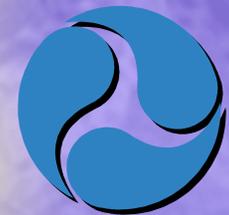


“Building Freight Capacity Through Better Operations: Defining the National Agenda”

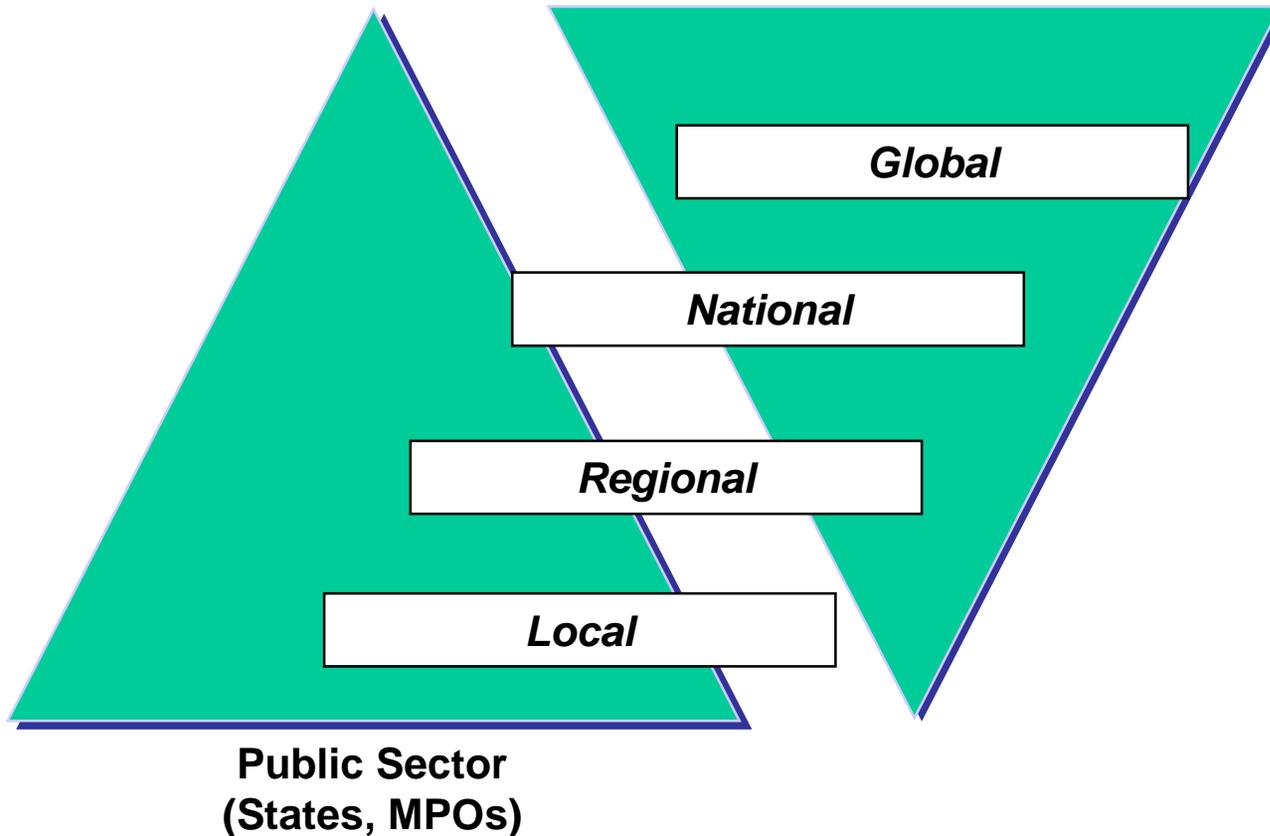


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FHWA Freight Operations Conference
July 26 – 27, 2001
Long Beach, California**

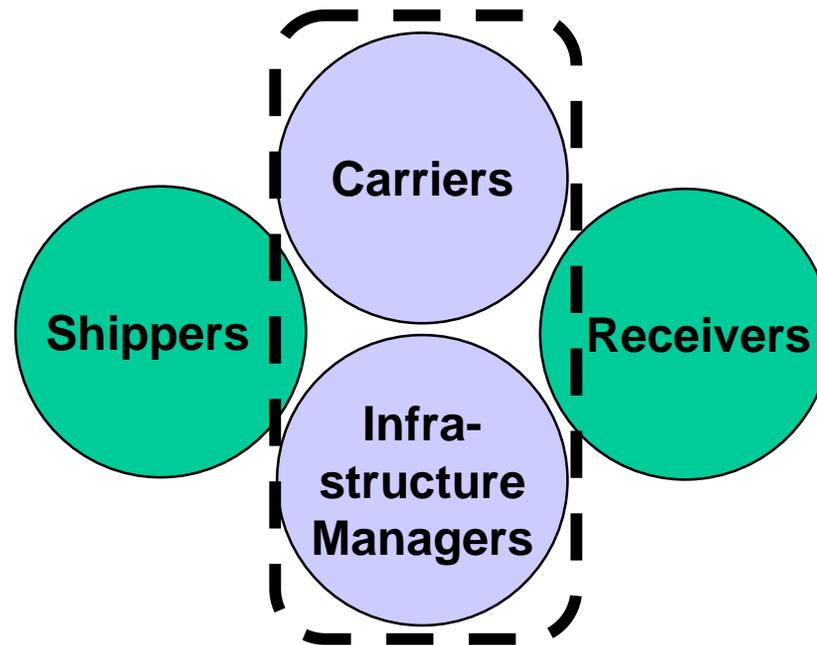


"Building Freight Capacity Through Better Operations: Defining the National Agenda"
July 26-27, 2001 Conference

Freight Transportation Perspectives
State and MPO Focus is Regional and Local;
Private Sector Focus is Increasingly National and Global
Private Sector
(Shippers, Carriers)



Freight Operations Players



The Focal Point of this briefing paper is the interaction between carriers and infrastructure managers.

Figure 1

"Building Freight Capacity Through Better Operations: Defining the National Agenda"
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Public and Private Sector Roles in U.S. Freight Operations

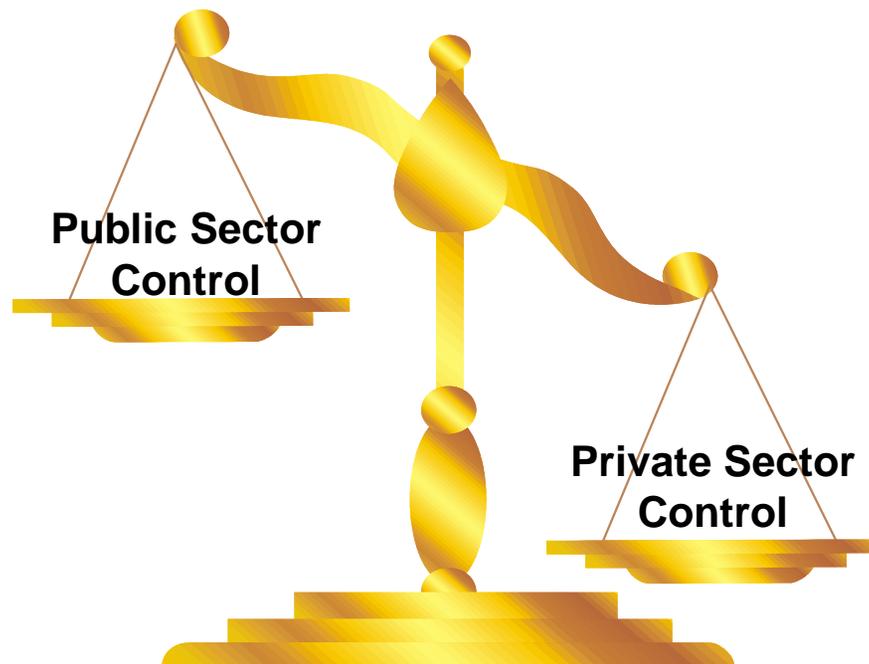
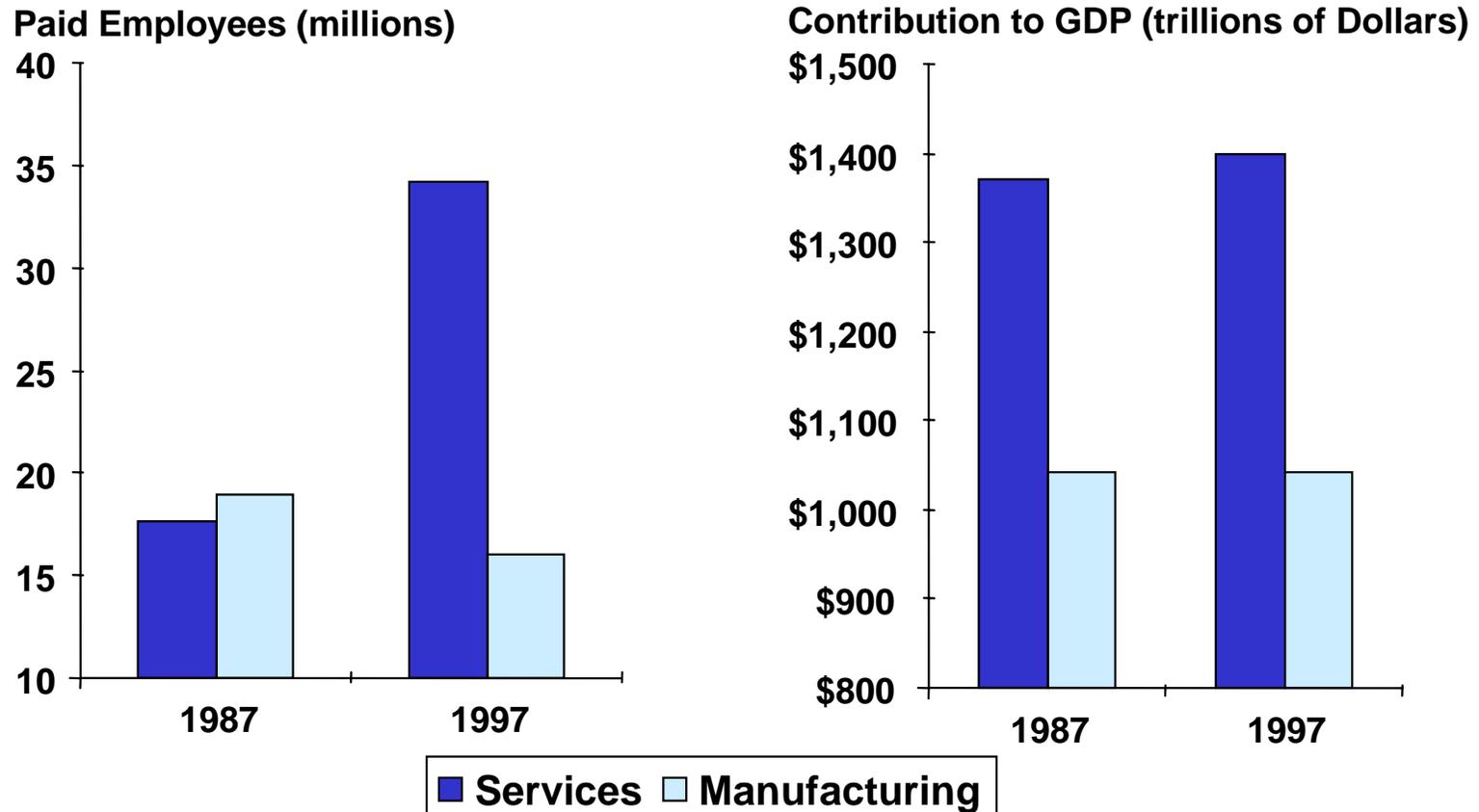


Figure 2

Service and Manufacturing Trends

Rapid Growth in Service Employment, Little in Manufacturing;
But Increased Freight Demand From Both Sectors



Source: US Census Bureau, 1997 Economic Census (No 1987 Census of FIRE and Transportation sectors)

Figure 3

"Building Freight Capacity Through Better Operations: Defining the National Agenda"
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Freight Shipping External Industry Pressures... "Do More With Less" and Faster Turnaround



Figure 4

From Push Logistics Systems ...

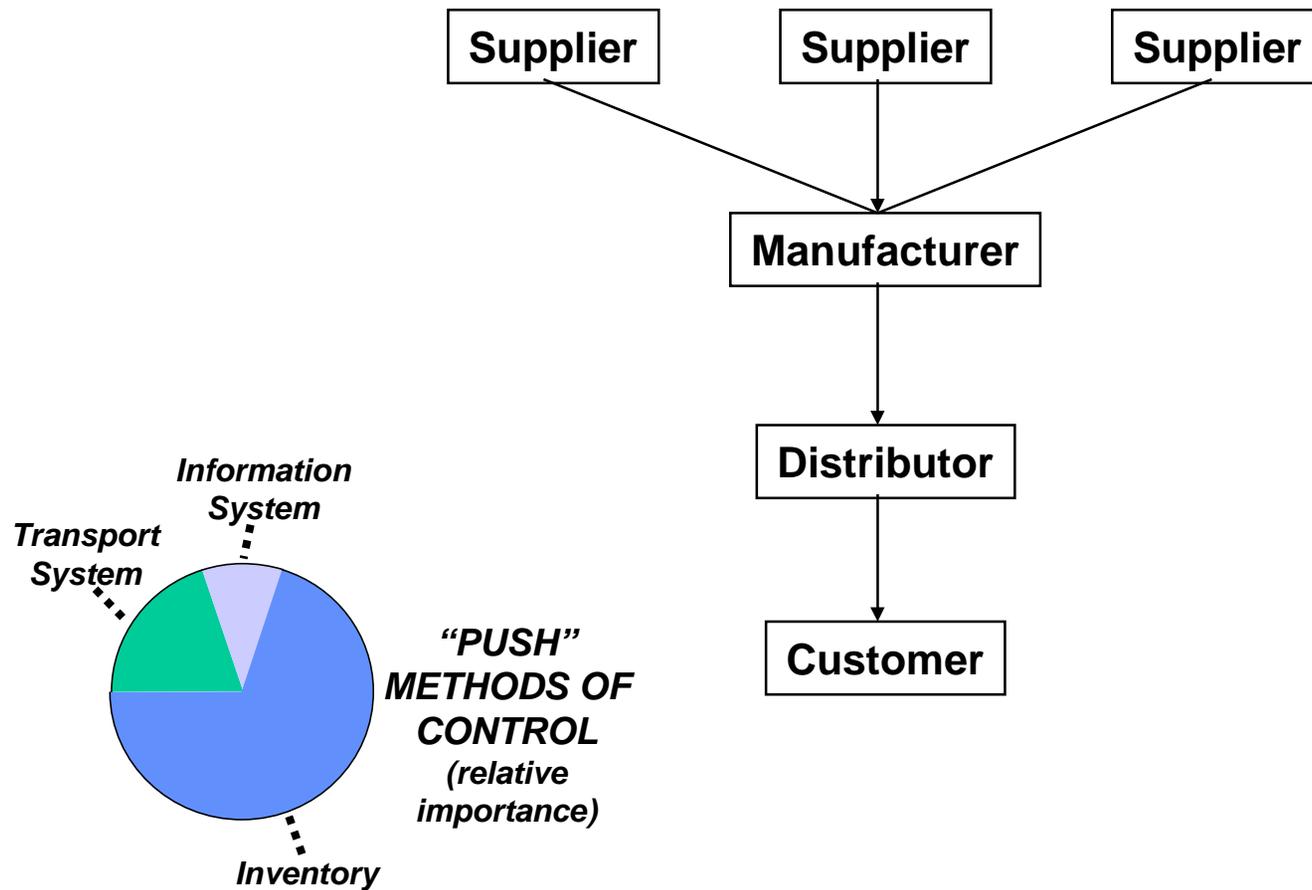


Figure 5A

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... To Pull Logistics Systems

