TEXAS FREIGHT MOBILITY PLAN:
DRAFT REPORT

Texas Freight Advisory Committee
Corpus Christi
July 15, 2015
Outline of Presentation

- Recap of Chapters 1-10
- Recommendations (Chapter 11)
- Implementation and Prioritization (Chapter 12)
- Next Steps
Draft Chapter 1: Introduction

Provides an overview and describes the purpose and organization of the Freight Plan

- Texas Freight Transportation Overview
- Drivers of Increased Freight Movement
- Mobilizing Texas: Purpose of the Freight Plan
- The Road Map: Organization of the Plan
Draft Chapter 2: Strategic Goals

Outlines the state’s strategic freight goals to guide investment decisions

- Goal 1: Safety
- Goal 2: Asset Management
- Goal 3: Mobility and Reliability
- Goal 4: Mobility Connectivity
- Goal 5: Stewardship
- Goal 6: Customer Service
- Goal 7: Sustainable Funding
- Goal 8: Economic Competitiveness and Efficiency
- Goal 9: Technology
Draft Chapter 3: Economic Context

Discusses the importance of freight to the state’s economy

- Freight and Texas economy
- Economic development and freight transportation
- Economic impact of freight transportation
- Supply Chains
Draft Chapter 4: Policies, Strategies and Institutions

Develops and discusses the state’s freight policies and strategies and includes:

- Funding programs
- Freight-related institutions
- Structure, private infrastructure owners, statutory/constitutional constraints
- Regional freight planning activities and Texas’ priorities
Draft Chapter 5: State Freight Transportation Assets

Provides a statewide inventory of critical multimodal freight transportation infrastructure assets
Draft Chapter 6: Conditions and Performance

Analyzes the conditions and performance of the Texas freight system including:

- Bottlenecks
- Level-of-Service
- Safety
- Crashes
- Pavement and bridge conditions
Draft Chapter 7: Freight Forecast

Analyzes the anticipated amount of freight by mode in the future to determine the impacts on the freight system across the state

- Population growth
- Employment growth
- Freight growth
- Commodity growth
Draft Chapter 8: Trends, Issues and Needs

Explains, based on current and future projections, the needs and issues to be addressed in the future

- Trade and employment
- Demographics
- Energy
- Technology
Draft Chapter 9: Strengths and Weaknesses

Explains what works well and where improvements are needed

- **Strengths**
  - Extensive highway network in good condition
  - Rail network connected to major markets
  - Extensive port and waterway network
  - Cargo airports in close proximity to the Highway Freight Network

- **Weaknesses**
  - Congestion and bottlenecks on Primary Highway Freight Network
  - Outdated design standards and aging infrastructure
  - Intermodal connectors located in highly congested areas
  - Congestion at border crossings
Draft Chapter 10: Decision-Making Process

Discusses the state’s decision-making process for freight transportation improvements including:

- Outreach to stakeholders and the general public
- How the state has prioritized strategies, projects and policy changes
Draft Chapter 10: Stakeholder Engagement

**KEY ROLE** (Review, Revise, Approve)
- Goals & Objectives
- Needs and Challenges
- Priority Freight Network
- Performance Measures
- Project Prioritization
- Key Policies
- Final Freight Plan

**Statewide Listening Sessions #1**
- **KEY ROLE** (Experiences, Knowledge, Recommendations)
  - Current Conditions
  - Future Conditions
  - Freight Plan Recommendations

**Surveys and Interviews**
- **KEY ROLE** (Experiences, Knowledge, Recommendations)
  - Travel Patterns, Freight Flows and Volume
  - Verification of Data Analysis
  - Key Challenges

**Freight Leadership Summit**
- **KEY ROLE** (Expertise, Insight, Vision)
  - Freight Transportation System in 2040
  - Texas’ Growth and Economic Competitiveness
  - Policies, Projects, Funding

**Statewide Listening Sessions #2**
- **KEY ROLE** (Review, Revise, Recommendations)
  - Draft Policies/Projects
  - Prioritization
  - Recommendations
Draft Chapter 10: Highway Project Identification

- Identify:
  - The current level of investment already planned or under development on the Texas Highway Freight Network through:
    - TxDOT’s Unified Transportation Plan (UTP)
    - Develop Authority (DA)
    - Planning Authority
  - Highway segments with additional needs, but without a planned project
Draft Chapter 10: Highway Projects and Needs Identification

- Identify needs based on Freight Plan goals
  - Safety
  - Asset Management
  - Mobility and Connectivity
  - Technology
Draft Chapter 10: Highway Project Prioritization

Identify and prioritize projects which address needs

<table>
<thead>
<tr>
<th>Freight Network Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned Projects</td>
</tr>
<tr>
<td>Additional Needs</td>
</tr>
</tbody>
</table>

Coordination

<table>
<thead>
<tr>
<th>TxDOT Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statewide MPOs</td>
</tr>
</tbody>
</table>

Prioritized Freight Improvements
Draft Chapter 10: Rail Project Identification

- Stakeholder Input
- Legislative Appropriations Request for Fiscal Years 2016 and 2017
- Texas Rail Plan
- Other Plans
- Discussions with Railroads
Draft Chapter 10: Maritime Project Identification

- Stakeholder Input
- Legislative Appropriations Request for Fiscal Years 2016 and 2017
- Texas Port Report
- Texas Ports 2015-2016 Capital Program
- Texas Gulf Intracoastal Waterway Master Plan and Technical Report
- Other plans
Draft Chapter 10: Border/POE Project Identification

- Stakeholder Input
- Texas Border Master Plans including:
  - El Paso/Santa Teresa- Chihuahua Regional Border Master Plan
  - Lower Rio Grande Valley- Tamaulipas Border Master Plan
  - Laredo District Coahuila/Nuevo Leon/Tamaulipas Border Master Plan
Draft Chapters 11: Freight Improvement Strategy

- Three Improvement Strategies
  - Policies
  - Programs
  - Projects

- Appendix
  - Detailed Programs
  - Detailed Projects, by Mode
Draft Chapter 11: Freight Policies

- Provide framework for:
  - Freight transportation investment decision-making
  - Aligning this investment with the state’s economic goals to enhance economic competitiveness

- Guide programs and projects and implementation of the Freight Plan recommendations

- Plan outlines 21 freight policies including:
  - Freight Network Designation and Investment
  - System-based approach
  - Multimodal Connectivity
  - Economic development and economic competitiveness
  - Freight-based technology solutions and innovations
  - Safety
  - Freight planning capacity and activities
  - International Border/Ports-of-Entry
  - Rail, Maritime, Air
Draft Chapter 11: Freight Programs

