TEXAS DEPARTMENT OF TRANSPORTATION

TEXAS FREIGHT MOBILITY PLAN

2014 Planning Conference
June 3-5, 2014
Texas Freight Mobility Plan

- First Comprehensive and Multimodal Statewide Freight Mobility Plan
- Outline the State’s Immediate and Long-term Plan For Freight Investments and Freight Planning Activities
- Identify Freight Transportation Facilities Critical to the State’s Economic Growth
- Enhance Economic Growth and Economic Competitiveness of the State and Nation
- Help Guide Investments and other Policies
Mexico is Texas’ largest trading partner
- 80% of goods from Mexico to US cross at the Texas Mexico Border

**Freight is driven by demand. More people = more freight**

As Texas’ population increases and goods are consumed, congestion will increase on highways, ports, railroads, intermodal yards, and other freight facilities will only increase.

Maintaining and growing trade relationship with Mexico relies on maintaining adequate capacity and increasing efficiency of the Texas transportation network, especially near border crossings.

**Texas is the leading producer of oil and gas in the nation**
Texas Freight Volumes Growing

- Trucking and rail form the “backbone” of the Texas intermodal freight transportation network
- Based on 2010 IHS Global Insight TRANSEARCH data:
  - Trucks move 62% of freight (by tonnage)
  - Rail moves 24% of freight (by tonnage)

- In 2010, 1.6 billion tons of freight moved in Texas
- By 2040, total tonnage is anticipated to double to over 3.3 billion tons

*Source: 2010 IHS Global Insight/TRANSEARCH
Identification of Texas Freight Needs and Gaps

Current Plans and Initiatives

Current and Future Network Conditions and Performance

Current/Forecast Freight Activity and Volume

Stakeholder Engagement

Texas Freight Mobility Plan: Facilitating Texas’ Economic Growth and Global Competiveness
Texas Total Freight Tons and Value by Mode (2010)

- **Trucks** are the dominant mode of freight transportation by Value (64%) and Tons (62%)
- Rail is the second largest mode of freight movement in Texas by Value (27%) and Tons (24%)
- Ports movement is third followed by air and pipelines
More than two-thirds of truck shipments by weight, and 40% by value, have both origins and destinations within Texas.

Inbound shipments by truck are the second largest movement by tonnage and value.

Through truck movement comprise a significantly larger share by value than tonnage.
Texas Highway Freight Flows – 2010 Tons

Legend

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<th>Tons</th>
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<tr>
<td>N/A</td>
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<tr>
<td>&lt; 1,000,000</td>
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<tr>
<td>5,000,001 - 10,000,000</td>
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<td>10,000,001 - 25,000,000</td>
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<td>50,000,001 - 100,000,000</td>
</tr>
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<td>100,000,001 - 220,000,000</td>
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Source: 2010 IHS Global Insight/ TRANSEARCH
Inbound Truck Freight

Five Top Texas Domestic Truck Freight Origins:
- Louisiana
- Oklahoma
- Arkansas
- New Mexico
- California

Five Top Texas Domestic Truck Freight Destinations:
- Louisiana
- Oklahoma
- Arkansas
- New Mexico
- California
Top Domestic Rail Freight Origins Coming to Texas
- Wyoming
- Louisiana
- Oklahoma
- Kansas
- Nebraska
- Illinois
- Iowa
- California

Top Texas Domestic Rail Freight Destinations:
- Louisiana
- California
- Illinois
**Inbound Movement from other states comprise 42% of rail shipments by weight and 22% by value.**

**Through rail shipments are the second largest by tonnage (32%) and first by value (50%).**

**Intrastate rail movement accounts for 11% by weight and 5%**

**The #1 eastbound and westbound containerized rail freight flows between Los Angeles and Chicago goes through Texas.**
Texas’ Top Tonnage Commodities by Mode (2010)

- **Truck**, 62.1%
- **Rail**, 24.0%
- **Port**, 13.4%
- **Air**, 0.1%
- **Pipe**, 0.4%

Tons (in millions):
- Petroleum or Coal Products
- Nonmetallic Minerals
- Chemicals or Allied Products
- Secondary Traffic
- Food or Kindred Products
- Clay, Concrete, Glass or Stone
- Coal
- Farm Products
- Crude Petrol. or Natural Gas
- Misc. Mixed Shipments
- Remaining Commodities

- Truck: 124,000,000 tons
- Rail: 186,000,000 tons
- Port: 93,000,000 tons
- Coal: 89,000,000 tons
- Food or Kindred Products: 79,000,000 tons
- Farm Products: 66,000,000 tons
- Crude Petrol. or Natural Gas: 59,000,000 tons
- Miscellaneous: 52,000,000 tons
- Remaining Commodities: 53,000,000 tons
Major Warehousing and Distribution Facilities

