

Integrating Freight in the Transportation Planning Process

Executive Summary

***Fawn Thompson
FHWA Resource Center - Atlanta***



U.S. Department
of Transportation

**Federal Highway
Administration**

Today's Presentation

- *Introduction to freight transportation*
- Importance of freight planning
- Freight trends
- Freight challenges
- Freight planning success factors

Introduction to Freight Transportation

Freight vs. Passenger Transportation

Passenger Movements

- Movements often begin and end within the same jurisdiction
- Less infrastructure impact
- Less intermodal in nature

Freight Movements

- Complex chain of interregional or international trips
- Heavier vehicles have greater infrastructure impacts
- Often more intermodal

Introduction to Freight Transportation

Freight vs. Passenger Planning

Passenger Planning

- Can be handled within a single jurisdiction
- Trip generation and attractions well understood and predicted
- Plenty of publicly available data
- Well-defined funding and financing sources and strategies
- Stakeholders easily identified

Freight Planning

- Multi-jurisdictional cooperation required
- Freight movements sensitive to market forces; difficult to forecast demand
- Fewer sources of publicly available data
- Often requires innovative funding and financing sources/strategies
- Freight stakeholders harder to identify and more challenging to engage

Introduction to Freight Transportation

Freight Stakeholders

■ **Public Sector**

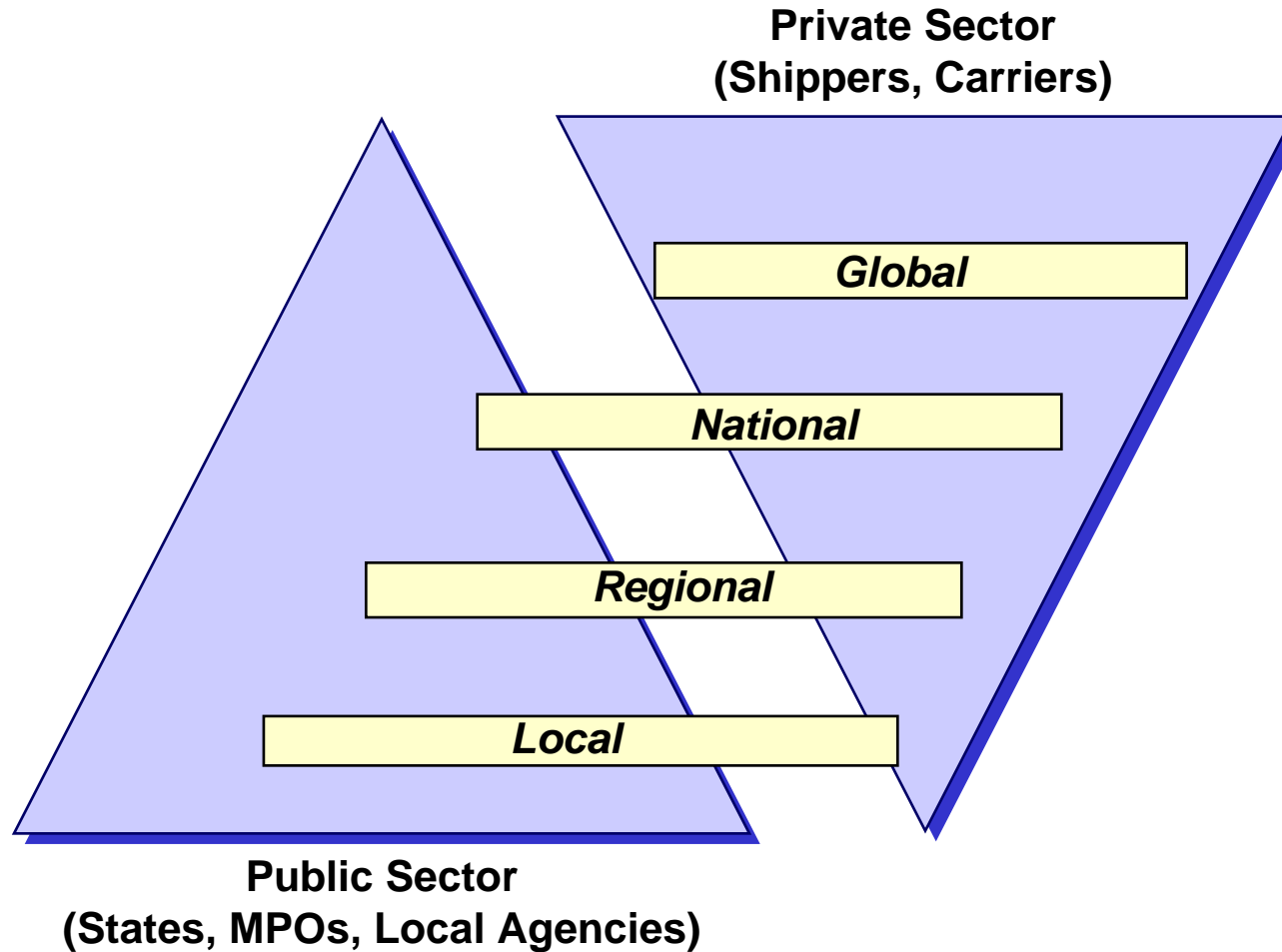
- Federal, state, local transportation planning agencies
- Economic development and trade organizations
- Federal, state, local law enforcement

■ **Private Sector**

- Shippers and receivers of freight (businesses)
- Freight transportation service providers
- Owners and operators of freight facilities
- Neighborhoods and communities affected by freight transportation

