



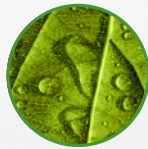
## TRENDS AND ISSUES

Planning for the efficient movement of freight in the future requires that trends and issues that may have an impact on freight movement in Texas be identified. A review of past national research on strategic issues facing freight transportation coupled with the TxDOT Statewide Long Range Plan Update revealed the following five areas of focus and associated trends/issues:



### ECONOMICS

- Emerging Markets
- Panama Canal



### ENVIRONMENT

- Domestic Oil Production
- Alternative Energy
- Alternative Fuels
- Air Quality



### INFRASTRUCTURE PRESERVATION

- Ports & Waterway Infrastructure
- Transportation Funding
- Modal Productivity



### DEMOGRAPHICS






- Population Growth



### TECHNOLOGY

- Dedicated Freight Infrastructure
- Port and Border Security Technology
- 3D Printing

Each trend/issue was evaluated on the possible impacts it could have on the five flow outcomes below.

Potential Flow Events/Outcomes	Flow Impact Causes/Examples
<b>A. Impact on Flow Origins</b> 	Changes to product sourcing, changes to the availability of raw materials and labor market competition.
<b>B. Impact on Flow Destinations</b> 	Shifts in the locations for final product demands resulting from increases in population, consumer tastes, and changes in wealth distribution.
<b>C. Impacts on Routing</b> 	Changes affecting the path or route shipments take in moving from the point of origin to the consumer.
<b>D. Impacts on Flow Volume</b> 	Increases or decreases in the amount of product movement by tonnage or value.
<b>E. Impact on Value Density</b> 	Changes to the characteristics of the product(s) being shipped. Value density is a primary criterion for mode choice and network design.



# TEXAS FREIGHT MOBILITY PLAN



The table below presents a subjective summary of how the trends highlighted previously might impact the five potential freight flow outcomes in Texas. For example, increased trade between Texas and emerging markets is likely to have a moderate impact on companies that produce exports to those countries, hence a “medium” impact on flow origins (key industry clusters in the state). This subjective interpretation of these trends is intended to be a starting point for discussion with the TxFAC of key trends that will have significant or high impacts on goods movement in Texas.

Freight Flow Impacts					
Trend/Issue	Flow Origins	Flow Destinations	Flow Volume	Routing	Value Density
<b>Economics</b>					
Emerging Markets	Medium	Medium	Medium	Medium	Low
Panama Canal	Medium	Medium	Med	High	Low
<b>Demographics</b>					
Population Growth	Low	Medium	High	Medium	Low
<b>Infrastructure Preservation</b>					
Port & Waterway Infrastructure	Medium	High	High	Medium	High
Transportation Funding	Low	Low	High	High	Low
Modal Productivity	Medium	Medium	High	High	Low
<b>Environmental</b>					
Domestic Oil Production	High	High	High	Medium	Low
Alternative Energy	Medium	Medium	Medium	Medium	High
Alternative Fuels	Low	Low	Low	Low	Low
Air Quality	Low	Low	Medium	Medium	Low
<b>Technology</b>					
Dedicated Freight Infrastructure	Low	Low	High	Medium	High
Port and Border Security Technology	Low	Low	High	High	Low
3D Printing	Med	Med	Med	Med	Low

## Next Steps

Developing metrics to track these trends and maintaining awareness on those that are most impactful will enable TxDOT to plan more effectively for the future and make Texas’ transportation system ready and able to respond to the forces impacting freight. Identifying trends which are likely to have a large impact on freight movement will also assist TxDOT in project identification and prioritization.