Texas Top 50 Congested Truck Road Sections – “The Truck 50”

Texas Freight Advisory Committee

October 2013

David Schrank

Texas A&M Transportation Institute
Overview

- Texas 100 Bottlenecks History
- The Process
- The Measures
- The Truck 50
  - Individual Locations
  - Part of Texas Freight Network (TFN)
Chronology of Texas 100

2009 – 100 most congested list published
  ≡ More projects done on worst sections
  ≡ “no more creamy peanut butter” – paraphrase Director Wilson

2009 & 2011 – 2030 Committee Reports
  ≡ Problems big, need solutions
  ≡ Economic effects – improve transportation, lower overall cost

2011 – Rider 42 focused on top 500
  ≡ Bang for the buck
  ≡ Big projects with public support

2013 – MAP-21 performance measures
  ≡ System-level version of what Texas has been doing since 2009 in urban areas
The Process

- TxDOT Roadway Inventory Data
  - Segmentation
  - Vehicle Counts
  - Truck Counts
- Speed Data
  - Annual Procurement
  - 2013 Report Data from INRIX
    - 96 (15-min periods) x 7 (days of week) speeds per INRIX segment
- Combine Speed and Inventory Networks
- Turn Daily Traffic into 15-Minute Day-of-Week Traffic
- Calculate Performance Measures
The Measures

- **Delay per Mile (key ranking measure)** – Annual hours of delay divided by section length
  - Lots of cars going slowly

- **Planning Time Index (reliability)** – ratio of 95\textsuperscript{th} percentile travel time to the uncongested travel time

- **Annual Congestion Cost** – value of truck operating costs plus wasted fuel
## Top 10 for Trucks

<table>
<thead>
<tr>
<th>Location</th>
<th>Delay per Mile (000)</th>
<th>Truck / Rank</th>
<th>All Veh. / Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Houston</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IH-10 (IH-610 to IH-45)</td>
<td>92</td>
<td>1</td>
<td>370</td>
</tr>
<tr>
<td>IH-10 (SL8W to IH610W)</td>
<td>70</td>
<td>3</td>
<td>329</td>
</tr>
<tr>
<td>US-59 (IH-10 to SH-288)</td>
<td>49</td>
<td>7</td>
<td>743</td>
</tr>
<tr>
<td>US-59 (SH-288 to IH-610W)</td>
<td>47</td>
<td>8</td>
<td>731</td>
</tr>
<tr>
<td><strong>Dallas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IH-635 (IH-35E to US-75)</td>
<td>64</td>
<td>4</td>
<td>675</td>
</tr>
<tr>
<td>IH-345 (US-75 to IH-30)</td>
<td>60</td>
<td>6</td>
<td>376</td>
</tr>
<tr>
<td><strong>Fort Worth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IH-35W (IH-30 to SH-183)</td>
<td>63</td>
<td>5</td>
<td>685</td>
</tr>
<tr>
<td>IH-35W (SH-183 to US-81)</td>
<td>39</td>
<td>9</td>
<td>403</td>
</tr>
<tr>
<td><strong>Austin</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IH-35 (SH-71 to US-183)</td>
<td>75</td>
<td>2</td>
<td>789</td>
</tr>
<tr>
<td><strong>San Antonio</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IH-35 (SL-1604 to FM-3009)</td>
<td>33</td>
<td>10</td>
<td>212</td>
</tr>
</tbody>
</table>

### Why show these 10?

- Data analysis and traffic congestion mitigation strategies.
The Top 10 – In a League of Their Own

- Top 10 Cost - $249M (27%)
- Cost of 11-50 : $441M (47%)
- Cost of 51-100 : $239M (26%)
## Cost of Congested Trucking

### Top 5 Bottlenecks

<table>
<thead>
<tr>
<th>Section</th>
<th>Delay (million hours)</th>
<th>Annual Cost (million dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IH-10</td>
<td>2.6</td>
<td>$195</td>
</tr>
<tr>
<td>IH-35</td>
<td>1.9</td>
<td>$145</td>
</tr>
<tr>
<td>IH-10</td>
<td>0.8</td>
<td>$60</td>
</tr>
<tr>
<td>IH-635</td>
<td>0.7</td>
<td>$54</td>
</tr>
<tr>
<td>IH-35W</td>
<td>0.6</td>
<td>$45</td>
</tr>
<tr>
<td>Top 50</td>
<td>8.8</td>
<td>$671</td>
</tr>
<tr>
<td>Top 100</td>
<td>11.9</td>
<td>$900</td>
</tr>
<tr>
<td>Top 100-All Veh.</td>
<td>148.2</td>
<td>$3,280</td>
</tr>
</tbody>
</table>

*Annual cost is wasted time and fuel*
## Highly Variable Trip Times for the Top 5

<table>
<thead>
<tr>
<th>Top 5 Section</th>
<th>Planning Time Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>IH-10</td>
<td>6.41</td>
</tr>
<tr>
<td>IH-35</td>
<td>8.94</td>
</tr>
<tr>
<td>IH-10</td>
<td>4.94</td>
</tr>
<tr>
<td>IH-635</td>
<td>10.77</td>
</tr>
<tr>
<td>IH-35W</td>
<td>9.91</td>
</tr>
<tr>
<td>Top 50</td>
<td>6.28</td>
</tr>
<tr>
<td>Top 100</td>
<td>5.65</td>
</tr>
</tbody>
</table>

A PTI of 3.00 means a trucker has to allocate 90 minutes for an uncongested 30-minute trip to be on time 95% of the time.
The Texas Freight Network (TFN) Stats in 2012

So what does all of this mean for the TFN?

