

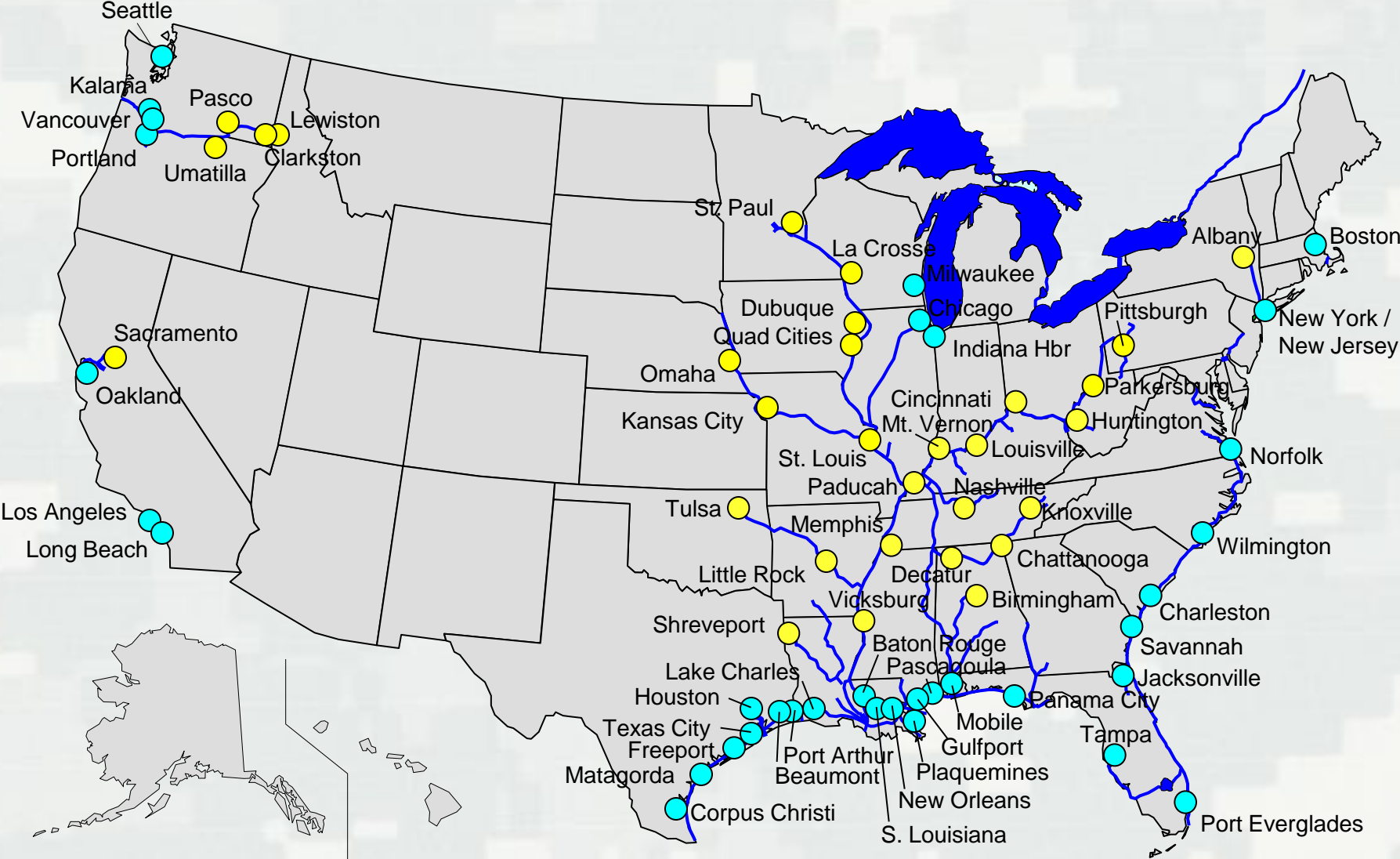
U.S. Port and Inland Waterway Modernization Strategy: Options for the Future

Norfolk, Va
14 March 2012



BUILDING STRONG®

The U.S. Navigation System





Navigation

Inland and Intracoastal Waterways

- 12,000 miles; 9' – 14'
- 240 Lock Chambers
- 630 million tons annually; ~50% coal & petroleum
- Grain Exports >70 m tons/yr
- 50% of grain, soybeans & prepared feed exports by barge



