The Nation’s Highway and Intermodal Freight Transportation System

Committee for a Study of the Future Interstate Highway System

Presented by
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Presentation Outline

- Interstate evolution as backbone of Highway and Intermodal Freight System
- Emerging freight system challenges
- Recent policy responses and look ahead
Nation’s Highway Networks

Interstate Highway System
48,053 Route Miles

National Highway System
222,743 Route Miles, including Interstate

Other State/Local Systems
3,948,674 Route Miles

Interstate just over 1% of miles but carries 25% of all travel and over 50% of combination truck travel

Source: Highway Statistics 2015
1940s Interstate Concept

Interstate as we know it today laid out in 1940s-50s with only modest additions to the 41,000 mile system enacted in 1956

FHWA may, upon request, designate sections of the National Highway System (NHS) as Interstate Highways if:
- Built to Interstate standards
- Is a logical addition to the System

Some 7,000 miles have been added since 1956; Congress has identified some future corridors that would be eligible when upgraded to Interstate standards.

Federal-State mapping of Interstate system routes 1947
Historic Interstate Truck Travel Growth

- Growth of interstate truck traffic totally unanticipated by planners in the 1940s and 1950s.
  - Truck delivery was a local phenomenon at time of Interstate planning with 70% intrastate travel, much of it agricultural.
  - Evolution of an interconnected national Interstate highway network and the deregulation of the trucking industry in the 1980s spurred a dramatic increase in truck travel.

- BPR 1961 Cost Allocation report to Congress estimated truck ton miles to climb 131% by 1980. Actual was more than quadrupling.

Interstate investment key to our nation’s productivity growth

Nadiri and Mamuneas – studied economic impact of investment in our interstate (non-local) highway system from 1950s through 1980s. They estimated:

- **Industry production costs** fell sharply for 32 of 35 major industries studied thanks to easier and cheaper transport
  - Costs fell by **24 cents for each $1 invested in highways**
- During the 1960s, interstate highway spending was responsible for **25% of the annual increase of our nation’s productivity growth**; falling gradually to less than 10% in the 1980s as the system neared completion.
- Another measure, **net social rate of return** (i.e. benefits to private industries from shared use of interstate highways) was estimated at **35% in the 1960s** and fell gradually over time to about 15% in the 1980s but was still significantly higher than rates of return on private capital.

Source: FHWA
Trucking carries the load
(USDOT/BTS)

Tons by Mode 2013
- Truck: 69.6%
- Rail: 9.3%
- Water: 4.0%
- Air: 0.1%
- Multiple modes: 7.7%
- Pipeline: 7.7%
- Other & unknown: 1.7%

Value by Mode 2013
- Truck: 63.6%
- Multiple modes: 17.0%
- Air: 6.5%
- Water: 1.6%
- Rail: 3.2%
- Pipeline: 6.0%
- Other & unknown: 2.0%
Global Trade Has Increased 10 Fold Since 1980

Source: UN Comtrade; IMF Balance of Payments; World Development Indicators, World Bank; McKinsey Global Institute Analysis.
21st Century Freight Logistics System Gradually Emerged

- National/international door-to-door freight service
- Evolutionary shift from push to pull logistics systems
- Lower inventory levels, less slack production capacity, and smaller order quantities
- Demands a tightly knit intermodal transportation system
- Congestion increasingly challenging the system
Highway Freight Bottlenecks

Mostly In and Around Major Metro Areas

Truck congestion wastes $28 billion in time and fuel annually.
World Economies Based in Mega Urban Regions and U.S. Megaregions Must Compete in this Global Marketplace

Global Patterns of Urbanization; 2015

To help respond to emerging freight challenge, U.S. DOT/FHWA created FAF as national freight database and analysis tool.

Latest version FAF-4 integrated from 2012 Commodity Flow Survey data and related sources.

