Freight Movement: An Important Element of the Regional Transport System

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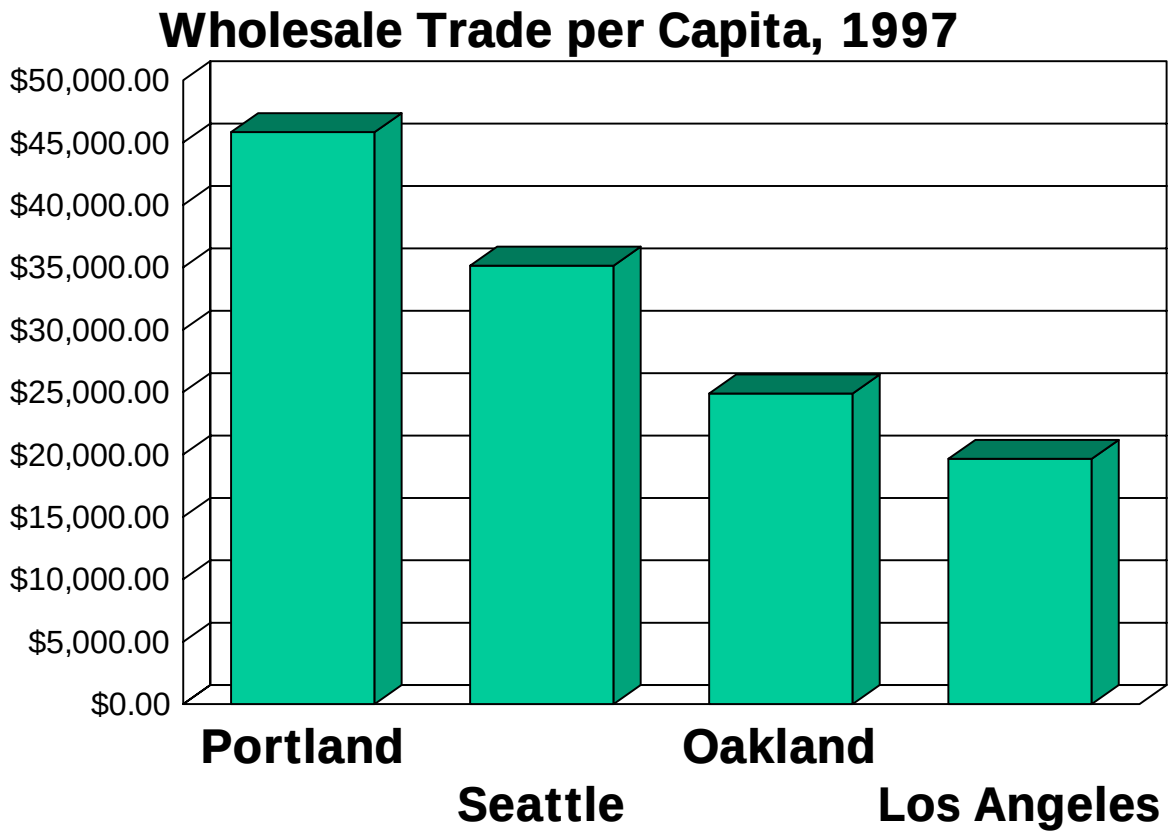
Presentation Overview

- The Importance of Freight Transport
- The Development of a Freight Transport Database and Analytical Tool
- Key Findings from the Data
- Planning and Project Applications
- Important Lessons Learned
- OMIP Generation 2 Enhancements

Background

- Oregon's Economy Relies on a Good Transportation System
  - 60% of Oregon's workers have jobs in businesses that depend on the transportation system for their operation
  - "Traded Sectors" drive the economy in the Portland region and the state
  - Wholesale/distribution jobs are the highest wage earning jobs in the state

West Coast Metro Areas



Background

- **Freight Movement occurs**
  - to move products from origin to place of higher value
  - over a variety of modes
- **Transportation and logistics account for 20-25% of product cost**
- **Average delivery time today: 2-3 days**
  - compared to: 30 days in 1960s, 10 days in 1980s
- **By 2000, 50% of all products will move ‘just in time’**

Port of Portland 1998

Functioning Multi-modal System Critical for Freight

	Truck	Rail	Barge	Ship	Air
Grains		**x**	**x**	**x**	
Minerals	**x**	**x**		**x**	
Electronic Equip.	**x**	**x**		**x**	**x**
Transport. Equip.	**x**	**x**		**x**	**x**
Food Products	**x**	**x**	**x**	**x**	**x**
Lumber/Paper	**x**	**x**	**x**	**x**	

Economic Trends

- Globalization of the Economy
  - new markets, labor, sources-products and parts move longer distances
  - regional competition
- Restructuring of Traditional Manufacturing
  - smaller, more frequent shipments
  - transportation systems part of the production line
- High Technology/Internet Trade
  - increased expectations of system reliability and speed

Transportation: Key to Oregon Businesses Competitiveness

- **Industrial Location**
  - Industry specialization and reliance on efficient transportation means industries may choose to relocate if transportation costs affect their ability to compete
- **Congestion has real costs and affects business productivity**
  - **Hard costs**
    - Extra time for pick-up and delivery/reduced production time
    - Extra vehicles to meet “just-in-time” demands of customers and scheduling problems caused by longer delivery times
  - **Soft costs**
    - Business credibility
    - Expansion decisions