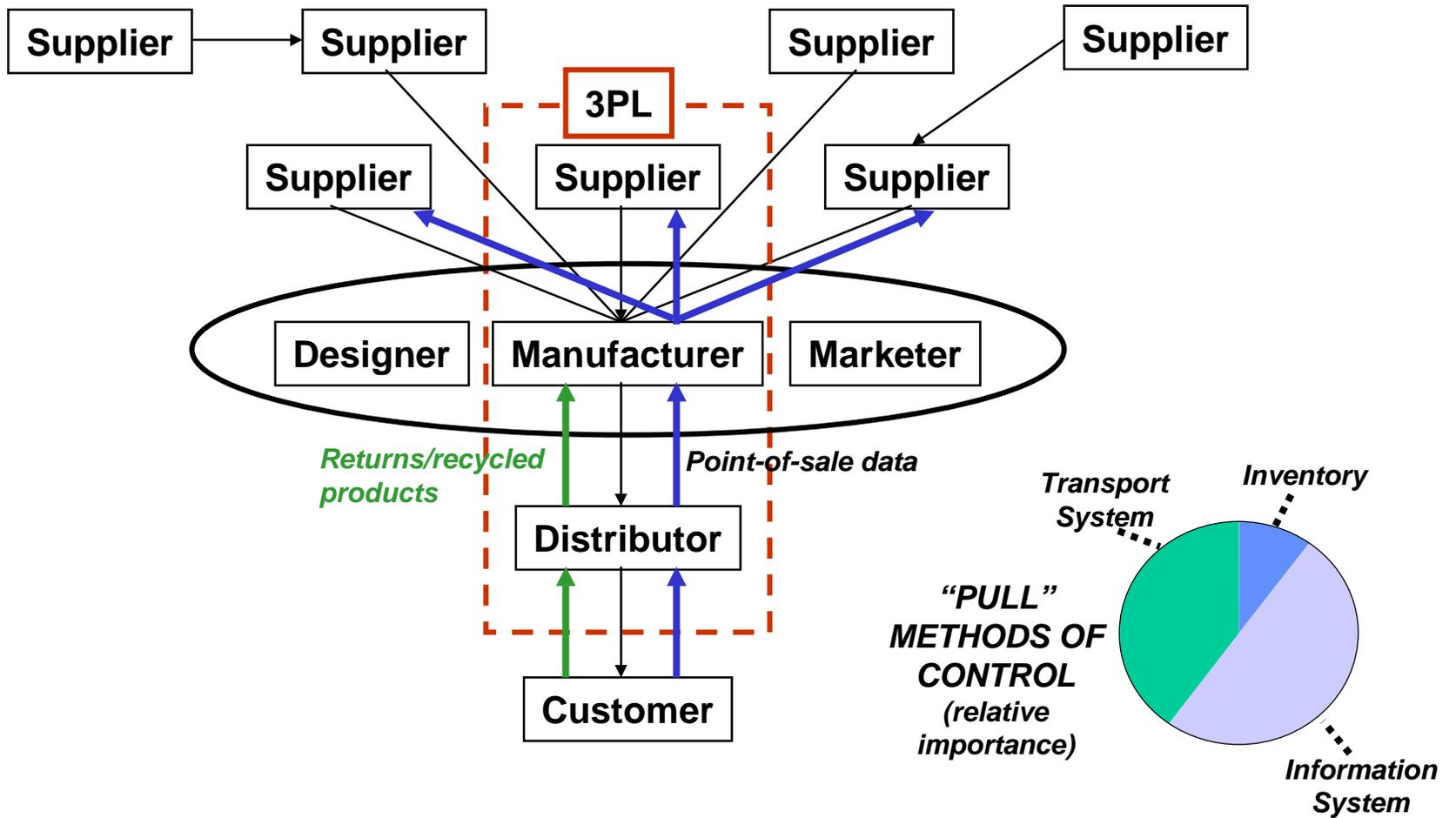
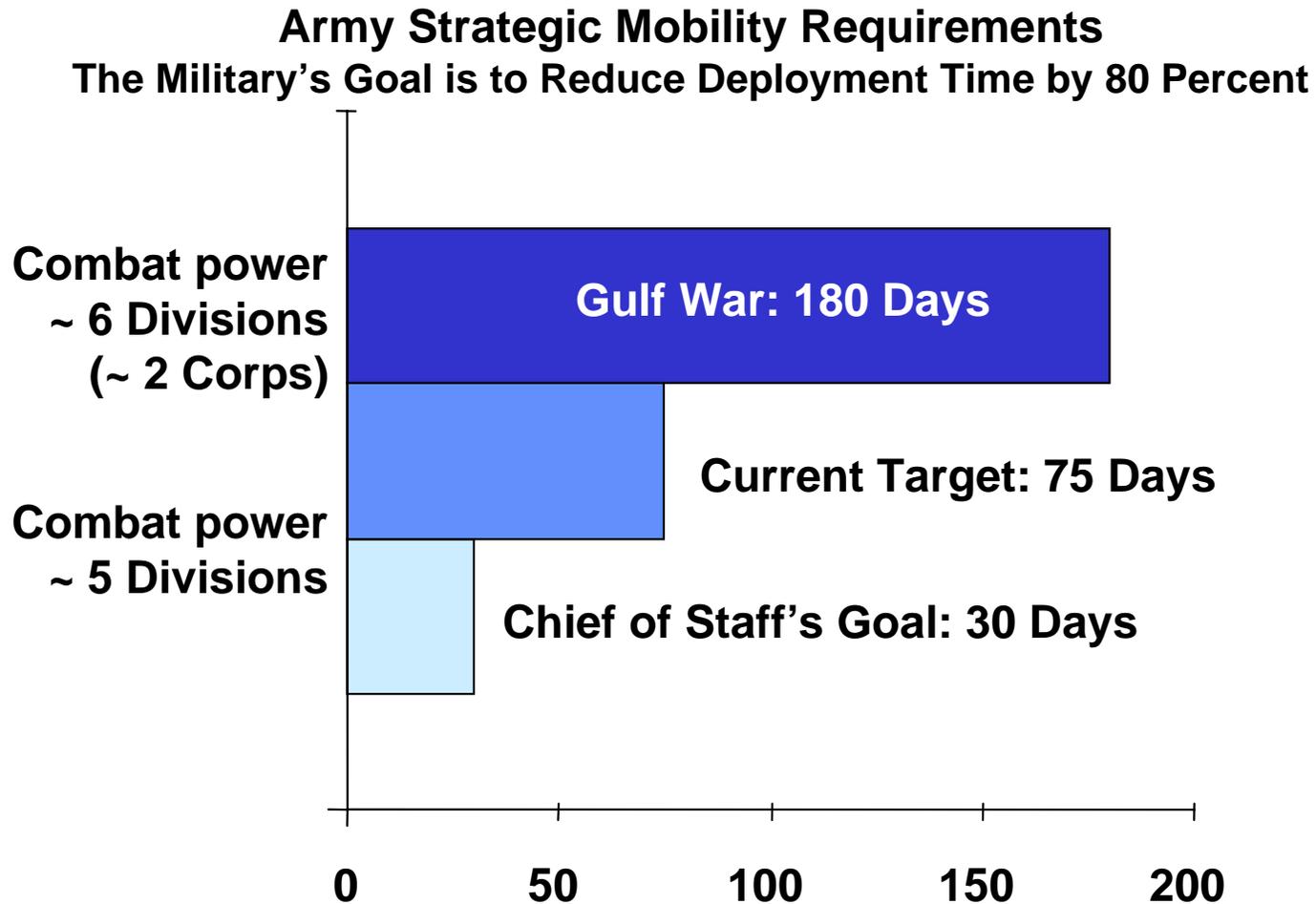


Figure 5B

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Source: Adapted from briefing by William Lucas, MTMC, to TRB Annual Meeting, Jan. '00

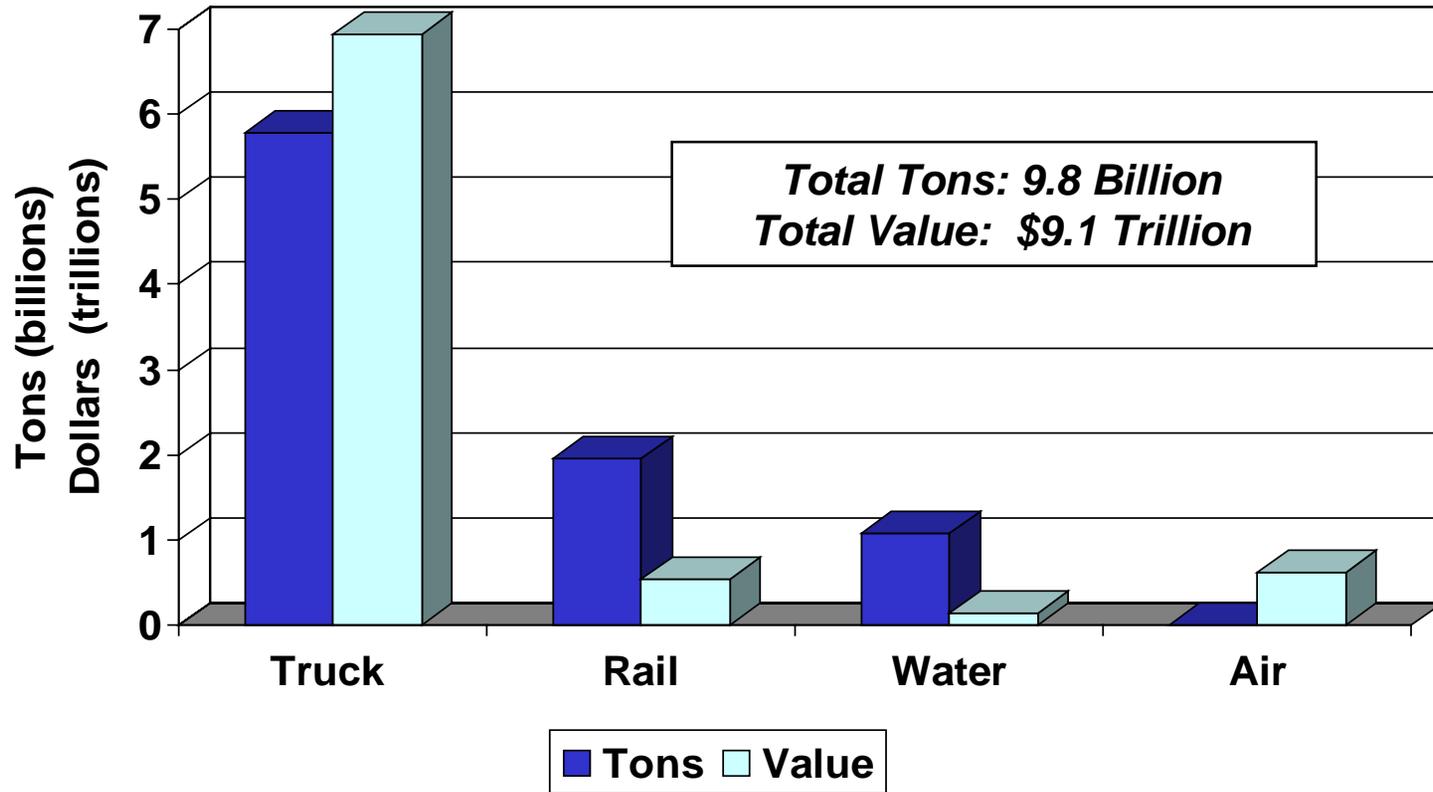
Figure 6A

The Evolution of Supply Chain Initiatives



Figure 6B

Domestic Freight Tons and Value, 1998 Freight Moving into, out of, and within the U.S.



Source: FHWA Multi-Modal Freight Analysis,
Framework Project using Reebie Associates 1998 data (1st Approximation)

Figure 7

**Freight Growth by Region, 1998-2020
Preliminary Forecast
(Tons, All Modes, All Commodities)**

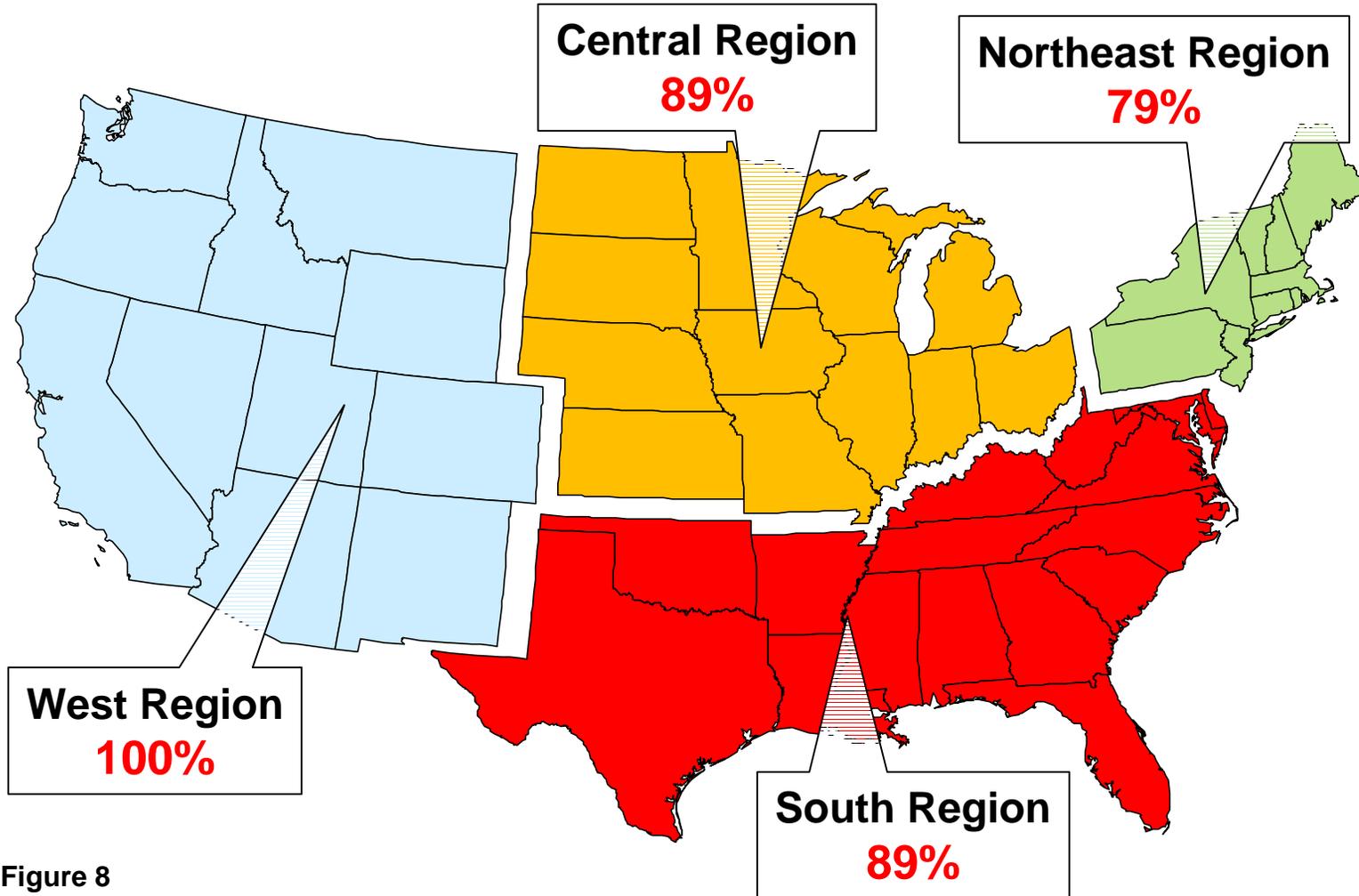


Figure 8

Freight System Mileage within the U.S.

