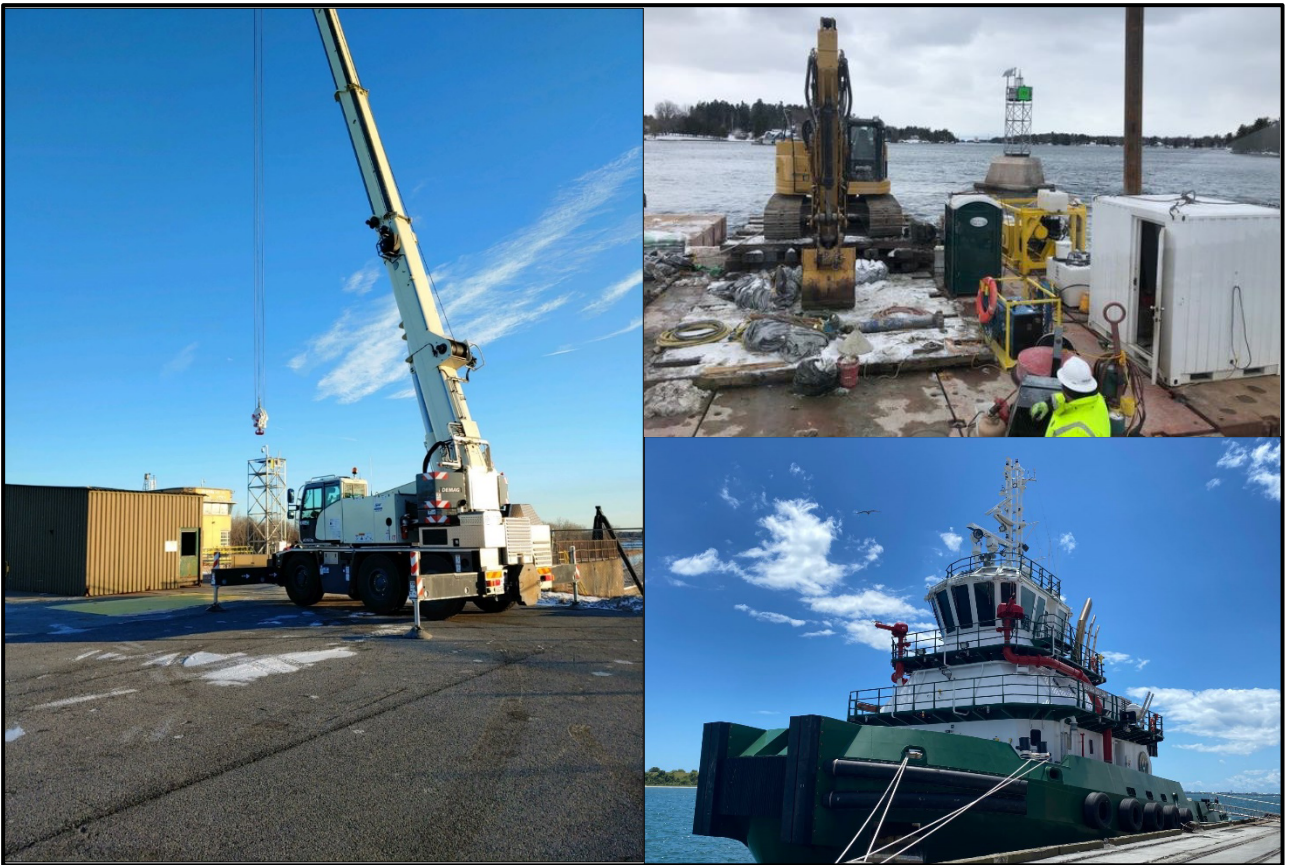




Great Lakes St. Lawrence Seaway Development Corporation

Seaway Asset Renewal Program (ARP) Annual Report to Congress



Fiscal Year 2020

TABLE OF CONTENTS

	<u>Page</u>
Background and Summary	1
Seaway Infrastructure Program (SIP)	2
FY 2020 Asset Renewal Program (ARP) Project Updates	4
ARP Obligations (FYs 2009-2020) (<i>Table</i>)	20
Seaway Infrastructure Program (SIP) Five-Year Estimates (FY 2022-2026) (<i>Table</i>)	22

Background and Summary

As requested in the Consolidated Appropriations Act, 2021 (Pub. L. No. 116-260), Joint Explanatory Statement (Division L), the Great Lakes St. Lawrence Seaway Development Corporation (GLS or Corporation) is providing this annual report to the House and Senate Committees on Appropriations on the status of its infrastructure Asset Renewal Program (ARP).

The start of the ARP in 2009 represented the first time in GLS's 50-year history that a comprehensive effort had been undertaken to modernize the Seaway infrastructure, including rehabilitation of and improvements to the U.S.-operated locks, the navigation channels, the Seaway International Bridge, and other Corporation-owned facilities and assets located in Upstate New York. None of the ARP projects increases the authorized depth or width of the navigation channel or the size of the lock facilities.

The Seaway comprises perpetual assets (locks, channels, an international bridge, highway tunnel, and accompanying facilities and equipment), which require capital reinvestment to continue to operate safely, reliably, and efficiently. Without sufficient investment in GLS's perpetual assets, the future availability and reliability of the U.S. section of the St. Lawrence Seaway would be at risk. Although the GLS has maintained a 99 percent reliability rate over its history, the ARP is currently necessary to continue accomplishing this level in the future.

Over its 60-year history, 3 billion metric tons of cargo valued at more than \$450 billion have moved through the St. Lawrence Seaway. This binational commercial transportation route impacts 237,000 U.S. and Canadian jobs and generates annual binational economic benefits of \$35 billion in economic activity, \$14.2 billion in personal income and local consumption expenditures, and \$6.6 billion in Federal, state/provincial, and local tax revenue.¹

In Fiscal Year (FY) 2020, the GLS obligated \$18.7 million on 35 ARP projects, including \$6.1 million on the design and construction of the GLS's second tugboat, \$2.4 million on maintenance dredging, \$2.3 million on the ice flushing system at Snell Lock, \$1.2 million on electrical distribution equipment, and \$1 million on heavy and light equipment purchases. Additionally, the GLS obligated and expended \$1 million in personnel compensation and benefits (PC&B) in FY 2020 for ARP-related staff time. As of September 30, 2020, the GLS's unobligated balance for ARP projects was \$16.2 million.

Each year following enactment of the GLS's appropriation, Corporation engineering, maintenance, and program officials finalize the internal ARP spending plan to re-allocate funding, deferring and accelerating projects as needed. In addition, GLS officials make ongoing internal budget adjustments throughout each fiscal year to ensure that current priority projects are funded. The flexibility to make the appropriate project and/or funding adjustments has been a major factor in the GLS's success in managing and implementing the program.

Through the first 12 years of ARP funding (FYs 2009-2020), the GLS has obligated \$179 million on 59 separate projects (*see pages 20-21*). These projects included maintenance dredging in the U.S. portion of the Seaway navigation channel, lock miter gate and culvert valve machinery

¹ [*Economic Impacts of Maritime Shipping in the Great Lakes-St. Lawrence Region*](#), Martin Associates, July 2018.

upgrades, culvert valve replacements, hands-free mooring installation at the locks, gatelifter upgrades, miter gate rehabilitation, and tugboat replacements, as well as various other structural and equipment repairs and/or replacement.

These significant investments clearly demonstrate the commitment of the United States and Canada to the long-term health and vitality of the binational waterway, complementing similar investments being made by many other Great Lakes Seaway System stakeholders, including ports, terminals, and carriers.

Seaway Infrastructure Program (SIP)

Beginning in FY 2021, the GLS's infrastructure work has been reconstituted as an ongoing Seaway Infrastructure Program (SIP) based on recurring five-year capital plans, as was the case for the GLS prior to the start of the ARP in FY 2009. This program is consistent with existing Office of Management and Budget (OMB) guidance and requirements regarding useful segments of a capital project and is subject to annual appropriations.

The five-year capital plan estimates will be developed and updated annually by GLS engineering, maintenance, lock operations, and policy officials following annual winter preventative maintenance work and inspections. This capital planning process will ensure that aging machinery, equipment, and parts are rehabilitated/replaced; that buildings, grounds, and utilities are sufficiently maintained/refurbished; and that commercial trade can continue to move on the Seaway safely and without interruption or delays.

