DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314-1000

15 December 2004

REPLY TO
ATTENTION OF:

CECW-MVD (1105-2-10a)

SUBJECT: Upper Mississippi River - Illinois Waterway System

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation and ecosystem improvements for the Upper Mississippi River - Illinois Waterway (UMR-IWW) System. It is accompanied by the report of the district and division engineers. These reports were prepared under the authority of Section 216 of the Flood Control Act of 1970. This authority provides for a review of completed U.S. Army Corps of Engineers projects that may have changed because of physical or economic reasons. Pre-construction engineering and design activities for the navigation and ecosystem improvements for the UMR-IWW System will continue under the authority provided by Section 216 of the Flood Control Act of 1970.

2. The existing UMR-IWW Navigation System was largely constructed in the 1930's and extends down the Upper Mississippi River (UMR) from Minneapolis-St. Paul downstream to its confluence with the Ohio River and up the Illinois Waterway (IWW) from Grafton, Illinois, through the Thomas J. O'Brien Lock in Chicago. It includes 37 locks (29 on the UMR and 8 on the IWW) and approximately 1,200 miles of navigable waterway within portions of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. The principal navigation problem addressed by this study is the potential within the 50-year planning horizon for significant traffic delays on the UMR-IWW Navigation System beyond the delays that currently exist.

3. The Upper Mississippi River System (UMRS) ecosystem includes the river reaches described above, as well as the floodplain habitats that are critically important to large river floodplain ecosystems. The total acreage of the river-floodplain system exceeds 2.5 million acres of aquatic, wetland, forest, grassland, and agricultural habitats. The Mississippi Flyway is used by more than 40 percent of the migratory waterfowl traversing the United States. These Trust Species and the threatened and endangered species in the region are the focus of considerable Federal wildlife management activities. In the middle and southern portions of the basin, the habitat provided by the mainstem rivers represents the most important and abundant habitat in the region for many species. The principal environmental problems addressed by this study are

changes to ecosystem structure and function that have occurred over many years from many causes, but especially since initiation of the operation and maintenance of the existing Nine-Foot Channel Navigation Project.

4. The reporting officers recommend that an integrated plan be approved as a 50-year framework for modifications and operational changes to the Upper Mississippi River and Illinois Waterway System to provide for navigation efficiency and environmental sustainability, and to add ecosystem restoration as an authorized project purpose. The integrated dual-purpose plan will provide better focus and flexibility to adaptively manage the operation and maintenance of the system for both navigation and the environment. The integrated dual-purpose plan will be implemented through an adaptive approach that will include an incremental implementation strategy paired with periodic checkpoints requiring future reporting to the Administration and Congress. The Corps of Engineers will administer the plan in full collaboration with the other Federal and State agencies involved in management of the UMRS.

5. The recommended navigation improvement 50-year framework plan includes small-scale structural and nonstructural measures, new 1,200-foot locks and lock extensions, and appropriate measures to avoid, minimize, and compensate for environmental impacts at a first cost of $2.59 billion at October 2004 price levels plus annual switchboat operation costs of $19.4 million. The initial increment of the recommended navigation improvement plan proposed for immediate authorization consists of the full complement of small-scale measures and the construction of seven new 1,200-foot locks with a first cost of $2.03 billion at October 2004 price levels. Benefits for the navigation improvements were evaluated using a scenario-based analysis utilizing five traffic forecasts and three economic model conditions. This combination of scenarios and models reflects the uncertainty associated with projecting traffic and economic conditions over a 50-year planning period. For the navigation efficiency portion of the preferred framework plan, the benefit-to-cost ratios range from 0.3 to 2.0 depending on the scenario and model conditions and based on a discount rate of 5.625 percent and a 50-year period of analysis.

6. The recommended ecosystem restoration 50-year framework plan consists of an estimated 1009 individual projects with a combined first cost of about $5.72 billion at October 2004 price levels. The initial increment of the recommended ecosystem restoration plan proposed for immediate authorization consists of an estimated 225 projects with a combined first cost of about $1.58 billion at October 2004 price levels. The total estimated operation, maintenance, replacement, repair, and rehabilitation (OMRR&R) costs for these projects, over a 50-year project life is estimated at $82 million. The first cost of the projects being proposed for implementation at full Federal expense is estimated at about $1.28 billion. The first cost of the cost shared floodplain restoration projects is estimated at about $299 million, with a Federal cost of about $194 million and a non-Federal cost of about $105 million. The costs of OMRR&R will be the responsibility of the agency with management responsibility for the land on which the project is located or with the operation and maintenance responsibility for the existing structure being modified. Since the majority of the land and water areas of the UMR-IWW are managed by either the U.S. Fish and

Wildlife Service or the five States involved, the Corps of Engineers operation and maintenance responsibility will be largely limited to fish passage facilities, operational costs of water level management, and operation and maintenance of dike and wing dam alterations. These costs are estimated at a total of $13 million over a 50-year period. The remaining 50-year total operation and maintenance cost of $69 million will be borne by the U.S. Fish and Wildlife Service and the States.