Highway, pipeline, and air increased modestly;
Class I rail lost mileage

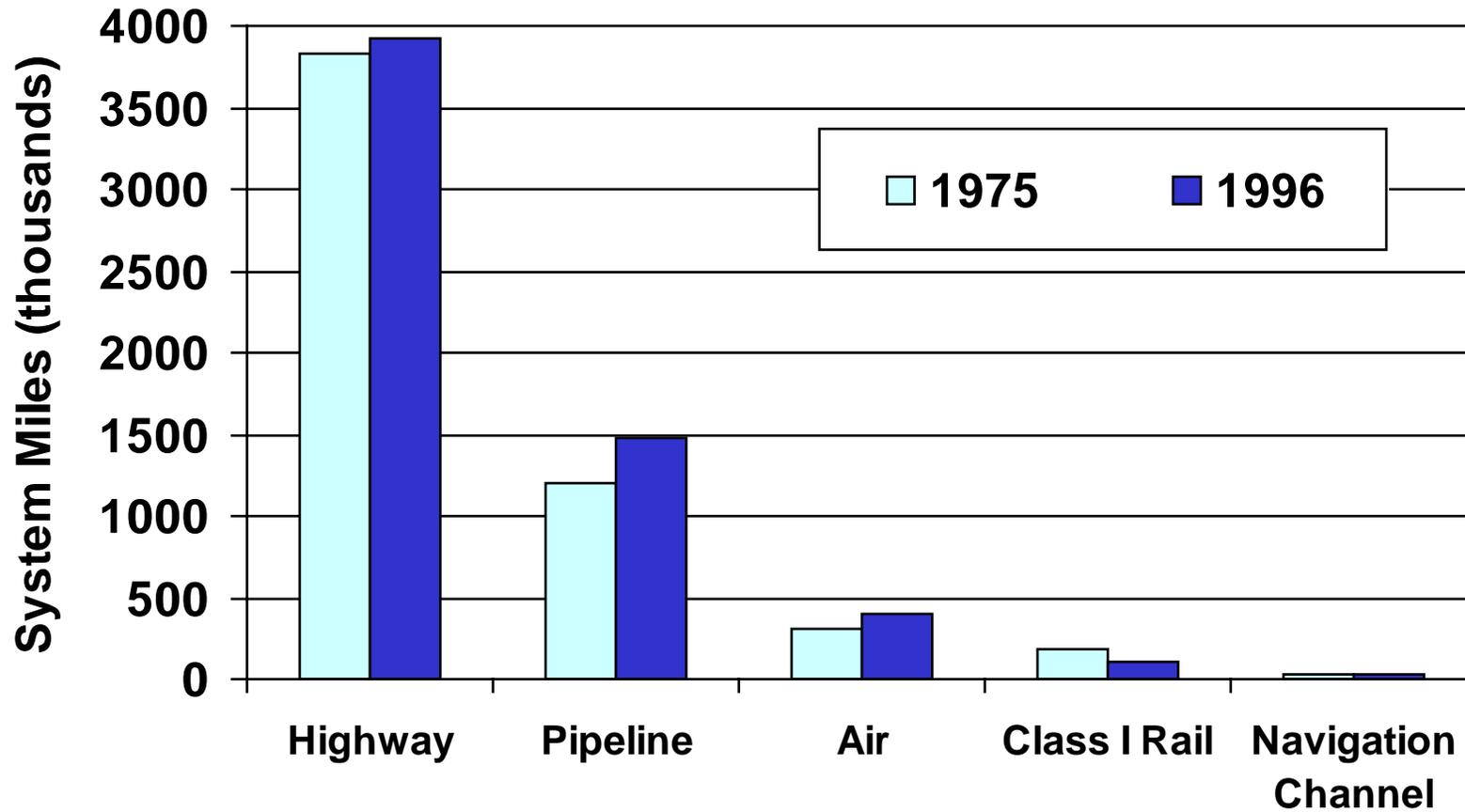


Figure 9

Source: USDOT, Bureau of Transportation Statistics, National Transportation Statistics 1999

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Truck Freight Flows, 1998
All Commodities; All Truck Types; Highway Freight Density in Tons

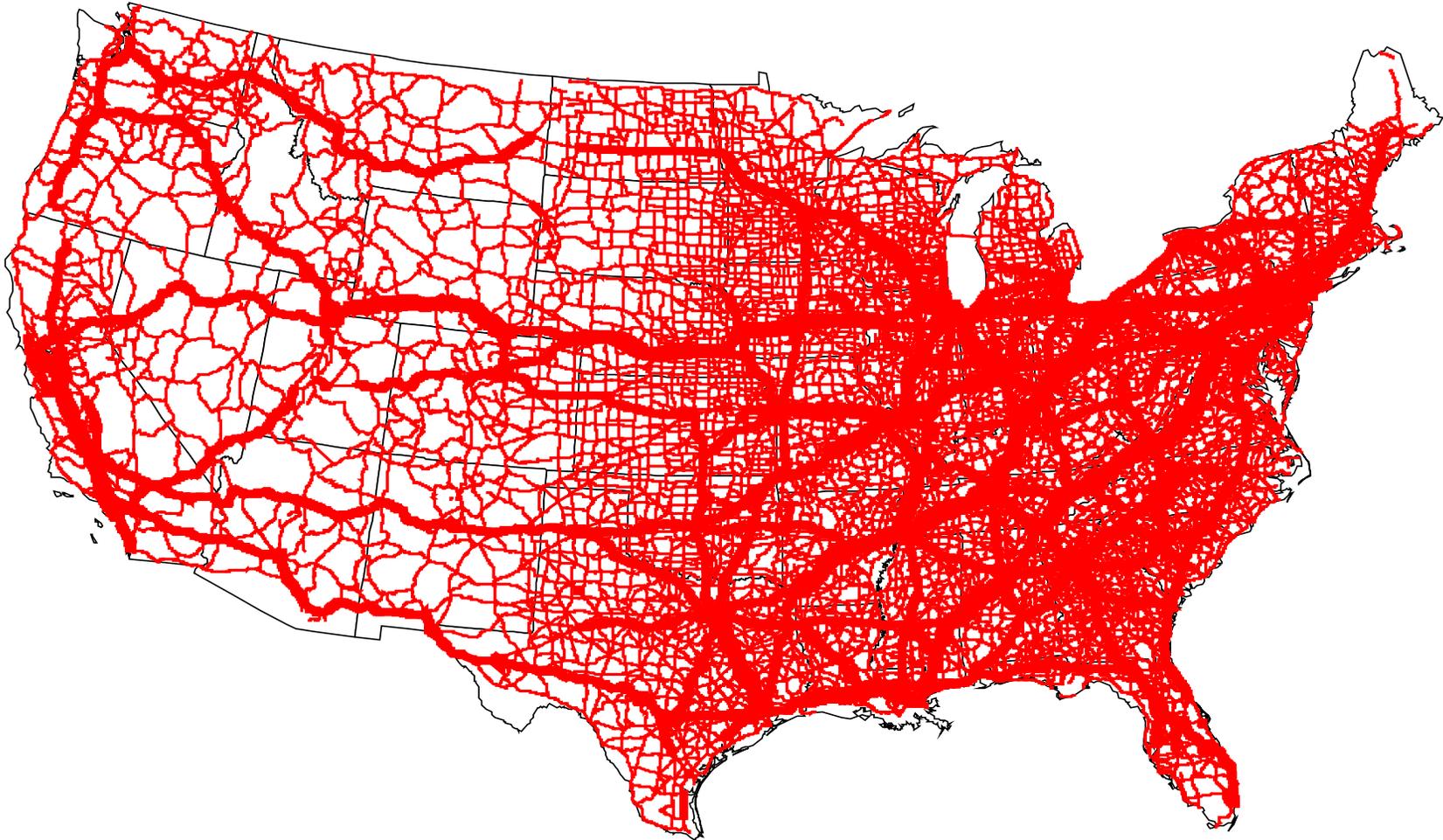
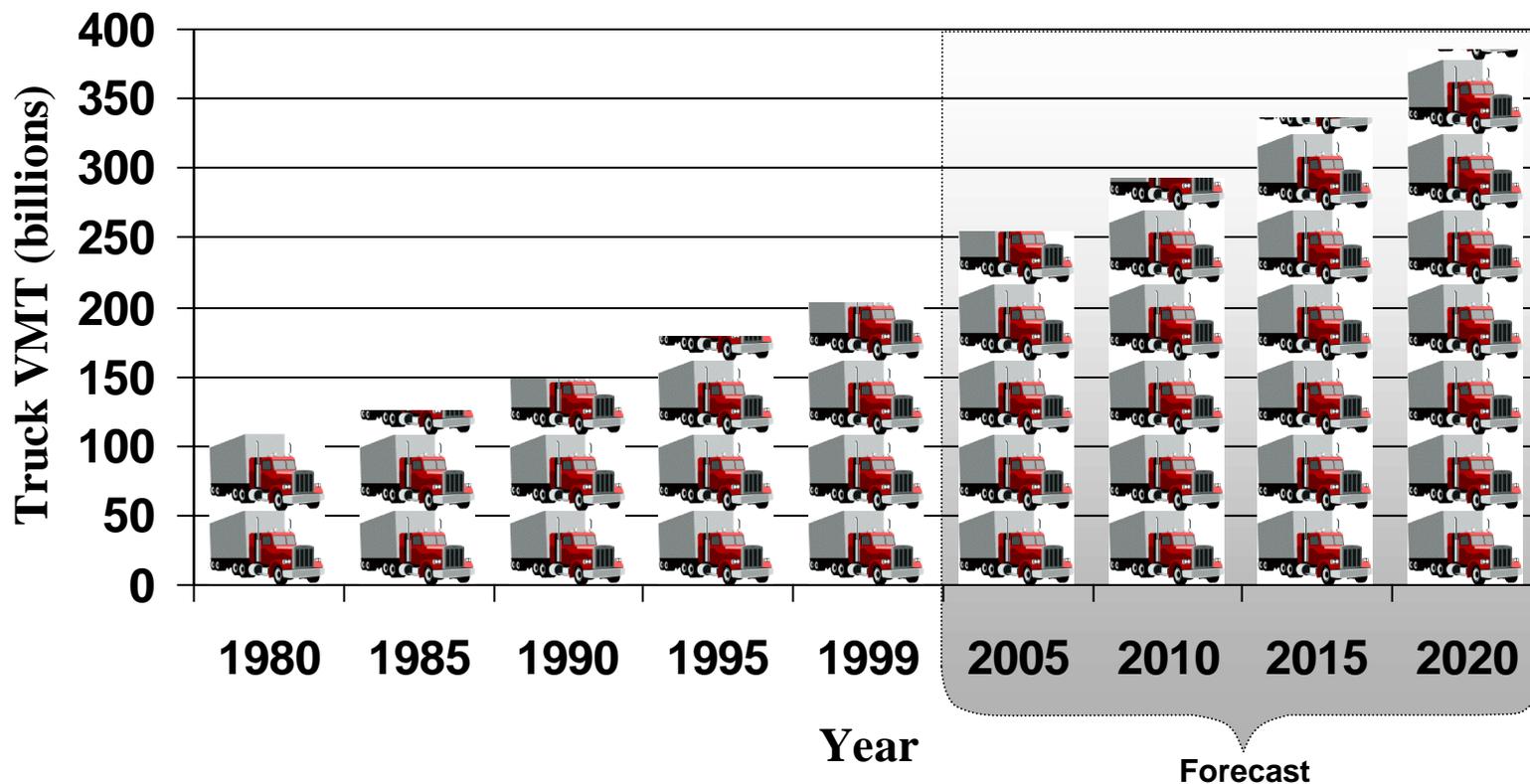


Figure 10

Source: FHWA Multi-Modal Freight Analysis, Framework Project using Reebie Associates 1998 data

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Truck† Vehicle Miles Traveled (VMT) - 1980 to 2020



†Trucks includes both single-unit vehicles with 2-axes and 6 or more tires and combination vehicles.

*Preliminary forecast generated for FHWA, Office of Policy, by WEFA, Inc.

