



Project Summary

Texas Department of Transportation

0-4437: Landside Access Needs for Deep-Water Ports in Texas

Background

To maintain the economic viability of their facilities, port authorities must consider improving landside linkages along with making dockside improvements, and must determine the optimal set of investments for maximizing efficiency and preventing bottlenecks. An inefficient transportation system acts as a surcharge on all areas of the economy. Therefore, landside transportation investments at ports not only make the ports competitive but also make the state and the nation more competitive. By examining the problems faced at some of the nation's highest-volume ports, Texas has the opportunity to address landside constraints and mitigate the adverse impact these constraints have on supply chain efficiency.

The primary concern of this project was to assess the current state of landside access at Texas's deepwater ports. Landside access is a general term used to describe the multimodal connections used for transferring goods from their unloading station at the port to their next destination. Problems of landside access arise when the throughput capacity of a port exceeds that of the land-based transportation network servicing the port.

What the Researchers Did

The project had multiple objectives. The researchers initially compiled an annotated bibliography with descriptions of more than 100 papers, reports, and presentations on related topics representing the full breadth of landside access issues. The researchers then produced a guide for better utilization of Metropolitan Planning Organizations (MPOs) in the process of planning landside access improvements. MPOs are the key actors in the development of landside infrastructure improvements at the local level.

After examining the volume, composition and patterns of cargo handled at Texas ports, the researchers compiled an index of current landside issues affecting each of Texas's deepwater ports, based upon a series of port visits between 2003 and 2004. In order to more scientifically analyze the needs for investments in landside improvements, the researchers developed an econometric matrix that described several approaches such as Multi-Attribute Utility Method and Analytical Hierarchy Process. This matrix also included a model stated-choice survey which could be used in conjunction with these calculations to ensure that the models conform to the real-world priorities of port managers.

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Project Completed:

8-31-04

What They Found

Looking at the twelve Texas ports studied, researchers found that each port has a unique set of potential choke points that need to be addressed. Additionally, the researchers concluded that overall trade levels are growing more dynamic at Texas ports and are more closely affected by international conditions. What this means is that port managers must be aware not only of what is going on within their own hinterland but also of geopolitical events that will allow them to predict and react to sudden changes in commodity flows.

Container volumes are one area that should receive particular attention. The container handling capacity of Texas is being stretched. Furthermore, since a substantial percentage of containers contain consumer goods, the growth of containerized cargo tends to have a greater impact on urban areas. There is also a likelihood that a much larger number of containers from Asia will be arriving at Texas terminals in the near future, using all-water services through the Panama Canal.

What This Means

As a third party, TxDOT should consider taking the lead to improve relationships between MPOs and Texas ports. A semi-annual or annual meeting of TxDOT, MPO, and port personnel would be one potential mechanism. It would also be advisable for TxDOT to assign a person or persons within the nearest district office as a point of contact to each port. Specifically, it is important for TxDOT to facilitate the improvement of rail access to ports. Improved access in this area is in the state's long-term economic interest.

For port planners, the main points to keep in mind when deciding optimal landside access investments in Texas ports are:

- **Adopt a total supply chain approach to choosing among investments.** Port operators should not only ask “When did it leave the ship?” or “When did it leave the yard?” but also, “When and how did it reach the customer?”
- **Have a well-defined set of eligibility criteria.** Resources are scarce but suggestions for how to spend them are plentiful. Ports need to standardize the criteria for valuing potential projects with their landside partners to ensure that the efforts are being directed towards common goals.
- **Have a well-chosen set of performance measures.** It is important to agree upfront with partners as to how the success of projects will be measured. Modal performance measures, partially related to landside highways, are useful (because demand and use drive many of TxDOT's programs).
- **Achieve an enhanced level of preparedness for movement of equipment at normal times as well as times of emergency.** Ports and their landside partners play a vital role in helping to speed recovery from natural disasters and other crises. In the wake of a disaster, even a small port could suddenly find itself as the most important port in the state. All cargo ports should develop contingency plans to determine how they could best serve the country in a time of need.

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