Introduction to Freight Transportation

Freight Planning Perspectives



Today's Presentation

- Introduction to freight transportation
- *Importance of freight planning*
- Freight trends
- Freight challenges
- Freight planning success factors

Importance of Freight Planning

Federal Guidelines for Freight Planning

- Intermodal Surface Transportation Efficiency Act (ISTEA)
 - Added freight as a factor for states and MPOs to consider during their transportation planning efforts

- Transportation Equity Act for the 21st Century (TEA-21)
 - Encouraged states and MPOs to include shippers and freight service providers in the transportation planning process

- Safe, Accountable, Flexible, and Efficient Transportation Equity Act of the 21st Century (SAFETEA)
 - Proposes enhancement of the freight planning emphasis of ISTEA and TEA-21

Importance of Freight Planning

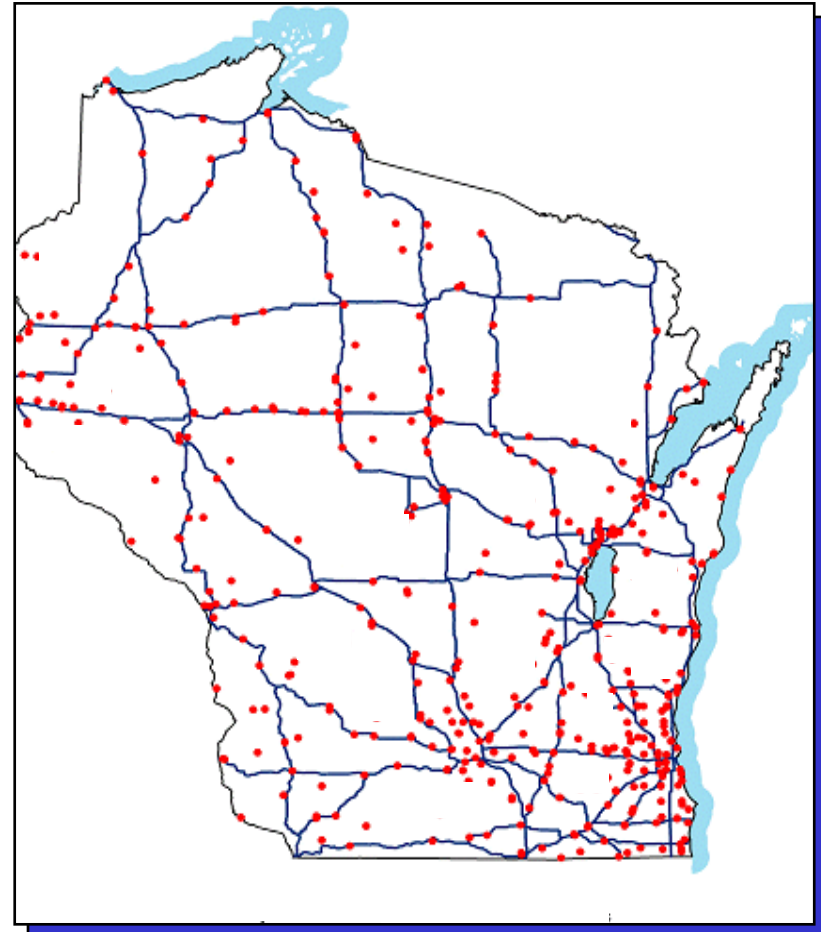
Freight Investments lead to Increased Productivity

- Transportation investments lead to increased productivity
 - Florida
 - Freight transportation investments generate a 35 percent annual rate of return in terms of GSP growth
 - Maryland
 - Highway improvements responsible for 10 percent of state's productivity growth 1982-1996
 - Wisconsin
 - Every \$1 of highway investment leads to \$2 of benefits to passengers; \$1 of benefits to freight movements

Importance of Freight Planning

Efficient Freight System Attracts New Businesses

- Efficient freight transportation system attracts new businesses, particularly manufacturing industries



Importance of Freight Planning

Freight Movements have National Security Impacts

- Border crossing and gateway operations
- Shipments of hazardous materials



Importance of Freight Planning

Freight Contributes to Overall Quality of Life

- Move goods from farms and factories to consumers
- Supply fuel to power plants
- Deliver packages and mail to your front door