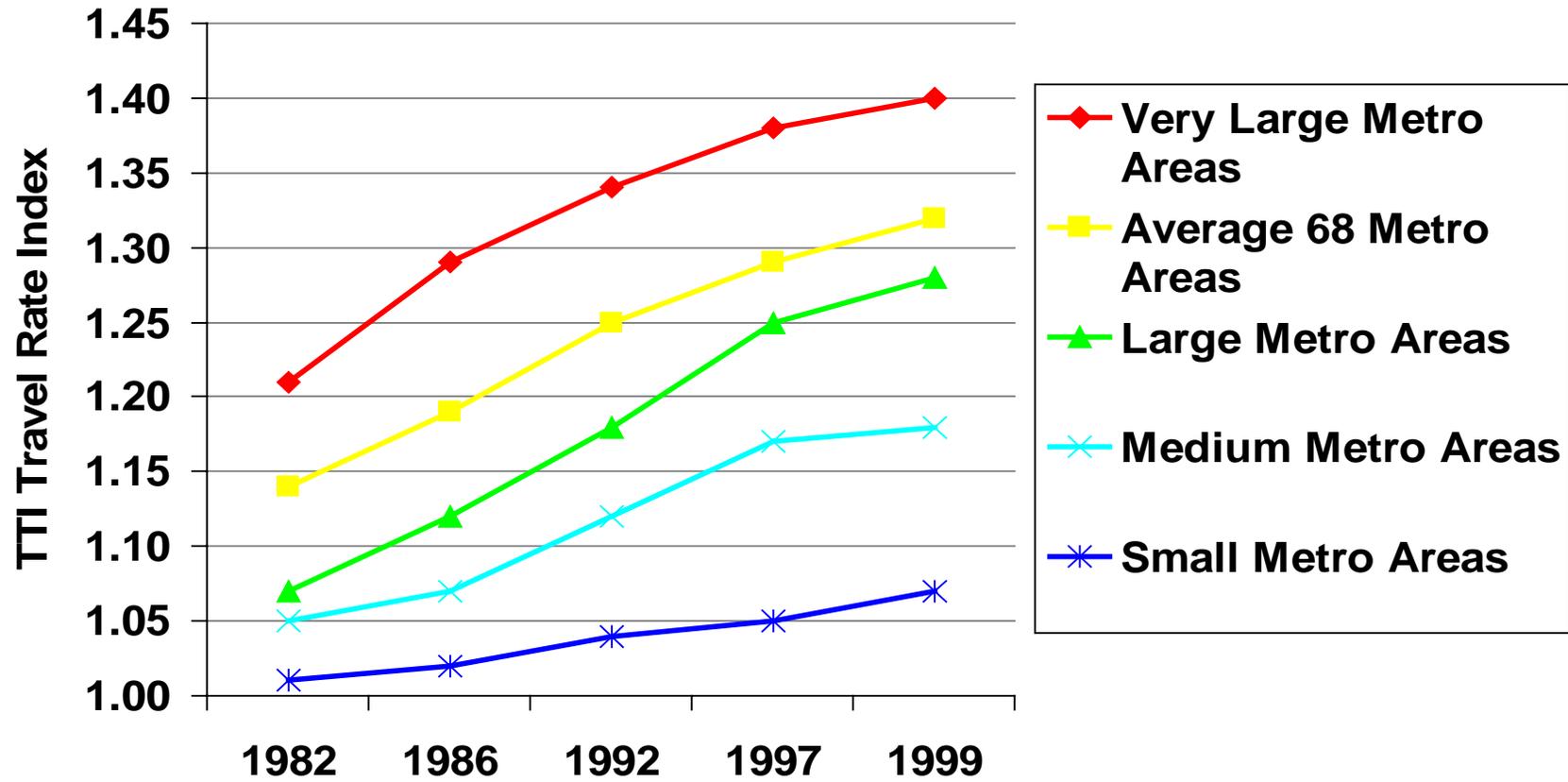
Figure 11

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Travel Rate Congestion Index

Peak-Period Travel Times Have Increased Significantly Compared to Off-Peak Travel Times in 68 Large Metro Areas



Source: Texas Transportation Institute

Figure 12

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Rail Freight Flows, 1998
All Commodities; All Rail Services; Rail Freight Density in Tons

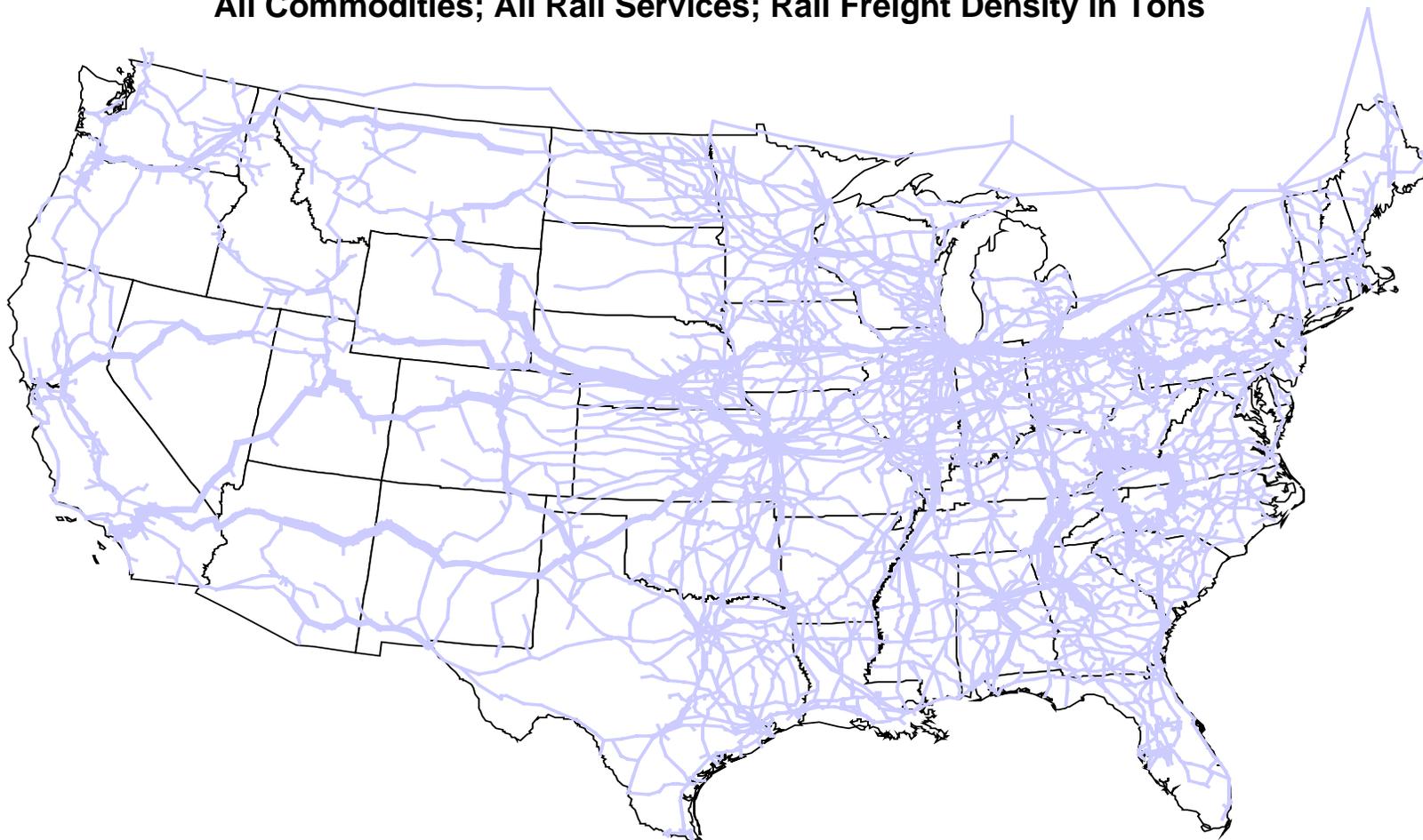
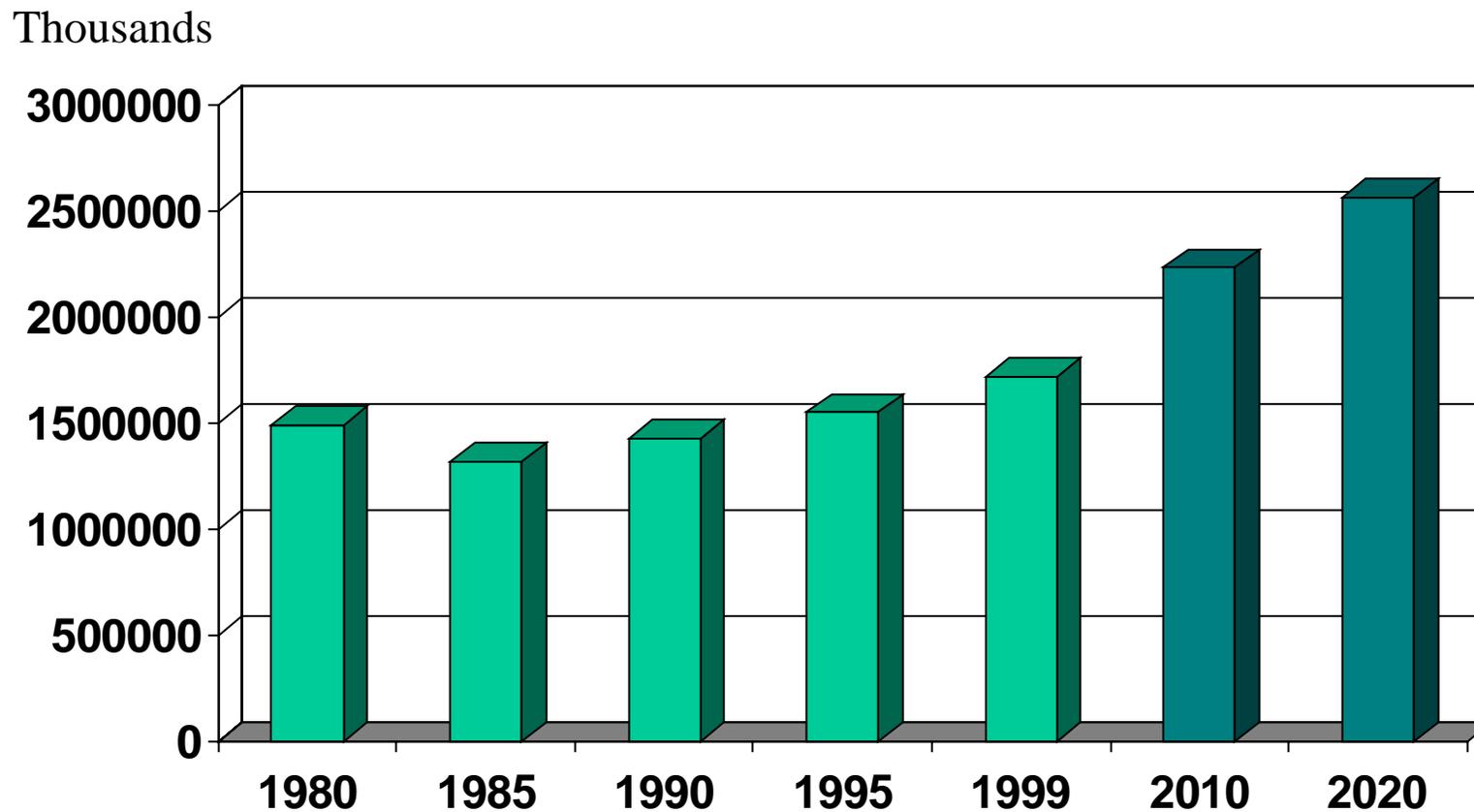


Figure 13 Source: FHWA Multi-Modal Freight Analysis, Framework Project using Reebie Associates 1998 data

Forecast of Rail Traffic (By Origins in Tons)



Preliminary Forecasts- Railroad Facts and Freight Analysis Framework

Figure 14

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Mid-Atlantic Rail Corridor Choke-Points Study

