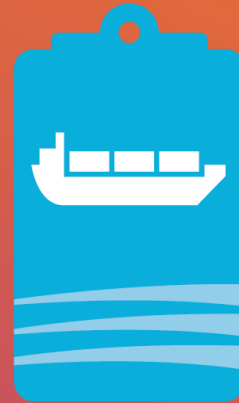


2025 Report Card for America's Infrastructure *Ports & Inland Waterways*

October 2, 2025



Agenda

- Overview of ASCE Report Card
- Ports Overview & Criteria
 - Condition & Capacity
 - Funding & Future Need
 - Resilience & Innovation
- Inland Waterways Overview & Criteria
 - Condition & Capacity
 - Funding & Future Need
 - Operation and Maintenance
- Q&A



Speakers



Bill Hanson
Great Lakes Dock
& Dredging, LLC



Jose De Jesus
Port Tampa Bay



Helga Sommer
PortMiami



Tracy Zea
Waterways Council, Inc



Presentation FYI

- Webinar is being recorded
- Recording and slides will be made available
- Attendee input via typed questions
- Send any technical issues/questions through the chat function





ASCE
2025 REPORT CARD
FOR AMERICA'S INFRASTRUCTURE

2025 Report Card for America's Infrastructure

	AVIATION		D+		PARKS AND RECREATION		C-
	BRIDGES		C		PORTS		B
	BROADBAND	NEW	C+		RAIL		B-
	DAMS		 D+		ROADS		D+
	DRINKING WATER		C-		SCHOOLS		D+
	ENERGY		 D+		SOLID WASTE		C+
	HAZARDOUS WASTE		 C		STORMWATER		D
	INLAND WATERWAYS		 C-		TRANSIT		D
	LEVEES		 D+		WASTEWATER		D+

America's
Cumulative
Infrastructure
Grade



A EXCEPTIONAL

B GOOD

C MEDIOCRE

D POOR

F FAILING

Key Trends

1.

Aging infrastructure systems are increasingly vulnerable to natural disasters and extreme weather events, creating unexpected and often avoidable risks to public safety and the economy.

2.

Recent federal and state investments have had a positive impact, but the full force of increased funding will take years to realize. Sustained investment is key to providing certainty and ensuring planning goes to development, as well as making larger infrastructure projects attainable.

3.

Unreliable or unavailable data on key performance indicators continues to impact certain infrastructure sectors.

Methodology

CAPACITY

OPERATION AND MAINTENANCE

CONDITION

PUBLIC SAFETY

FUNDING

RESILIENCE

FUTURE NEED

INNOVATION

National Trends in Ports that Shaped the Grade

2021 Grade = B- ↔ 2025 Grade = B

- Capacity: ↑
 - In 2023, U.S. ports handled 41.5% of international trade by value.
 - Ports support \$2.89 trillion in economic activity.
 - Container imports dipped in 2020 but rebounded sharply later that year.
 - Fewer container ships waited to dock in 2023 compared to 2021–2022.
- Condition: ↔
 - Top 25 ports have added more ship-to-shore cranes; nearly 44% are now super post-Panamax

- Funding:



- IIJA nearly doubled Port Infrastructure Development Program funding to \$450M/year.
- Over 1,060 port and waterway projects funded since IIJA enactment.
- EPA's Clean Ports Program received \$3B via the Inflation Reduction Act.

- Future Need:



- Port needs from 2024–2033 are estimated at nearly \$38B.
- For water transportation, the funding gap is \$13B if IIJA levels continue; \$19B if pre-2021 levels return.

- Operation and Maintenance:



- Port governance varies widely.
- Many ports have assessed infrastructure risks and vulnerabilities.

- Public safety: ↔

- Rising sea levels threaten infrastructure; ports are elevating assets and building barriers.

- Resilience: ↔

- Ports are addressing climate impacts through adaptation plans.
- Many remain vulnerable to extreme weather events.

- Innovation: ↑

- Focus areas:
 - emission reduction
 - reuse of dredged material
 - workforce development

National Trends in Inland Waterways that Shaped the Grade

2021 Grade = D+ ↔ 2025 Grade = C-

- Capacity ↑ / Condition ↔
 - Federal funding has improved infrastructure.
 - Aging locks and dams cause average delays of 172 minutes, affecting 47% of vessels.
 - 80% of dock/dam infrastructure has exceeded its 50-year design life.
- Funding / Future Need ↑
 - \$17.1B in emergency appropriations to USACE; 68% (\$11.62B) went to the Construction account.

- Operation and Maintenance: ↔
 - IIJA allocated \$4B to USACE O&M and \$808M to the Mississippi River & Tributaries account.
 - Challenges include extreme weather, climate shifts, workforce shortages, and inflation-related delays.
- Public Safety: ↔
 - Inland waterways have the lowest injury/fatality rates among freight modes. Only five freight vessel-related fatalities occurred in 2022.
- Resilience: ↑
 - Barges emit significantly less CO₂ than other freight modes.
 - 2023 Mississippi River low water levels disrupted ag transport, costing over \$1B.

• Innovation:

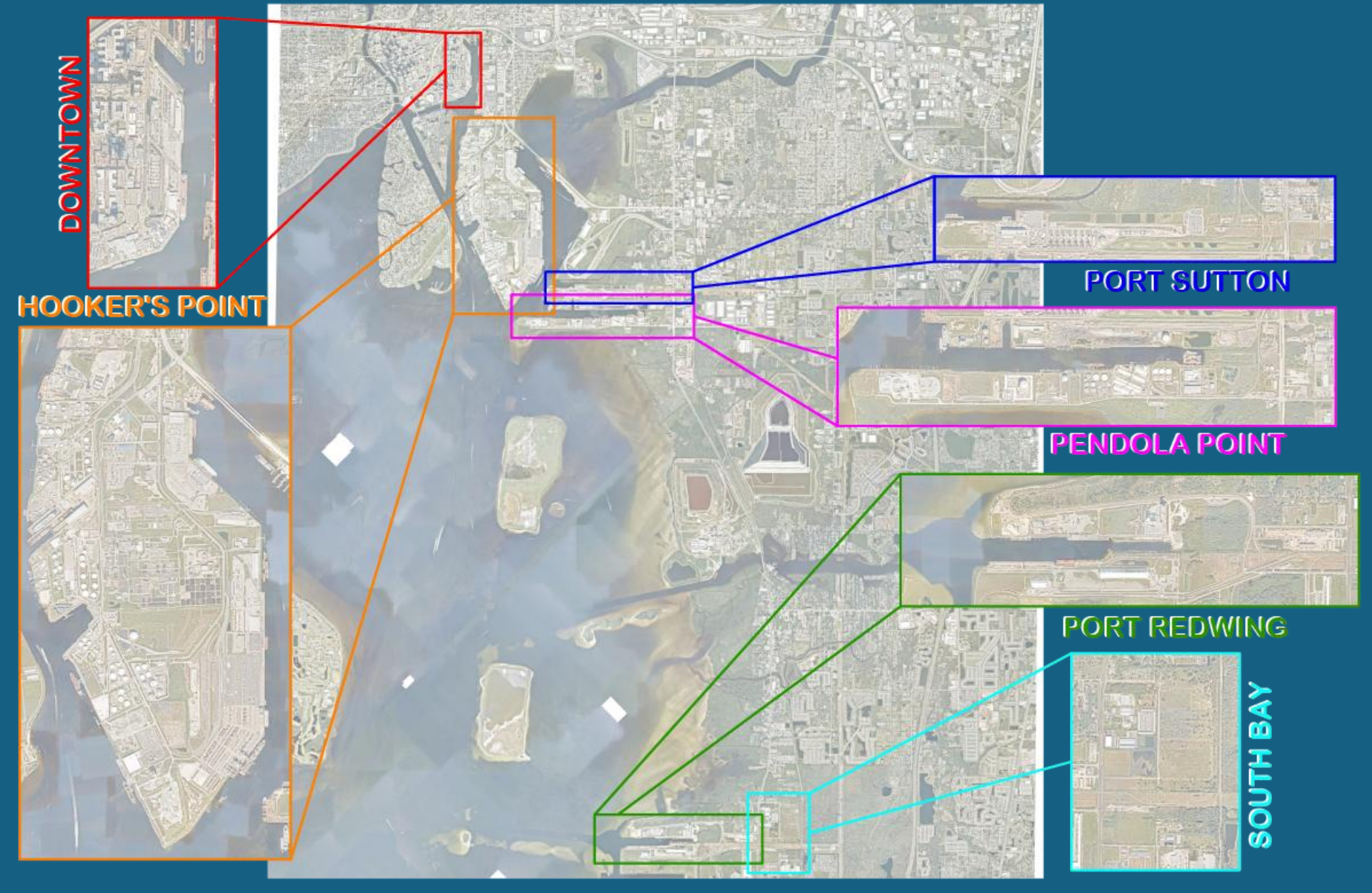
- Towing vessels exploring alternative fuels (e.g., H2TheFuture hydrogen initiative).
- AIS data and machine learning used to track vessel traffic and identify vessel types in low-data areas.