SIP projects and estimates will focus on the following eight infrastructure categories:

- Locks and Associated Structures – Includes the structures at Eisenhower and Snell Locks and those structures that are required for the operation and/or maintenance of the locks.
- Lock Equipment – Includes the equipment at Eisenhower and Snell Locks that is used to transit vessels through the locks and the controls for that equipment.
- Utilities – Includes utilities infrastructure for electricity, fuel, potable water, raw water, and compressed air.
- O&M Equipment and Work Vehicles – Includes mobile heavy and light equipment, shop equipment, and Massena-based work vehicles.
- Buildings and Grounds – Includes construction of and improvements to GLS-owned buildings, roadways, work areas, parking areas, and grounds.
- Dredging, Navigation Aids, and Floating Plant – Includes projects that improve the safety and efficiency of navigation, as well as improvements to and replacement of the GLS's floating plant.

- Seaway International Bridge – Includes capital improvements to the South Channel Span of the Seaway International Bridge. (GLS owns 68 percent of the South Channel Span.)
- IT and Communications – Includes improvements to the GLS’s non-Common Operating Environment (COE) IT network and systems as well as CCTV, cameras, and communication improvements.

For the FY 2022-2026 timeframe, the five-year estimates are included in this report on page 23. Dollar amounts for SIP projects are “project feasibility” estimates that can vary by an industry-recognized 20-30 percent. While many Seaway infrastructure projects have received funding over several years, the GLS uses a multi-phased approach to developing each project to ensure annual funding produces distinct and useful segments and avoids incremental funding, in accordance with OMB Circular A-11.

FY 2020 Asset Renewal Program (ARP) Project Updates

The following information provides an update on the 22 ARP projects with obligations totaling more than \$25,000 in FY 2020.² The GLS continues to use contract vehicles that promote small and disadvantaged businesses, as well as Federal contract programs offered by the General Services Administration (GSA), including e-Buy, AutoChoice, and the Federal Supply Schedule, whenever possible.

(1) Project No. 1: Both Locks – Upgrade Fendering on Approach Walls

General Description: This project is to replace wood fendering on the approach walls at both locks with rubber fenders to protect both the transiting vessels and the approach walls. The cost of the wood fenders is increasing such that the rubber fenders have become cost competitive. The rubber fenders that have been installed to date have performed well.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$162,246

Total Obligations (FYs 2009-2020): \$821,793

Project Update (as of September 30, 2020): In FY 2020, the GLS made purchases for supplies and equipment necessary for the GLS workforce to complete repairs to damaged ship fendering at the two U.S. Seaway locks. Purchases included 400 linear feet of rubber gate fendering and 400 linear feet of trapezoidal (v-shaped) fendering from B&H International, LLC, Bakersfield, Calif. (\$162,246). The fendering work is completed by the GLS maintenance workforce, and this is a regular and recurring project based on fendering damage and inventory needs. Most of the fendering purchased in FY 2020 is expected to be installed during FY 2021.

² There were 11 ARP projects with FY 2020 obligations below \$25,000 that are not reported in the project update section: Project No. 10: Both Locks – Upgrade Power Supply Infrastructure from Moses-Saunders Dam to Both Locks and Adjacent Facilities (\$20,000); Project No. 11: Fixed Navigation Aids – Rehabilitate (\$528); Project No. 15: Eisenhower Lock Highway Tunnel – Rehabilitate (\$82); Project No. 16: Corporation Technologies – Upgrade GPS/AIS/TMS (\$4,399); Project No. 27: Corporation Facilities – Replace Windows and Doors and Repair Building Facades (\$17,324); Project No. 30: Eisenhower Lock – Ice Flushing System – Upgrade (\$14,448); Project No. 58: Corporation Facilities – Upgrades to Meet Sustainability and Energy Goals (\$1,416); Project No. 64: Corporation Facilities – Upgrade Lock Structures Maintenance Building (\$14,915); Project No. 65: Both Locks – Install Lock Wall Guardrails (\$12,542); Project No. 69: Both Locks – Repair/Replace Corroded Piping and Malfunctioning Valves (\$125); and Project No. 71: Corporation Facilities – Facility and Underground Utilities Improvements (\$4,585). Additionally, two ARP projects included labor-only costs (Project No. 59: Corporation Facilities – Communications Improvements and Project No. 74: Corporation Facilities – Building Rehabilitation).

(2) **Project No. 7: Both Locks – Culvert Valves – Replace with Single Skin Valves**

General Description: This project is for replacing the double skin culvert valves with single skin valves. Culvert valves are an integral component to a lock's filling and emptying system that control the flow of water through the navigation locks. Cracking of major structural members has occurred and the structural members are not accessible for inspection, blast cleaning, and painting given the double-skin construction. The culvert valves are more than 50 years old and are corroding from the inside. The new single skin valves will provide access to the structural members for inspection and maintenance. The failure of a culvert valve would cause a delay to shipping while the damaged valve was removed and replaced.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$50,639

Total Obligations (FYs 2009-2020): \$2,646,920

Project Update (as of September 30, 2020): Since the start of the ARP in FY 2009, the GLS has made significant investments in the culvert valves used for filling and emptying the locks during each transit. The double skin culvert valves were redesigned as single-skin valves. In prior years, the GLS purchased eight of these improved valves (four in each lock). In FY 2020, the GLS workforce installed the new hydraulic control equipment for all eight single-skin valves to reduce vibrations during turbulent flows. To complete this installation, the GLS awarded a contract to Bosch Rexroth Corporation, Bethlehem, Pa., in FY 2020 for \$7,512 for additional equipment (culvert valve hydraulic manifold with additional counterbalance). Additionally, there were supplies and materials associated with this installation totaling \$2,404. The GLS also awarded a contract to Thew Associates Pels PLLC, Canton, N.Y., for \$9,850 to complete an alignment survey of a culvert valve recess area after the 2019 navigation season.



Final pair of redesigned single-skin culvert valves being installed at downstream end of Snell Lock

(3) **Project No. 8: Floating Navigation Aids – Upgrade/Replace**

General Description: This is an ongoing program to replace floating navigational aids/buoys and winter markers that have been damaged over the years and to upgrade the lights on the buoys. This project also includes testing all-season buoys to determine if

they will be effective for use in the Seaway. The GLS is responsible for 101 buoys (with one light per unit) and 59 winter markers along a 120-mile portion of the Seaway.

Mission Objective: Waterway Management

FY 2020 Obligations: \$26,466

Total Obligations (FYs 2009-2020): \$584,489

Project Update (as of September 30, 2020): In FY 2020, awarded a contract to Flash Technology, LLC, Franklin, Tenn., for \$25,986 for lanterns to be used on the GLS's all-season buoys. The GLS migration to all-season buoys allows its marine crew to use a small workboat to remove the self-contained light used throughout the normal navigation season in the fall and replace it with an ice lantern; and then re-install the self-contained light in the spring without having to completely remove the buoy from the water. The buoy would not have to be lifted out of the water except when it is found off-station or for a mooring inspection. This reduces the number of conventional buoys to be commissioned and decommissioned, thus saving the GLS time and money.

(4) Project No. 9: Corporation Equipment – Replace Heavy and Light Equipment, Maintenance Vehicles, and Shop Equipment

General Description: This is an ongoing program to replace heavy and light equipment, vehicles, and shop equipment as they become worn out and unserviceable. Heavy and light equipment include such items as a crane, dump truck, snowplow, backhoe, grader, front end loader, air compressor, forklift, and welder. Shop equipment includes such items as a lathe, drill press, vehicle hoist, and milling machine. Equipment and vehicles are inspected regularly and their replacement is prioritized based on the results of those inspections.

Mission Objective: Lock Operation Upgrade and Maintenance / Waterway Management

FY 2020 Obligations: \$1,040,321

Total Obligations (FYs 2009-2020): \$5,119,422

Project Update (as of September 30, 2020): In FY 2020, the GLS purchased work-related heavy and light equipment and motor vehicles for its Massena, N.Y., operations.

Five work-related vehicles purchased through the GSA Heartland Finance Center, Kansas City, Mo., totaled \$159,210 and included one utility van, one utility truck, one pickup truck, one compact passenger van, and one compact SUV to replace existing vehicles scheduled for surplus. The GLS also purchased a dump truck with a Tenco plow package from Tracey Road Equipment, East Syracuse, N.Y., for \$167,702, a Kubota utility

vehicle for \$17,868 from Snell Equipment, Inc., Potsdam, N.Y., and a 12-foot snow pusher attachment with mount for the front-end loader totaling \$4,500 from Mud Lake Stalls, LLC, De Peyster, N.Y.