- Support policies and address challenges identified in the freight plan

- Key programs include:
  - Strategic Freight Planning Initiatives
  - Freight Improvement Planning Studies
  - Education and Public Awareness
  - Technology
  - Border/Ports-of-Entry
  - Highway
  - Rail
  - Maritime
  - Aviation
Draft Chapter 11: Project Recommendations

The Freight Plan Multimodal recommendation includes:

- 1,267 projects under development
- $46.6 billion estimated cost

### Number of Projects

<table>
<thead>
<tr>
<th>Mode</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway</td>
<td>921</td>
<td>73%</td>
</tr>
<tr>
<td>Rail</td>
<td>139</td>
<td>11%</td>
</tr>
<tr>
<td>Ports and Waterways</td>
<td>44</td>
<td>3%</td>
</tr>
<tr>
<td>Air Cargo</td>
<td>34</td>
<td>3%</td>
</tr>
<tr>
<td>Border/POE</td>
<td>129</td>
<td>10%</td>
</tr>
</tbody>
</table>

### Estimated Cost (in millions)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway</td>
<td>$38,025</td>
<td>81%</td>
</tr>
<tr>
<td>Rail</td>
<td>$2,734</td>
<td>6%</td>
</tr>
<tr>
<td>Ports and Waterways</td>
<td>$935</td>
<td>2%</td>
</tr>
<tr>
<td>Air Cargo</td>
<td>$2,794</td>
<td>6%</td>
</tr>
<tr>
<td>Border/POE</td>
<td>$2,157</td>
<td>5%</td>
</tr>
</tbody>
</table>
Draft Chapter 11: Highway Projects under Development

- 921 highway projects, with an estimated cost of $38 billion
- Majority of these projects are not fully funded
- Rural/Urban
  - 602 projects (65 percent) are in urban areas
  - 319 projects (35 percent) are in rural areas
  - Projects in urban areas account for 77 percent of total estimated cost compared to 23 percent for rural areas
Draft Chapter 11: Highway Projects under Development
Draft Chapter 11: Additional Highway Needs

- 768 segments on Texas Highway Freight Network with identified needs without a current project

- Estimated cost of approximately $25.9 billion

- Additional studies and analysis required to assess the scope for these projects
Draft Chapter 11: Highway Needs by Goal Area

Additional Mobility and Connectivity Needs

Additional Alternate Route Needs
Draft Chapter 11: Highway Needs by Goal Area

Additional At-Grade Rail Crossing Needs

Additional Bottleneck Needs
Draft Chapter 11: Highway Needs by Goal Area

Additional Truck Rollover/CMV Hot Spot Needs

Additional Asset Management Needs (Bridges)
Draft Chapter 11: Rail Projects

- The Freight Plan reflects:
  - 34 rail projects
  - Estimated cost of over $934 million. (Estimates for most of the projects were not available)

- Rail improvement generated from the TxDOT Legislative Appropriations Request for Fiscal Years 2016 and 2017 and border master plans

<table>
<thead>
<tr>
<th>Source</th>
<th># of Projects</th>
<th>Estimated Cost (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Border Master Plans</td>
<td>5</td>
<td>$427</td>
</tr>
<tr>
<td>Class I Railroads</td>
<td>15</td>
<td>TBD</td>
</tr>
<tr>
<td>Freight Plan Listening Sessions</td>
<td>3</td>
<td>TBD</td>
</tr>
<tr>
<td>Panama Canal Stakeholder Working Group</td>
<td>1</td>
<td>TBD</td>
</tr>
<tr>
<td>TxDOT Legislative Appropriations Request for Fiscal Years 2016-2017</td>
<td>10</td>
<td>$508</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>$935</td>
</tr>
</tbody>
</table>
Draft Chapter 11: Ports and Waterways Projects

- The Freight Plan reflects:
  - 129 ports and waterways projects
  - Estimated cost of more than $2.7 billion

- Projects identified through various sources:
  - Legislative Appropriations Request for Fiscal Years 2016 and 2017
  - Texas Port Report (June 2014)
  - Individual Texas ports
Draft Chapter 11: Air Cargo Projects

- Projects improve access between Texas commercial airports and the Texas Highway Freight Network

- The Freight Plan reflects:
  - 44 access projects for eight commercial air cargo airports
  - Estimated cost of almost $2.8 billion.

- The projects encompass highway improvements:
  - Roadway widening
  - Interchange improvements
  - ITS installation
Draft Chapter 11: Border/Ports-of-Entry Projects

- The Freight Plan includes:
  - 139 border/port-of-entry
  - Estimated projected cost of more than $2 billion

- Projects broken into three categories:
  - Port-of-Entry: 41 projects with an estimated cost of more than $600 million
  - Road and Interchange: 93 projects estimated at over $1 billion
  - Rail: Five projects at an estimated cost of more than $400 million
Draft Chapter 12: Implementation Plan

- Multimodal Project Implementation
- Project Prioritization
- Implementation Timeline

- Appendix
  - Detailed list of Projects and Priorities
### Draft Chapter 12: Highway Projects under Development by Priority

#### Projects

- **High:** 348 projects (38%)
- **Medium:** 275 projects (30%)
- **Low:** 298 projects (32%)

#### Estimated Cost (in millions)

- **High:** $16,497 (43%)
- **Medium:** $8,729 (23%)
- **Low:** $12,799 (34%)

#### Table: Projects and Estimated Cost

<table>
<thead>
<tr>
<th>Priority</th>
<th>Projects</th>
<th>Estimated Cost (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>% of Total</td>
</tr>
<tr>
<td>High</td>
<td>348</td>
<td>38%</td>
</tr>
<tr>
<td>Medium</td>
<td>275</td>
<td>30%</td>
</tr>
<tr>
<td>Low</td>
<td>298</td>
<td>32%</td>
</tr>
<tr>
<td>Total</td>
<td>921</td>
<td>100%</td>
</tr>
</tbody>
</table>
### Draft Chapter 12: Highway - Additional Needs by Priority

