Strategy

FIBER OPTIC CABLE SYSTEM EXPANSION

Freight Technology Area	Data Integration and Analytics
Owner	TxDOT Divisions, Third-Party Telecommunication Operators
Key Stakeholders	TxDOT Districts, Other Public Sector Agencies, Third-Party Telecommunication Operators
End-Users	TxDOT Districts, Other Public Sector Agencies, Third-Party Telecommunication Operators

Motivation

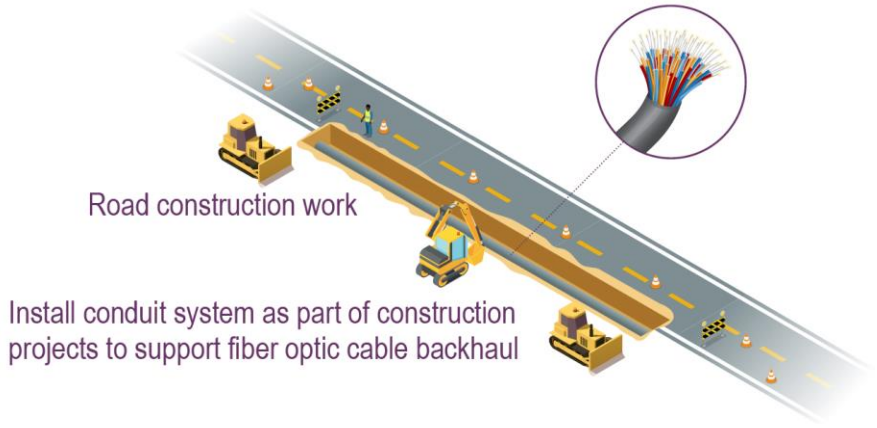
Reliable, secure, and high-speed network communications is essential for data intensive Intelligent Transportation System (ITS) applications that are utilized today and in the future. While high-speed network communications are common in urban areas, many rural areas in Texas lack this type of communications network. Their absence limits the capabilities of certain ITS applications, preventing applications from realizing their full potential of mobility or safety improvements, and in many instances from being deployed at all.

Strategy Description

Deploy a robust communications network along state-owned routes to facilitate current and future ITS investments by providing a high-speed communications service to the operating TxDOT District and other data sharing applications. Implement a policy to help ensure fiber optic cabling and conduit is deployed where determined necessary for expanding the system. Explore opportunities to allow third-party telecommunication companies to deploy their assets in the right of way to help facilitate rural broadband applications.

Contribution to 2018 Texas Freight Mobility Plan Goals

- ✓ Economic Competitiveness
- ✓ Asset Preservation and Utilization



Strategy Scope

- Define policies to guide when and where to add fiber optic cable to provide coverage along highway corridors across the state, based on the fiber optic cable system master plan.
- Identify construction projects where fiber optic cable could be added.
- Explore opportunities to install conduit systems as part of construction projects to facilitate future fiber optic cable deployments.
- Establish funding opportunities (e.g., public-private partnerships) to facilitate private fiber optic cable deployment that can help facilitate rural broadband needs.
- Facilitate opportunities to share fiber optic cable across multiple agencies to help reduce public-sector telecommunications costs.

Examples of User Needs Addressed*

- Need for more fiber connectivity on key corridors and incentives to install more fiber to support new technologies.
- Need for more ITS in rural areas of Texas that lack connectivity and communication to provide better traffic management.
- Need for rural ITS in high-traffic freight areas to help support operations.

Potential Benefits*

Efficiency
• Availability of high-speed communications will allow ITS assets to provide a better level of operational service (e.g. high definition video compared to standard definition) and support future ITS developments (e.g. lower implementation costs for future ITS projects). • Availability of conduit infrastructure will allow for leasing opportunities with third-party telecommunication providers to expand broadband coverage into rural areas. • Availability of reliable network communications with remote devices allows maintenance to spend more time improving roadway conditions instead of traveling to remote sites to update or confirm operation of ITS devices.

Cost Estimates*

Sample Capital Cost	Sample Annual O&M Cost
• Fiber Optic Cable, Access Hand Holes and Signal Regeneration Buildings: $94K-269K per mile.	• Limited O&M costs over 20+ year lifecycle.

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

* 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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