

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 3-6.

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 35-42.

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

PRECONSTRUCTION ENGINEERING AND DESIGN – Completion

Total Estimated Federal Cost	Allocations Prior to FY 2018	Allocation in FY 2018	Allocation in FY 2019	Allocation in FY 2020	Budgeted Amount in FY 2021	Additional to Complete After FY 2021
\$ 12,342,000	\$ 0	\$ 0	\$ 3,000,000	\$ 6,050,000 1/	\$ 3,292,000	\$ 0

PROJECT NAME: Three Rivers, AR – Navigation

The Three Rivers, Arkansas project is on the McClellan-Kerr Arkansas River Navigation System between the White and Arkansas Rivers just upstream of the Montgomery Point Lock & Dam, in southeast Arkansas. 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 River to the White River. 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.

The Chief’s Report for this project, signed September 6, 2018, recommended a project estimated to cost \$180,295,000 (October 2018 price level). The proposed project includes four construction components: construction of a new containment structure; restoration of a historic relief channel between the White River and Arkansas River; removal of the existing Melinda containment structure; modification of the Owens Lake containment structure; and conversion of approximately 20 acres of agricultural or fallow fields to bottomland hardwood wetland forest. The total project cost includes monitoring and adaptive management. The total annual costs of the project are estimated to be \$7,674,000, including \$724,000 of operation, maintenance, repair, replacement and rehabilitation. The benefit-cost ratio is 2.4 with a discount rate of 7 percent.

There is no non-Federal sponsor for this project; pre-construction engineering and design (PED) will be conducted at 100 percent Federal expense (cost shared with the Inland Waterways Trust Fund) as stated in Section 102 of the Water Resources Development Act of 1986 (Public Law 99-662) which establishes the cost share for inland waterways.

Fiscal Year 2020 funds, plus any carry-in funds, are being used to continue PED phase activities. Fiscal Year 2021 funds, plus carry-in funds, would be used to complete the PED phase.

Study authority: Section 216, P.L. 91-611, River and Harbor and Flood Control Act of 1970. The project was authorized for construction in Section 1401 of the America’s Water Infrastructure Act of 2018 (Public Law 114-322).

1/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2019 to FY 2020 was \$2,305,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2021 from prior appropriations for use on this effort is \$0.

Division: Southwestern

District: Little Rock

Three Rivers, AR

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete after FY 2021 \$
Issue Evaluation Study	3,361,000	1,222,000	606,000	1,033,000	500,000		
Dam Safety Modification Study	4,500,000					1,500,000	3,000,000
Preconstruction Engineering and Design	3,000,000						3,000,000
Total	10,861,000	1,222,000	606,000	1,033,000	500,000	1,500,000	6,000,000

PROJECT NAME: Carbon Canyon Dam, CA - Flood and Storm Damage Reduction (New/Completion)

Carbon Canyon Dam is located near Brea, California on Carbon Canyon Creek. Carbon Canyon Dam is a multipurpose project with flood control as the major benefit. The reservoir has a maximum storage capacity of 12,063 acre-feet. The project was authorized in 1936 and construction was completed in 1961. The Carbon Canyon Dam currently is rated as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year 2021 funds would be used to initiate the dam safety modification study (DSMS). The U.S. Army Corps of Engineers (Corps) uses 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 Carbon Canyon Dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate the prior year funding data for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for preconstruction engineering and design varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for Carbon Canyon Dam, 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete After FY 2021 \$
Issue Evaluation Study	1,328,000			628,000	700,000		
Dam Safety Modification Study	1,900,000				1,700,000	200,000	
Preconstruction Engineering and Design	4,500,000					2,200,000	2,300,000
Total	7,728,000	0	0	628,000	2,400,000	2,400,000	2,300,000

PROJECT NAME: Prado Dam, CA - Flood and Storm Damage Reduction (Completion/New)

Prado Dam and Reservoir is located near the City of Corona, California on the Santa Ana River. Prado Dam is a multipurpose project with flood control, water conservation and recreation. The reservoir has a maximum storage capacity of 295,581 acre-feet. Project construction completed in 1941. Construction of the new outlet works and the raised main embankment and dikes were completed in 2008. The Prado Dam is rated as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year (FY) 2020 funds are being used to initiate the dam safety modification study (DSMS) and the FY 2021 funds would be used to complete the DSMS and initiate preconstruction engineering and design (PED). The U.S. Army Corps of Engineers (Corps) uses 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 Prado Dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate the prior year funding for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for PED varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for Prado Dam, 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: South Pacific