The GLS also purchased a 45-ton all-terrain crane for \$639,000 from The Empire Crane Company, LLC, North Syracuse, N.Y. The crane replaces an existing 30-ton crane scheduled for surplus and will be used to access recess areas under the locks for maintenance and repairs and for removing and installing large lock equipment including ship arrestors and culvert valves.

(5) **Project No. 12: Corporation Equipment – Upgrade/Replace Floating Plant/Tugs**

General Description: This project is for rehabilitating and/or replacing the Corporation's floating plant that is used for maintaining the locks and navigation channels. This multi-year project includes: replacing the GLS's tugboats *Robinson Bay* and *Performance*; upgrading the buoy tender barge; purchasing a boat to be used for hydrographic surveying with upgraded surveying equipment; purchasing a small boat for emergency response; purchasing small boats for navigation aid maintenance; purchasing a spud barge/scow for work on navigational aids and for emergency/spot dredging; and rehabilitating the GLS's crane barge/gatelifter *Grasse River*, which would have to be utilized if a miter gate were damaged and had to be replaced.

Mission Objective: Lock Operation Upgrade and Maintenance / Waterway Management

FY 2020 Obligations: \$6,132,291

Total Obligations (FYs 2009-2020): \$38,632,237



The GLS's Seaway Guardian tugboat upon its 2020 arrival to Massena, N.Y.

Project Update (as of September 30, 2020): During FY 2020, the GLS received its new ice-class tugboat *Seaway Guardian* from the Gulf Island Shipyards, LLC, Houma, La. Prior to delivery, the GLS awarded contract modifications to Gulf Island Shipyards for \$236,152; a contract to Mino Marine, LLC, Jefferson, La., for \$108,657 for additional work during sea trials and testing; and a contract for \$20,000 to Robert Allan, Ltd., Vancouver, British Columbia, for additional inspection services during

construction. Upon its delivery to the GLS marine base in Massena, N.Y., the GLS purchased equipment, tools, and supplies to equip and outfit the new tug totaling \$72,959.

Related to the GLS's second tugboat, to replace the existing *Performance* tug, the GLS awarded a contract in FY 2020 to Washburn & Doughty Associates, Inc., East Boothbay, Maine, for \$5.5 million to perform the detail design and construction of the ice-capable, 60-foot tugboat. The tugboat will carry out a variety of construction and maintenance duties for the U.S. portion of the St. Lawrence Seaway, including routine maintenance of lock gates, maintenance and positioning of aids to navigation, ice management, and removal of accumulated ice from lock walls. The new tug is scheduled to be delivered to the GLS by winter 2021/spring 2022.

(6) **Project No. 14: Corporation Facilities – Replace Paving and Drainage Infrastructure**

General Description: This project is for improving the pavement and drainage along lock approach walls as well as the roadways, public parking, and work areas at all Corporation facilities. In Upstate New York, the damage to pavements caused by winter conditions is significant.

Mission Objective: Lock Operation Upgrade and Maintenance / Facility-Equipment Upgrade and Maintenance

FY 2020 Obligations: \$75,706

Total Obligations (FYs 2009-2020): \$3,771,569

Project Update (as of September 30, 2020): In FY 2020, the GLS awarded a contract to J.E. Sheehan Contracting Corp., Potsdam, N.Y., for \$50,042 to complete subgrade and drainage improvements on GLS roadways. The work was completed in FY 2020.

(7) **Project No. 17: Navigation Channels – Dredge U.S. Sectors to Maintain Design Grade and Dispose of Sediments**

General Description: This project is for dredging the U.S. Seaway navigation channel to remove sediment and to maintain the design grade for the channel bottom. Maintenance dredging areas include the intermediate pool (between Eisenhower and Snell Locks), the international tangent section to the east of Snell Lock, and several other sections of U.S. waters west of Eisenhower Lock. Funding will address high spots that still remain and silting that has occurred since the completion of earlier maintenance dredging projects, and GLS will also begin work on other sections of the St. Lawrence River under U.S. jurisdiction.

Mission Objective: Waterway Management

FY 2020 Obligations: \$2,366,016

Total Obligations (FYs 2009-2020):
\$10,599,406

Project Update (as of September 30, 2020): The GLS awarded a contract in FY 2020 to Luedtke Engineering Company, Frankfort, Mich., for \$1.2 million to perform maintenance dredging in the intermediate pool between the two U.S. locks. The dredging work will be completed in FY 2021. The GLS also awarded a contract to WSP USA, Inc., Buffalo, N.Y., for \$144,466 to perform inspection and testing services of the intermediate pool maintenance dredging. Additionally, the GLS awarded a contract in FY 2020 to Arconic Corporation, Pittsburgh, Pa., for \$991,224 to complete dredging in and around Snug Harbor on the Grasse River where the GLS stores its tugboats and gatelifter vessel. This dredging work was completed in early FY 2021.



Dredging operation in pool area near Eisenhower Lock

(8) Project No. 19: Corporation Facilities – Upgrade Electrical Distribution Equipment

General Description: This project is for upgrading electrical distribution equipment at both Eisenhower and Snell Locks and at the Maintenance Facility to ensure continued reliability. Much of this equipment is 60 years old.

Mission Objective: Lock Operation Upgrade and Maintenance / Facility-Equipment Upgrade and Maintenance

FY 2020 Obligations: \$1,198,793

Total Obligations (FYs 2009-2020): \$2,665,907

Project Update (as of September 30, 2020): In FY 2020, the GLS awarded a contract for \$222,414 to CDG Engineers, Inc., St. Louis, Mo., to conduct a set of comprehensive electrical system studies of GLS facilities including arc flash hazard analyses, safety training, and recommendations for repairing or replacing deficient equipment. The results of the study are expected in FY 2021.

Additionally, the GLS awarded a contract to Collins Hammond Electrical Contractors, Inc., Ogdensburg, N.Y., for \$867,160 for power distribution upgrades at the GLS's Snug Harbor where the new tugboats will be stored requiring additional power. The GLS also awarded a contract in FY 2020 for \$18,700 to S&L Electric, Inc., Colton, N.Y., for the demolition of an existing buried electrical conduit and installation of a new conduit.

Finally, the GLS awarded a contract in FY 2020 to CED Baldwin-Hall, Massena, N.Y., for \$6,326 for shore power equipment needed at the marine docks in Ogdensburg and Clayton, N.Y., which are used for the GLS's buoy runs at the start and end of each navigation season.

(9) **Project No. 20: Both Locks – Upgrade Lock Status/Controls**

General Description: This project is for upgrading the lock/equipment status systems and the lock operating controls at both Eisenhower and Snell Locks. At present, all of the major components are monitored and controlled by the new computerized system.

Adding control of some of the less critical components and more in-depth monitoring of the status of all components will improve the effectiveness of preventive maintenance activities and result in increased reliability.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$38,142

Total Obligations (FYs 2009-2020): \$1,237,555

Project Update (as of September 30, 2020): In FY 2020, the GLS awarded a contract to Optimation Technology, Rush, N.Y., for network upgrades to its operational, mission-critical systems which included upgrades to the lock control supervisory control and data acquisition (SCADA) system servers, programmable logic controller (PLC) software version upgrades, and programming to integrate the Snell Lock ice flushing system into the lock control system.

(10) **Project No. 23: Both Locks – Install Hands-Free Mooring System**

General Description: This project is for the Hands-Free Mooring (HFM) system at both Eisenhower and Snell Locks to hold vessels in place while they are in the lock instead of using wire ropes deployed by the vessel's crew and placed on bollards on the lock wall by GLS personnel. The HFM system uses vacuum pads, each of which provides up to 20 tons of holding force, mounted on vertical rails inside the lock chamber wall to secure the ship during the lockage process as it is raised or lowered while keeping it at a fixed distance from the lock wall. The last step in the lockage operation consists of releasing the vacuum and retracting the pads so that the vessel can sail safely out of the lock.

The system produces significant benefits involving workplace safety, carrier operating costs, transit efficiencies, and system competitiveness. The Canadian SLSMC initiated this project and began testing the new technology at their Welland Canal locks in 2007.