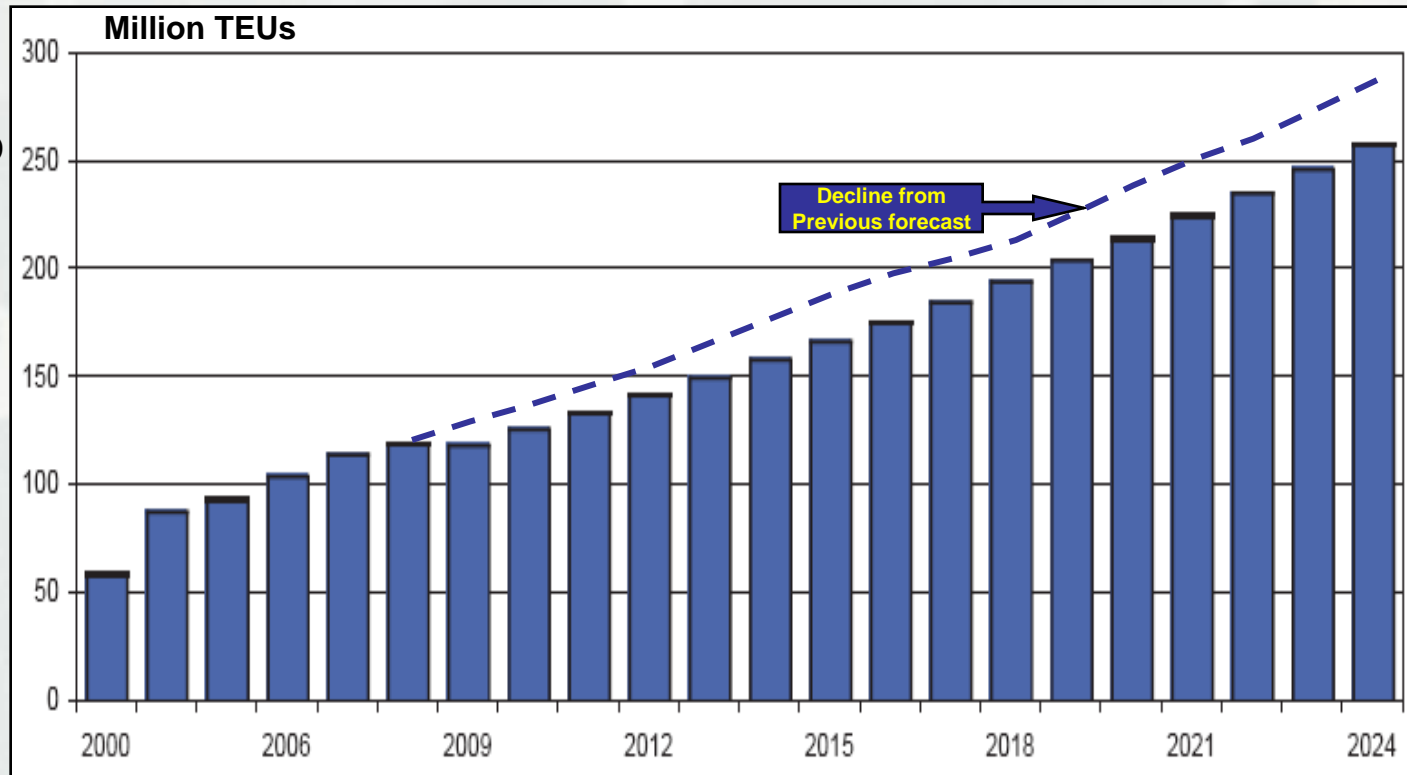
Coastal Harbors

- 300 major seaports; 2 billion short tons annually; 95% of import/export
- Over 700 small harbors; 600 million tons annually
- 13 million US jobs

Forecast Total World Container Trade

2000 - 2024

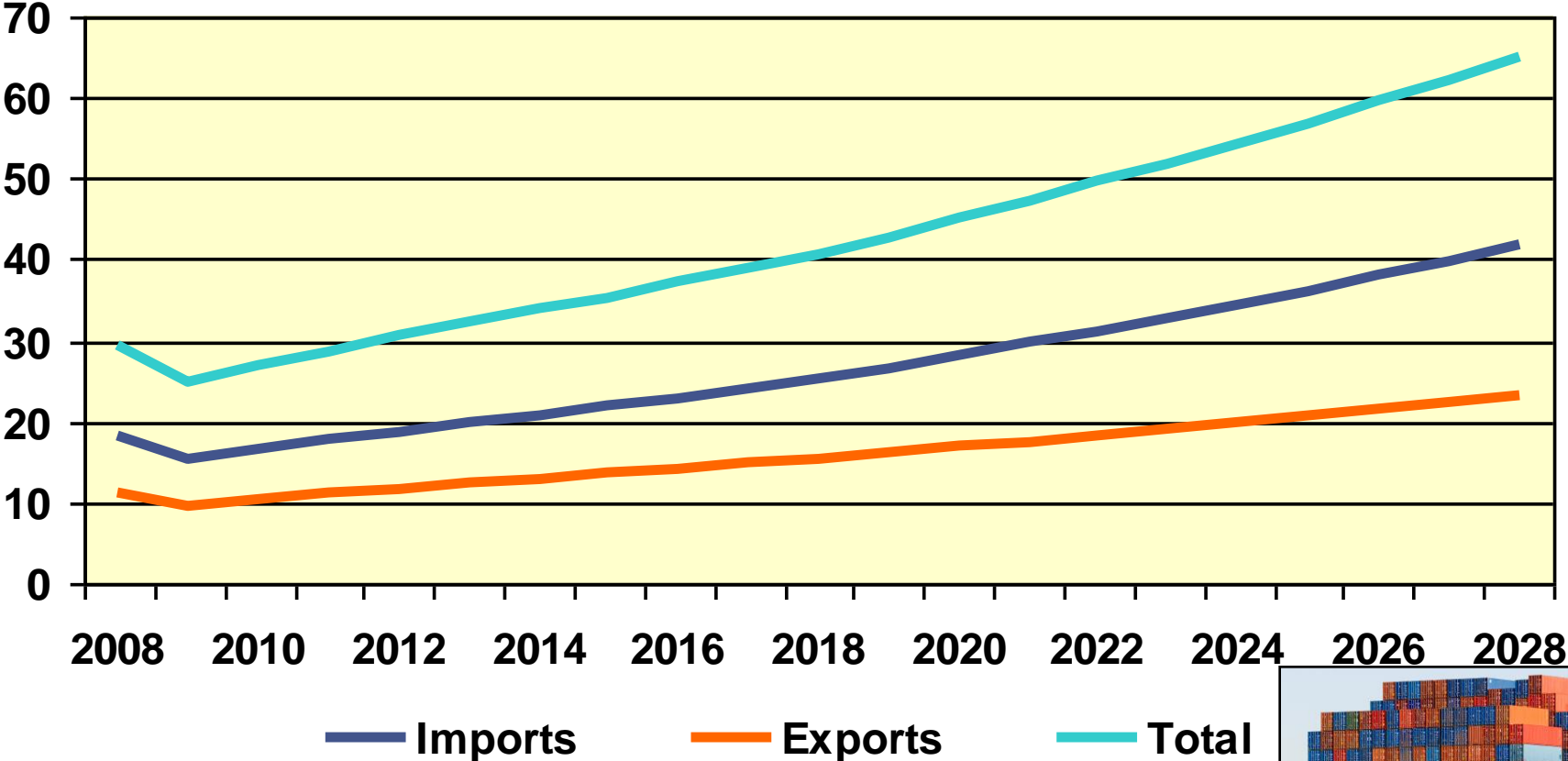
- Doubled from 60 million TEUs in 2000 to about 120 million in 2008
- Slight decline forecast in 2009
- Renewed growth to about 260 million TEUs by 2024
- That is down 40 million TEU from earlier forecasts