7. The UMR-IWW Navigation System is a segment of the inland waterway identified in Section 206 of the Inland Waterways Revenue Act of 1978, as amended. In accordance with the cost sharing principles described in Section 102 of the Water Resources Development Act of 1986, one-half of the cost of navigation improvement construction shall be paid from amounts appropriated from the general fund of the U.S. Treasury and one-half of the cost of construction shall be paid from amounts appropriated from the Inland Waterway Trust Fund.

8. The recommended cost sharing arrangement for the ecosystem improvements is for a combination of 100 percent Federal funding and cost-shared 65 percent Federal and 35 percent non-Federal funding. The 100 percent Federal funding is proposed for those ecosystem restoration projects involving the modification of the structures or operations of the existing navigation projects, measures on project lands and lands included in the National Refuge System, and measures in backwater areas connected to the main river and within the navigational servitude. These 100 percent federally funded projects would primarily address the ongoing impacts of the existing Nine-Foot Channel Navigation Project. The 65 percent Federal and 35 percent non-Federal cost sharing applies to ecosystem restoration on up to 35,000 acres of land for the purposes of floodplain connectivity and wetland and riparian habitat protection and restoration. It is recommended that eligible non-Federal interests include nonprofit entities. These 35,000 acres will be considered for acquisition on a willing seller basis to the maximum extent practicable. Incidental costs associated with land acquisition will be limited to those costs incurred within a 5-year period prior to the signing of any subsequent Project Cooperation Agreement (PCA). The value of the lands or interest in the lands acquired by non-Federal interests that exceed the non-Federal share of the land acquisition and restoration project costs will be reimbursed to the non-Federal sponsor. The costs of OMRR&R will be the responsibility of the agency with management responsibility for the land on which the project is located or with the operation and maintenance responsibility for the existing structure being modified. However, following a major flood event, the Corps of Engineers may undertake major rehabilitation of the project in accordance with the cost sharing for implementation of the project.

9. The recommended plan contemplates that for the cost-shared ecosystem restoration projects, the non-Federal sponsor may be eligible for credit toward its cost share for planning, engineering and design, or implementation work-in-kind (WIK) undertaken by the sponsor that is integral to the project. The non-Federal sponsor is not eligible for any WIK undertaken prior to project authorization. The non-Federal sponsor will not initiate WIK until a PCA is executed with the Corps of Engineers. In no event will such WIK result in a payment to the sponsor. The amount

of credit to be afforded will be subject to an audit to determine reasonableness, allocability, and allowability of such costs. The credit afforded to the non-Federal sponsor will be limited to the lesser of the following: (1) actual costs that are auditable, allowable, and allocable to the project; or (2) the Corps of Engineers estimate of the cost of the work allocable to the project had the Corps of Engineers performed the work, but shall not exceed the non-Federal share. The non-Federal sponsor will undertake the WIK using its own funds and would not use funds originating from other Federal sources unless the Federal granting agency verifies in writing that the expenditure of such funds for this purpose is authorized.

10. The report of the district and division engineers was the subject of an Independent Technical Review (ITR) by experts within the Corps of Engineers who were not involved in the preparation of the report. This ITR resulted in numerous changes and additions to the report analysis and documentation. In a number of cases the ITR findings necessitated additional documentation and analysis that is ongoing. This additional effort includes evaluations to assure that the economic models are adequately calibrated and validated. The results of the additional ITR evaluation and model calibration will be incorporated into the adaptive implementation process for the recommended plan. This process includes a report to the Congress at the end of the design for the initial group of new locks and before initiation of construction. The report will present all new information from monitoring river traffic and markets and the results of application of any improved models and analysis.

