

INVESTIGATIONS

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INVESTIGATIONS

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1/ These studies are funded in Disposition of Completed Projects. The justification materials for Disposition of Completed Projects are located in the Remaining Items section, pages 8-10.

2/ These studies are funded in the Tribal Partnership Program. The justification materials for the Tribal Partnership Program are located in the Remaining Items section, pages 38-43.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

PRECONSTRUCTION ENGINEERING AND DESIGN – Completion

Total Estimated Federal Cost	Allocation Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in 2020	Additional to Complete After FY 2020
\$	\$	\$	\$	\$	\$	\$
2,575,000	0	0	0	1,875,000	700,000 1/	0

PROJECT NAME: Mobile Harbor, Alabama (AL) – Navigation (Completion)

Mobile Harbor is located in southwest Alabama and extends from the Gulf of Mexico through Mobile Bay to the mouth of Mobile River at the City of Mobile, Alabama, a distance of approximately 39 miles.

The Port of Mobile is the twelfth largest port in terms of tonnage in the United States. Its largest commodities are coal, crude, oil and petroleum. The non-Federal sponsor is the Alabama Ports Authority. The Port has seen a large increase in steel traffic because of the recently completed \$4.6 billion steel facility constructed just north of Mobile and has seen record growth in container ship traffic due to the Airbus Assembly Plant that began production in 2015 and a recently completed Wal-Mart Distribution Facility. The Water Resources Development Act (WRDA) of 1986 authorized the Corps to deepen and widen the Mobile Harbor, Alabama project as follows: deepening and widening of the entrance channel to 57 feet by 700 feet, and deepening and widening of the Mobile Bay channel from the mouth to south of Mobile River to 55 feet by 550 feet, for a total of 27 miles; deepening and widening an additional 4.2 miles of the Mobile Bay channel to 55 feet by 650 feet; and a 55-foot deep anchorage and turning basin in the vicinity of Little Sand Island. The Port has constructed portions of the authorized project including deepening of the entrance channel to 47 feet by 600 feet, extending the upper channel by 4,600 feet to a depth of 45 feet, and constructing the turning basin in the vicinity of Little Sand Island to a depth of 45 feet.

A General Re-evaluation Report (GRR) is currently underway. The GRR was initiated in FY 2014 under the August 14, 2012 design agreement as amended on May 2, 2014 and November 9, 2015. The Port requested the GRR to evaluate options leading to a different plan, which would involve construction of the entire project up to its fully authorized dimensions, including deepening, with the expectation that improvements made to the channel system could further enhance commercial tonnage throughput and reduce delay times. The GRR is scheduled to complete in July 2019. The navigation improvements currently under consideration include: deepen the existing Bar, Bay, and River Channels (south of Station 226+16) by 5 feet to project depths of 52, 50, and 50 feet, respectively, with an additional 2 feet for advanced maintenance plus 2 feet of allowable overdepth for dredging (total depths of 56, 54, and 54 feet, respectively); incorporate minor bend easings at the double bends (at Stations 1857+00 and 1775+26) in the Bar Channel approach to the Bay Channel; widen the Bay Channel from 400 feet to 500 feet from the mouth of Mobile Bay northward for 3 nautical miles to provide a two-way traffic area for passing; and expand the Choctaw Pass Turning Basin 250 feet to the south to better accommodate safe turning of the design vessel and other large vessels as well as deepen to 50 feet. The recommended

project is estimated to cost \$396,015,000 with an estimated Federal cost of \$250,068,000 and an estimated non-Federal cost of \$145,947,000. The benefit-cost ratio for this construction is still under review.

Fiscal Year 2019 funds, plus any carry-in funds remaining after completion of the GRR, will be used to initiate preconstruction engineering and design (PED), including development of surveys, geotechnical and other field data. Fiscal Year 2020 funds will be used to complete PED. The preconstruction engineering and design for this project is shared 75 percent Federal and 25 percent Non-Federal.

Total Estimated Preconstruction Engineering and Design Costs	\$3,433,000
PED Phase (Federal)	\$2,575,000
PED Phase (Non-Federal)	\$858,000

The project is authorized for construction by Section 201 of the Water Resources Development Act of 1986 (Public Law 99-662, Ninety-ninth Congress, Second Session) approved November 17, 1986 and subsequently amended by Section 302 of the WRDA of 1996.

The projected completion date for PED is Fiscal Year 2020.

Study Authority: Originally authorized by resolution of the Committee on Public Works, dated 24 June 1965. The Chief's Report was approved on November 18, 1981.

1/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$665,000, which are being used to complete the GRR. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2020 from prior appropriations for use on this effort is \$375,000.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

PRECONSTRUCTION ENGINEERING AND DESIGN – Continuing

Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
\$	\$	\$	\$	\$	\$	\$
12,342,000	0	0	0	3,424,000 1/	1,500,000 1/	7,418,000

PROJECT NAME: Three Rivers, AR – Navigation

The Three Rivers, Arkansas project area is on the McClellan-Kerr Arkansas River Navigation System (MKARNS) within the confluence of the Mississippi, White, and Arkansas Rivers in Desha and Arkansas Counties downstream of Lock No. 1 on the MKARNS and upstream of the Montgomery Point Lock & Dam, in southeast Arkansas. Prominent features include MKARNS Post Canal and the 160,000-acre Dale Bumpers U.S. Fish and Wildlife Service National Wildlife Refuge. The Arkansas Post Canal connects the Arkansas to the White Rivers for navigation onto the Mississippi River to complete the 445-mile navigation system.

Modifications to the Mississippi River have steepened the stream slope and accelerated water velocity causing the Mississippi to migrate into the White River, which then overflows into the Arkansas River. Occasionally, flooding results in flows from the Arkansas to the White. Between 1963 and 2003, the Corps blocked a historic natural relief channel between the two rivers and constructed a system of containment structures to address uncontrolled flows between the rivers. The containment structures essentially create holding areas for overflow that is then released slowly back into the river as high waters recede. Subsequent erosion has continued to threaten a breach between the two rivers, which would impede all navigation traffic passing through that point. The sequencing between flood and drought, as occurred in Arkansas in 2006-2014, caused river banks to deteriorate more rapidly and increased the risk of a cutoff. Implementation of the Three Rivers project would reduce the risk of a breach between the two rivers.