Ports Condition & Capacity

- Expansion of Container Terminal
- Berth 214 Container Yard Expansion
- New Berth 218
- Channel Expansion
- Container Ship Evolution
- Ship to Shore Crane Evolution
- Existing and Future Channel Depths
- Terminal 6 and Passenger Bridges







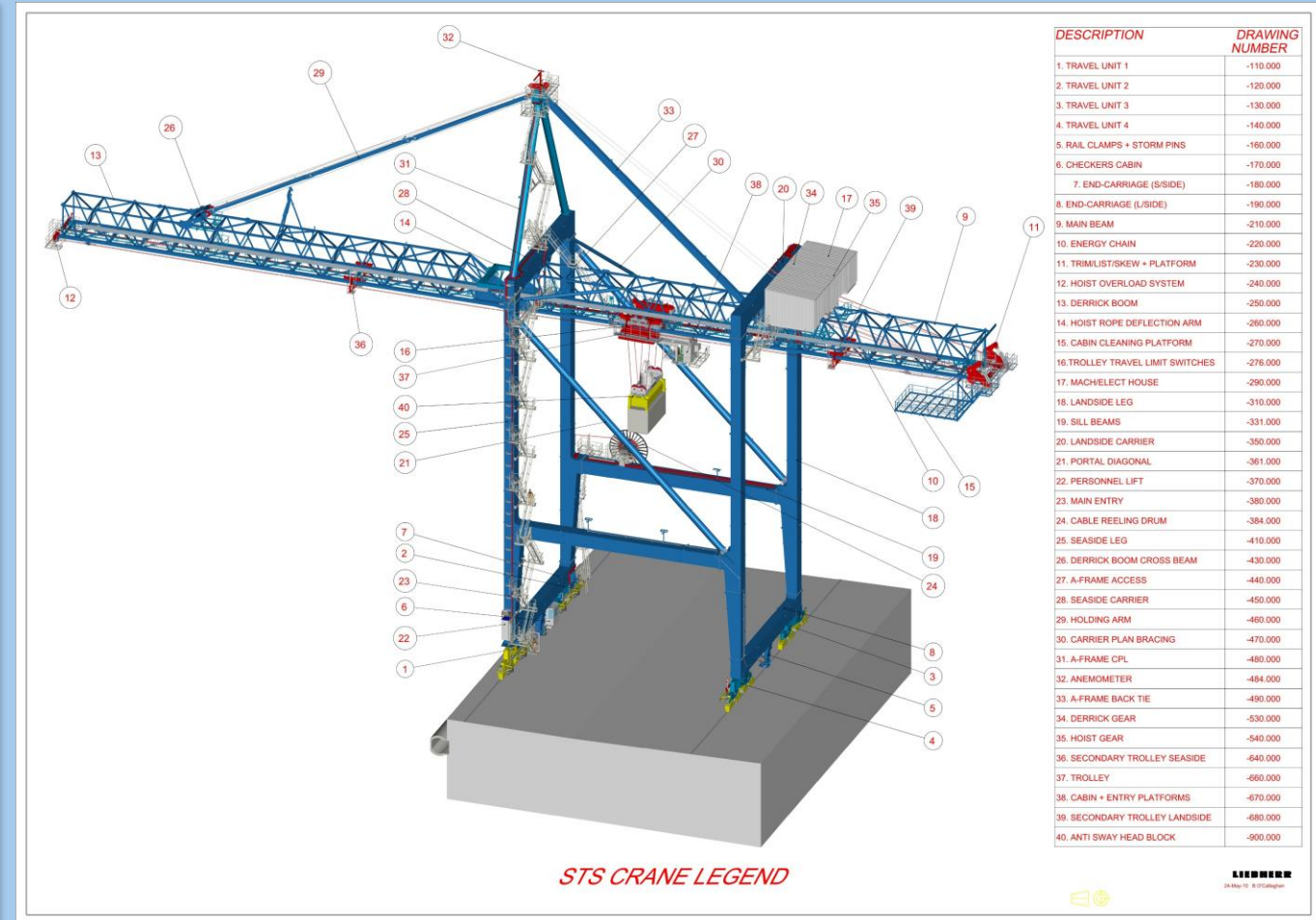
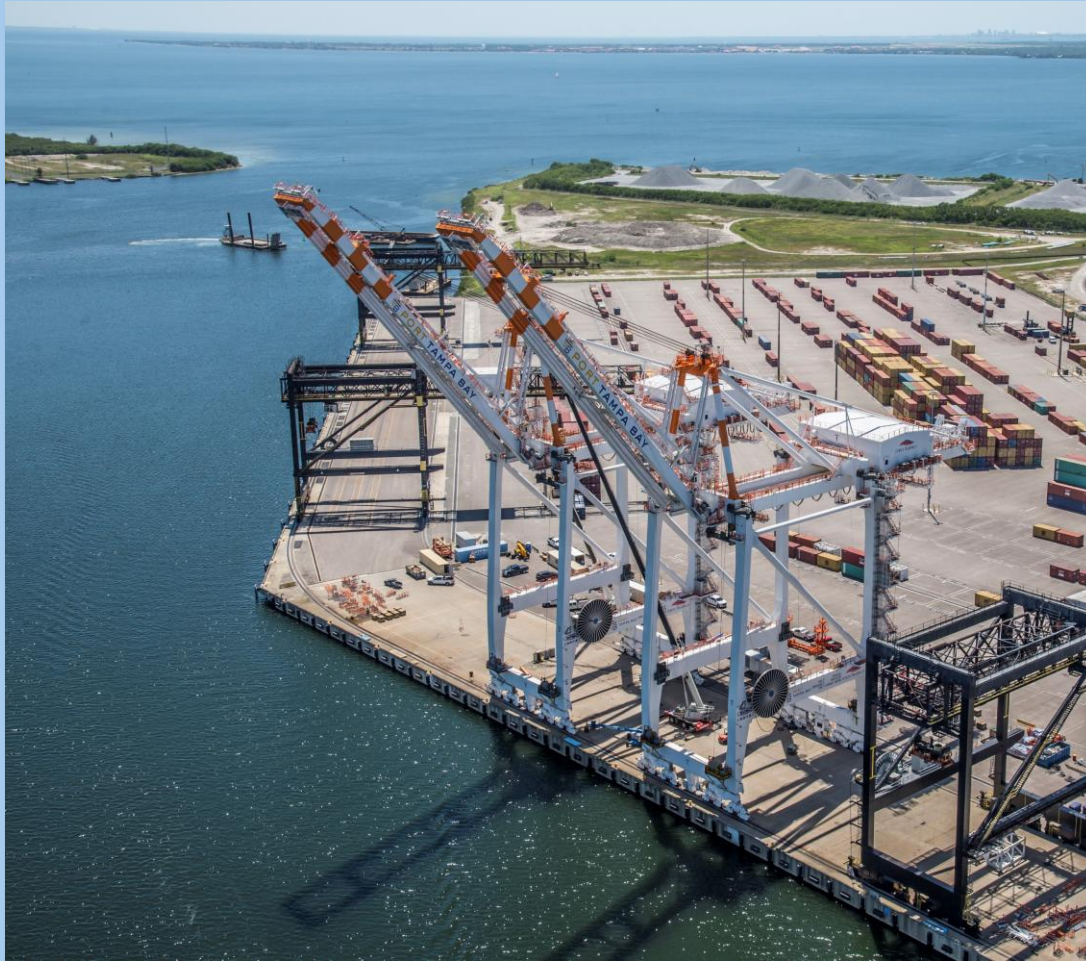
Berth 214 Container Yard Expansion

Project Description:

- 30 Acres of Container Yard including Super Duty Pavement Section, Utilities and Storm Water.
- 1300 LF of wharf and ancillary infrastructure
- Gantry Cranes
- \$120 MM



Cranes



New Berth 218

Project Description:

- New Wharf – approx. 500 ft of Steel
- Bulkhead Wharf
- 2 Breasting Dolphins, 2 barge-breasting dolphins
- Fendering, lighting and mooring points
- Expand capacity for aggregate
- \$21 MM



Channel Expansion



TENTATIVELY SELECTED PLAN Tampa Harbor Navigation Improvement Study



PLAN COMPONENTS:

Incremental Deepening to 47'

(Main Stem + Big Bend Channel)

*Note that the NED Plan is for deepening the Main Stem + Big Bend Channel to 45'

Upper Channel Deepening:

- Port Sutton: 42'
- Sparkman (Upper and Lower): 41'
- East Bay Extension Cuts: 39'
- Ybor Channel: 39'

Entrance Extension

(9,900' to access natural depths consistent with channel deepening)

Extension of Federal Channel:

- Big Bend East Channel
- East Bay Channel

Turn Widener Improvements:

- Cut F (TB) to Gadsden Point Cut
- Cut C (HB) to Big Bend Channel
- Cut C (HB) at Alafia River Channel
- Hooker's Point to Port Sutton

East Bay Turning Basin Improvements

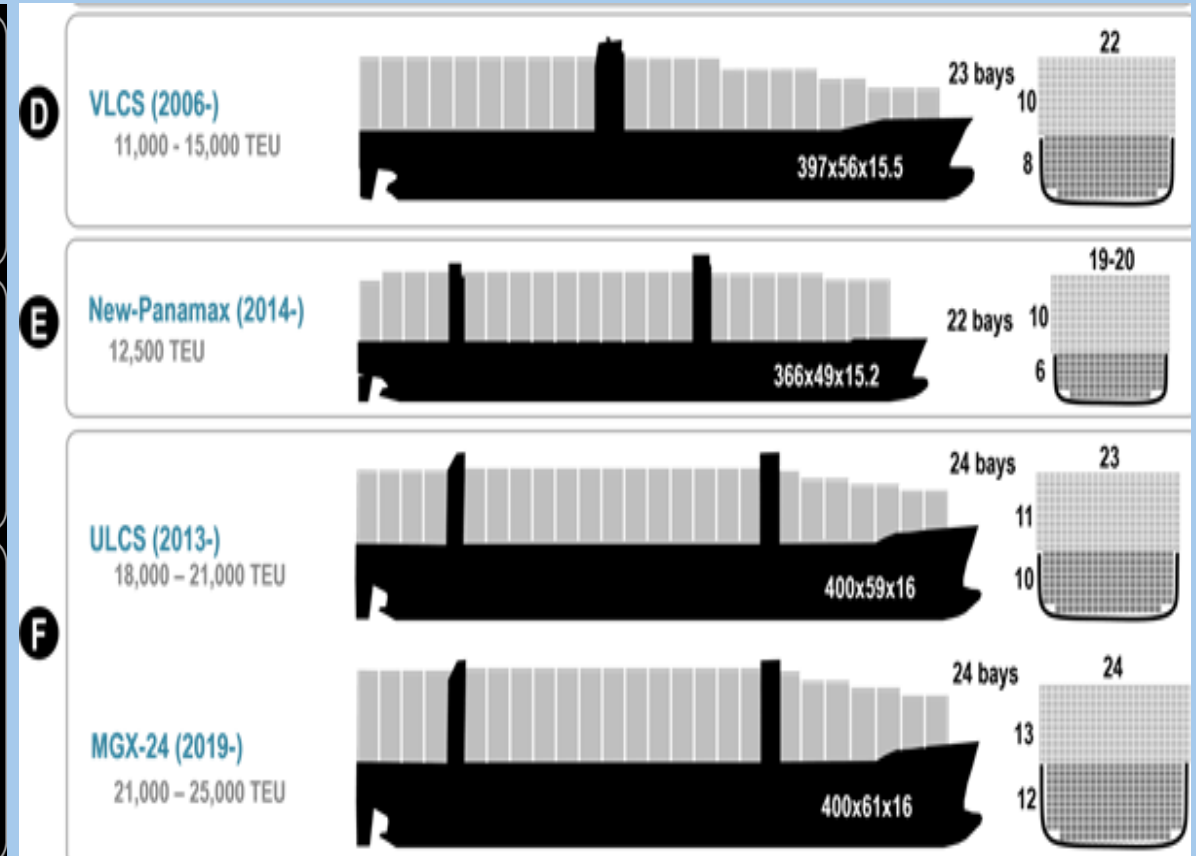
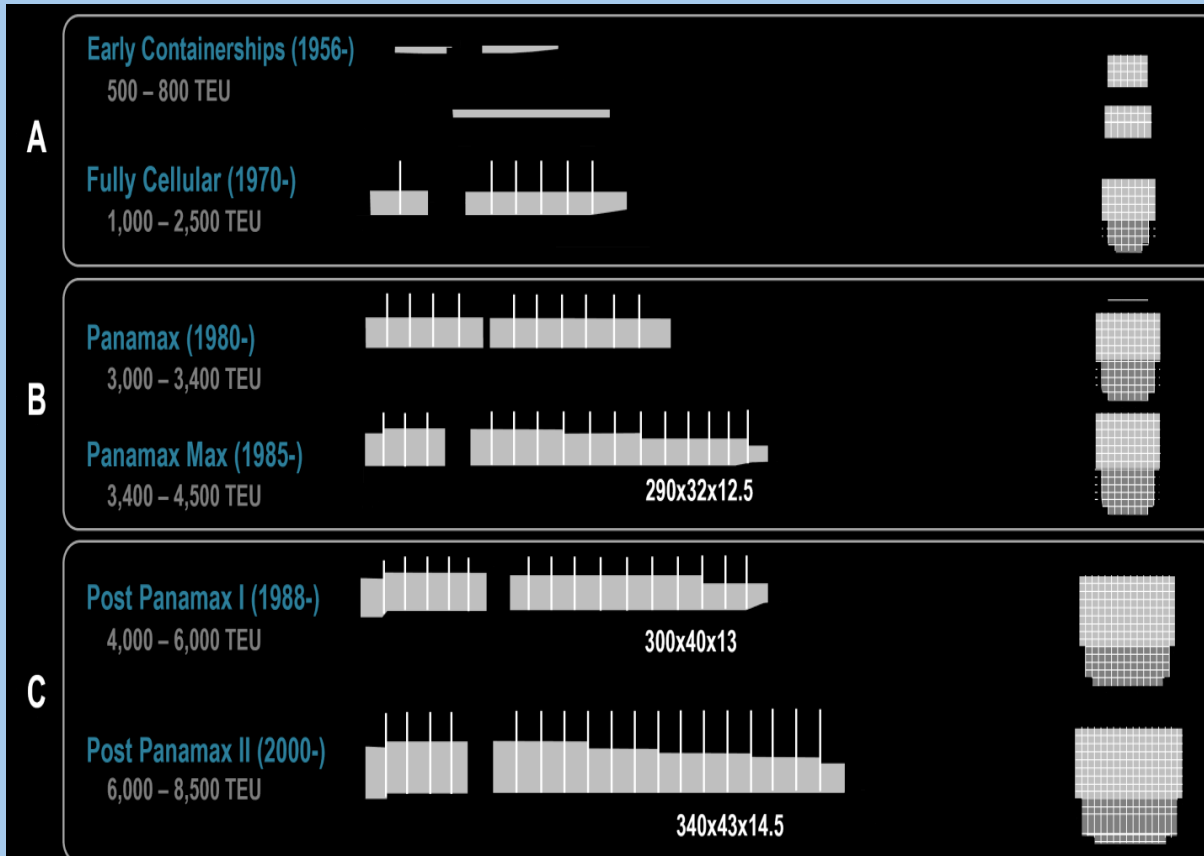
NOTE: Alternative 2c from the Final Array was chosen as the TSP.

