

Engineering With Nature USACE Navigation Overview

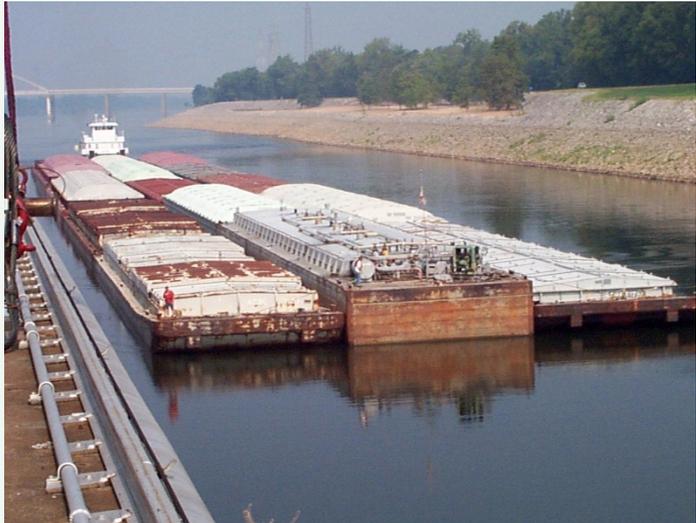
**Joe Wilson
Operations Division
Headquarters**

**05-06 October 2016
Gloucester, MA**



Corps Navigation Mission

Provide safe, reliable, economically efficient, and environmentally sustainable waterborne transportation systems for movement of commerce, national security needs, and recreation.