The Chief’s Report for this project is dated September 6, 2018. The recommended project is estimated to cost \$180,295,000 (October 2018 price level). The proposed project includes 4 construction components: a new containment structure at an elevation of 157 feet; a relief channel through the Historic Cutoff; removal of the existing Melinda structure; and opening the Owens Lake structure between Owens Lake and the White River. The project also includes conversion of approximately 20 acres of agricultural or fallow fiels to bottomland hardwood wetland forest.

Preconstruction engineering and design will be conducted at 100 percent Federal expense. Construction would be funded at 100 percent Federal expense with 50 percent of the project costs derived from the Inland Waterways Trust Fund.

Total Estimated Preconstruction Engineering and Design Costs	\$12,342,000
Federal Share	12,342,000
Non-Federal Share	0

The project was authorized for construction in Section 1401 of the America’s Water Infrastructure Act of 2018 (Public Law 114-322).

Division: Southwestern

District: Little Rock

Three Rivers, AR

Fiscal Year 2019 funds, plus carry-in funds, are being used to initiate preconstruction engineering and design, including to assemble the project delivery team, prepare the project management plan, determine the project schedule, initiate geotechnical work, complete surveys, and update the real estate acquisition plan. Fiscal Year 2020 funds, plus any carry-in funds, would be used to complete geotechnical work, continue development of plans and specifications, and initiate real estate acquisition.

Study authority: Section 216, P.L. 91-611, River and Harbor and Flood Control Act of 1970.

1/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$424,000 from the feasibility phase; these funds will be used toward the preconstruction engineering and design phase. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2020 from prior appropriations for use on this effort is \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	1,700,000	0	0	500,000	200,000	800,000 1/	200,000

PROJECT NAME: San Francisco Waterfront Storm Damage Reduction, CA – Flood and Storm Damage Reduction

The study area includes a seven-mile length of waterfront along the San Francisco Bay that is at significant risk from coastal storms.

The purpose of the study is to investigate the flood risk from large coastal storms, under current and expected future sea levels scenarios. The study also will examine the options to reduce the risk of a liquefaction failure of the San Francisco waterfront seawall in a major earthquake.

Inspections have revealed portions of the seawall are in need of repair. The State of California constructed San Francisco’s seawall in segments from 1878 to 1929, and transferred ownership to the City of San Francisco in 1968. The seawall was not designed to meet the increased impacts of higher intensity wave attack or increased tidal flood risk associated with sea level rise and provides insufficient coastal storm protection to the City. A high tide event in November 2015 resulted in bay waters overtopping the Embarcadero walkway causing damage to steel plate joints and producing a life safety hazard to pedestrians. BART and MUNI (regional and local subway commuter rail, respectively) stations, buildings in the financial district, evacuation routes, and major utilities would be subject to flooding in just over a decade under some sea level rise scenarios, with a 1% annual chance of exceedance event. The Department of the Army and the Port of San Francisco, as the non-Federal sponsor, signed a Feasibility Cost Sharing Agreement on September 5, 2018.

Fiscal Year 2019 funds are being and will be used to continue the feasibility phase of the study, including holding the Alternatives Milestone meeting in December 2018 and identifying the Tentatively Selected Plan, which is scheduled for June 2019. Fiscal Year 2020 funds, plus any carry-in funds, will be used to continue the feasibility phase of the study, including achieving the Agency Decision milestone and to develop feasibility-level design and cost. The estimated cost of the feasibility phase is \$3,200,000, which is to be shared 50 percent Federal and 50 percent non-Federal, except for the Independent External Peer Review (IEPR), which is anticipated to cost \$200,000 and is funded at 100 percent Federal expense. A summary of the study cost-sharing is as follows:

Total Estimated Study Cost	\$3,200,000
Feasibility Phase (Federal)	\$1,700,000
Feasibility Phase (Non-Federal)	\$1,500,000

The study is authorized by the RHA 1950 § 110 and WRDA 1976 § 142 as amended by WRDA 1986 § 705.

1/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in to from FY2018 was \$492,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2020 from prior appropriations for use on this effort is \$0.

Division: South Pacific

District: San Francisco

San Francisco Waterfront Storm Damage Reduction, CA

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
\$	\$	\$	\$	\$	\$	\$
1,700,000	0	0	0	500,000	600,000 1/	600,000

PROJECT NAME: South San Francisco Bay Shoreline, CA (Phase II) – Flood and Storm Damage Reduction (Continuing)

The study area includes the South San Francisco Bay Shoreline extending from the city of Palo Alto to the city of San Leandro and includes 15,100 acres of salt ponds. The overall study is examining options to reduce the flood risk in this area, while restoring wetland habitat along the bay shoreline. The Corps completed the South San Francisco Bay Shoreline, CA (Phase I) study in December 2015. The recommended project was authorized in the Water Infrastructure Improvements for the Nation Act of 2016 for a total cost of \$177.2 million and was fully funded in Fiscal Year 2018 using funds provided by the Bipartisan Budget Act of 2018.

The Phase II study covers the remaining pond complexes in the Palo Alto, Sunnyvale, Mountain View, and Santa Clara portions of the study area that were not covered in Phase I. Like the study for Phase I, the Phase II study will evaluate options to reduce the flood risk through both structural and non-structural measures. The Letter of Intent supporting this second phase of this study was signed on March 28, 2018 by the California Coastal Conservancy and the Santa Clara Valley Water District, the non-Federal sponsors. The Department of the Army and the non-Federal sponsors are scheduled to sign a Feasibility Cost Sharing agreement in August 2019.

