Tonnage in 2020 lower than typical year due to COVID-19. Five-year average tonnage is 71M tons.
$162M funded to date through FY21:
Key projects completed to date:
• Poe and MacArthur Lock Embedded Anchorages
• Poe Hydraulics Replacement
• West Center Pier Repair
• Poe Miter and Quoin Block Replacement
• Critical Poe Gate 1 Repairs
• New Poe Stoplogs
• New Compressed Air System

Remaining key priorities:
• Poe Lock Gate 1 Replacement
• Poe Lock Upstream Ship Arrestor
• Electrical Duct Bank and Feeder Replacement
• Poe Lock Filling and Emptying Valves
MAINTAINING EXISTING SOO LOCKS FACILITY

MAJOR REHAB (CG FUNDED)

Davis and Poe Pumpwells ($37.3M FY22 Capability)
- The pumpwell system will serve all locks (including new lock); system >100 yrs old
- Delayed funding for repair increases O&M every year with additional interim risk reduction measures required and increasing probability of failure; greatly increases operational risk to navigation. Locks must be dewatered in 10 hours due to extreme cold temps in January.
- Original 1914 manifold is most critical component; has lost half its wall thickness
- New Pump Well will be contracted with the New Lock to reduce risk associated with 2 contractors working in close proximity at the same time.
NEW LOCK AT THE SOO – ARTISTIC RENDERING
NEW LOCK AT THE SOO - STATUS

Phase 1: Upstream Channel Deepening (UCD)

Phase 2: Upstream Approach Walls (UAW)

Phase 3: New Lock Chamber (NLC)

* Early completion could be realized with efficient funding, and favorable weather conditions
NEW LOCK AT THE SOO - CONTRACT PHASING
CONTRACT WORK LIMITS (CWL)

2021
UCD
UAW

2022
UAW
NLC

2023
UAW
NLC

2024
NLC

UCD - Upstream Channel Deepening
UAW - Upstream Approach Walls
NLC - New Lock Chamber
NEW LOCK AT THE SOO - CAPABILITIES & ALLOCATIONS

FY22 & FY23 Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>FY22 Capability</th>
<th>FY23 Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Lock Chamber Pre-Award Activities</td>
<td>$841k</td>
<td>$0</td>
</tr>
<tr>
<td>Upstream Approach Wall Construction Management</td>
<td>$2.4M</td>
<td>$0</td>
</tr>
<tr>
<td>New Lock Chamber Construction &amp; Construction Management</td>
<td>$476.7M</td>
<td>$170M</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$480M*</td>
<td>$170M</td>
</tr>
</tbody>
</table>

$586M American Jobs Plan Capability (Sum of FY23-FY30 Capabilities)

*$480M included in FY22 President's Budget Request
NEW LOCK AT THE SOO - SUBSTANTIAL BASE & OPTIONS STRATEGY

- Substantial base strategy feasible due to $480M FY22 Pbud Request
- Substantial base to be awarded in FY22 with FY21 and FY22 funds.
- Options to be exercised in FY23, FY24, and FY25

**Option 1:** Chamber Monoliths,
**Option 2:** Pump Well Operating Building and Pumping Equipment, Demo and Rehab of Poe and Davis Wells

**Option 3:** Installation of miter gates, ship arrestors, culvert valves; air, steam and hydraulic piping; backfilling, grading and seeding; removal of cofferdam cells

**Option 4:** Downstream Approach Wall & East Center Pier Rehab**

**Option 5:** Hands Free Mooring, **Option 6:** Downstream Ship Arrestors, & **Option 7:** Alligator’s Mouth Mooring Area

**Base:** Mobilization, instrumentation, US and DS cofferdam cells, grout curtain, NPP bridge, Shaft 6, batch plant, Demo Sabin Chamber, rock excavation, Fabrication of miter gates, culvert valves, fender booms and associated machinery, DS & US wide wall monoliths

**FY 22**

**FY 23**

**FY 24**

**FY 25**

**FY 26**

**FY 27**

**FY 28**

**FY 29**

**Funding for Opt 4 to be requested in FY24. However, for flexibility, the contract will be structured to allow exercising of Opt 4 until the end of FY25.**

*Current as of: Sep 27, 2021*
Driving Factors for Cost Growth

Design changes
- Upstream Approach Wall (+$75M)
  - Lengthening the North Upstream Approach Wall for safety reasons
- New Lock Chamber (+$150M)
  - Increased concrete quantities due to structural design changes such as replacing the 100-year-old existing North Wall
  - Increased rock excavation
  - Hands Free Mooring

Material cost increases (+$100M-$150M)
- Material costs account for roughly half the cost of the lock
- Key material costs have increased by 20%-30%

Acquisition strategy changes (+$50M-$90M)
- To account for the shift from CCC to Base and Options, the midpoint of construction for the optional work was shifted to the right, contributing to the cost increase.