- TFN is 6.4% of all roadway:
  - 47% of VMT
  - 65% of truck VMT
  - 21% of mileage

- TFN is 25.2% of TxDOT-maintained:
  - 60% of VMT
  - 70% of truck VMT
  - 27% of mileage
Comparing Truck 50 and TFN

- Top 50 truck bottlenecks – 18 “corridors”
  - 14 sections on IH-35
  - 8 sections on IH-10
  - 4 sections each on IH-45 and US-59

- Top 5 TFN corridors (by cost)
  - IH-35 (14 sections)  2.6M hours  $195M
  - IH-10 (8 sections)  1.9M hours  $145M
  - IH-635 (3 sections)  0.8M hours  $60M
  - IH-45 (4 sections)  0.7M hours  $54M
  - US-59 (4 sections)  0.6M hours  $45M
Conclusions – Big Problems

- The top 50 truck bottlenecks total $671M in lost operating costs and wasted fuel.
- The top 50 truck bottlenecks are spread across 18 roadway corridors with IH-35 containing the most (14 sections).
Conclusions - Solutions

- Measure and Monitor the congested corridors – DONE!
- "Statewide" monitoring for congestion – IN PROGRESS!
- Funding – IN PROGRESS!? (TX100, 2030, Rider 42, Nov 2014 election)
- Texas 100 Website
TXDOT FEDERAL PRIORITIES SUMMARY

Stakeholder Outreach Meetings
Agenda

1. Introductions
2. Purpose of Meetings and TxDOT Federal Priorities
   Summary
3. TxDOT Process
4. Meeting Structure and Input from Partners and Stakeholders
5. Review Follow-Up Activities
6. Contact Information
Introductions

- Texas Department of Transportation (TxDOT)
  - Coby Chase
  - Debra Richmond
  - Melissa Meyer

- Texas A&M Transportation Institute (TTI)
  - Katie Turnbull

- Stakeholder Group
Purpose of Meetings and TxDOT Federal Priorities Summary

- Obtain Input from TxDOT Partners and Stakeholders to Identify Key Federal Priorities
- Incorporate Key Elements into TxDOT Federal Priorities Summary
- Communicate Priorities with Federal Policy Makers and Officials
- Share with Partners and Stakeholders to Support a Coordinated Approach in Pursuing Federal Transportation Priorities
- Use Federal Funding, Program Flexibility, and Other Priorities to Address Critical Transportation Needs in Texas
## Previous Efforts

<table>
<thead>
<tr>
<th>Background</th>
<th>Past priorities included in MAP-21</th>
<th>How new summary will be used</th>
</tr>
</thead>
</table>
| - Input from stakeholders in developing TxDOT’s 2011 Policy Considerations for Reauthorization of the Surface Transportation Program. | - Expanded Funding Options  
- Performance Measurement  
- Program Consolidation  
- Expedited Project Delivery | - To communicate the Texas Transportation Commission’s federal priorities with Congress, Policy Makers, and Officials  
- To serve as a resource to TxDOT local, state and federal partners and stakeholders  
- To help provide a coordinated approach to federal priorities for transportation  
- To assist in addressing key transportation needs in Texas |
TxDOT Partners and Stakeholders

- All Modes – Transit, Aviation, Ports and Waterways, Rail, Bicycle, Walking, and Pipelines
- Cities, Counties, MPOs, RMAs, RPAs, and Toll Authorities
- Shippers, Carriers, Industries, and Businesses
- Associations and Industry Groups
- General Public
TxDOT Process

1. Receive input from Commission and TxDOT Administration
2. Receive input from stakeholder groups and public
3. Work with Commission to shape priorities
4. Provide draft copy to TxDOT Administration for final comment
5. Provide draft copy to stakeholder groups for final comment
6. Compile input from all parties
7. Draft priorities document
8. Timeframe for completion: November/December 2013
9. Request final approval of document from Commission
10. Receive input from Commission and TxDOT Administration

Stakeholders and public

Commission

TxDOT Administration

Draft

priorities

document

Final

approval

November/December 2013
Meeting Structure

- General Comments from Partners and Stakeholders

- Input on Specific Topics
  - Identified and Adopted Federal Priorities
  - Priority Projects and Funding Needs
  - Suggested Changes in Programs or New Programs
  - Suggested Changes in Policies or New Policies
  - Opportunities for New Partnerships and Non-Traditional Funding
  - Other Topics of Interest
Review of Follow-Up Activities