SLSMC-funded testing led to a fourth-generation design, which includes three units with two vacuum pads on each unit, mounted in slots in the lock chamber wall. The SLSMC completed installation at its locks and the system was fully functional during the 2017 navigation season. In FY 2019, the GLS successfully met its goal of completing the installation of the new HFM technology at both U.S. Seaway locks.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$650,911

Total Obligations (FYs 2009-2020): \$25,272,990

Project Update (as of September 30, 2020): The Seaway's HFM project was the first use of this technology for an inland waterway to move commercial vessels through a lock system. The new technology allows commercial ships to transit safely and efficiently without the use of mooring lines while also enhancing workplace safety and improving operational efficiency.

The GLS completed the installation and commissioning of the HFM system at Eisenhower Lock on September 19, 2018, and at Snell Lock on June 6, 2019. During the 2020 season, 99.2 percent of commercial transits on the Seaway utilized the GLS's HFM system.

There were several contracts awarded and contract modifications issued during FY 2020 to support the HFM system at the U.S. Seaway locks. These included:

- Cavotec USA, Mooresville, N.C., for \$600,275 to purchase a spare dynamic unit and hydraulic power unit that are specific to the HFM system and are only available from Cavotec.
- Dow Electric, Malone, N.Y., for \$9,105 for additional testing and work on the bubbler system on the HFM equipment.
- Optimation Technology, Inc., Rush, N.Y., for \$8,032 for HFM bubbler controls integration with the GLS's existing lock controls system at both locks.

(11) **Project No. 24: Both Locks – Structural Repair – Grout Leaks in Galleries and Recesses**

General Description: This project is for grouting cracks/joints in the concrete in the galleries and recesses at both Eisenhower and Snell Locks to reduce the infiltration of water into these areas. Water leaking into these areas accelerates the corrosion of the components/machinery and makes it difficult to perform maintenance on these items.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$244,795

Total Obligations (FYs 2009-2020): \$455,522

Project Update (as of September 30, 2020): The GLS awarded contract modifications in FY 2020 to Emagineered Solutions, Inc., Redmond, Ore., totaling \$234,400 to continue its work on repairing and grouting cracks in the galleries and stair risers at both U.S. Seaway locks. This work marks the first time in over a decade that grouting work will have been completed in the galleries. The work on this project was completed prior to the start of the 2020 navigation season.

(12) Project No. 28: Snell Lock – Walls, Sills, and Culverts – Rehabilitate Concrete

General Description: This project is to replace deteriorated/damaged concrete at Snell Lock in all areas except the diffusers. This includes concrete that has been damaged by freeze-thaw cycles and by vessel impacts. This deteriorated/damaged concrete includes the mass concrete that forms the locks walls, the walls, floors and ceilings of the filling and emptying culverts and the gate sills.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$724,220

Total Obligations (FYs 2009-2020): \$1,081,720

Project Update (as of September 30, 2020): The GLS awarded a contract in FY 2020 to Patterson-Stevens, Inc., Tonawanda, N.Y., for \$488,000 to replace 10 cubic yards of deteriorated concrete in the culvert intake manifold areas at Snell Lock. This work will be completed in early FY 2021 following the completion of the 2020 navigation season. Related to this ongoing work, the GLS awarded a contract to Mr. Grant Contractor, Inc., Harrisville, N.Y., for \$68,400 for crane operator services completed in FY 2020 during the winter months prior to the start of the 2020 navigation season.

(13) Project No. 29: Eisenhower Lock – Walls, Sills, and Culverts – Rehabilitate Concrete

General Description: This project is to replace deteriorated/damaged concrete at Eisenhower Lock in all areas except the diffusers. This includes concrete that was of poor quality when placed during original construction and concrete that has been damaged by freeze-thaw cycles and by vessel impacts. This deteriorated/damaged concrete includes the mass concrete that forms the locks walls, the walls, floors, and ceilings of the filling and emptying culverts and the gate sills.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$864,478

Total Obligations (FYs 2009-2020): \$2,811,184

Project Update (as of September 30, 2020): In FY 2020, the GLS awarded two contracts to Patterson-Stevens Inc., Tonawanda, N.Y., related to concrete restoration work at Eisenhower Lock. The first contract for \$194,100 was for the restoration of 40 cubic yards of concrete in the south culvert at Eisenhower Lock. This work was completed in early 2020 following the end of the 2019 navigation season. The second contract for \$596,000 was for the demolition and restoration of 20 cubic yards of concrete in the vertical lift gate pit at Eisenhower Lock. This work will be completed in early FY 2021 following the completion of the 2020 navigation season.

(14) Project No. 33: Both Locks – Upgrade Drainage Infrastructure in Galleries and Recesses

General Description: This project is to open existing drains or to drill new drains in the galleries and machinery recesses at both Eisenhower and Snell Locks. The drains are being filled up with concrete leachate products which slow and/or stop the drains and cause flooding of the galleries and machinery recesses.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$90,381

Total Obligations (FYs 2009-2020): \$421,659

Project Update (as of September 30, 2020): The GLS awarded a contract modification in FY 2020 for \$90,381 to Emagineered Solutions, Inc., Redmond, Ore., for additional work related to drainage repairs in the galleries and risers at Eisenhower Lock. The work was completed in FY 2020.

(15) Project No. 36: Eisenhower Lock – Diffusers – Replace

General Description: This project is to replace deteriorated/damaged concrete in the diffusers at Eisenhower Lock. This includes poor-quality concrete used during original construction of the locks as well as concrete that was damaged by freeze-thaw cycles. The diffusers are the outlet structures used to dampen the flow of water when the lock is emptied.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$71,665

Total Obligations (FYs 2009-2020): \$71,665

Project Update (as of September 30, 2020): In FY 2020, the GLS awarded a contract for \$58,942 to NKB & Ram-Tech JV, Syracuse, N.Y., to complete an inspection and evaluation of the condition of the concrete diffusers at Eisenhower Lock. A final report was presented to GLS officials in late FY 2020 and future diffuser rehabilitation work will be based on the results of the evaluation which indicated moderate to significant deterioration at various areas of the original concrete structures.

(16) Project No. 39: Both Locks – Dewatering Pumps – Upgrade Outdated Equipment

General Description: This project is for repairing/replacing several smaller pumps used for dewatering both Eisenhower and Snell Locks for maintenance of their underwater components. These pumps are almost 60 years old and parts for these units are no longer available. In recent years, the GLS began the replacement and/or repair of these pumps.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$53,186

Total Obligations (FYs 2009-2020): \$505,182

Project Update (as of September 30, 2020): In FY 2020, the GLS awarded two contract modifications to Dow Electric, Inc., Malone, N.Y., related to the dewatering pump controls at both locks. The modifications relate to a contract awarded in FY 2019 to install new controls for the GLS's dewatering pumps. This project replaces the original equipment dating back to the start of Seaway operations in the late 1950s. The work related to this project was completed in early FY 2021.

(17) Project No. 41: Snell Lock – Install Ice Flushing System Technologies

General Description: This project is for completing the installation of an ice flushing system at Snell Lock, similar to the one at Eisenhower Lock. The system will remove floating ice from the lock chamber to make room for transiting vessels and to prevent/minimize damage to the vessels and/or lock structures. Without this system, it is necessary to flush ice utilizing the filling valves, which is less efficient and effective, significantly increases the stresses on these valves, and damages them.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$2,282,764

Total Obligations (FYs 2009-2020): \$16,754,625

Project Update (as of September 30, 2020): As reported in previous ARP annual reports to Congress, the GLS has experienced ongoing problems with the ice flushing system that was installed at Snell Lock in winter 2013. Since FY 2015, the GLS has worked with the contractors and design engineers involved in this project to study and evaluate the operating problems and possible solutions.



GLS's ice flushing system at Snell Lock

After several years of analysis and re-engineering, the GLS successfully tested the new valve solution in early 2020 and proceeded with full installation of the modified system in FY 2020. Prior to installation work, the GLS awarded a contract to Bergmann Associates, Rochester, N.Y., for \$60,000 to perform a structural analysis of the ice flushing system grating. Following an analysis, a contract modification was awarded in FY 2020 to Hohl Industrial Services, Inc., Tonawanda, N.Y., for \$1.98 million to perform all demolition, installation, and

retrofit work for the system. Additionally, the GLS awarded a contract to Optimization Technology, Inc., Rush, N.Y., for \$153,512 to develop and install controls for the system. The system was fully installed in December 2020 and became operational at the end of the 2020 navigation season.