#### Segments With Additional Needs

<table>
<thead>
<tr>
<th>Priority</th>
<th>Number</th>
<th>% of Total</th>
<th>Cost (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>104</td>
<td>14%</td>
<td>$4,097</td>
</tr>
<tr>
<td>Medium</td>
<td>195</td>
<td>25%</td>
<td>$7,140</td>
</tr>
<tr>
<td>Low</td>
<td>469</td>
<td>61%</td>
<td>$14,717</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>768</strong></td>
<td><strong>100%</strong></td>
<td><strong>$25,954</strong></td>
</tr>
</tbody>
</table>

#### Estimated Cost (in millions)

<table>
<thead>
<tr>
<th>Priority</th>
<th>Cost (in millions)</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>$4,097</td>
<td>16%</td>
</tr>
<tr>
<td>Medium</td>
<td>$7,140</td>
<td>28%</td>
</tr>
<tr>
<td>Low</td>
<td>$14,717</td>
<td>56%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$25,954</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
### Draft Chapter 12: Rail Projects by Priority

**Rail Projects by Priority**

<table>
<thead>
<tr>
<th>Priority</th>
<th># of Projects</th>
<th>Estimated Cost (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>11 (32%)</td>
<td>$510</td>
</tr>
<tr>
<td>Medium</td>
<td>4 (12%)</td>
<td>$425</td>
</tr>
<tr>
<td>Low</td>
<td>19 (56%)</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34</strong></td>
<td><strong>$935</strong></td>
</tr>
</tbody>
</table>

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**Rail Projects Estimated Costs by Priority**

- High: $510 (55%)
- Medium: $425 (45%)
- Low: TBD

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[Image of pie charts for rail projects by priority and estimated costs]
Draft Chapter 12: Ports and Waterways Projects by Priority

<table>
<thead>
<tr>
<th>Priority</th>
<th># of Projects</th>
<th>Estimated Cost (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>72 (56%)</td>
<td>$1,207</td>
</tr>
<tr>
<td>Medium</td>
<td>14 (11%)</td>
<td>$1,043</td>
</tr>
<tr>
<td>Low</td>
<td>43 (33%)</td>
<td>$484</td>
</tr>
<tr>
<td>Total</td>
<td>129</td>
<td>$2,734</td>
</tr>
</tbody>
</table>
### Draft Chapter 12: Air Cargo Highway Access Projects by Priority

#### Air Cargo Projects by Priority

<table>
<thead>
<tr>
<th>Priority</th>
<th>Segments With Additional Needs</th>
<th>Estimated Cost (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>% of Total</td>
</tr>
<tr>
<td>High</td>
<td>21</td>
<td>48%</td>
</tr>
<tr>
<td>Medium</td>
<td>9</td>
<td>20%</td>
</tr>
<tr>
<td>Low</td>
<td>14</td>
<td>32%</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>100%</td>
</tr>
</tbody>
</table>

#### Air Cargo Projects Estimated Costs by Priority

- **High**: $1,280 (46%)
- **Medium**: $92 (3%)
- **Low**: $1,422 (51%)

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*Working Draft Freight Plan Chapters*
### Draft Chapter 12: Border/POE Highway Projects by Priority

#### Border/POE Projects by Priority

- **High**: 28 (20%)
- **Medium**: 39 (28%)
- **Low**: 46 (33%)
- **Unknown**: 26 (19%)

#### Border/POE Projects Estimated Cost by Priority (in millions)

- **High**: $201 (9%)
- **Medium**: $586 (27%)
- **Low**: $1,175 (54%)

#### Table: Border/POE Projects and Estimated Costs

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of Projects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port-of-Entry</td>
<td>24</td>
<td>9</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Road and Interchange</td>
<td>14</td>
<td>16</td>
<td>38</td>
<td>25</td>
</tr>
<tr>
<td>Rail</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>39</td>
<td>26</td>
<td>46</td>
<td>28</td>
</tr>
<tr>
<td><strong>Estimated Cost</strong></td>
<td>$195</td>
<td>$586</td>
<td>$1,175</td>
<td>TBD</td>
</tr>
</tbody>
</table>

**Notes:**
- Port-of-Entry: $91, 20% High, 33% Medium, 33% Low, 4% Unknown
- Road and Interchange: $102, 36% High, 45% Medium, 19% Low, 4% Unknown
- Rail: $2, 100% High, 0% Medium, 0% Low, 10% Unknown
- Total: $195, 28% High, 36% Medium, 33% Low, 3% Unknown
Next Steps

July
- TxFAC review of TFMP Working Draft

August
- Draft TFMP
- Commission Workshop
- Draft TFMP Released for Public Comment

September
- TxFAC approval of Draft TFMP
- Texas Transportation Commission Adoption of Final Report
LEGISLATIVE UPDATE: THE 84TH LEGISLATIVE SESSION

Office of State Legislative Affairs
As part of TxDOT’s IT mission and IT rationalization project, the State Legislative Affairs Office successfully transitioned from outdated legacy software to a new web-based system for legislative tracking and analysis.
Bills filed and tracked

Bills Filed by Session

2013 (83rd) 5,868
2015 (84th) 6,276

Up 7% over last session

Bills Tracked by TxDOT in 2015 (84th)

Tracked Bills that Passed 161

All Other Bills 5,461 (87%)

Total bills passed by the Legislature: 1,322
Fiscal notes requested from Legislative Budget Board

- Requested in 2013 (83rd): 264
- Requested in 2015 (84th): 365

Up 38% over last session
### TxDOT session stats

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Introductory visits with freshman legislators</td>
</tr>
<tr>
<td>50+</td>
<td>Presentations to county and city leadership groups</td>
</tr>
<tr>
<td>90+</td>
<td>Legislative committee hearings where TxDOT provided a resource witness</td>
</tr>
<tr>
<td>325+</td>
<td>Committee hearing and floor reports written by SLA</td>
</tr>
</tbody>
</table>
Constitutional amendment to allocate a portion of oil and gas severance tax revenues to the State Highway Fund.

- Resolution passed by the Texas Legislature in 2013.
- Required three called special sessions to finally get the legislation passed.
- With more than 4 million votes cast, the amendment passed by nearly 80% in November 2014.

Yes: 3,213,483
No: 810,382
$1.74 billion transferred to State Highway Fund in FY 2015.

Estimated $1.2 billion to be transferred in each of the next two fiscal years.

$659 million in Prop 1 projects let from March-June 2015.

