UMR-IWW System Navigation Feasibility Study
Cost Sharing MFR

9 January 2004

CEMVR-PM

MEMORANDUM FOR RECORD

SUBJECT: Upper Mississippi River-Illinois Waterway (UMR-IWW) System, Ecosystem Restoration – Discussion of Authorities and Cost Sharing Options

1. Section 3.32 of the Interim Report dated July 2002 contains preliminary discussion of authority and cost sharing considerations pertaining to the implementation of ecosystem restoration measures to meet established restoration goals and objectives and assure the ecological integrity of the UMR-IWW. The Interim Report indicated that the ecosystem restoration measures would be implemented through a combination of 100 percent Federal and cost shared measures and that the criteria for cost sharing would be addressed in the feasibility study. This memorandum further explores authority and cost-sharing options, evaluates the options and makes initial recommendations for inclusion in the feasibility report scheduled for completion in 2004.

2. Background. As documented in Sections 2.3.2.2.7 and 2.3.3.3 of the Interim Report, the environmental impacts of the human activities has resulted and continues to result in a decline in the environmental quality of the UMR-IWW. The resource impacts include backwater and secondary channel sedimentation, altered hydrology, loss of connectivity of the floodplain to the river, impeded fish migration, loss of island habitat, endangered plant and animal species, and loss of native plant community diversity and abundance. Although large increments of ecosystem decline can be attributed to the construction and operation of the navigation system, there are many ecological stressors contributing to ecosystem degradation including land use changes, floodplain development, exotic species, sedimentation resulting from land use practices, construction of the levee system, and non- point source pollution. The Army Corps of Engineers currently has several mechanisms for addressing ecosystem issues:

a. Operations and Maintenance Activities. The UMR-IWW has a single authorized purpose of inland navigation. Therefore, funds appropriated for operation and maintenance of the system are limited to supporting the navigation purpose. This operation and maintenance responsibility must comply with environmental laws and policies regulating all Federal activities and responsible environmental stewardship of the system' s land and water resources. This allows the Corps to avoid and minimize environmental impacts from operation and maintenance activities.

b. Environmental Management Program (EMP). The UMR-EMP, authorized by the Water Resources Development Act (WRDA) of 1986 and amended in WRDA 1990 and WRDA 1999, is a systematic program to provide monitoring, research, and habitat restoration activities. Program accomplishments to date include: (1) the completion of 39 habitat restoration projects resulting in the direct physical restoration of approximately 60,000 acres of riverine and floodplain habitats; 21 more projects in various stages of design will add another 29,000 acres of restored habitat when implemented; (2) the collection of millions of data samples (primarily fish, water quality, vegetation, and invertebrates) critical to carrying out the trend analysis and

applied research that is leading to enhanced understanding of the dynamics of large floodplain rivers and successful multi-purpose resource management; (3) the development of extensive digital data bases, mapping products, and establishment of an information clearinghouse through which UMR System data and information can be universally accessed; and (4) a partnership between a multitude of Federal and state agencies, non-governmental organizations and the general public. The authorizing legislation provides that EMP habitat projects are to be cost shared in accordance with Section 906(e) of WRDA 1986. Section 906(e) provides guidance on cost sharing for fish and wildlife enhancement projects forward to Congress for authorization. Under Section 906(e) projects on Federal refuge land and projects that benefit Federally listed threatened or endangered species, species of national economic importance, species subject to international treaties, and anadromous fish are 100 percent Federal cost. As a matter of Administration policy under the EMP, only the habitat projects on National Refuge lands are 100 percent Federal for construction with operation and maintenance by the U.S. Fish and Wildlife Service or managing State agency. Other habitat projects are cost shared on a 65 percent Federal and 35 percent non-Federal basis. The President' s FY 04 budget contains $33 million for the EMP.

c. Section 1135 of WRDA 1986, As Amended. This legislation provides authority to review and modify the structures and operations of water resources projects completed by the Corps for the purpose of improving the quality of the environment when it is determined that such measures are feasible, consistent with the authorized project purposes, and will improve the quality of the environment in the public interest. The cost-sharing for Section 1135 projects is 75 percent Federal and 25 percent non-Federal and projects have a $5 million Federal funding limit and a $25 million per year annual program limit. The President' s FY 04 budget contains $14 million for the Section 1135 program nationwide.

