

The Collection and Analysis of Commodity Flow Information

Prepared for the

Oregon Symposium on Integrated
Land Use and Transport Models

September 30 - October 2, 1998

Project Participants

- Metro
- Port of Portland
- Oregon Dept. of Transportation
- Consultant Team
 - ICF Kaiser International, Inc.
 - Cambridge Systematics, Inc.
 - Nelson / Nygaard Consulting Associates
 - WEFA Group, Reebie Associates

Project Objectives

- Gather/Forecast Data for Strategic Planning
 - Tie Information to Economic Indicators
- Identify Freight Transport Problem Areas
 - Current and Emerging
- Develop Analytical Capabilities for use in Evaluation

Management Structure

- Management Team
 - Metro, Port of Portland, ODOT, Consultant Lead
- International Advisory Committee
- Regional Advisory Committee
 - Local Freight Shippers, Receivers, Carriers
- Freight Work Team
 - Local Governments

Unique Features

- High Degree of Inter-Agency Cooperation
- Focus on Commodity Detail
 - Sixteen Commodity Groups
 - Market Segments
- Model Development Based on Commodity Attributes

Program Areas

- Commodity Forecasts
- Data Collection
- Freight Shipper / Carrier Logistic Profiles
- Model Development

Commodity Forecasts

- Six County Area
- Sixteen Commodity Groups
- Data Years: 1996, 2006, 2020, 2030
- Market Segments
 - International, Domestic
 - Import / Export, Inbound / Outbound
 - Mode (Air, Water, Rail, Truck)
 - Corridor (North, South, East, West)

Data Collection

- Truck Counts at Freight Sites
 - Allocation of Trip Ends
 - Time of Day Information
- Gate Records
 - Example: T-6

Logistic Profiles

- Site Characteristics
 - Acres, Sq. Ft., Loading Bays, Employment, Hours of Operation
- Operational Characteristics
 - Types of Commodities, Equipment Type, Shipment Schedules by Corridor, Load Factors

Logistic Profiles (Cont.)

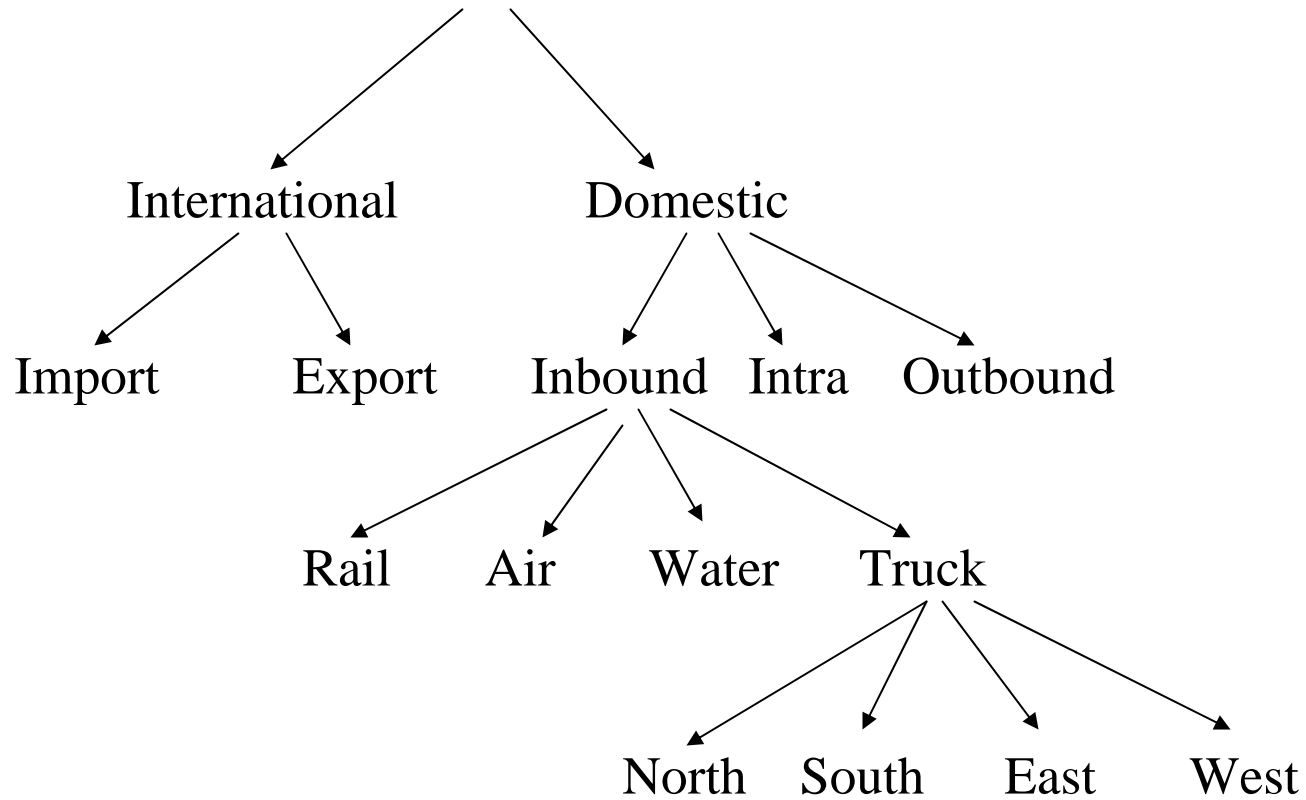
- Transport Impediments to Business
 - Congestion, Pavement Condition, Dockside Constraints, Etc.
 - Coping Mechanisms
- Site Specific Problems
 - Intersections, Freeway Sections, Truck Parking
 - Project Identification for MTIP
- Electronic Data