Transportation Investment Trends

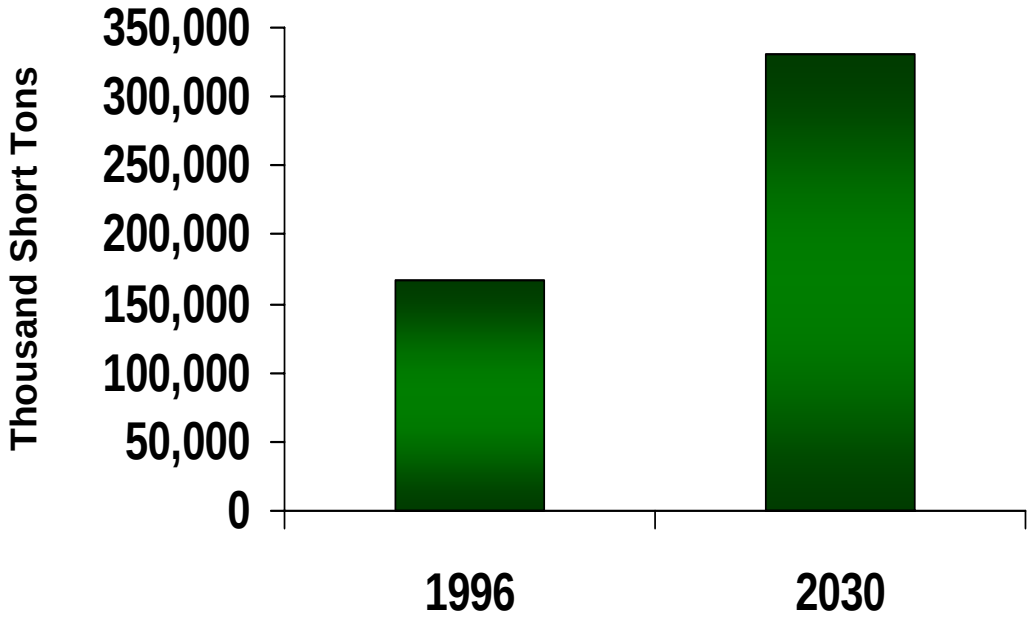
- **The relative purchasing power of Oregon Transportation dollars has decreased 50% since 1973.**
- **Investment in modernization of the system has diminished over the last five years**
- **Of the 15 states cited as “economic overachievers,” Oregon ranks last in transportation investment**

How Have We Responded to the Issue of Freight Transport?

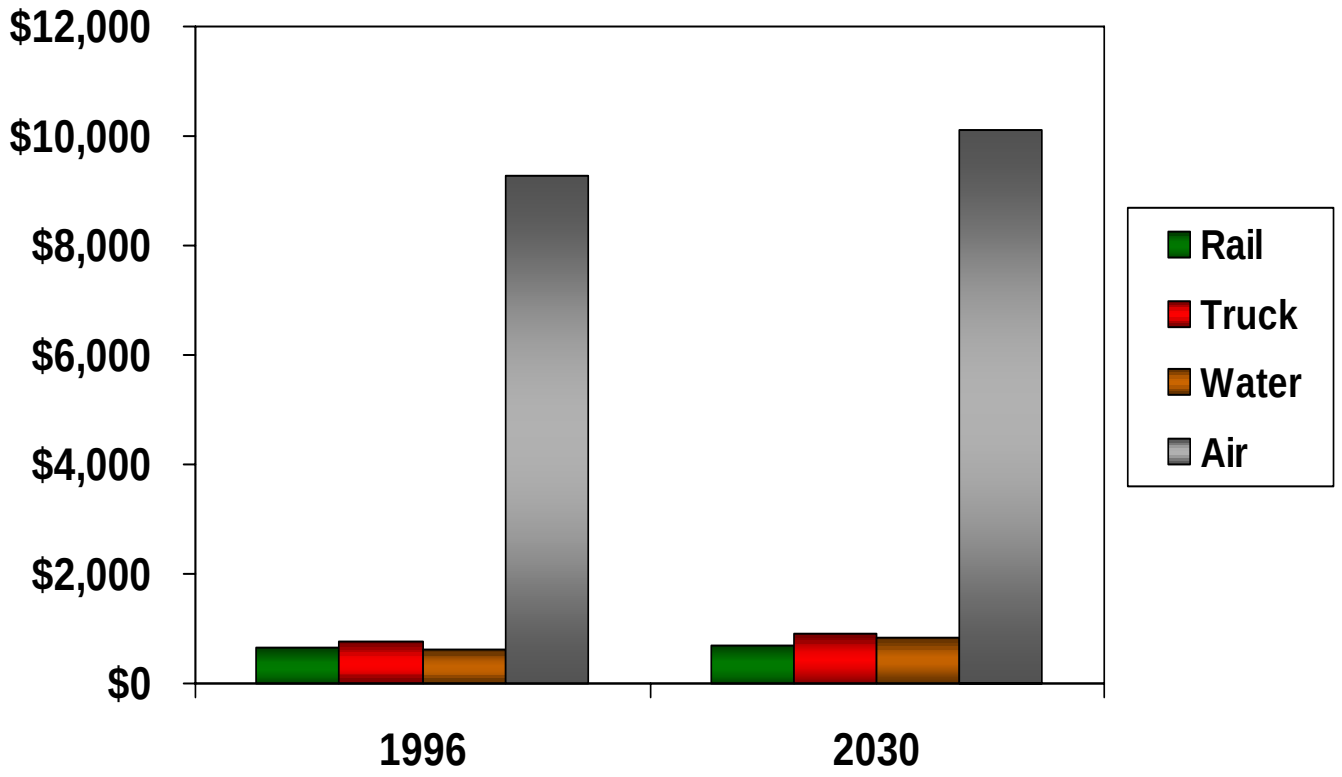
- Established a Commodity Database
- Developed a Truck Simulation Tool from the Database