Participants: Amtrak, CSX, NS, NJ, PA, DE, MD, VA, I-95 Coalition

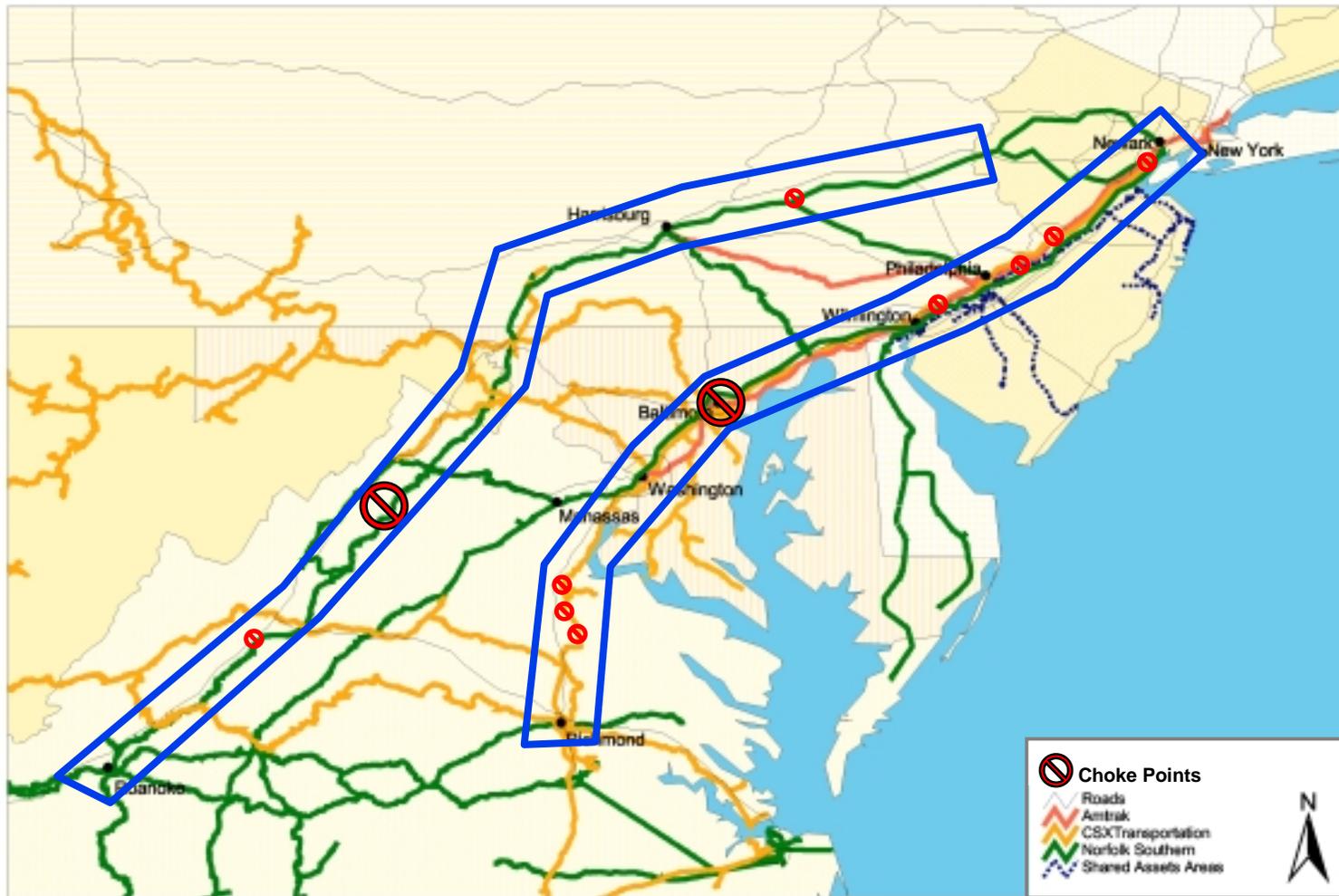


Figure 15

Top Gateways for International Freight, 1998

Exports and Imports in Tons

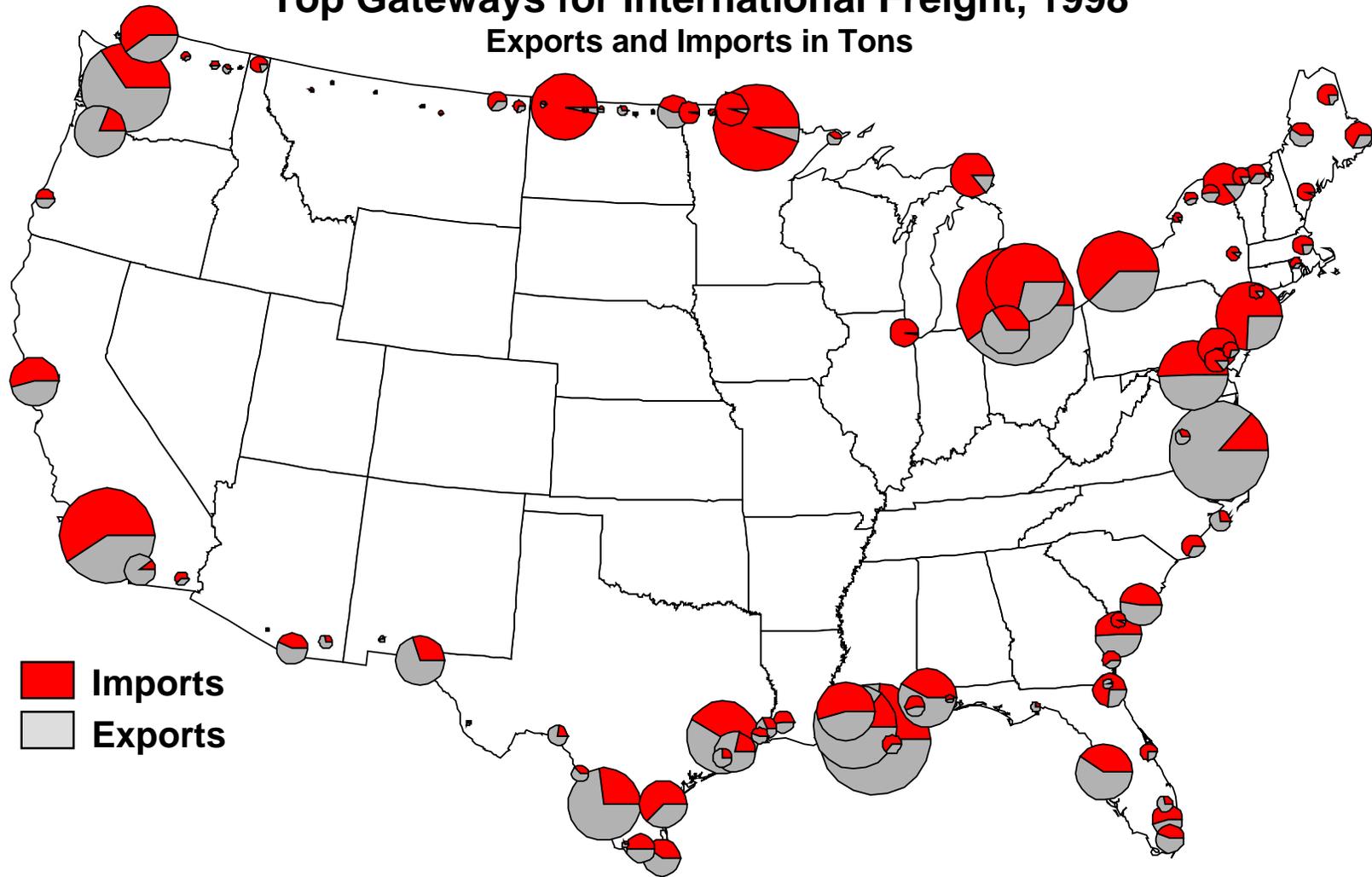


Figure 16

Source: FHWA Multi-Modal Freight Analysis , Framework Project using Reebie Associates 1998 data

Functional Classification of Maritime Cargos

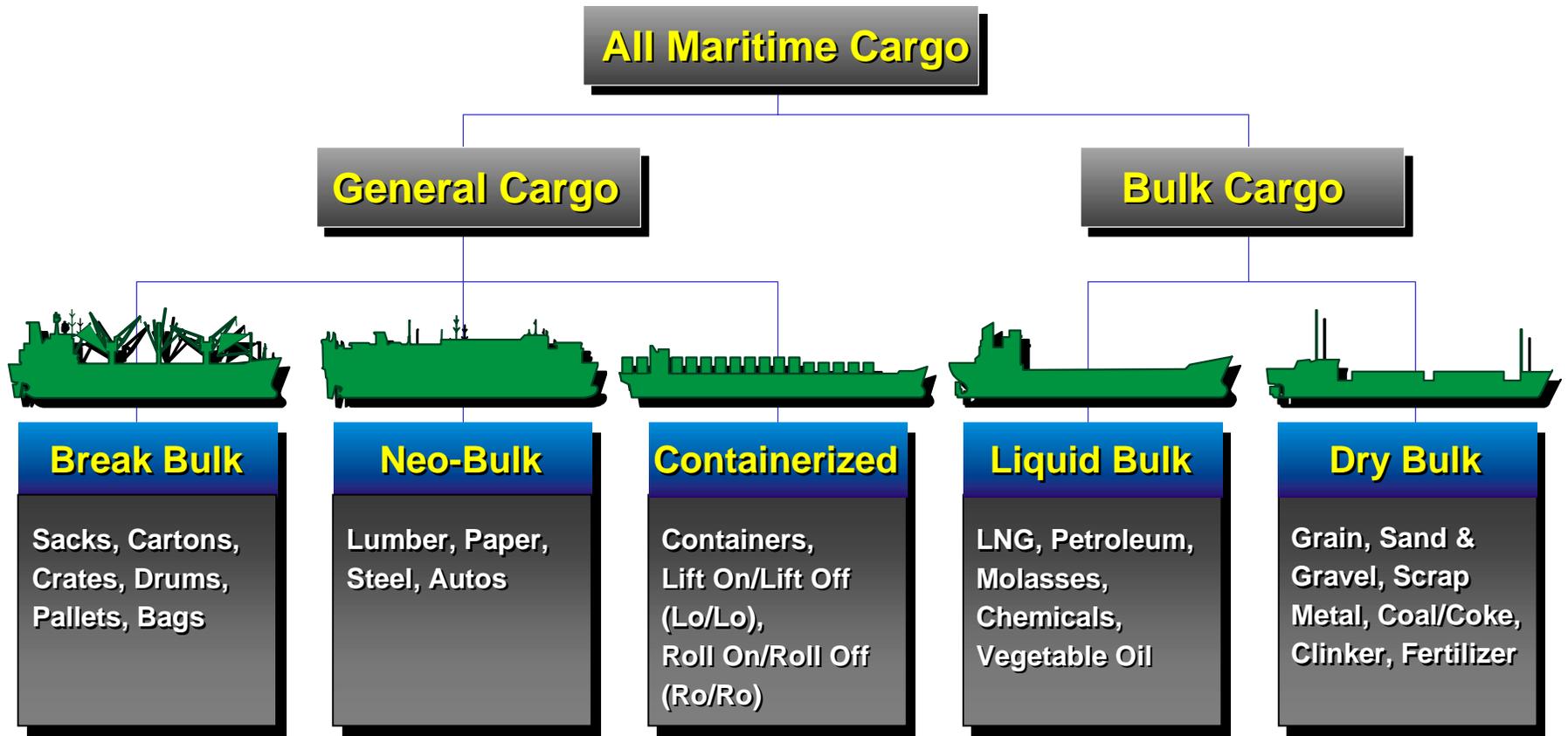
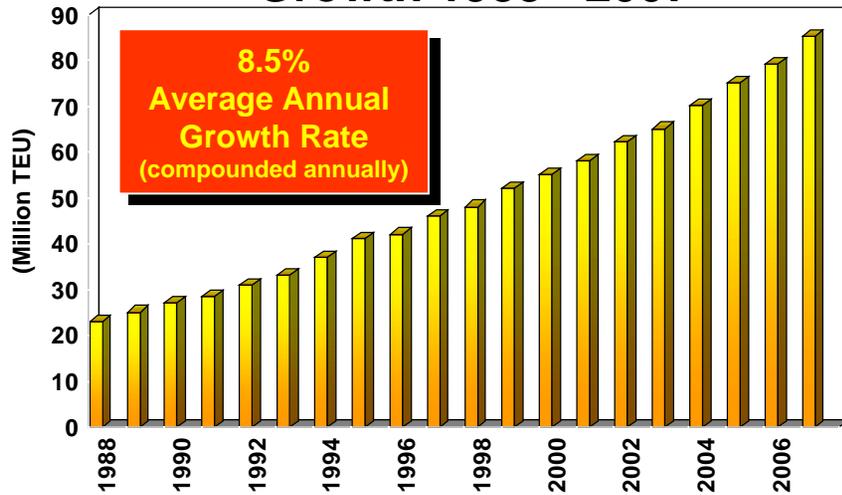


Figure 17

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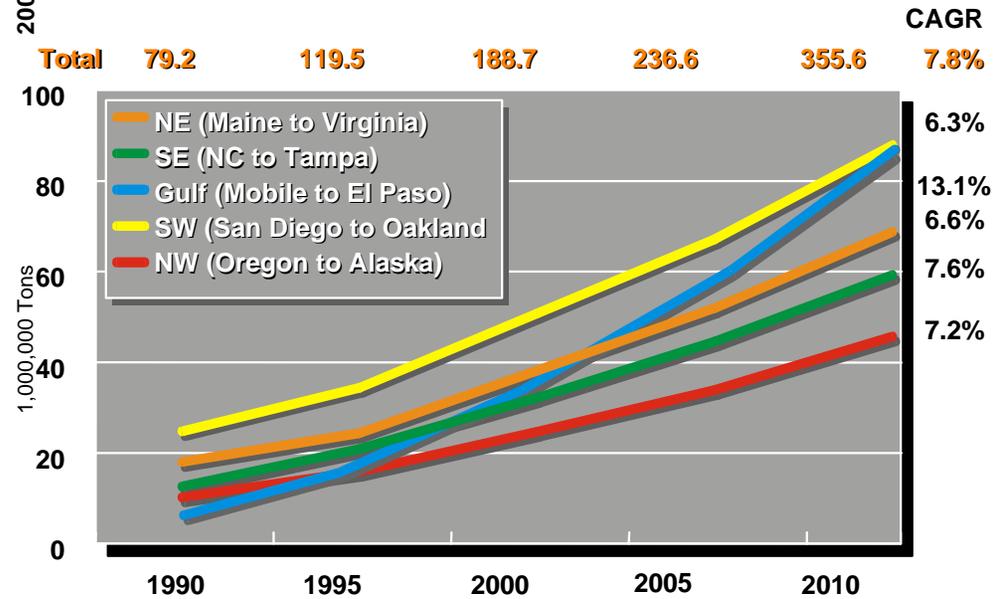
20 Year Containerized World Trade Growth 1988 - 2007



Source: Clarkson Research Studies and WestLB Panmure

CAGR = Compound Annual Growth Rate

U.S. Containerized Tonnage Forecast

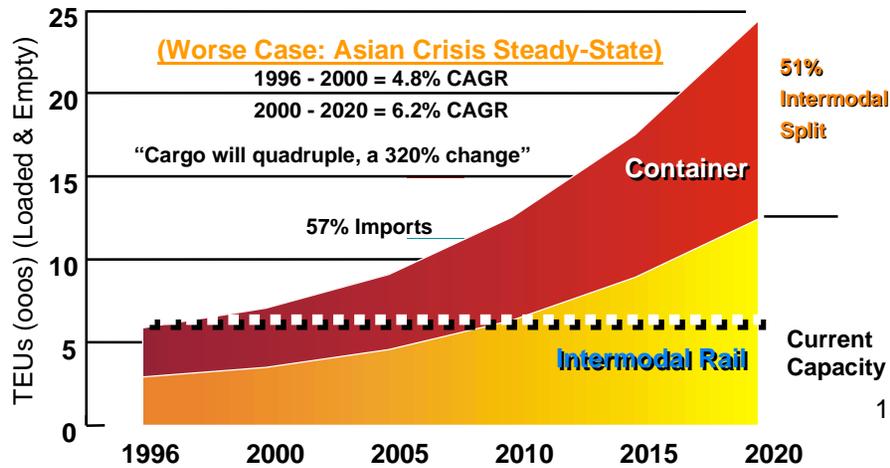


Source: TranSystems Corporation/
 Containerisation International Yearbook

Figure 18

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**Ports of Los Angeles and Long Beach
 Container & Intermodal 2020 Forecast**