- Summary of Comments will be Sent for Review
- Review of Draft TxDOT Federal Priorities Summary by TxDOT Administration and Stakeholders – End of October 2013
- Present TxDOT Federal Priorities Summary at November Commission Meeting
- Use Summary to Communicate with Federal Policy Makers and Officials to Address Key Transportation Needs in Texas
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Melissa Meyer
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Melissa.Meyer@txdot.gov
TEXAS DEPARTMENT OF TRANSPORTATION

PRELIMINARY TEXAS FREIGHT TRANSPORTATION MEASURES

Texas Freight Advisory Committee
Amarillo
October 1, 2013
Pathway to the Future:
Moving Freight Efficiently Within and Through Texas
Purpose

ESTABLISH CONTEXT

Provide background on public sector transportation performance measurement

GAIN PERSPECTIVE

Understand how you view your own transportation-related performance

INFORM SELECTION

Discuss how to link TxDOT system performance measurement to your concerns and interests
Transportation Performance Measures

- MAP-21
- Legislation integration
- Specified Performance Elements
Serve one of the following functions in the development and implementation:

- **ACCOUNTABILITY**
- **PLANNING**
- **DECISION MAKING**
- **SECURING FUNDING**
Measurment Development Process

- Decision-Makers
- Stakeholders/Constituencies
- Current Goals & Objectives

Data Analysis
Legislative/Program Requirements

Identify Candidate Performance Measures

State Performance Measures
What is TxDOT Currently Doing?

- Actively participating at the national level
- Coordinating with other transportation stakeholders throughout the State
- Assessing capacity to produce baseline and set targets for likely measures
  - Annual Hours of Delay – Interstates
  - Truck Reliability Index

*Source: Texas Transportation Institute December 2012 Urban Mobility Report*
<table>
<thead>
<tr>
<th>State</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida</td>
<td>Truck miles traveled, Average truck travel speed, Hours of truck delay</td>
</tr>
<tr>
<td>Iowa</td>
<td>Highway crash rates per million vehicle miles for large trucks, Total crashes at railroad-highway crossings, Percentage of rail track miles able to operate at 40mph or above</td>
</tr>
<tr>
<td>Washington</td>
<td>Frequency of truck speed falling below 60% of posted speed limit</td>
</tr>
<tr>
<td>Minnesota</td>
<td>Percent of miles below 45 mph during AM/PM peak, Truck daily delay, Cost of truck delay, Travel time reliability index</td>
</tr>
<tr>
<td>Oregon</td>
<td>Distance from center of metro area to the closest international container port, Number of freight facilities per 10,000 population, Truck travel time index</td>
</tr>
</tbody>
</table>
How does your organization (or the organizations you represent) measure performance?

**MOBILITY**
- Supply Chain
- Competitiveness
- Accessibility

**PRESERVATION**
- Operating Costs
- Damage Losses

**SAFETY**
- Accidents
- Injuries

**OPERATIONS & OTHER**
- Reliability
- Customer Satisfaction
- Connectivity
How does your organization measure performance? (choose top three)

- Operations & Other: Reliability: 6
- Operations & Other: Customer Satisfaction: 4
- Safety: Accidents: 2
- Mobility: Accessibility: 2
- Mobility: Competitiveness: 2
- Mobility: Supply Chain: 2
- Safety: Injuries: 1
- Preservation: Damage Losses: 1
- Preservation: Operating Costs: 1
- Operations & Other: Connectivity: 0

Other responses: Carrier delays
What transportation system performance considerations most impact your organization’s performance?

**MOBILITY**
- Traffic & Congestion
- Free-Flowing Bypass

**PRESERVATION**
- State of Good Repair

**SAFETY**
- Crashes & Accidents
- Injuries & Fatalities

**OPERATIONS & OTHER**
- Reliable Travel Time
- Intermodal Access
Question No. 2 Results – 7 responses

What transportation system performance considerations most impact your organization's performance? (choose as many as three)

- Mobility: Traffic & Congestion: 7 responses
- Operations & Other: Reliable Travel Time: 6 responses
- Operations & Other: Intermodal Access: 4 responses
- Safety: Crashes & Accidents: 2 responses
- Preservation: State of Good Repair: 1 response
- Safety: Injuries & Fatalities: 0 responses
- Mobility: Free Blowing Bypass: 0 responses
How should we measure freight-related mobility?

- **ANNUAL HOURS OF TRUCK DELAY**
- **TRUCK RELIABILITY**
- **REDUCTION IN FREIGHT BOTTLENECKS**
- **BORDER CROSSING WAIT TIME**

Others?
How should we measure freight safety?

- Freight related crashes and fatalities
- Rail accidents
- Eliminating/improving at-grade rail crossings

Others?
How should we measure preservation?