Anticipated labor shortages
- Risk analysis assumptions adjusted to reflect potential future labor shortages in anticipation of the American Jobs Plan increasing demand for construction workers
**PHASE 1: UPSTREAM CHANNEL DEEPENING SCOPE**

**Scope**: Remove over 250,000 cubic yards of Jacobsville sandstone and overburden (loose sediment) to deepen the Upstream Approach Channel to depth of 30 feet

**Construction Status**:
- $52.6M Contract awarded in January 2020 to Trade West Construction Co. of Nevada.
- Contractor has completed roughly 90% of the required contract work. The contractor is on track to substantially complete work in Nov 2021
PHASE 1: UPSTREAM CHANNEL DEEPENING PROGRESS

NORTHWEST PIER MATERIAL PLACEMENT SITE

Prior Condition
(Apr 2020)

After Condition
(Dec 2020)
PHASE 1: UPSTREAM CHANNEL DEEPENING OPERATIONS

Xcentric Ripper

PC1250 with 6.5 CY Bucket
PHASE 1: UPSTREAM CHANNEL DEEPENING OPERATIONS

Bedrock from Upstream Approach Channel

Overburden from Upstream Approach Channel
PHASE 1: UPSTREAM CHANNEL DEEPENING OPERATIONS

Xcentric Ripper breaks up the bedrock and the PC1250 removes it from the channel
PHASE 2: UPSTREAM APPROACH WALLS SCOPE

**Scope:** Rehabilitate approach walls upstream of New Soo Lock including reconstruction of walls, concrete caps, mooring bollards, electrical, and lighting

**Project Status:**
- $117.2M Contract awarded to Kokosing Alberici in September 2020
- Contractor arrived on site in April 2021 and is scheduled to complete work in Fall 2023
Work Completed to Date

- Batch plant constructed and certified
- Steel Sheet Pile (SSP) Cells SL1-SL5 and N1 – N9: SSP completed and cell fill in progress
- Transition Wall in Zone 2 in progress
PHASE 2: BATCH PLANT CONSTRUCTION

Concrete batch plant construction with Northwest Pier placement area in background

Completed concrete batch plant
PHASE 2: CELL CONSTRUCTION

Fill for the cells being delivered by the Menominee

1st sheet pile, sheet piles are 30' strips of steel placed within the coffer cell template

Template to be used to construct circular steel sheet pile cells
PHASE 2: CONCRETE PLACEMENT

First tremie concrete placement

First concrete placement in cell
**PHASE 3: NEW LOCK CHAMBER SCOPE**

**Scope:** Construct new 1,200’ long by 110’ wide by 32’ deep chamber and rehabilitate downstream approach walls.

**Project Status:**
- 70% Design review completed in July 2020
- 100% Design completed in Aug 2021
- Construction contract award expected in February 2022 with contractor mobilization in Spring 2022
PHASE 3: NEW LOCK CHAMBER KEY FEATURES

- Miter Gates
- Filling and Emptying System
- Upstream Ship Arrestors
- Downstream Ship Arrestors
- Hands Free Mooring
- New Pump Well

Miter Gates  
Ship Arrestor  
Hands Free Mooring Unit
PHASE 3: REGIONAL DESIGN TEAM
Design Team Lead by Inland Navigation Design Center (INDC)

- **Orange = Louisville District**
  - Architectural Lead
  - BIM/CAD Lead
  - Civil Lead
  - Geology Lead
  - Geotech Lead
  - Electrical Support (Buildings, Site Security)
  - Mechanical Support (Buildings, Fire Alarm/Protection)
  - Structural Support (Wide Walls Monoliths, Chamber Floor, Buildings, Shaft 6)

- **Green = Nashville District**
  - Structural Lead

- **Purple = Pittsburgh District**
  - Electrical Lead
  - Mechanical Lead
  - Structural Support
  - Cost Support

- **Yellow = Detroit District**
  - Environmental Lead
  - Structural Support
  - Cost Support

- **Buffalo District**
  - HTRW Lead

- **St. Louis District**
  - Hydraulics Lead

- **Huntington District**
  - Cost Support
PHASE 3: NEW LOCK CHAMBER- DESIGN TOOLS

REVIT model of existing lock structure
REVIT model of new lock structure

Changes Made Based on Virtual Reality Review
• Operating shelter sightlines
• Additional lock floor catch basins
• Addition of miter gate tie back recesses

Downstream view of downbound vessel and Hands Free Mooring pedestal from top of lock wall

Virtual reality used for design reviews by Soo Locks Operations and Maintenance Personnel
NEW LOCK AT THE SOO VIRTUAL REALITY VIDEO

New Lock Chamber 3D Model video
PROJECT’S ECONOMIC IMPACT

- **$1.478B** Total Project Cost

- Estimated **7-10** years of construction

- **1,240** jobs created on an annual basis
  - 600 direct jobs
  - 210 indirect jobs
  - 430 induced jobs

- **1,400,000** tons of limestone or granite

- **112,000** tons of American-made cement

- **25,000** tons of American-made steel

Menominee Unloading Aggregate on Northwest Pier in support of Upstream Channel Deepening Contract
Recent Engagements:
• Michigan Lieutenant Governor Garlin Gilchrest, visit to Soo Locks: Aug 2021
• United States Senator Debbie Stabenow, visit to Soo Locks: Aug 2021
• COL Kimberly Peeples, USACE LRD Commander, visit to Soo Locks: Sep 2021
• Rear Admiral Michael J. Johnston, USCG Ninth District Commander, and Vice Admiral Steven D. Poulin, USCG Atlantic Area Commander, visit to Soo Locks: Oct 2021

Upcoming Engagement and Dates of Importance:
• Phase 3 Price Proposals Due: Nov 2021
• Upstream Channel Deepening Substantial Completion: Nov 2021
• New Lock Chamber Award: Feb 2022
• Detroit District Annual Congressional Meetings: Mar 2022
• Phase 3 Contractor Mobilizing to Site: Spring 2022
Contact Info:
Mollie Mahoney, New Lock at the Soo Project Manager
(313) 226-2033

Email: LRE-New_SOO_Lock@usace.army.mil
Website: https://www.lre.usace.army.mil/