Findings

- Portland origin/destination freight volume to double by 2030

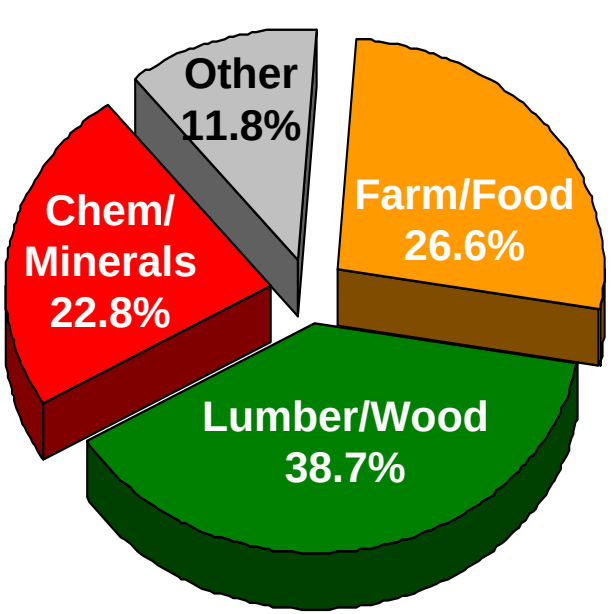


Dollars/Ton of Value

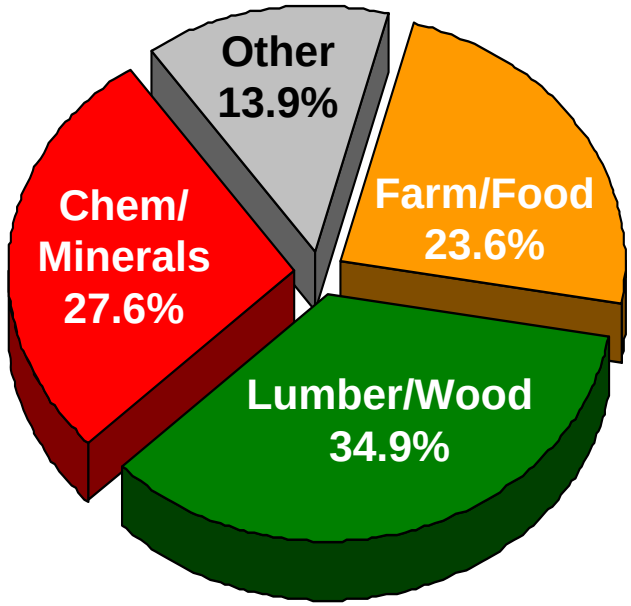


Findings

- Commodity mix to remain unchanged

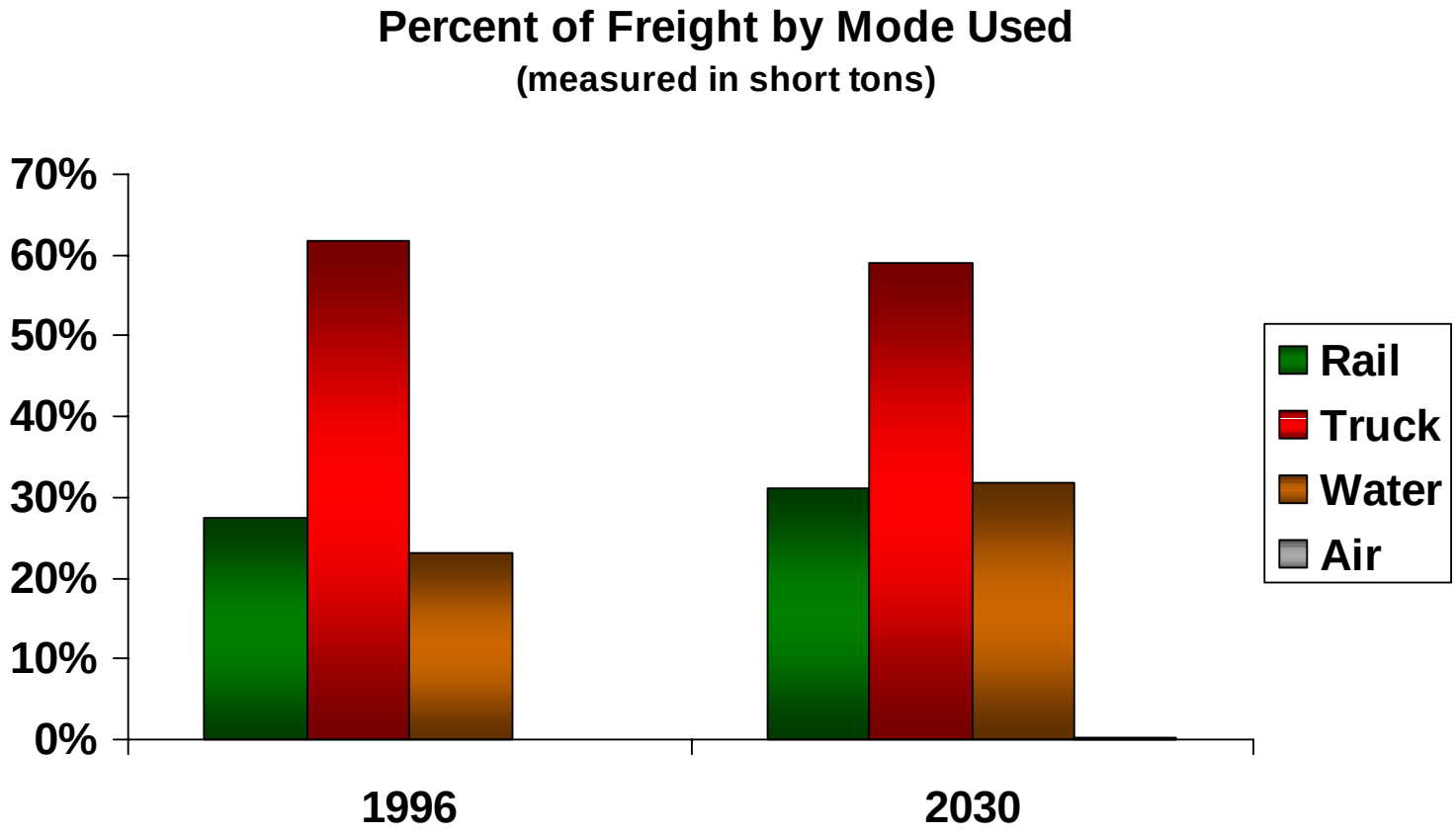


1996



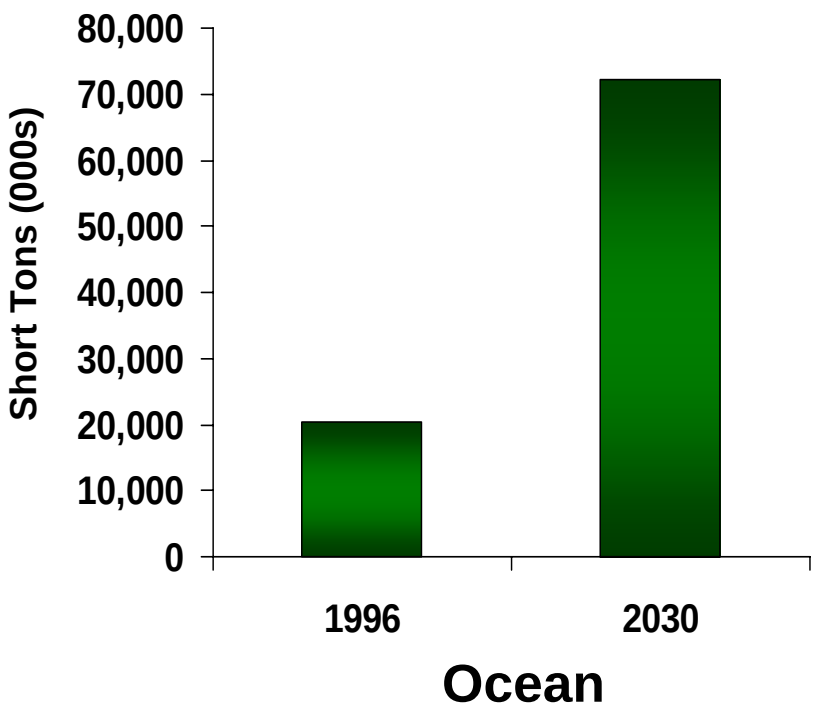
2030

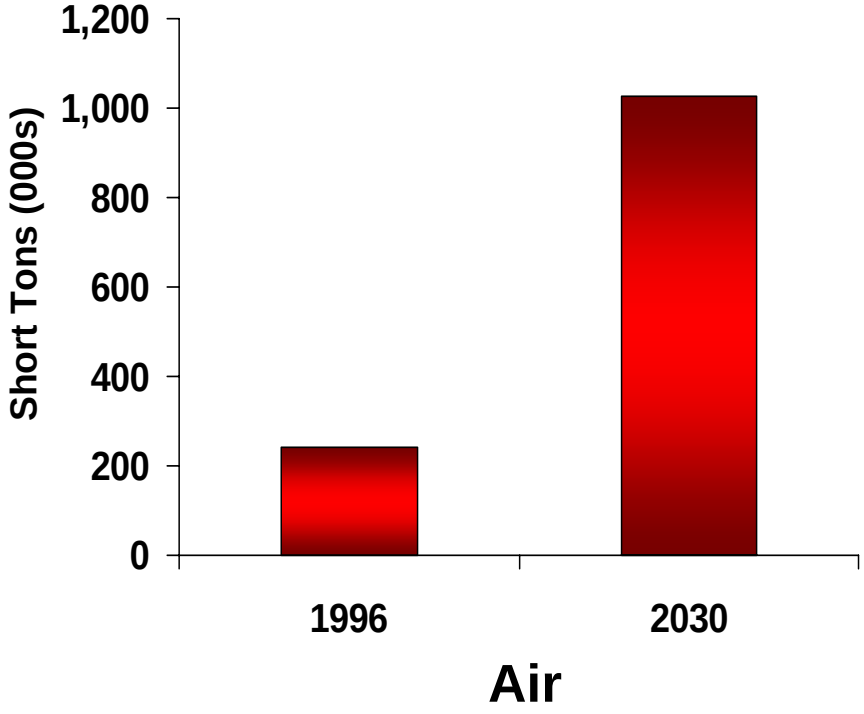
Freight Mobility Largely Dependent Upon Trucks