Options:
- Percent of highways and bridges in good condition on priority freight network
- Number of weight-restricted bridges

Others?
Question No. 6

What else do we need to measure?

Others?
Ports-to-Plains Update

Michael Reeves
President
Ports-to-Plains Alliance
Ports to Plains Benefits

- Economic development to rural areas of North America
- Infrastructure to improve commerce, particularly agriculture and energy industries
- Improved highway safety
Safety

- Rural fatality rates 2.5 times higher than urban roadways
- Completion of PTP projected to reduce accidents by the following rates:
  - Texas – 47%
  - Oklahoma – 44%
  - New Mexico – 33%
  - Colorado – 28%
Ports to Plains Corridor

- 1,390 miles corridor length
- Upgrade existing highways to 4-lane
- 15 Relief routes planned, totaling 113 miles
CORREDOR MATAMOROS-MAZATLÁN Y RAMALES A ACUÑA, P. NEGRAS Y N. LAREDO
Ports-to-Plains Eastern Alberta Trade Corridor

- Rural economic development
- Less congested alternative to other highways and border crossings
- Strong trade with Texas
Key Accomplishments in 2012

- Four-lane US 87 from Tx-NM State Line to Hartley in Texas
- Four-lane US 87 from Tx-NM State Line to Raton in New Mexico
- Boise City relief route
- Del Rio relief route
- Colorado Super 2
Texas Construction Efforts

- $230 million in projects in Texas let in 2012 and 2013
- Super 2 US 87 between Dumas and Hartley
- Loop 335 in Amarillo
- Big Spring Relief Route
- Super 2 from San Angelo to Sonora
- Super 2 from Eagle Pass to I-35
Agriculture Corridor
Who Buys US Farm Products?

Canada: 19.1
China: 13.7
Mexico: 13.2
Japan: 12.4
EU: 8.8

All figures are in U.S. Dollars
Source: U.S. Dept of Commerce, Census Bureau, August 2009
PTP is North America’s Energy Corridor

- 5 of top 6 gas producing states
- 6 of top 10 oil producing states
- 7 of top 8 top states for wind power potential
- 9 of top 12 states for wind power potential
Oil and Gas Trip Generation (Average Trips Per Well)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Crude Oil</th>
<th>Natural Gas</th>
<th>Coal Bed Methane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development 1,2</td>
<td>1,710</td>
<td>1,721</td>
<td>684</td>
</tr>
<tr>
<td>Production (annual)</td>
<td>974</td>
<td>111</td>
<td>782</td>
</tr>
<tr>
<td>Reclamation 2</td>
<td>250</td>
<td>73</td>
<td>146</td>
</tr>
</tbody>
</table>

1 Development Phase includes all activities prior to production (site preparation, drilling and completion)
2 Development and reclamation trips represent a single occurrence
Energy Impact on Texas Infrastructure

The cost for rebuilding the infrastructure being consumed by increased energy-related activities at approximately $2 billion per year on the state’s highway system, and an equivalent amount on local transportation systems such as city streets and county roads.

Task Force on Texas’ Energy Sector Roadway Needs, TxDOT, January 2013
Worlds Oil Reserves

Source: BP Statistical Review of World Energy 2012
Oil Sands Impact on U.S.

- Canada is the largest supplier of oil to the U.S.
- For every two jobs created in Canada from the oil sands, a third job is created in the U.S.
- Oil sands development is projected to generate $521 billion in economic activity in the U.S. over the next 25 years.
- Est. to add $766 million - $1.5 billion to Texas Economy between 2010 and 2035
- Over 170 Texas companies have been identified that supply equipment, parts and services being used in the development of Alberta’s oil sands – more than in any other state.
PTP serves oil exploration

- Ports to Plains is logical route for trade between Alberta, Texas and Mexico.
Keystone XL Pipeline Support

Source: TransCanada  By Janet Loehrke, USA TODAY
Wind Power Corridor
Transportation Costs Factor into Manufacturing Decisions

- Large size of materials mean greater shipping cost
- 1.5 mw blade - $7 per mile shipping cost
- 2 mw blade - $15 per mile shipping cost
- Advantage to locate manufacturing facilities near wind farm sites
Infrastructure Demands

- 8-10 permitted and escorted loads per tower
- 5 regular loads per tower
- 13 to 15 total truck loads per wind tower
- 4000 MW farm with 2667 towers would require up to 40,005 trucks and 53,340 pilot cars
Ports-to-Plains Alliance

Michael Reeves
5401 N. MLK #395
Lubbock, TX 79403
(806) 775-2338
www.portstoplains.com
michael.reeves@portstoplains.com
What is the Texas Freight Network?

- Cornerstone of the Texas Freight Mobility Plan
- Defines an all-mode Texas Freight Network:
  - Transportation corridors
  - Key freight generators and gateways

Source: TxDOT
Why Define a Texas Freight Network?

