and differences among areas such as MNRRA, Yellowstone, and Voyageurs national parks.

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

Basic trip planning assistance would be available in person and by telephone.

The library would provide a wide range of books and other materials for use in planning trips to other NPS areas.

Temporary Exhibits

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

Audiovisual Arts

In the auditorium there would 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 would be the primary vehicle for interpreting theme 1: the Mississippi is one of the world's great rivers. The river and watershed would be treated as an entire system. It would also enable visitors to understand the MNRRA's place in our system of protected areas, and it would encourage respectful use of corridor resources and associated areas.

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

There would be short video programs available for visitors. These would be on a variety of subjects relating to MNRRA themes. Some would be produced commercially or by the news media; others would be specially produced to show in this center and elsewhere. These would be shown in the video alcove and elsewhere in the exhibit area. Generally, seating would be available unless the program lasts less than two minutes.

The video alcove would provide seating for about 40 people. Programs could be automatically scheduled, as well as hosting special programs such as for school groups. This area would 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 would be designed as a theater, with good acoustics, a partially sloping floor (with flat areas for wheelchairs), and fixed seating for about 100 people.

Library

This area would offer reference publications and media and services relating to the Mississippi National River and Recreation Area, the Mississippi River, riverine and riparian ecology, urban parks, and the national parks system. These services could be offered in partnership with existing library services in the Twin Cities area.

Classrooms

Two classes of 60-70 people would 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 would maximize flexibility and include laboratory tables, sinks, aquariums and terrariums, storage, and movable seating. Groups would 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 would offer publications, videotapes, postcards, and other theme-related and educational items about the Mississippi River, MNRRA, and other NPS areas for sale. Contiguous storage would be provided.

OUTDOOR INTERPRETIVE AND RECREATION EXPERIENCES

For many people, a visit to the interpretive center would be part of a recreational package that may include a hike, bike ride, boat ride, picnic, or driving tour. Trails from the center would 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 would 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 would be conducted on and along the river. The National Park Service would have a boat for environmental education programs. It would be moored at the Harriet Island marina and would be available for use 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 would be an important part of MNRRA visitors' experiences. Harriet Island visitors can walk, jog, bicycle, roller blade or drive to Lilydale. There they would 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 to the west from Lilydale, eventually reaching the Minnesota Zoo, and connecting with several other trails. Harriet Island will be part of a metropolitan system of trails that would complement the NPS interpretive center.





GLOSSARY OF TERMS

100-year floodplain - an area of land where the probability of being inundated is once in a 100 years. This area is frequently used by federal, state, and local agencies for floodplain management purposes.

Access — a way of approaching, entering, or using an area; river access includes boat ramps and canoe launches.

Alternative — a possible course of action, one of several different ways to achieve an objective (in this document the term "alternative" is used to describe options to the proposed plan).

Attraction/attractor - Attractors are environments or activities that serve to bring additional tourists to the Twin Cities area. Attractions are environments or activities that are used by local residents and individuals who have come to the region for other reasons (including a desire to see other attractors).

Balance - to weigh by comparing; to estimate the relative weight or importance of different factors or resources and proportion properly the parts or elements in a planning or decision-making process. ~~This does not mean that there are winners and losers in the process; but rather, that~~ all elements are considered before plans are developed or decisions are made.

Barge fleeting area — a parking or staging area for barges awaiting loading, unloading, or transport.

Bluff - a topographic feature such as a hill, cliff, or embankment with steep slopes rising above the river corridor floodplain.

Bluff Impact Area - a 40-foot wide area adjacent to the bluff line that is subject to preservation stipulations.

Bluff Preservation Area - includes the bluff-face, bluff impact area, and bluff setback area.

Bluff setback area - a 60-foot wide area that is subject to limitations on development. This area in combination with the bluff impact area creates a 100-foot setback for buildings from the bluff line.

Bluff face - that portion of the steep slope exceeding 18% between the river bottomland and the bluff line.

Bluff line (top of the bluff) - the transition point between the steep bluff-face and more level terrain at the top of a bluff.

Buffer - a method of minimizing the impact of adjacent activities by the use of setbacks, vegetation screening, and other means.

Cluster - locating similar facilities together rather than spreading them out over the landscape. This land planning approach saves open space.

Commercial development (or use) — the creation or placement of buildings or facilities for business purposes, principally for the sale, lease, rental, or trade of products, goods, or services.

Commercial navigation - use of the river for hauling cargo into and out of the area, or between points in the corridor. Most commercial navigation is represented by the barge towing industry.

Comprehensive management plan — a general plan that sets forth a vision, management concepts and policies, and participant roles, in the context of regional plans and trends for conservation, land use, recreation, transportation, economic development, and other identified issues.

Cooperating associations – Nonprofit organizations formed to assist national parks with the publication and sale of items associated with park areas. Associations often offer donations for park purchases and scholarships for park-related study.

Consistent land use - land use activities that are consistent with the location policies contained in this plan.

Corridor - a long, relatively narrow area that is centered on a linear feature, such as a river. In this document corridor is used to define that area contained within the Mississippi National River and Recreation Area boundary.

Critical habitat - habitat that is important to the survival of a species.

Critical mass - grouping together of visitor facilities to achieve a minimum desired level of activity. In this document critical mass is used to describe an objective for major interpretive facilities. It is the combination of visitor experience necessary to create a major attraction that provides high-quality interpretive service to the visitor.

Cultural resources - are defined as significant for their cultural association and integrity. They include archeological resources, cultural landscapes, historic buildings and structures, museum objects and archival materials, and ethnographic resources. This includes, but is not limited to historic resources described in the National Historic Preservation Act, which are "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the national register, including artifacts, records, and material remains related to such a property or resource."

Design guidelines - recommendations for development of buildings and sites relating to scale, form, materials, color, and texture. They often deal with aesthetic issues and blending new development into the surroundings (see appendix C).

Economic development activities - activities carried out primarily by local governments and chambers of commerce to attract new business and industry to an area to create jobs and increase tax revenues.

Economic resources - include existing facilities, land uses, and activities that benefit the local and regional economy such as: (1) residential, commercial, agricultural, and industrial property, equipment, and services, (2) public facilities used for economic purposes such as locks and dams, roads, bridges, and other infrastructure, (3) jobs and their associated payrolls, and (4) the value of commodity shipments into and out of the area, including the economic value of river navigation services to the local, regional, and national economy. Note: This should be considered an interim definition for comprehensive planning purposes. A more thorough, updated definition will be developed after the comprehensive plan is completed during resource management planning.

Endangered and threatened species - are those plants and animals that are listed by the U.S. Fish and Wildlife Service and offered protection under the Endangered Species Act.

Environmental education - Activities with organized groups (schools, scouts, community groups, etc.) or seminar participants that are designed to develop understanding, appreciation and caring for the natural environment.

GIS - geographic information system, a computerized ~~mapping~~ system for storing and analyzing geographically oriented data, such as vegetation, topography, roads, historic sites, and land use (see appendix B for a description of the MNRRA GIS database).

Heritage education - Activities with organized groups (schools, scouts, community groups, etc.) or seminar participants that are designed to develop understanding, appreciation and caring for our historic and prehistoric heritage and for the manmade or built environment.

Historic resources - historic resources are defined in the National Historic Preservation Act as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the national register, including artifacts, records, and material remains related to such a property or resource."

Inconsistent land use - land use activities that are not consistent with the location policies contained in this plan.

Industrial development (or use) — the creation or placement of buildings or facilities for the production, manufacture, warehousing, storage, or transfer of goods, products, commodities, or for resource extraction purposes.

Integrated - made into a whole; unified; or joined together. All elements of an integrated plan or integrated effort to resolve an issue are analyzed and factored together to make better decisions.

Interpretation — educational activities designed to reveal meanings and relationships through the use of presentations, original objects, by firsthand experience, and by graphic illustrations. Activities or media designed to help people understand, appreciate and care for the natural and cultural environment.

Note: The similarities among interpretation and environmental and heritage education are far more prevalent than the differences. In this plan, interpretation refers to activities and products for the general public. Educational activities and products may be designed with the same objectives but are intended for specific groups and those who sign up for workshops or seminars. Interpretation also deals more with the immediate environment (that which one can see, hear, smell, touch or imagine), while educational activities may take participants farther afield.

Interpretive media - Visual, auditory, and textual products (such as exhibits, films, videos, books, pamphlets) designed to provide interpretation and education.

Law enforcement — The act of ensuring that laws or regulations are followed, including rules for management of visitor use and resource protection.

Location policies - policies that affect where activities should be sited in the landscape. They generally define desirable and undesirable land uses for a given area.

Major land use - a land use that (1) has regionwide significance, (2) would cause significant adverse impacts to the river corridor, or (3) would set a precedent committing land use to significant new directions.

Monitoring - a program established to track the condition of a resource over time, or evaluate the effectiveness of implementation of plan elements.

