

U. S. Port and Waterway Modernization Strategies: Environmental Impacts Section



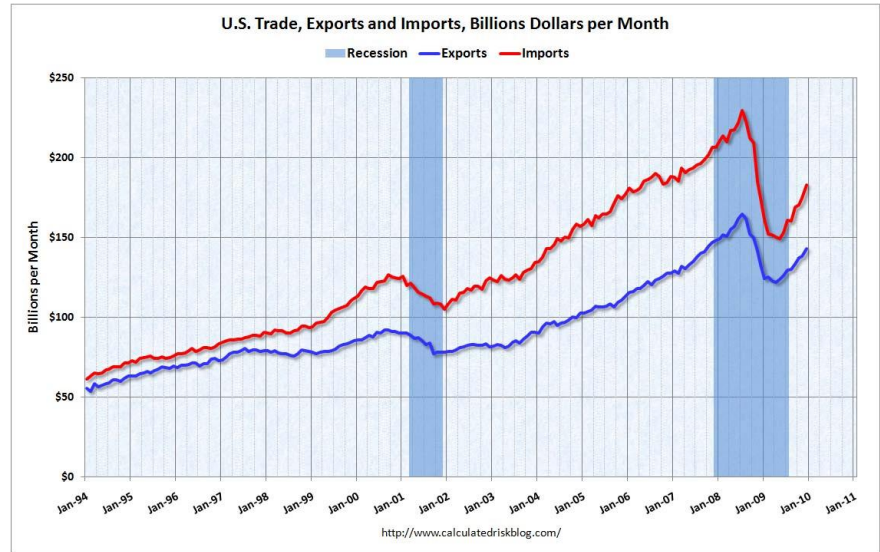
Institute for Water Resources

March 13, 2011

Maritime Trade Trends

International maritime trade is increasing, especially with Pacific Rim nations

The fraction of container transport is increasing



Vessel Size is increasing because of cost-effectiveness, including fuel efficiency

Evolution of Container Ships



Completed Panama Canal expansion by 2014



Congressional Direction (Appropriations committees)

- IWR is to submit “a report on how the Congress should address the critical need for additional port and inland waterway modernization to accommodate post-Panamax vessels”
- “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 benefiting 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.”