FAF-4 products include assignments to Interstate and other NHS routes for 2012 base and 2045 forecast year.
Trucking is forecast to grow faster than other surface freight modes

Trucking grows by:
- 1.2 % yr. tons
- 2.1 % yr. value
- 1.6 % ton-miles
- 1.45 % VMT

**combination trucks**

Compound growth 2015 to 2045

FAF; USDOT

**Growth in Tons**

<table>
<thead>
<tr>
<th>Mode</th>
<th>2015</th>
<th>2045</th>
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<tbody>
<tr>
<td>Truck</td>
<td>11.5 billion</td>
<td>16.5 billion</td>
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<tr>
<td>Rail</td>
<td>1.7 billion</td>
<td>2.1 billion</td>
</tr>
<tr>
<td>Water</td>
<td>835 million</td>
<td>1.2 billion</td>
</tr>
</tbody>
</table>
Looking Forward Presents
More Challenge

Freight Truck Traffic on Interstate and other NHS routes
(2012 and 2045)

Average Daily Long-Haul Truck Traffic on the National Highway System: 2012

Average Daily Long-Haul Truck Traffic on the National Highway System: 2045

Note: Major flows include domestic and international freight moving by truck on highway segments with more than twenty-five FAF trucks per day and between places typically more than fifty miles apart.
Looking Forward Presents
More Challenge (continued)
U.S. States’ Biggest Export Partners

For 43 U.S. States, their biggest exports are to Mexico or Canada.

Canada was the United States’ largest goods export market in 2015.

* Includes Hong Kong, Switzerland, France, Brazil, Australia, and Belgium.
Emerging Interstate Corridors

High Priority Corridors Designated as Future Interstates by Congress

Interstate 69
(Corridor 18)
Representative Corridor

City
High Priority Corridor
Interstate Highways

December 16, 2015

Activists Window
Major International Gateways


Source: Bureau of Transportation Statistics.
**Intermodal is now largest freight rail component** (24% revenue in 2016)

Intermodal rail shipments increased from 2 million in 1980 to 13.5 million in 2016.

Integrated logistics supply chains require seamless rail-truck interface.
Panama Canal Expansion opens 2016
Congestion at Ports of Entry
I-710 Proposed Separated Truck Lanes Connection to Ports LA/LB ($3-8 Billion)

The Study Area for the I-710 corridor
New Miami Freight Tunnel Connects Port to Interstate Routes ($1 Billion)
Dedicated Truck Lanes on Interstate?
Rapid truck growth and emergence of truck platooning technology spurring consideration by States

Source: Southern California Association of Governments.
Georgia latest state to consider Interstate truck lanes

- Georgia considering building two lanes limited to trucks along 38 miles of Interstate 75, a heavily traveled freight corridor south of Atlanta.

- It would be the largest truck-only project in the nation and cost $2 billion – serves Atlanta to Port of Savannah.
FAST Act designates new Interstate I-14 corridor for fort to port connections in Texas
Climate related resiliency concerns for coastal freight facilities

Gulf Coast Highways vulnerable to 4 ft. relative sea level rise (CS study for FHWA)

Sea Level rise vulnerability for intermodal and defense facilities in Hampton Roads area

Gulf Coast Freight rail lines vulnerable to 18 ft. storm surge
MAP-21 directed USDOT to develop a National Freight Strategic Plan (draft 2015)

Highlighted challenges ahead:

- Freight growth
- Underinvestment in freight system
- Difficulty in planning and implementing freight projects at state and local level
- Increased global competition
- Safety, security, and resiliency
- Adaptation to emerging technology
FAST Act Brings New Focus on Freight

The new law provides for:

» National Multimodal Freight Policy and Freight Strategic Plan
» Primary Highway Freight System (PHFS) of 37,436 miles of Interstate and other NHS routes
» National Highway Freight Program – $6.3 billion in formula funds over five years for States to invest in freight projects on the NHFN—up to 10 percent of these funds may be used for intermodal projects
» Discretionary Program (FASTLANE)- $4.5 freight focused grants over five years targeting bottlenecks and other critical highway, rail, port and intermodal freight improvements.
» State Freight Plans by Dec. 2017 as condition for program funds
» Performance Measurement and Biennial Reporting to Congress
Primary Highway Freight System
(includes 37,436 Interstate miles)
Challenges Ahead

- Investment in Interstate capacity/bottlenecks and intermodal connections
- Multijurisdictional planning and implementation for freight projects
- Economic productivity and competitiveness
- Safety and resiliency
- Adaptation to emerging technology
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Questions?

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