Natural area - an area that visually exhibits primarily non-human created qualities, such as an urban forest or wetland. In this case natural does not mean pristine or without any influence by humans.

Natural resources — assets or values related to the natural world, such as plants, animals, water, air, soils, geologic features, fossils, scenic vistas, etc. Natural resources are those elements of the environment not created by humans.

Nonpoint source pollution — pollution from a broad area resulting from activities such as agriculture (pesticides, fertilizer, etc.) or urban activities (oil, salt, etc.).

Open/enclosed landscape - unimpeded views or spatial enclosure from vegetation and landforms in the landscape.

Open space - includes public and private lands that are retained as primarily undeveloped. They may include lands devoted to active or passive recreational use or lands retained for visual or natural resource protection purposes.

Ordinary high water level - a more precise way to designate the shoreline based on seasonal fluctuations in water level. It is defined as the boundary between upland areas and the public waters and wetlands in the state of Minnesota shoreland management program. It is commonly the point where the natural vegetation changes from predominantly aquatic to terrestrial. For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel. For reservoirs and flowages, it is the operating elevation of the normal summer pool.

Oversight - periodic review of a program's effectiveness or the success of plan implementation to determine if objectives are being met. Reviews could take place monthly, quarterly, annually, or even less often based on the need.

Permits - government authorization to proceed with an activity.

Point-source pollution — pollution coming from a single source, such as a sewage treatment plant discharge.

Purpose - simple statement of the reason for which a unit of the national park system is created. These statements are broad goals generally derived from the enabling legislation or legislative history. They are used to guide development of more detailed visions and management plans for an area.

Recreational resources - those elements of the environment that are used by humans for outdoor recreation purposes. They include natural and manmade features such as rivers, lakes, parks, trails, etc.

Residential development (or use) — creation or placement of buildings or facilities for residential (living) purposes.

Resource - something of value to be preserved, protected, and enhanced. The Mississippi National River and Recreation Area act lists "nationally significant historical, recreational, scenic, cultural, natural, economic, and scientific resources." It is typical for Congress in establishing a new area to include in the enabling legislation a long list of overlapping resource categories, such as the one found in the MNRRA act. NPS normally defines resources in two broad categories (natural and cultural) for management purposes. This plan includes a third broad management category, economic resources, to assure that all items listed in the MNRRA act are addressed.

Resource management — the art or manner of treating, directing, or handling resources.

Riverfront area - a 300-foot wide area adjacent to the shoreline where certain types of land uses are encouraged — activities that relate to the river, require a river location, or enhance the river corridor.

Sensitive natural areas - include shorelines, floodplains, wetlands, endangered or threatened species habitat, steep slopes, and bluff lines.

Setback - minimum horizontal distance that buildings, structures, or activities are positioned back from a natural or manmade feature, such as a shoreline, bluff-line, road, or property line.

Shoreline - the line marking the edge between a water body and the land, including backwaters attached to the main stream. This would normally be the same as the ordinary high water level along the river.

Shoreline area - a 40-foot wide area along the shoreline where a natural appearance is encouraged (except in downtown areas and historic districts).

Shoreline setback area - a 60-foot wide area subject to development restriction that together with the shoreline area creates a 100-foot total setback for buildings in the riverfront area.

Site development policies - those policies that affect a development after it has been located in the landscape. These are normally more detailed than location policies, dealing with specific issues such as setbacks, and they provide a basis for even more specific design guidelines.

Socioeconomic conditions - combination of social and economic elements of the environment.

Steep slopes - are defined in this plan to be slopes over 12%, or more than a 12-foot vertical rise for every 100 feet of horizontal distance, where development is not recommended.

Stewardship - care of resources to preserve and protect them for future generations.

Sustainable development - a shared commitment to orderly economic development, along with an understanding and respect for the capabilities and limitations of the environment to support growth and economic activity over time.

Tourism — all activities related to the leisure use of the river corridor by individuals from outside the immediate area.

Urban uses - land uses that have an urban or suburban character, such as commercial areas, industrial facilities, parkland, institutional uses, and residential subdivisions (including low-density housing areas), regardless of their location. These are generally all land uses in the corridor except water bodies, agricultural lands, and vacant parcels.

Variance - an exception made to a land use regulation to accommodate special situations. A variance process is included in most local zoning and subdivision ordinances to assure that they are reasonable. In Minnesota "variance" is defined in state statute.

Vision — simple statement of agreement indicating what an area should be in the future; delineates broad objectives for the corridor.

Visitor activity zones - areas managed to provide for certain types of recreational activities.

Watershed - the land area that drains into a river.

Wetland – means a surface water area classified by the U.S. Fish and Wildlife Service as a wetland. They include swamps, marshes, bogs, river overflows, sloughs, potholes, wet meadows, etc., where the ground is permanently wet or wet during significant periods of the year, providing habitat for water-loving or water-tolerant flora and fauna.

Working river - a river that includes natural and manmade features used for utilitarian purposes. The Mississippi has been extensively used for over 200 years for navigation, municipal, and industrial water supply, hydropower, and waste disposal. The commercial navigation industry is the best example of an activity that defines the Mississippi as a working river.

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INDEX

100-year floodplain 20, 69, 122, 154, 161, 172, 235
access 9, 12, 24-26, 29, 34, 48, 50-52, 54, 57, 60, 61, 65-67, 69, 73, 88, 95, 98, 101, 102, 104, 105, 107, 132-135, 143, 144, 161, 167, 172, 179, 200, 201, 205, 209, 231, 232, 235
accessible 11, 23, 50, 52, 56, 232, 233
air quality 12, 41, 123, 158, 162, 169, 172, 176, 224, 225
airport 130, 224, 226
aquatic 37, 49, 55, 58, 60, 70, 114, 115, 117, 121, 159, 168, 171, 230, 231, 233, 238
archeological 11, 23, 42, 47, 52, 128, 131, 163, 173, 176, 181, 203, 236, 241
attraction 19, 59, 65, 114, 166, 228, 235, 236
attractor 166, 235
balance 10, 19, 20, 30, 37, 174, 235
bank 2, 19, 20, 27, 28, 30, 37, 54, 62, 79, 95, 116, 121, 125, 126, 134, 151, 158, 159, 168, 171, 184, 205, 238
barge 2, 3, 4, 13, 19, 35, 34, 37, 38, 40, 41, 47, 48, 54, 78, 80, 89, 96, 102, 107, 121, 126, 127, 134, 135, 137, 138, 143, 144, 151, 152, 158, 166, 167, 169, 171, 174, 177, 178, 200, 202, 212, 214, 224, 230, 235
barge fleeting area 235
barge terminal 202, 214
bicycle 11, 28, 34, 51, 69, 89, 95, 102, 233
birds 56, 115, 116, 151
bluff 3, 4, 9, 19, 20, 23, 27, 79, 80, 94, 95, 102, 107, 114, 116-118, 134, 135, 143, 144, 151, 152, 158, 159, 168, 172, 175, 200, 203-207, 209, 210, 235, 239
boundaries 5, 41, 42, 47, 55, 68, 75, 88, 111, 113, 114, 116, 120, 124, 125, 128, 132, 133, 162, 180, 181, 184, 200, 201, 213, 215, 236, 238
bridge 2, 26, 29, 33, 34, 40, 49, 51, 65, 69, 73, 125, 126, 128, 129, 135, 144, 151, 200, 206, 209, 210, 224, 236
buffer 235
capacity 29, 37, 38, 50, 51, 121, 138
channel 2, 4, 37, 38, 51, 54, 55, 62, 83, 84, 115, 117, 120-122, 125-127, 151, 160, 168, 202, 214, 224, 238
chemicals 37, 40, 55, 89, 113, 135, 137, 176, 211
cliffs 29, 112, 114, 116, 144, 151, 235
climate 112, 113, 119, 122
cluster 26, 127, 235
clustered 20, 26, 95, 101, 204, 206
commercial development 9, 169, 235
commercial navigation 1, 4, 13, 19, 24, 25, 34, 37, 38, 48, 51, 54, 78, 89, 96, 100, 102, 137, 138, 144, 151, 158, 166, 174, 185, 221, 224, 235, 240, 242
commodity 48, 54, 137, 138, 174, 236
consistent land use 88, 236
coordinate 1, 2, 17, 26, 28, 30, 34, 39, 41, 49, 50, 61, 77, 81, 94, 96, 100, 106, 107, 180, 217, 218
coordination 2-4, 10, 14, 18, 30, 56, 57, 60, 62, 75, 78-83, 87-90, 93, 96, 99, 102-107, 157, 162, 163, 171, 179, 214, 219, 221, 224
Corps of Engineers 37, 38, 55, 67, 69, 78, 82, 84, 126, 127, 133, 137, 144, 184, 185, 187, 202, 213, 224, 242
corridor 1-5, 4, 9-14, 17-20, 23-26, 28-30, 33, 34, 37-42, 47-62, 65, 66, 68, 69, 73-80, 82, 83, 84-90, 93-107, 111-114, 116, 120-123, 128, 131, 132, 134-136, 138, 143, 144, 152, 153, 154, 157-182, 186, 200, 203, 205, 206, 208-210, 216-219, 221, 224-229, 231, 232, 235-239
costs 48, 53, 55, 68, 73, 74, 82, 85-87, 93, 100, 106, 135, 137, 138, 164, 165, 167, 174, 175, 178, 216, 230
critical areas 27, 80, 225