Port-related Forecasts

- Air volume to grow 4.2% annually





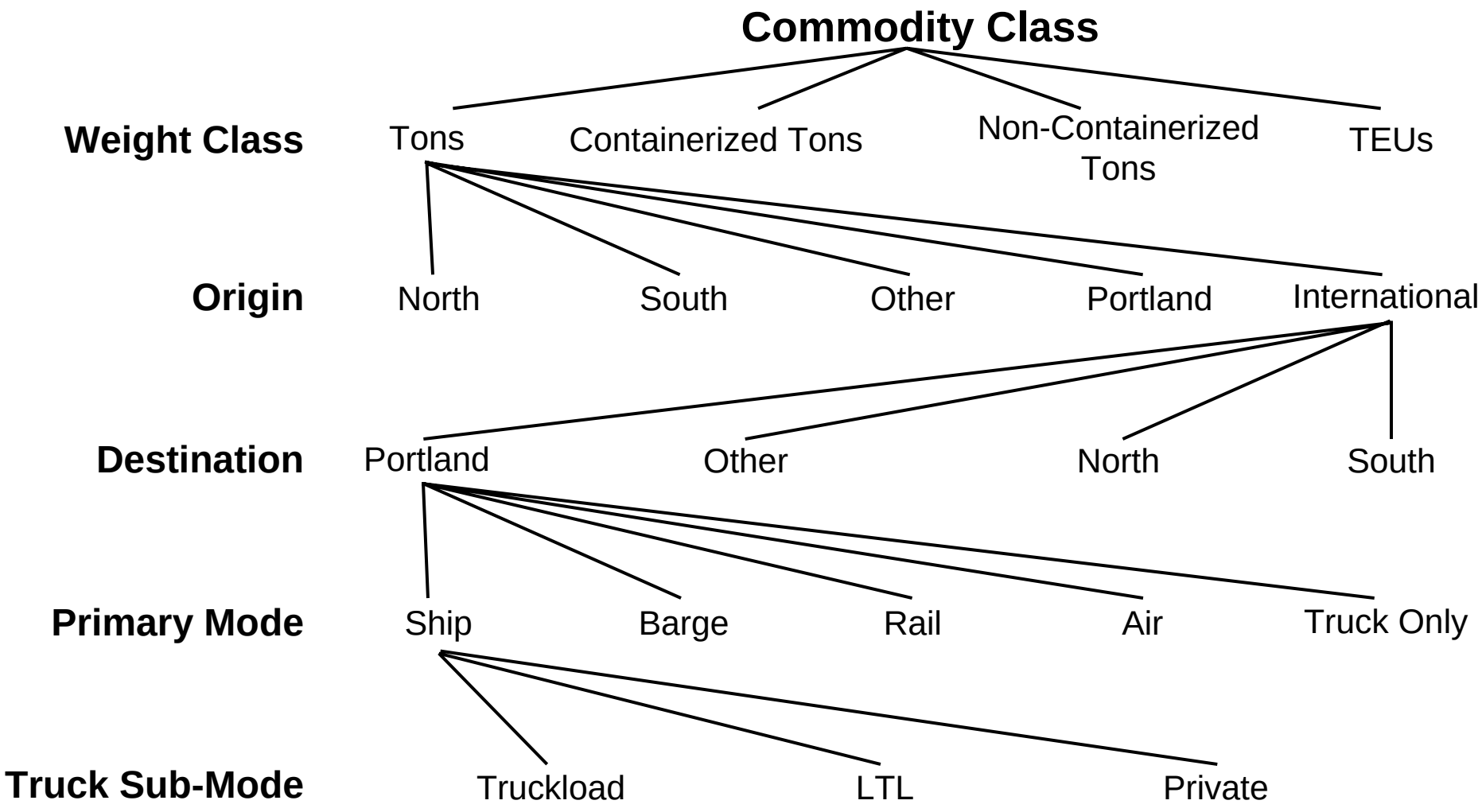
Non-Regional Commodity Flows

- Commodity Flows Follow Trade Corridors - Flows are Predominately Inter-Regional
  - Only 17% of the commodity flow tonnage is intra-regional
  - 83% is linked to points outside the region
- Strong Ties to Statewide and Economic Region Models are Critical to Freight Modeling