**Prop 1 Distribution – Upcoming 2nd and 3rd Rounds (Fiscal Years 2016 and 2017)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility &amp; Added Capacity (Urban)</td>
<td>45%</td>
</tr>
<tr>
<td>Regional Connectivity (Rural)</td>
<td>25%</td>
</tr>
<tr>
<td>Maintenance (Statewide)</td>
<td>20%</td>
</tr>
<tr>
<td>Energy Sector Roads</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>
### TxDOT budget, FY 2016-2017

<table>
<thead>
<tr>
<th>Budget Item</th>
<th>House</th>
<th>Senate</th>
<th>GAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ending Diversions from SHF to Agencies other than TxDOT</td>
<td>$1.3 billion</td>
<td>$1.3 billion</td>
<td>$1.3 billion</td>
</tr>
<tr>
<td>Funding from Proposition 1</td>
<td>$2.4 billion</td>
<td>$2.4 billion</td>
<td>$2.4 billion</td>
</tr>
<tr>
<td>One-Time Allocation of General Revenue</td>
<td>$1.5 billion</td>
<td>NA</td>
<td>—</td>
</tr>
<tr>
<td>One-time Allocation of Motor Vehicle Sales Tax Revenue</td>
<td>NA</td>
<td>$1.2 billion</td>
<td>—</td>
</tr>
<tr>
<td>Buildings</td>
<td>$101.3 million SHF and Receipt from sale of real and surplus property</td>
<td>$200 million State Highway Fund</td>
<td>$236.4 million SHF and Receipt from sale of real and surplus property</td>
</tr>
<tr>
<td>Information Technology Acquisition</td>
<td>$146.7 million SHF and Receipt from sale of real and surplus property</td>
<td>$104.3 million State Highway Fund</td>
<td>$146.7 million SHF and Receipt from sale of real and surplus property</td>
</tr>
<tr>
<td>Truck Discount on SH 130 and SH 45SE</td>
<td>Article XI</td>
<td>$37.4 million General revenue</td>
<td>$18.7 million Receipt from sale of real and surplus property</td>
</tr>
<tr>
<td>Veterans Toll Discount</td>
<td>Article XI</td>
<td>$5.1 million General revenue</td>
<td>$4 million Receipt from sale of real and surplus property</td>
</tr>
<tr>
<td>Port Capital Improvements</td>
<td>Article XI</td>
<td>$20 million General revenue &amp; Texas Mobility Fund</td>
<td>$20 million Texas Mobility Fund</td>
</tr>
</tbody>
</table>

Legislative Update: The 84th Legislative Session
Constitutional amendment to allocate a portion of general sales tax and motor vehicle sales tax revenues to the State Highway Fund.

- Estimated revenue gain for the State Highway Fund:
  
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Revenue Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2018</td>
<td>$2.5 billion</td>
</tr>
<tr>
<td>FY 2019</td>
<td>$2.5 billion</td>
</tr>
<tr>
<td>FY 2020</td>
<td>$2.9 billion</td>
</tr>
<tr>
<td>FY 2021</td>
<td>$3.0 billion</td>
</tr>
</tbody>
</table>

- SJR 5 passed in May 2015.

- Proposition 7 will be submitted to voters at an election on November 3, 2015.
House Bill (HB) 20

Modifies TxDOT planning processes, establishes legislative select committees on transportation, and more.

- Performance-Based Planning
  - Commission to establish performance metrics.
- Planning Organization 10-Year Plans
  - Developed by each MPO and each TxDOT district outside of MPO.
- Project Recommendation Criteria
  - Developed by each MPO and each TxDOT district outside of MPO.
- Project Prioritization and Authorization by Commission
  - Caps Commission discretionary decisions at 10% of biennial budget.
- Parameters for Design-Build Contracts
  - Cost of at least $150 million.
- Legislative Select Committees on Transportation Planning
  - Sep. 1, 2015: TxDOT submits first report to committees.
  - Mar. 31, 2016: TxDOT submits second report to committees.
  - Nov. 1, 2016: Legislative committees submit final report.

Author: Rep. Ron Simmons
Sponsor: Sen. Robert Nichols
Signed by Governor Abbott: June 2, 2015
Eliminates the Texas Mobility Fund’s borrowing ability.

- Prohibits the Texas Transportation Commission from issuing future obligations secured by the Texas Mobility Fund.
- Excess Mobility Fund revenues not needed to pay for outstanding Mobility Fund debt service could be used to fund state highways (except toll roads) and public transportation projects.
- The Commission may issue obligations to refund outstanding obligations to provide savings to the state or to refund outstanding variable rate obligations.

**Author:** Rep. Joe Pickett  
**Sponsor:** Sen. Robert Nichols  
**Signed by Governor Abbott:** June 10, 2015
Revises state agency contracting processes.

- Expands policies on conflict of interest for agency officials and employees participating in the contracting process.
- Amends the process for final signature authority on contracts by agency governing bodies, executive directors and procurement directors based on the contract value.
- Requires state agencies to record their contracts with outside vendors in a database run by the Comptroller.
- Establishes provisions for the barring of a vendor from participating in state contracts.
- Prohibits former employees of a state agency who participated in a procurement or contract negotiation with a third party from accepting employment from that third party for two years after leaving their state agency job.
Requires TxDOT to produce a report on eliminating toll roads

- Requires TxDOT to produce a report, due September 1, 2016, that includes a plan to eliminate TxDOT toll roads. The report would be submitted to the House and Senate Transportation Committees and include the following:
  - Debt service on bonds issued for each toll project in the state.
  - Bonds appropriate for accelerated or complete lump-sum payment as selected by the Commission.
  - A plan to eliminate all toll roads except roads constructed, operated or maintained only with proceeds from the issuance of bonds by a toll project entity other than TxDOT.

- TxDOT's plan could include accelerated or complete repayment of debt or a commitment by a toll project entity to eliminate tolls on their road for which TxDOT has provided financial assistance.

- **Note:** TxDOT will need cooperation from other toll entities to provide information required by the report as not all debt information is publicly available.

---

**House Bill (HB) 2612**

**Author:** Rep. Joe Pickett  
**Sponsor:** Sen. Bob Hall  
**Signed by Governor Abbott:** June 3, 2015

**Funding**
Allows TxDOT to restrict trucks to specific lanes in work zones.

- Gives TxDOT the authority to restrict commercial motor vehicle traffic to a specific lane in a work zone that is on the state highway system.
- The executive director or designee may initiate the restriction based on a traffic study that evaluates the effect of the restriction and its impact on safety. If the restriction is no longer needed to improve safety, the executive director or designee may rescind the restriction.
- The lane restrictions only apply when traffic control device signs are installed. If a restriction is lifted, the traffic control devices must be removed. The lane restriction expires when construction is complete on the roadway.
Authorizes the collection of a service charge on certain toll payments.

