Statewide Modeling: The New Frontier

Transportation Research Board 2004
Tom Williams
Wilbur Smith Associates
Austin, Texas

New Planning Paradigm

Comprehensive
Systems-Based
Collective Vision
Urban/Regional
Multi City-State System
Collective Visioning

Guiding the Vision

- Transportation Forecasters
- Statewide Modelers
- What is the new Paradigm?
- What are the Challenges?
- What is our Role?
Opportunity

European High Speed
System at Limits

Safety
Security
Reliability
Speed

A Spreading Problem
Problem Going Rural

Percentage of Segments with Over 10,000 Trucks, Comparison of 1998 to 2020.

FHWA, Office of Freight Management and Operations

National Trend
Trans Texas Corridor Plan

CONCEPTUAL

Trans Texas Corridor Plan
Opportunity for Modelers

- Large Scale Plans require Huge Investments
- Need Computer Models to Help Decisions
- Statewide Models are in Infancy
- Built from Urban Knowledge Base
- Severely Lacking Intercity Data

Gravity Analogy to Distribution

- 4 miles
- 5 miles
- 10 miles
Urban Model Advancements

- Disaggregate Modeling
- Choice Theory
- Equilibrium Assignment
- Stochastic Methods
- Tour Based Modeling
- Activity Based Modeling

The Fundamental Statewide Modeling Shortfall

Gravity Theory is not Analogous to Intercity Flows
Data Collection is Key

- Data or Theory? Shortcomings in Both
- Behavioral Surveys are needed
- Origin Destination Surveys are needed
- Focused to Specific Corridors
- Economic Interaction Surveys
- Commodity Flow Surveys: not just What, but Why?
Overcoming the Issue

- Data or Theory? Shortcomings in Both
- Modification of Friction Factors
- Modification of Production/Attraction Factors
- Everything is a Special Generator?
- OD Matrix Estimation
- These are “work-arounds” NOT Solutions!

Intercity Problems

Modelers: Get Involved!

Better Data and Theory
The Corps of Discovery