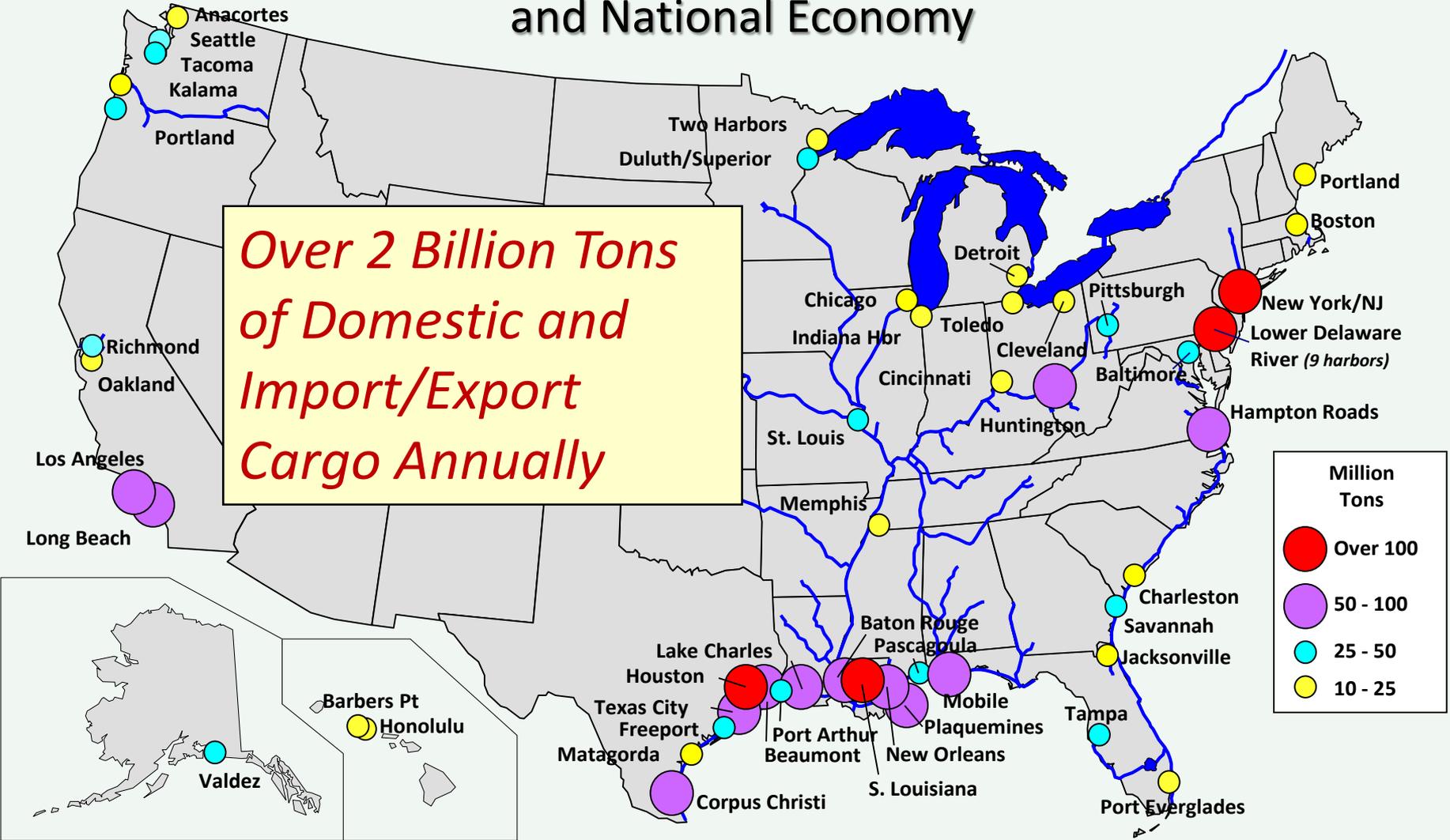
Delivering Civil Works Programs

U.S. Army Corps of Engineers



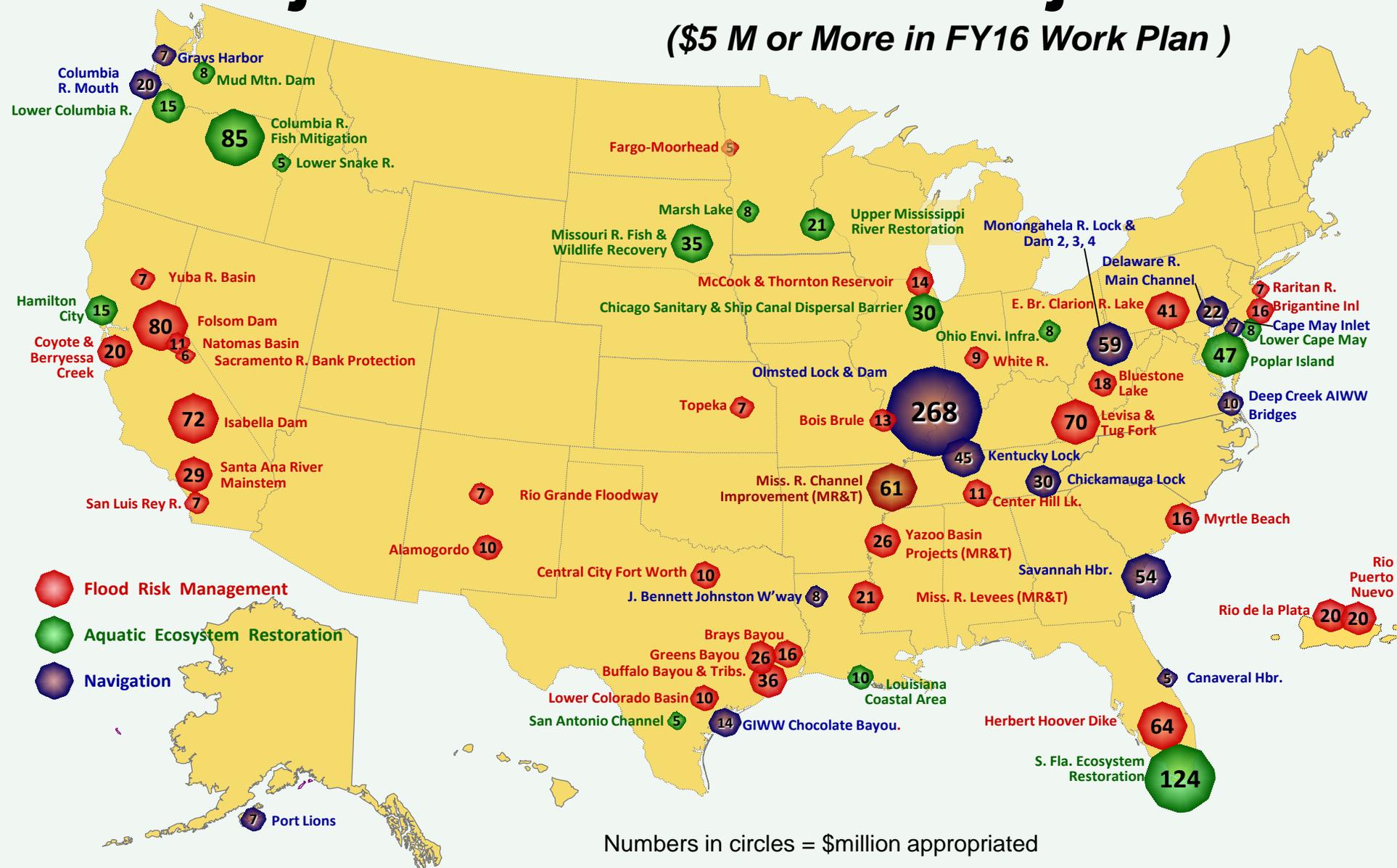
The United States Is A Maritime Nation

Inland Marine Transportation System + Ports: Vital to U.S. Trade and National Economy