d. Section 206 of WRDA 96, As Amended. This legislation provides authority for the development of aquatic ecosystem restoration and protection projects that improve the quality of the environment in the public interest and are cost effective. The cost sharing for Section 206 is 65 percent Federal and 35 percent non-Federal and projects have a $5 million Federal funding limit and a $25 million per year annual program limit. The President' s FY 04 budget contains $10 million for the Section 206 program nationwide.

e. Section 204 of WRDA 1992, As Amended. This legislation authorizes the Corps to carry out projects for the protection, restoration, and creation of aquatic and ecologically related habitat in conjunction with dredging of authorized navigation projects. The incremental costs of the beneficial use of the dredged material for habitat creation are shared 75 percent Federal and 25 percent non-Federal. There is no per project limit on Federal cost but the annual program limit is $15 million. The President' s FY 04 budget contains $3 million for beneficial use of dredged material programs.

Despite the significant accomplishments using these authorities, the ecosystem of the UMR-IWW system continues to decline, in part, as a result of the construction and operation of the Federal navigation project. Therefore, the Corps is undertaking a restructured feasibility study to address the navigation efficiency needs of the UMR-IWW, the ongoing cumulative effects of navigation, and the ecosystem restoration needs with a goal of attaining an environmentally sustainable navigation system. The Interim Report concluded that the current level of authority and authorized appropriations in the Environmental Management Program (EMP) and national

programmatic authorities and the limited environmental management activities available under a single purpose navigation project has been insufficient for environmental needs on the Upper Mississippi River Navigation System. Therefore, the feasibility report will:

* Identify and evaluate alternative plans that add ecosystem restoration as a project purpose.
* Formulate measures for ecosystem restoration in response to identified goals and objectives, combine these measures into ecosystem restoration plans at alternative levels of investment, and combine these ecosystem restoration plans with navigation efficiency improvements to produce integrated ecosystem restoration and navigation alternative plans.
* Evaluate the plans by identifying net contributions to National Economic Development (NED) and National Ecosystem Restoration (NER).
* Evaluate the Federal interest in recommending a plan adding ecosystem restoration as a project purpose including plan implementation actions.

3. Issue. As noted in the Interim Report, a fundamental issue is determining the appropriate cost - sharing that would apply to ecosystem restoration plans and the method of implementation of these plans. The Interim Report tentatively concludes that implementing ecosystem restoration measures to assure the sustainability of the system will require a combination of 100% Federal and cost-shared measures with criteria for application developed as part of the feasibility study. This memorandum presents options and recommendations for cost sharing and implementation actions.

4. Mitigation of Navigation Improvement Impacts. In accordance with current policy, the Corps would address any adverse environmental impacts associated with future navigation improvements through the implementation of mitigation measures. These measures would avoid, minimize, or compensate for the impacts of any recommended navigation improvements. Impacts might include loss of habitat and effects of increased traffic levels such as larval fish mortality, turbidity, sedimentation, and erosion. The objective is to maintain the existing condition of the system including side channels and backwaters. The costs of such measures would be assigned to inland navigation, shared in accordance with Section 102 of WRDA 86. Implementation of these measures is considered mitigation, not ecosystem restoration, and the measures would be implemented through specific authorizations and appropriations and implemented concurrently with the construction of navigation improvements.

5. Basic Cost Sharing Options for Ecosystem Restoration: There are three cost sharing options that may apply to measures within the Corps' area of responsibility that address the identified goals and objectives for restoration of the ecological integrity of the system. Impacts to be addressed could include loss of connectivity, loss of seasonal variation, and loss of connectivity to backwaters. Potential measures include fish passage, pool level fluctuations, environmental dredging, restoration of connectivity to backwaters, modification of training structures, and opening of side channels. Additional land acquisition could be included.