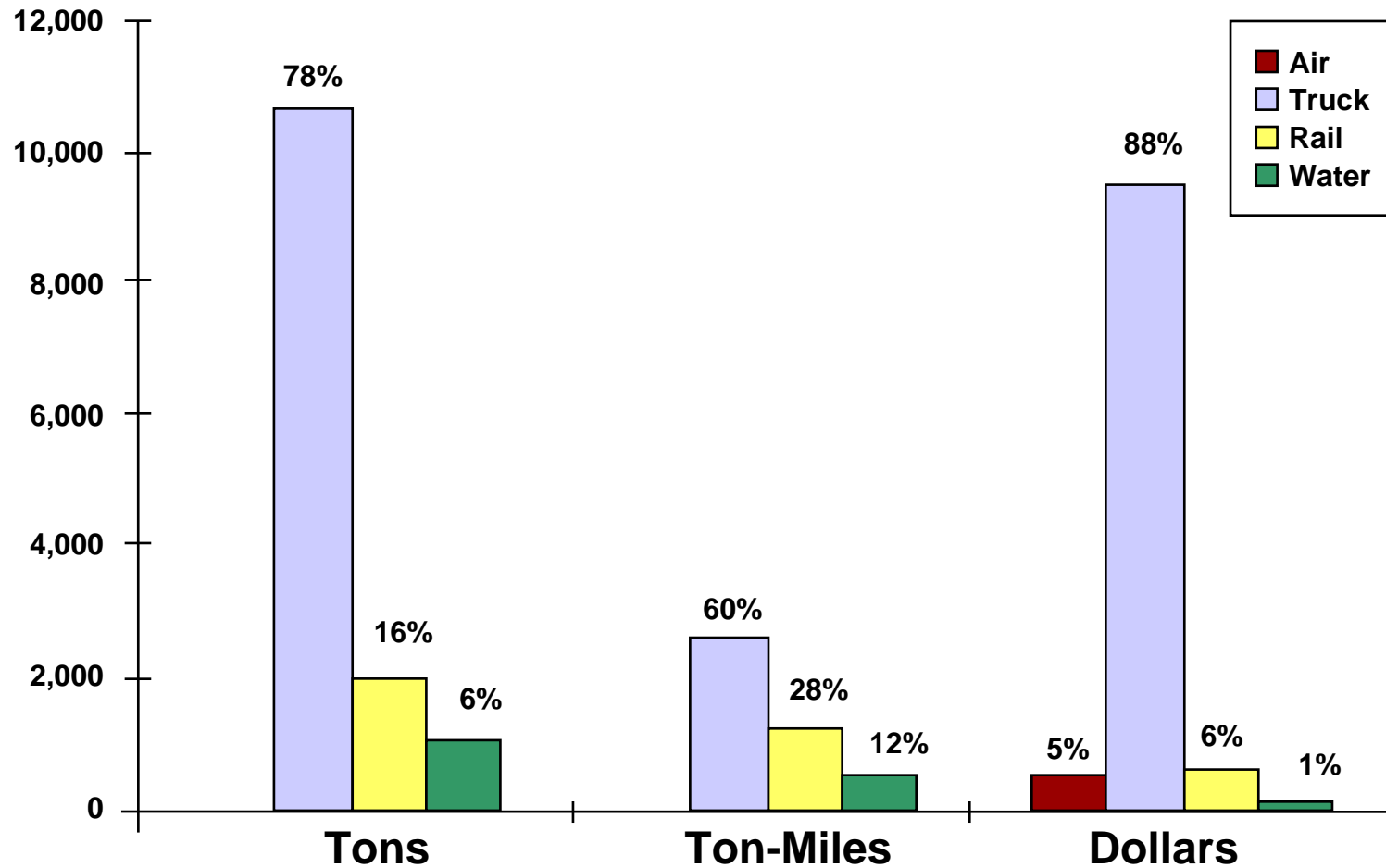


Today's Presentation

- Introduction to freight transportation
- Importance of freight planning
- ***Freight trends***
- Freight challenges
- Freight planning success factors

Freight Trends

Freight Movements Today



Freight Trends

Anticipated Growth in Freight Traffic 1998 to 2020

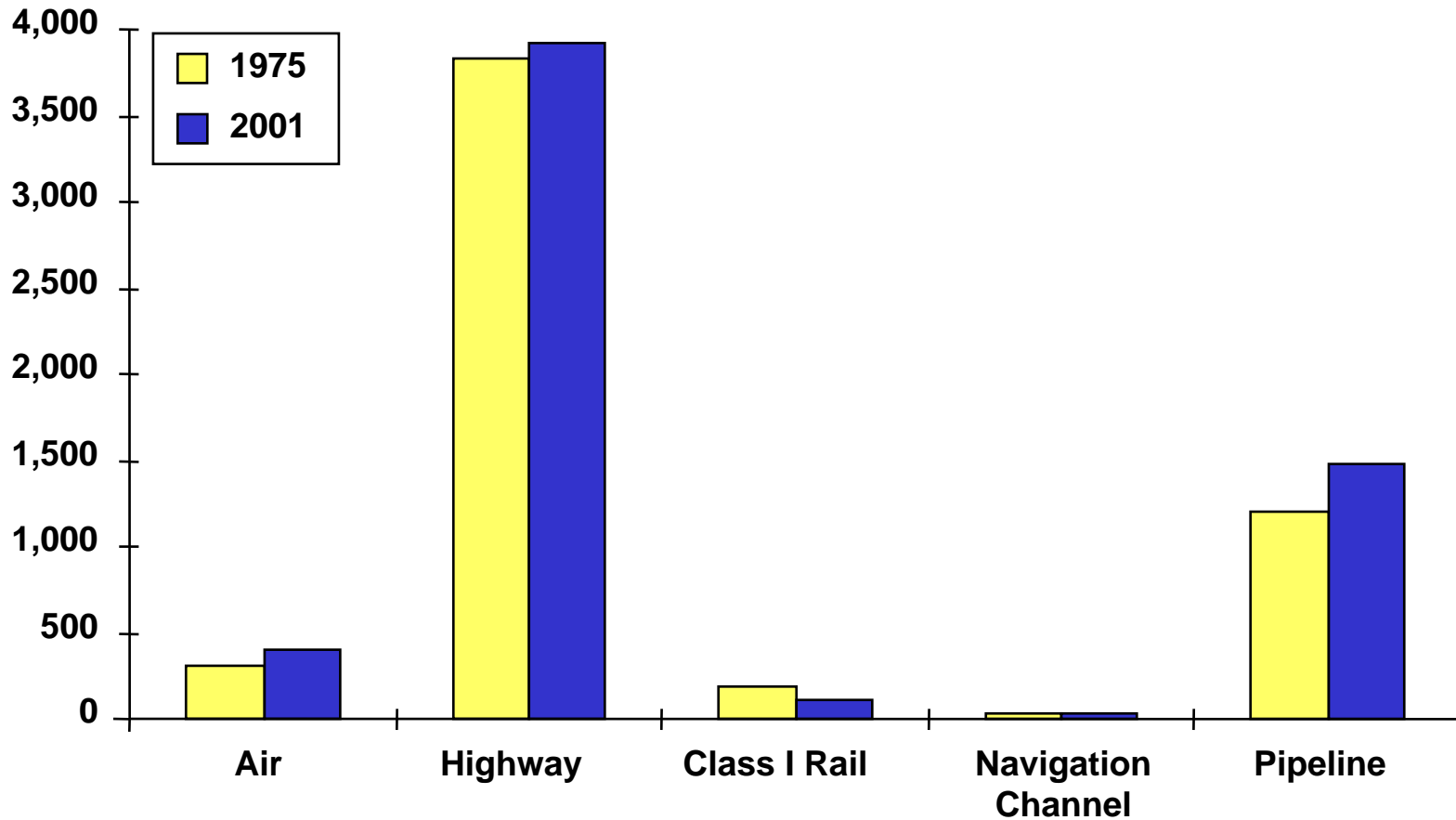
Freight Tons (in Billions)