(18) Project No. 44: Both Locks – Ship Arrestor Machinery – Upgrade/Replace

General Description: This project is for replacing and, in some cases, upgrading the operating machinery for the ship arrestors at both Eisenhower and Snell Locks. The ship arrestors protect the miter gates from damage that would be caused should a vessel malfunction, making it unable to stop. This operating machinery is almost 60 years old and needs to be upgraded to ensure continued reliability.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$713,776

Total Obligations (FYs 2009-2020): \$1,428,380

Project Update (as of September 30, 2020): In FY 2020, the GLS awarded a contract to Dow Electric Inc., Malone, N.Y., totaling \$611,727 to complete the installation of the hydraulic machinery and controls for the ship arrestors at both locks. Each lock has two ship arrestors and require machinery and controls at each end of each arrestor. Additionally, the GLS awarded a contract to Adirondack Tool Co., Inc., Plattsburgh, N.Y., for \$16,112 for equipment rental necessary for the installation. The eight hydraulic machinery and control units were installed in FY 2020.

(19) Project No. 48: Both Locks – Stiffleg Derricks – Upgrade/Replace

General Description: This project is for upgrading the stiffleg derricks at both Eisenhower and Snell Locks. There is a stiffleg derrick located at each end of each lock. These are hoisting devices utilized to place the stoplogs, which are the temporary closure structures required for dewatering a lock for inspection and/or repair of the underwater components. These units are of riveted construction and are almost 60 years old.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$899,596

Total Obligations (FYs 2009-2020):
\$1,021,382

Project Update (as of September 30, 2020): The GLS awarded a contract modification in FY 2020 for \$626,255 to N.K. Bhandari, Architecture and Engineering, P.C., Syracuse, N.Y., to perform repair work to all four stiffleg derrick cranes at the upstream and downstream ends of both GLS locks including the rehabilitation or replacement of steel parts, hoisting cables, and/or sheaves as previously identified by the condition evaluation performed in FY 2019. The repair work was completed in FY 2020.



GLS performs test loading of stiffleg derrick after completion of repair work at Snell Lock

Additionally, the GLS awarded a contract to Rayco Wylie Systems, Hagerstown, Md., for \$33,900 to supply upgraded load cell monitoring equipment and control systems including commissioning services for all four stiffleg derrick cranes.

(20) Project No. 50: Snell Lock – Diffusers – Replace

General Description: This project is to replace deteriorated/damaged concrete in the diffusers at Snell Lock. This includes poor-quality concrete used during original construction of the locks as well as concrete that was damaged by freeze-thaw cycles. The diffusers are the outlets used to dampen the flow of water when the lock is emptied.

Mission Objective: Lock Operation Upgrade and Maintenance

FY 2020 Obligations: \$56,111

Total Obligations (FYs 2009-2020): \$56,111

Project Update (as of September 30, 2020): In FY 2020, the GLS awarded a contract for \$58,855 to NKB & Ram-Tech JV, Syracuse, N.Y., to complete an inspection and evaluation of the condition of the concrete diffusers at Snell Lock. A final report was presented to GLS officials in late FY 2020, and future diffuser restoration work will be based on the results of the evaluation, which indicated moderate to significant deterioration at various areas of the original concrete structures.

(21) Project No. 57: Corporation Technologies – Upgrade Network Security

General Description: This project enhances and improves the GLS's IT network infrastructure and security in Massena, N.Y. The growth of more technology-based ARP improvements is resulting in an increased need to expand and refine the GLS's network environment. The GLS is working closely with DOT's Office of the Chief Information Officer to coordinate and make these improvements.

Mission Objective: Facility-Equipment Upgrade and Maintenance

FY 2020 Obligations: \$411,279

Total Obligations (FYs 2009-2020): \$610,077

Project Update (as of September 30, 2020): The GLS continues to make systematic improvements to its IT network environment in Massena, N.Y. In FY 2020, the GLS awarded two contracts related to network switch upgrades for its Massena-based systems. The first contract was awarded to Iron Bow Technologies, LLC, Herndon, Va., for \$353,230 while a second contract was awarded to Meridian IT, Inc., Deerfield, Ill., for \$56,450. The network switch upgrades were coordinated with U.S. Department of Transportation OCIO officials to ensure conformity with Federal and Departmental IT security and networking configurations.

(22) **Project No. 61: Both Locks – Replace Recess Covers on Lock Walls**

General Description: This is a multi-year project to replace steel and steel/concrete composite covers that are used to access the lock operating machinery located in the galleries and recesses at both locks. Many of these recess covers are original and will be over 60 years old when replaced. They have deteriorated due to the use of salt to keep the areas where these covers are located clear of ice, and they have been damaged by trucks and heavy equipment driving over them. The GLS will replace them with more durable/maintainable materials designed for greater loads.

Mission Objective: Lock Operation Upgrade and Maintenance / Facility-Equipment Upgrade and Maintenance

FY 2020 Obligations: \$317,682

Total Obligations (FYs 2009-2020): \$740,926

Project Update (as of September 30, 2020): The GLS awarded several contracts in FY 2020 to procure supplies and materials to fabricate recess covers for installation on the lock walls to restore and/or improve the load-carrying capacity of those covers and to keep water from damaging the lock operating equipment below. GLS crews fabricated and installed the covers.

In FY 2020, the GLS continued its work that began in FY 2019 to address the replacement of the culvert valve bulkhead slot gratings located at both U.S. locks. Each lock has eight of these culvert valve bulkhead slots and the grating dates back several decades. The GLS identified a safety need to upgrade the bulkhead slot grating from standard grating to traffic-rated grating.

To complete this safety-related work, the GLS awarded a contract to Continental Construction, LLC, Gouverneur, N.Y., for \$134,599 to replace the eight gratings on the south side of both locks with traffic-rated grating. The work is expected to be completed in early FY 2021. Similar work was completed on the north side in early FY 2020 based on a contract awarded in FY 2019.

#####

This page has been intentionally left blank

GLS Asset Renewal Program (ARP) Obligations (FYs 2009-2020)