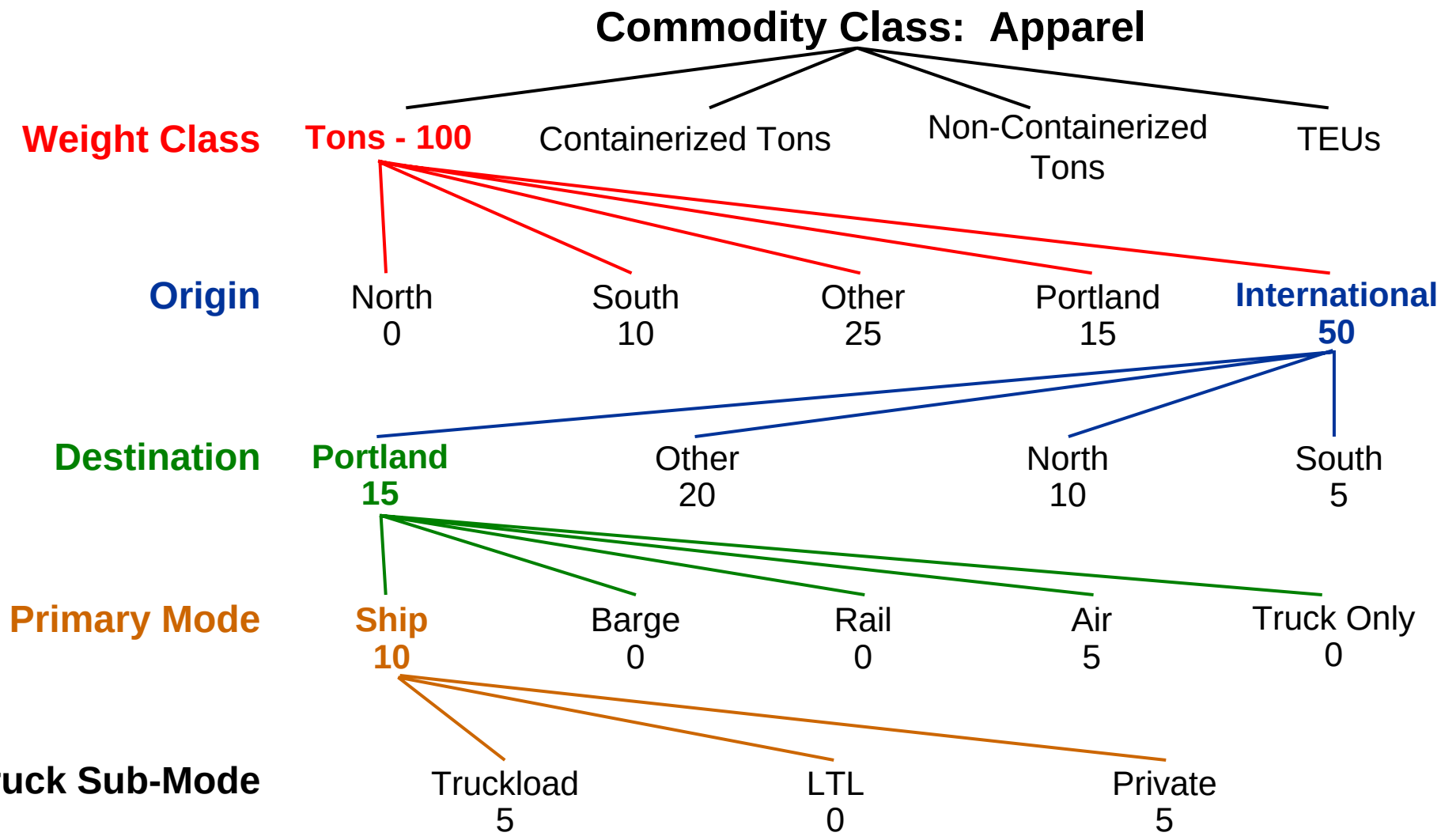
What is Different about Our Approach? - Commodity Based

- Commodity information Very Detailed
  - 16 Commodity Types
  - Stratified by Weight Class, Origin & Destination, Primary Mode, Truck Sub-mode

Converting Tons to Trucks



Commodity Example



How Have We Responded to the Issue of Freight Transport?