Warehousing and distribution centers are clustered

- Urban areas
- Along the Primary Freight Network
- Provide a vital link between goods and consumers
Industry Cluster Analysis – Energy-Mining 2012

[Map of Texas with various cities labeled, such as Amarillo, Lubbock, Abilene, Odessa, Austin, Houston, Galveston, Corpus Christi, El Paso, Ciudad Juarez, Oklahoma City, Tulsa, Missouri, Arkansas, Louisiana, Mexico, Gulf of Mexico. The map shows major highways and interstates, marked with different colors. There is a key at the bottom of the map that explains the symbols: purple dots = Energy-Mining (TWC, Clusters GIS), red = Preliminary Network, brown = Interstates, white = Urbanized Area.]
Total of 374 low vertical structures in Texas

91 bridges on the Interstates have low vertical clearance of less than 14 feet

89 bridges on US Highways have low vertical clearance of less than 14 feet

Truck traffic restricted on highways due to low clearances on over passes and weight restricted bridges
There are over 15,000 at-grade railroad crossings in Texas
75 on the Preliminary Freight Network
Forty-eight of these crossings have a commercial motor vehicle AADT greater than 500
Texas Preliminary Freight Network Truck Crash Rates per 100M CVMT 2010-2012

1-100
100-200
200-300
300-400
400-500
>500

Urbanized Areas

Texas Preliminary Freight Network Truck Crash Rates per 100M CVMT 2010-2012

1-100
100-200
200-300
300-400
400-500
>500

Urbanized Areas

Texas Freight Mobility Plan: Facilitating Texas’ Economic Growth and Global Competitiveness
Commercial Vehicle Crashes by Severity and Location (2010-2012)

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Freight Bottleneck Analysis - Top Freight Bottlenecks in Texas

- Ft. Worth, TX: I-35W at I-30 #23
- Dallas, TX: I-45 at I-30 #10
- Austin, I-35 #3
- Houston, TX: I-10 at I-610 (West) #21
- Houston, TX: I-10 at US 290 #2
- Houston, TX: I-45 at I-610 (North) #16
- Houston, TX: I-45 at US 59 #7
- Houston, TX: I-10 at I-45 #9
- Houston, TX: I-10 at US 59 #11

Texas Freight Mobility Plan: Facilitating Texas' Economic Growth and Global Competitiveness
Statewide Freight Forecast by Tonnage 2040

- Tonnage across the Texas Freight Network is forecast to grow 106% between 2010 and 2040
- Truck freight growth is forecast to grow by 120% between 2010 and 2040
- Rail freight growth is forecast to grow by 99% between 2010 and 2040
- Through freight movement is forecast to increase the fastest at 155% for all modes
- Outbound freight movement is forecast to increase by 130%
- Intrastate freight movement is forecast to increase by 109%
- Inbound freight movement is forecast to increase by 64%

The largest forecasted tonnage growth is Intrastate trucking increasing by 119% from 2010 to 2040 or 802.2 million tons accounting for almost half of the 1.7 billion ton growth of total freight by all modes.
Projected Freight Tons on Texas Highways in 2040

Legend

- **Tonnage Ranges**
  - Yellow: 10 to 20 million tons
  - Cyan: 20 to 30 million tons
  - Green: 30 to 40 million tons
  - Orange: 40 to 50 million tons
  - Brown: 50 million tons and above

- **Background**
  - Preliminary Freight Network (commodity flow < 10 million tons)
  - Urbanized Area

*Texas Freight Mobility Plan: Facilitating Texas' Economic Growth and Global Competiveness*
Projected Freight Tons on Texas Railroads in 2040
Level of Service For Highway Freight Corridors - 2040

Legend
- L-S-N = Corridor Section Number

Level Of Service
- Green = A-C
- Yellow = D
- Red = E/F

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Transportation Planning and Programming Division

April 17, 2014

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Level of Service For International Border Crossings- 2040

International Border Crossing Truck Forecasts

Legend
Truck AADT, 2010
- <500
- 501-1000
- 1001-2000
- 2001-5000
- >5000

Truck AADT, 2040
- <500
- 501-1000
- 1001-2000
- 2001-5000
- >5000

Border_Cross

Texas Department of Transportation
Transportation Planning and Programing Division
Austin
March 18, 2014

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Texas Department of Transportation
Transportation Planning and Programming Division
Austin
March 18, 2014

Source: FHWA
(2003) National Highway Capacity
Model Version 8.0

Texas Freight Mobility Plan: Facilitating Texas’ Economic Growth and Global Competitiveness
### Freight Transportation Role in Advancing Economic Growth

- 6.2 million Texans are employed in freight-related sector
- Generate over $563 billion in Texas Gross State Product (GSP)
- More than 477,000 people in Texas have direct export production jobs and one million are employed in export supported jobs

