

INVESTIGATIONS

STATE	PROJECT (Investigations)	PAGE
ALABAMA	BLACK WARRIOR AND TOMBIGBEE RIVERS, AL	1
ALABAMA	GULF INTRACOASTAL WATERWAY, AL	2
CALIFORNIA	EAST SAN PEDRO BAY ECOSYSTEM RESTORATION, CA	3
ILLINOIS	INTERBASIN CONTROL OF GREAT LAKES-MISSISSIPPI RIVER AQUATIC NUISANCE SPECIES, IL, IN, OH & WI	5
INDIANA	MISSISSINEWA LAKE, IN	7
IOWA	GRAND RIVER BASIN, IA & MO	8
NEW MEXICO	RIO GRANDE, SANDIA PUEBLO TO ISLETA PUEBLO, NM	10
NEW YORK	BUFFALO HARBOR, NY	11
NEW YORK	HUDSON RIVER HABITAT RESTORATION, HUDSON RIVER BASIN, NY	12
OHIO	CLEVELAND HARBOR, OH	14
OHIO	DELAWARE LAKE, OH	15
OREGON	COLUMBIA RIVER TREATY 2024 IMPLEMENTATION, OR	16
OREGON	COUGAR LAKE, OR	17
OREGON	HILLS CREEK LAKE, OR	18
OREGON	LOOKOUT POINT LAKE, OR	19
TEXAS	COASTAL TEXAS PROTECTION AND RESTORATION, TX	20
TEXAS	CORPUS CHRISTI SHIP CHANNEL, TX	22
TEXAS	GIWW BRAZOS RIVER FLOODGATES & COLORADO RIVER LOCK, TX	24
TEXAS	GRAPEVINE LAKE, TX	25
TEXAS	HOUSTON SHIP CHANNEL, TX	26
TEXAS	MATAGORDA SHIP CHANNEL, TX	28
TEXAS	PROCTOR LAKE, TX	30
VIRGINIA	ATLANTIC INTRACOASTAL WATERWAY BRIDGE REPLACEMENT AT NORTH LANDING, VA	31
VIRGINIA	NORFOLK HARBOR, VA	32

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY2016	Allocation in FY2016	Allocation in FY2017	Presumed Allocation in FY2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$ TBD	\$ 0	\$ 0	\$ 0	\$ 0 ^{1/}	\$ 100,000	\$ TBD

PROJECT NAME: Black Warrior and Tombigbee Rivers, AL – Navigation (New)

This high use, inland navigation waterway project includes a 9-foot deep by 200-foot wide channel from Mobile Harbor, north for 426 miles, connecting the Port of Mobile with the industrial areas of Birmingham, Alabama. The project serves as the corridor from the Tennessee-Tombigbee Waterway to the Gulf of Mexico and includes six locks, dams and reservoirs. The project has a five year average of over 19.7 million tons of commodities transported (coal, crude oil, and iron/steel). Dredged material management for the Black Warrior and Tombigbee Rivers project is based on the use of 27 upland disposal areas and within bank disposal to handle the annual shoaling occurring on the system.

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, 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 the dredged material management plan for Black Warrior and Tombigbee Rivers in 1997; this plan is still valid and is being used as the current guide for the majority of the project. As per Engineering Regulation 1105-2-100, Planning Guidance Notebook, dated April 22, 2000, the first phase in the management plan development is the initial assessment. The initial assessment establishes whether a more detailed study is required to establish a management plan. The purpose of this assessment is to document the availability of dredged material placement capacity sufficient to accommodate a minimum of 20 years of maintenance dredging for the lower Tombigbee River. If the initial assessment indicates that the capacity is insufficient, then a detailed dredged material management plan will be required in order to identify specific measures necessary to manage the volume of material likely to be dredged over a 20-year period.

Fiscal Year 2019 funds will be used to initiate and complete the initial assessment. This study is funded at 100 percent Federal expense.

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

1/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY2016	Allocation in FY2016	Allocation in FY2017	Presumed Allocation in FY2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	TBD	\$0	\$0	\$0	\$0 ^{1/}	\$250,000	TBD

PROJECT NAME: Gulf Intracoastal Waterway, AL – Navigation (New)

The Alabama portion of the Gulf Intracoastal Waterway (GIWW) extends from the Louisiana and Mississippi state line to Apalachee Bay, Florida, providing a 12-foot by 150-foot channel from Louisiana to Mobile Bay, Alabama and a 12-foot by 125-foot channel from Mobile Bay to Apalachee Bay, Florida. It is a high use, intracoastal waterway project. The project supports major barge traffic along the northern Gulf Coast for coal, petroleum products, chemicals, wood products and heavy industrial components. Dredged material management for the Gulf Intracoastal Waterway is based on using existing upland disposal sites and within bank disposal.

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, 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 the Alabama portion of the project. As per Engineering Regulation 1105-2-100, Planning Guidance Notebook, dated April 22, 2000, the first phase in the management plan development is the initial assessment. The initial assessment establishes whether a more detailed study is required to establish a management plan. The purpose of this initial assessment is to document the availability of dredged material placement capacity sufficient to accommodate a minimum of 20 years of maintenance dredging at varying locations along the waterway. If the initial assessment indicates that the capacity is insufficient, then a detailed dredged material management plan will be required in order to identify specific measures necessary to manage the volume of material likely to be dredged over a 20 year period.

Fiscal Year 2019 funds will be used to initiate and complete the initial assessment. This study is funded at 100 percent Federal expense.

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

^{1/} There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President’s Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$	\$	\$	\$	\$	\$	\$
	997,000	153,000	77,000	275,000	194,000 1/ 2/	298,000	0

PROJECT NAME: East San Pedro Bay Ecosystem Restoration, CA – Aquatic Ecosystem Restoration (Completion)

The study area is located offshore of the City of Long Beach, California in the eastern part of San Pedro Bay. It includes the area between the Long Beach shoreline and the offshore Middle and Long Beach Breakwaters. The purpose of the study is to evaluate opportunities for providing ecosystem restoration and other improvements to the near shore area off the City of Long Beach, within East San Pedro Bay. The study will consider creating new rocky reef and kelp habitat while also improving tidal and wave induced circulation. The City of Long Beach conducted a study in 2008 and the U.S. Army Corps of Engineers completed a reconnaissance report in April 2010. The City of Long Beach, the local sponsor, signed the Feasibility Cost Sharing Agreement (FCSA) in November 2010. The study was re-scoped in February 2015. In June 2015, the Assistant Secretary of the Army (Civil Works) notified congress that the Army was proceeding to initiate negotiations to amend the FCSA to enable the City of Long Beach to accelerate the non-Federal share of the study and to contribute up to \$750,000 of the Federal share of the feasibility study. The Department of Army and City of Long Beach signed an amended FCSA in January 2016. The City of Long Beach provided contributed funds to the Corps in February 2016 to resume the feasibility phase of the study.