11. The National Research Council (NRC) is conducting an independent review of the Restructured UMR-IWW Feasibility Study. The NRC Review Committee's Second Report, based primarily on a review of the Draft Integrated Feasibility Report and Programmatic Environmental Impact Statement for the UMR-IWW System Navigation Feasibility Study, is attached as enclosure 1 to this report. The NRC's Report found that the UMR-IWW feasibility study integrating commercial navigation and ecological restoration plan represents an unprecedented analytical challenge. The Review Committee credited the Corps for broadening the scope of the study to include ecosystem restoration and noted that the study had made substantial progress during the past three years. Despite these efforts, the Review Committee found that the study contains flaws serious enough to limit its credibility and value within the policymaking process. The areas of concern addressed by the Review Committee included the economic models and traffic forecasts, the evaluation of nonstructural approaches, and the formulation and evaluation of ecological restoration alternatives. While identifying these problems, the NRC Review Committee found that the Preferred Plan (now the recommended plan), if carried out as described, provides for a program of incremental implementation, which is an excellent framework for comprehensive adaptive management. The Review Committee further found that if the Corps is provided the resources and if it commits to the needed data collection, improved modeling techniques, and evaluation, many of what they refer to as flaws and omissions in this study can be corrected in the course of implementation by the application of adaptive management principles.

12. I have reviewed the NRC Review Committee findings. I concur with the NRC Review Committee that an adaptive incremental implementation process provides an opportunity to address the inherent uncertainties associated with projecting future navigation traffic levels and restoring ecological systems. I recognize the limitations of the Corps existing economic models. I believe that the use of the two existing economic models and the five traffic scenarios adequately captures the range of plausible economic evaluation outcomes and allows the Corps to move forward incrementally while we continue our research effort to develop a new suite of peer reviewed models and to refine future traffic projections. The long implementation time for large-scale structural navigation improvements provides opportunities to adjust the plan based on improved analysis and emerging trends. I note that the recommended plan includes the early implementation of the nonstructural measure of switchboats and the small-scale measure of mooring cells along with the development of an appointment scheduling system. The adaptive implementation process provides opportunities for implementation of additional non-structural measures as their feasibility is demonstrated. I recognize that the formulation and evaluation of alternatives to restore the ecosystem and assure the environmental sustainability of the UMR-IWW system is difficult because there is no single metric to capture the environmental outputs of the alternative and measure these outputs against the costs of the alternatives. Fortunately, the ecosystem alternative development was built upon a considerable body of work that established existing conditions, forecast future condition, and established desired future conditions. This work was accomplished in a collaborative process with state and Federal agencies and non-governmental organizations. I recognize that there is considerable uncertainty in forecasting ecosystem conditions and estimating the performance of system modifications. The recommended plan includes an adaptive management component to support the continued development of the ecosystem restoration plan based on sound science, monitoring of the system response to modifications, and the design and performance evaluation of individual projects. Detailed responses to the NRC Second Report are attached as enclosure 2.

13. The Mississippi River Commission reviewed the report of the district and division engineers. The MRC concurred in the reporting officers' plan for an integrated 50-year framework for modifications and operational changes to the Upper Mississippi River and Illinois Waterway System to provide for navigation efficiency and environmental sustainability and to add ecosystem restoration as an authorized project purpose. The MRC found that the proposed improvements for navigation efficiency and ecosystem restoration and the recommended adaptive implementation strategy to be technically sound, justifiable, and environmentally and socially acceptable. The MRC report of 22 November 2004 is attached as enclosure 3.

14. The recommended plan for the UMR-IWW system was developed through a collaborative process at the regional and Washington levels. At the regional level the feasibility study was coordinated with the states of Missouri, Illinois, Iowa, Wisconsin, and Minnesota through a Governors Liaison Committee made up of representatives of the governors of the five states. Additional coordination with Federal and State agencies and non-governmental organizations was accomplished through the work of a Navigation Environmental Coordination Committee and

an Economic Coordination Committee. Over the course of the feasibility study there have been seven series of public meetings and open houses involving 54 meeting locations and over 5,000 attendees. The latest round of public hearings on the draft feasibility report included over 1,200 participants and produced 367 oral statements and over 4,000 written communications. In a letter of 16 July 2004, the Governors of the five states endorsed the recommended plan for navigation efficiency and ecosystem restoration. Collaboration with concerned Federal agencies was accomplished through a Federal Principals Group consisting of senior representatives of the Department of the Agriculture, Department of the Interior, Department of Transportation, and the Environmental Protection Agency at both the Washington and regional level. The Department of Agriculture in a letter of 8 November 2004, supported the recommended plan as a framework to provide navigation efficiency and ecosystem restoration. The Department of the Interior, in a letter of 19 November 2004, supported the major elements of the recommended initial 15-year increment of the ecosystem restoration plan and indicated that there would be a need for an ecosystem restoration authority for as long as the navigation system is operated and maintained. In a letter of 26 October 2004, the Department of Transportation commended the Corps on the collaboration process used in developing the final feasibility report and EIS and noted the participation by shippers in the public meetings. The Environmental Protection Agency (EPA), in a letter of 8 November 2004, expressed general support for the Corps effort on the feasibility report and EIS. The EPA noted that additional detail should be developed on the adaptive management strategy and institutional arrangements framework. I have carefully considered the results of the collaborative study process in making my recommendation.