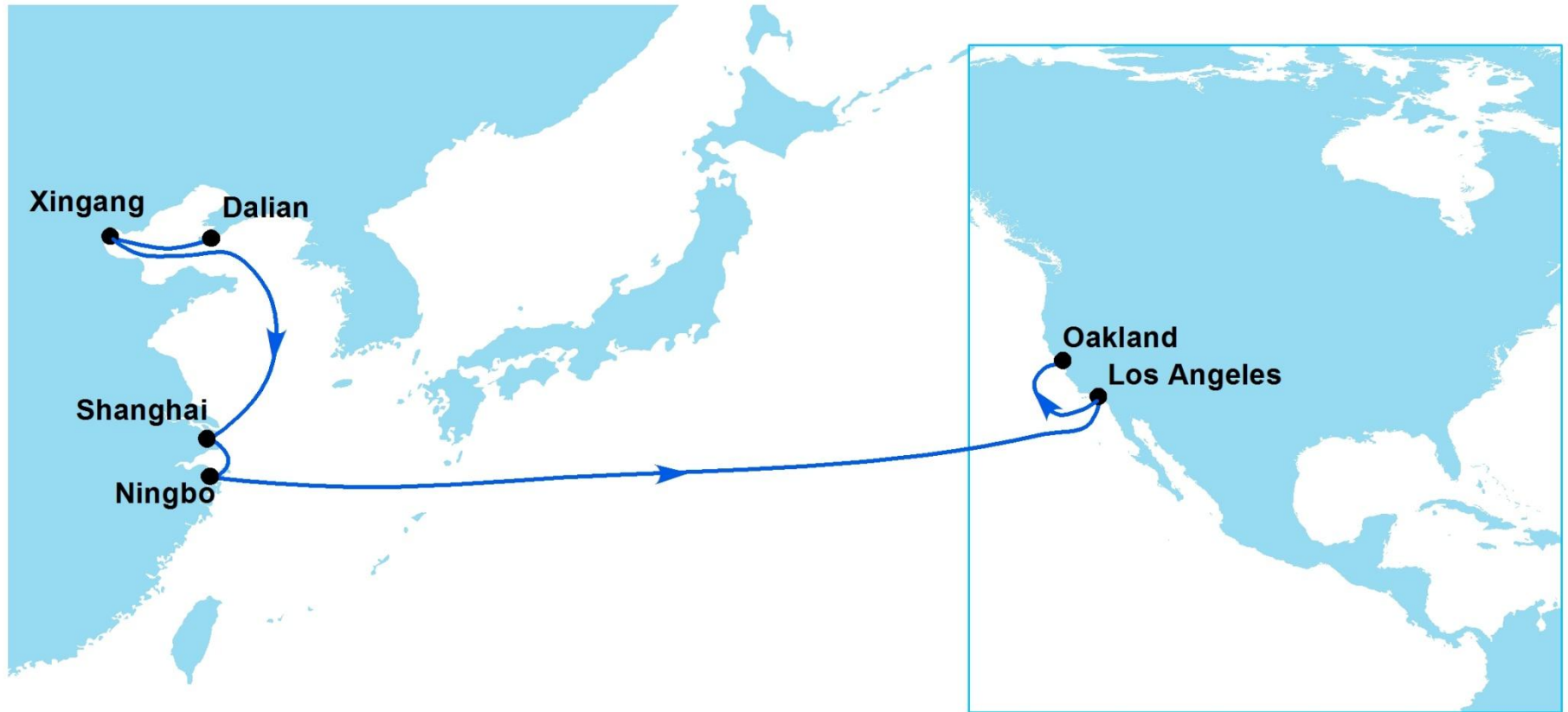
Probable Report Attributes

- A programmatic overview—a vision of possibilities
- A brief main report
- A synthesis of existing information
- Backed up by extensive reference materials