Forecast: U.S. Trade More Than Doubles

2008 - 2028

Millions of TEUs



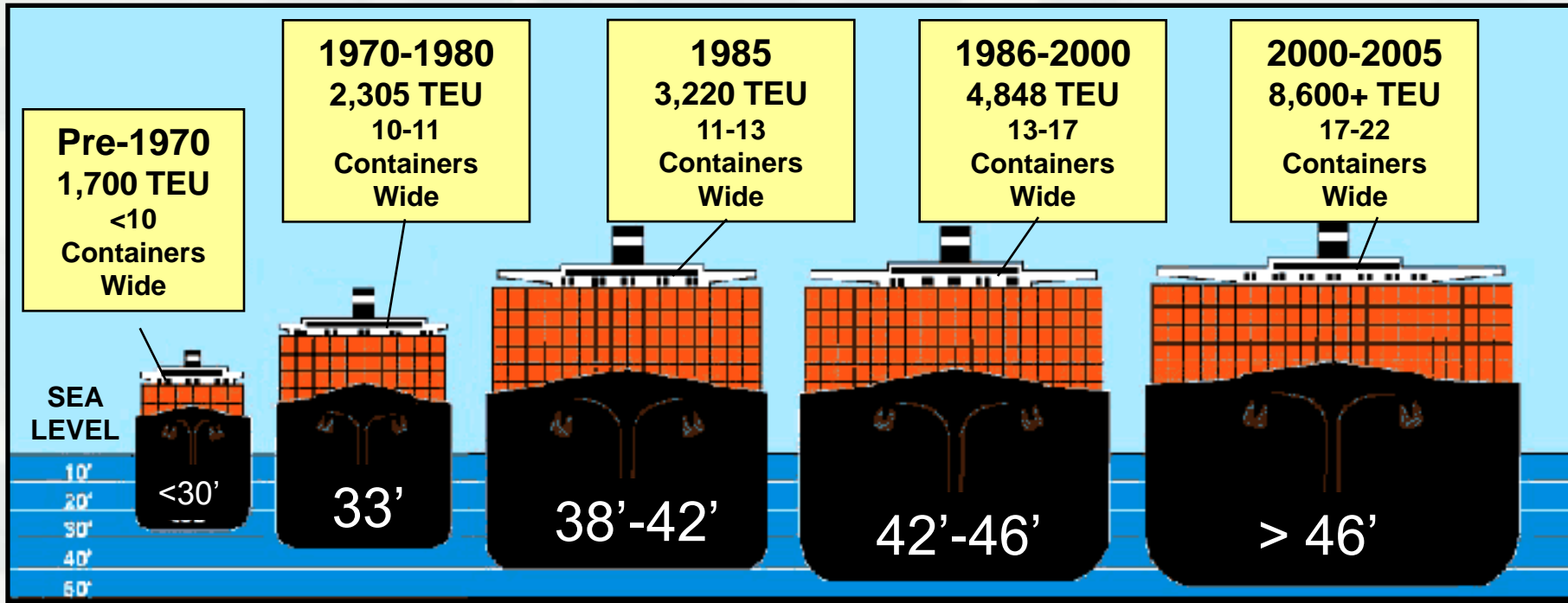
Source: I H S G I World Trade Service



BUILDING STRONG®

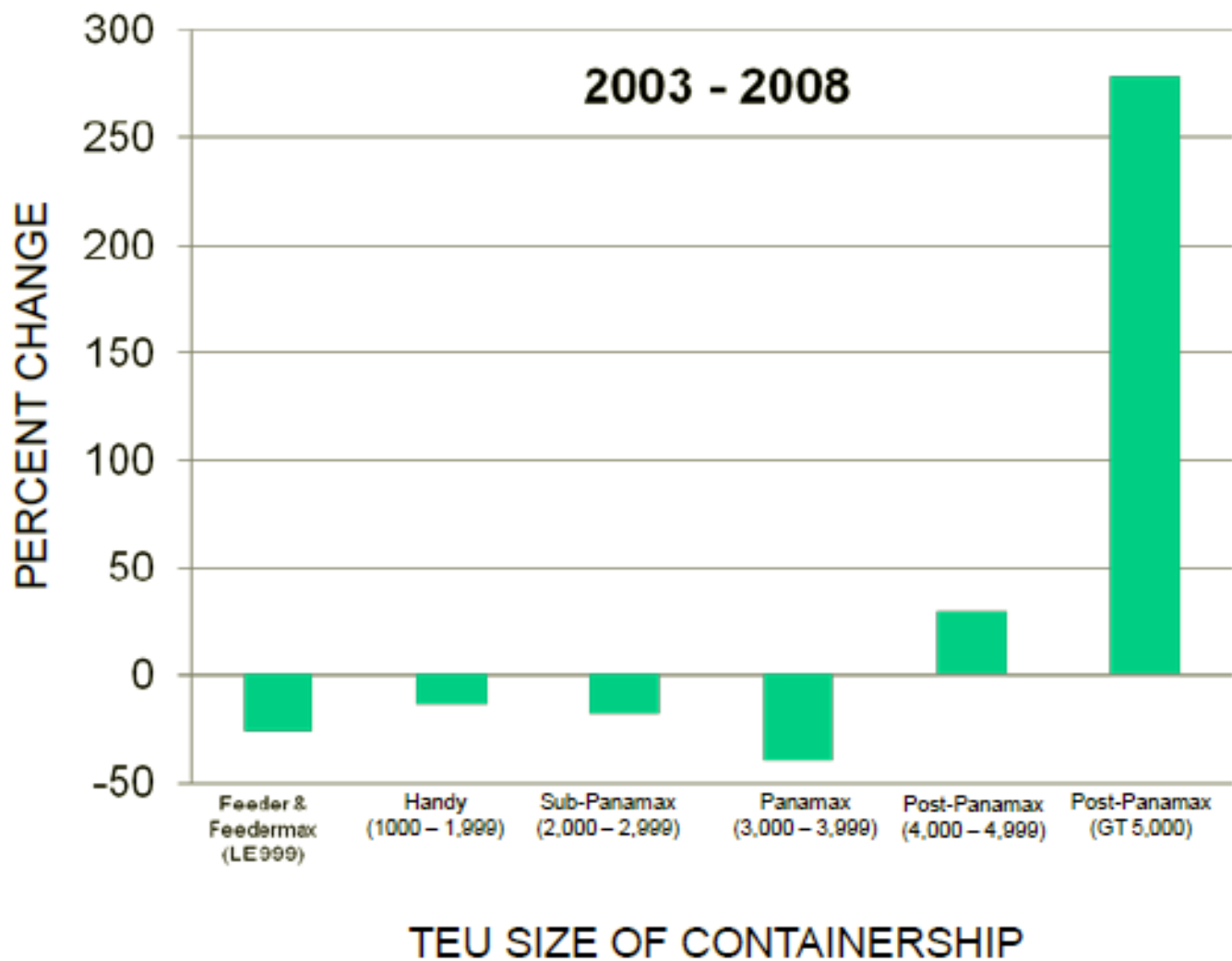
Ever Larger Containerships

Driving Need for Ever Larger Channels



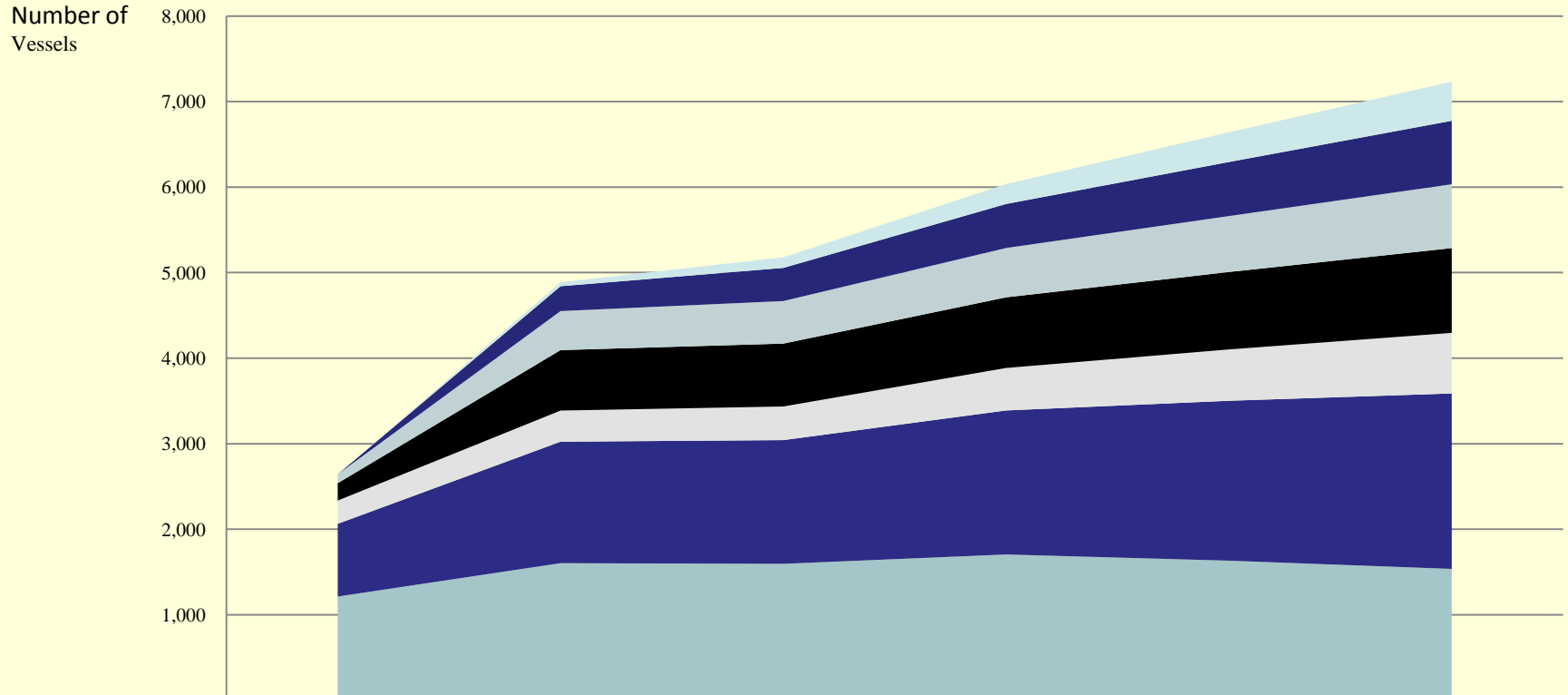


PERCENT CHANGE IN PORT CALLS BY CONTAINERSHIP SIZE