a. COST SHARING OPTION I: Share as Environmental Protection and Restoration Under Section 103(c) of WRDA 86, As Amended. These measures would be identified as environmental protection and restoration cost and shared 65 percent Federal and 35 percent non-Federal. This is consistent with existing Corps policy to address any possible impacts of existing Corps projects as restoration. As such it is consistent with the Comprehensive Everglades Restoration Plan (CERP) which includes many modifications to existing projects although an important distinction may be that the Central and South Florida Project that is being modified historically had a project sponsor which had operational responsibility for portions of the project. Also, the special 50/50 cost sharing for the CERP is influenced by the fact that the plan has water supply as well as ecosystem restoration outputs. This approach would also be consistent with the cost- sharing authorized for the Ohio River Ecosystem Restoration**.**

b. COST SHARING OPTION II: 100 Percent Federal as Addressing Ongoing Impacts of a Federally Constructed and Operated and Maintained Project. This " full Federal cost" approach would cost-share in accordance with the cost sharing applicable to the existing project which is 100 percent Federally funded. The Columbia River Fish Mitigation is an example of a 100 percent Federally funded program to address fish passage impacts. In the Columbia River case, the appropriations are reimbursed from hydropower revenues and fish passage was authorized in the original project authorizations although downstream passage facilities were not constructed. The Columbia River fishery program is also heavily influenced by endangered species considerations. The Missouri River Mitigation is another precedent for 100 percent Federal funding. One hundred percent Federal funding may be justified because the system has been recognized in statute by Congress as a nationally significant ecosystem and commercial navigation system. Other factors favoring Federal funding are the significant Federal investment in the basin in the 285,000 acres of Federal refuges and the presence of Federally recognized, regulated and protected resources including migratory birds and endangered species.

c. COST SHARING OPTION III: Cost Sharing as Enhancement of Fish and Wildlife Resources Under the General Guidelines of Section 906(e) of WRDA 86. Although seldom used, this authority allows the Secretary of the Army, as part of a report to Congress, to recommend, at 100 percent Federal cost, activities to enhance fish and wildlife resources, when (1) such enhancement provides benefits that are determined to be national, including benefits to species that are identified by the National Marine Fisheries as of national economic importance, species that are subject to treaties or international conventions to which the United States is a party, and anadromous fish; (2) such enhancement is designed to benefit species that have been listed as threatened or endangered by the Secretary of the Interior under the Endangered Species Act, as amended; or (3) such activities are located on lands managed as a national wildlife refuge. The restoration measures that meet these criteria would be 100 Federal and other restoration would be cost shared. Section 906(e) cost sharing was applied to the Environmental Management Program (EMP) except that the 100 percent Federal funding has been limited to measures on land managed as a Federal refuge. The Section 906(e) application has also been modified for the EMP to provide for operation and maintenance of completed projects by the agency managing the land on which the project is located and 65 percent Federal and 35 percent non-Federal cost sharing for cost shared projects.

6. Criteria for Determining Cost-Sharing. There are four options for determining those measures to be cost shared versus those measures to be funded at 100 percent Federal cost as presented below.

a. CRITERIA OPTION A: Measures attributable to addressing the ongoing and cumulative existing project impacts. This option is based on the premise that measures to address the ongoing and cumulative impacts of the navigation project should be 100 percent Federally funded and that these measures should be identified through a quantification process. This approach would involve: (1) quantifying the impacts to the ecosystem based on a baseline (pre-project or immediate post impoundment) but including the impact of pre-impoundment flow control measures (wing dikes); (2) determining what portion of these impacts are attributable to the project; and (3) formulating the most cost effective measures to address these impacts to be funded at 100 percent Federal. Measures to meet the environmental goals and objectives that are not attributable to addressing the impacts of the navigation project would be cost shared 65 percent Federal and 35 percent non-Federal. While, as part of the feasibility study, the Corps and its partner agencies are identifying ecosystem restoration goals and objectives to achieve ecosystem integrity by assessing the stressors and impacts on the existing system and cumulative impacts, this assessment does not involve the degree of quantification and detailed accounting of cause and effect relationships that would be needed to implement this option. The Study Team concluded that the kind of analysis needed to implement this option would significantly add to the scope and time required for the feasibility study.

