

INLAND WATERWAY TRUST FUND

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STATE	PROJECT	PAGE
(CONSTRUCTION ACTIVITIES)		
PENNSYLVANIA	LOCKS AND DAMS 2, 3 AND 4, MONONGAHELA RIVER, PA 1/	1

1/ This activity receives funding from both the Construction account and the Inland Waterways Trust Fund.

APPROPRIATION TITLE: Inland Waterways Trust Fund – Locks and Dams (Navigation)

PROJECT: Locks and Dams 2, 3, and 4, Monongahela River, Pennsylvania (Completion)

LOCATION: These three Navigation facilities are located on the lower portion of the Monongahela River near the city of Pittsburgh, Pennsylvania. They are part of the Allegheny – Monongahela system and are located in Allegheny, Washington, and Westmoreland Counties. Measured from the Point in Pittsburgh, Locks and Dam 2 (Braddock) is at river mile 11.2, Locks and Dam 3 (Elizabeth) is at river mile 23.8, and Locks and Dam 4 (Charleroi) is at river mile 41.5. Six other navigation facilities situated upstream of Locks and Dam 4 provide a navigable waterway extending to Fairmont, West Virginia. At the Point in Pittsburgh, the Monongahela and Allegheny Rivers join to form the Ohio River.

DESCRIPTION: The authorized project per the Chief's report dated 1 June 1992 consists of a new gated dam and a rehabilitated auxiliary chamber floodway bulkhead structure at Braddock; new twin 84-by-720-foot locks and below-dam scour protection at Charleroi; raising pool 2 by a nominal five feet and lowering pool 3 by a nominal 3.2 feet; removal of Locks and Dam (L/D) 3; channel dredging; relocations; and bank stabilization. On 28 July 2014, the Headquarters, USACE, Change Control Board recommended deferment of construction of the Charleroi Locks Land Chamber until the mid 2050s. Construction began in Fiscal Year (FY) 1995 with the upgrade of the Locks 2 auxiliary chamber floodway bulkhead and relocations. Replacement of the dam at Braddock began in 1999 and is complete. Only one operational lock remains at L/D 4 (Charleroi). Efforts are now focused on the other new lock at Charleroi and remaining pool 2 relocations. After it completes that work, the Corps would remove L/D 3. All work is programmed. Existing Locks and Dams 2, 3, and 4 on the Monongahela River system have components that have been in service for nearly 100 years. The existing Braddock facility consists of a main lock with chamber dimensions of 110-by-720 feet, an auxiliary lock with chamber dimensions of 56-by-360 feet, and a 748-foot fixed-crest dam. The existing Elizabeth facility consists of locks with chamber dimensions of 56-by-720 feet and 56-by-360 feet and a 670-foot fixed-crest dam. The existing Charleroi facility consists of locks with chamber dimensions of 56-by-720 feet and 56-by-360 feet and a gated dam consisting of five 84-foot gated sections and a 43-foot fixed-weir section.

The cost of the project is evenly shared between construction appropriation and the Inland Waterways Trust Fund. All work is programmed.

AUTHORIZATION: Section 101, Water Resources Development Act of 1992 (P.L. 102 – 580)

REMAINING BENEFIT – REMAINING COST RATIO: The remaining benefit-remaining cost ratio for the entire project is not applicable because this project is funded in the FY 2020 Budget on the basis of being a completion.

TOTAL BENEFIT – COST RATIO: The total benefit-cost ratio for the entire project is not applicable because this project is funded in the FY 2020 Budget on the basis of being a completion.

INITIAL BENEFIT – COST RATIO: The initial benefit-cost ratio for the entire project is not applicable because this project is funded in the FY 2020 Budget on the basis of being a completion.

BASIS OF BENEFIT – COST RATIO: The basis of the benefit-cost ratio for the entire project is not applicable because this project is funded in the FY 2020 Budget on the basis of being a completion.