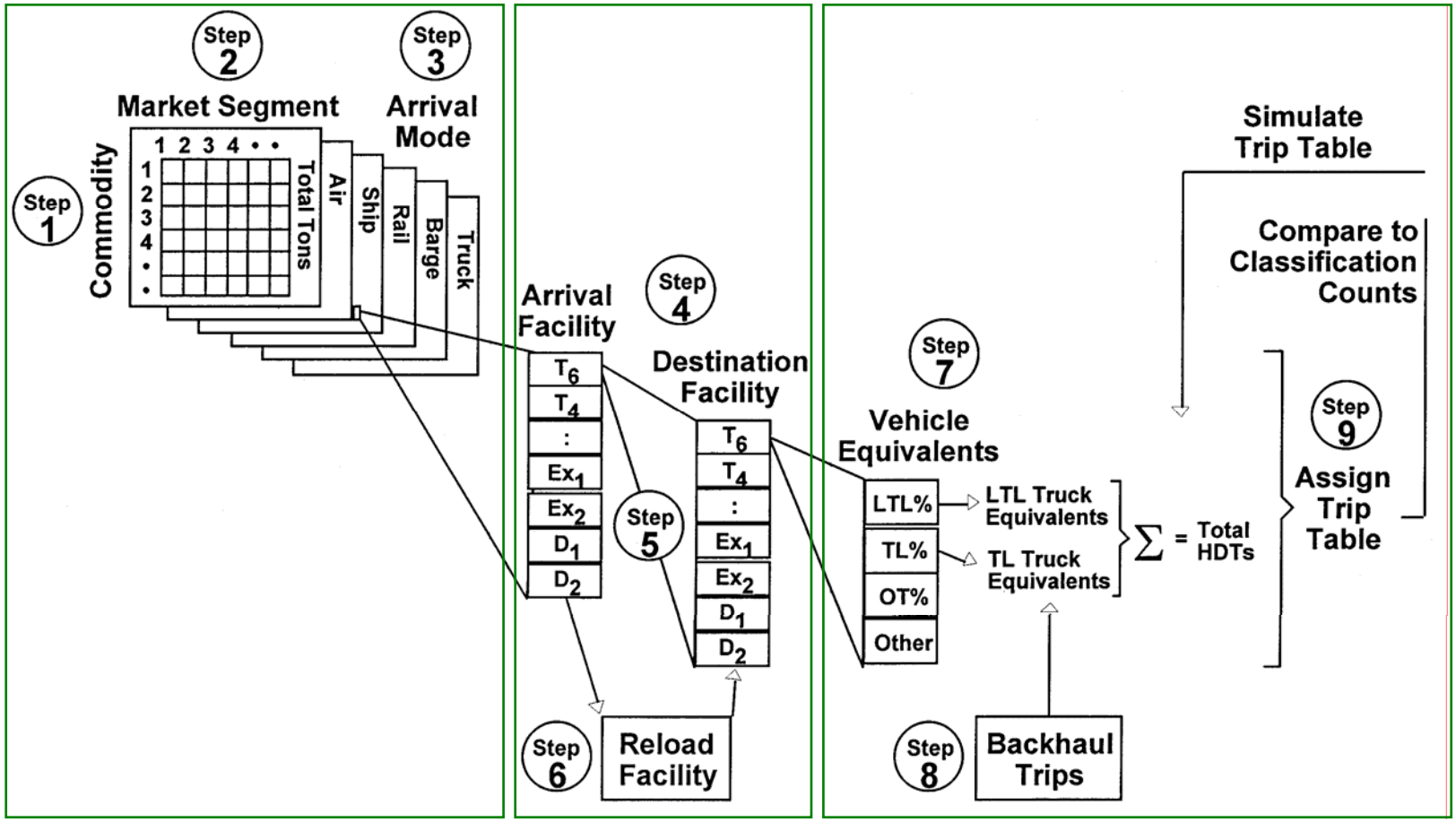
- Established a Commodity Database
- Developed a Truck Simulation Tool from the Database

What is Different about Our Approach?

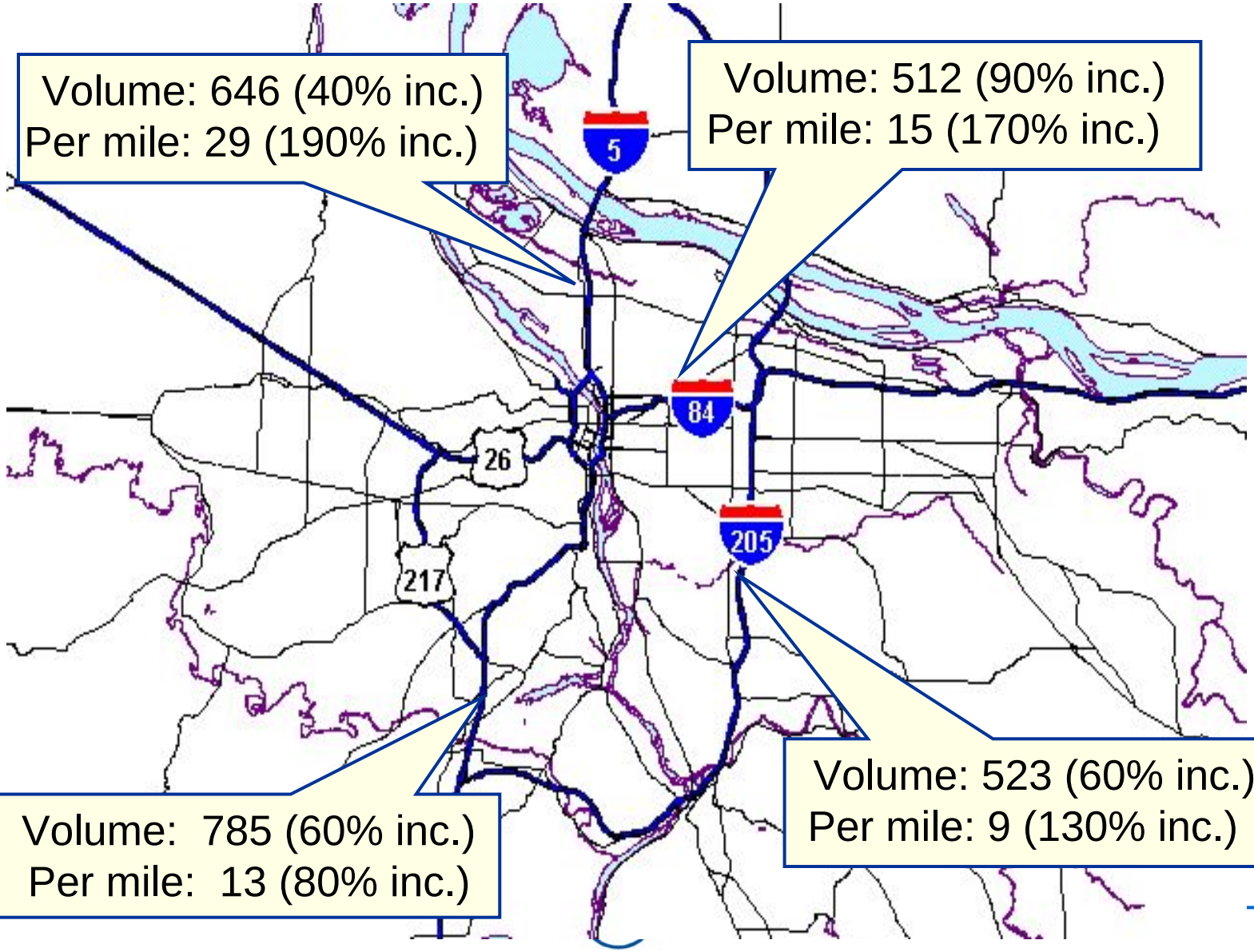
Truck Characteristics Link with Commodities