#### Economic impact of:

- **Truck transportation** = 5.03 million jobs and $259.3 billion in labor income and $1.0 trillion in economic output
- **Rail freight** = 1.48 million jobs and $80.7 billion in labor income and $349.4 billion in economic output
- **Water freight** = 722,210 jobs and $48.2 billion in labor income and $224.0 billion in economic output
- **Air freight** = 53,740 jobs and $3.1 billion in labor income and $11.0 billion in economic output
- **Pipeline freight** = 136,080 jobs and $12.4 billion in labor income and $31.1 billion in economic output

### Total Economic Impact of Freight Movement in Texas:

- **42.8%** labor income of the statewide economy
- **53.6%** economic output of the statewide economy

The state’s economy and population growth needs to be supported and enhanced by a reliable multimodal transportation network as the movement of goods continues to be an essential building block of the state’s economic competitiveness.
Key Challenges and Draft Recommendations

10 Freight Transportation Challenges

1. System Capacity
2. System Operations
3. Safety/Security
4. Intermodal and
5. Rural Connectivity
6. NAFTA and Border Challenges
7. Energy/Environment
8. Education/Public Awareness
9. Public and Private Sector Coordination
10. Funding/Financing

3 Recommendation Categories

Projects

Programs

Policy/Institutional
Cornerstone of the Texas Freight Mobility Plan

Defines an all-mode Texas Freight Network:

- Transportation corridors
- Key freight generators and gateways

Adopt the Texas Freight Network

- Focus needed investments to those system elements that provide the greatest gains
- Link modal networks and key freight nodes
- Design and maintain the Network for current and future freight capacity needs
Draft Recommendations – Key Policies

- Modify design standards on the Primary and Secondary Freight Highway Network to address freight mobility and energy sector needs
- Raise TxDOT bridge minimum vertical clearance standard from 16’6” to 18’

- Expand capacity on the Freight Highway Network by developing minimum capacity standards for the Freight Highway Network
- Expand lanes on the Primary Freight Highway Network to 4-6 lanes
- Expand lanes on the Secondary Freight Highway Network to Super 2s or 4 lanes
Draft Recommendations – Key Policies

- Expand the development and implementation of Access Roads on the Primary Freight Network
- Identify and implement relief routes to ensure traffic flows in small towns on the Secondary Freight Network
- Use incentives to expand intermodal options (Class III & short line rail)
- Facilitate expansion of rail access to rural areas of the state
- Pursue legislation to expand state DOT’s oversight, management, and support of other modes (not just auto).
Draft Recommendations – Key Programs

- Develop a Freight Network bridge reconstruction and replacement program to address deficient bridges, increase vertical clearance to accommodate OS/OW vehicles and to facilitate efficient freight movement
  - Prioritize replacing bridges with a vertical clearance less than 14’ to 18’ on critical freight corridors
  - Prioritize replacing bridges rated to carry less than the minimum of 80,000lbs

- Develop Primary Freight Network Interchange reconstruction and upgrade program to address obsolete designs, safety issues, and operational issues
  - Identify and prioritize interchanges on Primary Freight Network that need to be upgraded

- Develop an Access Management Plan for Secondary Freight Highway Network

- Expand Commercial Motor Vehicle Safety Program
Draft Recommendations – Key Programs

- Develop Oversize/Overweight Freight Movement Program
  - Identify and designate Oversize and Overweight Super Load Corridors
  - Identify routes for Oversize and Overweight Loads on the Primary and Secondary Freight Network
  - Identify improvements to the Primary Rail Network necessary to meet minimum 286k standards

- Expand the development and implementation of Access Roads on the Primary Freight Network
  Identify and develop corridor segments on the Primary Freight Network for Access Roads implementation
  Identify and develop alternate or bypass routes for the Primary Freight Network

- Identify and implement relief routes to ensure traffic flows in small towns on the Secondary Freight Network

- Improve landside highway access to ports, airports & rail terminals
- Develop and implement statewide freight – technologies-based solutions program
- Develop a Statewide Traffic Management Center focused on Freight needs – disseminate freight traveler, traffic incidents, construction information
- Develop a Statewide Traffic Incident Management Program for Commercial Vehicles
- Develop and implement Statewide Construction Coordination Program
- Develop and implement a freight movement signal timing/coordination program for the Freight Network
- Develop Texas Freight Network Operations Plan
Draft Recommendations – Key Projects

- Identify and develop corridor segments on the Primary Freight Network for Access Roads implementation
- Identify and develop alternate or bypass routes for the Primary Freight Network
- Identify and develop Critical Rural Freight Corridors
- Improve coordination of signal timing on the Secondary Highway Freight Network
- Increase the depth of the GIWW