Source: San Pedro Bay Ports Long-term Cargo Forecast, Oct. 1998

**NY/NJ Regional Container Forecast
 (TEUs)**

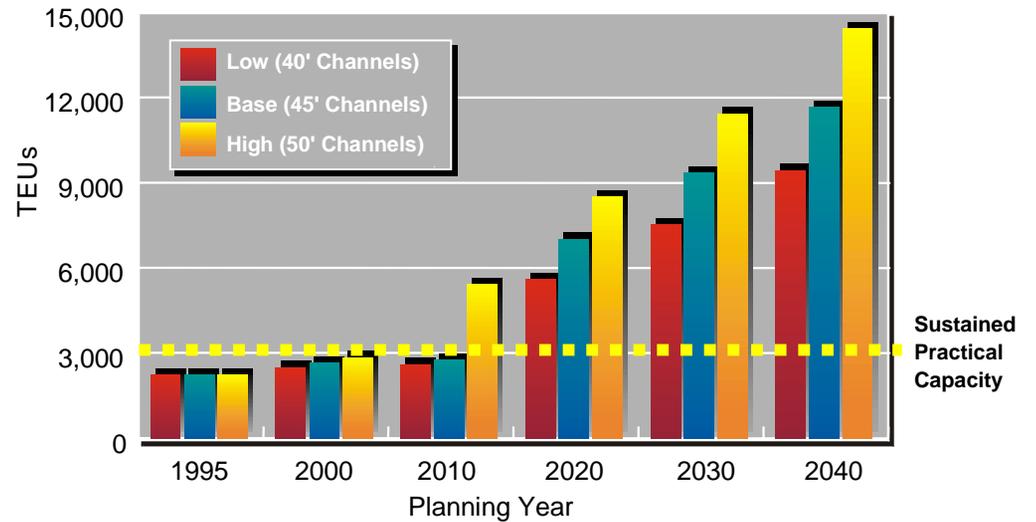


Figure 19

Figure 20

Source: PANY/NJ & TranSystems, 2000

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Container Ship Evolution

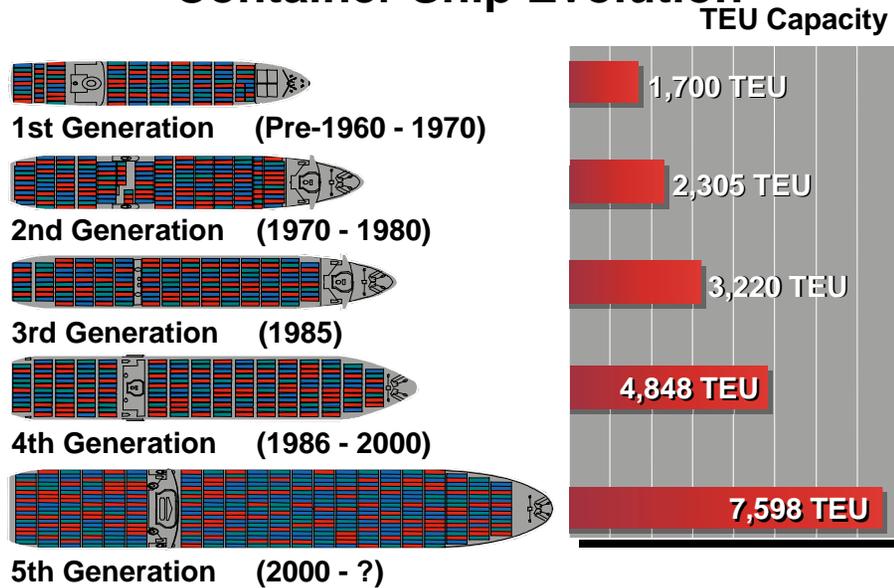


Figure 21

2000 New Build Orders Expansion of World Post-Panamax Container Fleet

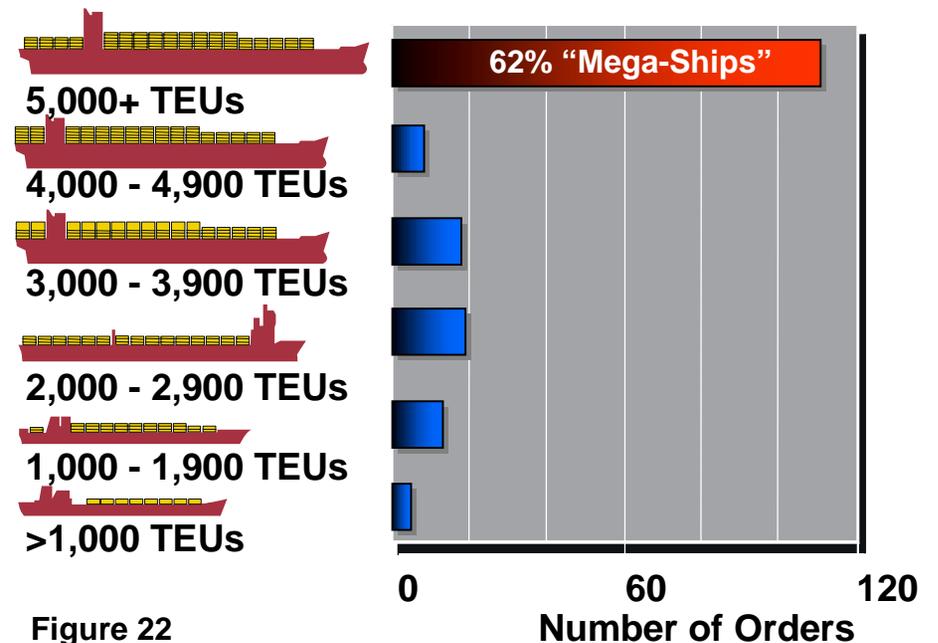


Figure 22

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Major U.S. Metropolitan Populations

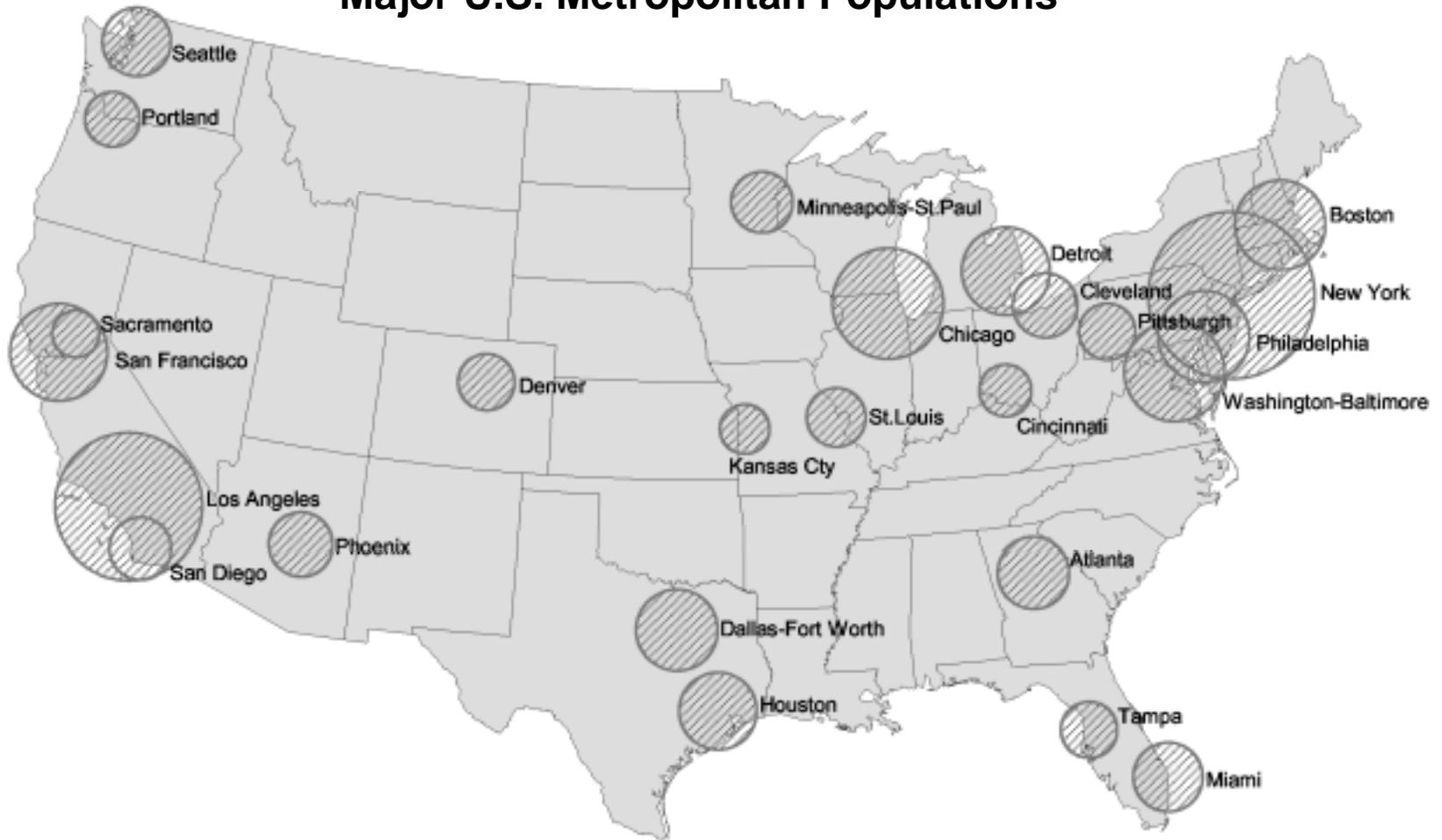


Figure 23

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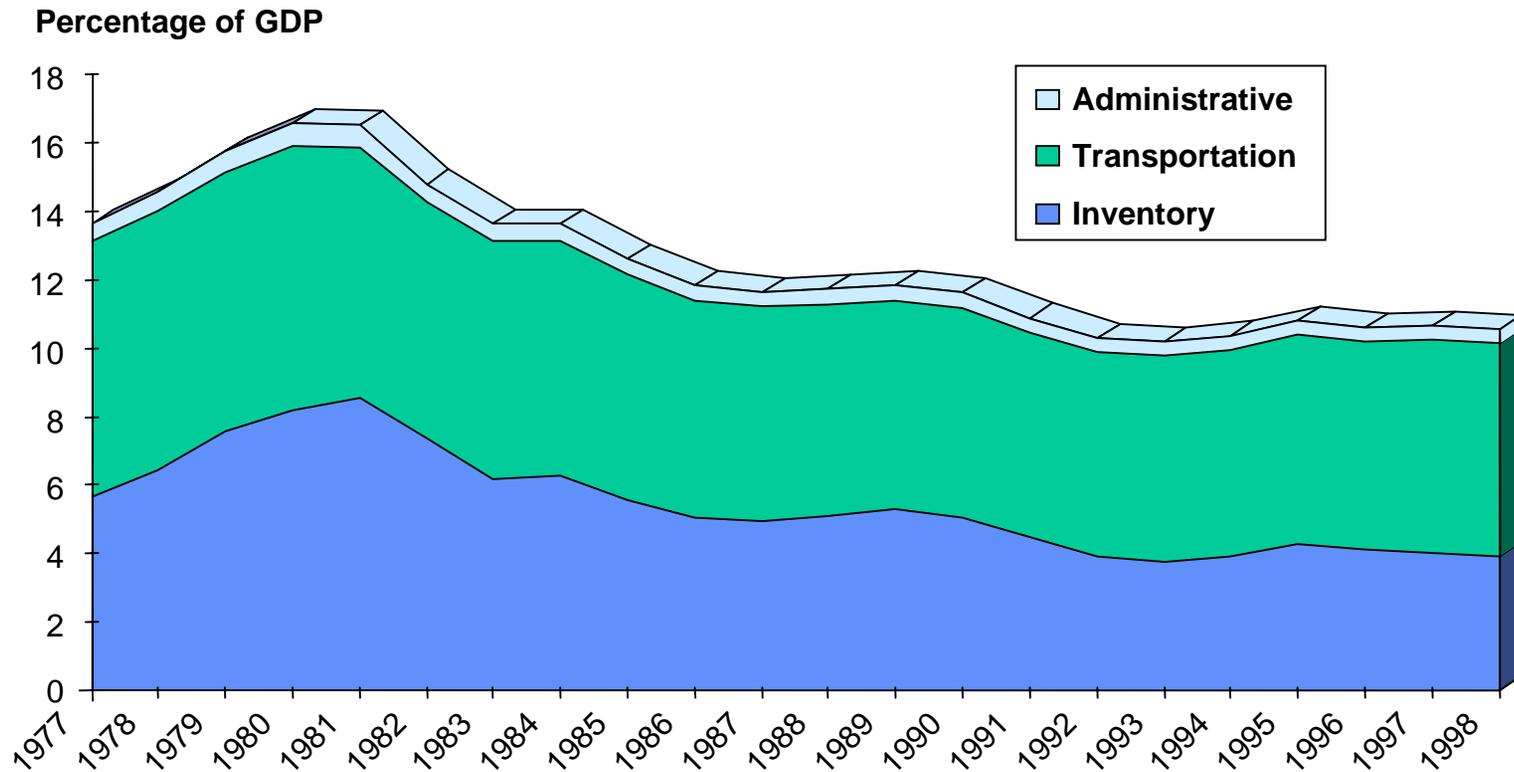
Major Freight Projects, Examples

Project	Cost	Timeline...
The Alameda Corridor	\$2.45 Billion (20 miles of rail improvements, and a 10 mile, 33 foot deep trench)	Planned for more than 15 years. In 1989 the Corridor Authority was formed, completion will be in 2002
Willow Springs, IL BNSF Rail Hub and CACH Facility	\$150 million – UPS \$15.3 million – Grade crossings \$10.8 million – highway interchange \$70 million – BNSF	Seven years to build preceded by a 3-year Capital Analysis Plan
Portway to improve Truck access in Northern New Jersey	\$750 million (Phase 1 only, Port to Jersey City)	Early start underway. Expected to be completed by 2011
Pier 400 – Port of Los Angeles (Maersk/Sea-Land)	\$466 Million (\$328 Million in dredging and landfill)	A 5-year, 3-phase project totaling 510 acres developed by 2003
Kill Van Kull dredging KVK channel into Port of NY/NJ to 50 feet	\$912 million est.	Underway & expected to be completed by 2009
Port of NY & NJ Maersk/Sea-land Hub Terminal	\$264 Million existing terminal renovation	A two phase, four-year project with a 1.3 million TEU throughput.

Figure 24

Logistics Expenditures and GDP

After a Long Improvement, Total Logistics Expenditures Have Stalled at About 10 Percent



Source: Cass/ProLogis 10th Annual State of Logistics Report, 1998

Figure 25

Truck, Rail, and Marine Fatalities

Fatality rates are declining, but absolute numbers are not declining significantly

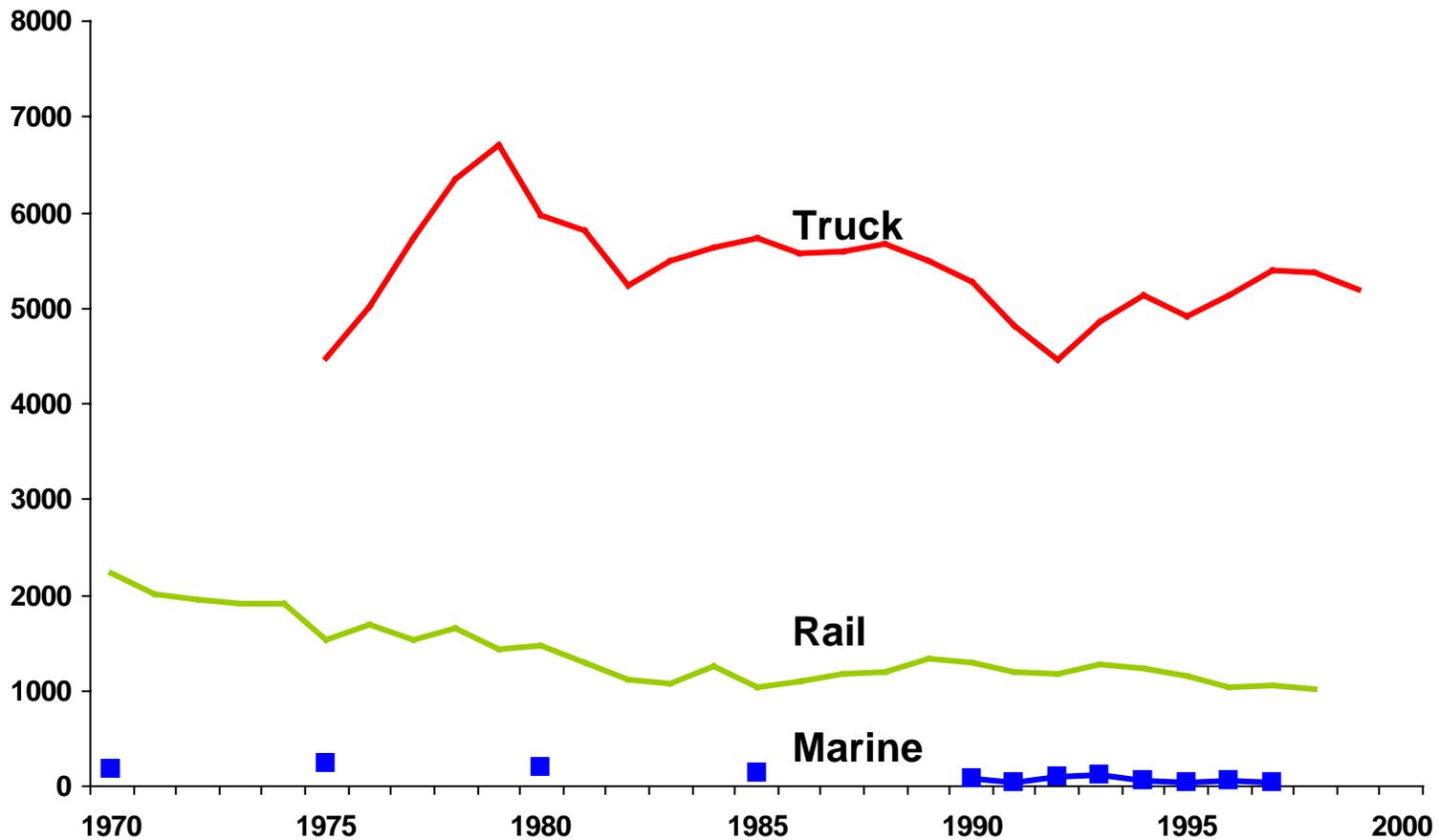


Figure 26

Source: U.S. Department of Transportation, Modal Administration, various sources

Issue: Do the Truck, Rail, and Marine Freight Systems Have the Capacity to Handle the Growing Volume of Freight?