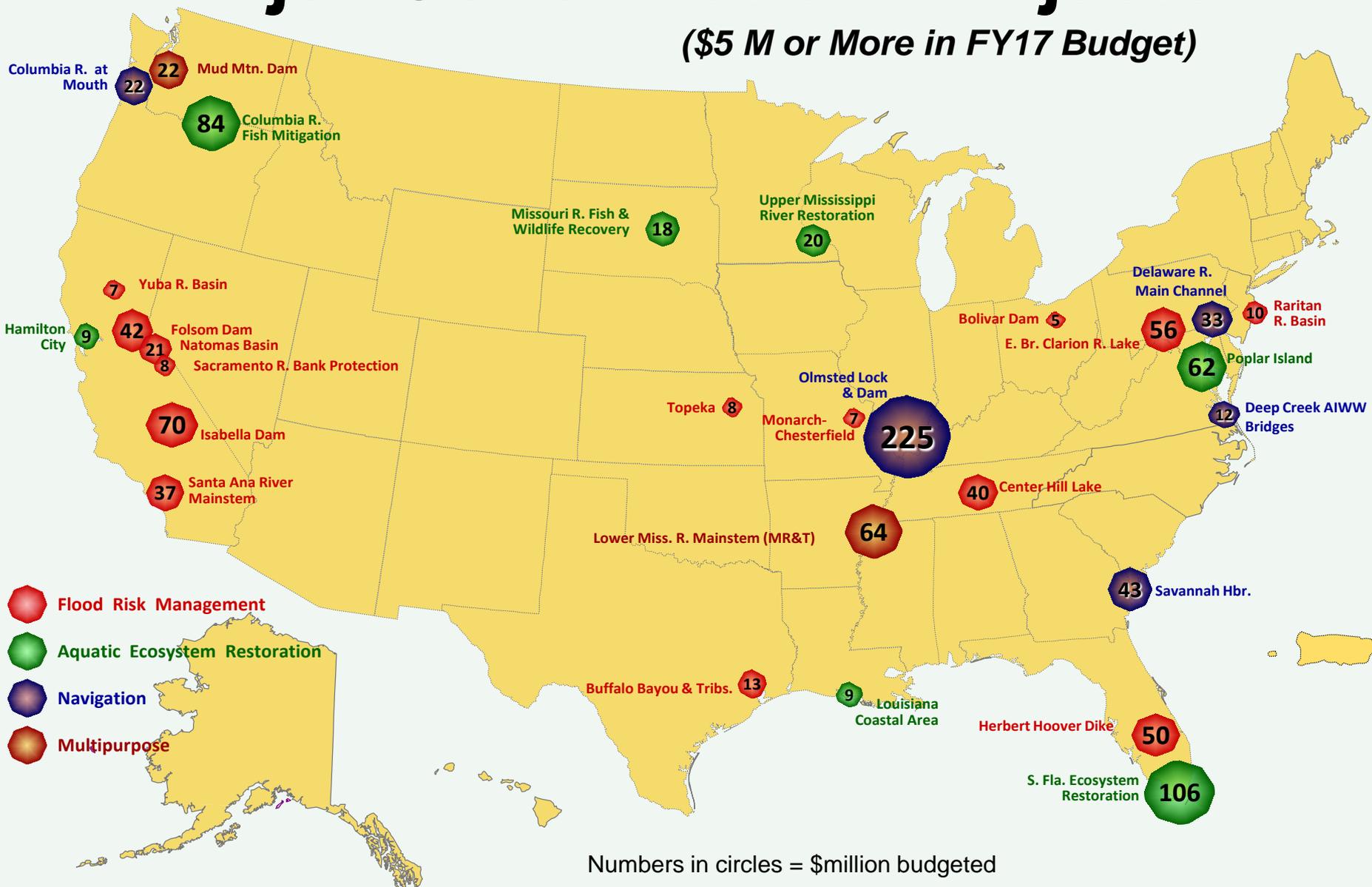
Major Construction Projects

(\$5 M or More in FY16 Work Plan)



Major Construction Projects

(\$5 M or More in FY17 Budget)



Numbers in circles = \$million budgeted

USACE Navigation System Assets

INLAND NAVIGATION

27 Inland River Systems

228 Lock Chambers @ 186
Lock Sites

12,000 Miles of Inland River
Channels



COASTAL NAVIGATION

1,067 Navigation Projects

13 Lock Chambers

929 Navigation Structures

13,000 Miles of Channels

844 Bridges

Navigation Facts

- 99.6% of U.S. overseas trade volume moves through coastal channels maintained by USACE
- The U.S. marine transportation industry supports ~ \$2 trillion in commerce.
- Panama Canal new locks opening in 2016 - Worldwide numbers of post-Panamax vessels to increase
- More than 60% of farm exports move on inland waterways to downstream ports.
- One barge can carry as much freight as 15 rail cars or 58 trucks. This reduces traffic congestion and air pollution.

Vehicle	Capacity	Truck Equivalency
 Barge	1500 Tons 52,500 Bushels 453,600 Gallons	57.7 (865.4 for 15 barges in tow)
 Hopper car	100 Tons 3,500 Bushels 30,240 Gallons	3.8

Navigation Challenges

- Attracting and retaining knowledgeable personnel
- Constrained Funding - can't maintain authorized/constructed channel dimensions
- Low Commercial Use Projects
- Increased cost of doing business
- Aging infrastructure
- Behind in channel depths
- Environmental Issues
- Facing Crisis by Skewed Management



Challenges and Opportunities

- **Infrastructure Investment = Global Challenge**
- **Corps Civil Works Portfolio: 3,000+ Operational Projects, with Replacement Value of Approx **\$268B****
- **Corps Civil Works Asset Classes are Diverse**
 - Flood & Coastal Storm Damage
 - Coastal and Inland Harbors
 - Inland Waterways
 - Hydropower
 - Dam & Levee Safety Programs
 - Water Storage
 - Aquatic Ecosystems
 - Water-Based Recreation
- **Demands for CW Infrastructure Maintenance, Operations, and Capital Investment are Expanding**
 - Civil Works New Construction Backlog → \$ 60B
 - ASCE: Dams, Levees, IWW's = "D" → \$140B
- **CW Infrastructure Systems Aging, Experiencing Negative Performance Trends Across Portfolio (Serviced by ~\$4.6B Annual Budget Nationally....)**