District: Los Angeles

Prado Dam, CA

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

Total Estimated Federal Cost	Allocations Prior to FY 2018	Allocation in FY 2018	Allocation in FY 2019	Allocation in FY 2020	Budgeted Amount in FY 2021	Additional to Complete After FY 2021
\$	\$	\$	\$	\$	\$	\$
1,700,000	0	0	500,000	600,000	400,000 1/	200,000

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 Department of the Army and the non-Federal sponsors, the California Coastal Conservancy and the Santa Clara Valley Water District, signed a Feasibility Cost Sharing agreement in September 2019.

Fiscal Year 2020 funds, plus carry-in funds, will be used to initiate the feasibility phase of the study. Fiscal Year 2021 funds, plus any carry-in funds, will be used to continue the feasibility study and to achieve the Agency Decision Milestone for a selected plan. 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 2019 to FY2020 was \$500,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY2021 from prior appropriations for use on this effort is \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

PRECONSTRUCTION ENGINEERING AND DESIGN – Completion

Total Estimated Federal Cost	Allocations Prior to FY 2018	Allocation in FY 2018	Allocation in FY 2019	Allocation in FY 2020	Budgeted Amount in FY 2021	Additional to Complete After FY 2021
\$	\$	\$	\$	\$	\$	\$
3,900,000	0	0	400,000	1,472,000	2,028,000 1/	0

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 project authorized in 1992 to address underseepage. The Corps completed those levee improvements in 2011. The Chief’s Report for this project, signed on April 26, 2016, 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 the American River, 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, signed the design agreement in April 2019.

Fiscal Year 2020 funds, plus carry-in funds, are being used to continue pre-construction engineering and design (PED). Fiscal Year 2021 funds, plus any carry-in funds would be used to complete the PED phase. 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

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

1/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY2019 to FY 2020 was \$234,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: South Pacific

District: Sacramento

West Sacramento, CA

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete after FY 2021 \$
Issue Evaluation Study	2,175,000	665,000	181,000	629,000	700,000		
Dam Safety Modification Study	2,400,000					800,000	1,600,000
Preconstruction Engineering and Design	3,000,000						3,000,000
Total	7,575,000	665,000	181,000	629,000	700,000	800,000	4,600,000

PROJECT NAME: John Martin Dam, CO - Flood and Storm Damage Reduction (New)

John Martin Dam is located near Lamar, Colorado on the Arkansas River. John Martin Dam is a multipurpose project with flood control as the major benefit. The reservoir has a maximum storage capacity of 608,245 acre-feet. The project was authorized in 1936 and construction was completed in 1948. The John Martin Dam is classified as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year 2021 funds would be used to initiate the dam safety modification study (DSMS). The U.S. Army Corps of Engineers (Corps) uses 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 John Martin Dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate prior year funding data for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for preconstruction engineering and design varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for John Martin Dam, 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: South Pacific

District: Albuquerque

John Martin Dam, CO

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

Total Estimated Federal Cost	Allocation Prior to FY 2018	Allocation in FY2018	Allocation in FY 2019	Allocation in FY 2020	Budgeted Amount in FY 2021	Additional to Complete after FY 2020
\$	\$	\$	\$	\$ 1/	\$	\$
TBD	682,000	300,000	50,000	315,000	50,000	TBD

PROJECT NAME: Interbasin Control of Great Lakes – Mississippi River Aquatic Nuisance Species, IL, IN, OH AND 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 2020 and Fiscal Year 2021 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 2019 to FY 2020 was \$1,000. 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 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete after FY 2021 \$
Issue Evaluation Study	6,779,000	3,466,000	1,516,000	1,096,000	700,000		
Dam Safety Modification Study	2,200,000				200,000	2,000,000	
Preconstruction Engineering and Design	4,500,000						4,500,000
Total	13,479,000	3,466,000	1,516,000	1,096,000	900,000	2,000,000	4,500,000

PROJECT NAME: Garrison Dam, ND - Flood and Storm Damage Reduction (Completion)