U.S. Port and Inland Waterways Modernization Strategy

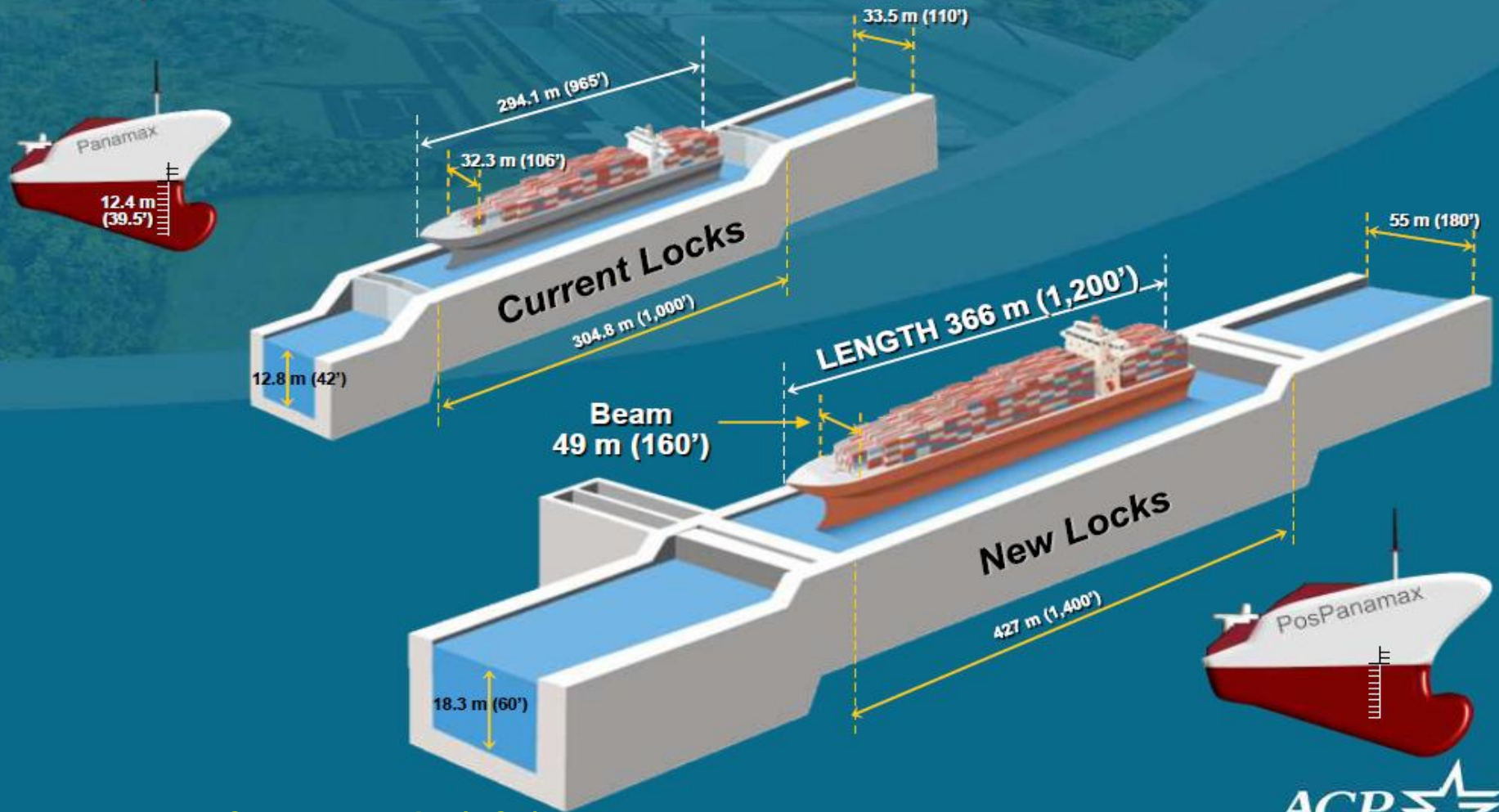
World Fleet: Historical and Forecasted Fully Cellular Container Vessels by TEU Class 2000-2030



	2000	2011	2015	2020	2025	2030
12 k TEU +	-	47	124	232	348	458
7.6 k to 12 k TEU	-	291	388	515	632	742
5.2 k to 7.6 k TEU	104	456	498	577	654	747