- Serves as the backbone for prioritizing freight investments
- Facilitates efficient freight movement across Texas
- Identifies and prioritizes needs
- Assists in investment decisions
- Engages the freight and business community
- Meets US DOT and MAP-21 requirements
- Serves local, regional, statewide, national and international markets

Source: Texas Comptroller of Public Accounts
Key Goals of the Texas Freight Network

- Link Texas’ economic regions
- Meet the growing demand for freight movement
- Enhance Texas’ economic competitiveness
- Make strategic decisions for future transportation investments
Developing the Preliminary Texas Freight Network

- 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*
Developing the Preliminary Texas Highway Freight Network

Texas Highway System

Texas Trunk Network

Texas Freight Gateways/Generators

Preliminary Texas Highway Freight Network
Recap from previous discussion:

- Did this provide a good start?
- Where are major truck flows?
- How do you define gateways and generators?
- Where do we go from here?
- Further analysis on:
  - Truck flows
  - Sea and Inland Ports
  - Border Crossings
  - Air Cargo
  - Freight Generators
  - Ports of Entry

Source: TxDOT
Preliminary Texas Highway Freight Network

Q: What are the important criteria?

- Intermodal Connectors
- Texas Trunk Highways
- Border Crossing Continuity
- High Truck Volumes
- Freight Generator Connectivity
- Priority Airport Connectivity
- Designated Truck Routes
- Oversize, HazMat, Energy
- Others

Q: What else should be considered?

- State Highways
- US Highways
- Interstates

Highway Freight Network
Texas Highway Freight Flows – 2010 Tons

Source: 2010 IHS Global Insight/ TRANSEARCH
Texas Highway Freight Flows – 2040 Tons

Legend
Tons
- N/A
- < 1,000,000
- 1,000,001 - 5,000,000
- 5,000,001 - 10,000,000
- 10,000,001 - 25,000,000
- 25,000,001 - 50,000,000
- 50,000,001 - 100,000,000
- 100,000,001 - 220,000,000

Source: 2010 IHS Global Insight/ TRANSEARCH
Texas Freight Gateways: Ports

Source: 2010 IHS Global Insight/ TRANSEARCH
Texas Freight Gateways: Southern Ports of Entry

Sources: 2010 IHS Global Insight/TRANSEARCH & 2013 USDOT National Transportation Atlas Database
Texas Freight Gateways: Western Ports of Entry

Sources: 2010 IHS Global Insight/TRANSEARCH & 2013 USDOT National Transportation Atlas Database
Texas Freight Gateways: Air Cargo

Sources: 2010 IHS Global Insight/TRANSEARCH & 2013 USDOT National Transportation Atlas Database
Texas Freight Gateways: Interstate Border Crossings

Sources: 2010 IHS Global Insight/TRANSEARCH & 2013 USDOT National Transportation Atlas Database
Statewide Oversize/Overweight Route Frequencies (FY 04-09)

Source: 2012 Texas Transportation Institute
Freight Corridor Criteria in Other States: Florida
Freight Corridor Criteria in Other States: Washington

State Freight Economic Corridors

Washington state truck freight economic corridors and freight-dependent jobs by region

NORTHWEST
Regional domestic product: $6.8 billion
- Wholesale and retailer: 38.71
- Manufacturing: 14.379
- Construction: 13.634
- Agriculture and timber/wood products: 8.484
- Transportation: 2.896
- TOTAL JOBS*: 78,106

COASTAL
Regional domestic product: $2.5 billion
- Wholesale and retailer: 21.391
- Manufacturing: 8.752
- Construction: 6.763
- Agriculture and timber/wood products: 6.526
- Transportation: 2.385
- TOTAL JOBS*: 45,893

SOUTHWEST
Regional domestic product: $7.7 billion
- Wholesale and retailer: 53.329
- Manufacturing: 21.949
- Construction: 18.153
- Agriculture and timber/wood products: 6.535
- Transportation: 2.046
- TOTAL JOBS*: 106,541

SOUTHEAST
Regional domestic product: $19.9 billion
- Wholesale and retailer: 19.236
- Manufacturing: 18.511
- Construction: 10.547
- Agriculture and timber/wood products: 5.307
- Transportation: 3.085
- TOTAL JOBS*: 170,263

LEGEND
- TI Truck Freight Corridors: Freight centers carrying more than 10 million tons per year
- TI2 Truck Freight Corridors: Freight centers carrying 4 million to 10 million tons per year

Source: 2011 Freight and Goods Transportation System; * Total Jobs and Regional Domestic Product (RDP) figures from 2010 Washington state IMPLAN data. Total Jobs and RDP numbers are for freight-dependent industries only. These industries rely on Washington State freight systems including highway, road, freight rail, waterway and intermodal facilities.
Freight Corridor Criteria in Other States: Ohio
Preliminary Texas Rail Freight Network

Q. What are the important criteria?

- Border Crossings
- Freight Volume
- Other Railroads
- Bottlenecks

Q. What else should be considered?

- Class I Railroads
- Others

Rail Freight Network
Texas Rail Freight Flows - 2010 Tons

Source: 2010 IHS Global Insight/TRANSEARCH
Texas Rail Freight Flows – 2040 Tons

Source: 2010 IHS Global Insight/ TRANSEARCH
Texas Preliminary Rail Freight Network

- Includes Class I, II, and III
- The TFMP will utilize these classifications as the basis to define the rail network
- Further analysis of data, including IHS Global Insight Freight Finder to identify key freight generators.

