FREIGHT SHUTTLE:
A PRIVATE-SECTOR FREIGHT TRANSPORTATION SOLUTION

Briefing for:
Senate Committee on International Relations & Trade
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Texas Transportation Institute
I. Overview of the Freight Shuttle System

• A new approach to regional and corridor-specific Intermodal Freight transportation
  ➢ Concept developed and patented over the last 10 years at the Texas Transportation Institute (TTI)
  ➢ Based on known and understood technology
  ➢ Effectively addresses both community and market needs

Combines technology and operational strategies to provide sustainable and productive freight transportation
I. Overview of the Freight Shuttle System

Transporters: Trailers or Containers
- Length: 75 feet
- Velocity: 62 mph
- Loading: 35 tons
I. Overview of the Freight Shuttle System

High reliability

➢ Steel-on-steel for low rolling friction/low cost
➢ LIM – linear motion from vehicle-guideway interaction
  • Small number of moving parts
➢ Automated control system
I. Overview of the Freight Shuttle System

Rotating Cargo Bay Provides for Drive-on/Drive-off Loading
I. Overview of the Freight Shuttle System

Designed to address critical freight transportation challenges:
- Congestion & managing uncertainty (predictability)
- Productivity – need for cost / capacity improvement
- Infrastructure deterioration & lack of public funding
- Air quality/ regulation
- Security, safety and risk management
- Sustainability
I. Overview of the Freight Shuttle System

Containers or Trailers
I. Overview of the Freight Shuttle System

Freight Shuttle Guideway:
Prefabricated, Pre-stressed, Post-tensioned
Span Length – 140’
Column Diameter – 5’
Load Bearing – 180,000 lbs
I. Overview of the Freight Shuttle System

A few key features of the System...

- Hybrid system; uses the best features of truck and rail
- Steel wheels on steel running surface
- Single-container transports
- Linear induction motors (LIMs)
- Guideway – pre-fabricated facilitates construction and repairs, small footprint enables easy placement in right-of-way
- Can be constructed at-grade, elevated, or subterranean
  - Elevated guideway enhances security and safety, and also facilitates construction along rail right-of-way

Automated, non-stop
non-divertible
II. International Trade and the Freight Shuttle

Border Congestion
II. International Trade and the Freight Shuttle

2009 DOE – funded study assessing the feasibility of bi-national FS operations over a secure, elevated guideway with pre-clearance in secure facilities
II. International Trade and the Freight Shuttle

Automated Inspect-in-Motion provides for 100% Inspection
III. Freight Shuttle System Business Model

- Facilities are Privately Financed and Operated
- Market-Driven Business
- Elevated Guideways on Existing or New ROW
- Truck Traffic/Congestion Reduction Focus
- Broad Trucking Industry and Shipper Support
- Railroad Interest as an Intermodal Feeder
III. Freight Shuttle System Business Model

Filling the Void

Modal Split: Trucking versus Rail

– Economic Operating Radius

* 80% of the FREIGHT MOVES LESS THAN 750 MILES
### III. 2008 Operational Costs for Trucking

<table>
<thead>
<tr>
<th>Motor Carrier Marginal Expenses</th>
<th>CPM</th>
<th>CPH</th>
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<tbody>
<tr>
<td><strong>Vehicle-based</strong></td>
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<tr>
<td>Fuel-Oil Costs</td>
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<td>Driver Bonus Payments</td>
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<td><strong>Total Marginal Costs</strong></td>
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Source: An Analysis of the Operational Costs of Trucking, ATRI, 2008
IV. Benefits: Shippers & Logistics Providers

• Lower cost for freight transportation
• Better safety - lower insurance rates
• Reduces supply-chain uncertainty – predictable
• Relief from congestion-induced delay
• Elevates security
• Non-oil-based energy source – potentially all renewable
• Opportunity to make brand “greener”
• Private-sector / market-driven
• Open to all customers
IV. Benefits: Public Sector

- Improved safety - less truck-auto contention
- Less infrastructure distress = lower maintenance costs
- Revenue from “air rights” leasing
- Reduced congestion at no public cost
- Improved air quality
- Increased port-of-entry revenues
- Economic development
- Geopolitical – Mexican economic expansion
IV. Benefits: Air Quality

- A zero-emission system that removes significant truck traffic from intermediate distance travel:
  - 10,000 trucks @ 10 miles, reduces (g/vmt)
    - NOx - 10.990 401 tons/year
    - PM - .308 11
    - VOC - .545 20
    - CO - 3.109 113
    - CO2 -1632.600 59,590
    - Total 60,136 tons/year

Based on Mobile 6.2 emissions for trucks @ 6.2 miles/gallon
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