3.9 k to 5.2 k TEU	203	707	735	826	905	991
2.9 k to 3.9 k TEU	272	364	393	497	600	708
1.3 k to 2.9 k TEU	850	1,420	1,446	1,684	1,869	2,051
0.1 k to 1.3k TEU	1,214	1,604	1,596	1,706	1,633	1,537

Dimension of Locks and New-Panamax vessels

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



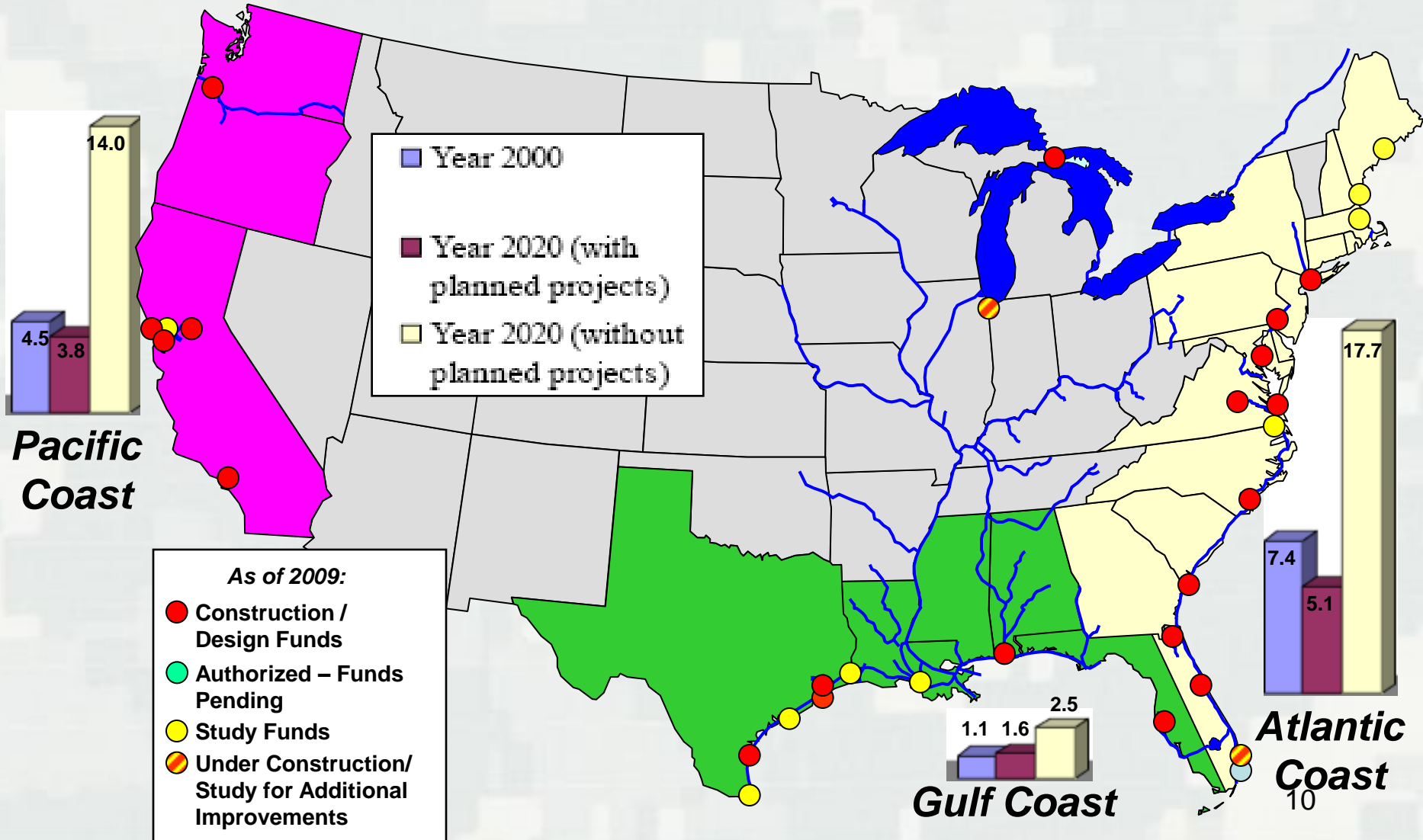
Source: Panama Canal Authority (ACP)