Fiscal Year 2018 funds, plus carry-in funds, are being be used to continue the feasibility phase. Funds for the Program year 2019, plus any carry-in funds, will be used to complete the feasibility phase of the study. The cost of the feasibility phase is \$3,214,000, which is generally shared 50 percent Federal and 50 percent non-Federal, except for 100,000 for the Independent External Peer Review, which is funded at 100 percent Federal expense. The \$650,000 contributed by the non-Federal sponsor is applied to the Federal share. A summary of study cost sharing is as follows:

Total Study Cost	\$ 3,304,000
Reconnaissance Study Phase (Federal)	90,000
Feasibility Phase (Federal)	907,000
Feasibility Phase (Non-Federal)	2,307,000

The study is authorized by the Senate Resolution Committee on Environment and Public Works 25 Jun 1969, which is a review of the Chief's Report for Los Angeles San Gabriel Rivers Ballona Creek, House Doc #838 76th Congress.

The study is scheduled for completion in September 2019.

Division: South Pacific

District: Los Angeles

East San Pedro Bay Ecosystem Restoration

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$100,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

	Total Estimated Federal Cost	GLRI 1/ Allocations Thru FY16	Allocation Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018 2/ 3/	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$	\$	\$	\$	\$	\$	\$	\$
GLMRIS	32,276,451	15,167,641	12,462,810	700,000	2,300,000	1,550,000	150,000	TBD
GLMRIS Program Mgmt	TBD	0	82,000	300,000	300,000	300,000	50,000	TBD
Total	Total \$	15,167,641	12,544,810	1,000,000	2,600,000	1,850,000	200,000	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. The purpose of the Great Lakes & Mississippi River Interbasin Study (GLMRIS) is to evaluate options and technologies available to prevent the spread of aquatic nuisance species in either direction between the Great Lakes and Mississippi River basins through the Chicago Sanitary and Ship Canal, and other aquatic pathways. In the context of this study, the Corps has interpreted the term “prevent” to mean the reduction of risk to the maximum extent possible, because it may not be technologically feasible to achieve an absolute solution. A Corps of Engineers January 2014 GLMRIS Report identified multiple alternatives; three alternatives identified the Brandon Road Lock and Dam as a location to establish controls that would create a buffer zone to address upstream transfer of Mississippi River species through all Chicago Area Waterway System pathways. Funding for program management includes vertical team coordination, coordination among and support to project elements within the geographical boundaries of the GLMRIS program, budget development and defense, public outreach, Asian Carp Regional Coordinating Committee and Chicago Area Waterway System Advisory Committee related activities, stakeholder engagement, and response to Congressional and media inquiries. Study efforts and program management are funded at 100 percent Federal expense.

Fiscal Year 2018 and Fiscal Year 2019 funds, plus any carry-in funds, are being utilized to continue efforts to evaluate options and technologies available to prevent the spread of aquatic nuisance species between the Great Lakes and Mississippi River basins.

This study was authorized by WRDA 2007, P. L.110-114, Section 3061(d), 121 Stat. 1121.

1/ Great Lakes Restoration Initiative (GLRI) funding from FY 2010, FY 2011, FY 2012, FY 2013, FY 2014, FY 2015 and FY 2016. As of the date this justification sheet was prepared, no funding is anticipated in FY 2017 or FY 2018.

2/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$1,214,000. There was an additional \$65,000 of unobligated funds that are committed within the Corps for scheduled ongoing requirements in FY 2018. As of the date this justification sheet was

Division: Great Lakes and Ohio River

Districts: Chicago and Rock Island

Interbasin Control of Great Lakes – Mississippi River Aquatic Nuisance Species, IL, IN, OH, & WI

prepared, the total unobligated dollars estimated to be carried into FY 2019 from prior appropriations for use on this effort is \$0.

3/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$4,500,000	\$0	\$0	\$0	\$0 1/	\$1,500,000	\$3,000,000

PROJECT NAME: Mississinewa Lake, IN - Flood Risk Management (New)

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 U.S. Army Corps of Engineers uses dam safety modification studies 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.

Fiscal Year 2019 funds would be used to initiate this dam safety modification study. The estimated total cost of the dam safety modification study is \$4,500,000 and would be 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/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocation Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation FY 2018 1/2/	Budget Amount in FY 2019	Additional to Complete After FY 2019
	\$1,800,000	\$0	\$200,000	\$500,000	\$1,000,000	\$100,000	\$0

PROJECT NAME: Grand River Basin, Iowa and Missouri – Aquatic Ecosystem Restoration (Completion)