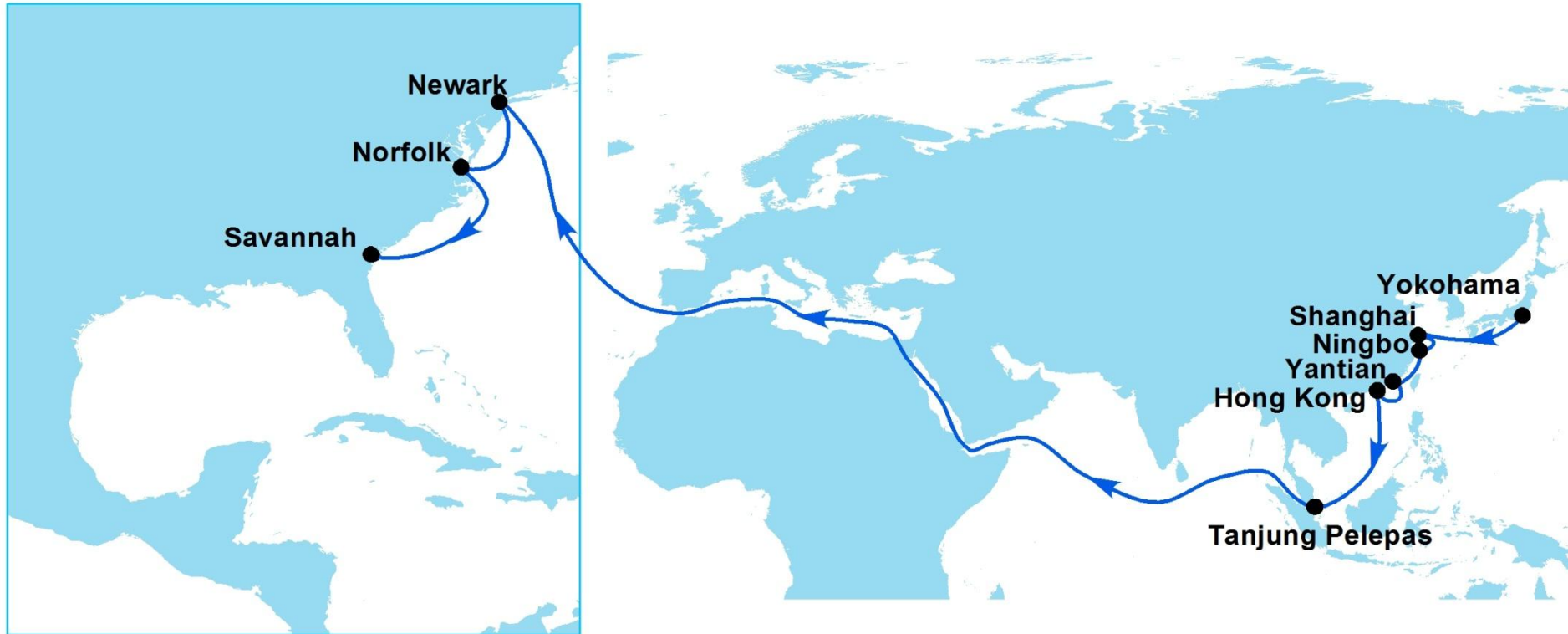
Existing State of the Transport System



Most freight from Pacific Rim nations enters through ports on the Pacific Coast

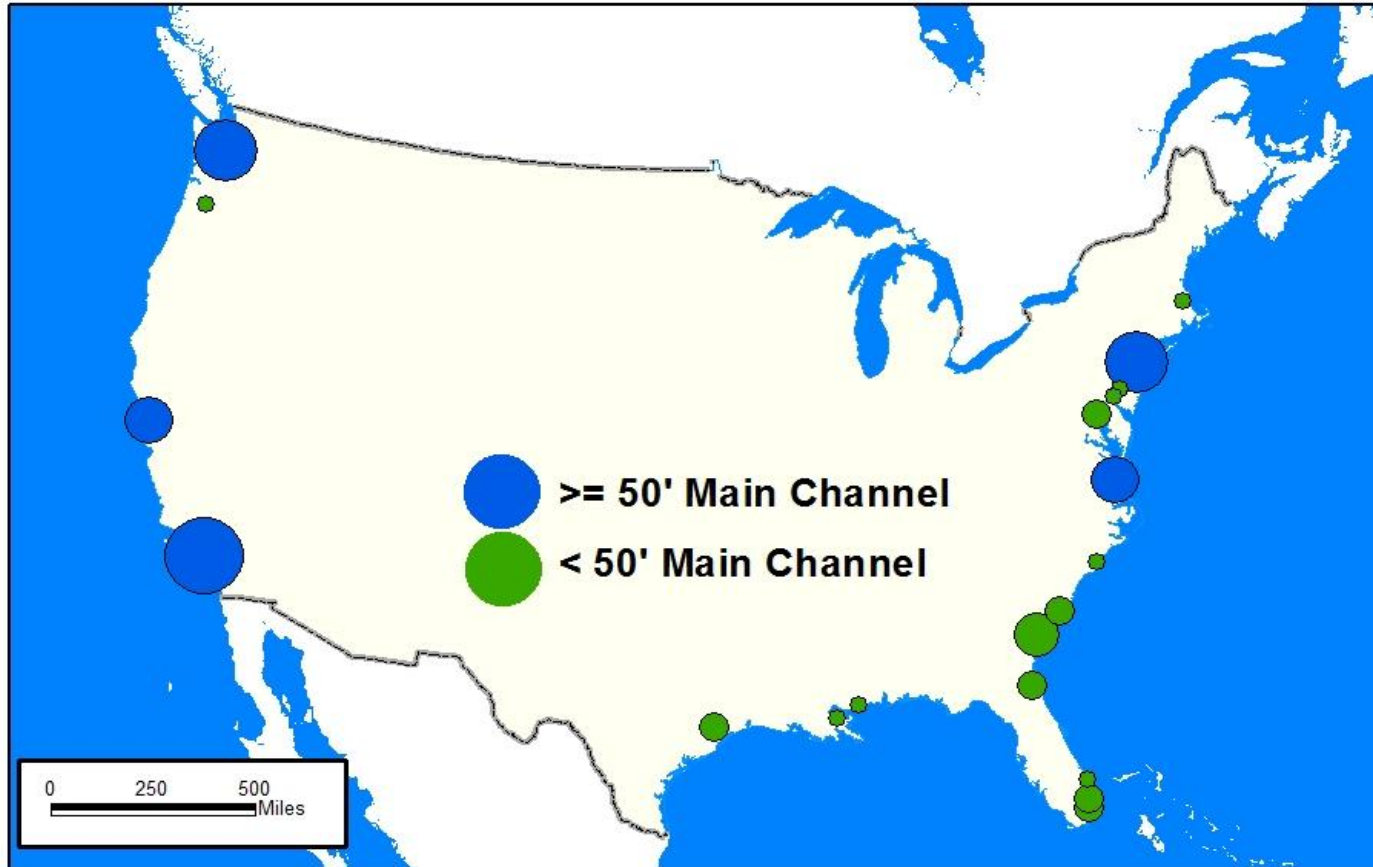


Other freight enters through ports on the Atlantic Coast, including the Gulf of Mexico



DOT

Most large Pacific ports are post-Panamax ready. On the Atlantic Coast only northern ports are post-Panamax ready or near ready.



