

TEXAS FREIGHT NETWORK TECHNOLOGY AND OPERATIONS PLAN



Strategy

CENTRALIZED DATA REPOSITORY FOR FREIGHT APPLICATIONS

Freight Technology Area	Data Integration and Analytics
Owner	TxDOT Divisions
Key Stakeholders	TxDOT Districts, Traffic Management Centers (TMCs), Texas Department of Motor Vehicles (TxDMV), Texas Department of Public Safety (TxDPS), Federal, State, Regional and Local Agencies, Maritime Ports, Railroads, Transportation Data Providers, Original Equipment Manufacturers (OEMs)/Startups
End-Users	TxDOT Districts, TMCs, TxDMV, TxDPS, Federal, State, Regional, and Local Agencies, Maritime Ports, Railroads, Transportation Data Providers, OEMs/Startups, Trucking Companies

Motivation

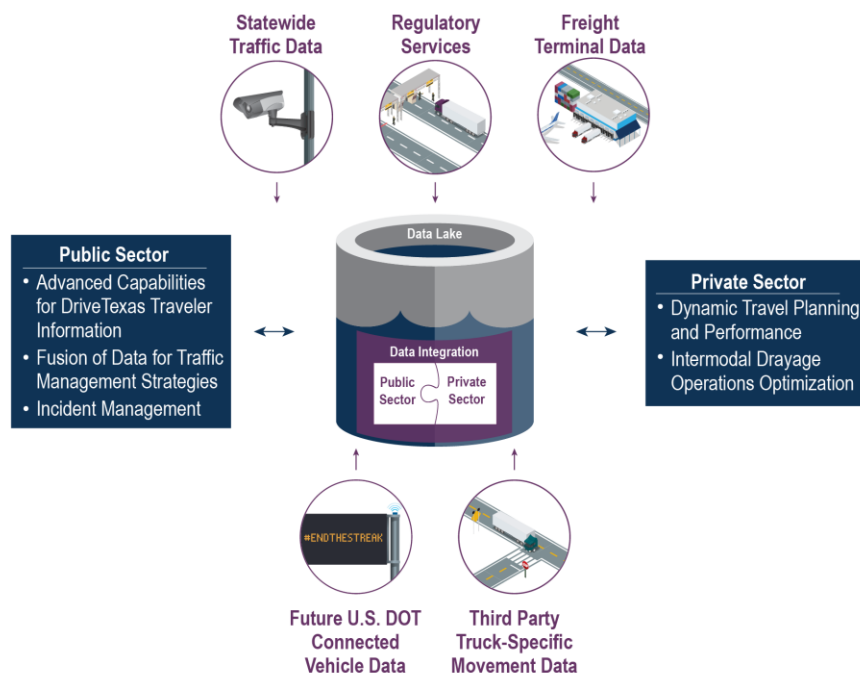
Many data sources and systems exist to serve freight applications, both public and private, but the lack of a common source for information makes it complicated to effectively use these resources and/or develop new services. Additionally, the absence of a single data use policy disincentivizes the sharing of data between public and private sources.

Strategy Description

Implement a statewide data repository system (i.e., data lake) for data collection, processing, storage, and sharing with formulated rules for data access and privacy. The strategy helps TxDOT make better use of existing data and incorporate new data sources and services in one simplified location.

Contribution to 2018 Texas Freight Mobility Plan Goals

- ✓ Economic Competitiveness
- ✓ Asset Preservation and Utilization



Strategy Scope

- Establish a statewide data lake architecture with clearly defined data uses, policies, and sharing rules.
- Prioritize freight applications, with capabilities of expanding to other data services to accommodate other needs.
- Incorporate road regulations and data, including route-based height/weight restrictions and classifications for freight use.
- Incorporate local, county, and state construction and lane closure information in real-time for use by others, such as TxDMV’s oversize/overweight (OS/OW) permitting process.
- Incorporate traffic data sources, such as INRIX, and any voluntary trucking company data (that volunteers data with an understanding of the stated data use policies to protect sensitive data).
- Establish a trusted Application Programming Interface (API) with open-source, published data parameters for independent application development.
- Establish a voluntary reporting service that companies—notably automated vehicle (AV) companies with issue-detection features (i.e., pothole detection)—to report road issues, subject to the publicly-issued reporting policies (i.e., “data is submitted as a suggestion” rules to protect contributors from liability).

Examples of User Needs Addressed*

- Need for collection of more accurate data on freight trip origins and destinations to improve traffic operations.
- Need for more integrated data sharing between public and private partners to provide better freight-specific data.

Potential Benefits*

Freight Data Collection	Freight Data Use & Exchange	Return on Investment
<ul style="list-style-type: none"> • Accessibility to data collected by both public and private sectors • Improves quality and accuracy of available freight data 	<ul style="list-style-type: none"> • Improves freight planning and operations • Improves policy and investment decision-making 	<ul style="list-style-type: none"> • 100% in 1.5 years • 401% in 3 years

Cost Estimates*

Sample Capital Cost	Sample Annual O&M Cost
<ul style="list-style-type: none"> • Archived Data Management and Reporting System: \$556K - \$3.32M 	<ul style="list-style-type: none"> • Archived Data Management and Reporting System: \$218K - \$618K

Timescale for Implementation

Near-Term (0-2 years)	Medium-Term (2-5 years)	Long-Term (5-7 years)
✓ Plan	✓ Deliver	✓ Deliver, Operate & Maintain

Freight Modes Covered: Highways Railroads Maritime Ports

* The full list of user needs and supporting sources for benefits and costs can be found in the FNTOP Strategies and Conceptual Framework Report.

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