The Grand River Basin is a Missouri River tributary that drains 7,900 square miles in southern Iowa and north central Missouri. Riparian, wetland, floodplain and other natural system functions have been seriously degraded over decades due to the impacts of Federal and local projects and land use practices. Construction alteration and land practices have contributed to loss of floodplain conveyance and degradation of riparian and wetland habitat throughout the basin. Since the mid-1800s, thousands of acres of wetland and bottomland hardwood habitat have been lost. Over 300 miles of natural stream corridor have been channelized, adversely impacting thousands of linear feet of riparian aquatic habitat. Degradation, erosion, and sediment deposition have increased in intensity, which are now serious problems. The pervasive and systemic problems are also undermining and threatening critical water and transportation infrastructure. The Grand River Basin contains some of the most pristine, high value natural habitat in the State in the form of legacy wetlands and large stands of bottom land hardwoods. The Grand River has been designated in the State’s “Our Missouri Waters” initiative, and represents one of the State’s top two priority basins for restoration funding and action. The Grand River Basin is in the heart of what is known as the “Golden Triangle” of Missouri because of the presence and importance of the area to migratory waterfowl and other bird species. It lies near the border of the Central and Mississippi waterfowl flyways and is the core component of a wetland complex that includes over 22,000 acres of state and federal lands and 16,000 acres of privately owned United States Department of Agriculture (USDA) Wetlands Reserve Program (WRP) easement properties. The area adjacent to the lower Grand River has been designated as an Important Bird Area (IBA) by the Audubon Society. Fifty-one percent of the Lower Grand River IBA is publicly-owned conservation land. Swan Lake National Wildlife Refuge (NWR) (10,795 acres) is managed by the US Fish and Wildlife Service (USFWS). Under management of the Missouri Department of Conservation (MDC) are Fountain Grove Conservation Area (7,405 acres) and Yellow Creek Conservation Area (593 acres). Pershing State Park (3,566 acres) is managed by the Missouri Department of Natural Resources. Together the Grand River basin wetlands and associated uplands provide vital habitat for migrating waterfowl, shorebirds, and many other wetland dependent species, representing some of the most premier wetland habitat in the Midwest. The Locust Creek watershed is centrally positioned within the basin and will be a priority area for plan formulation in evaluation of the creek and network of tributaries highly impacted by channelization. Through analysis of existing and future without project conditions, a robust array of measures will be evaluated including stream / aquatic and riparian restoration, and wetland restoration. The Grand River Basin has experienced frequent damaging floods, the record flood being the 1947 event that caused approximately \$22,600,000 of damages in unadjusted dollars.

The objectives of the recommended plan will be to protect and enhance the connectivity between the existing high value ecosystem features in the Golden Triangle area, and restore bottomland hardwood and high value wetland habitat supporting resident and migratory species. The study will address impacts to Federal endangered species including the Topeka shiner, Indiana Bat, and Northern long-eared bat. The study will also consider structural and non-structure flood risk management measures to address residual flood risks within the basin. The Department of the Army and the State of Missouri, the non-Federal partner, executed a Feasibility Cost Sharing Agreement on August 30, 2016.

Fiscal Year 2018 funds are being used to determine the Tentatively Selected Plan, document the agency's decision in a draft feasibility report and environmental assessment, conduct internal quality control, independent external peer review, and public and agency reviews. Fiscal Year 2019 funds, plus any carry-in funds, will be used to complete the feasibility phase of the study. The cost of the feasibility phase is \$3,300,000 and is cost shared 50 percent Federal and 50 percent non-Federal, except for \$300,000 for the Independent External Peer Review, which is funded at 100 percent Federal expense.

A summary of study cost sharing is as follows:

Total Study Cost	\$3,300,000
Feasibility Phase (Federal)	\$1,800,000
Feasibility Phase (Non-Federal)	\$1,500,000

The study has been authorized by a resolution of the Senate Committee on Environment and Public Works, June 23, 2004.

The study is scheduled to complete in August 2019.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$18,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
\$1,700,000	\$0	\$200,000	\$0	\$0 1/ 2/	\$825,000	\$675,000

PROJECT NAME: Rio Grande, Sandia Pueblo to Isleta Pueblo, NM – Aquatic Ecosystem Restoration (Continuing)

The Rio Grande is the fifth longest river in North America, draining approximately 335,000 square miles in CO, NM, and TX, and forms 1,200 miles of the US/Mexico border. The study area encompasses approximately 38.8 miles of the Rio Grande channel and floodplain in Sandoval, Bernalillo, and Valencia Counties, New Mexico, and includes approximately 100 acres on Sandia Pueblo and more than 120 acres within the boundaries of the Rio Grande Valley State Park and Isleta Pueblo. The World Wildlife Fund designated this watershed as one of the World’s Top Ten Endangered Rivers. In Fiscal Year 2016, the Corps and the Middle Rio Grande Conservancy District (MRGCD) completed construction of the Middle Rio Grande Ecosystem Restoration project, which included restoration of approximately 916 acres of native Bosque (riparian cottonwood forest) along a 26-mile stretch of the Middle Rio Grande between Isleta Pueblo and the northern border of Sandia Pueblo at 18 locations.

The purpose of the study is to evaluate bosque (or woodland riparian forest) ecosystem restoration opportunities for multiple species of fish and wildlife including two of New Mexico’s endangered species, the Rio Grande silvery minnow and Southwestern Willow Flycatcher, within the Rio Grande channel and floodplain study area on lands held by the MRGCD. The Department of the Army and the non-Federal sponsor, the MRGCD, signed the Feasibility Cost Sharing Agreement on August 22, 2016. This study will be conducted in consultation with the U.S. Geological Survey, U.S. Fish and Wildlife Service, the State of New Mexico, tribal nations, local agencies, and non-governmental organizations.

Fiscal Year 2018 carry-in funds and Fiscal Year 2019 funds will be used to continue the feasibility phase, including preparation for the Agency Decision Milestone. The estimated cost of the feasibility phase is \$3,200,000 and is shared 50 percent Federal and 50 percent non-Federal, except for the Independent External Peer Review, which is estimated to cost \$200,000 and is funded at 100 percent Federal expense.

A summary of 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

Study Authority: Section 5056 of WRDA 2007 (P.L. 110-114), as amended by Section 4006 of WRRDA 2014 (P.L. 113-121).

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$98,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President’s Budget amount for FY 2018.

Division: South Pacific

District: Albuquerque

Rio Grande, Sandia Pueblo to Isleta Pueblo, NM

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY2016	Allocation in FY2016	Allocation in FY2017	Presumed Allocation in FY2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$ 550,000	\$ 0	\$ 0	\$ 0	\$ 0 ^{1/}	\$ 300,000	\$ 250,000

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

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 in support of local and regional industries. 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, 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 2019 funds will be used to initiate development of a dredged material management plan, including preparation of alternative plans for placement of dredged material and associated NEPA documentation. This study is funded at 100 percent Federal expense.