Note: Circle size is roughly proportional to 2010 container volume

DOT/USACE

Intermodal Freight Transport System



Oceanic Vessels



Railroads



Port Transfer



Coastal Vessels



Inland waterway barges



Highways



Port, railroad and interstate highway network

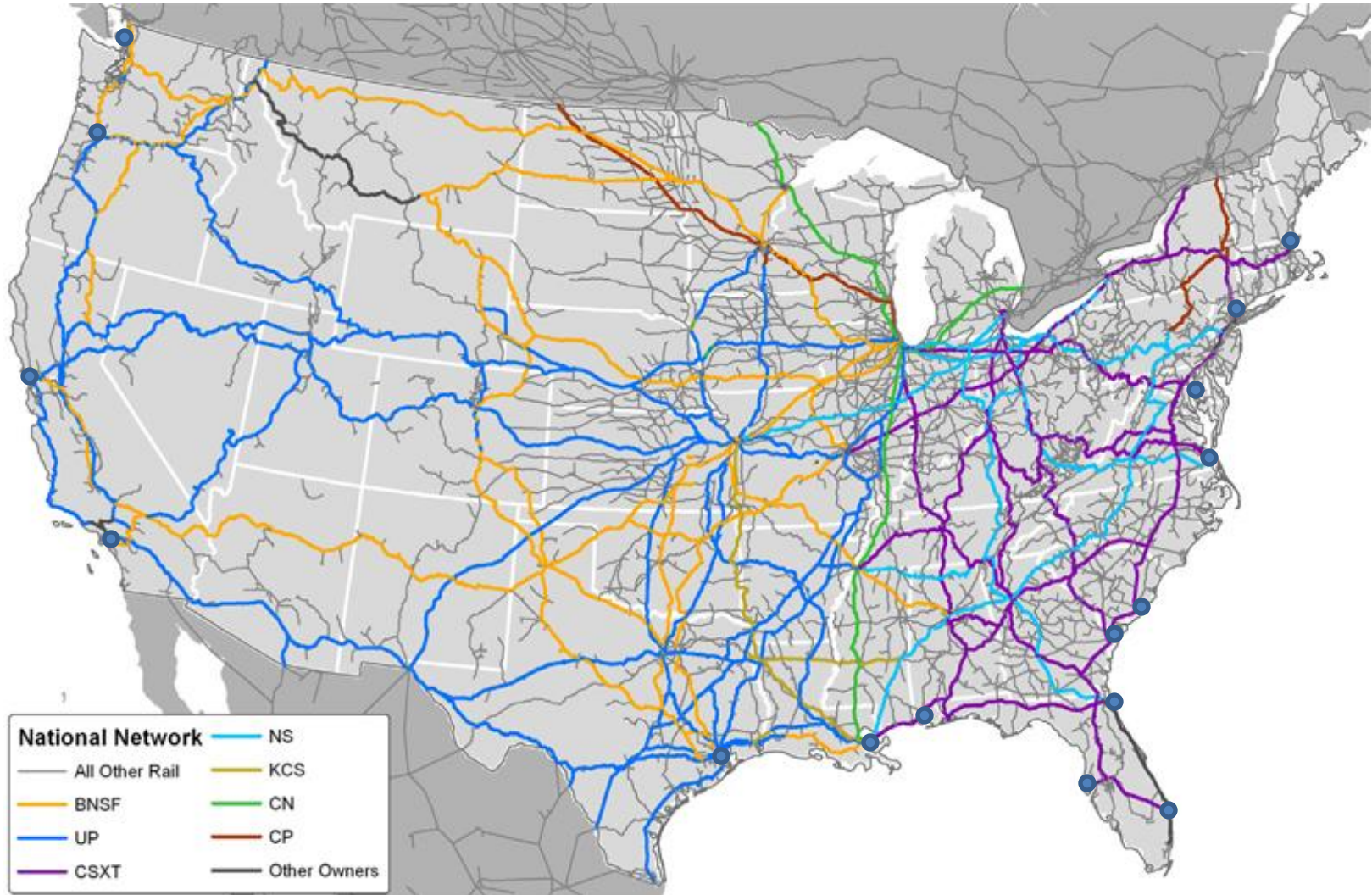


DOT/USACE

Average daily long haul truck traffic.



