

TEXAS FREIGHT NETWORK TECHNOLOGY AND OPERATIONS PLAN



Strategy

HIGH-RESOLUTION FREIGHT TRAVELER INFORMATION SYSTEM

Freight Technology Area	Advanced Traveler Information Systems
Owner	TxDOT Divisions
Key Stakeholders	TxDOT Districts, Traffic Management Centers (TMCs), Metropolitan Planning Organizations (MPOs), Trucking Industry Groups, Transportation Data Providers
End-Users	TMCs, Truckers, Trucking Companies/Dispatchers

Motivation

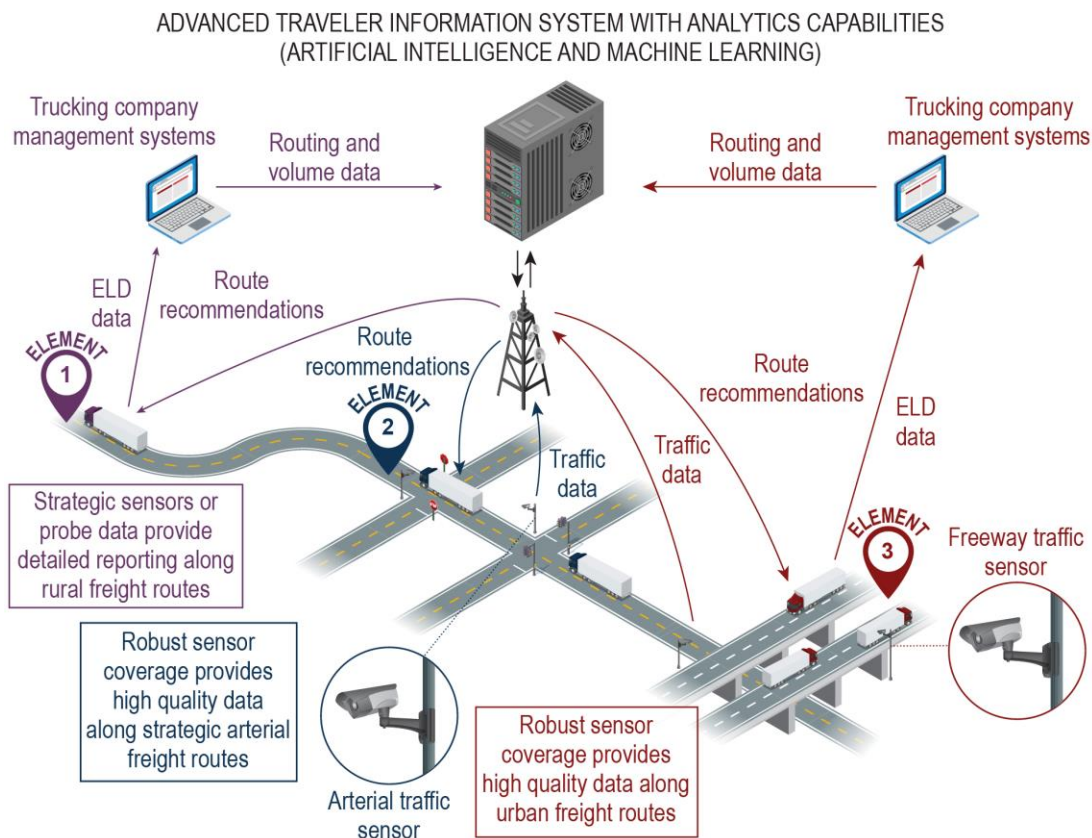
Dynamic, real-time routing is a key component of efficient freight movement. Truck dispatchers and/or drivers plan routes for their daily deliveries. As truck drivers implement the plan, the ability to re-route in real-time to avoid congestion and incidents can have a significant impact on overall efficiency.

Strategy Description

Develop a high-resolution, real-time traffic data system for the Texas Highway Freight Network (THFN) to provide information, using web and mobile apps, that allows trucking companies and drivers to make informed pre-trip and on-the-road routing decisions.

Contribution to 2018 Texas Freight Mobility Plan Goals

- ✓ Mobility and Reliability
- ✓ Multimodal Connectivity



Strategy Scope

- Invest in high-resolution traffic data services for the THFN, utilizing state-owned sensors and/or private sector probe data services.
- Establish mechanism to accept freight-related anonymized probe data to help refine freight data, with established data use guidelines to encourage the private sector to contribute.
- Utilize Artificial Intelligence (AI)-enabled incident management tools to screen for events.
- Utilize AI-enabled forecasting tools to predict traffic conditions into the future.
- Consolidate multiple data sources into a consistent format for each data type, such as road closure information, traffic data, incidents, and recent route performance, to allow easy data sharing with other stakeholders.
- Establish a trusted Application Programming Interface (API) to broadcast data to the public and private data users, within parameters established under the data use guidelines.

Examples of User Needs Addressed*

- Need for more accurate data on real-time freight traffic volumes, speed and congestion to improve freight planning.
- Need for advanced processing, such as machine learning or artificial intelligence, to help with traffic operations and incident detection.
- Need for certain ITS devices currently used only for TxDOT long-range planning efforts to be upgraded to provide real-time information.

Potential Benefits*

Safety	Mobility	Vehicle Operating Costs	Benefit/Cost Range
<ul style="list-style-type: none"> • Up to 4% reduction in crashes 	<ul style="list-style-type: none"> • 5% to 25% travel time savings • 5% to 15% improvement in travel time reliability 	<ul style="list-style-type: none"> • 1% to 10% reduction in fuel consumption 	<ul style="list-style-type: none"> • 3:1 to 15:1

Cost Estimates*

Sample Capital Cost (per mile of coverage)	Sample Annual O&M Cost (per mile of coverage)
<ul style="list-style-type: none"> • Urban Deployment: \$286K • Suburban Deployment: \$144K • Rural Deployment: \$73K • Traveler Information Website/App: \$1.46M 	<ul style="list-style-type: none"> • Urban Deployment: \$29K • Suburban Deployment: \$16K • Rural Deployment: \$8K • Traveler Information Website/App: \$115K

Timescale for Implementation

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

Freight Modes Covered: Highways

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

Casey Wells

✉ casey.wells@txdot.gov

☎ 512.423.8986