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

^{1/} There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President’s Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$	\$	\$	\$	\$	\$	\$
	2,720,000	1,070,000	200,000	295,000	800,000 1/ 2/	355,000	0

PROJECT NAME: Hudson River Habitat Restoration, Hudson River Basin, New York – Aquatic Ecosystem Restoration (Completion)

The study area includes 140 miles of the Hudson River ecosystem associated with the existing Federal channel from New York to the Federal lock and dam at Troy, NY. The downstream boundary for this investigation is the Tappan Zee Bridge, which is the upstream boundary of the Hudson Raritan Estuary Feasibility Study. The study area includes the estuarine and tidal freshwater portions of the Hudson River, including riverine, open water, tidal wetlands and adjoining floodplains and contains 300 miles of tidally influenced, coastal shoreline and more than 200 species of fish and birds. Resource management officials have long recognized the ecological significance of the Hudson River ecosystem. Thirty-four areas have been designated Significant Coastal Fish and Wildlife Habitats, and four locations are included in the Hudson River National Estuarine Research Reserve. In 2011, the study area became part of the New York-New Jersey Harbor & Estuary Program, which is one of the Nation’s 28 Estuaries of National Significance. Among terrestrial vertebrates, 85% (28 species) of New York’s total amphibian species, 73% (27 species) of New York’s total reptile species, 87% (199 species) of New York’s total breeding bird species, and 92% (54 species) of New York’s total mammal species can be found in the Hudson River Estuary Study Area. Large wetlands support the highest diversity of turtles in New York State, containing concentrations of important turtle habitats for six state-listed endangered, threatened and special concern species. The Federally endangered shortnose and Atlantic sturgeon (New York Bight Distinct Population Segment) both use the river and tributary mouth habitats near Kingston. Dredging the channels by the Corps for more than 100 years resulted in the disposal of 83,000,000 cubic yards of dredged material in embayments, marshes, backwaters and secondary channels. Since 1891, approximately 2,800 acres of wetland and aquatic habitat have been lost and 60 miles of shallow habitat deepened. Specifically, an ecological assessment conducted by The Nature Conservancy (TNC) and Columbia University indicated that 3,212 acres of habitat have been filled as a result of USACE dredging operations to create the navigation channel. The watershed is characterized by lost and degraded fish and wildlife habitat, impediments to fish passage, eroding shorelines and sediment contamination.

A Feasibility Cost Sharing Agreement was signed between the Department of the Army and the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of State (NYSDOS), the non-federal sponsors, in May 1996. In 2013, NYSDEC and NYSDOS enhanced their relationships with regional organizations to facilitate the resumption of the Feasibility Study. The coalition “Partners Restoring the Hudson” was established, composed of non-governmental organizations including TNC, Scenic Hudson, Hudson Riverkeeper, and Clearwater, among others. The study was resumed in FY 2016.

Fiscal Year 2018 funds are being used to continue this study, including work to analyze and evaluate alternatives leading to a selected plan and draft report. Fiscal Year 2019 funds, plus any carry-in funds, will be used to complete the feasibility phase of the study. The cost of the feasibility phase is \$4,190,000 and is shared 50 percent Federal and 50 percent non-Federal, except for \$200,000 for the Independent External Peer Review, which is funded at 100 percent Federal expense. A summary of the study cost sharing is as follows:

Division: North Atlantic

District: New York

Hudson River Habitat Restoration, NY

Total Study	\$4,715,000
Reconnaissance Study (Federal)	\$ 525,000
Feasibility Phase (Federal)	\$2,195,000
Feasibility Phase (Non-Federal)	\$1,995,000

The study is authorized by Section 551, Water Resources Development Act (WRDA) 1996 (P.L. 104-303). The reconnaissance phase was completed in February 1995.

The study is scheduled for completion in June 2019.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$318,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY2016	Allocation in FY2016	Allocation in FY2017	Presumed Allocation in FY2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$ 1,050,000	\$ 0	\$ 0	\$ 0	\$ 0 1/	\$ 350,000	\$ 700,000

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

Cleveland Harbor is a moderate-use, deep-draft commercial harbor located on Lake Eire 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, 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 2019 funds will be used to initiate development of the dredged material management plan, including preparation of alternative plans for placement of dredged material and associated National Environmental Policy Act documentation. 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/ There was no conference amount available at the time this justification sheet was prepared. The amount shown is the President’s Budget amount for FY 2018.

Division: Great Lakes and Ohio River

District: Buffalo

Cleveland Harbor, OH

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$4,500,000	\$0	\$0	\$0	\$0 1/	\$750,000	\$3,750,000

PROJECT NAME: Delaware Lake, OH - Flood Risk Management (New)

Delaware Lake is located near the Delaware, Ohio on the Olentangy River. Delaware Lake is a multi-purpose project with flood control, water supply, recreation and conservation as the major benefits. The reservoir has a storage capacity of 160,000 acre-feet. The project was authorized in 1938 and construction was completed in 1948. The Delaware Lake dam is rated as a Dam Safety Action Classification (DSAC) 2 dam.

The U.S. Army Corps of Engineers (Corps) uses dam safety modification studies 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 Delaware 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.

Fiscal Year 2019 funds would be used to initiate the dam safety modification study. The estimated total cost of the dam safety modification study is \$4,500,000 and would be funded at 100 percent Federal expense.

This study is authorized under the project-specific authorizations for Delaware 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/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$	\$	\$	\$	\$	\$	\$
	TBD	0	0	5,300,000 1/	9,500,000 2/ 3/	10,265,000	TBD

PROJECT NAME: Columbia River Treaty 2024 Implementation, OR - Flood Risk Management (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 2018 and Fiscal Year 2019 funds, plus any carry-in funds, are being and will 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/ The FY 2017 funding to initiate this effort was appropriated in the Operation and Maintenance account under Surveillance of Northern Boundary Waters, but was moved to the Investigations account in 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 2017 to FY 2018 was \$237,000. There was an additional \$46,000 of unobligated funds that are committed within the Corps for scheduled ongoing requirements in FY 2018. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

3/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Estimated Federal Cost	Allocations		Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
		Prior to FY 2016	Allocation in FY 2016				
	\$4,500,000	\$0	\$0	\$0	\$0 1/	\$1,500,000	\$3,000,000

PROJECT NAME: Cougar Lake, OR - Flood Risk Management (New)

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 U.S. Army Corps of Engineers uses dam safety modification studies 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.