critical habitat 161, 172, 236
critical mass 58, 59, 66, 68, 228, 236
cultural resources 2, 9, 12, 13, 23, 42, 43, 50, 65, 90, 94, 96-98, 102-104, 123, 158, 162, 163, 167, 170, 173, 176, 181, 182, 186, 200, 202-204, 206, 218, 236, 244
cumulative effects 158, 167, 171, 175, 178
dam 17, 37, 49, 55, 59, 61, 62, 65, 67, 68, 107, 114, 115, 120-123, 125-127, 132-134, 144, 152, 159, 161, 181, 224, 225, 236
Department of Natural Resources 23, 24, 28, 29, 37, 38, 42, 51, 58, 75-78, 80, 82-84, 86, 106, 131, 133, 172, 180, 183, 185, 187, 200, 201, 203, 210, 212, 214, 225, 242
design 4, 18-20, 23-25, 28, 29, 34, 50, 52, 54, 57, 59, 61, 62, 65, 69, 70, 73, 80, 83, 85, 101, 102, 105, 107, 128, 136, 159, 160, 163, 164, 186, 203, 204, 208-210, 217, 218, 229, 236, 239
design guidelines 19, 20, 23, 28, 29, 80, 83, 101, 102, 160, 164, 203, 218, 236, 239
designs 23, 52, 94, 95, 205
development 1, 2, 4, 9, 10, 12, 13, 17-21, 20, 23-30, 33, 34, 38, 40, 48, 50, 51, 54, 56, 57, 61, 66, 67, 68, 69, 71, 74, 77-83, 85-88, 90, 94, 95, 97-99, 101, 102, 104-107, 112, 113, 118, 124, 126, 127, 129, 130, 133, 135, 136, 143, 145, 144, 151-154, 157-161, 163-165, 167-169, 171, 172, 174-177, 179, 182-186, 203-206, 208, 209, 212, 213, 217, 218, 219, 221, 224, 226, 230, 235-239, 241, 242, 244
drainage 53, 117, 120, 208
economic 2, 9, 10, 12, 13, 17-20, 24, 27, 29, 33, 37, 47, 48, 52-56, 58, 78, 79, 81, 90, 94, 95, 97, 101, 102, 104, 105, 107, 126, 134-137, 158, 164-167, 170, 171, 174-177, 179, 183, 200, 212, 229, 230, 236, 238, 239, 242
economic development 9, 13, 18-20, 48, 78, 81, 94, 97, 101, 102, 104, 136, 174, 179, 183, 212, 236, 239, 242
economic resources 9, 12, 17-20, 24, 27, 33, 37, 47, 48, 52, 79, 94, 97, 104, 107, 165-167, 236, 238
ecosystems 42, 54, 55, 60, 90, 119, 121, 228, 230, 231
encroachment 29
endangered 23, 41, 42, 55, 60, 90, 97, 103, 116, 118-120, 122, 158, 160, 161, 169, 172, 175, 180, 200, 202, 224, 236, 239, 241
endangered species 23, 41, 42, 90, 97, 103, 116, 119, 120, 122, 158, 160, 161, 169, 172, 175, 180, 200, 202, 224, 236
entertainment 2, 25, 65, 144, 163
environment 24, 25, 40, 56, 69, 90, 96, 98, 103, 109, 111, 115, 153, 158, 164, 165, 168-170, 174, 176, 177, 204, 210, 236-239
environmental education 10, 58, 60, 133, 164, 186, 187, 217-220, 227, 233, 236
erosion 4, 9, 28, 37, 51, 54, 55, 80, 95, 112, 121, 158-160, 168, 169, 171, 172, 175, 176, 204, 205, 208, 210, 211
exhibit 65, 67, 77, 85, 229-233
exhibits 56, 58, 60, 61, 65, 67, 73, 85, 114, 133, 181, 228-230, 232, 233, 237
fertilizer 34, 37, 40, 41, 89, 135, 137, 238
fish 2, 9, 38, 40-42, 49, 54, 56, 84, 97, 114-116, 121, 122, 160, 161, 168, 169, 171, 172, 175, 180, 184, 185, 187, 202, 213, 221, 224, 225, 229, 231, 236, 239, 244
fleeting 3, 4, 13, 19, 37, 38, 48, 54, 78, 80, 89, 96, 102, 107, 137, 138, 144, 151, 158, 166, 174, 178, 200, 202, 235
floodplain 20, 23, 26, 28, 29, 41, 69, 80, 84, 94, 114, 122-124, 127, 143, 144, 151, 152, 154, 161, 169, 172, 174, 175, 180, 200, 202, 203, 205, 207, 210, 225, 235, 239
floodplains 23, 29, 80, 122-124, 154, 161, 169, 172, 174, 175, 180, 205, 207, 210, 239
geological 54, 55, 58, 184, 201, 241
geology 111, 159, 168, 171, 175, 233
GIS 39, 42, 47, 93, 97, 107, 112, 122, 128, 136, 154, 164, 180, 181, 186, 187, 200, 216, 220, 237
grant 30, 33, 34, 73, 76-78, 86, 87, 89, 90, 93, 96, 97, 99, 100, 106, 107, 157, 198, 217, 218, 220
habitat 2, 9, 23, 29, 39, 55, 90, 96, 97, 114-122, 143, 151, 152, 158-161, 166, 168, 169, 171, 172, 175, 176, 205, 210, 231, 236, 239

heritage 10, 13, 56-58, 60, 61, 65, 66, 114, 116, 133, 170, 202, 213, 237, 242
hiking 49, 98, 105, 131-133, 163, 174, 233, 234
historic 2, 9, 11, 13, 17, 19, 23, 25, 26, 28, 33, 39, 42, 47, 48, 50, 52, 55, 61, 65-67, 69, 77, 85, 95-98, 102, 103, 104-106, 111, 119, 127-132, 134, 135, 138, 144, 151, 152, 159, 162, 163, 170, 173, 176, 177, 181, 182, 184, 200, 202-206, 208-210, 213, 215, 218, 221, 224, 225, 236, 237, 239
hydrology 120, 201
inconsistent land use 34, 165, 237
industry 4, 24, 25, 38, 40, 49, 51, 54, 55, 79, 80, 82, 96, 104, 112, 121, 125-127, 129, 130, 134, 138, 168, 178, 202, 212, 221, 235, 236, 240
interpretation 10-12, 17, 23, 25, 42, 49, 52, 53, 56-62, 65-67, 73, 90, 93, 95, 97, 98, 104-107, 111, 133, 162, 163, 170, 173, 174, 176, 186, 187, 217-220, 227, 231, 233, 237
interpretive media 52, 56, 59-61, 65, 73, 163, 174, 227, 237
land acquisition 3, 30, 33, 48, 81, 83, 86, 87, 89, 94, 95, 97, 99-102, 106, 157, 159, 164-167, 171, 174, 182
land use 2-4, 9, 10, 12, 17-20, 23-26, 34, 42, 47, 48, 75-81, 84, 86, 88, 94, 95, 99, 101, 105-107, 136, 143, 152, 153, 157, 159, 161, 163-167, 169, 178, 185, 187, 200, 202, 221, 226, 230, 236, 237, 239, 242
law enforcement 51, 99, 237
legislation 3, 4, 9, 10, 17, 19, 24, 47, 75-79, 81-87, 89, 93, 94, 97, 99, 100, 102, 107, 157, 164, 167, 182, 191, 202, 221, 238
levee 24, 26, 27, 69, 70, 73, 122, 125, 143, 163, 204
location policies 19, 23, 24, 26, 163, 236, 237, 239
lock 37, 55, 65, 67, 122, 133, 144, 152, 230
major land use 76, 77, 237
marina 26, 41, 37, 51, 60, 65, 69, 73, 94, 98, 105, 151, 167, 169, 171, 174, 177, 200, 201, 212, 233, 242
media 50, 52, 53, 56, 57, 59-61, 65, 73, 77, 85, 105, 163, 174, 227, 228, 230-233, 237
mineral 42, 56, 112, 151, 159, 168, 171, 175, 244
mining 55, 112, 118, 176, 222, 223, 225
monitoring 3, 37, 39, 41, 49-51, 57, 76, 77, 86, 89, 93, 96, 103, 104, 106, 107, 138, 158, 164, 168, 173, 200, 218, 221, 237
mussel 115, 117, 119, 122
natural area 23, 68, 115, 144, 204, 237
natural resources 2, 12, 23-26, 28, 29, 37, 38, 42, 51, 52, 58, 65, 75-78, 80, 82-84, 86, 98, 106, 111, 131, 133, 151, 159, 168, 171, 172, 175, 180, 183, 185, 187, 200-204, 210, 212, 214, 218, 225, 238, 241, 242
navigation 1-4, 12, 13, 19, 24, 25, 34, 37, 38, 48, 51, 54, 55, 78, 89, 96, 100, 102, 115, 117, 120, 125, 127, 134, 137, 138, 144, 151, 158, 166, 174, 185, 202, 214, 221, 224, 235, 236, 240, 242
no-wake 51, 96, 98
noise 38, 40, 89, 123, 160, 162, 169, 172, 175, 176, 214, 225, 226
open space 2, 3, 9, 10, 17-19, 25, 26, 29-31, 30, 33, 34, 42, 50, 51, 74, 78, 83, 87-89, 94, 95, 101, 102, 105, 107, 112, 129, 136, 143, 144, 151-153, 158-161, 165, 166, 171, 174, 177, 178, 185, 200, 201, 203-205, 226, 235, 238
orientation 49, 56-58, 60-62, 65, 66, 70, 85, 164, 227, 229
overlook 33, 65
oversight 60, 75, 77, 79, 80, 84, 100, 107, 168, 224, 238
park 1-4, 9, 10, 12, 17, 18, 24, 28, 30, 33, 37-39, 41, 42, 47-53, 56-62, 65-70, 73-78, 80, 83, 85, 86, 87, 89, 90, 93-97, 99-107, 113, 116, 122-124, 127, 129-136, 139, 142, 151, 153, 159-161, 164, 165, 167, 168, 171-175, 179-187, 200, 201, 203, 212, 213, 216, 217, 218-220, 224, 227-233, 236, 238, 241, 242
pedestrian 24, 28, 34, 51, 69, 73, 89, 95, 102, 233