Source: TxDOT
How do you define a freight generator?

- Oil and Gas Generators
- Agricultural Zones
- Chemical Industrial Areas
- Manufacturing Centers
- Distribution Centers
- Other?

**Gateways**
- Ports
- Airports
- International Border Crossings
- Other Ports of Entry - State Border Crossings

**Generators**
- Oil and Gas
- Agriculture
- Distribution Centers
- Manufacturing
Next Steps

Continue to refine the Texas Highway and Rail Freight Networks
- Continued input from TxFAC and other TxDOT partners and stakeholders
- Further analysis on how commodities move along the network
- Use of IHS Global Insight Freight Finder to identify key freight generators

Link the TFN to Performance Measures
- Analyze network fluidity and efficiency
- Identify opportunities for network management
- Identifying opportunities for capital investment and new funding

ACCOUNTABILITY  PLANNING  DECISION MAKING  SECURING FUNDING
SHIPPING INDUSTRY

BILLIONAIRE LOSSES

- MARKET VOLATILITY
- SUPPLY AND DEMAND IMBALANCE
- OVERCAPACITY
- PRICES / RATES WAR
- HIGH COSTS (FUEL & CREW)

- ASSET MANAGEMENT FOCUS
- BOTTOM LINE CARELESS
- CASH FLOW STRESS
- STRAINED CASH POSITIONS
- COMPANIES BANKRUPTCY AND COLLAPSE
SHIPPING INDUSTRY

RECOVER PROFITABILITY: STRATEGY

- REFINANCING.
- SLOW STEAMING.
- MAJOR ALLIANCES → HIGH CONCENTRATION.
- BIGGER SHIPS / SCALE ECONOMIES.
- ROUTES AND PORTS RE PLANNING / CANCELLING.
- AGGRESSIVE COMPETITION.
- EFFICIENCY – THROUGHOUT ENTIRE SERVICE CHAIN.
PORTS, TERMINALS, LOGISTICS.

Evolution of container ships

TEU: twenty-foot equivalent units; length x width x depth below water in metres

- Early container ship (1956-)
  - 500 – 800 TEU, 137x17x9m

- Fully Cellular (1970-)
  - 1,000 – 2,500 TEU, 215x20x10m

- Panamax (1980-)
  - 3,000 – 3,400 TEU, 250x32x12.5m

- Panamax Max (1985-)
  - 3,400 – 4,500 TEU, 290x32x12.5m

- Post Panamax (1988-)
  - 4,000 – 5,000 TEU, 285x40x13m

- Post Panamax Plus (2000-)
  - 6,000 – 8,000 TEU, 300x43x14.5m

- New Panamax (2014-)
  - 12,600 TEU, 366x49x15.2m

- Triple E (2013-)
  - 16,000 TEU, 400x59x15.5m

Adapted with permission from The Geography of Transport Systems, Jean-Paul Rodrigue

- Bigger Ships
- Re Routing
- Aggressive Competition
- Efficiency

Facilities / Infrastructure
Equipment / Process

Idle capacity risk

Hard Procurement / Negotiations / Contracts

Heavy Investments
Service Chain Integration (Vertical & Horizontal)
Optimization / Innovation
NATIONAL PLANNING

NATIONAL DEVELOPMENT PLAN 2013-2018
GOVERNMENT OF MEXICO

OBJECTIVE
TO ACHIEVE MAXIMUM POTENTIAL OF MÉXICO

5 GOALS
1.- MÉXICO IN PEACE
2. INCLUSIVE MÉXICO
3.- QUALITY IN EDUCATION
4.- PROSPEROUS MÉXICO
5.- GLOBAL RESPONSIBILITY

STRATEGIES
i) PRODUCTIVITY - COMPETITIVENESS
ii) REACHABLE & MODERN GOVERNMENT
iii) GENDER EQUITY PERSPECTIVE
NATIONAL PLANNING

CONNECTIVITY
MEXICO COMPETITIVENESS

2013 – 2018
US$ 300 Bn Infrastructure

US$ 100 Bn TRANSPORT & COMMUNICATIONS
NATIONAL PLAN FOR LOGISTIC PLATFORMS
THE "CORREDOR ECONÓMICO DEL NORTE" WILL DRAMATICALLY REDUCE THE TRANSIT TIME MAZATLAN ← → SOUTHERN TEXAS.
BERTH LINE 1,300 m
WATER DEPTH 15.0 m
TURNING BASIN 400 m
CONTAINER YARD 100,000 m²
WAREHOUSES 100,000 m³
COLD STORAGE 4,000 m²
REEFER STATION 150 Plugs
BULK YARD 20,000 m²
MAZATLAN CARGO 1996 – 2013*