Railroad freight network

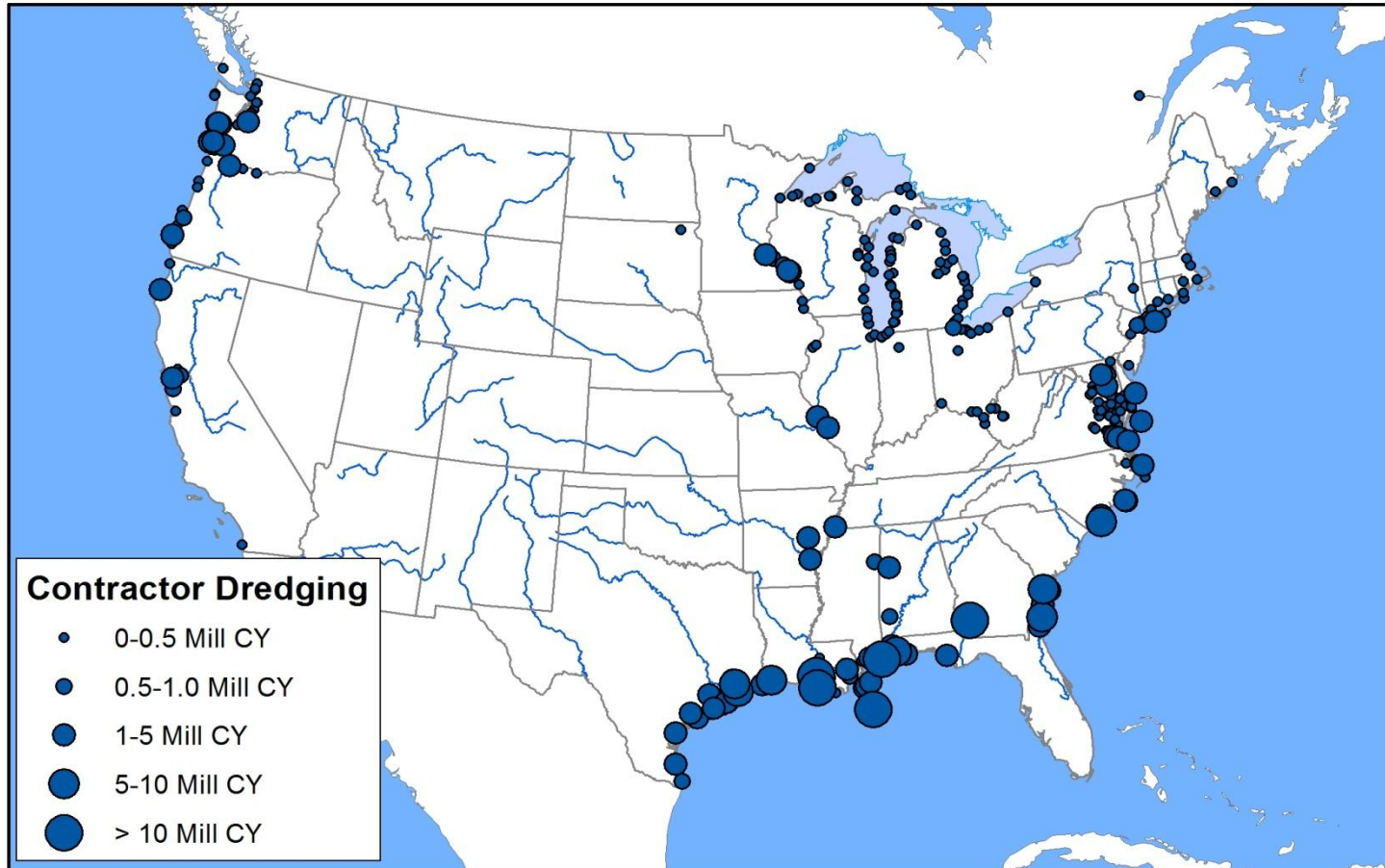


DOT/USACE

Coastal ports are linked to domestic coastal and inland waterways



Distribution of new construction and maintenance dredging by contractors (85 % of total)



USACE

Environmental impact sources

Dredging & dredge material disposal



Infrastructure



Accidents



Air & water emissions



Port Congestion



Invasive Species

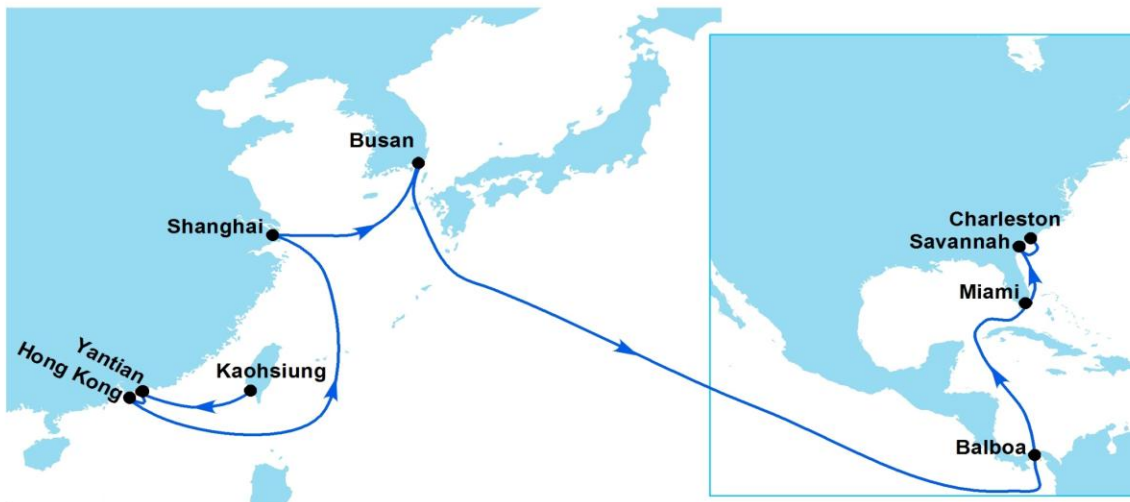
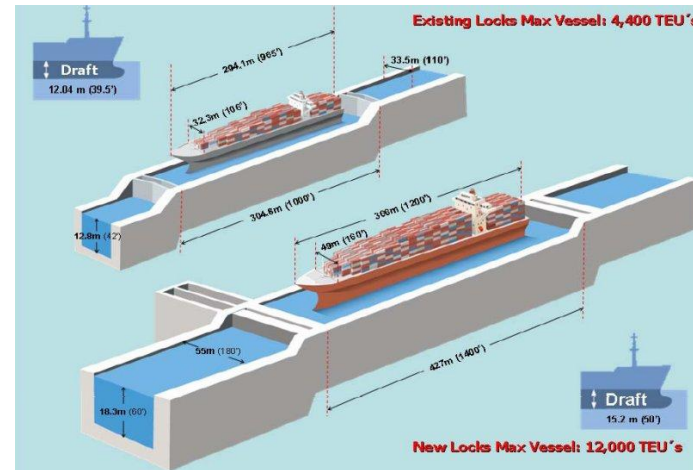