Division: Great Lakes and Ohio River

District: Pittsburgh

Locks and Dams 2, 3, & 4, Monongahela River, PA

SUMMARIZED FINANCIAL DATA

SUMMARIZED FINANCIAL DATA		STATUS (12 Feb 2019)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated IWTF Cost	\$1,332,386,000	Braddock Dam	100	Jul 04
Estimated General Appropriations Cost	0	Charleroi River Chamber Lock	47	Oct 23
		Dredging	18	Oct 20
Total Estimated IWTF Cost	\$1,332,386,000	Stilling Basin	0	Nov 22
		Relocations	55	Jun 23
		Remove L/D 3	0	Oct 23
		Entire Project	33.5	Oct 23

	Inland Waterways Trust Fund		ACCUM PCT OF EST FED COST
Allocations to 30 September 2016	\$338,640,000		
Allocation for FY 2017	41,005,000		
Allocation for FY 2018	48,150,000		
Allocation for FY 2019	44,500,000		
Allocations through FY 2019	472,295,000	^{1/2/3/}	34.7
Estimated Unobligated Carry-In Funds	24,420,000	^{4/}	
President's Budget for FY 2020	55,500,000	^{5/}	37.3
Programmed Balance to Complete after FY 2020	0		
Unprogrammed Balance to Complete after FY 2020	818,897,500	^{6/ 7/}	

^{1/} \$500,500 reprogrammed from the project in FY 2014. \$500,500 reprogrammed from the project in FY 2015. \$425,000 reprogrammed from project in FY 2018.

^{2/} \$0 rescinded from the project.

^{3/} \$13,668,000 transferred to the Flood Control and Coastal Emergencies account in FY 2011.

^{4/} Estimated unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 into FY 2019 is \$30,670,000, of which \$6,250,000 will be used in FY 2019. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2020 from prior appropriations for use on this effort is \$24,420,000. This amount will be used to perform work on the project as follows: Labor and ongoing contract contingency requirement.

^{5/} Funding from the Inland Waterways Trust Fund. An additional \$55,500,000 will be provided from the general fund for a total of \$111,000,000 in FY 2020.

^{6/} In 2014, the Corps' Change Control Board (CCB) agreed to defer the construction of the landside lock chamber at Charleroi because over 90% of the project benefits could be achieved without the landside lock. There was no date associated with the term of deferment but the CCB did acknowledge that a PACR would be required if the landside lock chamber was pursued.

^{7/} The total project unprogrammed balance to complete is \$1,637,794,000 of which an additional \$818,897,500 will provided by the general fund.

Division: Great Lakes and Ohio River

District: Pittsburgh

Locks and Dams 2, 3, & 4, Monongahela River, PA

JUSTIFICATION: The Lower Monongahela River navigation system is an inland waterway used to transport cargo by water to and from areas in southwestern Pennsylvania and northeastern West Virginia. The Monongahela flows into the Ohio River at Pittsburgh. Therefore, this inland waterway helps to connect the commerce of the region to and from the Midwest and the Gulf coast. Between 2010 and 2016, an average of 12.0 million tons of cargo per year was shipped on the Lower Monongahela River. The primary commodity shipped was coal. The project will reduce the risk of closure of this inland waterway to navigation. Loss of this waterway would raise the cost of transportation for the companies that use it for shipments of products such as steam coal from the Bailey Enlow Coal Mine, the largest underground coal mine in the Nation; and shipments to the Clairton Coke Works, the largest steel coking plant in the Nation. The average annual benefits at 7 percent are as follows:

Annual Benefits	Amount
Commercial Navigation	\$ 39,729,000
Advanced replacement of shore side facilities	2,000,000
Eliminated cost of help boats	100,000
Flood damage reduction	500,000
Normal O&M reduction	1,000,000
Maintenance Savings	176,703,000
Total	\$ 220,032,000

The major risks associated with these facilities result from their deteriorated structural condition, and the difficulty of keeping them operational. The risk to navigation is becoming increasingly severe, as these facilities continue to deteriorate. There is a significant probability of structural failure and loss of navigation on the Monongahela River. The extreme structural deterioration of Locks and Dam 3 and Locks 4 is of paramount concern. The project involves replacement of Lock 4 and removal of Dam 3 because major repairs and rehabilitation will not prevent structural failure. The highest risks are at Elizabeth L/D 3 and at Charleroi L/D 4.

Locks 3 (Elizabeth) are highly unreliable. Dam 3 was recently reclassified from a DSAC 1 to a DSAC 4 due to the repairs made following the 2006 failure. These repairs appear to be functioning adequately but show signs of distress. Monitoring and observation of the dam have not indicated a need to perform more rigorous monitoring, investigation, or apply additional risk reduction measures at this time. Failure of Dam 3 would result in loss of navigation in pool 3, adverse impacts to multiple water intakes, and a potential failure of the only operational lock at the upstream Lock 4, Charleroi.