Model Development - Characteristics

- Based on Observed Patterns - not Behavioral Elasticities
- All Modes are Accounted for - but the Focus is on Large Trucks (Cab and Trailer - with Exceptions)
- System Changes (Distribution Patterns, Truck Types, Volumes, Time of Day,) will be a Function of Commodity Changes

Regional Commodity Groups (16)

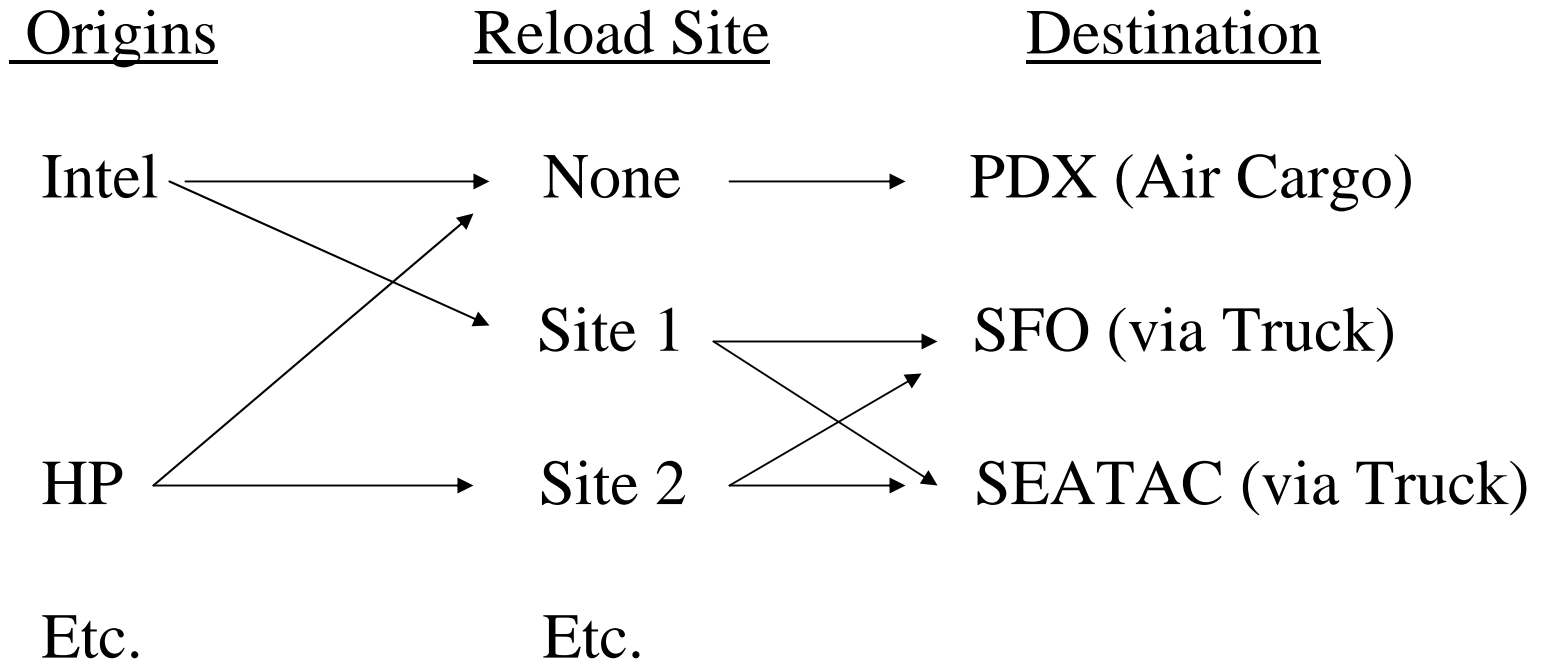
Through Trucks



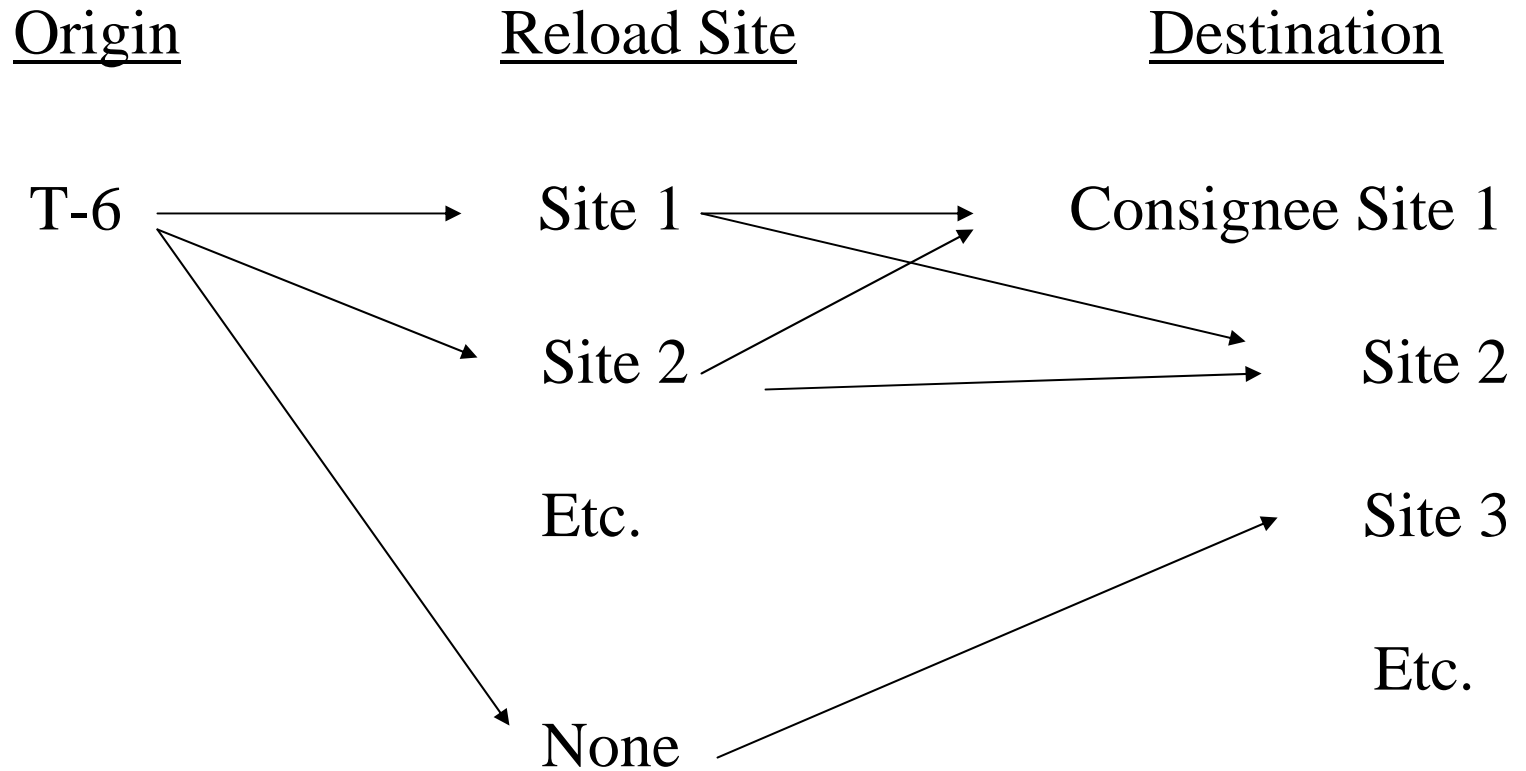
Model Development - Methodology

- Convert Commodity Units to Trucks
- Allocate Truck Trip Ends to Zones
 - Use Counts, Inferred Trip Rates, Emp by SIC, Etc.
 - Maintain Commodity Linkage to the Degree Possible
- Construct Trip Table

Example 1: Electronic-Domestic-Outbound-Air



Example 2: Container-Int'l-Import-Water



Model Development - Methodology (Cont.)

- Assignment
 - Time of Day Factors
 - Passenger Car Equivalents
 - Multi-Class Assignment

Model Application

- Establish Truck Volumes (Existing, Future)
- Identify Congestion Points
- Calculate Truck Delay
- Quantify Truck VMT, VHT
- Assess Truck Travel Times

Project Status

- Commodity Forecasts: Database Complete
- Data Collection: Mid-October Completion
- Logistic Profiles: Complete
- Model Development: Winter 1999