b. CRITERIA OPTION B: Measures Involving the Modification of the Structures and Operations of the Existing Projects and Measures on Project and Lands Included in the National Refuge System Would be 100 Percent Federal with Measures on Other Public Lands or Requiring Land Acquisition Would Be Cost Shared. This option is also based on the premise that measures to address the ongoing and cumulative impacts of the navigation project should be 100 percent Federally funded and that these impacts are largely within the project limits including Refuge lands. Measures to meet ecosystem restoration goals and objectives that involve the modification of structures and operations of the project including such measures as fish passage, flow control structure notching, and pool fluctuations not requiring additional land acquisition would be 100 percent Federal. Also measures that would be located on project lands or lands included in Federal Refuges would be 100 percent Federal. Attachment 1 provides a table listing these project and refuge lands by pool. Operation and maintenance responsibility for the measure would be retained by the agency, operating and maintaining the structure or managing the land or potentially could be provided by a non-Federal partner under a leasing arrangement. Measures to meet the established restoration goals and objectives that are outside the limits of the project lands but are related to the project and its adjacent floodplain including floodplain forest restoration, floodplain connectivity restoration, and isolated backwater restoration would be accomplished in a cost shared 65-35 ecosystem restoration program. The four ecosystem restoration alternatives under consideration range in cost from $1.7 billion for Alternative B to $8.4 billion for Alternative E. Under this cost-sharing option the non –Federal share ranges from about $ 415 million for Alternative B representing about 25 percent of the total cost to about $ 2.9 billion for Alternative E representing about 35 percent of the total costs. The increasing share of ecosystem restoration costs for the larger ecosystem

restoration plans (Alternatives D & E) reflects the inclusion of large blocks of land acquisition and floodplain restoration in these plans that would be shared on a 65 percent Federal and 35 percent non-Federal basis. The study team proposes that the cost shared restoration program be authorized to provide for sponsorship by private not-for-profit environment interests, credit for work-in-kind up to the limit of the non-Federal share, and the carry-over of excess land value credits between projects.

c. CRITERIA OPTION C: Measures Involving the Modification of the Structures and Operations of the Existing Projects, Measures on Project and Lands Included in the National Refuge System and Measures in Backwater Areas Connected to the Main River Channel Regardless of Current Ownership Would be 100 Percent Federal with Measures on Other Public Lands or Requiring Land Acquisition, Other Than Connected Backwater Areas, Would Be Cost Shared. This option is the same as Option B. except that it adds 100 percent Federal funding for measures in backwater areas and side channels that are directly connected to the main channel, regardless of present ownership and including the cost of land acquisition. This additional category of 100 percent Federal measures would address the disparity in the amount of Federal land between the reach of the Upper Mississippi River containing locks and dams versus the Illinois River and middle Mississippi River. The four ecosystem restoration alternatives under consideration range in cost from $1.7 billion for Alternative B to $8.4 billion for Alternative E. Under this cost-sharing option the non –Federal share ranges from about $210 million for Alternative B representing about 12 percent of the total cost to about $2.2 billion for Alternative E representing about 26 percent of the total costs. The increasing share of ecosystem restoration costs for the larger ecosystem restoration plans (Alternatives D & E) reflects the inclusion of large blocks of land acquisition and floodplain restoration in these plans that would be shared on a 65 percent Federal and 35 percent non-Federal basis. The decrease in non-Federal share over Alternative B is a result of 100 percent Federal funding of backwater and side channel restoration within the navigation servitude in the middle Mississippi River and Illinois River where Federal fee ownership is limited.

d. CRITERIA OPTION D: Measures Producing National Benefits Under the Guidelines of Section 906(e) of WRDA 1986 Would Be 100 Percent Federal. The Section 906(e) guidelines most applicable to UMR-IWW are measures to benefit species subject to treaties or international conventions to which the United States is a party, measures on lands managed as Federal Refuge, and measures primarily benefiting Federal threatened or endangered species. Operation and maintenance responsibility for measures would be retained by the agency that operates and maintains the structure or manages the land or is provided by a non-Federal partner under a lease arrangement. For measures on Corps of Engineers lands, operation and maintenance would be done by the Corps of Engineers or by a non-Federal partner under a lease. Measures not meeting the national benefits criteria would be cost shared as ecosystem restoration. Cost sharing for this option was not calculated since it was dropped from consideration since it shifts the Federal nexus from the navigation project to species and land management definitions of Federal responsibility. In so doing, this cost sharing option would also likely skew the program toward species-based management rather than the broader and more appropriate objective of ecosystem sustainability.