permit 3, 37, 38, 41, 47, 75, 76, 78, 79, 80, 82, 83, 89, 93, 99, 157, 162, 165, 167, 214, 218, 221, 224, 225, 238
pest management 40
point source 96, 162, 225
pollutants 41, 54, 56, 120, 121, 158, 161, 225
pollution 9, 39-41, 54, 55, 76, 79, 82, 89, 96, 103, 104, 107, 117, 121-123, 138, 158, 161, 162, 169, 171, 172, 175, 176, 179, 182, 184, 205, 211, 212, 214, 224, 225, 230, 231, 238
Pollution Control Agency 9, 39, 41, 76, 82, 121, 122, 161, 184, 212, 214, 224, 225
power plant 225
prairie 55, 112-114, 116-119
rail 37, 40, 126, 134, 137, 175
railroad 34, 51, 95, 126, 134, 138, 144, 212
ravines 26, 112, 117, 160, 206, 207
recreation 1-4, 9, 11, 17, 24, 25, 30, 34, 39, 41, 42, 47-50, 54-61, 66, 74, 75, 79-81, 83, 84, 89, 90, 93-95, 97, 99, 101-104, 106, 107, 111, 113, 114, 116, 117, 120, 121, 123, 128, 131, 132, 133, 135, 136, 138, 151, 153, 157, 158, 161, 162, 168-170, 174, 176, 177, 183, 186, 187, 200, 201, 203, 212, 213, 216-218, 220, 221, 224, 226, 227, 229-233, 236, 238, 241, 242, 244
recreational boating 11, 55, 105, 160, 169, 176, 241
recreational resources 49, 97, 164, 177, 229, 238
research needs 39, 42, 47-49, 90, 97, 103, 104, 242
residential 19, 23, 26, 33, 40, 49, 55, 80, 89, 118, 128, 129, 135, 143, 144, 152, 153, 166, 169, 236, 238, 239
resource management 1, 17, 39, 42, 47-49, 57, 60, 76, 81, 89, 90, 94, 96, 97, 99, 103, 104, 106, 107, 171, 185, 186, 187, 216-218, 220, 236, 238
restoration 10, 19, 24, 25, 28, 47, 94, 95, 98, 101, 103, 172
retail 23, 25, 128, 163, 173
riverbanks 3, 20, 28, 49, 55, 80
riverfront 2, 18-20, 23-29, 33, 48, 65, 66, 68, 82, 83, 88, 89, 94, 95, 101, 107, 111, 123, 126, 127, 134, 135, 143, 144, 151, 153, 154, 164-167, 171, 172, 174, 177, 178, 203, 204, 209, 226, 233, 238, 239
runoff 9, 40, 41, 54, 96, 120, 121, 162, 169, 176, 208, 210, 211
safety 11, 37, 40, 52, 54, 57, 66, 84, 104, 107, 138, 224
salt 37, 40, 89, 103, 113, 137, 238
screen 27, 29, 70, 95
screening 18, 162, 204, 205, 235
sediment 41, 54, 55, 56, 97, 120, 121, 122, 144, 168, 169, 171, 172, 176, 208, 215
sensitive 2, 11, 12, 17-19, 23, 27, 33, 34, 39, 40, 43, 50, 94, 98, 114, 122, 151, 154, 159-161, 169, 175, 203, 206, 210, 228, 239
setback 20, 25, 27, 102, 154, 159, 164, 165, 204, 207, 209, 211, 235, 239
ship 138
shipments 34, 37, 137, 138, 174, 175, 236
shippers 34, 116
shipping 127, 137, 174
shoreland 3, 24, 27, 83, 84, 88, 95, 154, 210, 238
shoreline 2, 9, 17, 19, 20, 23-30, 33, 39, 41, 55, 56, 69, 88, 89, 94, 96, 101, 102, 107, 116, 143, 144, 151, 152, 159, 162, 168, 171-173, 176, 203-207, 209, 211, 225, 228, 238, 239
shoreline area 17, 19, 23, 27-29, 41, 107, 171, 204, 239
snowmobiling 105
soils 113, 114, 118, 158, 159, 168, 171, 175, 238
state park 9, 127, 132, 133
steep slopes 17, 23, 153, 159, 165, 168, 171, 200, 235, 239
stewardship 13, 25, 52, 54, 59-61, 98, 174, 228, 231, 239, 244
stormwater 40, 96, 121

streamline 100, 106
streamlining 48, 77-83, 104
sustainable 19, 23, 26, 40, 48, 54, 61, 62, 70, 90, 107, 239
tallgrass 113, 114
tax 81, 136, 137, 166, 174, 225, 236
threatened 33, 34, 41, 55, 60, 86, 90, 97, 102, 103, 116-120, 122, 126, 130, 158, 160, 161, 169, 171, 172, 175, 180, 200, 202, 236, 239
tourism 19, 48, 54, 56, 57, 60, 90, 101-107, 166, 167, 170, 177, 212, 239, 241
towboat 37
towing 37, 38, 137, 178, 235
toxic 9, 41, 55, 224
track 134, 237
trail 3, 23-25, 30, 33, 34, 49, 51, 52, 54, 56, 61, 65, 69, 73, 79, 95, 96, 98, 102, 104, 144, 151, 159, 160, 164, 171, 186, 205, 217, 234
tributaries 26, 30, 40, 41, 111, 114, 117, 121, 134, 160, 169, 175, 230
truck 37, 40, 54, 137
U.S. Fish and Wildlife Service 41, 42, 116, 161, 180, 185, 187, 236, 239
variance 24, 29, 239
vegetation 3, 9, 20, 26-28, 80, 94, 95, 113-115, 117, 143, 144, 151, 152, 158-160, 168, 172, 173, 200, 203-206, 208-211, 235, 237, 238
vision statements 10, 18, 179
visitor 10-14, 17, 19, 20, 25, 38, 48-53, 56-62, 66-69, 73, 76, 85, 90, 94, 95, 97-99, 101-107, 111, 131-133, 152, 161, 163, 168, 170, 171, 173, 177, 179, 180, 187, 213, 217, 218, 220, 227-233, 236, 237, 239, 242
visitor activity zones 239
visitor center 67, 85, 133, 168, 180
wake 37, 51, 96, 98, 160, 168, 169, 175
water quality 2, 9, 12, 39-41, 54, 60, 80, 84, 89, 96, 97, 103, 104, 120, 121, 132, 133, 138, 144, 160-162, 169, 172, 176, 204, 215, 224
water use 10, 17, 18, 75, 88, 94, 101, 107, 143, 171, 182, 221, 224, 226
wetlands 3, 9, 17, 23, 29, 41, 55, 80, 94, 122, 152-154, 159, 161, 164, 169, 171, 172, 174-176, 180, 202, 203, 205, 206, 207, 208, 210, 230, 238, 239
wildlife 2, 23, 26, 29, 38, 41, 42, 84, 96, 103, 114-116, 122, 143, 151, 152, 158, 160, 161, 163, 168, 169, 171, 172, 175, 176, 180, 184-187, 202, 205, 210, 212, 213, 221, 224, 236, 239, 244
wildlife refuge 84, 116
working river 2, 12, 37, 42, 48, 55, 60, 65, 105, 107, 134, 228-230, 240
zoning 3, 18, 20, 23-25, 27, 38, 47, 54, 79, 83, 89, 96, 103, 104, 152, 153, 165, 202, 203, 206, 210, 225, 239

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

June 1993, NPS D-7

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Superintendent
Mississippi National River and Recreation Area
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IN REPLY REFER TO:

D181(MISS)-6

November 2, 1993

Memorandum

To: Mississippi River Coordinating Commission

From: Superintendent, Mississippi National River and Recreation Area

Subject: Briefing Materials for November 8 Commission Meeting

Please remember the Commission meeting scheduled for November 8, 8:30 a.m.-5:00 p.m. at the Holiday Inn-International Airport (34th Avenue and I-494 in Bloomington). Enclosed are a variety of briefing materials for the meeting.