Fiscal Year 2019 funds would be used to initiate this dam safety modification study. The estimated total cost of the dam safety modification study is \$4,500,000 and would be 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/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Estimated Federal Cost	Allocations		Allocation in FY 2017	Presumed Allocation		Budgeted Amount in FY 2019	Additional to Complete After FY 2019
		Prior to FY 2016	Allocation in FY 2016		in FY 2018	1/		
	\$4,500,000	\$0	\$0	\$0	\$0	1/	\$1,500,000	\$3,000,000

PROJECT NAME: Hills Creek Lake, OR - Flood Risk Management (New)

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 U.S. Army Corps of Engineers (Corps) uses dam safety modification studies 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.

Fiscal Year 2019 funds would be used to initiate the dam safety modification study. The estimated total cost of the dam safety modification study is \$4,500,000 and would be 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/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Estimated Federal Cost	Allocations		Allocation in FY2017	Presumed Allocation in FY2018	Budgeted Amount in FY2019	Additional to Complete After FY2019
		Prior to FY2016	Allocation in FY2016				
	\$4,500,000	\$0	\$0	\$0	\$0 1/	\$1,500,000	\$3,000,000

PROJECT NAME: Lookout Point Lake, OR - Flood Risk Management (New)

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 U.S. Army Corps of Engineers (Corps) uses dam safety modification studies 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 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.

Fiscal Year 2019 funds would be used to initiate the dam safety modification study. The estimated total cost of the dam safety modification study is \$4,500,000 and would be 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/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$	\$	\$	\$	\$	\$	\$
	10,480,000 <u>3/</u>	500,000	1,253,000	1,925,000	2,175,000 <u>1/ 2/</u>	2,675,000	1,952,000

PROJECT NAME: Coastal Texas Protection and Restoration, TX – Flood Risk Management (Continuing)

This study is evaluating options for reducing the flood risk along the entire Texas Gulf Coast, from the mouth of the Sabine River to the mouth of the Rio Grande River, except for the specific areas for which such measures are being considered under the Sabine Pass to Galveston Bay feasibility study. The study area includes Gulf and tidal waters, barrier islands, marshes, coastal wetlands, rivers and streams and adjacent areas that make up the interrelated coastal area of Texas. The Texas coastal zone contains several large cities at risk during storm events including the nation’s 4th largest city (by population), Houston, Texas. The study area has been affected by 23 tropical storms and/or hurricanes in the last decade.

According to the Federal Emergency Management Agency, Hurricane Ike in 2008 was the third most destructive hurricane at that time ever to hit the United States, with losses of more than \$27 billion and 112 deaths. Rice University estimates that if Hurricane Ike had hit the coast 30 miles further south, the storm surge would have been between 20 feet - 25 feet in the Houston Ship Channel (home to one fourth of the United States oil refineries) and could have caused damages exceeding \$100 billion. It would also be a challenge to evacuate all of the one million residents in hurricane evacuation zones along this coast today, and 500,000 more people are expected to move to these zones by 2035. Forty percent of the nation’s petrochemical industry, 25 percent of national petroleum-refining capacity, eight deep draft ports (four of the 10 largest U.S. seaports), 750 miles of shallow draft channels (including 400 miles of the Gulf Intracoastal Waterway), other transportation infrastructure, and many communities are potentially at risk of damage from flooding in a large storm, and the aquatic ecosystem of the coast could sustain significant damage as well.

In a companion study (the Sabine Pass to Galveston Bay feasibility study), the Corps has been evaluating options for certain areas of the upper Texas coast, from the Sabine River to Brazoria County. The goal of the Coastal Texas Protection and Restoration study is to develop a comprehensive strategy for reducing flood risk for all of the Texas coast, except for the specific areas for which such measures are being considered under the Sabine Pass to Galveston Bay feasibility study. In developing this strategy, the Coastal Texas Protection and Restoration study will consider both structural and nonstructural measures, including options such as restoring and protecting natural features like barrier islands and wetlands, which can help reduce storm surge. The reconnaissance study was completed in November 2015. The strategy will reflect an integrated approach to flood damage reduction, which may include beach and dune ecosystem restoration, and barrier island restoration. This study will include an assessment of structural, nonstructural, and environmental project elements based on their contributions to reducing the risk of flood damage and loss of life in a hurricane, as well as their effects on the natural functions and values of the coastal aquatic ecosystem.

Because of the expanse of the Texas Coast, the coastline has been divided into four separate regions based on hydrologic conditions, water resources challenges and opportunities, and political subdivisions of the State of Texas. The regions range from: 1) Jefferson to Brazoria County; 2) Matagorda to Calhoun County; 3) Aransas to Kleberg County; and 4) Kenedy to Cameron County. The four regions include Galveston Bay (Region 1), Matagorda Bay (Region 2), Nueces County (Region 3), and Cameron County (Region 4). The Department of the Army and the State of Texas, acting through the General Land Office, Matagorda County, Nueces County/Corpus Christi, and Cameron County, as the non-Federal sponsor, executed a Feasibility Cost Sharing Agreement on November 16, 2015.

Division: Southwestern

District: Galveston

Coastal Texas Protection and Restoration, TX

Fiscal Year 2018 and Fiscal Year 2019 funds, plus carry-in funds, are being and will be used to continue the feasibility phase of the study to include identification of the Tentatively Selected Plan, development of the integrated draft Feasibility Report and Environmental Impact Statement and concurrent reviews of the draft report including public, policy, Agency Technical Review, and Independent External Peer Review (IEPR), working towards the Agency Decision Milestone and toward the Final Report submittal. The estimated cost of the feasibility phase is \$19,800,000, which is to be shared 50 percent Federal and 50 percent non-Federal, except for the Independent External Peer Review, which is estimated to cost \$400,000 and is funded at 100 percent Federal expense. A summary of the study cost-sharing is as follows:

Total Estimated Study Cost	\$20,180,000
Reconnaissance Study Phase (Federal)	380,000
Feasibility Phase (Federal)	10,100,000
Feasibility Phase (non-Federal)	9,700,000

This study is authorized by Section 4091 of the Water Resource Development Act of 2007.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$87,000. There was an additional \$500 of unobligated funds that are committed within the Corps for scheduled ongoing requirements in FY 2018. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

3/ \$100,000 was reprogrammed to the study in FY 2017.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY2016	Allocation in F2016	Allocation in FY2017	Presumed Allocation in FY2018	Budgeted Amount in FY2019	Additional to Complete After FY2019
	\$	\$	\$	\$	\$	\$	\$
	500,000	0	0	0	0 1/	250,000	250,000

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

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 for 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, 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.

