



# Strategic Multimodal Analysis (SMA)

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AASHTO

Subcommittee on Highway Transport  
& Standing Committee on Rail  
Transportation

# SMA Defined

- Estimate relative costs and benefits of alternative freight transportation investments or subsidies
- Look beyond State and modal boundaries
- Develop tools for corridor/national analysis
- Estimate impacts on safety, pavement, bridges, mode choice, energy and environment.
- Demonstration corridor is Chicago/New York

# Develop National Typology of Freight Bottlenecks

Constraint Type	Truck Hours of Delay*
Freeway Interchanges	90,693,000
Roadway Capacity	3,947,000
Arterial Intersection	11,173,000
Grades	28,003,000

\*provisional estimates from draft report.  
Sources: HPMS and FAF

# Scenario Based Analysis

- Detailed Base Case
- Widen the Roadway
- Exclusive Truck Lanes (ETL)
- Urban Truck Bypass
- Rail Investment
- Maritime Intermodal

# Mode Choice

## – Estimation Alternatives

- Stated Preferences
  - Survey
  - Delphi Approach
- Market Segmentation
- Probabilistic Model
- Deterministic Model

# Intermodal Transportation and Inventory Costing Model (ITIC)

- ITIC is a disaggregate deterministic model that examines hundreds of thousands of individual shipments to determine mode choice for each and then sums to an aggregate result.
- Selects the mode or truck configuration with the lowest annual transportation + inventory costs.

# ITIC Model Parameters

- Shipment Information
  - commodity, density, highway mileage.
- Transportation Parameters
  - Cost per mile, Reliability, Drayage, loading/unloading, tolls etc.
- Inventory Costs
  - Safety stock, cycle stock, in-transit stock and inventory storage costs.

# ITIC Model Results

## Western Uniformity Scenario



Analyzed expanded network for Rocky Mountain Doubles, Triples and Turnpike Doubles.

Estimated a 25% reduction in truck Vehicle-Miles-Traveled

Able to subset the impact by length of haul, regional origination/destination, equipment types

Also measured impacts for shipper cost, pavement, bridges, safety, railroad diversion, roadway geometry, traffic operations, energy and the environment.

# Final Deliverables for SMA

- Final Report will focus on
  - Expanding the corridor analysis to a nationwide model
  - How to incorporate intercity passenger movements in the model
- Time Table
  - Models complete by late Spring
  - Analysis complete in Fall '05
  - Interim Report to soon follow in Winter '05
  - Winter '05 Initiate work on national model