- TxDOT is authorized to enter into an agreement with one or more private entities to operate customer service centers and collect tolls for toll projects that are part of the state highway system. Currently there is only one TxTag customer service center where TxTag customers can pay their bill in person.

- Contracts with additional vendors such as grocery and convenience stores to assist with TxTag customer service and toll collection will provide more in-person payment options for TxTag customers.

- SB 1467 authorizes a person that enters into an agreement with TxDOT to provide electronic toll collection customer payment services at a location other than a TxDOT office to collect an additional service charge.

- The Texas Transportation Commission must by rule set the maximum charge amount, not to exceed $3 per transaction.
Senate Bill (SB) 2004 / Art. IX Rider

Provides funding for deferred building maintenance.

- SB 2004 establishes a deferred maintenance fund to be part of the general revenue fund that consists of money credited, appropriated or transferred to the fund at the direction of the legislature.

- In Article IX, Sec. 18.05 (a)(3)(B) of the appropriations bill, TxDOT received $200 million for the Repair or Rehab of Buildings and Facilities under a "deferred maintenance" category that is contingent on the passage of SB 2004 into law.

SB 2004
Author: Sen. Kevin Eltife
Sponsor: Rep. Charlie Geren
Signed by Governor Abbott: May 28, 2015
As a result of no changes being made in HB 3123 to TxDOT’s sunset review date, TxDOT is up for sunset in 2017, and has begun the sunset review process.
Population in TX is climbing, along with energy sector developments, and the emergence of new global partners represents Texas’ opportunity to expand as a global gateway for the US.
TEXAS GULF PORTS handle more than 550 million tons of foreign and domestic cargo each year — 20 percent of all U.S. port tonnage.

TEXAS PORTS generate $270 billion in economic activity and $6 billion in state and local taxes per year, according to the Texas Ports Association.

SEVEN TEXAS PORTS RANK IN THE TOP 50 OF ALL U.S. PORTS IN TERMS OF ANNUAL TONNAGE, according to the U.S. Department of Transportation, including Houston, Beaumont, CORPUS CHRISTI and Texas City.

The Port of Galveston ranked as the fourth-largest U.S. cruise market based on embarkation, with more than 863,000 passengers and crew in 2012.
IMPACT TO POCCA
# Tonnage Comparison 2005-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Petroleum</th>
<th>Liquid Bulk</th>
<th>Grain</th>
<th>Dry Bulk</th>
<th>Chemical</th>
<th>Break Bulk</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>73,532,352</td>
<td>2,098,829</td>
<td>1,795,329</td>
<td>8,396,054</td>
<td>1,569,993</td>
<td>444,982</td>
<td>86,785,949</td>
</tr>
<tr>
<td>2006</td>
<td>75,176,049</td>
<td>2,031,610</td>
<td>1,569,993</td>
<td>7,700,130</td>
<td>1,377,386</td>
<td>256,697</td>
<td>86,982,834</td>
</tr>
<tr>
<td>2007</td>
<td>74,893,639</td>
<td>3,377,386</td>
<td>1,848,874</td>
<td>8,241,554</td>
<td>1,848,874</td>
<td>445,203</td>
<td>89,319,692</td>
</tr>
<tr>
<td>2008</td>
<td>70,060,614</td>
<td>5,423,867</td>
<td>7,891,342</td>
<td>8,241,554</td>
<td>1,630,018</td>
<td>445,203</td>
<td>85,859,438</td>
</tr>
<tr>
<td>2009</td>
<td>64,265,522</td>
<td>3,951,347</td>
<td>6,443,658</td>
<td>6,866,446</td>
<td>1,410,028</td>
<td>317,993</td>
<td>76,519,648</td>
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<tr>
<td>2010</td>
<td>68,900,861</td>
<td>4,113,277</td>
<td>6,866,446</td>
<td>8,692,368</td>
<td>1,468,243</td>
<td>339,259</td>
<td>82,194,297</td>
</tr>
<tr>
<td>2011</td>
<td>64,819,146</td>
<td>4,214,821</td>
<td>7,939,684</td>
<td>7,900,428</td>
<td>1,743,708</td>
<td>306,631</td>
<td>80,310,217</td>
</tr>
<tr>
<td>2012</td>
<td>64,819,146</td>
<td>2,578,847</td>
<td>8,700,428</td>
<td>7,380,034</td>
<td>1,966,012</td>
<td>390,966</td>
<td>78,806,188</td>
</tr>
<tr>
<td>2013</td>
<td>74,260,467</td>
<td>2,984,208</td>
<td>8,000,034</td>
<td>8,869,849</td>
<td>1,951,762</td>
<td>327,199</td>
<td>88,699,849</td>
</tr>
<tr>
<td>2014</td>
<td>84,383,180</td>
<td>4,070,315</td>
<td>8,651,261</td>
<td>100,074,047</td>
<td>2,205,422</td>
<td>270,019</td>
<td>100,074,047</td>
</tr>
</tbody>
</table>

**Short Tons**

- **Petroleum**
- **Liquid Bulk**
- **Grain**
- **Dry Bulk**
- **Chemical**
- **Break Bulk**
- **Total**
Port of Corpus Christi Authority
Revenues By Customer

INCREASING DIVERSIFICATION

Port of Corpus Christi Authority
Revenues By Customer

2011: Refineries 56%, New Industry 5%, Other 38%
2014: Refineries 35%, New Industry 24%, Other 40%
2019: Refineries 27%, New Industry 47%, Other 26%

Refineries  New Industry  Other
EAGLE FORD SHALE PLAY WILL EXTEND INTO MEXICO
INBOUND – OUTBOUND CRUDE
2007 – 2014*

Crude
Inbound - Outbound Barrels
2007 - 2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Inbound</th>
<th>Outbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>213,940,491</td>
<td>213,781,428</td>
<td>159,063</td>
</tr>
<tr>
<td>2008</td>
<td>187,196,246</td>
<td>187,004,139</td>
<td>192,108</td>
</tr>
<tr>
<td>2009</td>
<td>170,992,210</td>
<td>170,654,320</td>
<td>337,889</td>
</tr>
<tr>
<td>2010</td>
<td>175,055,204</td>
<td>174,781,128</td>
<td>274,076</td>
</tr>
<tr>
<td>2011</td>
<td>151,819,987</td>
<td>149,791,585</td>
<td>2,028,402</td>
</tr>
<tr>
<td>2012</td>
<td>151,786,318</td>
<td>108,065,777</td>
<td>43,720,541</td>
</tr>
<tr>
<td>2013</td>
<td>219,999,876</td>
<td>97,442,016</td>
<td>122,557,860</td>
</tr>
<tr>
<td>2014</td>
<td>283,606,473</td>
<td>98,569,693</td>
<td>185,036,780</td>
</tr>
</tbody>
</table>