Freight Trends

System Mileage and Capacity

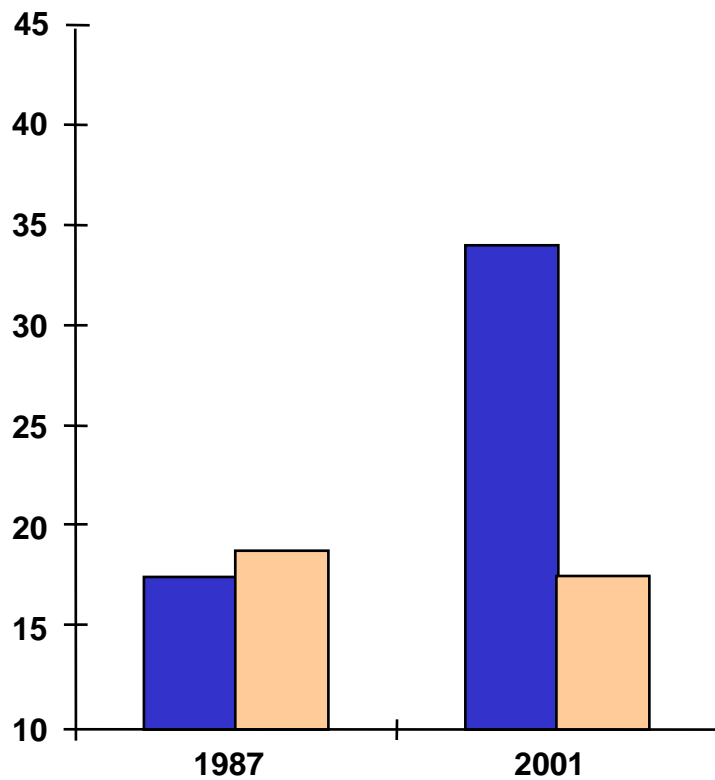
System Miles



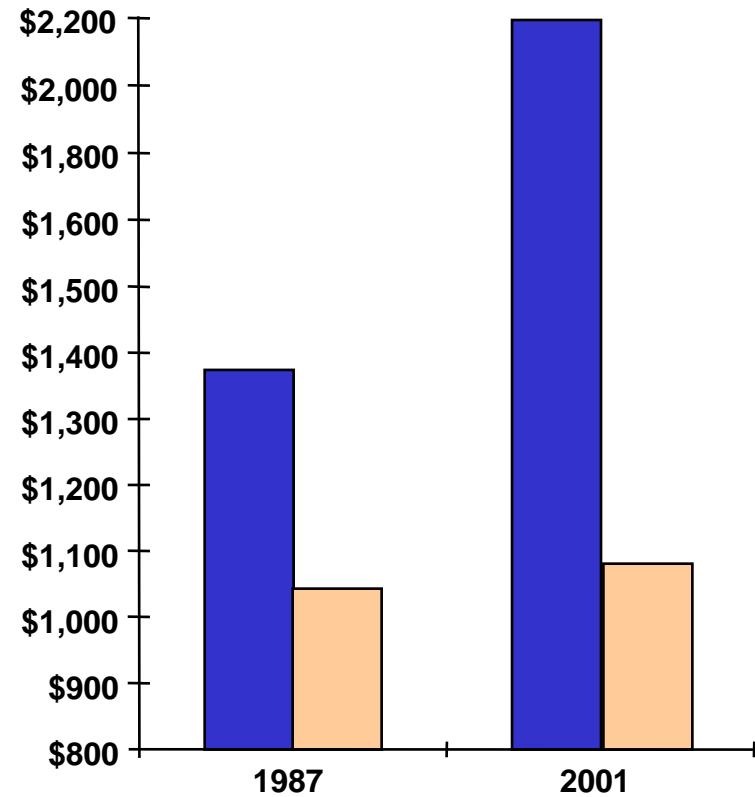
Freight Trends

Shift from a Manufacturing to a Service Economy

Paid Employees (in Millions)