One item is a preliminary report that outlines the 16 issues identified most frequently during the public comment period. Each item includes a brief issue statement, possible responses to issue, and an analysis of the issue. The responses and analysis are not intended to be all-inclusive. The paper will serve as the basis for discussion at the meeting.

Also enclosed is a series of matrices that allow for quick cross-referencing of which commentors addressed which issues. The matrices are organized by respondent category (i.e. government, business, organizations, and citizens). The "letter number" in the first column of the matrices corresponds to the identification code used on letters in the three volumes of comments you have already received.

You may wish to bring your copies of the comment letters to the meeting. Because of the expenses of reproducing the large number of comments, we printed very few extras. We will have reference copies at the meeting, but no extras for distribution.

Please phone me at 290-4160 if you have questions on the above.

for JoAnn Kyral

Enclosures

SELECTED PUBLIC REVIEW COMMENTS AND POSSIBLE RESPONSES
Mississippi National River and Recreation Area

Preliminary Report to the Commission

November 1, 1993

Following are major comments on the Mississippi National River and Recreation Area (MNRRA) draft Comprehensive Management Plan/EIS that should be discussed by the Mississippi River Coordinating Commission prior to the planning team developing (and Commission review) of proposed responses to the numerous, more detailed comments (which total about 200 letters and statements with well over 1000 comments). It is not possible to include all the significant comments nor provide for the numerous variations on each theme in this kind of preliminary report. All comments will be addressed and appropriate changes made in the plan prior to the final EIS. Inclusion here does not imply that the comment was made by a majority, nor does it connote agreement by the NPS or Commission. It is merely a summary recordation of what was said that is intended to initiate discussions about potential responses.

The comments are followed by a listing of possible responses and an analysis of some implications of those responses. A cross-reference chart is attached to this report to link these topics to the comment letter codes, so that readers may connect original letters or statements to a particular comment or group of comments.

While some of the possible responses are alternative approaches, many of the possible responses are not mutually exclusive and could be combined. One alternative response to any of the comments is to make no change in the plan and explain why in the response section of the final EIS. In the interest of brevity, that option is not repeated for every comment in this report, but it should be an understood option.

1. LOCAL CONTROL/LAND USE

Commenters stated that: Local control should be retained over land use decisions. Several specific policies/standards were not supported by various commenters (e.g. riverfront land use policy, height limits, setbacks, levee exception). Some commenters wanted a stronger role for NPS in land use management.

Possible Responses: These comments could be responded to in several ways.

- One option is to stick with the proposed actions in the plan but more thoroughly explain the review process in the plan, including who has the final say and the limits of NPS authorities.

- Another option would be to drop the proposal for state legislation to mandate conformance with the MNRRA plan, and continue to use the critical area program as the primary vehicle for encouraging compatible land use management in the corridor. Compliance with the MNRRA plan

would rely on incentives, such as the grant program. Federal funding would be sought to support the state critical area program as an incentive to encourage compliance with the MNRRA plan.

- A third option would be to adopt alternative B, where NPS would clearly have stronger, more direct authorities in land use management.

- Some specific policies could also be clarified as requested by reviewers without adversely affecting the intent of the plan. For example, the height limit policy could more clearly state that downtown areas are exempt. Specific dimensions in the policies could be adjusted, or they could be moved to the Design Guidelines to reduce concerns.

Analysis: Specific policies could be adjusted to make them more acceptable to the commenters. Dropping the proposal for state legislation should reduce concern that this plan is being forced on communities, and it could take some of the pressure off to make sure everything is precisely worded. It would likely be supported by local control advocates; however, enforcement would largely be left up to voluntary compliance. Some people feel this has not been shown to be very effective in the past. The primary incentive would be through the grant program, which could be an effective way to encourage compliance, but it is yet to be funded. The option of giving NPS a stronger role in the land use management process (alternative B), while supported by some, would be very unpopular with local government and many others in the corridor. Federal legislation would also be required, which may be very difficult to achieve in the near future and lead to false hopes about plan implementation.

2. RESIDENTIAL USE

Commenters stated that: Residential use is a legitimate land use in the corridor that should be emphasized more clearly in the proposed plan. Some commenters were also concerned about their ability to rebuild a damaged structure or expand their homes along the riverfront. (Also see closely related comment on land acquisition/trails below)

Possible Responses:

- The plan does include some discussion but could be expanded further to say more forcefully that residential use is an appropriate use in the corridor.

- Some clarification on reconstruction or expansion of residences that do not comply with the plan could also be added. It would stress that residents would continue to go to existing agencies for permits, variances, and similar government authorization for these activities (NPS would not have permit authority).

- The riverfront policy could be revised to clarify that "infill" housing would not be required to provide public pedestrian access along the river.

- The plan text could to be revised stress that NPS has no plans to acquire residential property.

Analysis: This comment may be a misunderstanding of the draft plan, although the Commission and planning team have been somewhat ambivalent about residential use in the corridor, and this could be reflected in the policies that came out of the process.

3. LAND ACQUISITION/CONDEMNATION/TRAILS/OPEN SPACE

Commenters stated that: Public land acquisition/trails should not be forced on private lands. Some riverfront landowners are still concerned that a trail will be run through their property along the shoreline without their consent. Several property owners are also very concerned that their entire property could be condemned for public parkland. Some land acquisition policies in the plan are unclear. However, many commenters expressed strong support for river-long trails and more open space in the corridor.

Possible Responses:

- The draft plan/EIS stated that NPS land acquisition would be very limited in the corridor, the only land proposed to be acquired would be for the NPS visitor center in St. Paul. No NPS condemnation of land is envisioned. The text could be further supplemented to state these proposals more clearly. The plan does promote additional local (or state) government land acquisition, but it does not force them to do so. Local (or state) agencies would decide how much land would be acquired and where.

- The text in the plan could be expanded to explain the involved process that NPS must go through if it determines that a condemnation action is necessary.

- The plan could be further edited to clarify and possibly repeat some of the statements that trails and open space would not be forced through established residential areas along the river by NPS or the Commission.

- Another possibility would be to add a graphic showing conceptually how a trail might be routed through residential areas to avoid private property.

Analysis: The concept of a river-long trail has been around since long before MNRRA was established. The MNRRA plan builds on these previous plans and encourages a continuous open space along the river where feasible. There are statements in the text saying that it is not feasible in many places, especially the upper river. It seems that there are concerns that some landowners have, based on previous experiences or misinformation, that would only be resolved by adding a statement saying that additional trails and open space along the river are not proposed. This would be in conflict with many existing local plans for the river, and the visions established by the Commission for the MNRRA corridor. It may take additional outreach and some years of

experience with MNRRA before landowners fully understand that the open space and trail proposals in the plan are not a major threat to their property.

4. STREAMLINING PERMITS

Commenters stated that: The plan does not adequately address the legislative requirement for coordination and consolidation of permits required by federal, state, and local agencies.

Possible Responses: There are several possible responses to this issue.

- One response is it was not possible given the timeframe and budget of this project to go into greater detail on this question. Also, in the midst of this planning process, the Governor initiated a state streamlining effort. NPS staff and the Commission did not want to duplicate efforts or develop conflicting recommendations, so it appeared best to wait to see what came of the state effort.

- The MNRRA plan could be revised to assign a lead agency to coordinate these efforts once the results of the state program is known.

- A proposal could also be added to the plan that all reviews under the MNRRA plan would be concurrent with existing reviews to the maximum extent feasible.

- Finally, the plan could be revised to propose more specific objectives and state that the streamlining study be contracted out after the comprehensive plan is finalized.

Analysis: The current proposal in the plan, while it could be improved, meets the minimum requirements of the MNRRA legislation, which calls for the identification of a program for coordination and consolidation of permits. The legislation does not say this consolidation has to actually be accomplished before the plan can be approved. Nor does it set standards for the level of detail necessary under this component. Any or all of the possible changes listed above could be incorporated into the final plan without too much difficulty.