TENTATIVELY SELECTED PLAN

- Tampa Federal Navigation Channel
- Incremental Deepening
- Channel Widener Improvements
- Turning Basin Improvement
- Extension of Federal Channel
- Extension of Entrance Channel (9,900')
- O&M Placement Sites
- Placement Sites (Federal Standard)
- BUDM Placement Sites



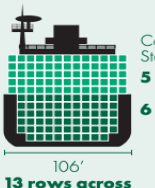
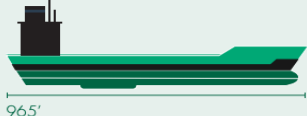
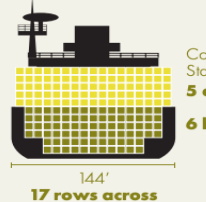
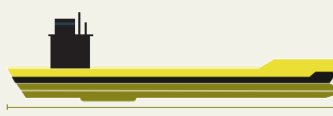
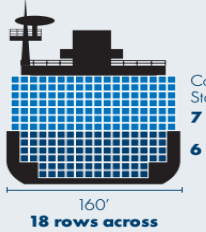
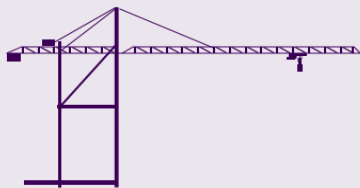
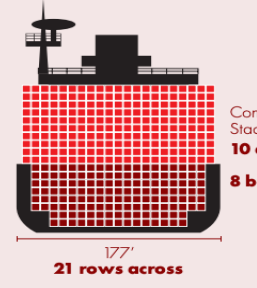
Container Ship Evolution



Source: THE GEOGRAPHY OF TRANSPORT SYSTEMS

By: JEAN-PAUL RODRIGUE

Ship to Shore Crane Evolution

	Vessel: Container Configuration Cross-Section	Vessel: Profile	Ship-to-Shore Gantry Crane
Panamax	 Container Stacks: 5 above 6 below 106' 13 rows across	 965' 3,000 - 5,000 TEU Maximum length/beam of original Panama Canal locks	 Example size: Lift height, in feet: 82' Outreach, in containers: up to 16 across
Post-Panamax	 Container Stacks: 5 above 6 below 144' 17 rows across	 1,100' 4,500 - 10,000 TEU Example Post-Panamax size	 Example size: Lift height, in feet: 115' Outreach, in containers: 17 to 19 across
Neo-Panamax	 Container Stacks: 7 above 6 below 160' 18 rows across	 1,200' 12,000 - 14,400 TEU Maximum length/beam of new Panama Canal locks	 Example size: Lift height, in feet: 161' Outreach, in containers: 20 to 23 across
Megaship	 Container Stacks: 10 above 8 below 177' 21 rows across	 1,300' 10,000 - 20,000 TEU Example Megaship size	

Source: UNIVERSITY OF SOUTHERN CALIFORNIA

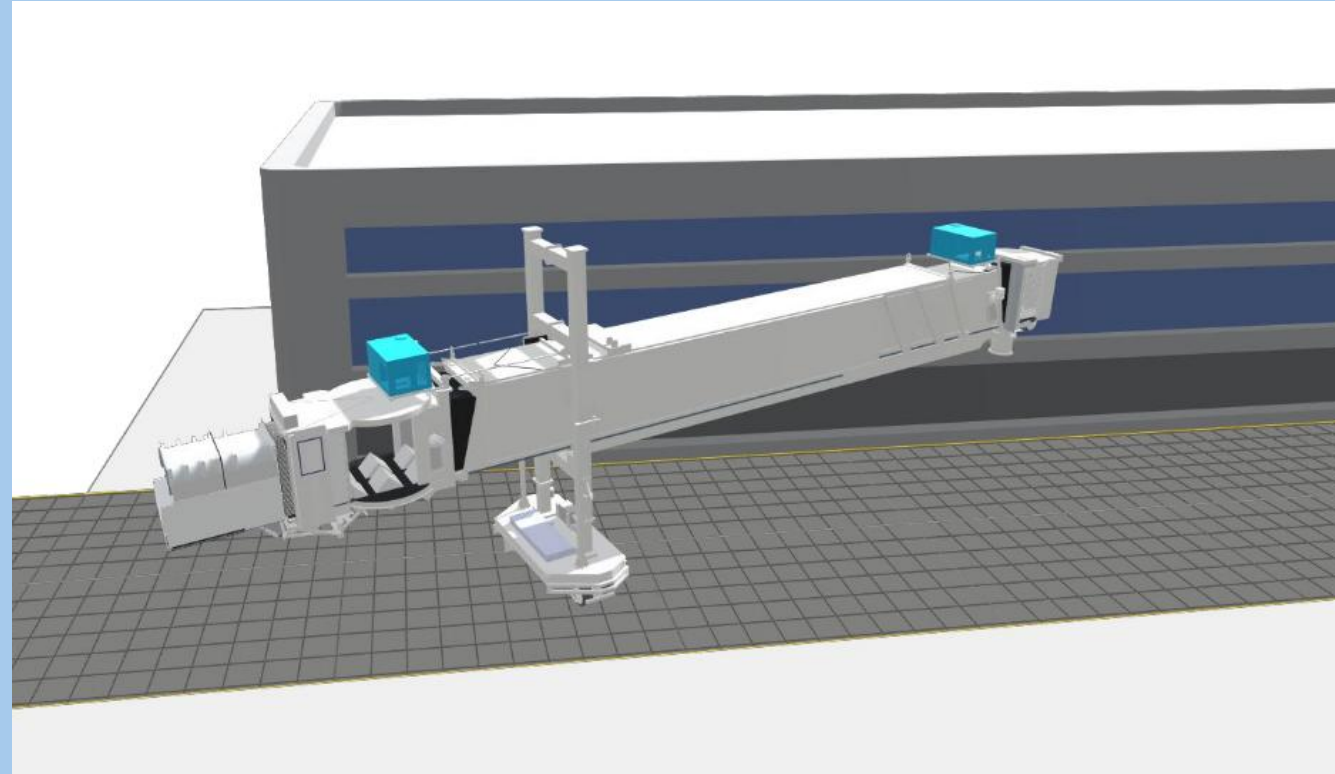
Existing and Future Channel Depths



- Houston
 - Current Channel Depth: 37-46 feet
 - Future Channel Depth: 39-47 feet
- New Orleans
 - Current Channel Depth: 35-50 feet
 - Future Channel Depth: 45-50 feet
- Mobile
 - Current Channel Depth: 45-47 feet
 - Future Channel Depth: 50-52 feet
- Tampa
 - Current Channel Depth: 43 feet
 - Future Channel Depth: 45-47 feet

Terminal 6 and Passenger Bridges

- Improving conditions of existing



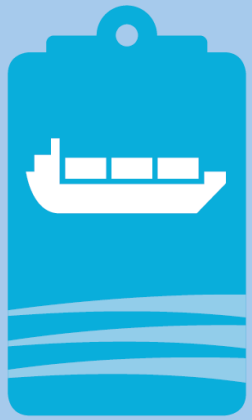


Ports Funding & Future Need

- Funding stack today:
 - Harbor Maintenance Trust Fund (0.125% user fee)
 - IJA's \$17B for ports & inland waterways
 - MARAD PIDP at \$450M/yr
 - EPA Clean Ports Program \$3B (IRA)
- Since the IJA, federal agencies have announced over 1,060 port/waterway projects.