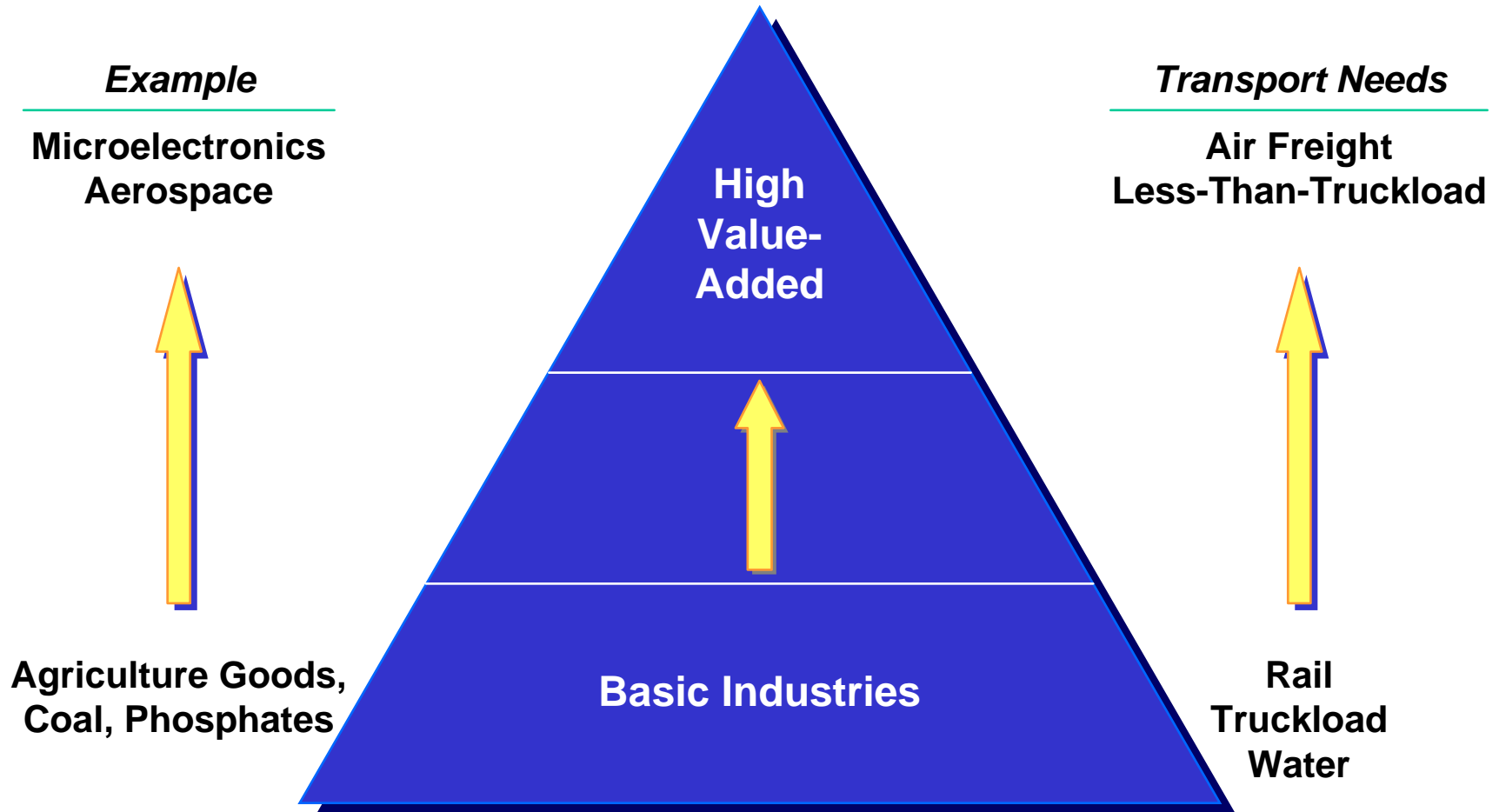
Contribution to GDP (in Trillions of Dollars)



■ Services ■ Manufacturing

Freight Trends

High-Value Added Industries Require Specialized Transport



Freight Trends

Changing Logistics Systems

Manufacturing-Based Economy

- Regularly scheduled flows of bulk products
- Greater reliance on maintaining inventory levels
- More long-haul movements
- More resistant to transportation system delays

Service-Based Economy

- Time-sensitive flows of customized products (just-in-time delivery)
- Greater reliance on information; transportation vehicles act as “rolling warehouses”
- More frequent, shorter movements
- Less resistant to delays; requires reliable transportation system

Freight Trends

Balance Between Efficiency and Security

- Post-September 11 cargo inspections more frequent and intensive
- Increasing reliance on pre-clearance of known shippers and closer scrutiny of chains of custody
- Increasing use of ITS and other technologies to verify cargo, vehicle, driver



Freight Trends

Freight Security Agencies

Transportation Agencies

- Transportation Security Administration
- Federal Motor Carrier Safety Administration
- Research and Special Programs Administration (RSPA)
- State DOTs
- State Registries of Motor Vehicles

Law Enforcement Agencies

- Bureau of Customs and Border Protection (CBP)
- Drug Enforcement Administration (DEA)
- Federal Bureau of Investigation (FBI)
- U.S. Marshals
- Bureau of Alcohol, Tobacco, and Firearms (ATF)
- Coast Guard
- Local police

Today's Presentation

- Introduction to freight transportation
- Importance of freight planning
- Freight trends
- ***Freight challenges***
- Freight planning success factors

Freight System Challenges

Roadway Infrastructure

- Low bridge clearances
- Pavement deterioration
- Inadequate turning radii for trucks
- Insufficient bridge weight limits



Freight System Challenges

Rail Infrastructure

- Rail system designed and built in the 19th century often inadequate for 21st century rail traffic



Freight System Challenges

Port Infrastructure

- New generation of “mega” containerhips will have major infrastructure impacts, requiring
 - Deeper channels
 - Larger berths
 - Additional land for container storage

- Locks and dams on U.S. waterway system are becoming obsolete



Freight System Challenges

Border Crossing Infrastructure

- Border crossing facilities becoming obsolete
- Post-September 11 security requirements exacerbating border crossing delays