Division: Southwestern

District: Galveston

Corpus Christi Ship Channel, TX

Fiscal Year 2019 funds will be used to initiate development of the dredged material management plan, including working to identify potential placement area sites for CCSC maintenance efforts. 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/ There was no Conference Amount available at the time this justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$	\$	\$	\$	\$	\$	\$
	3,250,000	0	600,000	1,700,000	900,000 1/ 2/	50,000	0

PROJECT NAME: GIWW Brazos River Floodgates and Colorado River Lock, TX – Navigation (Completion)

The Brazos River Floodgates and Colorado River Lock are located along the intersections of the Gulf Intracoastal Waterway (GIWW) with the Brazos River in Brazoria County and Colorado River in Matagorda County, respectfully. The GIWW is authorized as part of the Inland Waterways System to provide navigation through a 12-foot deep by 125-foot wide channel. The Brazos River Floodgates project consists of flood gates on each side of the Brazos River that are 75 feet wide by 750 feet long. The Colorado River Lock project consists of one lock chamber on each side of the Colorado River consisting of two sector gates, each creating a chamber 75 feet wide by 1,200 feet long. Both projects serve to control flood flows from the Brazos and Colorado Rivers to the GIWW, improve navigation safety by controlling traffic flow and currents at the intersection with the GIWW, and aid in preventing sand and silt deposition into the GIWW. The average tonnage that passes through this reach of the GIWW is over 30 million tons per year. Due to the age of the structures, their size and alignments no longer accommodate typical tows that navigate on the GIWW. Time delays occur due to the requirement to break tows apart to pass through the structures. Frequent accidents occur when tows strike the structures while trying to line up and enter the structures. As a result, a barge collision occurs on average once every five days requiring frequent traffic restrictions while repairs are made. Navigation traffic delay costs are estimated to exceed \$10 million annually at each location. The scope of the study will assess the feasibility of realigning approaches into the structures, increasing the size of the structures to accommodate current day tows, and modifying existing structures to minimize cross currents.

Fiscal Year 2018 funds are being used to continue the feasibility study to include selection of the Tentatively Selected Plan and completion of the Agency Decision Milestone. Fiscal Year 2019 funds will be used to complete the feasibility phase of the study, including the Chief’s Report. The total cost of the feasibility phase is \$3,250,000, including \$250,000 for the Independent External Peer Review. As the GIWW is part of the Inland Waterways System, the feasibility study is funded at 100 percent Federal expense.

The study is authorized by Section 216 of Flood Control Act 1970 (P.L. 91-611).

The study is scheduled for completion in March 2019.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$587,000. There was an additional \$29,000 of unobligated funds that are committed within the Corps for scheduled ongoing requirements in FY 2018. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President’s Budget amount for FY 2018.

Division: Southwestern

District: Galveston

GIWW Brazos River Floodgates and Colorado River Lock, TX

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$4,500,000	\$0	\$0	\$0	\$0 1/	\$1,500,000	\$3,000,000

PROJECT NAME: Grapevine Lake, TX - Flood Risk Management (New)

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 U.S. Army Corps of Engineers uses dam safety modification studies 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.

Fiscal Year 2019 funds would be used to initiate the dam safety modification study. The estimated total cost of the dam safety modification study is \$4,500,000 and would be 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/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$	\$	\$	\$	\$	\$	\$
	5,368,000	350,000	700,000	2,214,500	1,500,000 1/ 2/	603,500 1/	0

PROJECT NAME: Houston Ship Channel, TX - Navigation (Completion)

The Houston Ship Channel System is comprised of the Houston Ship Channel, Bayport Ship Channel, Barbour Terminal Channel, and Greens Bayou. The Houston Ship Channel extends 52 miles from its juncture with Texas City Channel at the entrance to Galveston Bay and terminates at its turning basin in the city of Houston. The HSC System also includes the Galveston Entrance and Texas City Channels (not owned by the Port of Houston). From channel mile 0 to channel mile 40 (Boggy Bayou), the authorized channel depth is 45 feet, with a bottom width of 530 feet. The remaining channel depth from channel mile 40 (Boggy Bayou) to channel mile 52 (turning basin) varies from 36 feet to 40 feet, with a bottom width of 300 feet. The Bayport Ship Channel extends 4.1 miles from its juncture with the Houston Ship Channel at mile 20.5 and terminates at its turning basin near the community of Shore Acres. The authorized channel depth is 40 feet, with a bottom width of 300 feet. Barbour Terminal Channel extends 1.5 miles east from its juncture with the Houston Ship Channel at mile 26.3 and terminates at its turning basin. The authorized channel depth is 40 feet with a width of 300 feet. Both the Bayport Ship Channel and Barbour Terminal Channel have been deepened to 45 feet by the Port of Houston Authority under the authority of Section 204 of the Water Resources Development Act of 1986, as amended. In May 2014, the Assistant Secretary of the Army (Civil Works) approved the assumption of federal operation and maintenance for the work that the port performed under Section 204 on these channels. The latest improvement to the Houston Ship Channel included deepening of the channel to 45 feet from the Gulf of Mexico up to Boggy Bayou, which was completed in June 2005. The Galveston Channel from the Entrance Channel to the vicinity of Pier 33, a distance of 11,400 feet (2.11 miles), is authorized and constructed to a depth of 45 feet with a bottom width ranging from 650 feet to 1,112 feet. The existing Texas City Channel was deepened and widened to 45 feet by 400 feet in April 2012. The existing Galveston Channel has experienced increased traffic for vessels with drafts greater than 40 feet for the remaining length of the channel, which is currently authorized at 40 feet. The Port of Houston has expressed an interest in improvements to the entire Houston–Galveston Ship Channel System. The Port of Texas City has not requested improvement to the Texas City Channel.

