



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS  
441 G STREET, NW  
WASHINGTON, DC 20314-1000

CECW-ZB

14-Dec-22

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: Winfield Locks and Dam Major Rehabilitation Evaluation Project, Putnam County, West Virginia, Final Decision Document

1. Purpose. This memorandum transmits for your information, my approval of the Major Rehabilitation Evaluation Report for the Winfield Locks and Dam, Kanawha River, West Virginia Major Rehabilitation Evaluation. The purpose of the proposed Federal action, as documented in the decision document, is to implement major rehabilitation at Winfield Locks and Dam, Kanawha River, West Virginia. The project was designed, constructed, and is owned, operated, and maintained by the U.S. Army Corps of Engineers. There is no non-Federal sponsor for this project. All responsibility of implementation resides with USACE. Major Rehabilitation will be accomplished/implemented using by cost shared funds with 65 percent from the General Fund of the Government and 35 percent from the Inland Waterways Trust Fund.

2. Study/Project Authorizations and History. The original project authorization as well as authorities to study and implement major rehabilitation projects are as follows:

a. The Winfield L&D was built under the authority of the Rivers and Harbor Acts of 1930 (Public Law (P.L.) 71-520) and 1935 (P.L. 74-409). The lock chambers were placed in operation in September 1935 and the original construction of the remaining project features, including the dam, was completed in August 1937. An additional lock chamber (main lock) and fish and wildlife mitigation were authorized by the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662).

b. Section 205 of the Water Resources Development Act (WRDA) of 1992, as amended:

“For purposes of laws relating to navigation on inland and intracoastal waterways of the United States, the term "rehabilitation" means:

(1) *Major project feature restoration* – (A) which consists of structural work on an inland navigation facility operated and maintained by the Corps of Engineers; (B) which will significantly extend the physical life of the feature; (C) which is economically justified by a benefit-cost analysis; (D) which will take at least 2 years to complete; and (E)(i) which is initially funded before October 1, 1994, and will require at least \$5,000,000 in capital outlays; or (ii) which is initially funded on or after such date and will require at least \$20,000,000 in capital outlays; and

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(2) *Structural modification of a major project component* (not exhibiting reliability problems) – (A) which will enhance the operational efficiency of such component or any other major component of the project by increasing benefits beyond the original project design; and (B) which will require at least \$1,000,000 in capital outlays.

Such term does not include routine or deferred maintenance. The dollar amounts referred to in paragraphs (1) and (2) above shall be adjusted annually according to the economic assumption published each year as guidance in the Annual Program and Budget Request for Civil Works Activities of the Corps of Engineers.”

3. Background: The Winfield Locks and Dam are located at Red House, West Virginia, on the Kanawha River at river mile 31.1. It is one of three similar projects constructed on the Kanawha River to provide a navigable depth of nine feet. Winfield Locks and Dam are an integral component of the Kanawha River navigation system that provide an efficient, reliable, and economical means for commodity transport. The Winfield Locks and Dam navigation pool extends approximately 36 miles upstream to Marmet Locks and Dam. The project was authorized by the River and Harbor Acts of 1930 and 1935, and construction of an additional lock by the Water Resources Development Act of 1986. The original locks were placed in operation in 1935 and construction of the dam and other features completed in 1937. The additional lock chamber was completed in 1997.

The Major Rehabilitation Evaluation was initiated due to operational failures that have occurred and structural concerns for all the dam roller gates at Winfield Locks and Dam. The project has numerous documented problems with the aging structural, mechanical, and electrical components. Potential component failures resulting in project closures and consequences would be severely disruptive to inland navigation. Closures with a loss of pool would have secondary consequences to municipal and industrial water supply sources, recreation, aquatic habitat, hydropower generation, coal power generation, and industrial plant operations.

The Major Rehabilitation Evaluation comprised a comprehensive assessment of project components posing the greatest risks to operational reliability and efficiency and provided a recommendation for a cost-effective solution. This was accomplished by identifying each component’s condition, degradation rate, failure consequences, with a repair strategy to determine if a “fix-as-fail” maintenance strategy, or major rehabilitation investment prior to failure, is a better economic choice for reliability or efficiency improvements.