5. NPS REVIEW

Commenters stated that: The legislated NPS review of federal projects, permits, and funding that is discussed in the plan will add to bureaucracy and slow down the process. There is uncertainty about how this will work and whether it would amount to an NPS veto authority.

Possible Responses:

- The MNRRA plan could be revised to add some of this detail from the law (see analysis below) and clarify the process.

• The plan could make a commitment to use existing review processes and expedite the process to the maximum extent feasible. A statement could also be added to the plan that all reviews under the MNRRA plan would be concurrent with existing reviews to the extent possible.

Analysis: NPS review of federal actions affecting the corridor is mandated in Section 704 (b) of the MNRRA legislation. It says that before a federal agency takes any action on a permit, facility, or federal assistance for an undertaking in the corridor it must notify the Secretary of the Interior (through NPS), who will review it for compatibility with the MNRRA plan. NPS review begins when an agency notifies NPS of a proposed action. The legislation outlines a time-line and framework in which the review will be accomplished. If the Secretary determines that the action is incompatible the federal agency will be notified. If the final decision by that federal agency is to proceed with an incompatible project, the Secretary is directed to notify Congress in writing. This process must be followed as it is mandated in the legislation. However, NPS would work closely with other agencies to ensure review occurs as expeditiously as possible, and NPS would incorporate its review into existing federal agency review processes to the maximum extent feasible. For projects determined to be compatible with the plan this should not slow down the process. The MNRRA legislation includes maximum time limits for all the steps in the process to prevent arbitrary protraction of the comment period.

NPS could work with other agencies as the plan is being finalized to develop additional details on how this process will work. While there are a series of steps that an incompatible project will have to go through, the final authority to make the decision rests with the initiating federal agency. Therefore, NPS does not have a veto authority over these projects.

Under the legislative mandate, NPS does not have a choice of whether to do this review or not; it must. What has yet to be determined are the details of how the review process would work. The MNRRA plan could appropriately provide some comprehensive guidance to this process, but it is beyond the scope of a comprehensive plan to work out all the details on such an administrative process. Work with the other federal partners and affected parties should occur before this detail is finalized. This consultation could begin in the next several months so that the process can be implemented after the plan is approved as envisioned in the MNRRA legislation.

6. SITE-SPECIFIC ISSUES

Commenters stated that: There are several major site-specific issues that should be addressed in the plan (e.g. Coon Rapids dam, Grey Cloud Island, new airport study, etc.).

Possible Responses:

• The intent of the plan is to provide comprehensive visions and policies that should be useful in resolving these issues as they develop over the next 10-15 years. The text could be further revised to state that site-specific issues are very important, clarify how the plan can be used to address

these issues in the future, and underscore how the Commission may serve as a forum to discuss and help resolve these issues.

- The draft plan did include maps showing Grey Cloud Island for park land acquisition as proposed in local plans. However, the plan text could be revised to identify Grey Cloud Island as an example of a large parcel in the lower river that has been proposed by local government for park land, and would potentially be eligible for the NPS grant program.

Analysis: This question has been a difficult one since project inception. A decision was made early in scoping the MNRRA plan that it was not feasible to address site-specific issues in the comprehensive plan. This was due to the number of potential projects, which depending on where the line is drawn, could include dozens of projects. Also, these projects tend to be very complex and controversial, so adequately addressing them could have absorbed most of the time and resources of the NPS planning team and the Commission. A decision to address these issues could lead to a major delay in the MNRRA plan or to additions of site-specific determinations that are hastily formed without adequate analysis. Also, once we start down the road of site-specific issues, where do we stop. New ones are likely to arise at the last minute in the planning process or shortly after the plan is printed, and how will they be handled? Other major projects that have been identified during the planning process include the Kondirator, the Federal Reserve building, the University Steam Plant, and the recent proposal by 3M to develop a power/heat co-generation plant, to name just a few. Attempting to add major new elements that are not in one of the alternatives could lead to demands for a supplemental EIS for the plan.

7. TRANSPORTATION PLANS

Commenters stated that: The plan does not adequately cover important transportation issues (e.g. roads, railroads, airports) other than commercial navigation.

Possible Responses:

- The plan could be left as is and the response could explain the rationale. The MNRRA legislation specifically directs that the plan address commercial navigation. These other transportation issues were not identified by Congress in the legislation, nor were they identified by the public during the scoping process for the plan/EIS. Based on what is currently known about the dual track airport planning process, there is nothing in the draft plan that would automatically exclude a new airport or prevent expansion of the existing airport (as contended in some comments).

- A few things could be done to change the text to respond to specific comments under this general heading.

- A statement could be added to the plan underscoring that the MNRRA corridor is a historic transportation corridor. It could identify railroads as a traditional use in the corridor that would continue. It could explain that (as with site-specific issues) these questions are important and explain how the visions and policies can be used as a framework to analyze future plans and proposals for transportation in the corridor.

- A policy could be added supporting the intermodal transportation goals identified in ISTEA, especially use of mass transportation and bicycle/pedestrian trail linkages. A specific reference to the Major River Crossing Study could be added to the policy (note this was in an earlier draft but we could not remember why it fell out).

- A statement could also be added showing general support for regional transportation plans that do not conflict with the MNRRA plan.

- Further explanation of "parkway road design standards," including a statement that they do not automatically preclude truck traffic, could be added to the plan.

Analysis: As with the site-specific issue discussed above, it is unrealistic to expect a comprehensive plan for the MNRRA corridor to cover every possible issue. Available Commission and staff time and resources were devoted to the most pressing land resource, parkland, and trail issues identified in the legislation and scoping process. The MNRRA plan is built on the critical area plans, which also concentrate on these same issues. Also, as with the site-specific issues, adding substantial sections on transportation issues to the MNRRA plan could either lead to a major delay in the planning process as these issues are adequately addressed, or hastily composed policies that will not include appropriate analysis for these very complex and controversial issues. Attempting to add major new elements that are not in one of the alternatives could lead to demands for a supplemental EIS for the plan.

8. COMMERCIAL NAVIGATION

Commenters stated that: The plan does not adequately recognize potential growth in barge operations. Other commenters support a freeze on additional fleeting areas pending additional planning.

Possible Responses: There are several possible responses to these comments.

- The proposed MN DOT changes in the text referencing forecasted growth in fleeting could be incorporated as written (alternative wording is offered by DOT for the discussion on the importance of and future growth for commercial navigation in the corridor, including a revised policy on establishing new fleeting areas). This could create an internal inconsistency in the plan (see analysis below).

- Portions of the DOT comments could be incorporated as written and others modified to reflect a balanced analysis of the issues. For example, the statements on the environmentally friendly nature of the industry could be modified somewhat.

- The text could be modified to acknowledge the forecast for increased growth and the proposed management strategy changed to alternative B, which calls for a freeze on additional fleeting areas until a detailed plan can be worked out following the comprehensive plan approval.

Analysis: Adopting the DOT wording without revision could lead to an internal inconsistency and a conclusion by many reviewers that the plan does not adequately address the barge fleeting issue. The proposal in the draft plan was developed by the Commission through considerable discussion during a series of meetings, which were based at least in part on the assumption that there would be very limited growth in barge operations over the next 10-15 years and therefore, very limited need for extensive planning for additional fleeting areas. This "new" information showing a minimum growth rate of 2% per year suggests a need for a more substantial proposal for managing commercial navigation. The growth projections are discussed in the DOT comments and a July 1993 DOT report on barge fleeting in the Twin Cities area. Assuming the "most conservative" growth rate of 2% per year for the next 15 years, this would result in additional needs of over 30%. The 1993 report says that, while capacity is sufficient for now, additional fleeing areas will be needed before the turn of the century. While there are environmental advantages to commercial navigation on the river, there are documented environmental costs that must also be considered. Given the controversial nature of the issue, attempting to do a comprehensive barge fleeting proposal showing expansion areas could be very time-consuming at this stage in the planning process. There could be arguments from the public that a supplemental EIS is needed to address the new information adequately.

9. INTERPRETIVE CENTER

Commenters stated that: The proposed interpretive center in St. Paul is too costly and there are higher priority needs in the corridor. Concerns were also raised about the location of the proposed NPS facility and the relationship between this center and facilities proposed by the Science Museum of Minnesota and the MN DNR in the area.

Possible Responses:

- The text could be revised to better explain how costs are derived. The cost estimates are rough figures based on average costs for similar facilities in the Midwest. In addition to the building cost, they include site development, exhibits, and furnishings. Space for MNRRA headquarters is also included in the structure, which makes it appear more expensive than it would for just the interpretive facility.

- While it is acknowledged that there are many high priority needs in the corridor, it is also considered important for NPS to establish a presence on the river, and as explained in the text, there are four interpretive functions where it is felt NPS is the most appropriate agency to provide that interpretation. Funding for other elements of the plan would be sought concurrently with the funding for the interpretive center. Relative priorities are identified in the plan only for NPS facilities. This could be better explained in the text.