*August
PORT EXPANSION 2016 - 2020
Terminal Marítima Mazatlán
The Importance of Agriculture and its Transportation Issues

Texas Freight Advisory Committee Meeting
Amarillo, Texas
October 2, 2013

Presented By:
Dr. Steve Amosson
Regents Fellow
Professor and Extension Economist
Presentation Outline

• Impact of Texas Agriculture

• Texas High Plains Agriculture

• Transportation Issues Concerning Texas Agriculture
IMPACT OF TEXAS AGRICULTURE
Impact of Agricultural Production and Agribusiness on the Texas Economy, 2012

Percentage of Total Economic Impact by Minor Category*

- Beef: 34.1%
- Ag-Related Livestock Products: 6.8%
- Food Grains: 3.9%
- Other Meat Animals: 1.9%
- Fruits & Nuts: 1.1%
- Oil Crops: 1.1%
- Vegetables: 1.8%
- Misc. Crops: 7.2%
- Milk: 6.8%
- Poultry: 7.5%
- Cotton: 11.1%
- Feed Crops: 17.0%

Total = $44.55 billion

*Estimates are based on output multipliers for agricultural commodities from farm gate back through supply chain within Texas. (Minnesota IMPLAN Group, Inc. 2010. IMPLAN Professional Version 3.0 Stillwater, Minnesota)
Agricultural Production in Texas, 2012

Percentage of Total Value by Top Ranked Commodities

- Feed Beef: 13.6%
- Cotton Lint: 6.0%
- All Other: 56.0%
- Feed Corn: 5.5%
- Nursery: 5.3%
- Other Beef: 13.6%
Agricultural Production in Texas, 2012

Production Value by Major Category

[Bar chart showing production value for crops, livestock, and ag related categories from 2009 to 2013, projected for 2013.]

Projected
Extension District Totals
Ranked by Total Value of Agricultural Production and Related Items, 2012

Source: Production value estimates prepared by County Extension Program Councils in January of 2013 and are subject to price changes and growing and harvesting conditions. Government payments not included. Reflects current dollars not adjusted for inflation.

FOR EDUCATIONAL USE ONLY
AGRICULTURE IN THE TEXAS HIGH PLAINS
The Impact of
AGRIBUSINESS
In the High Plains Trade Area
DID YOU KNOW...

If the 26 county trade area was a state...
...it would rank:

✔ #2 in fed cattle marketed just behind Kansas

✔ #11 among all states in market value of all agricultural products sold

✔ #12 among all states in swine production after having virtually no hogs in 2000

✔ #13 in wheat production

✔ #15 in production of each of the following commodities: corn, cotton, sorghum and dairy
Annual Total Agricultural Cash Receipts, Government Payments & Agribusiness Payroll,
High Plains Trade Area 2005-2008

- Agricultural Cash Receipts: $3,738,761,000.00
- Government Payments: $146,142,000.00
- Agribusiness Payroll: $1,130,781,000.00
- Total: $5,015,684,000.00

VALUE OF AGRICULTURE IN THE HIGH PLAINS TRADE AREA

$5.0 Billion Dollar Industry
# Average Annual Agricultural Cash Receipts, High Plains Trade Area, 2005-2008

<table>
<thead>
<tr>
<th>Crops:</th>
<th>Value ($1,000)</th>
<th>Percent of State Total</th>
<th>Regional Economic Impact ($1,000)</th>
<th>State Economic Impact ($1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>$421,766</td>
<td>52.2%</td>
<td>$681,359</td>
<td>$711,938</td>
</tr>
<tr>
<td>Wheat</td>
<td>$303,074</td>
<td>50.7%</td>
<td>$489,613</td>
<td>$511,586</td>
</tr>
<tr>
<td>Cotton</td>
<td>$238,984</td>
<td>10.6%</td>
<td>$368,017</td>
<td>$381,172</td>
</tr>
<tr>
<td>Sorghum</td>
<td>$110,053</td>
<td>18.6%</td>
<td>$177,790</td>
<td>$185,769</td>
</tr>
<tr>
<td>Ensilage</td>
<td>$89,838</td>
<td>60.9%</td>
<td>$155,582</td>
<td>$160,332</td>
</tr>
<tr>
<td>Hay</td>
<td>$30,958</td>
<td>4.0%</td>
<td>$53,614</td>
<td>$55,250</td>
</tr>
<tr>
<td>Other Crops</td>
<td>$117,792</td>
<td></td>
<td>$203,993</td>
<td>$210,220</td>
</tr>
<tr>
<td>Total Crop Receipts</td>
<td>$1,312,464</td>
<td></td>
<td>$2,129,967</td>
<td>$2,216,266</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Livestock and Livestock Products:</th>
<th>Value ($1,000)</th>
<th>Percent of State Total</th>
<th>Regional Economic Impact ($1,000)</th>
<th>State Economic Impact ($1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fed Beef</td>
<td>$1,508,688</td>
<td>73.6%</td>
<td>$2,880,099</td>
<td>$3,279,859</td>
</tr>
<tr>
<td>Other Beef</td>
<td>$399,077</td>
<td>9.1%</td>
<td>$761,841</td>
<td>$867,585</td>
</tr>
<tr>
<td>Hogs</td>
<td>$206,723</td>
<td>93.7%</td>
<td>$283,165</td>
<td>$311,392</td>
</tr>
<tr>
<td>Dairy</td>
<td>$298,753</td>
<td>24.0%</td>
<td>$420,897</td>
<td>$466,059</td>
</tr>
<tr>
<td>Other</td>
<td>$2,996</td>
<td></td>
<td>$4,104</td>
<td>$4,513</td>
</tr>
<tr>
<td>Total L &amp; LP</td>
<td>$2,416,236</td>
<td></td>
<td>$4,350,106</td>
<td>$4,929,408</td>
</tr>
</tbody>
</table>