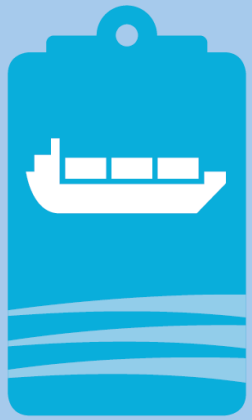
Ports Funding & Future Need



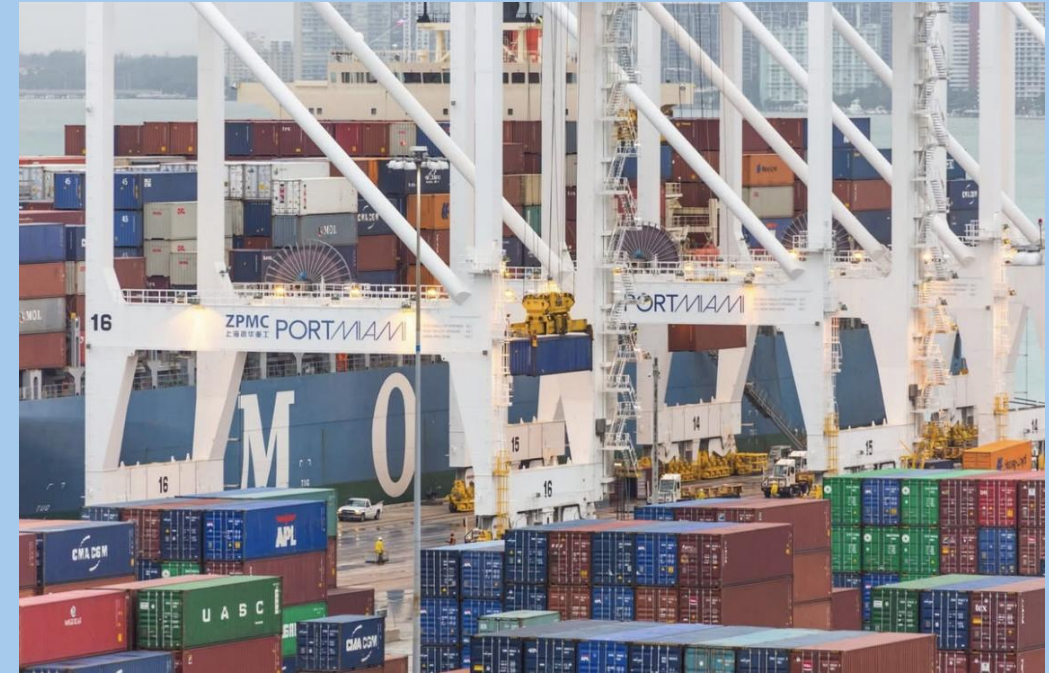
- Documented needs:
 - 2024–2033 water transportation needs $\approx$ \$45B ($\approx$ \$38B ports).
 - If IJA levels continue, the funding gap is approximately \$13B through 2033 (roughly \$19B if funding falls back to pre-2021 levels).



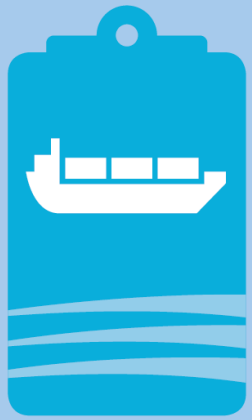
Ports Funding & Future Need



- Where dollars are going next:
 - Navigation Capacity
 - Channel deepening/widening
 - Landside Velocity:
 - On-dock rail/ICTFs
 - Crane modernization
 - Risk Reduction:
 - Resilience upgrades (raise/elevate critical assets)
 - Replacement of aging radiation portal monitors



Ports Funding & Future Need

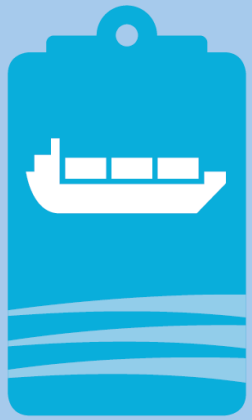


- Predictable multi-year funding is key for sequencing large waterside and landside packages, while spending down HMTF backlogs accelerates maintenance dredging.



Ports Funding & Future Need

- Capital Improvement Program
- Channel Expansion Cost Summary



Capital Improvement Program

Board Approved FY2025 Capital Program	\$ 166,089,756
Capital Equipment and Expenses	\$ 10,000,000
Dredging/Other (<i>Portwide maintenance dredging, stormwater resiliency, harbor deepening PED, Island 2D</i>)	\$ 7,373,000
East Port Development (<i>Design & Site Improvements</i>)	\$ 1,270,464
Engineering Contracts/Annual Contracts	\$ 9,750,000
Hooker's Point Development (<i>Berth 214/Crane Rail Phase II, Power Resiliency, Gantry Cranes</i>)	\$ 93,259,751
Port Redwing Development (<i>New Berth 301 Construction, Signalization</i>)	\$ 23,000,000
Port Sutton Development (<i>Land Acquisition</i>)	\$ 20,375,000
Security (<i>Video Wall System Upgrade, License Plate Reader, Container Examination Station, Cyber Physical Security Assessment</i>)	\$ 1,061,541
Board approved Capital Projects	\$ 166,089,756
Deferred Capital Projects to FY 2025/26	
Perimeter Security Equipment Building Project	\$ 240,000
Gate Arm System Refurbishment	\$ 116,718
Total Projects Deferred to FY 2025/26	\$ 356,718
Total CIP 2025 (Board Approved and Deferred)	\$ 166,446,474



COST SUMMARY AND ALLOCATION

Tampa Harbor Navigation Improvement Study



LPP/TSP TOTAL PROJECT COSTS (47')

	Project Costs	Federal Share ⁴	Non-Federal Share ⁴
General Navigation Features (GNF), 20-45 ft.		75%	25%
Dredging Main Stem ² to 45'	\$520,701,000	\$390,525,750	\$130,175,250
Dredging Upper Channels	\$125,433,000	\$94,074,750	\$31,358,250
Subtotal of GNF to 45'	\$646,302,000	\$484,684,500	\$161,617,500
GNF above NED Plan		0%	100%
Dredging Main Stem ² two additional feet to 47'	\$409,991,000	\$0	\$409,991,000
Subtotal Construction of GNF	\$1,056,125,000	\$484,600,500	\$571,524,500
Lands and Damages ³	\$168,000	\$84,000	\$84,000
FIRST COSTS¹	\$1,056,293,000	\$484,684,500	\$571,608,500
ASSOCIATED COSTS⁵			
Local Service Facility Construction and Berthing Area Costs (LSF)	\$54,176,000	\$0	\$54,176,000
TOTAL PROJECT COSTS	\$1,110,469,000	\$484,684,500	\$625,784,500

NOTES:

1. Costs are based on 1 OCT 2022 (FY23) Price Levels.
2. "Main Stem" includes Entrance Cuts through Cut D (HB), Port Sutton, East Bay Channels, Big Bend Channels, and Turn Wideners to Accommodate Design Vessel.
3. Real Estate (RE) administrative costs. There are no actual lands and damages, but per USACE regulations, RE administrative costs will be placed in the 01 account. The total cost is separated in this table based on estimated costs for both the Federal government and the Non-Federal Sponsor (i.e., these are not cost-shared amounts).
4. The Non-Federal Sponsor shall pay an additional 10% of the costs of GNF (\$64,613,400) over a period of 30 years, at an interest rate determined pursuant to Section 106 of WRDA 86. Credit is given for the incidental costs borne by the Non-Federal Sponsor for lands, easements, rights of way and relocations (LERR) per Section 101 of WRDA 86, as amended. The value of LERR shall be credited toward the additional 10% payment. Credit shall not exceed 10% of the costs of GNF.
5. Estimate for ATONs will be included by Final Report.



Ports Resilience & Innovation

- Power Resiliency
- PREP/HURREX
- What We've Learned & Next Steps
- Vulnerability Analysis
- Challenges, Considerations



Power Resiliency

Project Description:

Hardening of Hookers Point Electrical Distribution System

- Installation of new underground feeders (i.e., buried electrical lines)
- Scope 1: Conduit installation
- Scope 2: Wire, transformers and gear installation



Annual Hurricane Exercise



- Port Tampa Bay hosted the 13th Annual Hurricane Preparedness Tabletop Exercise on May 7th, attended by more than 120 port community members. In partnership with National Weather Service.
- This annual exercise allows us to refine and enhance our response strategies.
- It is a collaborative exercise involving key stakeholders including the City of Tampa, the United States Coast Guard, NOAA, U.S. Army Corps of Engineers, Customs and Border Protection, the Hillsborough County Sheriff's Office, and various local, state, and federal emergency management offices.
- This comprehensive approach ensures that all relevant agencies are prepared to coordinate effectively during a severe storm.