New Locks Max Vessel: 12,600 TEU's



Depth-Constrained Containership Calls in 2020, with and without Planned Harbor Projects

(in thousands of ship calls)



U.S. Port and Inland Waterways Modernization Strategy

As directed by Congress:

Within the funds provided, the Institute for Water Resources is directed to submit to the Senate and House Committees on Appropriations within 180 days of enactment of this Act, a report on how the Congress should address the critical need for additional port and inland waterway modernization to accommodate post-Panamax vessels. This study will not impede nor delay port or inland waterway projects already authorized by Congress. Factors for consideration should include costs associated with deepening and widening deep-draft harbors; the ability of the waterways and ports to enhance the nation's export initiatives benefitting the agricultural and manufacturing sectors; the current and projected population trends that distinguish regional ports and ports that are immediately adjacent to population centers; the availability of inland intermodal access; and the environmental impacts resulting from the modernization of inland waterways and deep-draft ports.

- Conference Report on the Consolidated Appropriations Act of 2012 (H.R. 2055)



BUILDING STRONG®

Strategy Will Incorporate

- Shipper Perspectives
- Carrier Perspectives
- Ports Perspectives
- Environmental Interests
- State and Federal Agencies
- Other Groups



Teams

- Deep Draft Center of Expertise
- Inland Center of Expertise
- Environmental Team
- Dredging Team
- AIS Team
- Port Capacity Team
- Public Communications Team



Deep Draft PCX

- Forecasting International Trade and Future Container Vessel Fleet
- Trends that distinguish regional ports and ports which are immediately adjacent to large population centers

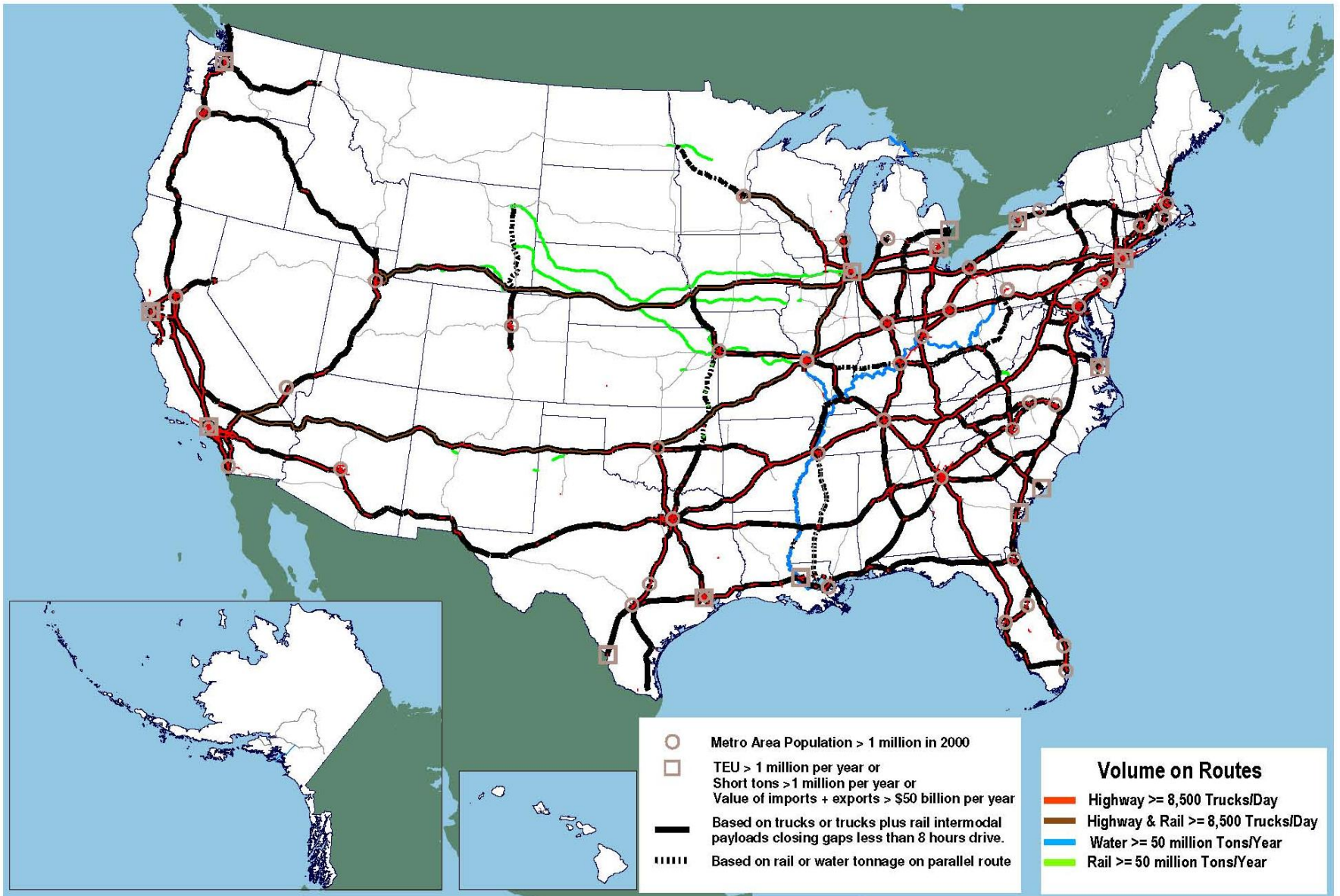


Inland PCX

- Commodity Flows (esp. grain & oilseeds)
- Trade Initiatives
- Waterway Fleets & Costs
- Profiles
 - ▶ Waterways, Ports, Rail, Truck System
- Base and Future Condition Report