ARP #	ARP Project Description	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
1	Both Locks - Upgrade Fendering on Approach Walls	\$245,494	\$34,930	\$0	\$0	\$0	\$188,725
2	Both Locks - Rehabilitate Downstream Miter Gates	\$0	\$0	\$3,548,985	\$17,543	\$3,033,060	\$223,730
3	Both Locks - Rehabilitate Mooring Buttoms, Pins, and Concrete Along Guidewalls and Guardwalls	\$952,015	\$51,501	\$395	\$0	\$0	\$0
4	Both Locks - Culvert Valve Machinery - Upgrade to Hydraulic Operation	\$4,135,197	\$441,150	\$4,010,108	\$609,971	\$262,687	\$4,602
5	Both Locks - Rehabilitate Winter Maintenance Lock Covers	\$66,362	\$19,470	\$77,446	\$69,380	\$68,470	\$88,636
6	Seaway International Bridge - Perform Structural Rehabilitation and Corrosion Prevention	\$3,104,251	\$5,680,775	\$0	\$0	\$0	\$0
7	Both Locks - Culvert Valves - Replace With Single Skin Valves	\$2,155	\$331,356	\$111,059	\$306,898	\$8,745	\$1,385,149
8	Floating Navigational Aids - Upgrade/Replace	\$61,254	\$54,576	\$0	\$0	\$32,273	\$68,149
9	Corporation Equipment - Replace Heavy and Light Equipment, Maintenance Vehicles, and Shop Equipment	\$1,577,143	\$488,592	\$122,469	\$81,623	\$137,393	\$227,151
10	Both Locks - Upgrade Power Supply Infrastructure from Moses-Saunders Dam to Both Locks and Adjacent Facilities	\$19,994	\$232,079	\$97,979	\$28,003	\$17,099	\$38,320
11	Fixed Navigational Aids - Rehabilitate	\$66	\$29,173	\$18,454	\$23,311	\$33,397	\$14,199
12	Corporation Equipment - Upgrade/Replace Floating Plant	\$763,960	\$1,638,737	\$1,997,992	\$2,189,954	\$893,713	\$609,459
13	Corporation Facilities - Replace Roofs	\$146,481	\$494	\$9,740	\$96,894	\$45,240	\$0
14	Corporation Facilities - Replace Paving and Drainage Infrastructure	\$0	\$1,839,051	\$115,588	\$0	\$3,622	\$0
15	Eisenhower Lock Highway Tunnel - Rehabilitate	\$32,184	\$284,465	\$102,394	\$9,020	\$953	\$1,164,656
16	Corporation Technologies - Upgrade GPS/AIS/TMS	\$106,167	\$83,232	(\$1,730)	\$10,000	\$6,350	\$0
17	Navigation Channels - Dredge U.S. Sectors to Maintain Design Grade and Dispose of Sediments	\$4,298,696	\$13,359	\$3,675,679	\$118,885	\$4,936	\$465
18	Eisenhower Locks - Vertical Lift Gate - Replace Wire Ropes	\$1,458	\$496,528	\$134,194	\$311,286	\$0	\$0
19	Corporation Facilities - Upgrade Electrical Distribution Equipment	\$0	\$782,793	\$79,980	\$55,253	\$2,687	\$720
20	Both Locks - Upgrade Lock Status/Controls	\$31,207	\$162,661	\$114,248	\$134,044	\$202,941	\$157,659
21	Both Locks - Compressed Air Systems - Upgrade/Replace	\$22,123	\$82,824	\$23,393	\$2,792	\$33	\$0
22	Both Locks - Install Vessel Self Spotting Equipment	\$0	\$483	\$0	\$563	\$3,975	\$503,659
23	Both Locks - Install Hands-Free Mooring System	\$0	\$0	\$0	\$0	\$0	\$0
24	Both Locks - Structural Repair - Grout Leaks in Galleries and Recesses	\$38,799	\$0	\$0	\$2,812	\$0	\$0
25	Corporation Facilities - Upgrade/Replace Fire Alarm/Protection Systems	\$25,409	\$624	\$31,298	\$0	\$0	\$0
26	Corporation Facilities - Upgrade Storage for Lock Spare Parts and Equipment	\$0	\$13,778	\$29,188	\$143	\$1,124,640	\$32,475
27	Corporation Facilities - Replace Windows and Doors and Repair Building Facades	\$0	\$35,635	\$8,725	\$13,422	\$4,715	\$0
28	Snell Lock - Walls, Silts and Culverts - Rehabilitate Concrete	\$0	\$0	\$0	\$0	\$0	\$0
29	Eisenhower Lock - Walls, Silts and Culverts - Rehabilitate Concrete	\$0	\$214,227	\$0	\$0	\$452	\$0
30	Eisenhower Lock - Ice Flushing System - Upgrade	\$0	\$0	\$0	\$0	\$0	\$0
31	Both Locks - Rehabilitate Upstream Miter Gates	\$2,207,523	\$2,497,234	\$391,013	\$47,113	\$521	\$0
32	Snug Harbor - Rehabilitate Spare Gate Storage and Assembly Area	\$0	\$13,661	\$351,644	\$16,692	\$2,115,326	\$94,340
33	Both Locks - Upgrade Drainage Infrastructure in Galleries and Recesses	\$0	\$0	\$542	\$15,351	\$314,642	\$0
34	Both Locks - Improve Ice Control	\$0	\$13,518	\$0	\$0	\$0	\$0
36	Eisenhower Lock - Diffusers - Replace	\$0	\$0	\$0	\$0	\$0	\$0
38	Both Locks - Upgrade/Replace Emergency Generators	\$0	\$0	\$0	\$0	\$1,784,280	\$380,327
39	Both Locks - Dewatering Pumps - Upgrade Outdated Equipment	\$0	\$0	\$0	\$196,196	\$46,840	\$33,905
41	Snell Lock - Install Ice Flushing System Technologies	\$0	\$1,453	\$282,027	\$11,548,762	\$1,660,795	\$139,238
42	Both Locks - Miter Gates - Structural Rehabilitation	\$0	\$0	\$0	\$9,940	\$2,906,116	\$3,758,337
43	Both Locks - Miter Gate Machinery - Upgrade/Replace	\$0	\$0	\$133,901	\$7,754	\$3,256	\$3,785,656
44	Both Locks - Ship Arrestor Machinery - Upgrade/Replace	\$0	\$0	\$0	\$0	\$0	\$0
48	Both Locks - Stiffleg Derricks - Rehabilitate	\$0	\$0	\$0	\$0	\$0	\$0
50	Snell Lock - Diffusers - Replace	\$0	\$0	\$0	\$0	\$0	\$0
51	Corporation Facilities - Upgrade Physical Security to Meet HSPD-12 Requirements	\$0	\$26,656	\$22,775	\$365,896	\$41,979	\$24,852
52	Corporation Facilities - Eisenhower Lock Visitors' Center - Replace/Upgrade	\$0	\$0	\$14,318	\$0	\$309,098	\$815,730
53	Corporation Technologies - Upgrade Financial Management System	\$0	\$2,251	\$3,576	\$0	\$0	\$0
54	Corporation Facilities - Administration Building - Replace Elevator	\$0	\$0	\$145,381	\$0	\$0	\$0
55	Corporation Facilities - Maintenance Building - Replace Fuel Tanks	\$0	\$0	\$192,277	\$13,655	\$0	\$0
56	Corporation Facilities - Duty Free Store Property - Upgrade Security	\$0	\$0	\$18,489	\$0	\$0	\$0
57	Corporation Technologies - Upgrade Network Security	\$0	\$0	\$170,633	\$19,478	\$8,687	\$0
58	Corporation Facilities - Upgrades to Meet Sustainability and Energy Goals	\$0	\$0	\$72,311	\$82,641	\$39,976	\$28,678
59	Corporation Facilities - Communications Improvements	\$0	\$0	\$0	\$0	\$0	\$163
60	Both Locks - Improve Access to and Rehabilitate Machinery in Crossovers and Recesses	\$0	\$0	\$0	\$0	\$0	\$0
61	Both Locks - Replace Recess Covers on Lock Walls	\$0	\$0	\$0	\$0	\$0	\$0
64	Corporation Facilities - Upgrade Lock Structures Maintenance Building	\$0	\$0	\$0	\$0	\$0	\$0
65	Both Locks - Install Lock Wall Guardrails	\$0	\$0	\$0	\$0	\$0	\$0
69	Both Locks - Repair/Replace Corroded Piping and Malfunctioning Valves	\$0	\$0	\$0	\$0	\$0	\$0
71	Corporation Facilities - Facility and Underground Utilities Improvements	\$0	\$0	\$0	\$0	\$0	\$0
74	Corporation Facilities - Building Rehabilitation	\$0	\$0	\$0	\$0	\$0	\$0
--	Miscellaneous Expenses (non project-specific expenses and administrative PC&B costs)	\$113,774	\$153,370	\$160,384	\$119,656	\$97,762	\$119,458
ARP - TOTAL OBLIGATIONS		\$17,951,311	\$16,874,735	\$16,565,915	\$16,510,519	\$14,917,365	\$14,908,222
--	Other Than Personnel ARP Costs (contracts, inventory, equipment, supplies)	\$17,473,253	\$16,186,390	\$15,622,733	\$15,719,149	\$14,145,125	\$14,070,068
--	SLSDC ARP Project-Specific Personnel Compensation and Benefits (PC&B)	\$364,284	\$34,975	\$782,798	\$671,714	\$674,478	\$718,696
--	Miscellaneous ARP Costs (non project-specific expenses and administrative PC&B costs)	\$113,774	\$153,370	\$160,384	\$119,656	\$97,762	\$119,458

GLS Asset Renewal Program (ARP) Obligations (FYs 2009-2020)