Freight System Challenges

Operations



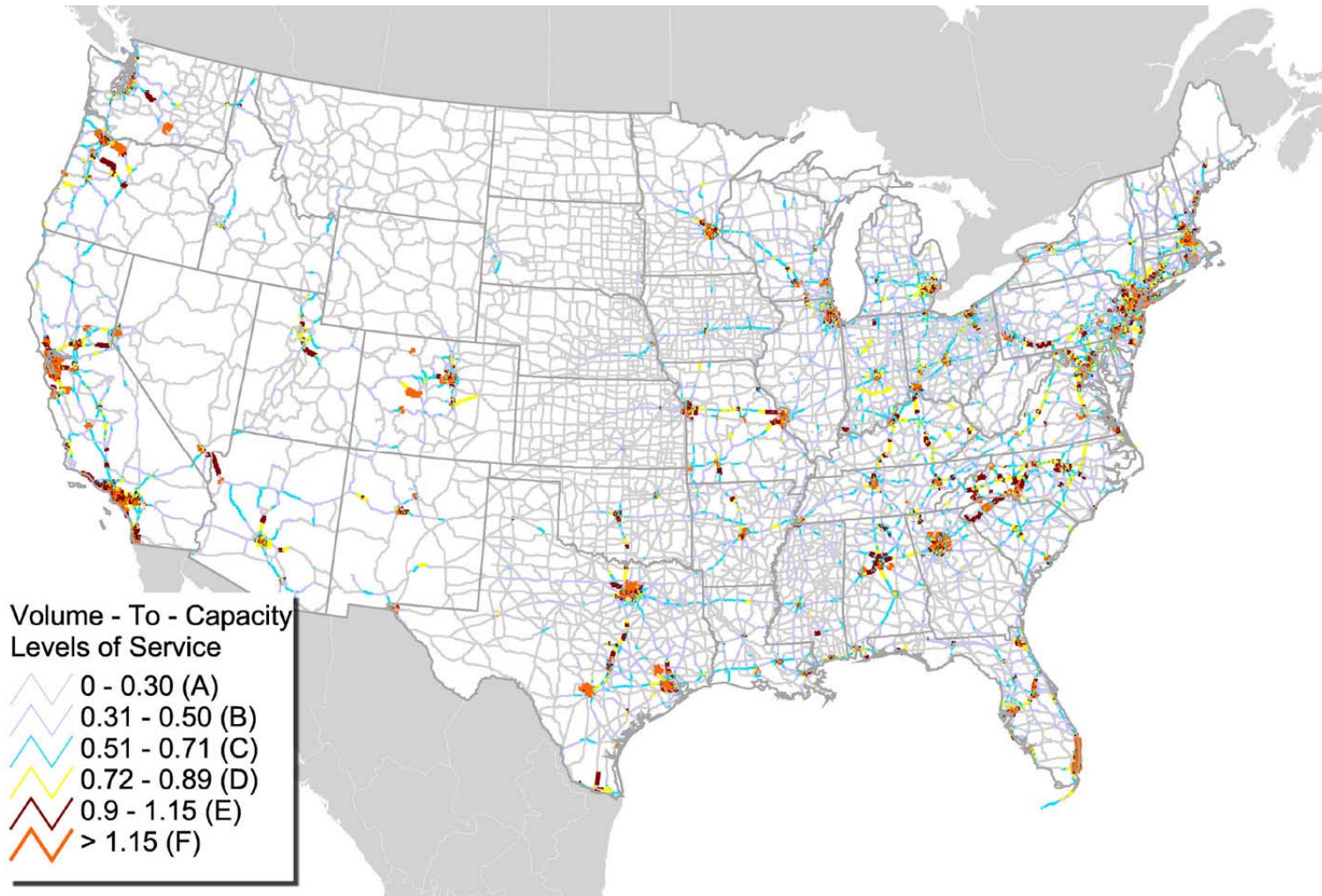
Freight System Challenges

Operations



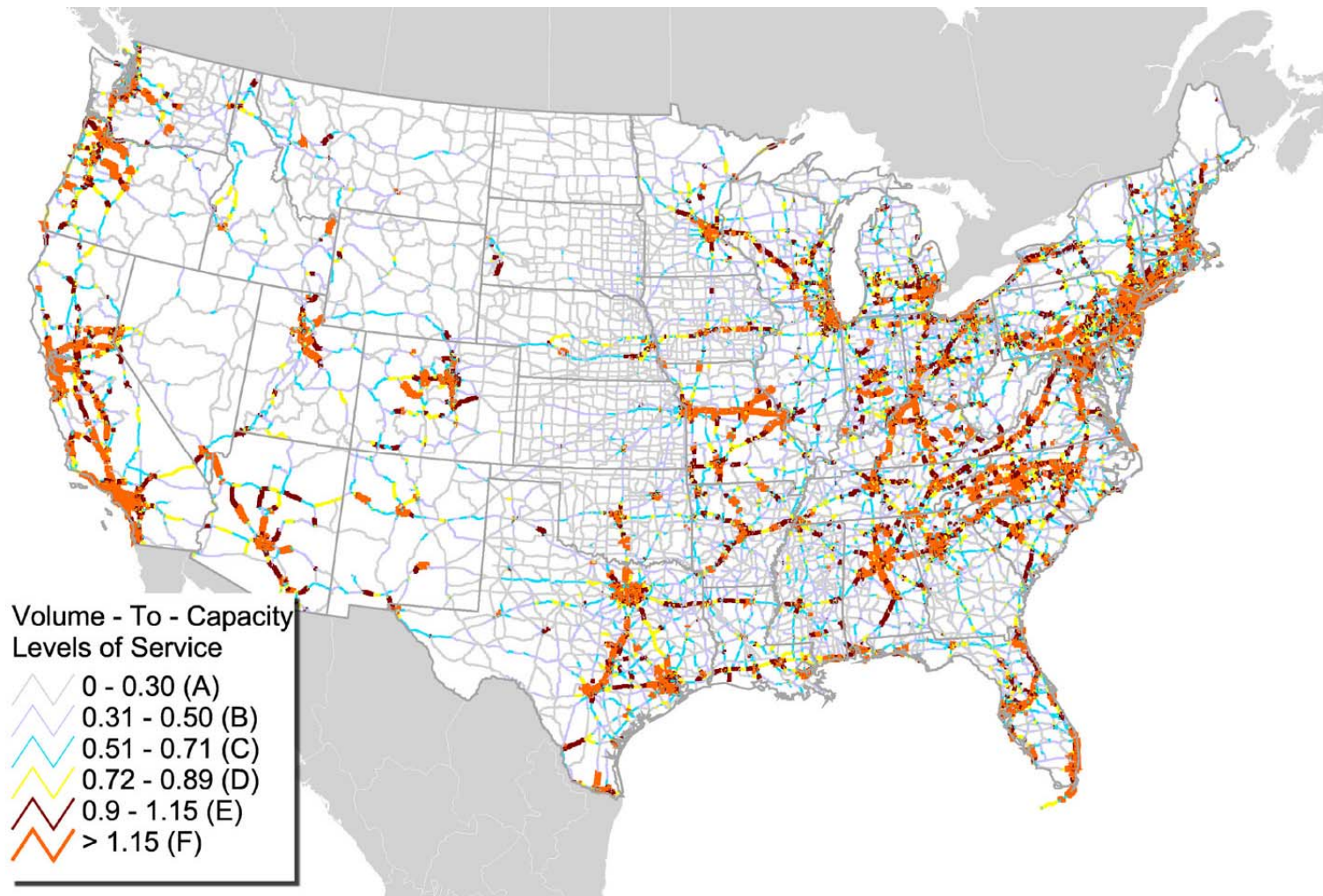
Freight System Challenges