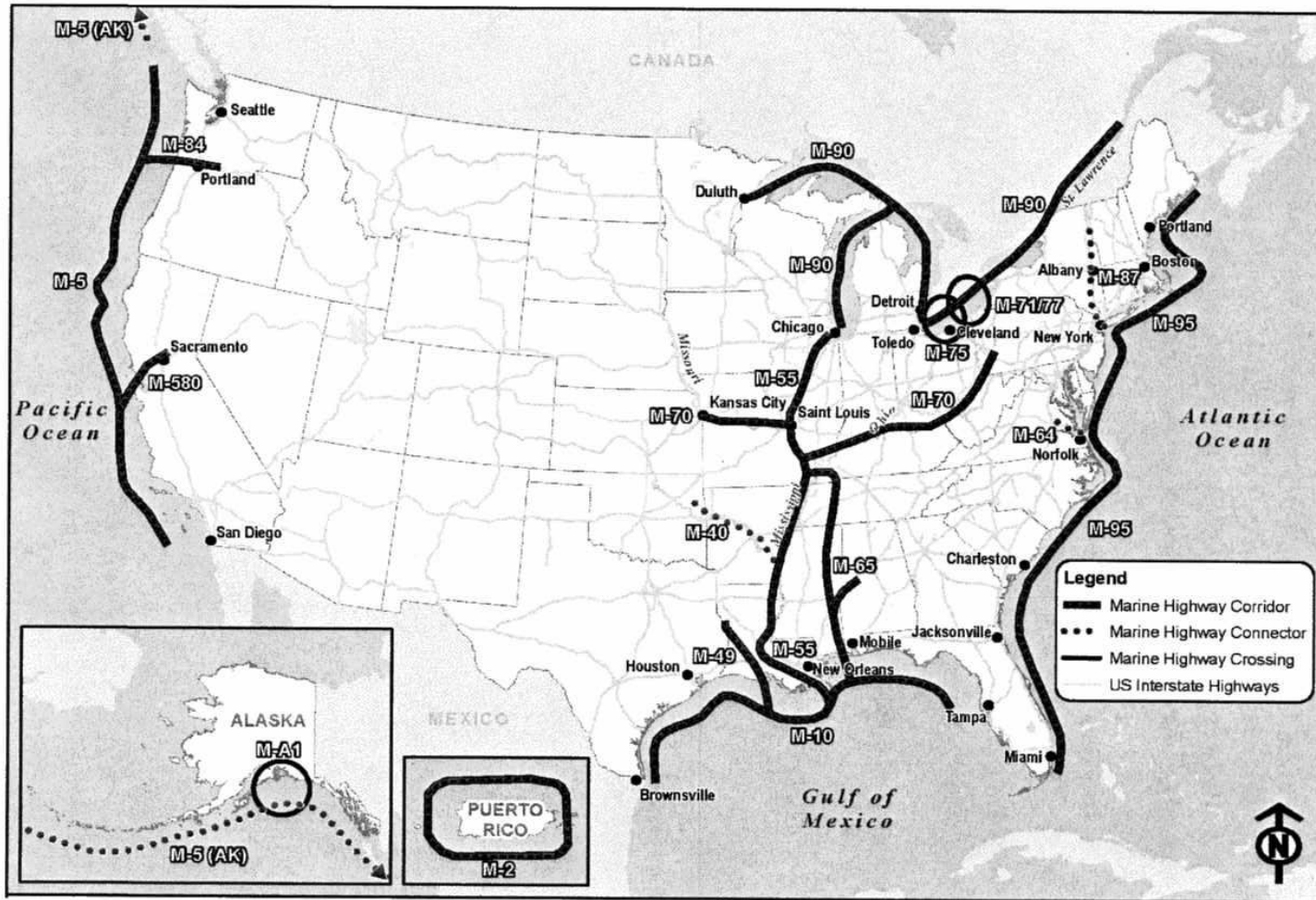
Major Freight Corridors



Note: Highway & Rail is additional highway mileage with daily truck payload equivalents based on annual average daily truck traffic plus average daily intermodal service on parallel railroads. Average daily intermodal service is the annual tonnage moved by container-on-flatcar and trailer-on-flatcar service divided by 365 days per year and 16 tons per average truck payload.

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, 2008.

Marine Highway Corridors



Environmental Team

- Impacts from:
 - ▶ Excavation and Maintenance Dredging
 - ▶ Port and Inland Waterway Structures
 - ▶ Vessel, Port and Waterway Operations
 - ▶ Intermodal Transport Development and Operation
 - ▶ Accidents
 - ▶ Impact Distribution and Environmental Justice



Dredging Team

- Examine impact on the Corps' overall dredging program (both for O & M and New Starts).
 - Reviewing budget history, establishing candidate dredging projects; determining existing info on dredging projects (channel lengths, dredging quantities, material type and dredging method and placement); computing cost estimates, and verification by Districts for parameters.



AIS Contract

- Route analyses
- Voyage costs
- Examine vessel trends and cascading effects
- Provides insights into to the post Panama Canal Expansion



Port Capacity Assessment

- What are the near-term and long-term capacities of the major container ports?
- What factors constrain the capacities of those ports?
- How well is capacity currently utilized?
- How well are the major ports prepared to handle larger vessels?
- How do the smaller container ports or terminals fit into the picture?