Storm Impact

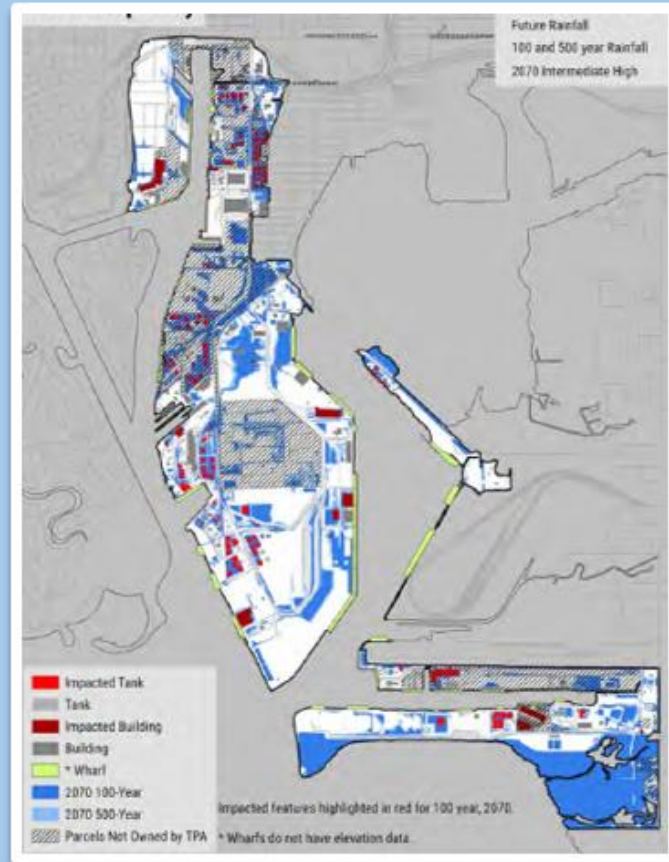


What We've Learned & Next Steps:

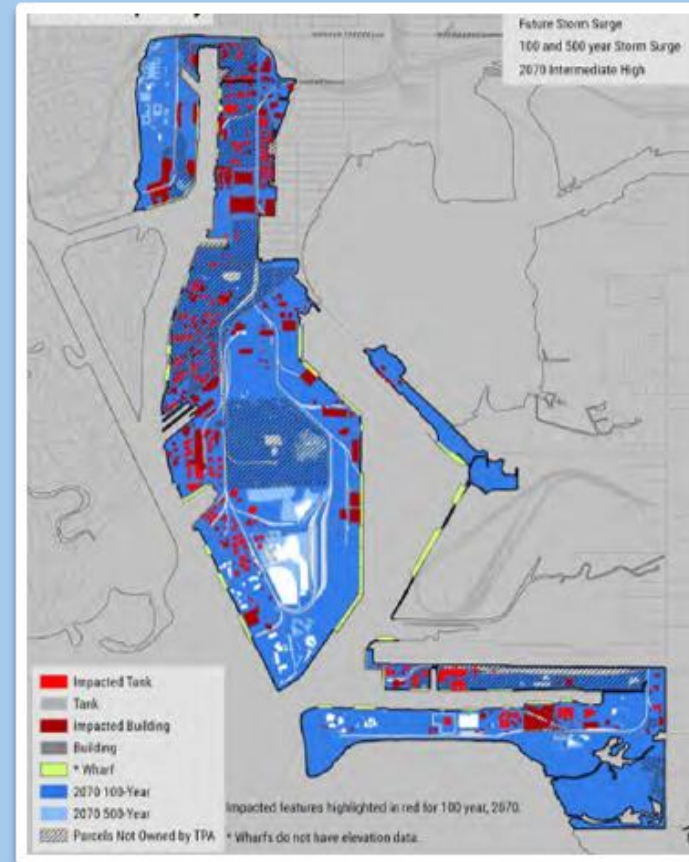
- Build out of PTB Hardened Site for enhanced functionality and readiness (furniture, equipment, supplies, etc.)
- Fuel Cell capacity at Hardened Site
- Engagement with Fuel Terminal Operators
- Contractor commitment to provide (5) large pumps and hoses for post-storm recovery.
- IT Source of Truth authentication shifted from 1101 server to cloud.
- Foster ability of ACOE & NOAA to store survey vessels at Hardened Site.
- ATON Recovery Plans (USCG, Port, Pilots).
- LOI with Cat-5 rated hotel for PTB use during hurricanes, engaged hotel, draft in review/process.
- Pursue larger Engineering vessel with installed survey and assessment equipment and capabilities.



Vulnerability Analysis



BUILT STRUCTURES WITH
FUTURE RAINFALL SCENARIOS



BUILT STRUCTURES WITH
FUTURE STORM SURGE SCENARIOS



Challenges, Considerations

- Old infrastructure
- Very costly, complex
- Ever expanding
- Lack of data and inventory
- Disruptions to services (no detours!)
- Designed to serve current fleet
- Public and private infrastructure
 - Port vs. Privately Owned
 - Private data can be limited



Ports Innovation



- Electrification & zero-emission ops:
 - Shore power at scale (e.g., LA, LB, Miami)
 - Fleet/equipment electrification
- EPA Clean Ports grants accelerating deployments



Ports Innovation



- Alternative fuels & new industries:
 - Hydrogen, green methanol, ammonia, LNG/RNG pilots
 - Offshore wind marshalling (e.g., Pier Wind concept)
- Creating new port roles



Ports Innovation



- Smarter operations:
 - Vessel queuing & data sharing to cut congestion
 - Beneficial reuse of dredged material for habitat/restoration
 - Selective terminal automation
 - Workforce training campuses to boost productivity and safety





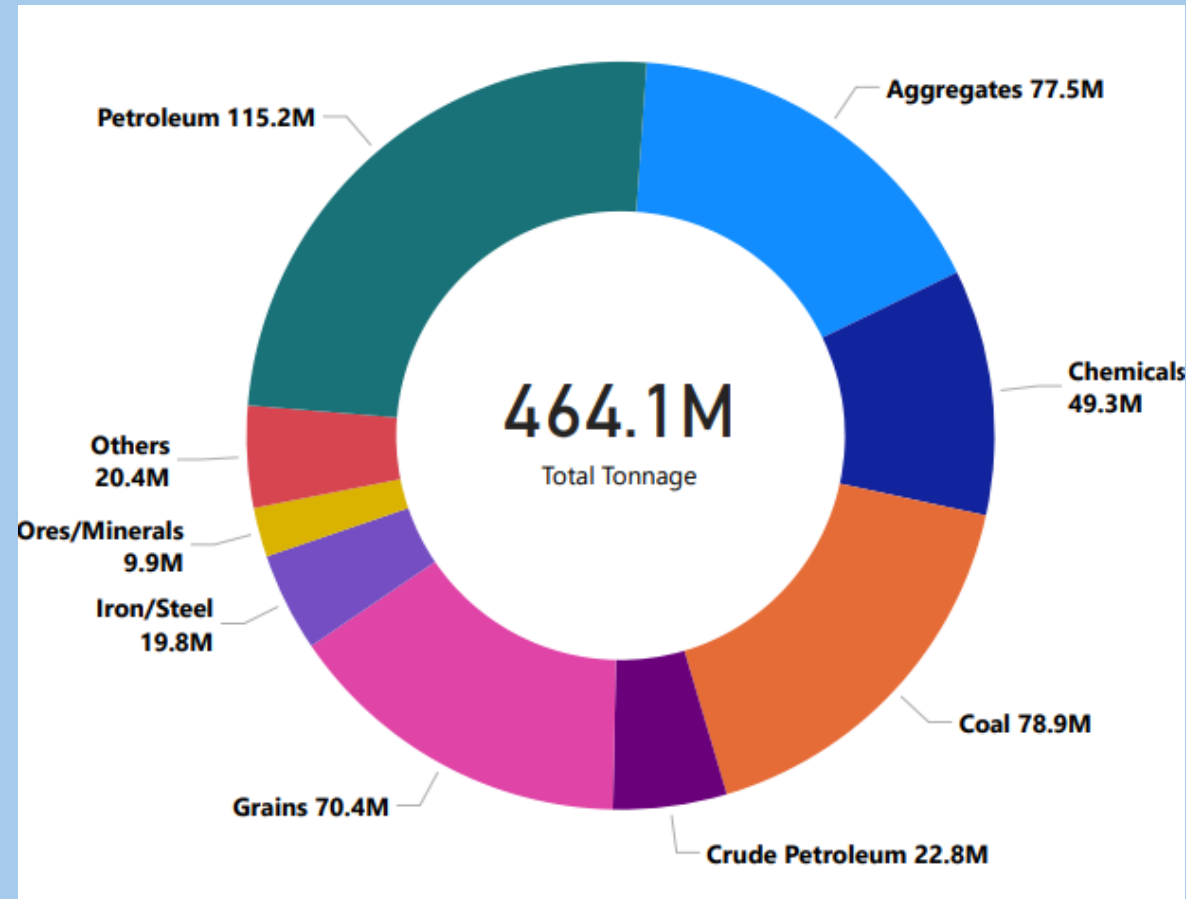
Ports Innovation

- Data tools (e.g., NOAA PORTS)
- Electrification
- Nature-based reuse

.....all reduce risk while improving efficiency.



