Strategy

BLOCKED RAIL CROSSING TRAFFIC MANAGEMENT SYSTEM

Freight Technology Areas	Traffic Management, Advanced Traveler Information Systems, Intermodal Terminal Operations
Owner	TxDOT Divisions
Key Stakeholders	TxDOT Districts, Texas Department of Public Safety (TxDPS), Local Communities, Metropolitan Planning Organizations (MPOs), Railroads
End-Users	Truckers, Trucking Companies/Dispatchers

Motivation

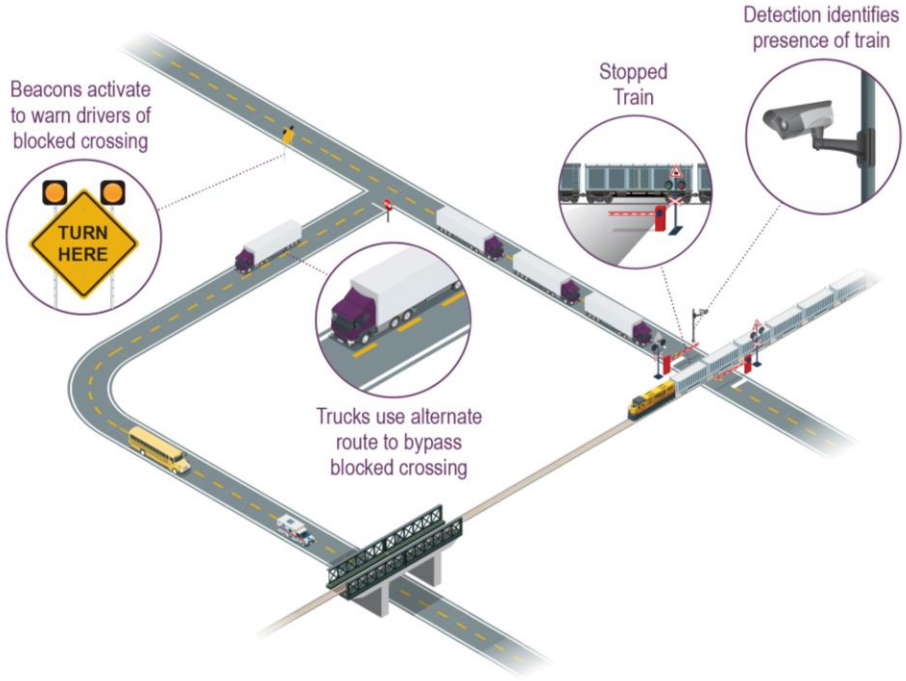
At highway-rail crossings where trains have right of way, a stopped train can create propagating disruptions to freight operations, create life-or-death delays to emergency response teams, and impact quality of life and mobility for local communities. Advanced notification of such events would allow freight operators and emergency response personnel to select alternative routes to minimize delays.

Strategy Description

The strategy includes installing blocked rail crossing detection systems (cameras, sensors, etc.) and advance notification equipment at high-profile freight routes with frequent rail activity. This strategy would provide both current delay forecasts and advance notification of occupied highway-rail at-grade crossings to freight operators, emergency management dispatch, and other users.

Contribution to 2018 Texas Freight Mobility Plan Goals

- ✓ Mobility and Reliability
- ✓ Safety



Strategy Scope

- Implement remote monitoring equipment at highway-rail at-grade crossings in areas with high freight traffic and high rail traffic. Broadcast anonymized train location data back to a central processing software for forecasting upcoming rail use at other sites (i.e., a train will cross downstream in 'x' minutes).
- Implement remote monitoring equipment at highway-rail at-grade crossings that can monitor the duration that the crossing gates have been down. Report this duration in real-time back to a central processing software.
- Install traveler information services (e.g., dynamic message signs) at strategic route decision points that notify of occupied rail locations or forecast of rail disruption based on historical data and offer an alternative route.
- Provide high-resolution historical information for gate downtime to local municipalities concerned about freight congestion due to highway-rail crossings.
- Implement Connected Vehicle (CV) applications at dedicated crossings to notify CV-equipped vehicles of a potential train approaching soon, such as trucks, emergency services vehicles, or school buses.

Examples of User Needs Addressed*

- Need to develop the Houston-Dallas-San Antonio triangle with new smart technologies to improve operations.
- Need for more advanced notice of real-time traffic conditions (delays, incidents construction, weather conditions) to improve routing decisions.
- Need for operational improvements along primary and secondary transport modes to support freight mobility as a whole.
- Need for more technology to improve freight transfer between modes to improve multimodal connectivity.

Potential Benefits*

Safety	Mobility	
• Improves safety and traffic management at railroad crossings • Reduces crashes caused by queuing	• Increases awareness on blocked highway-rail crossing times for better freight routing decisions • Improves freight movement	• Provides historical and real-time data (e.g. blocked crossing duration) for better traffic operations and management

Cost Estimates*

Sample Capital Cost	Sample Annual O&M Cost
• Rail Crossing Detection (site and integration): $91K - $111K	• Rail Crossing Detection (site): $9K - $12K

Timescale for Implementation

Near-Term (0-2 years)	Medium-Term (2-5 years)	Long-Term (5-7 years)
✓ Plan	✓ 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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