Fiscal Year 2019 funds are being used to initiate the feasibility study, including conducting the Alternatives Milestone. Fiscal Year 2020 funds, plus any carry-in funds, will be used to continue the feasibility phase of the study, including work toward the Tentatively Selected Plan (TSP) milestone. The estimated cost of the feasibility phase is \$3,200,000 which is to be shared 50 percent Federal and 50 percent non-Federal, except for the Independent External Peer Review, which is anticipated to cost \$200,000 and is funded at 100 percent Federal expense. A summary of the study cost-sharing is as follows:

Total Estimated Study Cost	\$3,200,000
Feasibility Phase (Federal)	\$1,700,000
Feasibility Phase (Non-Federal)	\$1,500,000

The study was authorized in Section 4027 of the Water Resources Development Act of 2007, Pub. L. No. 110-114, § 4027 and Section 142 of the WRDA of 1976, Pub. L. No. 94-587, §142, amended by Section 705 of the Water Resources Development Act of 1986, Pub. L. No. 99-662, § 705; and a Resolution adopted by the House Committee on Transportation and Infrastructure on July 24, 2002 for the South San Francisco Shoreline Study, (Docket 2697).

1/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2020 from prior appropriations for use on this effort is \$0.

Division: South Pacific

District: San Francisco South San Francisco Bay Shoreline, CA (Phase II)

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

PRECONSTRUCTION ENGINEERING AND DESIGN – Continuing

Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
\$ 3,900,000	\$ 0	\$ 0	\$ 0	\$ 400,000	\$ 400,000 1/	\$ 3,100,000

PROJECT NAME: West Sacramento, CA - Flood and Storm Damage Reduction

The West Sacramento project is located in West Sacramento, within Yolo County in north-central California. In June 1992, the Corps completed a feasibility study that recommended improvements to the West Sacramento levee system that were subsequently authorized by Congress in the Water Resources Development Act (WRDA) of 1992. In the wake of the 1997 and 2006 floods, the Corps identified flow of water through the levee foundation soils, or underseepage, as an area of concern. Therefore, the Corps redesigned the authorized project to address underseepage and completed the authorized levee improvements in 2011.

The Chief of Engineers signed a Chief’s Report for this project on April 26, 2016 that recommended levee improvements to correct seepage/stability and erosion deficiencies in both the North and South basins of the City of West Sacramento in areas not covered by the former project. The recommended project would utilize measures such as cut off walls, bank protection and includes a set-back levee along the southern portion of the Sacramento River as well as mitigation lands for riparian and upland habitat loss. The recommended project includes strengthening approximately 41.4 miles of existing levees along American River and Sacramento River and the Deep Water Ship Channel levees, and the construction of 3.8 miles of the Southport setback levee along the Sacramento River. The recommended project is estimated to cost \$1.13 billion dollars (October 2017 price level) with an estimated Federal cost of \$734.5 million and an estimated non-Federal cost of \$395.5 million. The benefit-cost ratio is 2.2 with a discount rate of 7 percent based on the latest economic analysis dated November 2018.

The local sponsors, West Sacramento Area Flood Control Agency and the Central Valley Flood Protection Board, are scheduled to sign a design agreement in May 2019. Fiscal Year 2019 funds are being used to execute that design agreement and initiate the preconstruction engineering and design phase (PED). Fiscal Year 2020 funds would be used to continue PED. The PED phase for this project is shared 65 percent Federal and 35 percent non-Federal. A summary of the cost sharing is as follows:

Total Estimated Preconstruction Engineering and Design Costs	\$6,000,000
PED Phase (Federal)	\$3,900,000
PED Phase (Non-Federal)	\$2,100,000

The project is authorized for construction by the Water Infrastructure Improvements for the Nation Act of 2016, Pub. L. No. 114-322, § 1401(2) (2016).

Study authority: WRDA 1992 (P.L. 102-580; EWDA 1999 (P.L. 105-245); EWDA 2010 (P.L. 111-85) Sec. 118.

Division: South Pacific

District: Sacramento

West Sacramento, CA

1/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY2018 to FY 2019 was \$0. 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 \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Total Estimated Federal Cost	Allocation Prior to FY 2017	Allocation in FY2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete after FY 2020
\$ TBD	\$ 382,000	\$ 300,000	\$ 300,000	\$ 1/ 50,000	\$ 50,000	\$ TBD

PROJECT NAME: Interbasin Control of Great Lakes – Mississippi River Aquatic Nuisance Species, IL, IN, OH, & WI – Aquatic Ecosystem Restoration

The Mississippi River Basin includes approximately 1.3 million square miles of drainage area and 873 tributaries within 31 States and 2 Canadian provinces. The Chicago Area Waterway System (CAWS), which includes the Chicago Sanitary and Ship Canal, is considered to be the primary aquatic pathway that aquatic nuisance species may utilize to spread between the Mississippi River and Great Lakes basins because it provides a highly-utilized, multipurpose, continuous connection. The potential for significant economic and ecological impact to the Mississippi River and connected waterways from the uncontrolled transfer of aquatic nuisance species through the CAWS is high.

Fiscal Year 2019 and Fiscal Year 2020 funds are for vertical team coordination, stakeholder coordination and engagement, budget development and defense, public outreach, Asian Carp Regional Coordinating Committee and Chicago Area Waterway System Advisory Committee related activities, and response to Congressional and media inquiries. These efforts are funded at 100 percent Federal expense.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$39,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2020 from prior appropriations for use on this effort is \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	2,500,000	0	0	0	1,500,000	1,000,000 1/	0

PROJECT NAME: Mississinewa Lake, IN - Flood and Storm Damage Reduction

Mississinewa Lake is located near Peru, Indiana on the Mississinewa River. Mississinewa Lake is a multipurpose project with flood control, water supply, recreation and conservation as the major benefits. The reservoir has a maximum storage capacity of 368,000 acre-feet. The project was authorized in 1958 and construction was completed in 1962. The Mississinewa Lake dam currently is rated as a Dam Safety Action Classification (DSAC) 2 dam.