15. I concur with the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend that Congress approve the integrated plan as a framework for modifications and operational changes to the UMR-IWW System and authorizes the proposed initial increments of the plan for navigation improvements and ecosystem restoration projects, with such modifications as in the discretion of the Chief of Engineers may be advisable, subject to the following items of local cooperation:

a. For those ecosystem restoration measures to be implemented at full Federal cost on public lands for the navigation project and public lands included in the National Refuge System and in backwater areas connected to the main river channel and within the navigational servitude, the cost of OMRR&R shall be the responsibility of the Federal or State agency administering and managing the land on which the measures are located except that the Secretary may undertake at full Federal expense, the major rehabilitation of any measure damaged by a major flood event.

b. For the implementation of those ecosystem restoration measures on up to 35,000 acres of land for the purposes of floodplain connectivity and wetland and riparian habitat protection and restoration, the non-Federal sponsor shall:

(1) Provide 35 percent of the costs of the ecosystem restoration measures, as further specified below:

(a) Provide all lands, easements, and rights-of-way and perform or assure the performance of all relocations determined by the Government to be necessary for the construction, operation, and maintenance of the ecosystem restoration measures.

(b) Provide or pay to the Government the cost of providing all retaining dikes, wasteweirs, bulkheads, and embankments, including all monitoring features and stilling basins, that may be required at any dredged or excavated material disposal areas required for the construction, operation, and maintenance of the ecosystem restoration measures.

(c) Provide, during construction, any additional funds as necessary to make its total contribution equal to 35 percent of the costs of the ecosystem restoration measures.

(2) Operate, maintain, replace, repair, and rehabilitate the completed ecosystem restoration measures, or functional portion of the measures, at no cost to the Government, in a manner compatible with the project authorized purposes and in accordance with applicable Federal and State laws and any specific directions prescribed by the Government, except that the Secretary may undertake the major rehabilitation of any measure damaged by a major flood event with cost sharing in the same percentages as for the original implementation of the measure.

(3) Give the Government a right to enter, at reasonable times and in a reasonable manner, upon land which the local sponsor owns or controls for access to the ecosystem restoration measures for the purpose of inspection, and, if necessary, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the ecosystem restoration measures.

(4) Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended, and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element.

(5) Hold and save the Government free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the ecosystem restoration measures and any related betterments, except for damages due to the fault or negligence of the Government or the Government's contractors.

(6) Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project to the extent and in such detail as will properly reflect the total ecosystem restoration measure costs and as required by the Project Cooperation Agreement.

(7) Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements or rights-of-way necessary for the construction, operation, and maintenance of the ecosystem restoration measures; except that the non-Federal sponsor shall not perform such investigations on lands, easements, or rights-of-way that the Government determines to be subject to the navigation servitude without prior specific written direction by the Government.

(8) Assume, as between the Federal Government and the non-Federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Government determines to be required for the construction, operation, or maintenance of the ecosystem restoration measures.

(9) Agree, as between the Federal Government and the non-Federal sponsor, that the non-Federal sponsor shall be considered the operator of the ecosystem restoration measures for the purposes of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, replace, and rehabilitate the ecosystem restoration measures and otherwise perform its obligations in a manner that will not cause liability to arise under CERCLA.

(10) Prevent future encroachments on project lands, easements, and rights-of-way that might interfere with the proper functioning of the project.

(11) Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public law 91-646, as amended (42 U.S.C. 4601-4655) and the Uniform Regulations contained in 49 CFR part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the ecosystem restoration measures, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

(12) Comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)).

(13) Provide the non-Federal share of that portion of the costs of archeological data recovery activities associated with historic preservation that are in excess of 1 percent of the total costs of the ecosystem restoration measures.

(14) Not use Federal funds from other Federal programs, including any non-Federal contribution required as a matching share, to meet any of the non-Federal sponsor's obligations for the ecosystem restoration measures unless the Federal agency providing the Federal portion of such funds verifies in writing that the expenditure of such funds is authorized.

16. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program or the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to the Congress, the States of Wisconsin, Iowa, Illinois, Missouri and Minnesota; interested Federal agencies; and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

Encls

CARL A. STROCK
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Chief of Engineers