*Data represents millions of barrels.
Interstate
Export 1,426,792 Tons
33 Vessels
Sorghum & Wheat

ADM
Export 2,649,244 Tons
56 Vessels
Corn, Sorghum & Wheat
Table 1. Bales by Crop Year 2009-2014

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>6 year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Bales</td>
<td>85,619</td>
<td>616,936</td>
<td>655,264</td>
<td>562,926</td>
<td>223,923</td>
<td>730,916</td>
<td>479,264</td>
</tr>
<tr>
<td>Crop Rank Since 1950</td>
<td>62nd</td>
<td>6th</td>
<td>3rd</td>
<td>8th</td>
<td>29th</td>
<td>2nd</td>
<td>12th</td>
</tr>
</tbody>
</table>

Table 2. 2015 Crop Projections

<table>
<thead>
<tr>
<th>Projected Acres</th>
<th>Yield .75 Bales/ Ac</th>
<th>Yield 1 Bales/ Ac</th>
<th>Yield 1.5 Bales/ Ac</th>
<th>Yield 2.0 Bales/ Ac</th>
<th>Yield 2.5 Bales/ Ac</th>
<th>Yield 3.0 Bales/ Ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>*200,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* Notes
45% reduction from 2014 plant acres as compare to 2015 acres for Gulf
Weather issues during planting reduce total cotton plantings
Market conditions (price) also reduce 2015 planted cotton acres in favor other farm commodities
Wind Components

2015 FORECAST
57 Vessel Calls
290 Towers
1,540 Blades

Rail Car Movements
2014 – 540
2015 YTD - 360

GROWING DIVERSITY
TPCO America

Phase 1 COMPLETED
Summer 2014

Phase 2 Underway

600-800 New Jobs

$1+ Billion Investment

$236 Million Economic Impact

TPCO HAS COMMITTED TO RECYCLE WATER AND EMPLOY ENERGY SAVING STRATEGIES
VOESTALPINE HAS COMMITTED TO USE OF NATURAL GAS AND SEAWATER, COVERED STORAGE, ROUND TRIP SHIPPING, AND AN EMS PROGRAM

- **voestalpine**
  - Fully permitted by TCEQ and EPA
  - Broke Ground 2014
  - Approximately 1,400 Construction Jobs and 150 Permanent Jobs
  - $740 Million Investment
  - Operations to Begin by Year End – 2015
  - Have a contract with AMSHA – MX
  - 300,000 tons HBI to Moclova, MX
Projected to be Largest PET Plant in the World

Fully Permitted by TCEQ

220 Jobs

$1.1 Billion Investment

Operations begin 2016

15 - 1800 Rail Cars/year

Partners with M&G Polymers Mexico
CHENIERE

Cheniere

State & Federal Permits for Phase 1 & 2

Phase 3 Under permitting

5-7 Year Construction

450 Permanent Jobs

3,000 Construction Jobs

$18-20 Billion Total Investment

Operations to Begin by 2020 - 2022
NUECES RIVER RAIL YARD

PHASE 1: 8000’ Unit Train Siding (1)
4200’ Interchange Tracks (4)
Completion Nov 2014
$18 Million ($10M TIGER Grant)

PHASE 2: 8500’ Tracks (8 total)
Currently Under Design
Est. Completion 2016
$28 Million ($22M TxDOT Grant)
TxDOT & partners have numerous projects in various stages of completion which address critical infrastructure needs.

TEXAS PORTS INFRASTRUCTURE

New POCCA Proposed Harbor Bridge Operational in 2020
LA QUINTA MULTI-PURPOSE DOCK AND TERMINAL
New Cargo Opportunities

LNG (Export)
Grain (Export)
Containers (Import & Export)
Project Cargo (Import & Export)

Current Vessel Max: 4,800 TEUs

New Vessel Max: 12,600 TEUs

PANAMA CANAL EXPANSION OPPORTUNITIES FOR TEXAS PORTS
START
SOUTH TEXAS ALLIANCE FOR REGIONAL TRADE

SOUTH TEXAS ALLIANCE
START
FOR REGIONAL TRADE
Port Laredo · Port San Antonio · Port Corpus Christi
southtexastrade.com

PORT CORPUS CHRISTI
portcorpuschristi.com

LAREDO
laredochamber.com

PORT SAN ANTONIO
portsanantonio.us
FOLLOW YOUR PORT
Thank You!

Questions?
Development of a Freight Transportation Network Optimization Model and Strategy – An Overview

July 15, 2015

(This presentation was not produced by the Texas Department of Transportation)
Quetica History

1997  Founders of PowerTrack™ Business Group at U.S. Bank
- Designed, built, and operated electronic invoice audit, payment and financing network
- B2B technology business & transaction processing platform across multiple industries
- Global trade & payments bank
- Information technology & spend category consulting practices
- 220 of Fortune 1000 customers, government agencies and 12,000+ service providers
- Operations in NA, AP, EU and India supporting 42 countries in 23 languages

2009  Founders of the Syncada© from Visa, Global Multi-Bank Network
- Visa bought JV of global payment and financing business
- U.S. Bank retained trade bank
- Consulting practice discontinued during transition

2011  Restarted Consulting Business Under the Brand Quetica™
- Provide solution-neutral, technology and management consulting to commercial, government and industry service provider clients
Quetica Principals

- **Rick Langer, Managing Director & President**
  - Founder and general manager of PowerTrack network.
  - A visionary leader to translate business strategy into maximum profits.
  - Expert in growing revenue; reducing costs; and enhancing profitability.

- **Holly Zimmerman, Executive Director & COO**
  - Led PowerTrack new program expansion efforts.
  - Leader in new product and business innovation.
  - Expert in converting complex problems into practical solutions for clients.

- **Weiwen Xie, Ph.D., Executive Director & CTO**
  - Chief architect and CIO of PowerTrack
  - Leader in innovating and developing new products
  - Expert in planning and delivering technology solutions to improve client’s revenue and profitability

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Approach Overview
Project Background

- **Vision:** To effectively identify and prioritize investment opportunities for an optimized freight transportation network to lower transportation costs and promote business growth in Minnesota.