| Other Ag-Related                 | $10,060        |                        | $13,177                          | $14,716                         |
| Total Agricultural Receipts      | $3,738,761     |                        | $6,493,251                       | $7,160,390                      |
FIVE-YEAR AVERAGE CATTLE FED IN 26-COUNTY AREA

Access the full report at: [Texas A&M AgriLife Extension](https://www.texascattlenutrition.com)
**Milk Cow Inventory, High Plains Trade Area, 2000-2009**

<table>
<thead>
<tr>
<th>Year</th>
<th>High Plains</th>
<th>State Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>3,700</td>
<td>350,000</td>
</tr>
<tr>
<td>2001</td>
<td>2,000</td>
<td>345,000</td>
</tr>
<tr>
<td>2002</td>
<td>5,200</td>
<td>315,000</td>
</tr>
<tr>
<td>2003</td>
<td>13,400</td>
<td>320,000</td>
</tr>
<tr>
<td>2004</td>
<td>21,300</td>
<td>317,000</td>
</tr>
<tr>
<td>2005</td>
<td>38,000</td>
<td>318,000</td>
</tr>
<tr>
<td>2006</td>
<td>52,500</td>
<td>325,000</td>
</tr>
<tr>
<td>2007</td>
<td>79,600</td>
<td>347,000</td>
</tr>
<tr>
<td>2008</td>
<td>126,000</td>
<td>400,000</td>
</tr>
<tr>
<td>2009</td>
<td>141,400</td>
<td>430,000</td>
</tr>
<tr>
<td>Total</td>
<td>483,100</td>
<td>3,467,000</td>
</tr>
<tr>
<td></td>
<td>Number of Employees</td>
<td>Annual Payroll $1,000,000</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Private Sector</td>
<td>37,645</td>
<td>$884.75</td>
</tr>
<tr>
<td>Farm and Ranch</td>
<td>13,451</td>
<td>$185.54</td>
</tr>
<tr>
<td>Total</td>
<td>51,096</td>
<td>$1,070.28</td>
</tr>
</tbody>
</table>

*Employment estimates do not include ag-related public sector/government employees*
Public Sector Not Accounted For

Texas AgriLife Extension Service
Texas AgriLife Research
West Texas A & M University
USDA-AMS
Farm Service Agency
National Resource and Conservation Service
Parks and Recreation
Texas Veterinary Medical Diagnostic Laboratory
Clarendon Community College
Others
TRANSPORTATION ISSUES FOR TEXAS AGRICULTURE
Miscellaneous Ag Facts

• Approximately the equivalent of \textbf{800,000} semi-loads of feed & cattle move every year in the \textit{High Plains} to support the Fed Cattle Industry.

• Annual U.S. Ag. Exports \ldots\ldots.
  – Total Ag. exports: 102.9 billion
  – Ag. trade surplus: 37.4 billion

• Annual Ag. trade with Mexico
  – Ag. exports to Mexico: 18.3 billion
  – Ag. Imports from Mexico: 15.8 billion
Transportation Issues in Texas Agriculture

- Texas Cattle Feeders Association
- Texas Corn Producers Association
- Plains Cotton Growers Association
- Texas Grain Sorghum Producers Association
- Texas Wheat Producers Association
Transportation Issues in Texas Agriculture

• Enhanced Export Competitiveness
  – Panama Canal expansion
  – Improved highway & port efficiency

• Road Maintenance
  – Increased oil & gas traffic
  – Development of wind energy impacts

• Rail pricing & Access in less trafficked areas

• Lack of a Public Port

• Interstate Issues such as truck weight limits between OK and TX
Educational programs of Texas A&M AgriLife Extension Service are open to all people without regard to race, color, sex, disability, religion, age or national origin.