ARP #	ARP Project Description	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	TOTAL
1	Both Locks – Upgrade Fendering on Approach Walls	\$140	\$0	\$0	\$0	\$190,258	\$162,246	\$821,793
2	Both Locks – Rehabilitate Downstream Miter Gates	\$0	\$0	\$0	\$0	\$0	\$0	\$6,823,318
3	Both Locks – Rehabilitate Mooring Buttons, Pins, and Concrete Along Guidewalls and Guardwalls	\$0	\$0	\$0	\$0	\$0	\$0	\$1,003,911
4	Both Locks – Culvert Valve Machinery – Upgrade to Hydraulic Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$9,463,715
5	Both Locks – Rehabilitate Winter Maintenance Lock Covers	\$12,127	\$0	\$0	\$0	\$0	\$0	\$401,891
6	Seaway International Bridge – Perform Structural Rehabilitation and Corrosion Prevention	\$0	\$0	\$0	\$0	\$0	\$0	\$8,785,026
7	Both Locks – Culvert Valves – Replace With Single Skin Valves	\$171,157	\$44,634	\$2,382	\$0	\$226,746	\$50,639	\$2,646,920
8	Floating Navigational Aids – Upgrade/Replace	\$126,064	\$1,969	\$2,198	\$190,544	\$20,996	\$26,466	\$584,489
9	Corporation Equipment – Replace Heavy and Light Equipment, Maintenance Vehicles, and Shop Equipment	\$141,124	\$18,486	\$17,162	\$156,648	\$1,011,310	\$1,040,321	\$5,119,422
10	Both Locks – Upgrade Power Supply Infrastructure from Moses-Saunders Dam to Both Locks and Adjacent Facilities	\$0	\$1,442	\$7,572	\$23,200	\$147,920	\$20,000	\$63,208
11	Fixed Navigational Aids – Rehabilitate	\$26,638	\$8,323	(543)	\$4,198	\$151,760	\$528	\$316,004
12	Corporation Equipment – Upgrade/Replace Floating Plant	\$318,600	\$9,228,567	\$9,826,516	\$4,600,729	\$431,719	\$6,132,291	\$38,632,237
13	Corporation Facilities – Replace Roofs	\$285,581	\$34,852	(8142)	\$0	\$0	\$0	\$619,140
14	Corporation Facilities – Replace Paving and Drainage Infrastructure	\$0	\$0	\$0	\$250,000	\$1,487,603	\$75,706	\$3,771,569
15	Eisenhower Lock Highway Tunnel – Rehabilitate	\$61,275	\$30,955	\$0	\$0	\$34,013	\$82	\$1,719,997
16	Corporation Technologies – Upgrade GPS/AIS/TMS	\$0	\$0	\$0	\$0	\$420,275	\$4,399	\$628,693
17	Navigation Channels – Dredge U.S. Sectors to Maintain Design Grade and Dispose of Sediments	\$21,771	\$695	\$0	\$6,566	\$92,337	\$2,366,016	\$10,599,406
18	Eisenhower Locks – Vertical Lift Gate – Replace Wire Ropes	\$0	\$0	\$0	\$0	\$0	\$0	\$943,466
19	Corporation Facilities – Upgrade Electrical Distribution Equipment	\$7,384	\$0	\$0	\$75,000	\$163,297	\$1,198,793	\$2,665,907
20	Both Locks – Upgrade Lock Status/Controls	\$173,819	\$143,268	\$68,326	\$0	\$11,242	\$38,142	\$1,237,555
21	Both Locks – Compressed Air Systems - Upgrade/Replace	\$4,381	\$0	\$0	\$0	\$0	\$0	\$881,646
22	Both Locks – Install Vessel Self Spotting Equipment	\$8,834	(663,774)	\$6,839	\$4,501	\$0	\$0	\$465,681
23	Both Locks – Install Hands-Free Mooring System	\$10,795,599	\$1,703,212	\$8,205,661	\$2,069,631	\$1,142,835	\$650,911	\$25,272,990
24	Both Locks – Structural Repair - GROUT Leaks in Galleries and Recesses	\$0	\$0	\$0	\$0	\$169,116	\$244,795	\$455,522
25	Corporation Facilities – Upgrade/Replace Fire Alarm/Protection Systems	\$0	\$0	\$0	\$0	\$0	\$0	\$57,332
26	Corporation Facilities – Upgrade Storage for Lock Spare Parts and Equipment	\$2,751	\$0	\$0	\$0	\$0	\$0	\$1,610,975
27	Corporation Facilities – Replace Windows and Doors and Repair Building Facades	\$2,655	\$0	\$0	\$0	\$4,176	\$17,324	\$86,651
28	Snell Lock – Walls, Sills and Culverts – Rehabilitate Concrete	\$0	\$0	\$0	\$0	\$357,500	\$724,220	\$1,081,720
29	Eisenhower Lock - Walls, Sills, and Culverts - Rehabilitate Concrete	\$0	\$0	\$817,884	\$604,926	\$309,217	\$864,478	\$2,811,184
30	Eisenhower Lock - Ice Flushing System - Upgrade	\$0	\$0	\$7,082	\$0	\$0	\$14,448	\$21,530
31	Both Locks – Rehabilitate Upstream Miter Gates	\$0	\$0	\$0	\$0	\$0	\$0	\$5,143,404
32	Snug Harbor - Rehabilitate Spare Gate Storage and Assembly Area	\$4,295	\$0	\$0	\$0	\$0	\$0	\$2,595,958
33	Both Locks – Upgrade Drainage Infrastructure in Galleries and Recesses	\$743	\$0	\$0	\$0	\$0	\$90,381	\$421,659
34	Both Locks – Improve Ice Control	\$28	\$0	\$0	\$0	\$0	\$0	\$13,545
36	Eisenhower Lock - Diffusers - Replace	\$0	\$0	\$0	\$0	\$0	\$71,665	\$71,665
38	Both Locks - Upgrade/Replace Emergency Generators	\$63,406	\$1,334	\$0	\$0	\$0	\$0	\$2,229,347
39	Both Locks - Dewatering Pumps - Upgrade Outdated Equipment	\$21,759	\$0	\$0	\$0	\$153,295	\$53,186	\$503,182
41	Snell Lock - Install Ice Flushing System Technologies	\$162,233	\$11,096	\$3,173	\$1,320	\$661,764	\$2,282,764	\$16,754,625
42	Both Locks - Miter Gates - Structural Rehabilitation	\$8,372	\$0	\$0	\$0	\$0	\$0	\$6,682,765
43	Both Locks - Miter Gate Machinery - Upgrade/Replace	\$1,644,855	\$76,166	(5270)	\$0	\$0	\$0	\$5,651,318
44	Both Locks - Ship Arrestor Machinery - Upgrade/Replace	\$0	\$0	\$0	\$0	\$714,604	\$713,776	\$1,428,380
48	Both Locks - Stiffleg Derricks - Rehabilitate	\$0	\$0	\$0	\$0	\$121,786	\$899,596	\$1,021,382
50	Snell Lock - Diffusers - Replace	\$0	\$0	\$0	\$0	\$0	\$56,111	\$56,111
51	Corporation Facilities - Upgrade Physical Security to Meet HSPD-12 Requirements	\$4,065	\$0	(5768)	\$0	\$0	\$0	\$486,225
52	Corporation Facilities - Eisenhower Lock Visitors' Center - Replace/Upgrade	\$9,479	\$2,183	(5768)	\$0	\$129	\$0	\$1,150,167
53	Corporation Technologies - Upgrade Financial Management System	\$0	\$0	\$0	\$0	\$0	\$0	\$5,827
54	Corporation Facilities - Administration Building - Replace Elevator	\$0	\$0	\$0	\$0	\$0	\$0	\$145,381
55	Corporation Facilities - Maintenance Building - Replace Fuel Tanks	\$0	\$0	\$0	\$0	\$0	\$0	\$205,932
56	Corporation Facilities - Duty Free Store Property - Upgrade Security	\$0	\$0	\$0	\$0	\$0	\$0	\$18,489
57	Corporation Technologies - Upgrade Network Security	\$0	\$0	\$0	\$0	\$0	\$411,279	\$610,077
58	Corporation Facilities - Upgrades to Meet Sustainability and Energy Goals	\$37,414	\$12,348	(6271)	\$0	\$0	\$14,416	\$274,513
59	Corporation Facilities - Communications Improvements	\$35,847	\$40,561	\$36,453	\$0	\$5,394	\$30,567	\$148,986
60	Both Locks - Improve Access to and Rehabilitate Machinery in Crossovers and Recesses	\$724,686	\$15,360	\$0	\$0	\$0	\$0	\$740,045
61	Both Locks - Replace Recess Covers on Lock Walls	\$23,805	\$38,375	\$35,489	\$70,323	\$255,252	\$317,682	\$740,926
64	Corporation Facilities - Upgrade Lock Structures Maintenance Building	\$0	\$0	\$0	\$0	\$0	\$14,915	\$14,915
65	Both Locks - Install Lock Wall Guardrails	\$593,802	\$19,680	\$0	\$0	\$192,617	\$12,542	\$818,640
69	Both Locks - Repair/Replace Corroded Piping and Malfunctioning Valves	\$0	\$0	\$0	\$0	\$154,240	\$125	\$154,365
71	Corporation Facilities - Facility and Underground Utilities Improvements	\$0	\$0	\$0	\$51,076	\$0	\$4,585	\$55,661
74	Corporation Facilities - Building Rehabilitation	\$0	\$0	\$0	\$0	\$0	\$77,143	\$77,143
--	Miscellaneous Expenses (non project-specific expenses and administrative PC&B costs)	\$70,158	\$28,908	\$855	\$0	\$3,833	\$0	\$868,158
ARP – TOTAL OBLIGATIONS		\$15,570,849	\$11,399,239	\$19,129,017	\$8,108,662	\$8,648,316	\$18,669,538	\$179,253,687
--	Other Than Personnel ARP Costs (contracts, inventory, equipment, supplies)	\$14,842,669	\$10,892,561	\$18,705,524	\$7,848,121	\$7,613,157	\$17,656,877	\$170,755,626
--	SLSDC ARP Project-Specific Personnel Compensation and Benefits (PC&B)	\$658,022	\$477,770	\$422,638	\$260,541	\$1,031,326	\$1,012,661	\$7,609,903
--	Miscellaneous ARP Costs (non project-specific expenses and administrative PC&B costs)	\$70,158	\$28,908	\$855	\$0	\$3,833	\$0	\$868,158

