Great Lakes Navigation
Dredging Update

Funding Status

Dredging
FY16 and FY17 Program
Recent Trends

Dredged Material Management

Soo Locks Update

Outreach – Upcoming events
Water Resources Reform & Development Act (WRRDA) 2014

- The Corps must manage all the individually authorized projects in the Great Lakes Navigation System as components of a single, comprehensive system, recognizing the interdependency of ports.

- The Corps shall not allocate funds solely on tonnage.

- Establishes funding targets for expenditure of HMTF funds for the next 10 years.

- Emerging harbors (less than 1M tons) receive no less than 10% of 2012 HMTF appropriated funds ($898M).
Water Resources Reform & Development Act (WRRDA) 2014

- WRRDA14 is an authorization bill; it provides authority or direction to the Corps, it does not provide funding.

- Funding comes from Congressional Appropriations.

- We are awaiting implementation guidance from HQ.


However, the lack of implementation guidance is not preventing HQ from meeting the intent of the WRRDA criteria related to GL funding and low use harbor funding.
Federal Projects on the Great Lakes

A non-linear navigation system with 60 federal commercial projects and 80 federal shallow draft/recreational projects
GL Navigation Funding History

Executable – Backlog Reduction Funding Range

Sustainable Funding Range

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<th>Year</th>
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<td>2008</td>
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Dredging
FY16 Corps Funding

- Congress passed the FY16 Consolidated Appropriations Act; enacted Dec 18, 2015.

- The FY16 Appropriations bill included FY16 President’s Budget with some adjustments, plus additional O&M funds for ongoing work – to be allocated by USACE HQ.

Additional Funding for Ongoing Work

- Navigation Maintenance $23.5M
- Deep-draft harbor and channel $250M
- Small, remote, or subsistence nav $48M
FY 16 Great Lakes Navigation Program

$142.8M Great Lakes Navigation Operations & Maintenance

Key Items

$59.2M in Dredging (30 projects – 4.4M cubic yards)
$8.6M in Dredged Material Management
$14.6M in Soo Asset Renewal
$2.3M Chicago Lock Repairs
$7.9M Structure Repair by Contract
FY16 Projects Funded from Additional Funds for Ongoing Work

$14.0M Dredging
- Alpena, MI
- Lorain, OH
- Fairport, OH
- Monroe, MI
- Manistique
- Additional funds for Duluth, Green Bay
  Saginaw, Calumet

$10.9M Soo Asset Renewal
$1.3M Chicago Lock Repairs
$6.2M Structure Repairs (Ludington, Waukegan, Sandusky, Barcelona, Grand Haven)
## FY16 PBUD + Work Plan Dredging
($59.2M$)

FY16 Dredging Funding and Dredging Requirements
FY17 Corps Funding Status

• Awaiting FY17 Appropriation

• Funding based on FY17 President’s Budget at this time

If Congress passes an Appropriations Bill, additional funds could be allocated to projects across the country. Funding amounts included in House and Senate markups:

<table>
<thead>
<tr>
<th>Additional Funding for Ongoing Work</th>
<th>House</th>
<th>Senate</th>
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<td>- Navigation Maintenance</td>
<td>$25.3M</td>
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<td>- Deep-draft harbor and channel</td>
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<td>- Small, remote, or subsistence nav</td>
<td>$50M</td>
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FY 17 Great Lakes Navigation
President’s Budget

$102.8M Great Lakes Navigation Operations & Maintenance

Key Items
- $38.4M in Dredging (20 projects – 3.2M cubic yards)
- $8.2M in Dredged Material Management
- $5.9M in Soo Asset Renewal
FY17 PBUD Dredging Projects

- Ashtabula
- Burns Waterway
- Buffalo
- Calumet
- Channels in Lake St. Clair
- Cleveland
- Detroit River
- Duluth-Superior
- Fairport
- Grand Haven
- Green Bay
- Holland
- Indiana Harbor
- Keweenaw Waterway
- Saginaw River
- Sandusky
- St. Joseph
- Sturgeon Bay
- Toledo
- Waukegan
FY17 President’s Budget Dredging Projects

This map illustrates the locations of the President’s Budget Dredging Projects for FY17, with indicators for commercial, recreational, and President’s Budget projects. The map covers states such as MI, WI, IL, IN, OH, PA, NY, and Canada.
Dredging Funding Trends 2007 – 2017

Quantity Dredged (millions of cubic yards)

- Appropriation - Add'l Funds for Ongoing Work
- ARRA (Stimulus)
- L. Superior Regional Provisions
- Michigan Regional Provisions
- Commercial Regional Provisions
- Energy & Water Adds

3.3M Annual Reqm’t

FY07 FY09 FY11 FY13 FY15 FY17
Historical Funding
Great Lakes Low Use Projects (<1M Tons)
Dredged Material Management
Dredged Material Management Initiatives

- Engage state agencies and other partners and stakeholders in developing innovative long-term solutions to dredged material management challenges.

- Foster partnership with USEPA with its Great Lakes Legacy Act (GLLA) and Great Lakes Restoration Initiative (GLRI) programs to leverage funding for projects supporting both environmental goals and navigation benefits.

- Maximize the use of fill management and facility adaptation, such as routine raising of perimeter dikes and reworking the material within the facility to create additional capacity.

- Aggressively pursue opportunities for beneficially using dredged material to preserve or create CDF capacity within limits of federal rules.