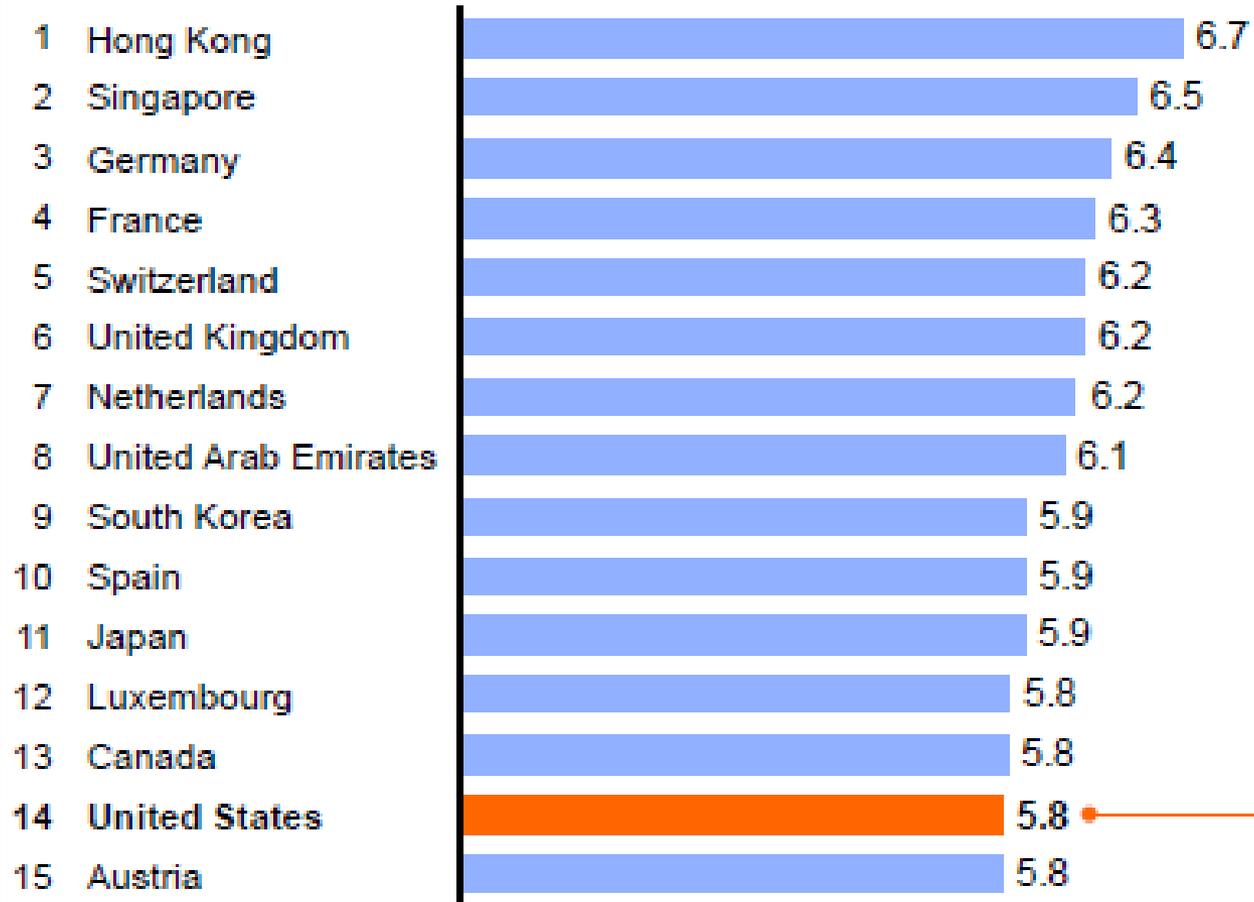
Relative Quality of US Infrastructure

The World Economic Forum ranks US infrastructure behind that of most other comparable advanced nations

