Our Goal: Improve understanding of

- National Economic Significance of Soo Locks (especially the Poe Lock)
- National Economic Significance of GLNS
- Department of Homeland Security’s conclusions
Great Lakes Economy

• World’s 3rd Largest

• Contains:
  – 50% of U.S. Steelmaking Capacity
  – 70% of U.S. Auto Manufacturing
  – 55% of All U.S. Manufacturing
Great Lakes Shipping

- Great Lakes Shipping is Integral to the U.S. and Canadian Economies. It Creates:
  - 227,000 Jobs;
  - $33.5 Billion in business revenue;
  - $14.1 Billion in annual personal income;
  - $6.4 Billion in local purchases;
  - $4.6 Billion in tax revenue; and
  - $3.6 Billion in Transportation Rate Savings
WATERBORNE TRANSPORTATION IS ...

- Safer
- More Fuel-Efficient
- Fewer Emissions

THAN RAIL OR TRUCK TRANSPORTATION

Miles 1 Ton of Cargo Carried
Per Gallon of Fuel

- Truck: 59
- Rail: 202
- Barge: 514
- Great Lakes Carrier: 607

Tons of CO₂ Produced to Transport
1,000 Tons of Cargo 1,000 Miles

- Truck: 190
- Rail: 55
- Barge: 22
- Great Lakes Carrier: 19

1. Source: USDOT Maritime Administration and Minnesota Department of Transportation
2. Assumes US DOE Fuel and Energy Emission Coefficient of 22.38 lbs of CO₂ per gallon (No.1,2,4 Fuel Oils and Diesel) for GL Carrier
3. Based on Aug 12, 2013 price for on-highway diesel of $3.896
Great Lakes Navigation: A Great Investment

$3.6+ Billion in annual transportation cost savings

- Iron & Steel: 34%
- Coal: 24%
- Petrol Products: 3%
- Aggregates: 20%
- Ores & Minerals: 4%
- Grains: 3%
- Chemicals: 1%
- Other: 11%
Soo Locks

- Sabin (closed)
- Davis (too shallow to use)
- Poe
- MacArthur
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.

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.

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

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.

1968
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.

2009
Preparatory work for new lock completed
Funds were provided to build coffer dams at each end of the Sabin Lock and to dredge the approach channels to 28.5 feet.

1850
1883
Wietzel Lock opens
This lock was the first one to fill and empty the chamber through openings in the floor, reducing turbulence in the lock.
During its construction in 1881 the entire facility was transferred from the state to the U.S. Army Corps of Engineers.

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.

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.

1750
1800
1850
1900
1950
2000
2050
Today
Soo Locks Condition

• Recent MacArthur Lock failure
  – Closed between July 29 and August 17, 2015
  – TIME TO REPLACE THIS 72 YEAR OLD LOCK
• Poe Lock needs substantial repairs
  – During above MacArthur outage, Poe was down for an hour for total system closure
• Significant backlog or maintenance and repair items are resulting in increased unscheduled outages ($70 million)
• Some repairs exceed normal winter maintenance timeframe and others may require warmer temperatures
REPLACEMENT LOCK

Poe Rehabilitation & MacArthur Replacement

- “Youngest” Soo Lock, the Poe is 47 years old
- State Lock (1855) to Poe (1968): ave. 1 new lock every 19 yrs.
- Needs rehabilitation
- Linchpin for the Great Lakes Navigation System
- Only route for large vessels (almost 70% of Laker capacity)
- 57 million tons of commerce annually
- 30-day economic consequence: $160 million - ranked #1 (#5 by tonnage)
- Construct authorized replacement (combine Davis and Sabin)
  – Need a sense of urgency!
Re Poe

-1986 – Second lock authorized at dimensions equivalent to the Poe. Great Lakes Commission is local sponsor
-2004 – Based on flawed assumptions, updated benefit to cost ratio calculated at 0.73
-2007 – Second lock authorized at full Federal expense
-2014 – Railroads validate no alternate means of transportation. Estimate $5 years and $5 billion to construct rail alternative to Poe.
Re Poe

- 2014 “Sensitivity Study” (results not released) – BCR above 1.0 is needed for funding eligibility. Confirmed flaws in previous BCR.

- 2015
  - DHS Analysis – report not publicly released
  - Economic Reevaluation Report (ERR) – funded at $1.3M. 24 - 36 Months to complete?
  - Major Rehabilitation Report (MRR)
    - Ongoing evaluation of current condition of locks
The Solution

New Poe-size lock

Poe

MacArthur
GLNS - A non-linear navigation system with 60 federal commercial projects and 80 federal shallow draft/recreational projects
Coal Movements