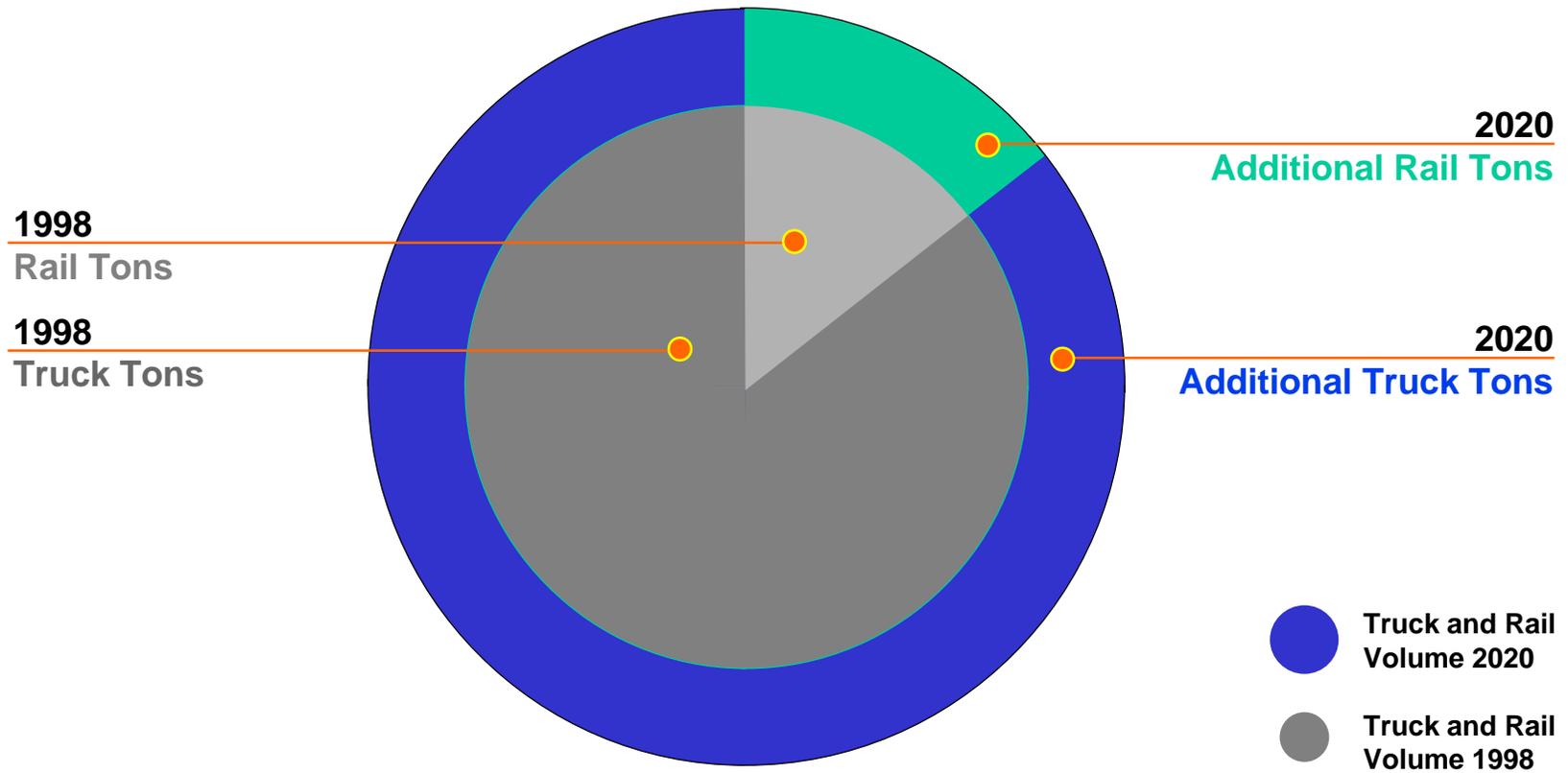


Figure 27

Source: FHWA Multi-Modal Freight Analysis, Framework Project using Reebie Associates 1998 data and WEFA economic forecasts to 2020.

*"Building Freight Capacity Through Better Operations: Defining the National Agenda"
July 26-27, 2001 Conference*

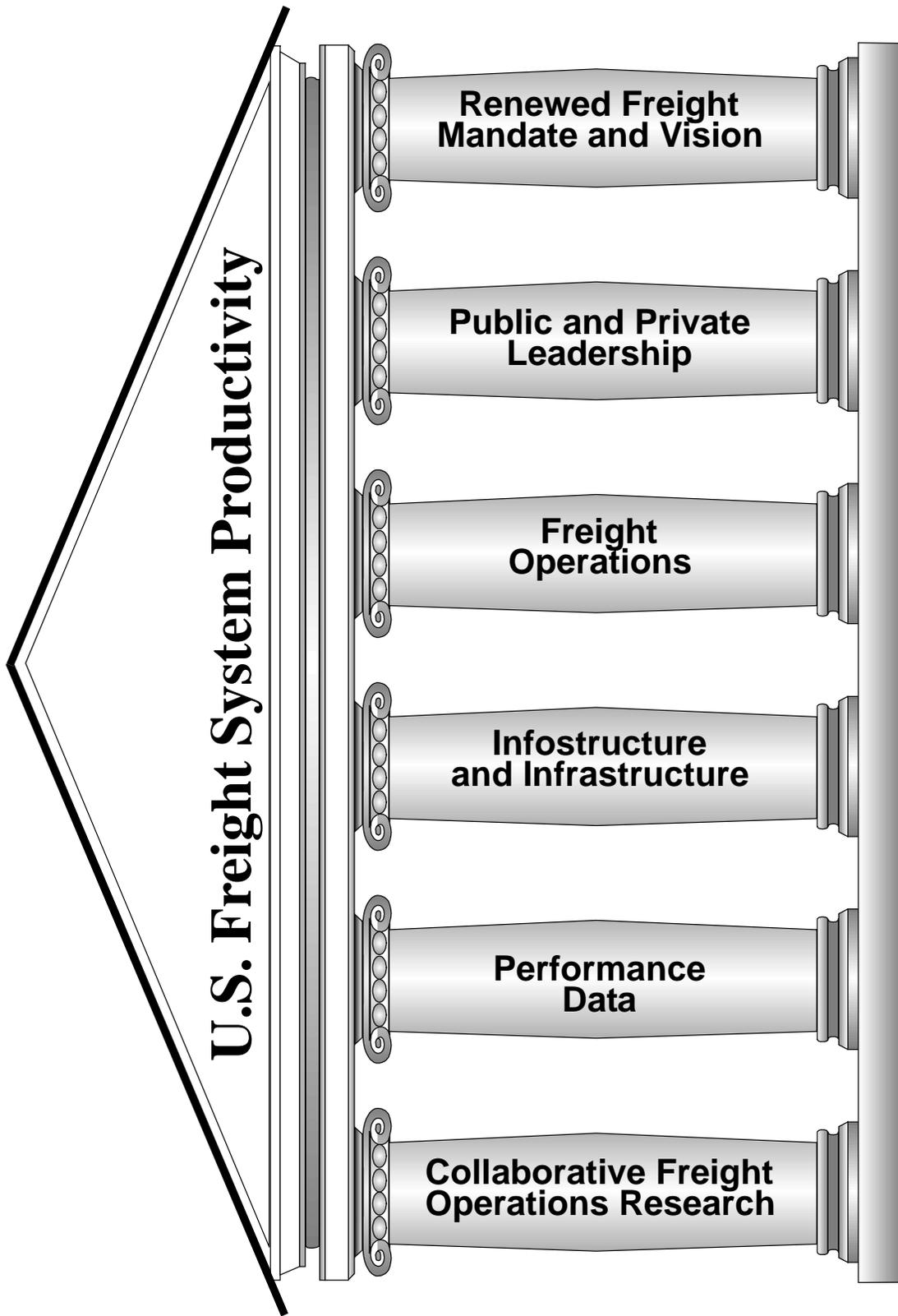


Figure 28

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Highway/Truck Operations, Examples

Operations Strategy	Problem	Solution	Example/s
Corridor Traffic Information	Lack of Corridor-Scale Congestion and Routing Information for Truckers	Corridor and National Travel Condition Information Services Targeted to Truckers	I-95 Coalition FleetForward (Operations Test); Rural ATIS Program; Roadway Weather Information Systems
Incident Management	Delays and Deteriorating Reliability Because of Incidents (e.g., Breakdowns, Crashes,...)	Proactive Response to Incidents and Traffic Management to Minimize Backups; expertise in Clearing Heavy Truck-Involved Incidents	Chicago Minuteman Patrol
Work Zone Management	Delays and Increased Risk of Accidents at Work Zones; Truck Prohibited from Detour Routes Because of Low Bridge Clearances, etc.	Specific Attention to Maintenance of Truck Flows at Work Zone and Along Diversion Routes	
Automated Border and Weigh Station Clearance	Delays at Ports of Entry and Weigh Stations for Regulatory and Safety Inspections	Automated Credential and Weight Pre-Clearance Screening; Coordination of Customs, INS and DOT Inspection Functions	ITS/CVO Program; CVISN

Figure 29

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Rail Operations, Examples

Operations Strategy	Problem	Solution	Example/s
Increasing Rail Headway And Capacity	Complex Interoperative Systems Are Needed To Safely Operate Freight Trains At Speeds Greater Than 79 M.P.H.	Positive Train Control	Research Is Underway
Interchangeable Domestic Container Pools Which Add To Speed And Service On Rail Lines	Equipment Only Available To One Rail Carrier Is Inefficient	Domestic Interline Container Pools	EMP –Participants Are NS, UP, CP, KCS, Wisconsin Central, Etc. NACs – Participants Are BNSF, CN, CP, CSX, IMRL
Open Platforms For Rail Service Booking Adds To Customer Appeal And Adds To Velocity	Single Carrier Booking Is Time And Labor Intensive	Web-Enabled Communications For Booking And Tracking	ARZOOM Members Are US, CSX, NS, And CP

Figure 30

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Port and Terminal Operations, Examples

Operations Strategy	Problem	Solution	Example/s
Remote inland ports/depots	Congested port Terminals	Move empty containers to inland site	Virginia Port Authority's Inland Terminal
Increase IT Capability/Automation	Low Terminal Productivity and Turn Times	Increased Information/Reservation System	Port of NY/NJ's FIRST
Agile Port Technology	Need for increased Port Throughput	IT System Integration Between Ship and Train	USDOD Agile Port Technology Demonstrations

Figure 31

Building a NEXUS for Efficient System Wide Freight Operations

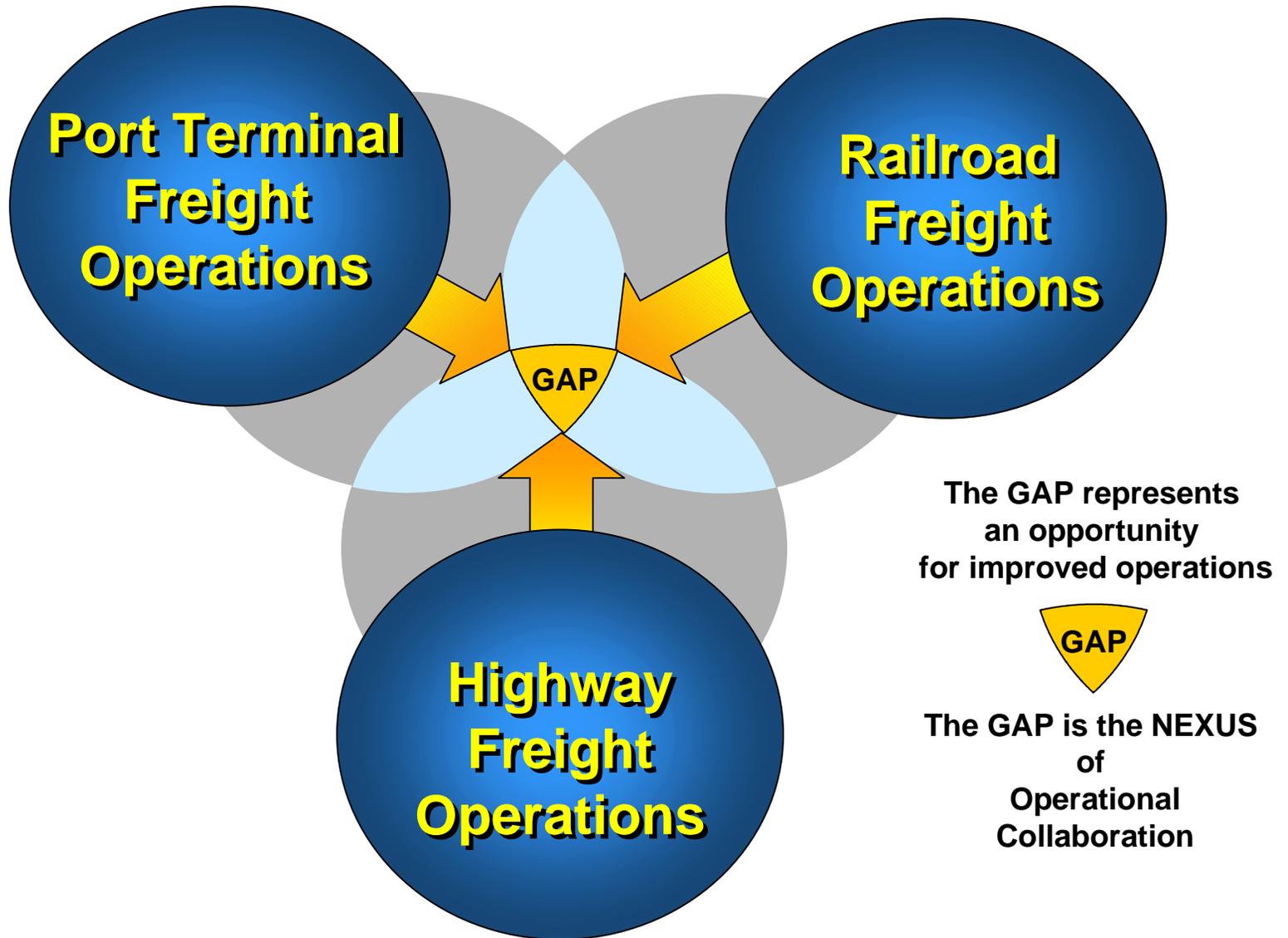


Figure 32

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Freight Transportation Perspectives
State and MPO Focus is Regional and Local;
Private Sector Focus is Increasingly National and Global
Private Sector
(Shippers, Carriers)