Future Trends & Possibilities



Panama Canal Enlargement

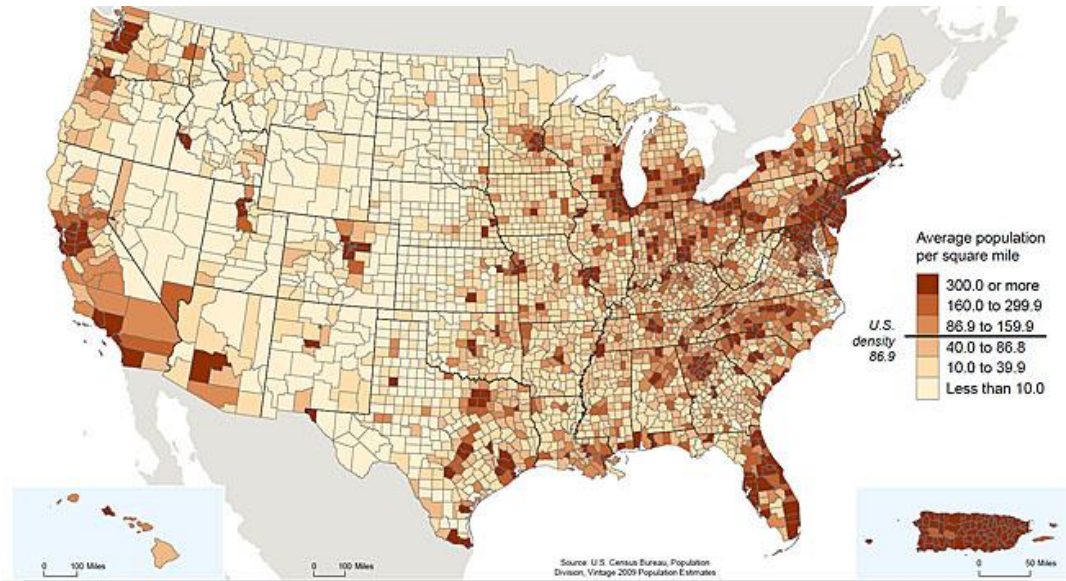
Vessels 40 % longer,
64% wider, & 50 ft draft



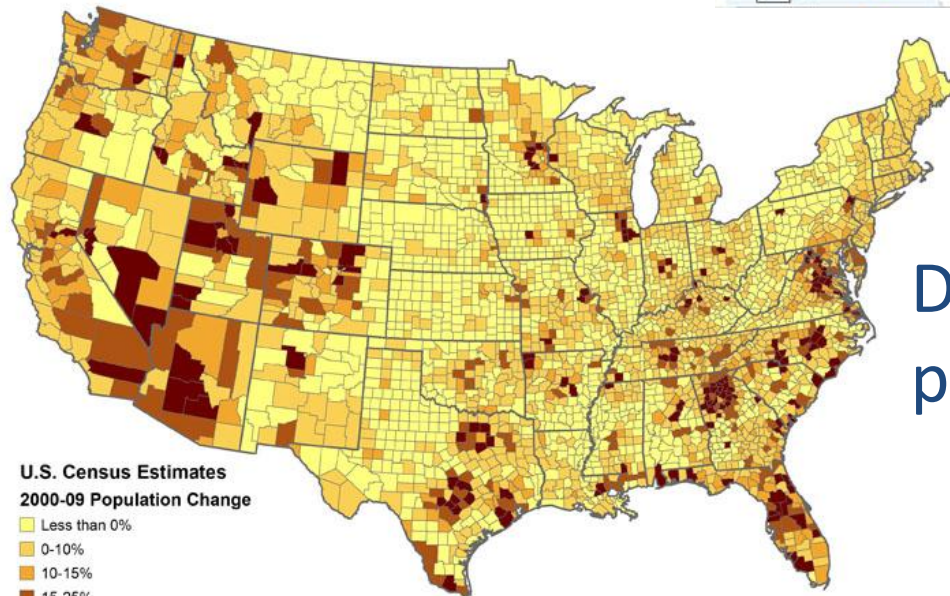
Larger vessels from
the Pacific Rim can
travel directly to
the Atlantic coast