- Commodity Type Correlates with Vehicle Types, Load Factors, & Time of Day
- Commodity Type Correlates to Reload Requirements
- Trip Table Developed by Connecting Points of Entry (Via Reload Site, If Necessary) to Regional Destinations

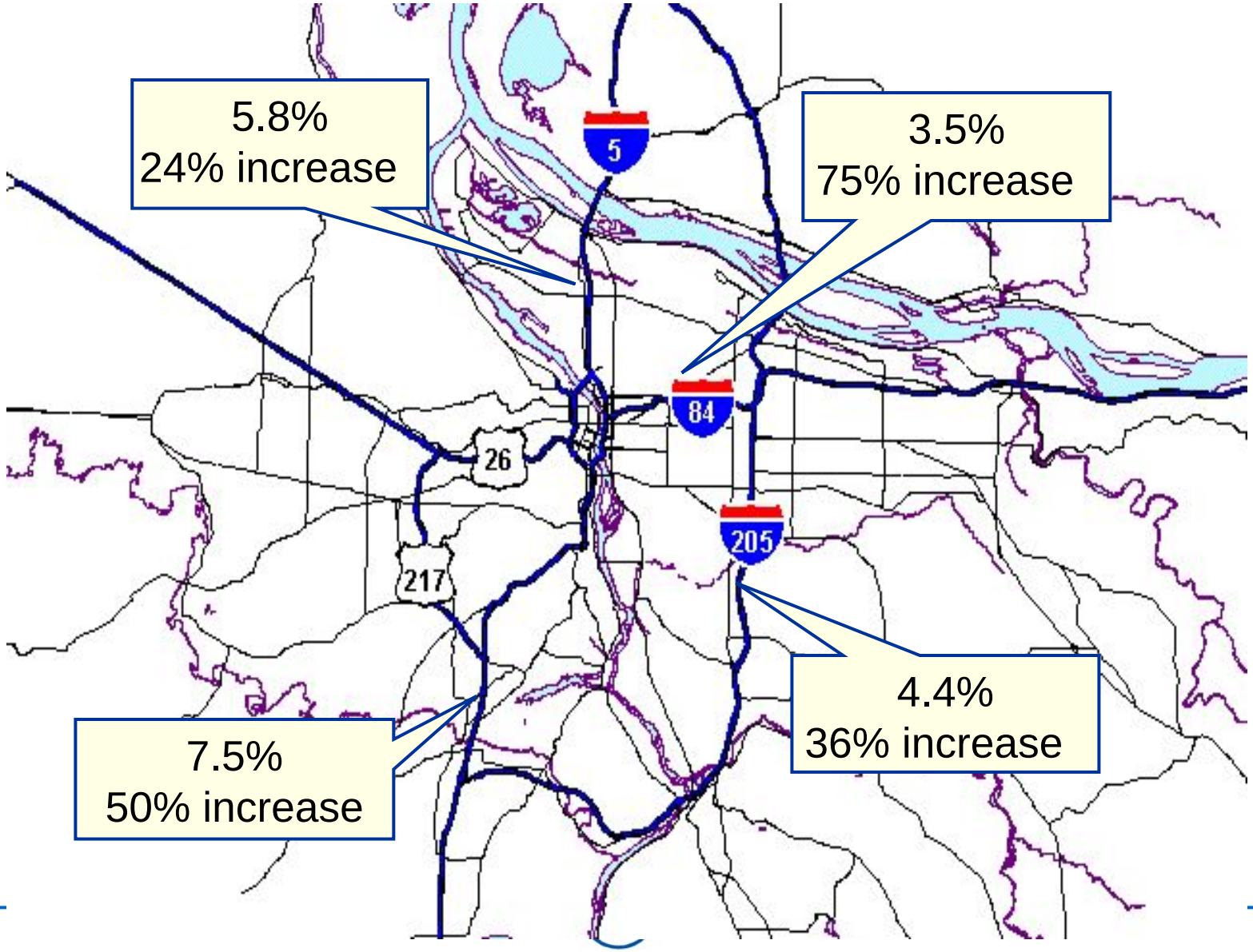
Portland Commodity Flow Model System Process