Garrison Dam is located near Riverdale, North Dakota on the Missouri River. Garrison Dam is a multipurpose project with flood control and hydropower as the major benefits. The reservoir has a maximum storage capacity of 26,000,000 acre-feet. The project was authorized in 1944 and construction was completed in 1954. The Garrison Dam is rated as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year (FY) 2020 funds are being used to initiate and FY 2021 funds would be used to complete the dam safety modification study (DSMS). The U.S. Army Corps of Engineers (Corps) uses 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 Garrison Dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate prior year funding data for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for preconstruction engineering and design varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for Garrison Dam 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Northwestern

District: Omaha

Garrison Dam, ND

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete After FY 2021 \$
Issue Evaluation Study	2,392,000	1,914,000	406,000	73,000			
Dam Safety Modification Study	400,000			100,000	300,000		
Preconstruction Engineering and Design	3,500,000				500,000	3,000,000	
Total	6,292,000	1,914,000	406,000	173,000	800,000	3,000,000	0

PROJECT NAME: Bolivar Dam (Magnolia Levee), OH - Flood and Storm Damage Reduction (Completion)

Bolivar Dam (Magnolia Levee) is located near the Village of Magnolia, Ohio on the Muskingum River. Bolivar Dam is a project with flood control. The reservoir has a maximum storage capacity of 149,600 acre-feet. The Muskingum Watershed Conservancy District completed construction of the project in 1938 and Congress transferred the project to the Corps in 1939. A previous dam safety modification at this project was completed in October 2017 based on a June 2009 Major Rehabilitation Report; the project involved construction of a seepage barrier, seepage blanket, service gate replacement and instrumentation contracts. The Bolivar Dam (Magnolia Levee) is currently rated as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year (FY) 2020 funds are being used to complete the dam safety modification study (DSMS) and initiate preconstruction engineering and design (PED) and the FY 2021 funds would be used to complete PED. The U.S. Army Corps of Engineers (Corps) uses 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 was based on available information gathered during the issue evaluation study that actionable failure modes are present that may pose an unacceptable risk to the public. The Corps will conduct this effort in accordance with Engineering Regulation 1110-2-1156, Safety of Dams – Policy and Procedures, dated March 31, 2014.

The Corps does not track and cannot validate the prior year funding data for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for PED varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study and design is authorized under the project-specific authorizations for Bolivar Dam, 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Great Lakes and Ohio River

District: Huntington

Bolivar Dam (Magnolia Levee), OH

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete After FY 2021 \$
Issue Evaluation Study	8,825,000	8,406,000	419,000				
Dam Safety Modification Study	5,000,000		1,500,000	1,500,000	1,500,000	500,000	
Preconstruction Engineering and Design	4,500,000					2,200,000	2,300,000
Total	18,325,000	8,406,000	1,919,000	1,500,000	1,500,000	2,700,000	2,300,000

PROJECT NAME: Keystone Dam, OK - Flood and Storm Damage Reduction (Completion/New)

Keystone Dam is located near Tulsa, Oklahoma on the Arkansas River. Keystone Dam is a multipurpose project with flood control as the major benefit. The reservoir has a maximum storage capacity of 1,672,613 acre-feet. The project was authorized in 1950 and construction was completed in 1964. The Keystone Dam currently is rated as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year (FY) 2020 funds are being used to continue the DSMS and FY 2021 funds would be used to complete the DSMS and to initiate preconstruction engineering and design (PED). The U.S. Army Corps of Engineers (Corps) uses 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 Keystone Dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate the prior year funding data for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for PED varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study and design is authorized under the project-specific authorizations for Keystone Dam, which implicitly include the authority to study and implement measures to address potential safety-related concerns. These efforts are 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/ \$	Budgeted Amount in FY 2021 \$	Additional to Complete after FY 2021 \$
Issue Evaluation Study	1,999,000	777,000	495,000	327,000	400,000		
Dam Safety Modification Study	4,500,000					1,500,000	3,000,000
Preconstruction Engineering and Design	3,000,000						3,000,000
Total	9,499,000	777,000	495,000	327,000	400,000	1,500,000	6,000,000

PROJECT NAME: Bonneville Lock and Dam, OR - Flood and Storm Damage Reduction (New)

Bonneville Dam is located near Portland, Oregon on the Columbia River. Bonneville Lock and Dam is a multipurpose project with navigation, hydropower, fish and wildlife, water quality, and recreation. The project is a run-of-river project with river outflow equal to inflow. Bonneville Lock and Dam was authorized in 1933 and construction was completed in 1937, with additional construction occurring in 1983 to build a second powerhouse and 1993 to construct a second navigation lock. The Bonneville Dam currently is rated as a Dam Safety Action Classification 2 dam.