Population distribution and growth

Distribution of present population



DOT/USACE



Distribution of population growth

Possible direct transport to many Atlantic ports



DOT

Travel time comparison for Pacific and Atlantic Coast destinations



DOT

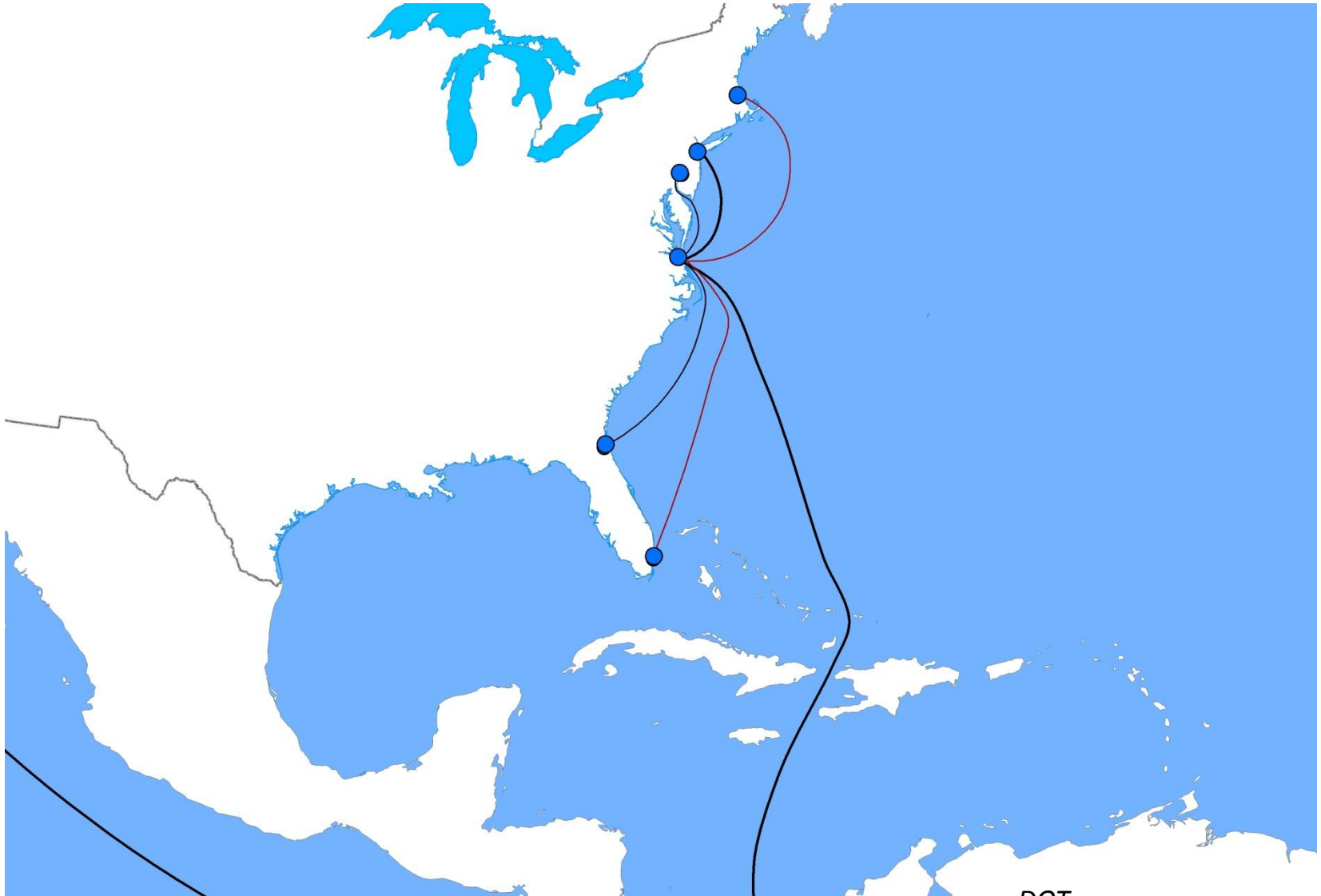
Competitive intermodal system adaptations

Railroads—container stacking, longer trains, better scheduling, & track improvements