The Corps uses dam safety modification studies (DSMS) to investigate dam safety deficiencies that could potentially result in loss of life, to formulate one or more alternatives that could reduce the risks to tolerable levels, and to recommend an appropriate solution. The decision to initiate such a study for the Mississinewa Lake dam reflects a finding based on the available information that actionable failure modes are present that may pose an unacceptable risk to the public. The Corps will conduct this study in accordance with Engineering Regulation 1110-2-1156, Safety of Dams – Policy and Procedures, dated March 31, 2014.

The Corps would use this funding to study potential safety concerns at the Mississinewa Lake dam. In FY 2019, the Congress funded this study in the Construction account under the Dam Safety and Seepage/Stability Correction Program. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for DSMS generally, and to more accurately present the portion of overall Corps funding that is for studies. As with other feasibility studies, this study may lead to a construction activity. If it does, the Corps would then fund that work in the Construction account. This DSMS is funded at 100 percent Federal expense.

This study is authorized under the project-specific authorizations for Mississinewa Lake, which implicitly include the authority to study and implement measures to address potential safety-related concerns. This study is also authorized under Section 2 of National Dam Inspection Act of 1972, P.L. 92-367 (directing Secretary of the Army to carry out national program of inspection of dams); Section 215 of the Water Resources Development Act of 1996, P.L. 104-303 (directing implementation of Federal programs to enhance dam safety); and Section 1 of Dam Safety Act of 2006, P.L. 109-460 (directing Secretary of the Army to maintain national inventory of dams including requiring inclusion of condition assessments performed by agency).

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. 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 \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	547,000	0	0	0	297,000 2/	250,000 1/	0

PROJECT NAME: Buffalo Harbor, NY – Navigation (Completion)

Buffalo Harbor is a moderate-use, deep-draft commercial harbor, located on Lake Erie in the City of Buffalo, Erie County, NY, with an outer harbor approximately 4.5 miles long and 1,600 feet wide, with 22,718 feet of navigation infrastructure, and 5.5 miles of Federal channel on the Buffalo River. Primary commercial commodities that move through the harbor include limestone, salt, grain, cement, sand and gravel. Dredged material management for the Buffalo Harbor project includes an existing confined disposal facility that is located on top of the previous open-lake placement site used in the 1940s.

In accordance with Engineering Memorandum 1110-2-5025, Dredging and Dredged Material Management, dated July 31, 2015, the U.S. Army Corps of Engineers uses dredged material management plans to guide the management of dredged material placement associated with the Corps' Federal navigation projects. Dredged material management planning for all Federal harbor projects is conducted by the Corps to ensure that maintenance dredging activities are performed in an environmentally acceptable manner, use sound engineering techniques, and are economically warranted, and that sufficient placement areas are available for at least the next 20 years. These plans address dredging needs, placement capabilities, capacities of placement areas, environmental compliance requirements, the potential for beneficial usage of dredged material, and indicators of continued economic justification. Dredged material management plans must be updated periodically to identify any potentially changed conditions.

The Corps has not yet developed a dredged material management plan for this project. The purpose of this study is to document the availability of dredged material placement capacity sufficient to accommodate a minimum of 20 years of maintenance dredging at the Buffalo Harbor. The study will include coordination with the appropriate Federal, State and local agencies, as well as the Province of Ontario and Environment Canada, to investigate the suitability of open-lake placement for sediment.

Fiscal Year 2020 funds will be used to complete the dredged material management plan, including selection of a plan for placement of dredged material and associated NEPA documentation. In FY 2019, the Congress funded this study in the Operation and Maintenance account. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for Dredged Material Management Plans generally, and to more accurately present the portion of overall Corps funding that is for studies. This study may lead to a construction activity involving the dredged material disposal sites associated with this project. If it does, the Corps would then fund that work in the Construction account. This study is funded at 100 percent Federal expense.

The study is authorized by Section 216 Flood Control Act 1970, as amended.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. 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 \$0.

2/ This funding was provided in the Operation and Maintenance account.

Division: Great Lakes and Ohio River

District: Buffalo

Buffalo Harbor, NY

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	838,700	0	45,700 2/	346,500 2/	346,500 2/	100,000 1/	0

PROJECT NAME: Cleveland Harbor, OH – Navigation (Completion)

Cleveland Harbor is a moderate-use, deep-draft commercial harbor located on Lake Erie in the City of Cleveland, Ohio. The project has a 1,300 acre outer harbor containing 32,010 feet of navigation infrastructure. It is the 45th leading U.S. Port and 5th among Great Lakes Ports based on 2016 tonnage data, with primary commercial shipments that include iron ore, limestone, general cargo, salt, cement, liquid bulk, sand and gravel in support of local and regional industries. Dredged material management for the Cleveland Harbor project is based on the placement of dredged material into existing confined disposal facilities located to the east of the harbor entrance. To date, open lake placement of dredged sediment has not received certification by the state.

In accordance with Engineering Memorandum 1110-2-5025, Dredging and Dredged Material Management, dated July 31, 2015, the U.S. Army Corps of Engineers uses dredged material management plans to guide the management of dredged material placement associated with the Corps' Federal navigation projects. Dredged material management planning for all Federal harbor projects is conducted by the Corps to ensure that maintenance dredging activities are performed in an environmentally acceptable manner, use sound engineering techniques, and are economically warranted, and that sufficient placement areas are available for at least the next 20 years. These plans address dredging needs, placement capabilities, capacities of placement areas, environmental compliance requirements, the potential for beneficial usage of dredged material, and indicators of continued economic justification. Dredged material management plans must be updated periodically to identify any potentially changed conditions.

The Corps has not yet completed a dredged material management plan for this project. The purpose of this study is to develop a long-term plan for dredged material management at the Cleveland Harbor project for the next 20 years or more. Options that will be studied include, but are not limited to, confined disposal facility fill management, beneficial use of dredged material, and reduction in amount of material entering river and harbors.