Fiscal Year 2021 funds would be used to initiate a Dam Safety Modification Study (DSMS). The U.S. Army Corps of Engineers (Corps) uses 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 Bonneville Lock and Dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate prior year funding data for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for preconstruction engineering and design varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for Bonneville Lock and Dam, 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Northwestern

District: Portland

Bonneville Lock and Dam, OR

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

Study	Total Estimated Federal Cost	Allocations Prior to FY 2018	Allocation in FY 2018	Allocation in FY 2019	Allocation in FY 2020	Budgeted Amount in FY 2021	Additional to Complete After FY 2021
	\$	\$	\$	\$	\$	\$	\$
	TBD	5,076,000	8,075,000	10,106,000	9,799,000	10,260,000 1/	TBD

PROJECT NAME: Columbia River Treaty 2024 Implementation, OR - Flood and Storm Damage Reduction (Continuing) 2/

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/ Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2019 to FY 2020 was \$4,779,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2021 from prior appropriations for use on this effort is \$0.

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

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete after FY 2021 \$
Issue Evaluation Study	4,860,000	2,016,000	1,247,000	697,000	900,000		
Dam Safety Modification Study	500,000					500,000	
Preconstruction Engineering and Design	4,500,000					2,172,000	2,328,000
Total	9,860,000	2,016,000	1,247,000	697,000	900,000	2,672,000	2,328,000

PROJECT NAME: Cougar Lake, OR - Flood and Storm Damage Reduction (Complete/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. 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.

FY 2020 funds are being used to continue the dam safety modification study (DSMS) and FY 2021 funds would be used to complete the DSMS and begin preconstruction engineering and design (PED). The Corps uses 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 gathered during the issue evaluation study 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 does not track and is unable to validate the prior year funding data for this effort shown in the table above. In FY 2019 and FY 2020, 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 this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for PED varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Northwestern

District: Portland

Cougar Lake, OR

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete after FY 2021 \$
Issue Evaluation Study	2,560,000	281,000	511,000	1,068,000	700,000		
Dam Safety Modification Study	2,200,000				200,000	2,000,000	
Preconstruction Engineering and Design	4,500,000						4,500,000
Total	9,260,000	281,000	511,000	1,068,000	900,000	2,000,000	4,500,000

PROJECT NAME: Foster Lake, OR - Flood and Storm Damage Reduction (Completion)

Foster Lake, OR is located near Foster, Oregon on the South Santiam River. Foster Lake is a multipurpose project with flood control and hydroelectric power generation as the major benefits. The reservoir has a maximum storage capacity of 33,600 acre-feet. The project was authorized in 1960 and construction was completed in 1967. Foster Lake dam currently is rated as a Dam Safety Action Classification 2 dam.

Fiscal Year 2020 funds are being used to initiate the dam safety modification study (DSMS) and FY 2021 funds, plus any carry-in amount, will complete the DSMS. 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 Foster Lake dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate the prior year funding data for this effort shown in the table above. In 2020, the Corps initiated 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 this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for preconstruction engineering and design varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for Green Peter – Foster Lake, OR, 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Northwestern

District: Portland

Foster Lake, OR

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete after FY 2021 \$
Issue Evaluation Study	3,447,000	2,544,000	478,000	225,000	200,000		
Dam Safety Modification Study	2,200,000				200,000	2,000,000	
Preconstruction Engineering and Design	4,500,000						4,500,000
Total	10,147,000	2,544,000	478,000	225,000	400,000	2,000,000	4,500,000

PROJECT NAME: Green Peter Lake, OR - Flood and Storm Damage Reduction (Completion)