Development along the Houston Ship Channel has continued to increase, resulting in more vessel traffic and an increased risk of collisions and other incidents between vessels. The increased traffic could also increase the benefits associated with channel deepening or widening, or other measures to improve efficiencies. The port has experienced an increase in the size of some of the vessels utilizing these channels since the Panama Canal Expansion Project opened in 2015. The Port of Houston is the Nation’s number one port in terms of foreign waterborne tonnage at approximately 164,000,000 per year and number two in total tonnage with an estimated 248,000,000 per year based on Fiscal Year (FY) 2016 Waterborne Commerce data. The major commodities include petroleum, chemicals, and commercial bulk goods. Currently, some vessels calling at the Port of Houston experience channel depth and width constraints. The light loading of some of these vessels results in an increased number of vessel trips, which increases the total number of vessels on the Houston Ship Channel. One-way traffic is required for vessels with beams greater than 105 feet, causing time delays in areas of the Boggy Bayou to Main Turning Basin. Current channel configurations require slowing and tug assistance for cargo vessels with a capacity over 150,000 dead weight tonnage classes. The level of traffic, relative to channel dimensions in some places, has increased the potential safety risks (life safety, vessel safety, and environmental safety). The study is investigating increases of

Division: Southwestern

District: Galveston

Houston Ship Channel, TX

the Houston Ship Channel Boggy Bayou Reach from 1-foot to 5-foot depth in addition to options for widening to include passing lanes to accommodate larger vessels. Alternatives analyze additional management measures including anchorage and turning basins, mooring areas in the Bay Reach of the channel; breakwaters, jetties and an offshore crude terminal. Any deepening and widening activities in the Houston Ship Channel system may also require channel modification such as bend easing or widening. A major challenge in this study, due to the industrial growth in the area, is the coordination of new environmentally suitable placement areas in conjunction with beneficial use of dredge material. The non-Federal sponsor, the Port of Houston Authority, signed a Feasibility Cost Sharing Agreement with the Department of the Army on November 13, 2015.

Fiscal Year 2018 funds are being used to continue the feasibility phase of the study, to include preparing for the Agency Decision Milestone. Fiscal Year 2019 funds, plus any carry-in funds, will be used to complete the feasibility phase of the study, including completion of the Chief's Report. The cost of the feasibility phase is \$9,750,000, which is shared 50 percent Federal and 50 percent non-Federal, except for \$250,000 for the Independent External Peer Review which is funded at 100 percent Federal expense.

Total Study Cost	\$ 10,243,000
Reconnaissance Study Phase (Federal)	243,000
Feasibility Phase (Federal)	5,125,000
Feasibility Phase (Non-Federal)	4,875,000

The study is authorized by Section 216 of the Flood Control Act of 1970, dated December 31, 1970.

The study is scheduled for completion in October 2019.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$1,054,000. There was an additional \$63,000 of unobligated funds that are committed within the Corps for scheduled ongoing requirements in FY 2018. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY2016	Allocation in FY2016	Allocation in FY2017	Presumed Allocation in FY2018	Budgeted Amount in FY2019	Additional to Complete After FY2019
	\$	\$	\$	\$	\$	\$	\$
	1,700,000	0	200,000	500,000	800,000 1/ 2/	200,000	0

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

The project is located in the vicinities of Port O'Connor, Port Lavaca, and Point Comfort in Matagorda and Calhoun Counties, Texas. The Matagorda Ship Channel (MSC) consists of an outer bar and jetty channel 38 feet deep Mean Lower Low Water (MLLW) and 300 feet wide from the Gulf of Mexico through a man-made cut across Matagorda Peninsula; an inner channel 37 feet deep MLLW, 200 feet wide and about 22 miles long across Matagorda and Lavaca Bays to Point Comfort; a Turning Basin at Point Comfort 37 feet deep MLLW and 1,000 feet square; and dual jetties at the entrance from the Gulf of Mexico. Port records indicate that liquid bulk (tankers) and dry bulk cargo vessels are the dominant deep-draft vessels operating in the MSC. The current channel is economically inefficient, with the majority of deep-draft ships using the MSC having design drafts equal to or in excess of the 37 foot MLLW operating depth of the channel (data collected from 2011-2013). In 2013, the median vessel calling had a design draft of 43 feet MLLW, with a beam of 109 feet. Given the restrictive drafts, the current fleet must be light-loaded to safely navigate the channel. While current data shows a small percentage of vessel trips in the 34 foot MLLW and deeper increment, these are the vessel trips bringing in the most tonnage (i.e., larger vessels that are more efficient). As vessels get larger, the channel will be unable to adequately accommodate the traffic with the potential for an increased number of accidents.

The purpose of the study is to investigate the Federal interest in deepening and/or widening of the entire channel. A Feasibility Cost Sharing Agreement was signed between the Department of Army and the Calhoun County Navigation District, the non-Federal sponsor, on August 5, 2016.

Fiscal Year (FY) 2018 funds are being used to continue the feasibility phase of the study to include conducting the Agency Decision Milestone and developing the final feasibility report. FY 2019 funds, plus any carry-in funds, will be used to complete the feasibility phase of the study, including completion of the Chief's Report. The cost of the feasibility phase is \$3,200,000, which is to be cost shared 50 percent Federal and 50 percent non-Federal, except for the Independent External Peer Review, which is estimated to cost \$200,000 and will be 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 Section 216 of Flood Control Act 1970 (P.L. 91-611).

Division: Southwestern

District: Galveston

Matagorda Ship Channel

The study is scheduled for completion in July 2019.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$489,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$4,500,000	\$0	\$0	\$0	\$0 1/	\$1,500,000	\$3,000,000

PROJECT NAME: Proctor Lake, TX - Flood Risk Management (New)

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 U.S. Army Corps of Engineers (Corps) uses dam safety modification studies 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.