Fiscal Year 2020 funds will be used to complete development of the dredged material management plan, including selection of a plan for placement of dredged material and associated National Environmental Policy Act documentation. In FY 2019, the Congress funded this study in the Operation and Maintenance account. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for Dredged Material Management Plans generally, and to more accurately present the portion of overall Corps funding that is for studies. This study may lead to a construction activity involving the dredged material disposal sites associated with this project. If it does, the Corps would then fund that work in the Construction account. This study is funded at 100 percent Federal expense.

The study is authorized by Section 216 of the Flood Control Act of 1970, as amended.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$43,000. 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 \$0.

2/ This funding was provided in the Operation and Maintenance account.

Division: Great Lakes and Ohio River

District: Buffalo

Cleveland Harbor, OH

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	TBD	0	5,076,000 1/	8,075,000 1/	10,162,000 1/	9,458,000 2/	TBD

PROJECT NAME: Columbia River Treaty 2024 Implementation, OR - Flood and Storm Damage Reduction (Continuing)

The Columbia River Basin (Basin) includes portions of British Columbia, Canada and seven states in the northwestern United States. Through this investigation, the U.S. Army Corps of Engineers (Corps) is providing technical analysis and advice on flood risk management options for the Basin. The Corps is providing this information to the Interagency Policy Committee, the Department of State, the National Security Council, and the U.S. Entity for use in discussions/negotiations with Canada. Specifically, the current Columbia River Treaty provides for assured flood control operations only through September 16, 2024.

The Corps will use the requested funding to inform the Department of State on options for the United States regarding reservoir operations throughout the Basin (in both countries) post 2024, including how to operate and potentially pay for changes to the operation of Canadian reservoirs to benefit flood risk management in the United States. The focus of this work is to evaluate flood risk management options and potential changes in reservoir operations, develop updated joint operating plans with Canada, and related U.S. operating plans, and complete technical and environmental compliance on new operations prior to September 2024.

Fiscal Year 2019 and Fiscal Year 2020 funds, plus any carry-in funds, are being and would be used to prepare planning documentation and analysis defining the rights and obligations of the United States under the current Treaty with respect to power production and flood risk management. The preparation of preliminary studies is necessary for long term Treaty planning.

The study authority is the Boundary Waters Treaty of 1909 between US and Canada, the Columbia River Treaty of 1961, and Exchange of Notes of 1964 between the United States and Canada.

1/ Funding for this effort was appropriated in the Operation and Maintenance account under Surveillance of Northern Boundary Waters in FY 2017, FY 2018, and FY 2019, but has been requested in the Investigations account since FY 2018 due to the nature, magnitude, and duration of the required Investigations work.

2/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$1,311,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2020 from prior appropriations for use on this effort is \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	4,500,000	0	0	0	1,500,000	1,250,000 1/	1,750,000

PROJECT NAME: Cougar Lake, OR - Flood and Storm Damage Reduction (Continuing)

Cougar Lake is located near Blue River, Oregon on the South Fork of the MacKenzie River. Cougar Lake is a multipurpose project with flood control and hydropower production as the major benefits. The reservoir has a maximum storage capacity of 219,000 acre-feet. The project was authorized in 1938 and construction was completed in 1964. The Cougar Lake dam currently is rated as a Dam Safety Action Classification (DSAC) 2 dam.

The Corps uses dam safety modification studies (DSMS) to investigate dam safety deficiencies that could potentially result in loss of life, to formulate one or more alternatives that could reduce the risks to tolerable levels, and to recommend an appropriate solution. The decision to initiate such a study for the Cougar Lake dam reflects a finding based on the available information that actionable failure modes are present that may pose an unacceptable risk to the public. The Corps will conduct this study in accordance with Engineering Regulation 1110-2-1156, Safety of Dams – Policy and Procedures, dated March 31, 2014.

The Corps would use this funding to continue the study of potential safety concerns at the Cougar Lake dam. In FY 2019, the Congress funded this study in the Construction account under the Dam Safety and Seepage/Stability Correction Program. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for DSMS generally, and to more accurately present the portion of overall Corps funding that is for studies. As with other feasibility studies, this study may lead to a construction activity. If it does, the Corps would then fund that work in the Construction account. This DSMS is funded at 100 percent Federal expense.

This study is authorized under the project-specific authorizations for Cougar Lake, which implicitly include the authority to study and implement measures to address potential safety-related concerns. This study is also authorized under Section 2 of National Dam Inspection Act of 1972, P.L. 92-367 (directing Secretary of the Army to carry out national program of inspection of dams); Section 215 of the Water Resources Development Act of 1996, P.L. 104-303 (directing implementation of Federal programs to enhance dam safety); and Section 1 of Dam Safety Act of 2006, P.L. 109-460 (directing Secretary of the Army to maintain national inventory of dams including requiring inclusion of condition assessments performed by agency).

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. 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 \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	4,500,000	0	0	0	1,500,000	1,250,000 1/	1,750,000

PROJECT NAME: Hills Creek Lake, OR - Flood and Storm Damage Reduction (Continuing)

Hills Creek Lake is located near Oakridge, Oregon on the Middle Fork of the Willamette River. Hills Creek Lake is a multi-purpose project with flood control and hydropower production as the major benefits. The reservoir has a maximum storage capacity of 356,000 acre-feet. The project was authorized in 1950 and construction was completed in 1961. The Hills Creek Lake dam is rated as a Dam Safety Action Classification (DSAC) 2 dam.

The Corps uses dam safety modification studies (DSMS) to investigate dam safety deficiencies that could potentially result in loss of life, to formulate one or more alternatives that could reduce the risks to tolerable levels, and to recommend an appropriate solution. The decision to initiate such a study for the Hills Creek Lake dam reflects a finding based on the available information that actionable failure modes are present that may pose an unacceptable risk to the public. The Corps will conduct this study in accordance with Engineering Regulation 1110-2-1156, Safety of Dams – Policy and Procedures, dated March 31, 2014.