7. Implementation Options. There are three primary implementation options for the ecosystem restoration implementation as follows.

a. IMPLEMENTATION OPTION 1: Expanded Environmental Management Program (EMP). The current EMP has an annual appropriation limit of $22,750,000 for Habitat Rehabilitation and Enhancement (HREP) and $10,420,000 for Long Term Resource Monitoring. These funding levels are not sufficient to meet the restoration goals and objectives. One option for implementation is to seek authorization for increasing the EMP program limits. The Corps does not recommend this option. Increasing the EMP program limits does not maintain the linkage with navigation which would be achieved through authorization of an integrated plan for navigation improvements and ecosystem restoration and budgeting for Construction, General appropriations to accomplish the dual purposes of that plan. Because of the effective and efficient State and Federal partnership and institutional arrangements that have been created to implement the EMP program and the record of accomplishment of the program, it is proposed that the EMP continue and that a portion of the measures to achieve the restoration goals and objectives be identified for accomplishment through the EMP program. However, the primary implementation framework for accomplishment of the ecosystem restoration is the authorization and funding of a dual purpose integrated plan for the Upper Mississippi River and Illinois Waterway. Until a dual-purpose authority is achieved and appropriations secured, EMP will continue to constitute the primary implementation framework for ecosystem restoration.

b. IMPLEMENTATION OPTION 2: Programmatic Authorizations. The dual purpose integrated plan could include authorizations of a program or programs to accomplish the 100 percent Federal projects and cost shared projects. The program or programs would have defined limits on the size of the project that could be accomplished and the overall program limits. The program or programs would be authorized with provision for project approval by the Secretary of the Army before implementation. In the Everglades Comprehensive Plan the programmatic authority had a $25 million per project limit and an overall size of about $200 million. The program size was based on an initial identification of potential smaller scale projects that could be accomplished under a programmatic authority.

c. IMPLEMENTATION OPTION 3a: Project Specific Authorizations. The dual-purpose integrated plan could include feasibility level identification of specific projects for authorization. Such projects would be larger scale projects such as fish passage facilities or pool management requiring additional land acquisition. Based on feasibility level analysis, such projects could be authorized in the integrated plan for immediate construction.

d. IMPLEMENTATION OPTION 3b: Project Specific Authorization with Subsequent Approval of Project Implementation Reports by the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Environment and Public Works of the Senate As a Condition for Appropriations for Construction. The plan could include identification of projects for authorization at a less than feasibility level of detail that could be authorized for construction with subsequent approval of project implementation reports by the Secretary of the Army and approved by resolution of the House and Senate public works committees as a condition for appropriations for construction. The plan could include identification of projects at a reconnaissance level of detail that would be

be larger scale projects such as fish passage facilities or pool management requiring additional land acquisition.

8. Review Team Recommendation. The review team recommendation on the cost sharing criteria as presented in paragraph 6c is Criteria Option C. This recommendation is based on national and regional coordination with the feasibility study partners. The study team's responses to initial partner and stakeholder comments on early Drafts of this MFR, are provided as Attachment 2. Option C is endorsed by the five study area states as indicated in the letter of 8 December 2003 (Attachment 3) that is attached. It is also supported by the U.S. Fish and Wildlife Service in a letter of 19 December 2003, provided as (Attachment 4). The review team believes that Option C best reflects an appropriate Federal role in addressing the declines in the ecosystem resulting from the existing 9-foot navigation project including impacts on Federal refuges while providing for a significant cost sharing responsibility for the non-Federal partners particularly where additional land acquisition is required. The review team recommends implementation of the recommended ecosystem restoration plan through a combination of Options 2, 3a and 3b, specified in section 7b-d above. Specifically implementation would be accomplished through a 100 percent Federal programmatic authorization with appropriate project cost limits for habitat restoration projects within the navigation servitude including water level management, backwater and side channel restoration, wing dam and dike alteration, and island building. A second programmatic authority would be proposed for cost-shared land acquisition and habitat protection and restoration for projects for floodplain restoration, island and shoreline protection, and topographic diversity. Finally specific authorization would be proposed for larger scale projects including fish passage and hinge point to dam point control.

DENNY LUNDBERG, P.E.
Regional Project Manager