Fiscal Year 2019 funds would be used to initiate this dam safety modification study. The estimated total cost of the dam safety modification study is \$4,500,000 and would be 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/ There was no Conference Amount available at the time this budget justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation In FY 2016	Allocation In FY 2017	Presumed Allocation In FY 2018	Budgeted Amount In FY 2019	Additional To Complete After FY 2019
	\$ 3,000,000	\$ 0	\$ 0	\$ 400,000	\$ 600,000 1/ 2/	\$ 1,600,000	\$ 400,000

PROJECT NAME: Atlantic Intracoastal Waterway Bridge Replacement at North Landing, Virginia – Navigation (Continuing)

The study area includes the Atlantic Intracoastal Waterway (AIWW) in the vicinity of the North Landing Bridge. The North Landing Bridge passes over the Albemarle and Chesapeake Canal, connecting the cities of Chesapeake, VA and Virginia Beach, VA. The AIWW waterway intersects several existing highways. In terms of commercial vessel traffic, there were 1,532 vessel trips reported in 2013 (latest year of record) carrying 1,042,000 tons of commerce. Opened to traffic in 1951, the North Landing Bridge is a double-swing, dual-lane span that conveys VA Route 165 over the canal. The bridge carries an average of nearly 11,000 vehicles per day, in excess of its design capacity of 8,000 vehicles per day. As a result of this highway traffic, navigation is adversely constrained by the limited number of scheduled bridge openings. Outage of the bridge due to accident or equipment failure can affect both vehicular traffic and vessel traffic. When the bridge cannot open for vehicle traffic, the detour route is an additional 15 miles. Operation and maintenance of the North Landing Bridge is the responsibility of the Corps of Engineers. The current weight limit of the bridge restricts certain ladder trucks, tankers and other emergency vehicles from using the bridge, and others may cross under a variance to the load limit, but only in coordination with the bridge operator, one vehicle at a time at reduced speed. The bridge is at a relatively low elevation, and experiences outages to navigation as a result of high water conditions during tropical storms. When the bridge is unable to open for navigation, all commercial vessel traffic comes to a halt. Only the smaller recreational vessels can cross under the bridge when it is closed. If not replaced, the bridge continues to create a bottleneck and future risk to both navigation and vehicular traffic. The purpose of the study is to investigate the feasibility of replacing the bridge and turning it over to the non-Federal sponsor for future operation and maintenance similar to the replacement of two other bridges over the waterway – the drawbridges at Great Bridge and at Deep Creek. The study initiated in September 2017.

Fiscal Year 2018 funds are being used to continue this study, activities include evaluation of existing conditions, obtaining baseline data, and the development of alternative plans. Fiscal Year 2019 funds will be used to continue the study, activities will include additional data collection, economic and environmental analyses, and the development of a tentatively selected plan. The preliminary estimated cost of the feasibility study is \$3,000,000, including an estimated \$200,000 for the Independent External Peer Review. The feasibility study will be funded at 100 percent Federal expense because the Atlantic Intracoastal Waterway is part of the inland waterways system.

The study authority is Section 216 of the Flood Control Act of 1970. The Initial Appraisal was approved by the North Atlantic Division in June 2012.

1/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2017 to FY 2018 was \$390,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2019 from prior appropriations for use on this effort is \$0.

2/ There was no Conference Amount available at the time this justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.

Division: North Atlantic

District: Norfolk

Atlantic Intracoastal Waterway Bridge Replacement at North Landing, VA

APPROPRIATION TITLE: Investigations, Fiscal Year 2019

Study	Total Estimated Federal Cost	Allocations Prior to FY 2016	Allocation in FY 2016	Allocation in FY 2017	Presumed Allocation in FY 2018	Budgeted Amount in FY 2019	Additional to Complete After FY 2019
	\$	\$	\$	\$	\$	\$	\$
	300,000	0	0	0	0 <u>1/</u>	300,000	0

PROJECT NAME: Norfolk Harbor, VA – Navigation (New)

The Norfolk Harbor project includes the deep-draft, high-use navigation channels in the Elizabeth River, Hampton Roads, and the lower Chesapeake Bay. The project also includes the Craney Island Dredged Material Management Area, constructed on 2,500 acres of river bottom in Hampton Roads adjacent to Portsmouth, Virginia. Craney Island is the primary dredged material placement area for construction and maintenance dredging within the Hampton Roads port complex, including the Federal navigation channels, U.S. Navy facilities, Virginia Port Authority facilities, and other commercial port terminals. Dredged material management for the Norfolk Harbor project is based on three placement areas: the Craney Island Dredged Material Management Area (CIDMMA), the Dam Neck Ocean Dredged Material Disposal Site, and the Norfolk Ocean Dredged Material Disposal Site. In addition to the three established placement areas, the Craney Island Eastward Expansion, which was authorized by Congress in 2007, will be available to supplement the confined placement available at CIDMMA.

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, 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, 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.

A dredged material management plan for Norfolk Harbor was last updated in 1993, with updated lifespan and storage capacity evaluations in 2002 and 2004. In support of the Norfolk Harbor project, a dredged material management plan specifically for Craney Island was completed in 1981 that primarily addressed operational efficiencies that should be implemented to maximize the useful life of the CIDMMA. Subsequent to development of the original management plan, several limited scope assessments of the CIDMMA have been completed to validate available capacity and to determine lifecycle impacts to the facility that may have resulted from the various Norfolk Harbor improvements accomplished since that time. The CIDMMA is currently operated using the guidance from the 1981 DMMP. The Corps projected in development of the draft Norfolk Harbor Navigation Improvements General Reevaluation Report, dated November 7, 2017, that the CIDMMA has sufficient capacity until 2044 should maintenance dredging continue on an assumed annual basis.

The purpose of this specific study is to document the current availability of dredged material capacity at the CIDMMA in support of the Norfolk Harbor project. As per Engineering Regulation 1105-2-100, Planning Guidance Notebook, dated April 22, 2000, the first phase in the management plan development is the initial assessment. The initial assessment establishes whether a more detailed study is required to

Division: North Atlantic

District: Norfolk

Norfolk Harbor, VA

establish a management plan. If the initial assessment indicates that the existing dredged material management plan for the CIDMMA is insufficient, then a detailed dredged material management plan update to the 1981 plan will be required. An updated DMMP would identify specific measures necessary to optimize dredged material management techniques and extend the useful life of the facility for the volume of dredged material likely to be placed in the CIDMMA from Norfolk Harbor.

Fiscal Year 2019 funds will be used to initiate and complete the initial assessment. 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/ There was no conference amount available at the time this justification sheet was prepared. The amount shown is the President's Budget amount for FY 2018.