



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

CECW-LRD

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: Kentucky Lock Addition Post- Authorization Change Report

1. Purpose. Request your review and approval of the Kentucky Lock Addition Post-Authorization Change Report (PACR), enclosed, which documents the need to modify the project authorization to increase the authorized cost to \$1,152,769,000.

2. Post-Authorization Change. Section 101(a)(13) of the Water Resources Development Act (WRDA) of 1996 (Public Law 104-303) originally authorized the project at a total cost of \$393,200,000. The revised estimated total project first cost is \$1,152,769,000 (Fiscal Year 2020 (FY20) price levels). The revised cost is primarily the result of inefficient project funding that has extended the planned construction period from 9 years to 29 years (~\$241 million); geologic issues that have increased excavation and grouting quantities as well as structural measures to deal with unknown karstic limestone features (~\$40 million); new seismic information that has increased the size of the concrete monoliths (~\$30 million); a modification to convert the Continuing Contracts Clause in an existing construction contract (\$8.1 million); and general underestimation of the design and construction efforts of this project in the feasibility study (~\$75 million). There are no changes in project location, purpose, or scope. The current total project cost estimate inflated to the midpoint of scheduled future construction is \$1,210,565,000. The maximum cost for the authorized project, adjusted for allowable inflation, pursuant to Section 902 of WRDA 1986 is \$812,844,000 (FY20 price levels).

3. Background and Discussion. Kentucky Lock and Dam is located at Tennessee River Mile 22.4 in the western Kentucky counties of Livingston and Marshall. The Kentucky Lock Addition Project will provide a new lock 110 feet by 1200 feet. The lock is sited immediately landward of the existing Kentucky Lock with its upper miter sill about 300 feet downstream of the existing upper miter sill. The existing chamber at the Kentucky Lock will be used as an auxiliary lock. The Kentucky Lock Addition Project will improve transit times for tows through the lower Tennessee and Cumberland River Waterways.

a. The project was authorized in 1996 and construction began in 1998. The construction of the additional lock has only been partially completed due to sub-efficient funding. Approximately \$510 million has been expended on the project to date. With

efficient future funding levels, the project could be completed by 2024, but risk based schedule contingencies push completion to 2027.

b. A 2020 Economic Update reaffirmed the project's economic viability. The Economic Update recalculated the benefits and costs of the lock addition to determine whether continued federal investment is economically justified under current policies, criteria, and guidelines.

c. At October 2019 (FY20) price levels, the estimated total project first cost is \$1,152,769,000. The Nashville District, under guidance from the Cost Engineering Mandatory Center of Expertise (Cost MCX), completed a Cost & Schedule Risk Analysis for the project. The Cost MCX certified the revised total project cost estimate as of 27 March 2020 by signed memorandum.

d. There have been no changes to the project scope, purposes, or design since the Chief's Report, dated 1 June 1992. The project continues to be economically justified. At the indicated price levels, a 2.75 percent federal FY20 discount rate, and a 50-year period of economic analysis, the estimated total average annual cost for construction is \$41,723,000 and the total average annual benefits are \$99,139,000. Annual average net benefits are estimated to be \$57,416,000 and the overall benefit to cost ratio is 2.4 to 1. The project was authorized as a federal project with 50% of the funding coming from the general fund and 50% of the funding coming from the Inland Waterways Trust Fund.

4. Conclusion. The Nashville District prepared the enclosed PACR, in accordance with ER 1105-2-100, Appendix G, to document the increase in the project cost and recommend an increase in authorized project costs. Headquarters policy and legal compliance review concluded that there are no unresolved policy or legal issues and that the project is technically sound, environmentally acceptable, and economically justified.

5. Recommendation. I recommend that the enclosed PACR be transmitted to Congress as a basis for increasing the authorized project cost of the Kentucky Lock Addition, Lower Cumberland and Tennessee Rivers Project to \$1,152,769,000 (FY20 price levels).

Encl

ALVIN B. LEE
Director of Civil Works