- Numerous locations for the NPS center were considered by the planning team and Commission early in the interpretive facility planning process and rejected because they would not meet some key criteria. NPS could continue to work with potential partners to encourage cooperative and complementary locations for their activities in the Harriet Island area. The plan could be revised to better explain how a variety of sites were considered before the Harriet Island site was chosen.

- The plan text could be revised to further emphasize the importance of partnerships with other entities in the area such as the Science Museum and Fort Snelling State Park.

- The proposed Fort Snelling interpretive center could be identified as an example of an associated or cooperative center that would emphasize Native American themes and is important to the partnership interpretive effort for MNRRA.

Analysis: The perceived high cost of NPS interpretive facilities is a common problem in NPS plans. NPS has considerable experience designing and building visitor centers. Each center is a unique project, and quality is a high priority. NPS centers do not generally have a typical life-span like other buildings. Many of the existing NPS centers are in buildings well over 25 years old, and durability is a major design consideration. The costs are somewhat higher than the actual construction costs because they include construction supervision and contingencies. Contingencies may or may not be needed for this project but must be included to cover unforeseen problems. Actual design will determine the final estimated costs, which could be higher or lower. There is no doubt that NPS visitor centers are expensive, but they are also some of the most appreciated developments in the national park system. Interpretation was identified in earlier MNRRA public involvement efforts as the one thing almost everyone agreed that NPS should have the lead on. Key criteria for location included proximity to the river, access to the site and nearby resources, flexibility of the site, view of the river, and the nature of contiguous development. NPS has a very cooperative partnership developing with the City of St. Paul regarding park facility development. Eliminating the NPS visitor center (and headquarters) would continue the lack of visibility and focus needed to make MNRRA a more viable entity in the Twin Cities area.

10. SPECIFICITY/SCOPE OF THE PLAN

Commenters stated that: The plan should provide more specifics in several areas (land use standards, pollution control implementation strategies, local plan/ordinance update process, project review process, funding for implementation, etc.)

Possible Responses:

- The plan could be amended to add some specifics as described above and below for the other 15 issues discussed in this paper.

- It may be necessary to add more text to further explain that this is a comprehensive plan that is not intended to provide all the details people would like to see. Much of this detail would require more work with the partners, and they tend to be elements that need updating more frequently than is feasible with a comprehensive plan.

Analysis: This has been an issue from the beginning of the project. Reviewers should note that this is a conceptual/policy-level plan for a 72-mile corridor in a very complex urban area that is based on direction provided by the Commission. Adding additional detail and specificity would run contrary to the philosophy of local control, which is supported by this plan. Details on land use are to be addressed in local plans for the corridor. The comprehensive plan should establish broad visions and policies and allow individual communities maximum flexibility to determine how they will make those broad concepts work for their area. The more detail that is provided, the less discretion is available for communities to tailor the policies to their needs. Generally a comprehensive plan sets out the broad goals and general policies for a given area. Some more details are proposed to be provided in follow-up "action" plans. These action plans would be developed through additional involvement with interested agencies. They tend to be more dynamic, and can be changed more easily to reflect changing conditions and opportunities in the corridor.

11. POLLUTION CONTROL

Commenters stated that: The role of NPS in pollution control needs to be clarified. Many commenters stated that pollution control should be strengthened, while some stated that existing programs are adequate. Some called for a comprehensive inventory of pollution in the corridor.

Possible Responses:

- In general the NPS role as envisioned in the draft plan is one of public education and broad oversight. Federal permits would be reviewed under the legislative mandate to do so, but as stated above, NPS would not have a veto authority over these permits. NPS should work closely with MPCA, which has the lead in pollution control, to clarify NPS and MPCA roles and responsibilities at a comprehensive plan level.

- A paragraph could be added to the text under the section on Partner Roles for MPCA.

- The plan could also be revised to better recognize current programs that address pollution control.

- Some additional readily available general pollution data could be added from existing sources.

- A major inventory of pollution in the corridor is beyond the scope of this plan. MPCA has an extensive data base on pollution in the state. This data could be assembled for the corridor as part of the follow-up resource management plan.

Analysis: There is a lot of support for pollution prevention and control in the comments from the general public. There may be some lack of knowledge on what is already being done in this area and a lack of understanding of the limits of NPS legal authorities to address this issue. Detailed pollution inventories, like detailed economic inventories, are beyond the scope of a comprehensive plan.

12. FLOODPLAINS/WETLANDS

Commenters stated that: The plan should emphasize floodplain and wetland protection.

Possible Responses:

- The plan does have several relatively strong policies on floodplain and wetland protection and restoration that could be pointed out.

- Additional discussion on the relatively new state law addressing wetlands could be provided in the plan.

- A statement could be added that these issues would be an important part of the critical area planning program.

- The plan could be changed to adopt the language in alternative B for even stronger policies on floodplain and wetland protection.

Analysis: This is another area that has strong support in the comments made by the general public. It may also be a case of lack of knowledge of recent state law and existing programs to improve protection for these areas.

13. BALANCE QUESTION

Commenters stated that: The plan emphasizes environmental protection too much; or the plan emphasizes economics too much. There are also several comments on the use of the term "balance" vs. other terms.

Possible Responses: Proposed responses will be developed through discussion with the Commission.

Analysis: The emphasis provided in the plan is a basic philosophical question that each person will need to draw their own conclusion on. In preparing the draft plan, the Commission and planning team spent considerable time discussing needs for both environmental and economic health in the corridor. What came out in the plan was guided by the MNRRA legislation and considerable public input through newsletters, public statements made at Commission meetings, and other involvement techniques. It was felt that the plan provides for an appropriate mix of resource protection and economic growth.

Regarding terminology, there are both commenters that support and oppose the use of the term balance. The actual term used is probably less important than whether the Commission feels the plan has met the intent of the MNRRA legislation and will accomplish the visions identified to guide the development of the plan.

14. ECONOMIC RESOURCES

Commenters stated that: The DEIS does not adequately inventory economic resources in the corridor, nor does it adequately address the economic impacts of the plan.

Possible Responses:

- The document does include considerable data and analysis on economic resources and impacts. These could be pointed out.

- Some additional readily available general economic data could be added from existing sources.

- It could be further explained that a large economic inventory and analysis was beyond the scope of the plan, and would have added considerable time and costs to the project schedule.

Analysis: Business leaders and other experts on the Twin Cities economy could be asked to provide some additional data. Doing a major economic resource inventory and analysis could take over a year and would be at a large cost. It would need to be contracted out. NPS did contract with a University of Minnesota professor for economic analysis that was used in the document. Based on the experience with the efforts made for the DEIS, it is quite possible that the study would be inconclusive or subject to much disagreement. Comprehensive policy plans are generally not conducive to rigorous economic analysis. If this detailed study is made, to offer balance, there would likely be demands for more detailed inventories of natural, cultural, and recreational resources in the corridor. These are also proposed in the document for after plan approval. Analysis of economic impacts is made more difficult because individual business plans, that in aggregation would give a clearer picture of future economic conditions, are generally not available to the public.

15. RECREATION USE CONFLICTS

Commenters stated that: The plan should address key recreation use conflicts and solutions (e.g. establishing no-wake zones)

Possible Responses:

- The plan could be left as is. The response could explain that the comprehensive plan places emphasis on a corridor-wide visitor use management plan. Many of these issues are site specific and it would be inappropriate to address them in the comprehensive plan. Considerable additional work is needed with the partners on an action plan for recreational use in the corridor.

- The plan could be revised to recognize that this issue is an important one and needs to be addressed. NPS or DNR could be given a stronger or more active role in coordinating efforts to resolve conflicts.

- Additional examples could be added to the comprehensive plan text showing possible solutions to use conflicts (e.g., horsepower limits, set aside time periods for certain uses, non-motorized zones, educational efforts, etc.).

Analysis: This is a very important issue to some folks living along or using certain sections of the river. NPS authority is very limited under current law to manage recreational use on the river. It is appropriate for NPS to facilitate planning and be a forum for resolution, but NPS regulation of visitor use (36 CFR) is limited to lands owned by the federal government.

16. NEPA ISSUES

Commenters stated that: The DEIS does not sufficiently describe/detail the alternatives, cumulative impacts, indirect effects, or mitigating measures.

Possible Responses:

- The EIS could be left as is. The response could explain that the EIS adequately describes the alternatives, cumulative impacts, indirect effects, and mitigating measures. Departmental and NPS NEPA guidelines allow mitigating measures to be integrated in the text of the proposed action and alternatives or the environmental consequences, and it is not necessary to isolate them in the table of contents (516 DM 4.10B; NPS-12 4-1E&G).

- Some of the issues identified in the comments would require major additional work, and these were not identified during the scoping phase of the project.