Public Communications Team

- Ensure that USACE conducts its investigation and communicates the findings in a clear, transparent, and sensitive manner to ensure consideration of viewpoints of all stakeholders and to promote positive perceptions of the study and study process.



Uncertainties Which May Impact Investment Decisions

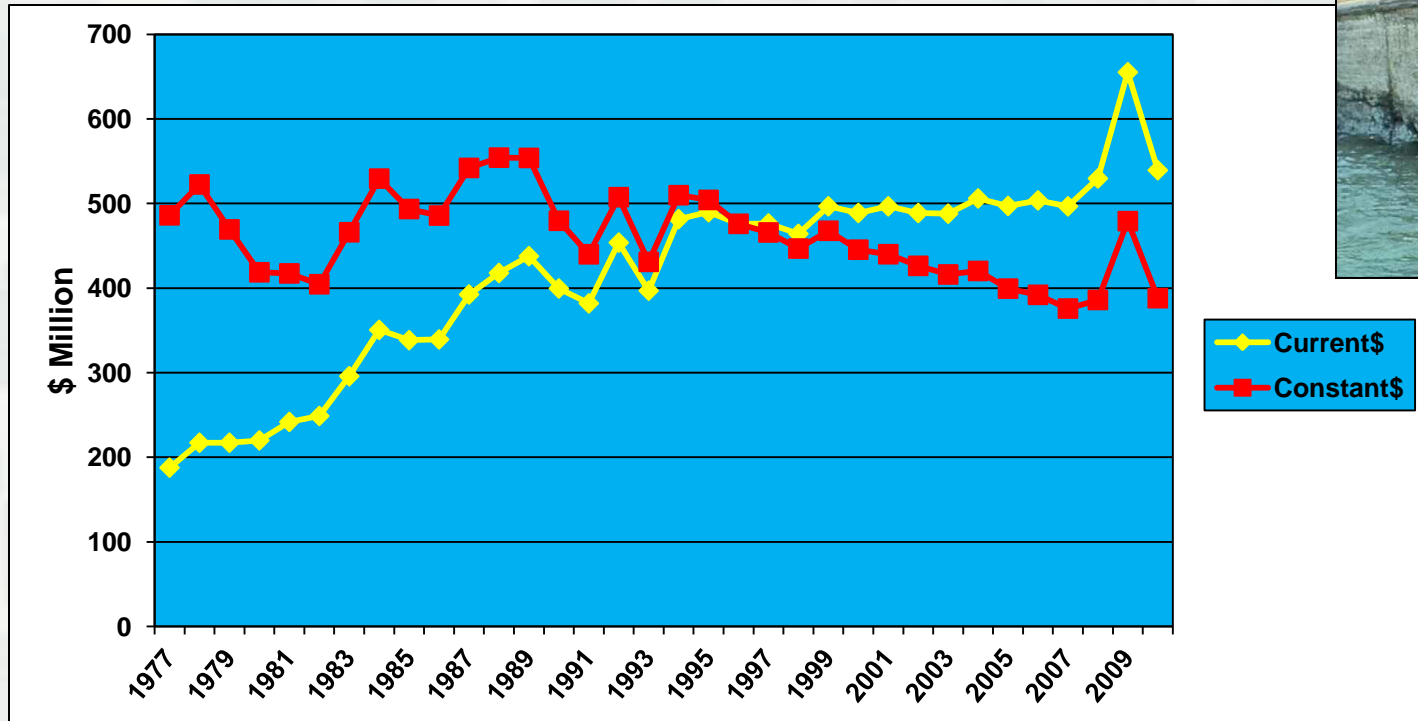
- Future trade growth rate
- Future vessel fleet – and where will they call?
- Panama Canal expansion – implications for vessel routings
- Use of Transshipment Hubs – Bahamas? Caribbean?
- Stimulus funds accelerated some projects, but then funding uncertain
- Future funding levels may be constrained by growing federal deficit



Challenge: Inland Waterway O&M Funding

1977-2010 Current \$ and 1996 Constant \$ *

Challenge: Flat O&M funding in constant dollars, even as project portfolio grows and ages...



Lock wall, Lower Mon 3



Lock wall deterioration, Chickamauga

* Fuel-Taxed Waterways Only

Navigation Funding – Pres Budget

(\$ million)

Pres Bud	Coastal	Inland	Nav	CW total	Nav Percent
FY12	\$832	\$744	\$1576	\$4631	34
FY11	\$873	\$779	\$1652	\$4939	33
FY10	\$971	\$796	\$1767	\$5125	35
FY09	\$969	\$931	\$1900	\$4741	40
FY08	\$957	\$1057	\$2014	\$4900	41

Trend is declining funds

Navigation down 22% in the last 5 years.

Reductions masked by ARRA funding in FY09 and FY10

Flood Damage Reduction increased due to DSAC results;

Environment also increased.



U.S. Port and Inland Waterways Modernization Strategy

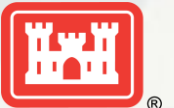
- **National Export Initiative** seeks to increase exports through trade missions, export credit and financing, effort to remove trade barriers, enforcing trade rules and promoting international policies that lead to balanced world growth.
- The Corps' Modernization Strategy needs to be in context with ongoing efforts and reflex a multimodal transportation system.



U.S. Port and Inland Waterways Modernization Strategy

Options for Financing Modernization

From greater Federal role to more reliability on local resources. Between these two end points are an infinite combination of PPP, use of infrastructure banks, alternative cost sharing and fee structures.



U.S. Port & Inland Waterways Modernization Strategy

Schedule

- December 2011: Authorized by Congress
- Jan – Apr 2012: Report Drafted
- May – Jun 2012: Report Reviewed
- 30 June 2012: Report Delivered to Congress



Questions?

Kevin Knight

Institute for Water Resources

(703) 428-7250

Kevin.P.Knight@usace.army.mil

Keith Hofseth

Institute for Water Resources

(703) 428-6468

Keith.D.Hofseth@usace.army.mil



Line of Site Requirements Restrict Vessel Capacity



BUILDING STRONG®