The Corps would use this funding to continue the study of potential safety concerns at the Hills Creek Lake dam. In FY 2019, the Congress funded this study in the Construction account under the Dam Safety and Seepage/Stability Correction Program. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for DSMS generally, and to more accurately present the portion of overall Corps funding that is for studies. As with other feasibility studies, this study may lead to a construction activity. If it does, the Corps would then fund that work in the Construction account. This DSMS is funded at 100 percent Federal expense.

This study is authorized under the project-specific authorizations for Hills Creek Lake, which implicitly include the authority to study and implement measures to address potential safety-related concerns. This study is also authorized under Section 2 of National Dam Inspection Act of 1972, P.L. 92-367 (directing Secretary of the Army to carry out national program of inspection of dams); Section 215 of the Water Resources Development Act of 1996, P.L. 104-303 (directing implementation of Federal programs to enhance dam safety); and Section 1 of Dam Safety Act of 2006, P.L. 109-460 (directing Secretary of the Army to maintain national inventory of dams including requiring inclusion of condition assessments performed by agency).

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. 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 \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	4,500,000	0	0	0	1,500,000	1,250,000 1/	1,750,000

PROJECT NAME: Lookout Point Lake, OR - Flood and Storm Damage Reduction (Continuing)

Lookout Point Lake is located near Lowell, Oregon on the Middle Fork of the Willamette River. Lookout Point Lake is a multipurpose project with flood control and hydropower production as major benefits. The reservoir has a maximum storage capacity of 478,000 acre-feet. The project was authorized in 1938 and construction was completed in 1953. The Lookout Point Lake dam is rated as a Dam Safety Action Classification (DSAC) 2 dam.

The Corps uses dam safety modification studies (DSMS) to investigate dam safety deficiencies that could potentially result in loss of life, to formulate one or more alternatives that could reduce the risks to tolerable levels, and to recommend an appropriate solution. The decision to initiate such as study for the Lookout Point Lake dam reflects a finding based on the available information that actionable failure modes are present that may pose an unacceptable risk to the public. The Corps will conduct this study in accordance with Engineering Regulation 1110-2-1156, Safety of Dams – Policy and Procedures, dated March 31, 2014.

The Corps would use this funding to continue the study of potential safety concerns at the Lookout Point Lake dam. In FY 2019, the Congress funded this study in the Construction account under the Dam Safety and Seepage/Stability Correction Program. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for DSMS generally, and to more accurately present the portion of overall Corps funding that is for studies. As with other feasibility studies, this study may lead to a construction activity. If it does, the Corps would then fund that work in the Construction account. This DSMS is funded at 100 percent Federal expense.

This study is authorized under the project-specific authorizations for Lookout Point Lake, which implicitly include the authority to study and implement measures to address potential safety-related concerns. This study is also authorized under Section 2 of National Dam Inspection Act of 1972, P.L. 92-367 (directing Secretary of the Army to carry out national program of inspection of dams); Section 215 of the Water Resources Development Act of 1996, P.L. 104-303 (directing implementation of Federal programs to enhance dam safety); and Section 1 of Dam Safety Act of 2006, P.L. 109-460 (directing Secretary of the Army to maintain national inventory of dams including requiring inclusion of condition assessments performed by agency).

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. 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 \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	500,000	0	0	0	250,000 2/	250,000 1/	0

PROJECT NAME: Corpus Christi Ship Channel, TX – Navigation (Completion)

The Corpus Christi Ship Channel (CCSC), Texas, is a 45 foot deep by 400 foot wide channel that is 34 miles long, and is located in San Patricio and Nueces County, Texas. It is a deep-draft navigation project, extending from the Gulf of Mexico, through a jetty-protected inlet at Aransas Pass, across Corpus Christi Bay, to port facilities at Ingleside, La Quinta, and the Port of Corpus Christi. The CCSC is ranked sixth in the nation with respect to commercial tonnage (82 million tons total in 2016). The major commodities that come through the port include crude oil, petroleum products, bulk grain, and aluminum. The existing navigation project consists of the main channel and the main portion of the La Quinta Channel. The project is currently being modified using Construction account funding to deepen and widen the main channel and barge lines. Further, the Port of Corpus Christi extended the LaQuinta Channel at their own expense and Dredged material management for the Corpus Christi project is based on existing upland disposal sites, existing open bay disposal sites, and seven beneficial use sites for various aquatic plant and marine habitat.

In accordance with Engineering Memorandum 1110-2-5025, Dredging and Dredged Material Management, dated July 31, 2015, the U.S. Army Corps of Engineers uses dredged material management plans to guide the management of dredged material placement associated with the Corps’ Federal navigation projects. Dredged material management planning for all Federal harbor projects is conducted by the Corps to ensure that maintenance dredging activities are performed in an environmentally acceptable manner, use sound engineering techniques, and are economically warranted, and that sufficient placement areas are available for at least the next 20 years. These plans address dredging needs, placement capabilities, capacities of placement areas, environmental compliance requirements, the potential for beneficial usage of dredged material, and indicators of continued economic justification. Dredged material management plans must be updated periodically to identify any potentially changed conditions.

The Corps developed a site management and monitoring plan for the CSSC project in September 1996, which was revised in December 2008. In October 2017, the Corps and the Environmental Protection Agency jointly published a “Draft Site Management and Monitoring Plan for Corpus Christi Maintenance and New Work Ocean Dredged Material Disposal Site” that will modify and supersede the previous plan and expands the use of the ocean dredged material disposal sites to include the placement of suitable dredged material from both maintenance and new work projects from within the greater Corpus Christi, Texas vicinity.