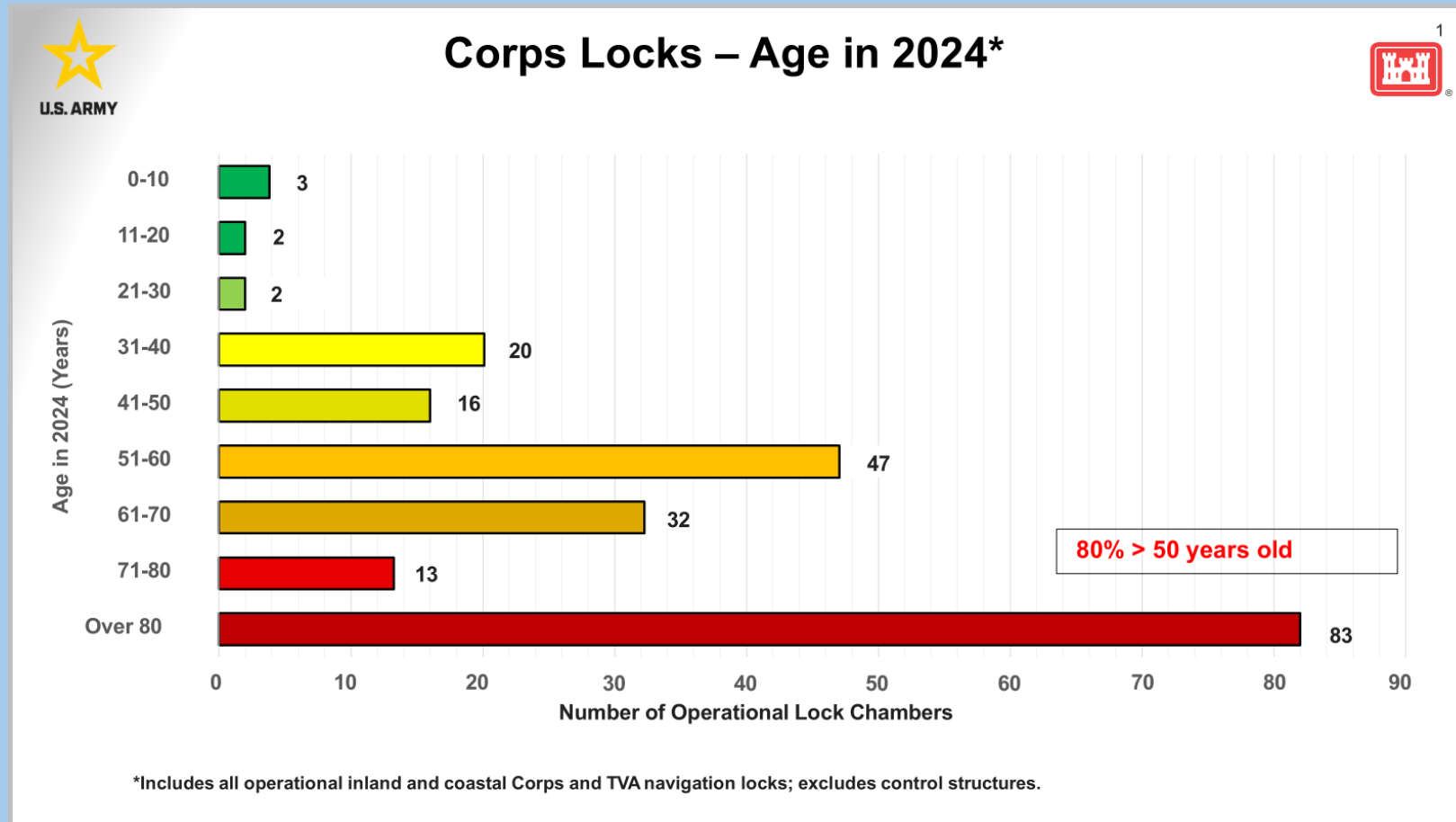
Annual Inland Waterways Tonnage



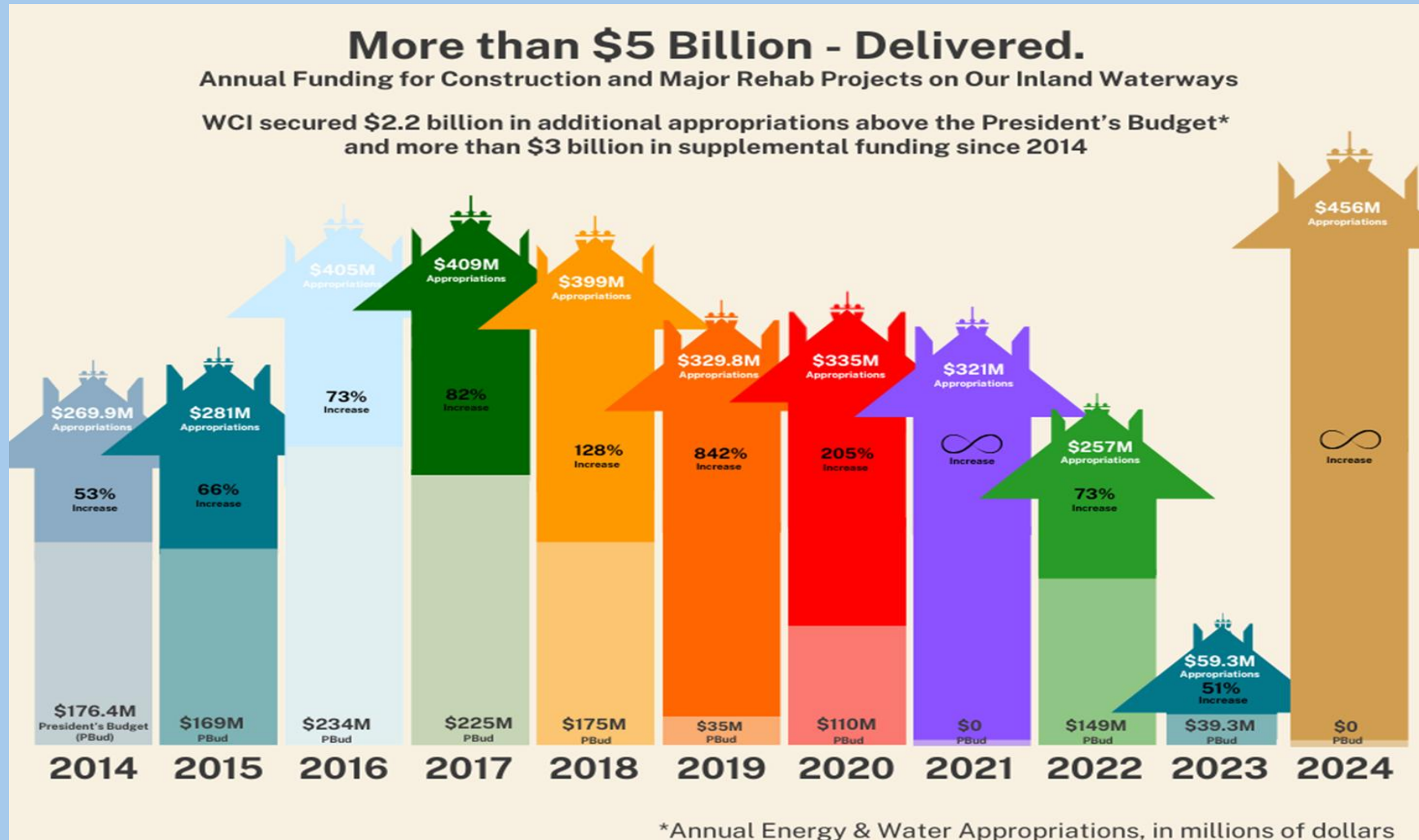
Potential Capacity Increase

Gasoline and Ethanol										
	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018	CY 2019	CY 2021	CY 2022	CY 2023	CY 2024
Middle TN Market Share by Barge	<2%	2- 10%	10- 20%	>25%	>40%	>45%	>40%	>40%	>55%	>60%

Inland Waterways Lock Condition



Inland Waterways Funding & Future Need



Cat 1a Active Construction

(in priority order)