Green Peter Lake is located near Albany, Oregon on the Middle Santiam River. Green Peter Lake is a multipurpose project. The reservoir has a storage capacity of 430,000 acre-feet. The project was authorized in 1950 and construction was completed in 1968. Green Peter Lake dam currently is rated as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year 2020 funds are being used to initiate the dam safety modification study (DSMS) and the FY 2021 funds, plus any carry-in amount, would complete the DSMS. The U.S. Army Corps of Engineers (Corps) uses 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 Green Peter Lake dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate prior year funding data for this effort shown in the table. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for preconstruction engineering and design varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for Green Peter 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Northwestern

District: Portland

Green Peter Lake, OR

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete After FY 2021 \$
Issue Evaluation Study	9,226,000	5,032,000	2,243,000	1,051,000	900,000		
Dam Safety Modification Study	1,200,000					1,200,000	
Preconstruction Engineering and Design	3,500,000					1,200,000	2,300,000
Total	13,926,000	5,032,000	2,243,000	1,051,000	900,000	2,400,000	2,300,000

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

Hills Creek Lake is located near Oakridge, Oregon on the Middle Fork of the Willamette River and 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 currently is rated as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year 2021 funds would be used to initiate and complete the dam safety modification study (DSMS) and to initiate pre-construction engineering and design (PED). The U.S. Army Corps of Engineers (Corps) uses 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 gathered during the issue evaluation study 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 does not track and cannot validate the prior year funding data for this effort shown in the table above. In FY 2019 and 2020, the Congress funded this DSMS 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 this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for PED varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Northwestern

District: Portland

Hills Creek Lake, OR

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete After FY 2021 \$
Issue Evaluation Study	4,709,000	2,869,000	733,000	807,000	300,000		
Dam Safety Modification Study	1,700,000				1,500,000	200,000	
Preconstruction Engineering and Design	4,500,000					2,200,000	2,300,000
Total	10,909,000	2,869,000	733,000	807,000	1,800,000	2,400,000	2,300,000

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

Lookout Point Lake is located near Lowell, Oregon on the Middle Fork of the Willamette River and 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 currently is rated as a Dam Safety Action Classification 2 dam.

FY 2020 funds are being used to continue the dam safety modification study (DSMS). Fiscal Year 2021 funds would be used to complete the DSMS and initiate the pre-construction engineering and design (PED) work. The U.S. Army Corps of Engineers (Corps) uses 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 Lookout Point Lake dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and cannot validate the prior year funding data for this effort shown in the table above. In FY 2019 and 2020, 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 and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for PED varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost \$	Allocations Prior to FY 2018 \$	Allocation in FY 2018 \$	Allocation in FY 2019 \$	Presumed Allocation in FY 2020 \$ 1/	Budgeted Amount in FY 2021 \$	Additional to Complete after FY 2021 \$
Issue Evaluation Study	2,450,000	216,000	536,000	1,297,000	400,000		
Dam Safety Modification Study	4,500,000					1,500,000	3,000,000
Preconstruction Engineering and Design	3,000,000						3,000,000
Total	9,950,000	216,000	536,000	1,297,000	400,000	1,500,000	6,000,000

PROJECT NAME: Benbrook Lake, TX - Flood and Storm Damage Reduction (New)

Benbrook Lake is located near Fort Worth, Texas on the Clear Fork of the Trinity River. Benbrook Lake is a multipurpose project with flood control as the major benefit. The reservoir has a maximum storage capacity of 410,000 acre-feet. The project was authorized in 1945 and construction was completed in 1952. The Benbrook Lake dam currently is rated as a Safety Action Classification (DSAC) 2 dam.

Fiscal Year 2021 funds would be used to initiate the dam safety modification study (DSMS). The U.S. Army Corps of Engineers (Corps) uses 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 Benbrook Lake dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate the prior year funding data for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for preconstruction engineering and design varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for Benbrook 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Southwestern

District: Fort Worth

Benbrook Lake, TX

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost	Allocations Prior to FY 2018	Allocation in FY 2018	Allocation in FY 2019	Presumed Allocation in FY 2020	Budgeted Amount in FY 2021	Additional to Complete after FY 2021
	\$	\$	\$	\$	\$ 1/	\$	\$
Issue Evaluation Study	2,793,000	1,671,000	978,000	144,000			
Dam Safety Modification Study	2,255,000			1,500,000	755,000		
Preconstruction Engineering and Design	3,000,000					3,000,000	
Total	8,048,000	1,671,000	978,000	1,644,000	755,000	3,000,000	0