The purpose of this Dredged Material Management Plan is to document the availability of dredged material placement capacity required for both the existing navigation features and the new work, and to identify specific measures necessary to manage the volume of material likely to be dredged over a 50 year period. Fiscal Year 2020 funds will be used to complete the dredged material management plan, including working to identify potential placement area sites for CCSC maintenance efforts. In FY 2019, the Congress funded this study in the Operation and

Division: Southwestern

District: Galveston

Corpus Christi Ship Channel, TX

Maintenance account. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for Dredged Material Management Plans generally, and to more accurately present the portion of overall Corps funding that is for studies. This study may lead to a construction activity involving the dredged material disposal sites associated with this project. If it does, the Corps would then fund that work in the Construction account. This study is funded at 100 percent Federal expense.

The study is authorized by Section 216 of the Flood Control Act of 1970, as amended.

1/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. 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 \$0.

2/ This funding was provided in the Operation and Maintenance account.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$	\$	\$	\$	\$	\$	\$
	2,500,000	0	0	0	1,500,000	1,000,000 1/	0

PROJECT NAME: Grapevine Lake, TX - Flood and Storm Damage Reduction

Grapevine Lake is located near Grapevine, Texas on Denton Creek. Grapevine Lake is a multipurpose project with flood control, water supply, navigation, recreation and conservation as the major benefits. The reservoir has a maximum storage capacity of 426,000 acre-feet. The project was authorized in 1945 and construction was completed in 1952. The Grapevine Lake dam is rated as a Dam Safety Action Classification (DSAC) 2 dam.

The Corps uses dam safety modification studies (DSMS) to investigate dam safety deficiencies that could potentially result in loss of life, to formulate one or more alternatives that could reduce the risks to tolerable levels, and to recommend an appropriate solution. The decision to initiate such a study for the Grapevine Lake dam reflects a finding based on the available information that actionable failure modes are present that may pose an unacceptable risk to the public. The Corps will conduct this study in accordance with Engineering Regulation 1110-2-1156, Safety of Dams – Policy and Procedures, dated March 31, 2014.

The Corps would use this funding to study potential safety concerns at the Grapevine Lake dam. In FY 2019, the Congress funded this study in the Construction account under the Dam Safety and Seepage/Stability Correction Program. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for DSMS generally, and to more accurately present the portion of overall Corps funding that is for studies. As with other feasibility studies, this study may lead to a construction activity. If it does, the Corps would then fund that work in the Construction account. This DSMS is funded at 100 percent Federal expense.

This study is authorized under the project-specific authorizations for Grapevine Lake, which implicitly include the authority to study and implement measures to address potential safety-related concerns. This study is also authorized under Section 2 of National Dam Inspection Act of 1972, P.L. 92-367 (directing Secretary of the Army to carry out national program of inspection of dams); Section 215 of the Water Resources Development Act of 1996, P.L. 104-303 (directing implementation of Federal programs to enhance dam safety); and Section 1 of Dam Safety Act of 2006, P.L. 109-460 (directing Secretary of the Army to maintain national inventory of dams including requiring inclusion of condition assessments performed by agency).

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. 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 \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

Study	Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
	\$2,245,000	\$0	\$0	\$0	\$1,500,000	\$755,000 1/	\$0

PROJECT NAME: Proctor Lake, TX - Flood and Storm Damage Reduction

Proctor Lake is located near Comanche, Texas on the Leon River. Proctor Lake is a multipurpose project with flood control, water supply and recreation as the major benefits. The reservoir has a maximum storage capacity of 433,000 acre-feet. The project was authorized in 1954 and construction was completed in 1963. The Proctor Lake dam is rated as a Dam Safety Action Classification (DSAC) 2 dam.

The Corps uses dam safety modification studies (DSMS) to investigate dam safety deficiencies that could potentially result in loss of life, to formulate one or more alternatives that could reduce the risks to tolerable levels, and to recommend an appropriate solution. The decision to initiate such a study for the Proctor Lake dam reflects a finding based on the available information that actionable failure modes are present that may pose an unacceptable risk to the public. The Corps will conduct this study in accordance with Engineering Regulation 1110-2-1156, Safety of Dams – Policy and Procedures, dated March 31, 2014.

The Corps would use this funding to study potential safety concerns at the Proctor Lake dam. In FY 2019, the Congress funded this study in the Construction account under the Dam Safety and Seepage/Stability Correction Program. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for DSMS generally, and to more accurately present the portion of overall Corps funding that is for studies. As with other feasibility studies, this study may lead to a construction activity. If it does, the Corps would then fund that work in the Construction account. This DSMS is funded at 100 percent Federal expense.

This study is authorized under the project-specific authorizations for Proctor Lake, which implicitly include the authority to study and implement measures to address potential safety-related concerns. This study is also authorized under Section 2 of National Dam Inspection Act of 1972, P.L. 92-367 (directing Secretary of the Army to carry out national program of inspection of dams); Section 215 of the Water Resources Development Act of 1996, P.L. 104-303 (directing implementation of Federal programs to enhance dam safety); and Section 1 of Dam Safety Act of 2006, P.L. 109-460 (directing Secretary of the Army to maintain national inventory of dams including requiring inclusion of condition assessments performed by agency).

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$0. 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 \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

PRECONSTRUCTION ENGINEERING AND DESIGN – Continuing

Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
\$	\$	\$	\$	\$	\$	\$
10,400,000	0	0	0	3,606,000 1/	2,500,000 2/	4,294,000

PROJECT NAME: Norfolk Harbor and Channels Deepening, VA – Navigation

The Norfolk Harbor and Channels project is located in the vicinity of Norfolk and Hampton Roads, Virginia. WRDA 1986 authorized the Corps to deepen some of the channels at this project to 55 feet. Until now, the Corps has not deepened these channels to that depth. Instead, it has constructed the authorized 55-foot project in stages (each a separable element) based on the needs of the port community and the financial capability of the non-Federal Sponsor, the Virginia Port Authority, an agent of the Commonwealth of Virginia. The Corps dredged the outbound channel elements to a depth of 50 feet in 1988, dredged a 3,000-foot diameter anchorage to 50 feet in 1999, and dredged the inbound channel elements to 50 feet in 2007. The currently maintained channel dimensions limit the use of the largest coal exporting vessels and post-Panamax container vessels that are available to call on the terminals at this port. Therefore, the Corps undertook a General Reevaluation Report to examine options for modifications to this project to improve navigation.