1. Monongahela River 2, 3 & 4 (Charleroi) (PA)
2. Three Rivers Project (AR)
3. Chickamauga Lock (TN)
4. Kentucky Lock (TN)
5. Montgomery Lock (PA)
6. L&D 25 (MO, IL)
7. Lagrange L&D (IL)

Cat1b Active Design

(in priority order)

- A. Brazos River (TX)
- B. Emsworth Lock (PA)
- C. TJ O'Brien major rehabilitation (IL)



237

Lock Chambers

12,000 miles

Inland & Intracoastal
Waterways

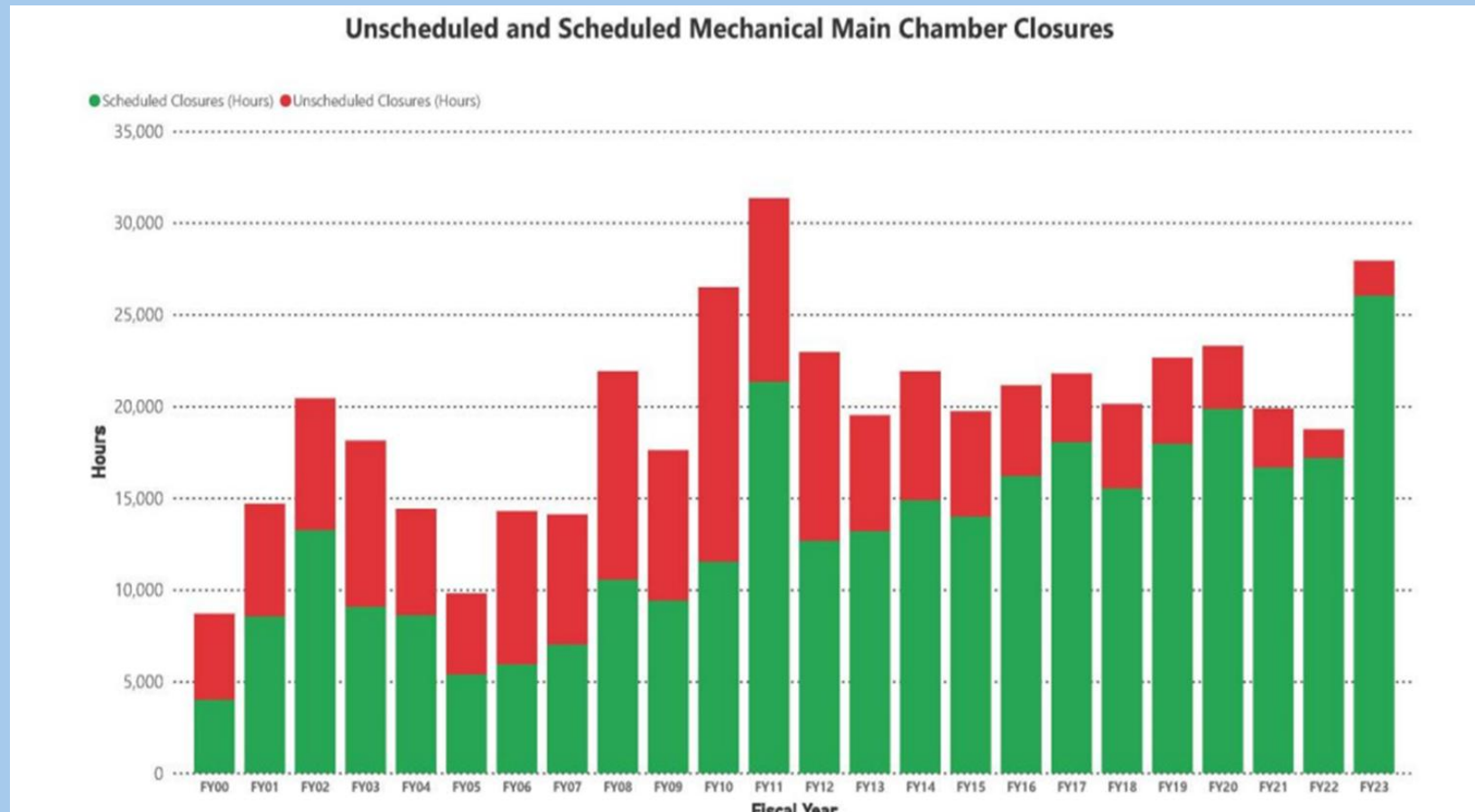
Cost Overruns and Schedule Slippages

Project	Year Authorized	Authorized Cost	1 st Year of Construction \$	Current Estimated Cost	Percentage Increase	Date Operational
Lower Mon 2,3, 4	1992	\$556.4 million	FY 1995	\$1.23 billion	121.6%	December, 2024
Kentucky Lock	1996	\$393.2 million	FY 1999	\$1.56 billion	297%	July, 2029
Chickamauga Lock	2003	\$267.2 million	FY 2004	\$954.4 million	257.2%	November, 2027
MKARNS 12-Foot Channel	2004	\$158.4 million	FY 2009	\$1.02 Billion	543.9%	TBD
L/D 25	2007	\$626 million	FY 22 (IIJA)	\$2.26 Billion	261%	October, 2034
Montgomery	2016	\$782.2 million	FY 22 (IIJA)	\$1.69 billion	116.1%	October, 2032
Three Rivers	2018	\$184.4 million	FY 22 (IIJA)	\$333.7 million	80.9%	September, 2026
GIWW – Brazos	2020	\$158.1 million	TBD	\$260 million*	64%	TBD

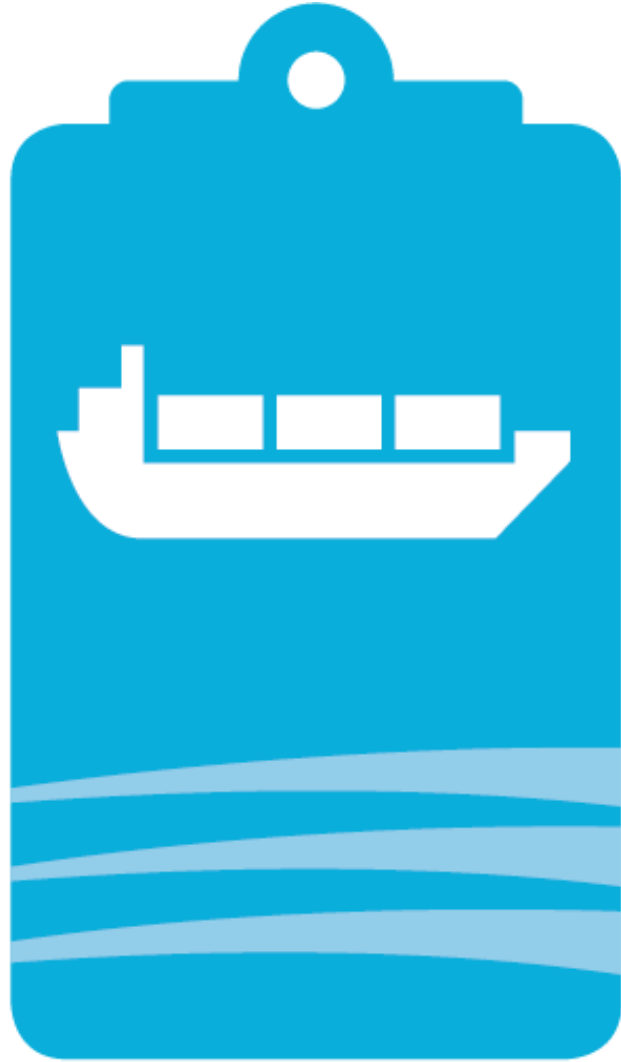
Backlog of Lock Construction Projects

Project	River/State
Upper Mississippi River Lock and Dam 24	Mississippi River/ MO & IL
Emsworth Lock	Ohio River/ PA
Upper Mississippi River Lock and Dam 22	Mississippi River/ MO & IL
Upper Mississippi River Lock and Dam 21	Mississippi River/ MO & IL
Dashields Lock	Ohio River/ PA
Peoria Lock	Illinois River/ IL
Upper Mississippi River Lock and Dam 20	Mississippi River/ MO & IL
Brazos River Flood Gate	Gulf Intracoastal Waterway/ TX
Colorado River Lock	Gulf Intracoastal Waterway/ TX

Inland Waterways Operation and Maintenance



Questions?





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