- Specific additions of detail could be made to the alternatives and impacts as specific additions are made to the proposed plan to respond to other comments.

- Some additional text could be added to incorporate or address specific comments or issues provided in the comments.

Analysis: Analyzing alternatives and impacts for a comprehensive management plan is different than doing so for a site-specific project. It is not possible to quantify impacts in as great a detail so they must be assessed in a more qualitative manner. These sections are by definition shorter because elements common with the proposed plan are not repeated in the interest of brevity and to isolate the differences between the alternatives. It is possible that some of the need for these analysis will be reduced based on revisions in the text of the plan to accommodate commenter concerns. General statements that the analysis is not adequate are not very useful in improving the document. Specific comments may be helpful in improving the analysis and should be evaluated on a case-by-case basis and incorporated where appropriate.

MNRRA - MAJOR COMMENTS CROSS-REFERENCED TO LETTERS RECEIVED

Government Letters Letter No.	Land Use	Residential Use	Land Acquisition/ Trails	Streamlining Permits	NPS Review	Site-specific Issues	Transportation Plans	Commercial Navigation	Interpretive Center	Specificity/Scope of Plan	Pollution Control	Floodplains/Wetlands	Balance Question	Economic Resources	Recreation Use Conflicts	NEPA Issues
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	A	A	A					A								
2	A									A						
4	A	A														
5	A	A				B										
7								A								
8	A			A												
9						A	A	A								A
10	A				A											
11	A															
15						A	A	A		A	A					
17							A									
18	A															
19	A				A	A			A		A			A		
20	A					A										
21						A	A									
22			A			A					A					
23	A	A				A										
24			A	A		A	A				A			A		
25	A		A		A											
28									A							
29			A			A				A			A			
30							A			A						
31	A					A	A		A	A	A					
32											A					
33		A												A		
34	A									A						
35	A		A			A			A			A				A
36								A			A	A				
37					A			A			A					A
38	A										A					
39											A					
40	A	A														
41	A	A	A			A	A		A							
43	A		B		A		B			A	B		A			

Government Letters Letter No.	Land Use	Residential Use	Land Acquisition/ Trails	Streamlining Permits	NPS Review	Site-specific Issues	Transportation Plans	Commercial Navigation	Interpretive Center	Specificity/Scope of Plan	Pollution Control	Floodplains/Wetlands	Balance Question	Economic Resources	Recreation Use Conflicts	NEPA Issues
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
44	A		A													
45	A		A					A			A					
46	A								A	A				A		
47	B															
48	B						A	A								
49			A			A					A				A	
50	A						A	A								
51	A															
52	A		A							A						
53	A	A								A				A		

A - Comments that add new info/show new rationale

B - Broad comments, show no new information/rationale/analysis

Note: Skipped numbers indicate comments that did not specifically address issues listed or were comments supporting the plan.

Business Letters / Letter No.	Land Use	Residential Use	Land Acquisition/ Trails	Streamlining Permits	NPS Review	Site-specific Issues	Transportation Plans	Commercial Navigation	Interpretive Center	Specificity/Scope of Plan	Pollution Control	Floodplains/Wetlands	Balance Question	Economic Resources	Recreation Use Conflicts	NEPA Issues
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	A		A	A	A	A	A			A	A			A		A
3	A	A	A				A	A					A	A		
4 *																
5	A					A										
6				A	A	A								A		A
7	A		A	A		A		A			A	A		A		
8	A						A	A		A				A		
10				A						A			A	A		
11	A			A				A								
12 **	A		A	A			A	A		A				A		A
13								A								
14 **																
15	A									A						
16				A	A					A	A					A
17	A		A				A			A	A					

A - Comments that add new info/show new rationale

B - Broad comments, show no new information/rationale/analysis

Note: Skipped numbers indicate comments that did not specifically address issues listed or were comments supporting the plan.

* - Supports stakeholder view

** - Stakeholder letter

Organization Letters / Letter No.	Land Use	Residential Use	Land Acquisition/ Trails	Streamlining Permits	NPS Review	Site-specific Issues	Transportation Plans	Commercial Navigation	Interpretive Center	Specificity/Scope of Plan	Pollution Control	Floodplains/Wetlands	Balance Question	Economic Resources	Recreation Use Conflicts	NEPA Issues
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	B	B	B								A					
2	A										B	B	B			
3	B		B/A					A			A	B			A	
5	B		B				B				B					
6									A							
7	A		B	B			A	A		A	B	B	A	B	A	
9	A		A	A				A		A	A	A	A		A	
12													B			
13	A										A	A			B	
14									A							
15				B									B			
16	B								A		B	B				
17	A												B			
18	A			A									B			
19	B		B													
20			B								B	B			B	
21	A												B			
22													B			
23	A		B		A		B	B								
24	B		B				B			B		B				
25						A	A									
26	A									A				A		
27	A		A	A		A			A	A	A					
28	A							A	A					A		
29											B					
30													B			
Oral Comments																
4	B											B				
9			A							A	A	A			B	A
10			A								A	A				
11			A								A	A				

A - Comments that add new info/show new rationale

B - Broad comments, show no new information/rationale/analysis

Note: Skipped numbers indicate comments that did not specifically address issues listed or were comments supporting the plan.

Citizen Letters / Letter No.	Land Use	Residential Use	Land Acquisition/ Trails	Streamlining Permits	NPS Review	Site-specific Issues	Transportation Plans	Commercial Navigation	Interpretive Center	Specificity/Scope of Plan	Pollution Control	Floodplains/Wetlands	Balance Question	Economic Resources	Recreation Use Conflicts	NEPA Issues
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1				A				A			A					
2											B	B			A	
3											B	B			A	
4																
5						A										
6	B															
7	B															
8						B										
9																
10											B					
11																
12																
13																
14						A	B				B					
15																
16	B		B												B	
17	B			B	B	A_{IDM}			A			B				
18-20 KSE																
21	B				A				B							
22						A										
28	A															
36	A					A							A			
38	B														A	
39											B					
40	B	B	B			B										
41																
42						B										
43																
44	B															
45	B										B					
46	B															
47	B		B						A		B				A	
48		A				B									B	
49	B	B														
50			B													

Citizen Letters Letter No.	Land Use	Residential Use	Land Acquisition/ Trails	Streamlining Permits	NPS Review	Site-specific Issues	Transportation Plans	Commercial Navigation	Interpretive Center	Specificity/Scope of Plan	Pollution Control	Floodplains/Wetlands	Balance Question	Economic Resources	Recreation Use Conflicts	NEPA Issues
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
51	B								B	B						
52	B									B						
53	B		B													
54			A										B			
55						A										
56	B	B														
57											B					
58	B	B								B						
59		B														
60	B	B				A										
61	B	B	B													
62																
63	B															
64		B														
65									B							
66																
67	B	B									B					
68	B				B					B						
69			B								B	B			B	
70	B		B		B											
71	A		A								A	B				
72	B															
73	A															
74	B															
75											B					
76	A	A	B												A	
77	B		B						B							
78												B			B	
79	B									B						
80	B		B													
81								B								
82											B					
83	B															
84																
85										B						

Citizen Letters Letter No.	Land Use	Residential Use	Land Acquisition/ Trails	Streamlining Permits	NPS Review	Site-specific Issues	Transportation Plans	Commercial Navigation	Interpretive Center	Specificity/Scope of Plan	Pollution Control	Floodplains/Wetlands	Balance Question	Economic Resources	Recreation Use Conflicts	NEPA Issues
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
86																
87								B								
92												B			B	
93-133			B								B	B			B	
134	B								B							
135	B			A		A			B							
136	B								B							
137						A					A					
138											B					
139										B					A	
140	B								. B							
141	B					B										
143	B					A										
144	B		B													
146	B		B													
147	B														A	
148	A		A					B								
149	B				B					B						
150						A										
152	B															
153	B		B													
154			B													
156			B													
157-171 *											B					
172	B															
173			B								B				B	

A - Comments that add new info/show new rationale

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Note: Skipped numbers indicate comments that did not specifically address issues listed or were comments supporting the plan.

* - Dowling Elementary

Citizen - Oral Comments Comment No.	Land Use	Residential Use	Land Acquisition/ Trails	Streamlining Permits	NPS Review	Site-specific Issues	Transportation Plans	Commercial Navigation	Interpretive Center	Specificity/Scope of Plan	Pollution Control	Floodplains/Wetlands	Balance Question	Economic Resources	Recreation Use Conflicts	NEPA Issues
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12						A					B					
13													B			
23						B									B	
24						B									B	
*6																
25	B		B													
26	B	B														
27		B													B	
28	B															
29	B		B			B			B							
30	B															
31	A		A			A										
32								A							A	
33											B					
34	B								A							
35									A		B					
36	B					A										
37													B			

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Note: Skipped numbers indicate comments that did not specifically address issues listed or were comments supporting the plan.