Highways—more double and triple trailers

Possible direct transport to a few Atlantic ports and transfer to feeder vessels

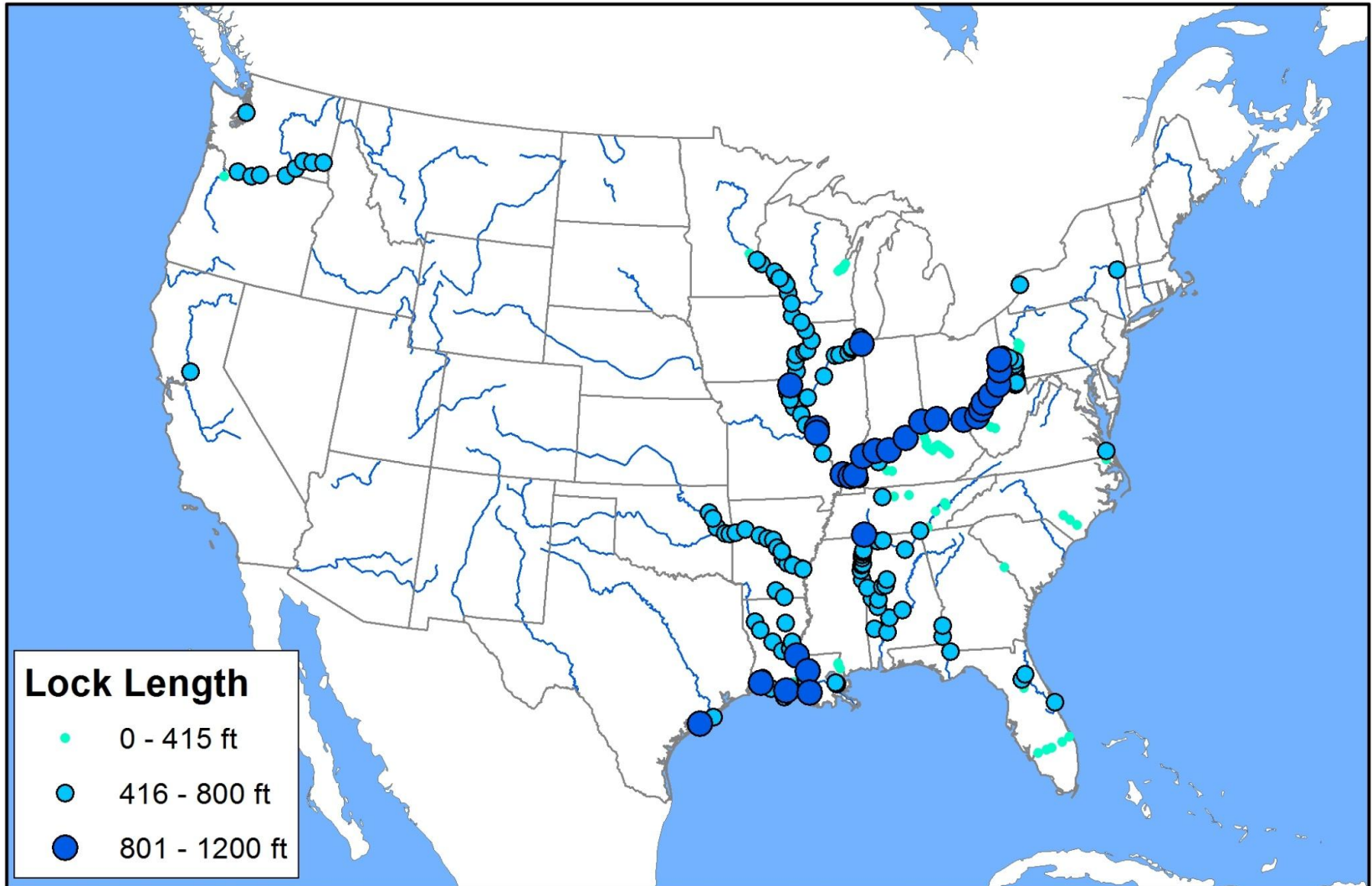


Possible Caribbean port hub transfer to feeder vessels destined for U. S. ports



DOT

Possible increased traffic on the inland waterway and increased demand for improvements



Environmental Impacts Considerations

Human health, safety & environmental justice

Preservation of national heritage



Beneficial uses of the environment



Environmental Impact Indicators

- Distribution of scarce species and ecosystems in the vicinity
- Distance of port facilities to deep water
- Width and depth of dredged channels & turnaround basins
- Operations sediment removal and disposal amounts
- Port sediment contamination
- Population size, density, & demographics in the vicinity
- Capacities of port, waterway, and intermodal facilities
- Size and age of vessels using ports & waterways
- Others

Questions and Comments?

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