Lock 4 (Charleroi) is highly unreliable, over 80 years old, and in poor condition. The Charleroi Dam was classified as a DSAC 2 dam in 2009. The District is focusing resources on completing the new Charleroi River Chamber and the extension of the Dam's stilling basin as quickly as possible. Loss of downstream pool due to failure of Dam 3 would seriously affect the stability of the existing Lock 4 and potentially compromise the integrity of the dam. Lock 4 has a 56 foot wide chamber which slows down traffic on the lower Monongahela River. The remaining work on the project would address these concerns by completing a new 84 foot wide lock chamber at Lock 4 and removing Locks and Dam 3.

FISCAL YEAR 2019: The total appropriated amount, plus carry-in funds, will be used as follows:

Engineering During Construction and Supervision and Administration for the M22-M27, River Chamber Completion, Dredging, and Stilling Basin Contracts and Project Management	2,750,000
Land Acquisition	500,000
Stilling Basin	13,250,000
River Chamber Contract: Option 4	29,250,000
Contingency (Estimated)	5,000,000
Total	\$50,750,000

FISCAL YEAR 2020: Fiscal Year 2020 budget amount, plus carry-in funds, will be used as follows:

Engineering During Construction and Supervision and Administration for the M22-M27, River Chamber Completion, Dredging, and Stilling Basin Contracts and Project Management	14,500,000
Dredging	6,050,000
Pool 2 Relocations	3,150,000
River Chamber Contract: Option 5	15,330,793
Miscellaneous Minor Contracts	2,534,000
Pool 2 Clearing	808,500
Remove L/D 3	4,803,500
Pool 3 Relocations	3,109,750
Contingency (Estimated)	29,633,457
Total	\$79,920,000

NON-FEDERAL COST: In accordance with the cost-sharing requirements of Section 102, Water Resource Development Act of 1986, 50 percent of the total cost of construction will be derived from the Inland Waterways Trust Fund (IWTF). Funds received through the American Recovery and Reinvestment Act (ARRA) were not required to have a matching cost share from the IWTF.

Construction of this project requires modification to privately owned shore side facilities and submarine utility crossings, which were all constructed under Department of the Army permits pursuant to Section 10 of the Rivers and Harbors Act (RHA) of March 3, 1899. Municipal and/or Government facilities that meet the requirements of Section III of RHA 1958 have been determined, by the Chief of Engineers, to be adjusted at project cost. The estimated cost to non-municipal/non-government owners for adapting these facilities to new project conditions was \$111,000,000 in October 1992 dollars.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The original fully funded project cost estimate was \$750,000,000 (October 1992). The current total project cost estimate is \$2,761,647,000 (May 2018). The estimate reflects lessons learned from past and ongoing construction activities associated with this project, as well as cost and schedule risks. The updated cost estimate includes sunk costs as well as the estimated cost to construct remaining project features. To achieve over 90% of project benefits, the project cost is estimated at \$1.23 billion (October 2017).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND CLEAN WATER ACT COMPLIANCE: Final Environmental Impact Statement was filed with the Environmental Protection Agency on January 28, 1992. Director of Civil Works signed the Record of Decision on December 17, 1992. A Supplemental Environmental Impact Statement on Project Disposal and various other Environmental Assessments, all resulting in Findings of No Significant Impact has been completed pursuant to the National Environmental Policy Act. Changes since the last supplemental have been captured through the issuance of Public Notices under the Clean Water Act.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design (PED) were first appropriated in FY 1992. Funds to initiate construction were first appropriated in FY 1995. Through FY 2018, the project has been allocated \$923.9 million. A disposal facility has been secured for the overall project. With allocations received through FY 2018, over 90 percent of the project benefits can be realized with an additional investment of \$111 million totaling \$1,034.9 million (\$923.9 million plus \$111 million) and still remain \$637.1 million (\$1,761 million minus \$1,123.9 million) below the 902 limit. The Summarized Financial Data amounts and descriptions on this Justification Sheet only reflect activities funded from the Inland Waterways Trust Fund. Activities funded from the general fund (construction appropriation) are listed on a separate Justification Sheet titled, "NAV LRD Locks and Dams 2, 3 and 4, Monongahela River, PA (Pennsylvania) (FY2020)."