The Chief of Engineers signed the Chief’s Report for this project in June 2018. The report recommended deepening the inner channels to 55 feet, deepening the Thimble Shoal Channel to 56 feet and widening the channel to 1,300 feet east of the Chesapeake Bay Bridge Tunnel, deepening the Atlantic Ocean Channel to 59 feet and enlarging Anchorage F. The recommended project is estimated to cost \$271,822,000, with an estimated Federal cost of \$131,381,000 and an estimated non-Federal cost of \$140,441,000. The benefit to cost ratio is 2.6 to 1 based on a discount rate of 7 percent. The Department of the Army and the Port of Virginia signed a preconstruction engineering and design (PED) agreement in February 2019.

Fiscal Year 2019 funds, plus carry-in funds, were and are being used to negotiate and execute a design agreement and initiate PED. Fiscal Year 2020 funds will be used to continue PED. The PED for this project is shared 50 percent Federal and 50 percent non-Federal. A summary of the cost sharing is as follows:

Total Estimated Preconstruction Engineering and Design Costs	\$20,800,000
PED Phase (Federal)	\$10,400,000
PED Phase (Non-Federal)	\$10,400,000

The original project was authorized for construction by Section 201 of the Water Resources Development Act of 1986 (Public Law 99-662), as amended, and as described in House Document 99-85, dated 18 July 1985, entitled “Norfolk Harbor and Channels, Virginia.” In addition, the project modifications recommended in the Chief’s Report based on the general reevaluation report, were authorized in America’s Water Infrastructure Act of 2018 (Public Law 115-270).

Division: North Atlantic

District: Norfolk

Norfolk Harbor and Channels Deepening, VA

Study authority: Section 216 of the Flood Control Act of 1970.

1/ The FY 2019 allocation includes \$122,500 of the \$149,000 that was carried into FY 2019 from the feasibility phase and will be used toward the preconstruction engineering and design phase. The remaining funds will be used to print additional full copies of the feasibility report, update work-in-kind contributions from the non-Federal sponsor and to close out the feasibility cost share.

2/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in of feasibility funds from FY 2018 to FY 2019 was \$149,000. 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 \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2020

PRECONSTRUCTION ENGINEERING AND DESIGN – Continuing

Total Estimated Federal Cost	Allocations Prior to FY 2017	Allocation in FY 2017	Allocation in FY 2018	Allocation in FY 2019	Budgeted Amount in FY 2020	Additional to Complete After FY 2020
\$	\$	\$	\$	\$	\$	\$
4,940,000	115,526 1/	0	200,000	710,000	1,467,000 2/	2,447,474

PROJECT NAME: Puget Sound Nearshore Marine Habitat Restoration, Duckabush River Estuary, WA – Aquatic Ecosystem Restoration

The Duckabush River Estuary project is located in the vicinity of the confluence of Hood Canal and the Duckabush River in the nearshore zone of the Puget Sound Basin, the transitional shoreline area between terrestrial and aquatic (saltwater) ecosystems extending from the Canadian border throughout Puget Sound and out the Strait of Juan de Fuca to Neah Bay. A significant amount of Puget Sound estuaries along the open shoreline, embayments, and river deltas have been destroyed or degraded through urban development; causing severe reduction in the number of fish and wildlife residing and reproducing in the coastal area. The project is intended to reconnect floodplain and intertidal wetlands, improving tidal exchange, sediment transport, and estuary development, through restoration of 38 acres of tidal marsh and estuarine mixing zone habitat that could benefit Endangered Species Act-listed Puget Sound Chinook salmon, Hood Canal summer chum, Puget Sound steelhead, and Coastal/Puget Sound bull trout. These acres would serve as juvenile salmonid nursery habitat.

The Puget Sound Nearshore Ecosystem Restoration, WA Chief’s Report dated September 16, 2016, served as the basis for authorization of three projects, including the Duckabush River Estuary project. The recommended project is estimated to cost \$90,523,000 (October 2015 price levels) with an estimated Federal cost of \$58,825,000 and an estimated non-Federal cost of \$31,675,000 and includes removal of the Highway 101, including two bridges that currently limit fish access to productive tidal habitats in the Duckabush River in Hood Canal, construction of an elevated roadway on a 2,100-foot-long bridge further upstream from the existing highway, and removal of berms along the river and the excavation of channels at or near their historical configurations. The non-Federal sponsor for the Duckabush River Estuary project, the Washington State Department of Fish and Wildlife, is scheduled to sign a design agreement by April 26, 2019.

Fiscal Year 2019 funds are being used to execute the design agreement and initiate preconstruction engineering and design (PED) for the Duckabush River Estuary project. Fiscal Year 2020 funds would be used to continue PED for the Duckabush River Estuary project. The PED for this project is shared 65 percent Federal and 35 percent non-Federal. A summary of the cost sharing is as follows:

Total Estimated Preconstruction Engineering and Design Cost	\$7,600,000
PED Phase (Federal)	\$4,940,000
PED Phase (Non-Federal)	\$2,660,000

The project is authorized for construction in Section 1401(4) of the Water Resources Development Act of 2016 (Public Law 114-322).

Division: Northwestern

District: Seattle

Puget Sound Nearshore Marine Habitat Restoration,
Duckabush River Estuary, WA

Study Authority: Section 209 of the River and Harbor Act of 1962 (Public Law 87-874)

1/ \$115,526 was carried into FY 2018 from the feasibility phase and will be used toward the preconstruction engineering and design phase.

2/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2018 to FY 2019 was \$285,816. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2020 from prior appropriations for use on this effort is \$0.