- State DOT can optimize statewide freight transportation network to enable companies to better meet customer demand and reduce transportation costs
  - Existing approach focuses on capacity planning
  - Existing research doesn’t produce a practical business value measurement framework due to:
    - Data complexity and data normalization challenges in the research
    - Lack of multimodal freight movement data available to public sector
    - Existing freight performance measures don’t focus on optimizing transportation network for businesses
  - Current planning methods don’t identify and quantify cost saving opportunities in a multimodal network

- Quetica uses a demand-based supply chain network design and optimization approach to assisting state DOT planning
Supply Chain Network and Optimization

- 80% of the landed costs are locked in with the supply chain network
Opportunities in Current Freight Flow

- The chart shows the percentage breakdown of tonnage by mode in 2012 domestic freight in 5 states.
- MN has lower % of truck shipments than neighboring states, mainly due to higher % in pipeline shipments.
- MN has opportunities to improve rail and water-borne transportation to reduce transportation costs for MN businesses.

Data Source: FAF 3.5, Federal Highway Administration
Optimization Analysis

- Quantitative Analysis
  - Cost, lead time requirement, capacity, etc.
  - Economic viability

- Qualitative Analysis
  - Strategic alignment
  - Increasing network capacity and resiliency
  - Tax incentive / funding availability
  - Job creation and local buy-in
  - Service levels / transportation time
  - Road mile reduction
  - Project implementation risks
Benefits of Multi-Modal Freight Optimization

- Effectively identify and prioritize investment opportunities to lower transportation costs for Minnesota businesses
  - Leverage current transportation network to deliver optimized results
  - Identify new infrastructure opportunities to optimize freight transportation network
    - e.g. intermodal yards, commodity consolidation points, rail transload facilities/rail spurs, barge terminals, roadways, rail lines
- Assess current and forecasted transportation network constraints
- Identify opportunities to develop a more robust transportation network by enabling alternative modes and routes
- Identify economic development opportunities to recruit companies
- Provide a foundation model to help Minnesota businesses optimize their supply chains
Project Approach

- **Analysis of Network Demand and Capacity**
  - Identification and prioritization of demand areas
  - Analyze network demand and capacity

- **Performance Measurement and Constraints Analysis**
  - Use quantitative and qualitative measurements
  - Identify and prioritize current and forecasted network performance constraints

- **Creating and Prioritizing Optimization Strategies**
  - Develop pragmatic short-term and long-term optimization strategies
  - Does not intend to identify and evaluate all optimization strategies

- **Business Case Development**
  - Conduct financial analysis and develop financial models
  - Develop actionable recommendations with justifications

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Business Architecture System Overview

- Supply Chain Cost
- Domestic Freight Flow
- Import / Export
- County-Level Socio-Economic

Network Design & Optimization Data Model

- Design Alternatives
- Computer Simulation
- What-If Scenario Analysis

Preliminary Evaluation

- Design Evaluation
- Design Options

Qualitative Measurements

Recommended Optimization Strategy & Business Case

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Analysis Examples

- Road network and truck transportation
  - Truck cross-docking facilities for freight consolidation
  - Road corridor resiliency
- Rail network and transportation
  - Assessing values of short line rails
  - Intermodal facilities to enable low cost, reliable rail shipments
  - Transloading facilities to provide better rail access
- Waterborne transportation network
  - New terminals for better access to barge transportation
  - Leveraging Great Lakes shipping
- Trade routes for import/export
Case Study 1 – Cross-Dock Facility
Cross-Dock Overview

Distribution Center

Suppliers

Receiving

Sorting

Shipping

Customers

Before Cross-Docking

Suppliers

LTL

Customers

After Cross-Docking

FTL

FTL

Cross-Docking DC

FTL
Case Study 1 - Cross-Dock Opportunity Analysis

- Evaluated total cost saving opportunities in four regions
- Region 1 has the highest cost saving, but Regions 2 & 3 are more viable options because of existing access to interstate highways
- Selected Region 2 as the primary site candidate with the concept to co-locate cross-dock and intermodal facilities in a logistics park

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Annual Saving Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region 1</td>
<td>$909 Million</td>
</tr>
<tr>
<td>Region 2</td>
<td>$883 Million</td>
</tr>
<tr>
<td>Region 3</td>
<td>$908 Million</td>
</tr>
<tr>
<td>Region 4</td>
<td>$713 Million</td>
</tr>
</tbody>
</table>
Case Study 1 - Cross-Dock Network Impact

Current State

Future State

Benefits:
- Leverage freight consolidation to reduce transportation costs
- Reduce long distance truck traffic and improve environmental sustainability
Investment Analysis – A Mid-Sized Cross Dock in Region 2, Iowa

- **Assumption**
  - Build a 150-door, 600 trailer parking, 120,000 sq. ft. cross dock facility on 15 acres
  - 200 truck pickups daily, 52,000 truck pickups yearly (5 days a week, 52 weeks a year)
  - 5.30% of overall market opportunity
  - Cross-docking fee ($450/truck) covers all operational expenses and profit margin

- Initial Investment: **$21 million**

- Annual Net Saving Opportunities: **$24.4 MM to $44.3 MM; Average $36.2 MM**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Cost</td>
<td>$5 million</td>
</tr>
<tr>
<td>Doors</td>
<td>$1 million</td>
</tr>
<tr>
<td>15 acres of land</td>
<td>$5 million</td>
</tr>
<tr>
<td>Sortation and support systems</td>
<td>$10 million</td>
</tr>
</tbody>
</table>

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Comparable Cross-Dock - Memphis

- Carrier-owned transportation cross-docking
- Old Dominion, a $535.5 MM trucking company, operates a 150-door cross-docking facility on ~16 acres in Memphis employing 308 people
- Old Dominion plans to replace the 150-door site by building a 229-door cross-docking facility, creating 188 new jobs and spending $31.3 million
- The average salary of the new hires will be $52,111
Comparable Cross-Dock – Breinigsville, PA

- Provider-owned transportation cross-docking
- NFI is $1B provider of logistics, warehousing, transportation, and distribution services
- Facility Features:
  - Square Footage: 254,000
  - Building Height: 38'-47'
  - Trailer Spots: 550
  - Dock Doors: 150
  - ~40 acres
  - Close proximity to CSX and Norfolk Southern intermodal rail yards
- Other Services provided: Contract Packaging & Decorating, Light Manufacturing / Assembly, Product Labeling, Reverse Logistics, IT Integration
- Breinigsville was a Ag and Mining town, turned into logistics hub (Home Depot, Amazon, Shoprite, etc.)