GLS Seaway Infrastructure Program (SIP)

FY 2022-2026 Estimates

INFRASTRUCTURE CATEGORY	PROJECT TITLE	FY 2022 REQUEST	FY 2023 ESTIMATE	FY 2024 ESTIMATE	FY 2025 ESTIMATE	FY 2026 ESTIMATE	FIVE-YEAR ESTIMATES
Locks and Associated Structures	Rehabilitation of Concrete at Eisenhower Lock	\$1,000,000	\$2,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$6,000,000
Locks and Associated Structures	Rehabilitation of Concrete at Snell Lock	\$2,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$6,000,000
Locks and Associated Structures	Rehabilitation of Diffusers at Snell Lock	\$6,500,000	---	---	---	---	\$6,500,000
Locks and Associated Structures	Install Swing Bridge at Snell Lock	---	\$300,000	---	---	\$3,000,000	\$3,300,000
Locks and Associated Structures	Rehabilitate Guidewalls at Both Locks	---	\$500,000	\$500,000	\$250,000	\$250,000	\$1,500,000
Locks and Associated Structures	Rehabilitate Flow Control Dikes	---	---	\$250,000	\$250,000	---	\$500,000
Locks and Associated Structures	Install Stop Log Slots Upstream of Tunnel	---	---	\$3,000,000	\$3,000,000	---	\$6,000,000
Locks and Associated Structures	Replace Recess Covers at Both Locks	---	\$50,000	\$50,000	\$50,000	\$50,000	\$200,000
Locks and Associated Structures	Rehabilitate Stop Logs at Both Locks	---	---	---	\$1,000,000	\$1,000,000	\$2,000,000
Lock Equipment	Upgrade to Ship Arrestor Machinery at Both Locks	---	\$300,000	---	\$2,000,000	---	\$2,300,000
Lock Equipment	Installation of Self Spotting Equipment at Both Locks	\$250,000	---	---	---	---	\$250,000
Lock Equipment	Upgrade Fendering on Approach Walls and Miter Gates	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,000,000
Lock Equipment	Upgrade Miter Gate Machinery at Both Locks	---	\$1,000,000	---	---	---	\$1,000,000
Lock Equipment	Upgrade Eisenhower Lock Ice Flushing System	---	\$2,000,000	---	---	---	\$2,000,000
Lock Equipment	Rehabilitate Culvert Valve Machinery Hydraulics at Both Locks	---	\$500,000	\$500,000	---	---	\$1,000,000
Lock Equipment	Upgrade/Replace Compressed Air Systems	---	---	\$500,000	---	\$500,000	\$1,000,000
Lock Equipment	Repair/Replace Piping and Valves at Both Locks	---	\$50,000	\$50,000	\$50,000	\$50,000	\$200,000
Lock Equipment	Rehabilitate Access to Machinery Recesses at Both Locks	---	\$150,000	\$150,000	\$150,000	\$150,000	\$600,000
Lock Equipment	Install Electronic Pleasure Craft Toll Collection Facility	---	\$200,000	---	---	---	\$200,000
Utilities	Upgrade Electrical Distribution Equipment	\$1,500,000	\$500,000	\$1,000,000	\$250,000	\$250,000	\$3,500,000
Utilities	Upgrade/Replace Emergency Generators	---	---	---	---	\$1,000,000	\$1,000,000
Utilities	Upgrade Power Supply Infrastructure from Moses-Saunders Dam (NYPA) at Both Locks	---	\$150,000	\$150,000	\$150,000	\$150,000	\$600,000
Operation and Maintenance (O&M) Equipment and Work Vehicles	Replacement of Heavy and Light Equipment, Maintenance Vehicles, and Shop Equipment	\$550,000	\$750,000	\$1,000,000	\$750,000	\$2,000,000	\$5,050,000
O&M Equipment and Work Vehicles	Replace Floating Plant/Vessels	---	\$150,000	---	---	---	\$150,000
Buildings and Grounds	Upgrade Machine Shop Facility for Hands Free Mooring (HFM) Maintenance	\$1,000,000	---	---	---	---	\$1,000,000

GLS Seaway Infrastructure Program (SIP)

FY 2022-2026 Estimates

INFRASTRUCTURE CATEGORY	PROJECT TITLE	FY 2022 REQUEST	FY 2023 ESTIMATE	FY 2024 ESTIMATE	FY 2025 ESTIMATE	FY 2026 ESTIMATE	FIVE-YEAR ESTIMATES
Buildings and Grounds	Replace Paving and Drainage Infrastructure	---	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$6,000,000
Buildings and Grounds	Upgrade Lock Structures Maintenance Building	---	\$500,000	---	---	\$500,000	\$1,000,000
Buildings and Grounds	Upgrade Eisenhower Lock Operations Center	---	---	\$1,000,000	---	---	\$1,000,000
Buildings and Grounds	Upgrade Vehicle Corrosion Prevention Facility	---	\$500,000	---	---	---	\$500,000
Buildings and Grounds	Rehabilitate/Replace Existing Buildings	---	\$1,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$7,000,000
Buildings and Grounds	Rehabilitate Tunnel at Eisenhower Lock	---	\$500,000	\$500,000	\$500,000	\$500,000	\$2,000,000
Buildings and Grounds	Upgrade/Replace Fire Alarm/Protection Systems	---	\$100,000	\$100,000	\$100,000	\$100,000	\$400,000
Buildings and Grounds	Upgrade Storage for Lock Spare Parts and Equipment	---	\$100,000	---	\$750,000	---	\$850,000
Buildings and Grounds	Repair/Replace Security Fencing	---	\$200,000	\$200,000	\$200,000	\$200,000	\$800,000
Dredging, Navigation Aids, and Floating Plant	Upgrade Floating Navigational Aids to All-Season Buoys	\$475,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,275,000
Seaway International Bridge	Replacement of Rocker Arms on South Channel Span	\$625,000	---	---	---	---	\$625,000
Seaway International Bridge	Rehabilitate South Channel Span South Approach Paving and Drainage	---	\$400,000	---	---	---	\$400,000
Seaway International Bridge	Replacement of Bridge Suspenders and Upgrade to Electrical System	---	---	\$250,000	---	---	\$250,000
IT and Communications	Development of Seaway Vessel Traffic Flow Management System	\$400,000	---	---	---	---	\$400,000
IT and Communications	Upgrade GPS/AIS/TMS	---	\$200,000	\$200,000	\$200,000	\$200,000	\$800,000
IT and Communications	Upgrade Lock Status/Controls	---	\$200,000	\$200,000	\$200,000	\$200,000	\$800,000
IT and Communications	Upgrade Network Security	---	\$50,000	\$50,000	\$50,000	\$50,000	\$200,000
IT and Communications	Communications Improvements	---	\$500,000	---	---	---	\$500,000
TOTAL		\$14,500,000	\$15,750,000	\$15,550,000	\$15,800,000	\$16,050,000	\$77,650,000

Note: Dollar amounts for SIP projects are, in most cases, "project feasibility" estimates that can vary by an industry-recognized 20-30 percent. Funding for each year of the SIP is constrained to annual funding targets as approved by the Secretary and OMB and subject to annual appropriations.