- Collaborate with partner agencies leveraging local and federal programs to reduce the amount of material entering federal navigation channels – sediment traps.
Future of Duluth-Superior Dredge Material Management

- 21st Avenue West Pilot Project- 375,000 CY
- 21st Avenue West Full Scale Restoration Project- 870,000 CY
- 40th Avenue West Restoration Project- 300,000 CY
- Grassy Point Restoration Project – 100,000 CY
- Beach Nourishment – 500,000 CY over next 20 years
Cat Island Dredged Material Disposal Facility

9/12/2016 Before placement

Presence of minor localized turbidity; considered minimal and temporary disturbance typically less in magnitude than a storm event.

10/24/2016 After placement began

9/12/2016 Before placement

10/24/2016
Cat Island Vegetation has taken hold. Vegetation primarily dense cottonwood.
Lock Reliability
A Quick History of the Soo Locks

1798
First Lock on St. Marys River
To support the growing fur trade, the Northwest Fur Company built a canoe lock on the north shore of the river. This lock was approximately 40 feet-long and 9 feet-wide.

1800

1855
“State Lock” opens
Built in only two years this tandem lock used two chambers each measuring 350’ X 70’ and each with a lift of 10 feet to bypass the rapids.
This lock was operated and maintained by the State of Michigan.

1850

1868
Second Poe Lock opens
As the design for a new lock neared completion it became clear that an even larger lock would be needed as boats measuring 1,000 feet-long were being planned. Originally set to be 1,000 feet-long and 100 feet wide it was redesigned to its current size of 1,200 feet-long and 110 feet wide.

1896
Poe Lock opens
Built on the site of the former State Lock, the Poe lock was 800 feet long and 100 feet wide.

1900

1914
Davis Lock opens
At 1,350 feet-long the Davis lock held the honor of being the longest lock in the world when it opened.

1919
Sabin Lock opens
An exact twin of the Davis Lock, it was begun even before the Davis was finished. It is also the only lock on the site named for a civilian, Louis Sabin, the only civilian to ever serve as the Detroit District Engineer.

1943
MacArthur Lock opens
Opening of a new, deeper lock became a matter of national security during World War II and the MacArthur Lock was built in 15 months. During the war thousands of soldiers were stationed at the Soo to protect the locks and the flow of iron ore.

1986
New Lock Authorized
As part of the Water Resources Development Act, Congress authorized the construction of a new lock to be built on the site of the Sabin and Davis Locks. This new lock will be the same size as the Poe Lock.

1990

2000
Preparatory work for new lock completed
Funds were provided to build cofferdams at each end of the Sabin Lock and to dredge the approach channels to 28.5 feet.

2009

2050

It has been nearly 50 years since a new lock was built at the Soo
Reliability Improvement Paths

- **Asset Renewal**
  - Maximize reliability and reduce the risk of catastrophic failure through 2035
  - Work began in 2007 and would be complete in 2019 with optimal funding
  - Critical issues O&M funded as needed
  - Current major reliability concerns on both Poe and MacArthur Locks

- **Major Rehabilitation**
  - Preparation of a Poe Lock Major Rehab Report (MRR) underway
  - Feasibility study requiring 3 years and $2M to complete
  - $500k received in FY14; $1.0M in FY15; $500k in FY16
  - Ultimately will be funded through Construction General (CG) if approved

- **Construction of a Poe-Sized Redundant Lock**
  - Originally authorized in 1986
  - 2005 Limited Reevaluation Report (LRR) resulted in BCR of 0.73
  - Economic Reevaluation Report will reanalyze benefits and costs
Soo Locks Asset Renewal Long-Term Plan

Asset Renewal Plan will maximize reliability and reduce risk through 2035

$70.5M funded to date through FY16.
- New hydraulics, stop logs, utilities. (Complete)
- Compressed Air System. (Complete)
- Poe Gate Anchorage Replacement. (FY 16 Award)
- Mac and Poe Electrical System Replacement. (IP)

Remaining key priorities.
- Poe Miter and Quoin Block Replacement.
- Poe Lock Gate 1 Replacement.
- Pier rehabilitation
- Embedded anchorages
Soo Locks Ongoing Construction Efforts

MacArthur Lock bulkhead repairs
(FY17 work plan funding requested for all bulkheads, in-house repair of 3 bulkheads by Mar 2017)

West Center Pier repairs
(phase 3&4 complete Dec 2017, phase 5 funded in FY17 PBUD, award Summer 2017/complete Dec 2018, final 1200 feet of wall repair included in MRR)

Poe Lock electric system rehab
(complete March 2018)

Poe Lock Gates 1&3 embedded anchorage replacement
(complete Mar 2017, FY17 work plan funding requested for Gate 2)

Poe Lock miter/quoin block replacement
(in FY17 PBUB, awd Summer 2017/complete Mar 2018)

Compensating Works Gate Automation
(GLRI funded, complete Dec 2017)
Poe Lock Embedded Anchorages

Typical Poe Lock Embedded Anchorages

Poe Primary Embedded Anchorage

Poe Secondary Embedded Anchorage
Soo Locks – West Center Pier Repairs
• Authorized for construction of a redundant Poe-size lock in WRDA 1986; WRDA 2007: Construction at 100% federal expense
• Inconsistent with Administration policy due to BCR of 0.73 computed in 2005 Limited Reevaluation Report (LRR)
• Currently working on Economic Reevaluation Report to recalculate BCR
• Team includes all three GL Districts, Planning Center of Expertise for Inland Navigation (Huntington) and the Civil Works Cost Engineering MCX (Walla Walla)
Outreach

- Waterways Conference – Cleveland
  February 13-14, 2017

- Web Site:
  www.lre.usace.army.mil/greatlakes/navigation
  ► Harbor Fact Sheets
  ► Updated CDF Fact Sheets
  ► Presentations

- Mailing Lists – send information to
  glnavigation@usace.army.mil