

TxDOT Houston District Truck Mobility Study

Agenda Summary / Background Paper, August 2020

While heavy truck activity levels on major highways are regularly summarized and documented by TxDOT, trucks traversal patterns in the Greater Houston region have not been studied frequently or comprehensively. The TxDOT Houston District Truck Mobility Study begins to address this gap in knowledge by compiling multiple data sources to characterize long-haul truck activity and mobility between regional gateways and major Port Houston terminals.

The data collection scope included summary of origin/destination (OD) activity, historical crash rates, and forecasted traffic congestion related to heavy truck travel between the following key locations:

Gateways:

- US 290, near Hempstead
- IH 10, near Sealy
- IH 69 near Kendleton
- SH 35 near Damon
- SH 228 near Bonney
- SH 36 near Alvin
- IH 45 near Galveston
- IH 10 near Cove
- SH 46 near Mont Belvieu
- US 90 near Crosby
- IH 69 near Humble
- IH 45 near Spring

Port Terminals:

- Turning Basin Terminal
- Jacintoport/Care Terminal
- Barbours Cut Container Terminal
- Bayport Container Terminal

The OD analysis applied anonymized truck GPS data and travel logs from StreetLight Analytics and the American Transportation Research Institute to establish historical distribution patterns for heavy truck traffic entering/exiting each of the gateway and port terminal locations. While truck OD data at Port Freeport and Port of Galveston were not collected as part of this study, the regional gateways on SH 36, SH 288, SH 36, and IH 45 provide proxies for activity to/from these facilities.

The study findings indicate that most travel to/from a given gateway or port terminal starts/ends within the region, likely at a warehousing/distribution center. Though significant heavy truck activity was found to occur between IH 10 near Sealy and IH 10 near Cove and between the Turning Basin Terminal and IH 45 near Spring, trucks generally do not traverse the whole region between gateways or between port and gateway. In fact, 75 to 85 percent of daily heavy truck trips that start/end at Jacintoport, Barbours Cut, or Bayport were found to have a destination/origin within 15 miles of the terminal.

While the findings provide insight on long-haul and port-related truck traversal patterns within the Greater Houston region, a more geographically focused analysis is required to understand what this study identified as the most common type of regional truck trip – short-haul and first/last-mile travel related to local freight nodes (warehousing, distribution, and intermodal hubs). Next steps should include a truck freight node study, which would identify major freight nodes within the region; assess truck mobility needs and potential improvement strategies near the freight nodes; gather feedback from truck freight and logistics stakeholders; and incorporate findings into the TxDOT Houston District project development process.