Worsening Inter-City Highway Congestion (2000)



Freight System Challenges

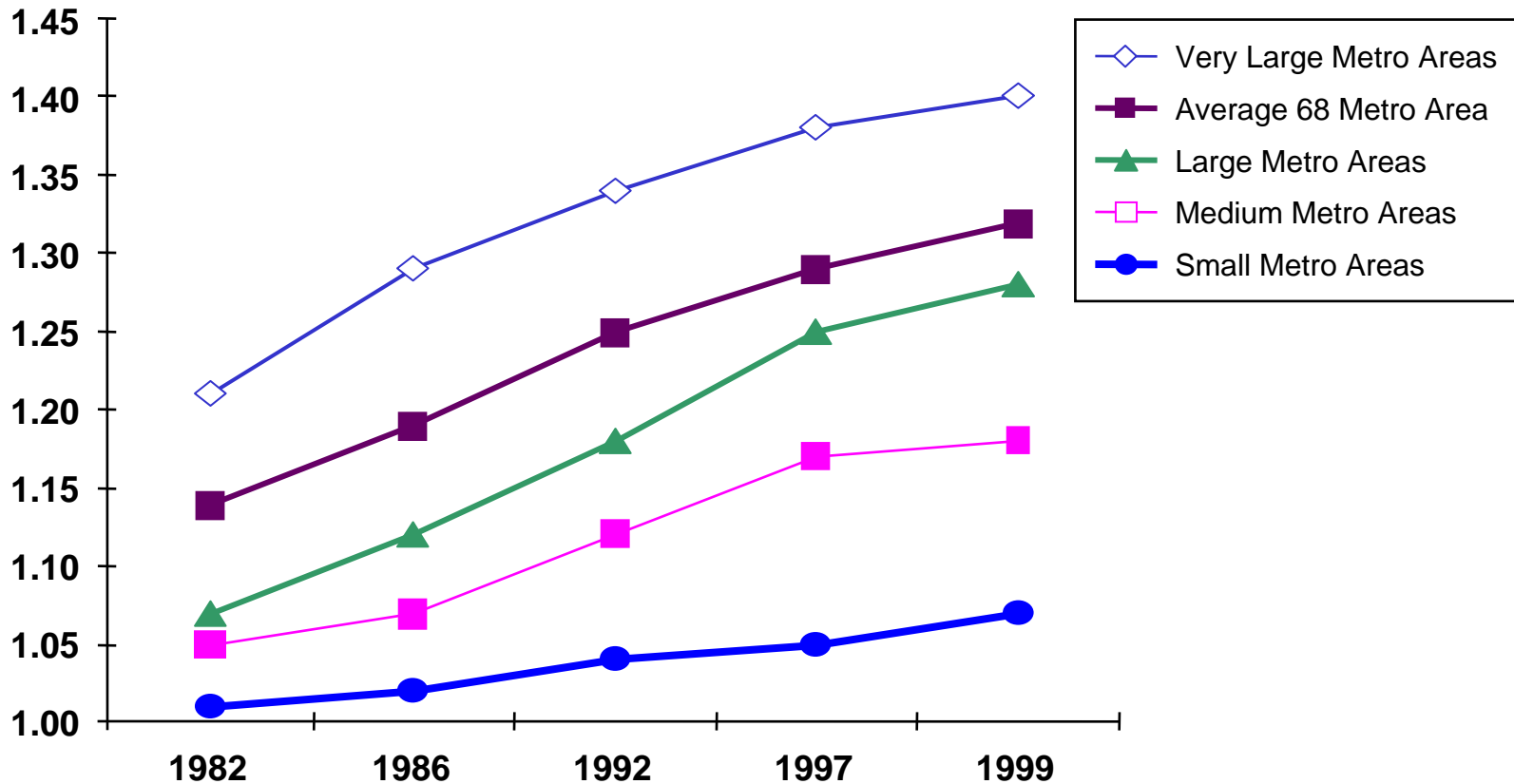
Worsening Inter-City Highway Congestion (2020)