Overall infrastructure quality index, 2012–13

Top 15 of 144 countries

Scale: 1 = Extremely underdeveloped; 7 = Extensive and efficient by international standards



Sector-specific indexes, 2012–13

Out of all 144 countries

Ports
United States
#19

Roads
United States
#20

Power and telephony
United States
#21

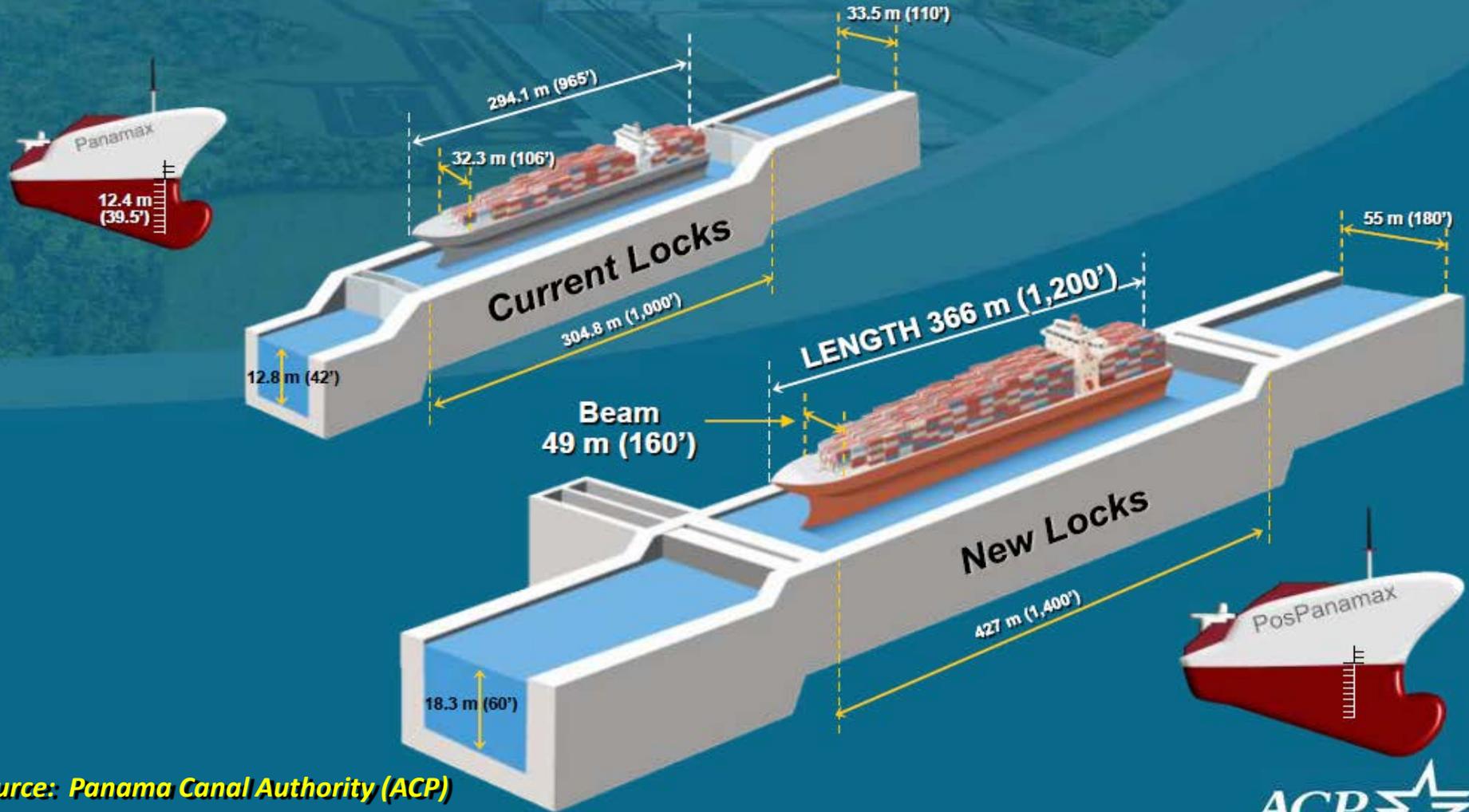
Future Opportunities & Demands

- **Corps Water Infrastructure Important to US Economy**
 - 98% of US Overseas Trade by Weight Moves Thru Corps Navigation Systems
 - 60% of US Grain, 22% of Coal, 22% Petroleum
 - Provides Strategic Overseas Deployment Platform
 - Has Capacity to Help Relieve Congestion Pressures on Other Modes
- **Nation's Water Infrastructure is Aging, Performance is Degrading, and Economic Impacts are Increasing**
- **U.S. Population Projected to Increase by 110 Million in 30 Years**
- **U.S. Imports and Exports Projected to Increase Significantly**
- **Panama Canal New Locks Opening in 2016 – Global Post-Panamax Fleet to Increase**
- **Increased Grain Exports Expected as Result of Transportation Cost Savings Associated with larger Vessels**



Dimension of Locks and New-Panamax vessels

Existing Locks Max Vessel: **4,400 TEU's**



Source: Panama Canal Authority (ACP)

New Locks Max Vessel: 12,600 TEU's



Potential Post-Panamax Port Studies



Future Budgets

- FY18 Budget Outlook
 - Probable Release Early 2017
 - Allows New Administration to Influence Budget Priorities
- FY17 Workplan Outlook
 - Districts and MSC Submittals Under Development
 - Expect HQ National Ranking to be Wrapped Up Before Christmas



Funding Sources for Corps Navigation Expenditures