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Comparable Cross-Dock – Fontana, CA

- Provider-owned distribution cross-dock provided to L&L Nursery Supply to consolidate shipments from over 60 manufacturers to deliver full truckloads to major retailer.
- Reddaway Fontana Service Center is owned by Reddaway, a $335 million subsidiary of YRC Worldwide.
- L&L is West Coast's leading manufacturer and distributor of lawn and garden products.
- The 160-door facility is located on 17.6 acres.
Case Study 2 - Intermodal Facility
Opportunity Size – Focusing on High Volume Origin-Destination Pairs

The total market opportunity for high volume Origin-Destination pairs: $289 million net annual savings

<table>
<thead>
<tr>
<th>Item</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Gross Transportation Saving</td>
<td>$412 Million</td>
</tr>
<tr>
<td>Empty Container Reposition Cost</td>
<td>($123 Million)</td>
</tr>
<tr>
<td>Total Outbound Container Number</td>
<td>247,000</td>
</tr>
<tr>
<td>Total Inbound Container Number</td>
<td>42,000</td>
</tr>
<tr>
<td>Total Container Shortage</td>
<td>205,000</td>
</tr>
<tr>
<td>Annual Net Saving</td>
<td>$289 Million</td>
</tr>
<tr>
<td>Annual Lift Number</td>
<td>494,000</td>
</tr>
</tbody>
</table>
Container Count by Commodity

Top 3 commodities: Animal Feed, Other Ag Products, and Mixed Freight
Case Study 2 – IM Facility Network Impact

- **Current State**
- **Future State**

- **Optimization Benefits:**
  - Leverage rail network to reduce transportation costs
  - Reduce truck traffic and improve environmental sustainability

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# Investment Analysis – a Mid-Sized Intermodal Facility in Iowa

## Conservative Case vs. Base Case

**A Mid-Sized Intermodal Facility in Iowa**

<table>
<thead>
<tr>
<th></th>
<th>Annual Lift No.</th>
<th>Annual Net Cost Saving</th>
<th>Facility Size</th>
<th>Initial Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative Case</td>
<td>32,000</td>
<td><strong>$23 million</strong></td>
<td>16 to 20 acres</td>
<td><strong>&lt; $15 million</strong></td>
</tr>
<tr>
<td>Base Case</td>
<td>56,000</td>
<td><strong>$40 million</strong></td>
<td>30 to 35 acres</td>
<td><strong>$15 million</strong></td>
</tr>
</tbody>
</table>

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Comparable Facility – CSX Louisville, KY

- Investment Example
  - In 2011, CSX invested $15MM to build a 34-acre IMF in Louisville, KY
  - 34-acre intermodal facility – capacity to handle 68,000+ lifts per year
Comparable Facility – NS Louisville, KY

One of the three IM terminals in KY, 9 miles away from CSX terminal

- 30-acre facility
- The capacity of the terminal is ~55,000 lifts per year
- In 2012, the IM terminal handled 40,000 lifts
Comparable Facility – UP Council Bluffs

- Existing Council Bluffs Intermodal Facility
  - Shared by UP and Iowa Interstate Railroad System
  - COFC facility processing <65,000 lifts per year (62,000 in 2012)
Case Study 3 - Transloading Facility
Opportunity Analysis

Annual Saving Opportunity

Annual Transload Tonnage
## Investment Analysis – Transload Facility

- **Base case financial**

<table>
<thead>
<tr>
<th>Region</th>
<th>Annual Railcar</th>
<th>% of Tonnage</th>
<th>Annual Saving</th>
<th>Facility Investment</th>
<th>Land Cost</th>
<th>Total Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location 1</td>
<td>1634</td>
<td>11.98%</td>
<td>$5,462,720</td>
<td>$4.2 Million</td>
<td>$1.31 Million</td>
<td>$5.5 Million</td>
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<tr>
<td>Location 2</td>
<td>1634</td>
<td>15.17%</td>
<td>$4,966,715</td>
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<td>$1.31 Million</td>
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<tr>
<td>Location 3</td>
<td>817</td>
<td>15.65%</td>
<td>$2,611,274</td>
<td>$4.2 Million</td>
<td>$1.31 Million</td>
<td>$5.5 Million</td>
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</tbody>
</table>

- **Conservative case financial**

<table>
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<tr>
<th>Region</th>
<th>Annual Railcar</th>
<th>% of Tonnage</th>
<th>Annual Saving</th>
<th>Facility Investment</th>
<th>Land Cost</th>
<th>Total Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location 1</td>
<td>583</td>
<td>4.27%</td>
<td>$2,788,109</td>
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<tr>
<td>Location 2</td>
<td>427</td>
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<tr>
<td>Location 3</td>
<td>317</td>
<td>6.08%</td>
<td>$1,402,065</td>
<td>$4.2 Million</td>
<td>$1.31 Million</td>
<td>$5.5 Million</td>
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</tbody>
</table>
Case Study 4 – Propane
Iowa Propane Supply Chain

- Severe propane shortage and sharp price increases for residential and commercial users in 2013-2014 due to supply chain issues

- Applying same scientific principles to propane supply chain:
  - To be better informed when demand for propane reaches critical levels and Iowa faces potential shortages
  - To proactively define viable contingencies to better manage extreme fluctuations and disruptions in propane supply in future

- Propane supply chain optimization analysis focuses on:
  - Ability to handle current demand with current infrastructure
  - Ability to handle future increases in demand with current infrastructure
  - Impact of changing and/or new infrastructure constraints

- Identifies thresholds for when changes in demand or constraints limit ability to meet propane demand at reasonable price
Optimization Approach

- Obstacles are constraints in:
  - Transportation network (e.g. pipeline and terminal capacity, truck availability)
  - Inventory management (e.g. storage in market centers, in bulk in Iowa and at end users)

- Requires understanding of propane supply chain infrastructure including:
  - Demand fluctuations for crop drying and heating
  - Storage requirements (e.g. capacity, reorder points)
  - Sourcing practices (e.g. contracting, contingency supply)
  - Transportation capacity across modes

- Analyzing objectively using network optimization methodology to run simulations and conduct what-if analysis to identify constraints and evaluate alternatives
Questions

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