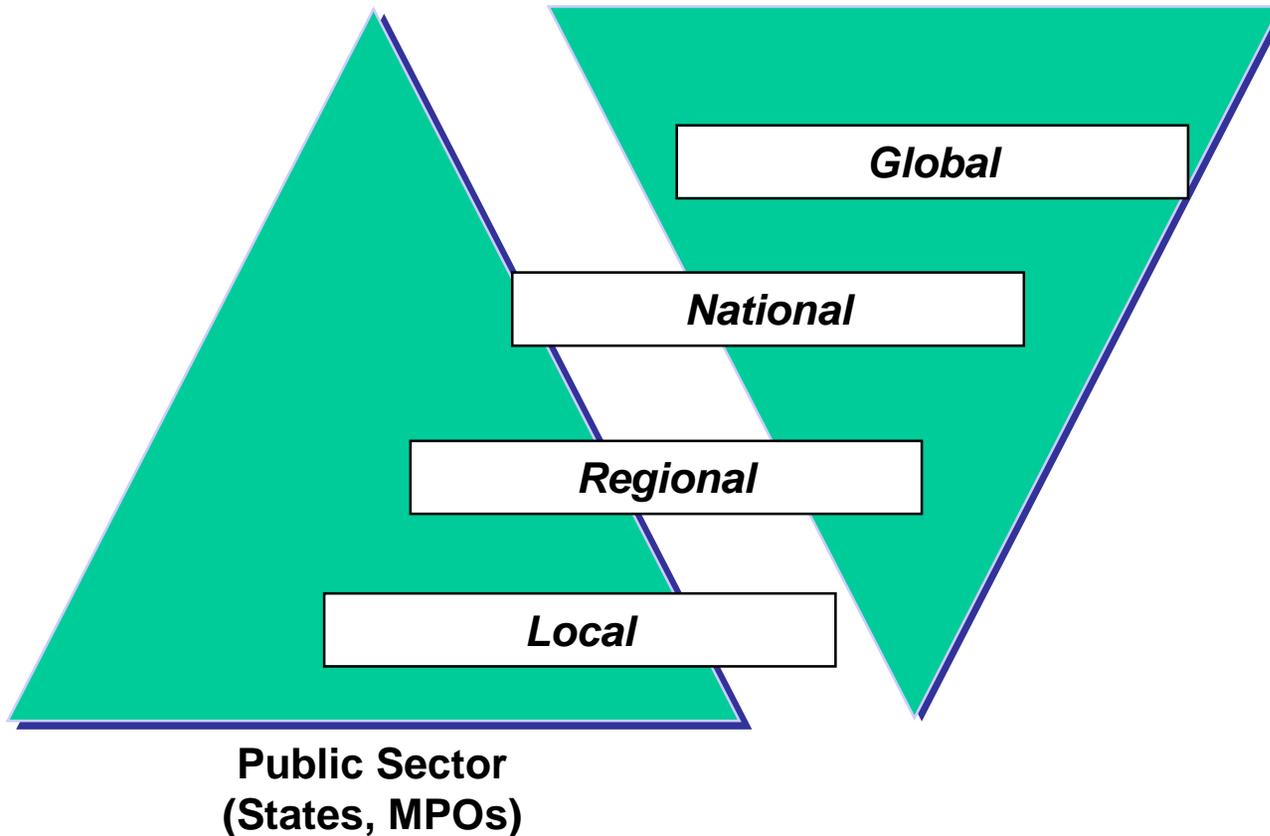


Figure 33

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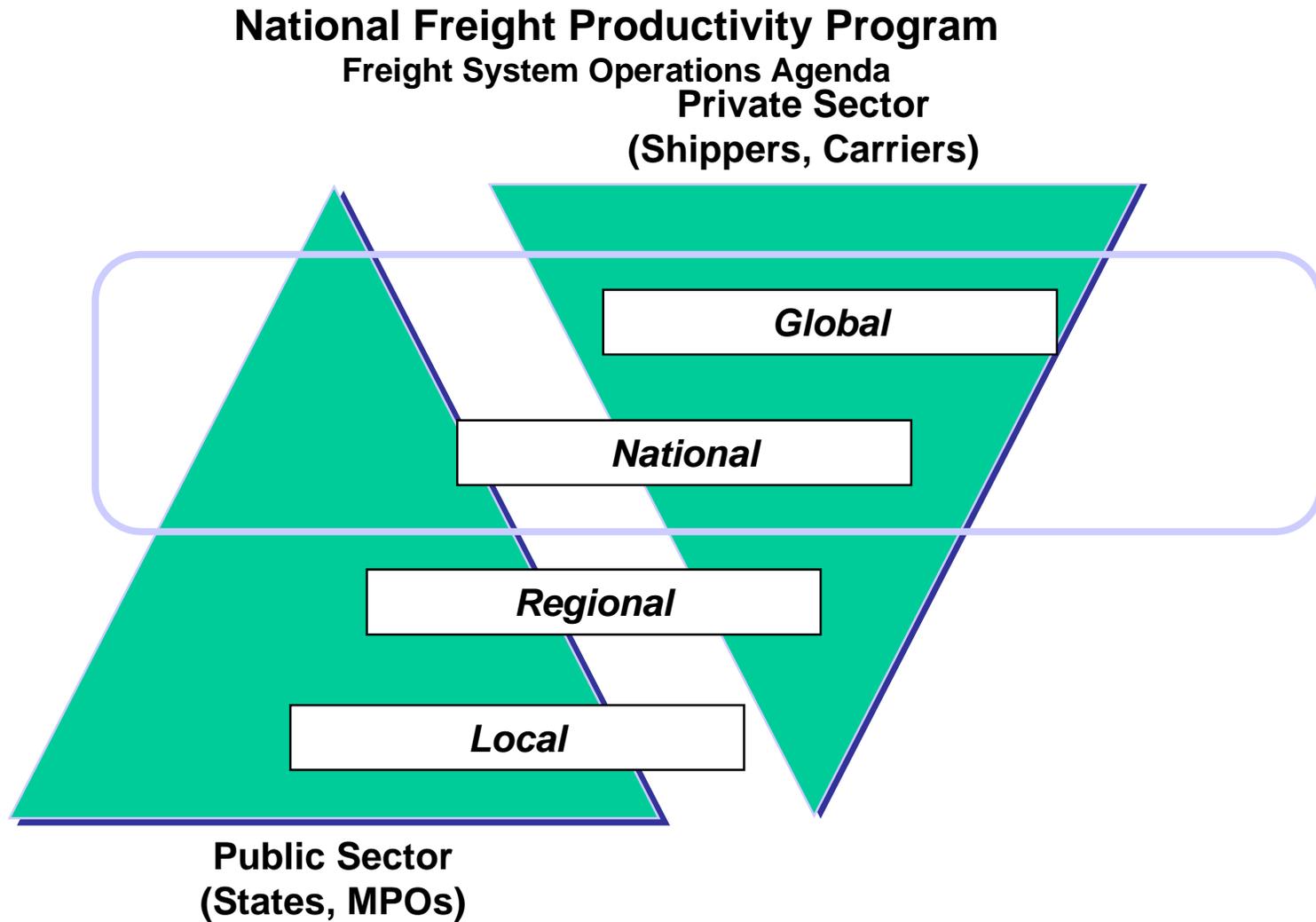


Figure 34

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National Freight Productivity Program
Freight System Operations Agenda
Private Sector
(Shippers, Carriers)

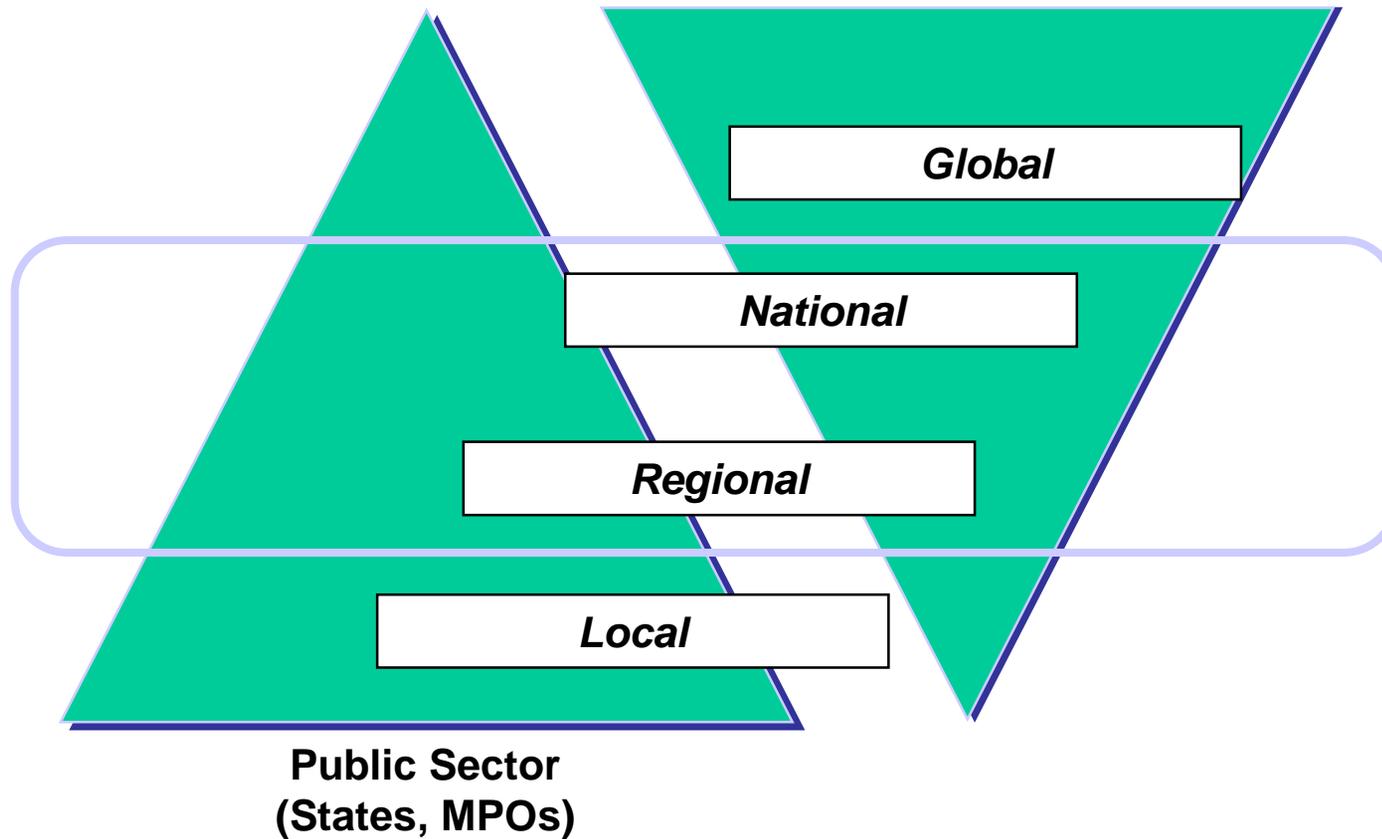


Figure 35

"Building Freight Capacity Through Better Operations: Defining the National Agenda"
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National Freight Productivity Program
Freight System Operations Agenda
Private Sector
(Shippers, Carriers)

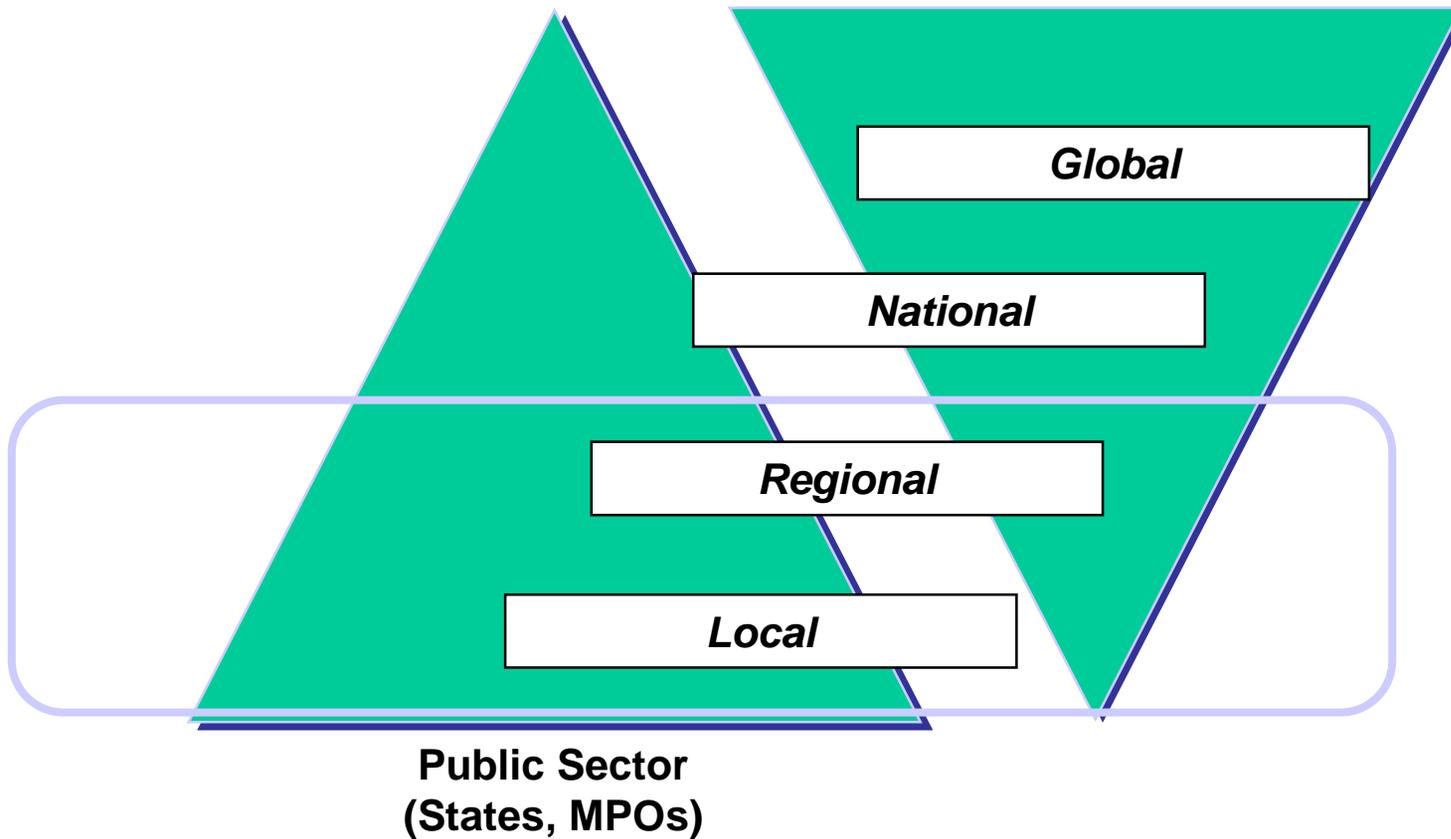


Figure 36