Freight System Challenges

Worsening Metropolitan Congestion

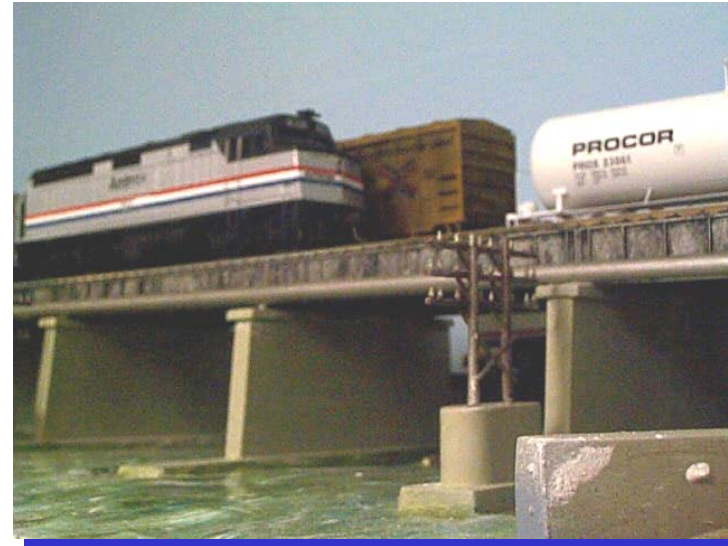
TTI Travel Rate Index



Freight System Challenges

Rail Operations

- Freight rail shares right-of-way with passenger rail in many areas
- Passenger rail operations generally take precedence over freight rail operations



Freight System Challenges

Port and Intermodal Access

- Increasing freight volumes and worsening highway congestion cause landside access problems at ports, airports, and intermodal terminals



Freight System Challenges

Overall System Reliability

- System users are placing more emphasis on reliability and predictability of transportation services
- Economic development becoming more dependent on high quality, multimodal transportation services



Freight Challenges

Institutional and Policy Challenges

- **Freight Planning Requirements**
 - Little specific guidance as to how or to what extent states and MPOs should consider freight within transportation planning process

- **Funding**
 - Highway-related freight improvement projects are usually eligible for federal or state funding, but intermodal projects often shoehorned into other programs

- **Data**
 - Publicly available data often lack industry detail due to privacy concerns, but privately-maintained data sets often costly and require extensive analysis

Freight Challenges

Institutional and Policy Challenges

■ **Multi-Jurisdictional Planning**

- Multi-jurisdictional coalitions important forums for regional freight planning, but find it difficult to actually implement improvement projects

■ **Inter and Intra-Agency Coordination**

- Many state DOTs are organized modally, which hinders cross-modal communication and leads to fragmented freight planning
- Some state DOTs and MPOs have very little influence over non-highway modes

■ **Freight Security**

- Many states/MPOs unclear of role in addressing freight security

Today's Presentation

- Introduction to freight transportation
- Importance of freight planning
- Freight trends
- Freight challenges
- ***Freight planning success factors***

Freight Planning

Factors of Success

- **Development of data and tools**

- Good freight planning begins with good freight data
- Freight analytical tools can be complex, but many inexpensive, reliable tools exist
- Data can come from many different public and private sources

- **Networking with stakeholders**

- Understand who the stakeholders are; work to build trust, define policy, develop plans, implement projects

Freight Planning

Factors of Success

- **Education and outreach efforts**
 - Decision-makers and general public may not realize the importance of freight and of integrating freight movements into the transportation planning process
 - Some DOT and MPO professional staff lack knowledge and expertise in freight issues

- **Intra- and inter-agency coordination**
 - Most freight projects involve several agencies – both within and outside of transportation

Freight Planning

Factors of Success

- **Linking freight to existing statewide/metropolitan long-range planning processes**
 - Treating freight with same level of emphasis as passenger movements facilitates long-term commitment to freight planning

- **Project definition, prioritization, and delivery**
 - Project delivery legitimizes freight planning programs and helps maintain momentum
 - Innovative project development and funding methods are critical

Freight Planning

Getting Started

- FHWA Freight Professional Development Program
 - Existing and future training opportunities
 - Technical assistance
 - Freight resource library
 - University-based freight and logistics programs

Freight Planning

Getting Started

- Freight Peer-to-Peer (P2P) program
- “Talking Freight” seminar series
- Freight Analysis Framework (FAF) Toolkit
- NHI Training Opportunities
 - Course 139001, Integrating Freight in the Transportation Planning Process
 - Course 139002, Freight Forecasting in Transportation Planning
- FHWA Freight Planning Website
 - www.fhwa.dot.gov/freightplanning/index.htm

Integrating Freight in the Transportation Planning Process

For Additional Information Contact:

Fawn Thompson

fawn.thompson@fhwa.dot.gov

404.562.3917



U.S. Department
of Transportation

Federal Highway
Administration