Inland Waterways

O&M	General Treasury	100%	
Construction	General Treasury	50%	
	Inland Waterways TF		50%

Harbors

O&M	General Treasury	0%	
	Harbor Maintenance TF		100%
Construction	General Treasury	40-80%	
	Project Sponsors	20-60%	



President's Budgets

(\$millions)

Pres Bud	Coastal	Inland	Nav	CW total	Nav Percent
FY 17	\$1,017	\$917	\$1,934	\$4,620	42%
FY 16	\$973	\$974	\$1,947	\$4,732	41%
FY 15	\$991	\$834	\$1,825	\$4,561	40%
FY 14	\$980	\$904	\$1,884	\$4,826	39%
FY 13	\$967	\$780	\$1,747	\$4,731	37%
FY 12	\$832	\$744	\$1,575	\$4,631	34%
FY 11	\$873	\$779	\$1,652	\$4,939	33%
FY 10	\$971	\$796	\$1,767	\$5,125	35%
FY 09	\$969	\$931	\$1,900	\$4741	40%

Coastal Navigation Budget

(\$million)

Pres Bud	Investigations	Construction	O&M	MR&T	Total Coastal
FY 17	\$14	\$105	\$896	\$2	\$1,017
FY 16	\$18	\$81	\$872	\$2	\$973
FY 15	\$17	\$97	\$875	\$2	\$991
FY 14	\$16	\$108	\$853	\$2	\$980
FY13	\$17	\$151	\$797	\$2	\$967
FY12	\$7	\$117	\$706	\$2	\$832
FY11	\$9	\$115	\$747	\$2	\$873
FY10	\$16	\$119	\$834	\$2	\$971

Closing Thoughts

- Addressing the Nation's Infrastructure Investment Gap is a Shared Federal, State and Local Responsibility
- The Corps Doesn't Deliver Anything by Itself... Critical that We Not Lose Focus on Our Partners and Our Commitments
- Navigation Investment is Essential for the Nation's Global Trade and International Competiveness
- Economically Justified Investment Reduces Risk to Economic Activity, Lives, Livelihoods and Quality of Life
- How do we manage activities to achieve environmental benefits with funds appropriated?
- What are YOUR ideas?

Thank You!



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POC: <name>