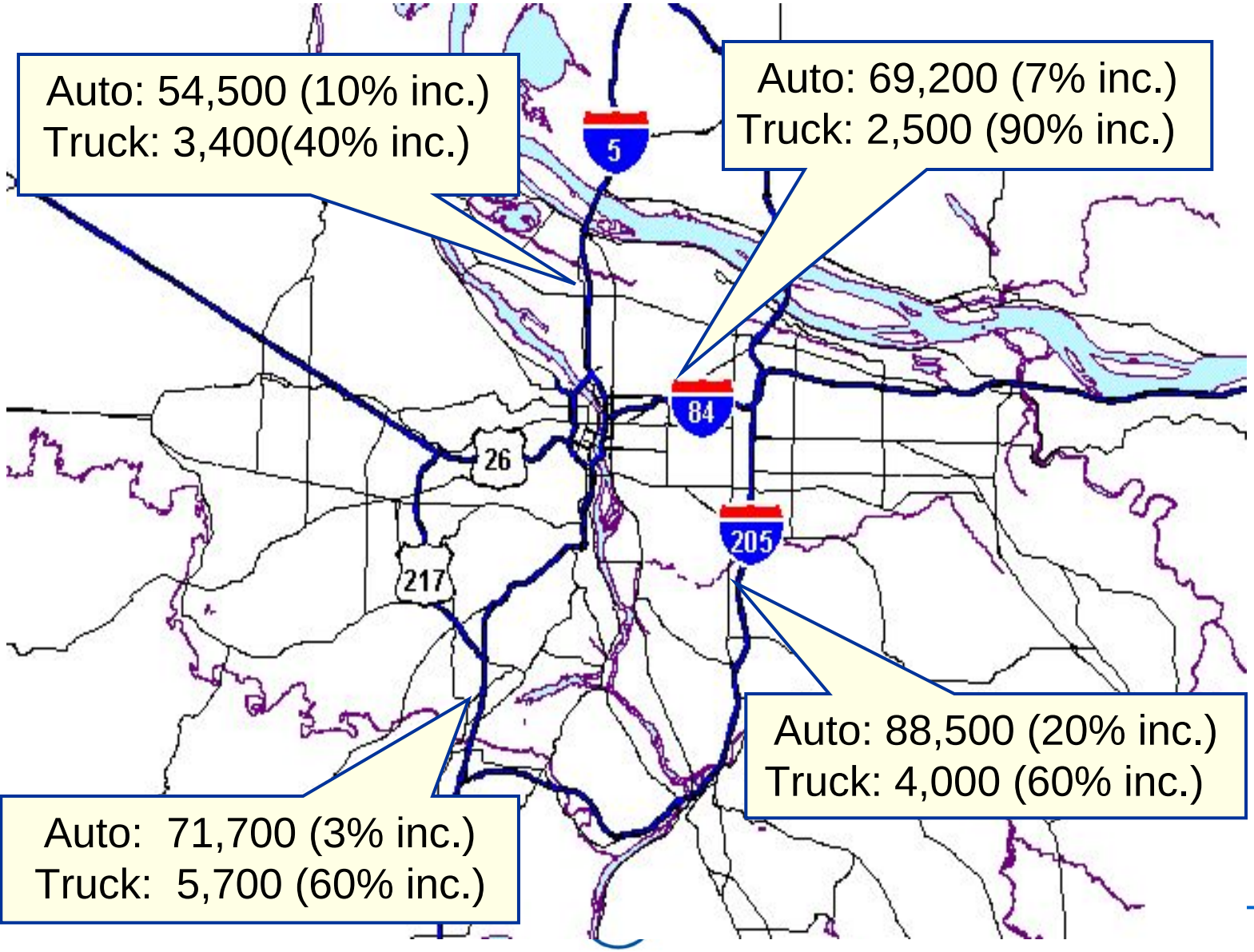
2020 PM 2 HR Truck Vol-Density



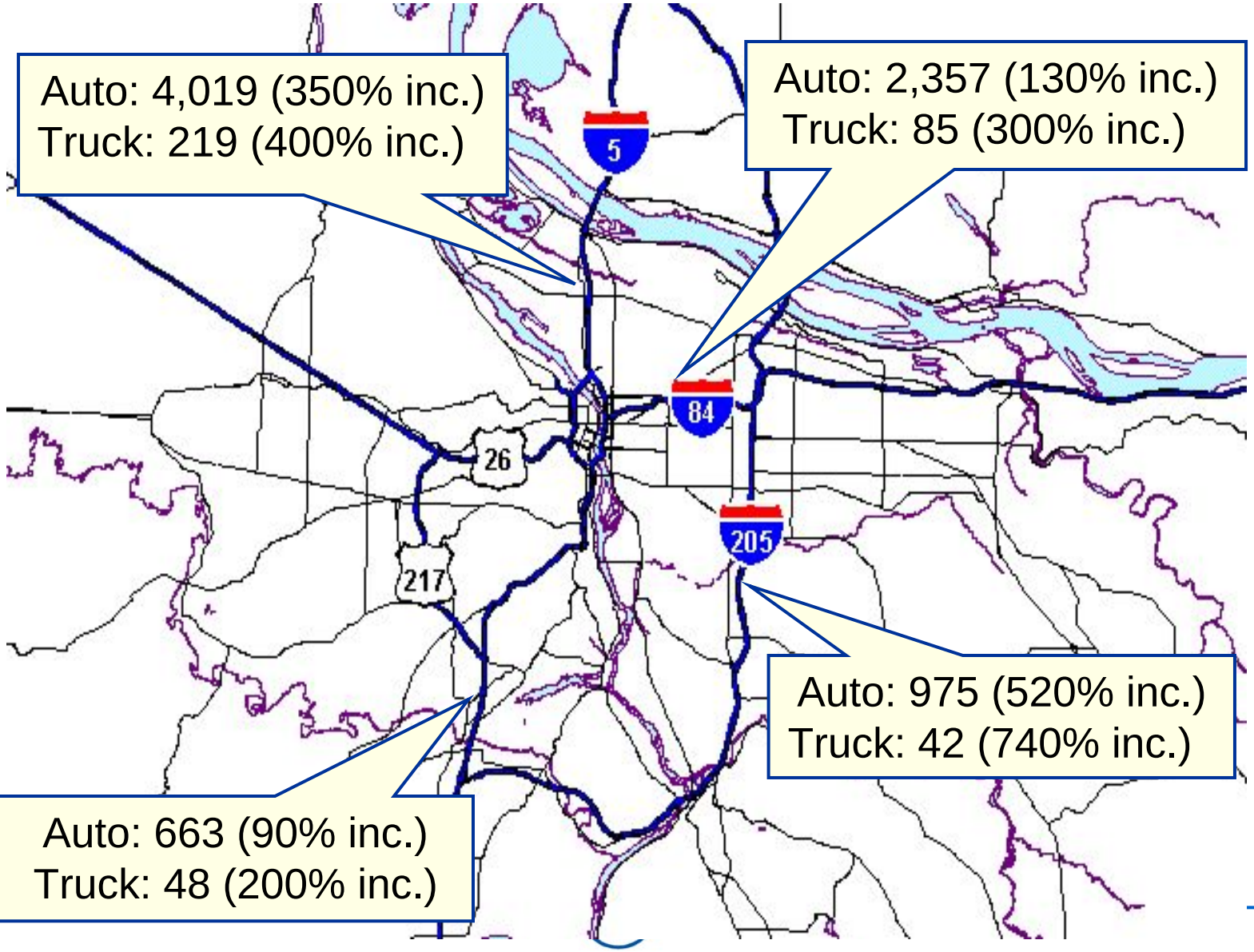
2020 PM 2 HR Truck Percentage



2020 PM 2 HR VMT



2020 PM 2 HR VHD



Planning & Project Applications

- Designate Regional Freight Network
- Regional Transportation Plan
- N. Interstate Ave. LRT
- Intermodal Management System
- I-5 Trade Corridor Study

Important Lessons Learned

- Must Understand Freight Logistics
- Know Your Data and the Limitations (e.g., CFS, PIERS, Transearch, VIUS)
- Important to Link Commodity Flow Patterns to Truck Movements
- Local/Regional Freight Analysis Must be Linked to Statewide Transport Patterns

OMIP Generation 2 Enhancements

- Economic Models Will Guide Commodity Flow Patterns
- Micro-simulation Techniques Will be Used to Simulate Truck Tours (Multiple Pick-up and Delivery Stops, Reload Activity at Freight Terminals)