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

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

Fiscal Year (FY) 2020 funds will be used to complete the dam safety modification study (DSMS) and FY 2021 funds would be used to initiate and complete preconstruction engineering and design (PED). The U.S. Army Corps of Engineers (Corps) uses 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 gathered during the issue evaluation study that actionable failure modes are present that may pose an unacceptable risk to the public. The Corps will conduct this effort in accordance with Engineering Regulation 1110-2-1156, Safety of Dams – Policy and Procedures, dated March 31, 2014.

The Corps does not track and is unable to validate the prior year funding data for this effort shown in the table above. In 2019 and 2020, the Congress funded this DSMS in the Construction account under the Dam Safety and Seepage/Stability Correction Program. The Budget provides the funding for this effort in the Investigations account to increase transparency of the use of Corps funds for this and other 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 study is funded at 100 percent Federal expense. The non-Federal cost for PED varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This design effort is authorized under the project-specific authorizations for Proctor Lake, TX, which implicitly include the authority to study and implement measures to address potential safety-related concerns. This effort 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

Division: Southwestern

District: Fort Worth

Proctor Dam, TX

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

	Total Estimated Federal Cost	Allocations Prior to FY 2018	Allocation in FY 2018	Allocation in FY 2019	Presumed Allocation in FY 2020	Budgeted Amount in FY 2021	Additional to Complete after FY 2021
	\$	\$	\$	\$	\$ 1/	\$	\$
Issue Evaluation Study	1,864,000		414,000	649,000	800,000		
Dam Safety Modification Study	4,500,000					1,500,000	3,000,000
Preconstruction Engineering and Design	3,000,000						3,000,000
Total	9,364,000	0	414,000	649,000	800,000	1,500,000	6,000,000

PROJECT NAME: North Springfield Lake, VT - Flood and Storm Damage Reduction (New)

North Springfield Lake is located near North Springfield, Vermont on the Black River. North Springfield Lake is a multipurpose project with flood control as the major benefit. The reservoir has a maximum storage capacity of 76,500 acre-feet. The project was authorized in 1938 and construction was completed in 1960. The North Springfield Lake dam currently is rated as a Dam Safety Action Classification (DSAC) 2 dam.

Fiscal Year 2021 funds would be used to initiate the dam safety modification study (DSMS). The U.S. Army Corps of Engineers (Corps) uses 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 North Springfield Lake dam reflects a finding based on the available information gathered during the issue evaluation study 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 does not track and is unable to validate the prior year funding data for this effort shown in the table above. The Budget provides the funding for this study in the Investigations account to increase transparency of the use of Corps funds for this and other 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. The study is funded at 100 percent Federal expense. The non-Federal cost for preconstruction engineering and design varies and is identified and calculated in the DSMS in accordance with either the Water Resources Development Act of 1986, as amended, or the Reclamation Safety of Dams Act (P.L. 98-404), as amended.

This study is authorized under the project-specific authorizations for North Springfield 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 2019 to FY 2020 is not currently available on a per project basis. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into Fiscal Year 2021 from prior appropriations for use on this effort is \$0.

APPROPRIATION TITLE: Investigations, Fiscal Year 2021

PRECONSTRUCTION ENGINEERING AND DESIGN – Completion

Total Estimated Federal Cost	Allocations Prior to FY 2018	Allocation in FY 2018	Allocation in FY 2019	Allocation in FY 2020	Budgeted Amount in FY 2021	Additional to Complete After FY 2021
\$	\$	\$	\$	\$	\$	\$
4,940,000	115,526 1/	200,000	710,000	1,467,000 2/	2,563,000	0

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

2/ Estimated Unobligated Carry-in Funding: The actual unobligated carry-in from FY 2019 to FY 2020 was \$688,000. As of the date this justification sheet was prepared, the total unobligated dollars estimated to be carried into FY 2021 from prior appropriations for use on this effort is \$0.

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 2020 funds are being used to continue pre-construction, engineering, and design (PED) for the Duckabush River Estuary project. Fiscal Year 2021 funds would be used to complete 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

Division: Northwestern

District: Seattle

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

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

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