4. Recommended Plan: The Federally recommended plan is Plan D, Immediate Rehabilitation of the following components: dam roller gates; dam roller gate machinery;

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dam electrical service distribution; tainter gate anchorages; main lock miter gate anchorages; and main lock emergency gate machinery. This major rehabilitation would improve the reliability of the project. Plan D replaces the components in the shortest timeframe, which provides the greatest reduction of risk as compared to the other alternatives evaluated.

5. Project Cost: Based on Fiscal Year 2023 price levels, the estimated project total first cost is \$159,700,000. Under the provisions in WRDA 2020 and the policy set forth in Appendix B of EP 1130-2-500, Major Rehabilitation will be constructed by cost shared funds that are 65 percent from the general fund of the Treasury and 35 percent funded by the Inland Waterways Trust Fund.

6. Economic Evaluation: At current Fiscal Year 2023 price levels and based on the Federal Fiscal Year 2023 discount rate of 2.5 percent and a 50-year period of analysis, the project has equivalent annual costs of \$5,500,000. Equivalent annual net benefits total \$12,600,000, and the benefit to cost ratio is 3.3.

Alternative plans were formulated, compared, evaluated, and ranked using the four accounts established by the Economic and Environmental Principals and Guidelines for Water and Land Resources Implantation Studies, March 10, 1983 (P&G). The P&G accounts are National Economic Development (NED), Environmental Quality (EQ) and Other Social Effects (OSE), and Regional Economic Development (RED). Based on the evaluation, comparison, and consideration of the four accounts, Plan D, Immediate Rehabilitation of the components ranked first across all found accounts.

Plan D represents the NED Plan, which maximizes average annual net benefits at \$12.6 million (2023 price level and discount rate of 2.5 percent). Plan D minimizes adverse impacts to the EQ account since it reduces the risk of pool loss that would adversely affect aquatic species, Federally listed mussel species, culturally significant sites, and water quality. Plan D would also be least likely to cause stream bank failures associated with rapid drawdown of the pool. Since Plan D minimizes the risk of pool loss, it also ranks highest for the OSE account, as negative impacts to water supply and life and health safety factors are minimized. Plan D would maximize contributions to RED during the construction period. About \$98.7 million of direct expenditures will be captured within the region and would support \$171 million in economic output (sales), 1,300 full-time equivalent jobs, \$92.3 million in labor income, and \$104 million in gross regional product.

7. Environmental Compliance: National Environmental Policy Act (NEPA) Compliance: The proposed rehabilitation action meets qualifications to be categorically excluded from further NEPA documentation under 33 CFR § 230.9(b) and USACE ER 200-2-2

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paragraph 9(a) which states “Activities at completed Corps projects which carry out the authorized project purpose. Examples include routine operations and maintenance action, etc.” Because the proposed action does not offer extraordinary circumstances, no further documentation is required.

The proposed rehabilitation action required coordination with the West Virginia State Historic Preservation Office (WVSHPO), under Section 106 of the National Historical Preservation Act (NHPA). Through consultation, the WVSHPO recommended the Huntington District enter into a Memorandum of Agreement (MOA) in lieu of a Programmatic Agreement to mitigate adverse effects. The MOA was executed on June 24, 2022, between the USACE and WVSHPO for compliance under Section 106 of the NHPA. Additionally, a Memorandum for Record (MFR) was prepared to document compliance with applicable Federal laws and regulations (i.e., the Endangered Species Act, the Fish and Wildlife Coordination Act, the Clean Water Act, etc.).

8. Conclusion and Recommendation: I report that the proposed rehabilitation plan is engineeringly feasible, environmentally acceptable, and economically justified. The proposed rehabilitation plan complies with all applicable Corps planning procedures and regulations. The views of interested parties, including Federal, state and interested parties, have been considered. Therefore, I approve the subject decision document and request that you support and assist in budgeting for the recommended plan.

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EDWARD E. BELK, JR. P.E.  
Acting Director of Civil Works

5 Encls:

1. Report Summary
2. Project Placemat
3. Peer and Legal Review Certifications
4. Policy Review - Documentation of Review Findings
5. Office of Management and Budget Briefing Slides