

WHAT CAN WE DO? - FREIGHT

Freight: Moving Goods Effectively & Efficiently

The Texas Freight Mobility Plan (Freight Plan) is TxDOT's first comprehensive multimodal transportation plan focusing on Texas' freight transportation needs. The Freight Plan identifies Texas' freight transportation challenges, outlines statewide goals and objectives to improve the movement of goods, and offers investment strategies and policies needed to address Texas' freight transport needs. Among the freight challenges that the Freight Plan has identified are deficiencies (with examples in parentheses) in:

- » System Capacity (highway congestion and rail bottlenecks);
- » System Operations (lack of designated statewide freight network, lack of alternate routes to interstate highways, aging port infrastructure);
- » Safety (inadequate truck parking, at-grade rail crossings);

- » Connectivity (lack of modal interconnectivity, need for improved rural-urban connectivity);
- » Institutional Coordination (need for increased and improved interstate, public-private, and intergovernmental coordination);
- » Border Crossings (increasing congestion at border crossings, need for deployment of cross-border technology applications);
- » Public Awareness (lack of awareness and understanding of importance of freight movement);
- » Funding (inadequate and inflexible funding of infrastructure and innovation).

A key recommendation of the Freight Plan is the designation of a Texas Freight Network. The Freight Plan's proposed Primary Freight Network includes the IH 10, IH 35 and IH 37 corridors through San Antonio, while facilities such as US 90 and US 281 are mapped as proposed Secondary Freight Network/Emerging Freight Corridors through the area. San Antonio International Airport is included as a Top Cargo Airport.



The Freight Plan's prognosis for the future is that congestion and truck tonnage will increase significantly on Texas' interstate highways, especially "Texas Triangle" and border gateway corridors, such as IH 35 and IH 10, resulting in increasing daily truck trips and VMT and, consequently, deteriorating levels of service impeding the movement of freight and people throughout Texas.

The Freight Plan makes 21 policy recommendations to address the freight transportation challenges identified, many of which pertain to the designation of and investment in the proposed Texas Freight Network. The Freight Plan also includes six program recommendations that outline multimodal freight improvement program strategies. These include:

- » Continue to develop and administer a comprehensive and multimodal TxDOT Freight Planning Program;
- » Develop a freight movement public education and public awareness program;
- » Develop and implement a statewide freight technology-based safety and operations program;
- » Establish a Texas Border Freight Transportation and Trade Management Program;
- » Develop a Texas Highway Freight Network Safety Program; and
- » Develop and administer comprehensive Rail Freight, Maritime Freight and Air Cargo Development and Improvement Programs.



Freight Transported on Rail Line near Airport and Parallel with Wetmore Road, San Antonio, TX

In addition, the Freight Plan includes a multimodal set of recommendations for over 1,200 projects to address the freight transportation challenges and needs identified in the Plan. These include 878 highway projects currently under development or planned, totaling approximately \$36.6 billion, and 34 rail projects, estimated at approximately \$545 million. The total estimated cost of these projects is over \$49 billion; however, not all of these projects are fully funded, so the total cost to implement them may be much higher.

Relevant Policy Recommendations

A number of the Freight Plan's policy recommendations merit discussion as being particularly relevant to San Antonio's urban highways and railroads. A very important one is the recommendation for Freight Network Designation and Investment. Beyond the initial designation of the Freight Network, the policy is intended to direct and prioritize federal, state and local investment in freight facilities on the network, which, as noted above, includes major interstate

and US highways in San Antonio, as well as the Union Pacific Railroad.

An important and new aspect of this derives from the FAST Act. Texas receives approximately \$110 million per year in formula freight funds which can be expended on a network in Texas with three components: a Primary Highway Freight System (PHFS) consisting of 3,700 miles of chiefly interstate highways in the state, including I-35 and I-10, and I-37; 746 miles of critical rural freight corridors to be designated by TxDOT; and 373 miles of critical urban freight corridors to be designated mainly by major MPOs (including the Alamo Area MPO), but with the statewide total adjudicated by TxDOT. A map of the PHFS in East Texas appears below; definition of the critical rural and urban corridors to be added to it obviously will become a central concern of TxDOT's freight network designation effort, and development of its investment plan. The key point is that the City of San Antonio should take an active role in the selection of Critical Urban Freight Corridors by the Alamo Area MPO for submission to TxDOT, because those routes will become eligible for a large new source of funds.



In tandem with that policy is a recommendation for Highway Freight Network Design Guidelines and Implementation. Among this recommendation's objectives are the following:

- » Evaluate TxDOT geometric design standards with respect to commercial vehicle movement on the Freight Network (e.g., turning radii, number of turning lanes, ramp configurations, capacity, frontage road connectivity and clearance or width for oversize loads);
- » Increase TxDOT's current vertical clearance standard from 16.5 feet to 18.5 feet on the Highway Freight Network;
- » Harmonize truck-related requirements and provide guidance to local jurisdictions, including consistent designated routes and/or restrictions for trucks carrying oversize/overweight loads and hazardous materials; and
- » Assess opportunities to provide greater separation between truck and passenger vehicles on interstate segments of the Highway Freight Network.

The recommended policy for Safety, Security and Resiliency of the Freight Transportation System includes among its objectives to:

- » Prioritize funding for the elimination of freight movement safety “hot spots” (locations with high truck-related crashes) and identify potential crash remediation strategies.
- » Improve safety along the Freight Network, especially for the movement of hazardous materials and oversize/overweight loads, through clear route designation and signage, increased educational and training programs and accurate/timely communication with freight system operators.
- » Build safety, security and resiliency factors into transportation infrastructure designs and investment decisions and ensure all Primary Texas Highway Freight Network corridors have alternate routes in the event of disasters.

The policy recommendation for Freight-Based Technology Solutions and Innovation may potentially realize significant benefits for the urban freight network. This policy's objectives are to:

- » Develop and expand partnerships with public- and private-sector stakeholders to implement proven freight-based technology solutions and foster emerging transportation technologies.
- » Expand the development of sophisticated real-time information systems and increase the dissemination of dynamic travel information to improve freight movement mobility and reliability.
- » Provide a seamless statewide traffic management system by integrating existing traffic management centers to provide comprehensive traveler information, such as weather-related information, construction, incident management, emergency management coordination and identification of alternative routes. Another facet should be parking reservation systems accessible by truck drivers and fleet dispatchers from smartphones. This is significant for long haul truckers needing to plan mandated rest stops efficiently, and for local drivers making



*Grade Crossing on South Brazos Street, South of Laredo Street,
San Antonio, TX*

There is also a specific policy recommendation for Rail Freight Transportation, which includes among its objectives the following:

- » Support partnerships for public-private funding and financing opportunities that expand rail capacity and connectivity.
- » Support strategies that reduce the number of at-grade highway/rail crossings, improve the efficient movement of freight and increase the quality of life through reduced congestion and improved safety.
- » Foster rail freight as a practical modal alternative that could potentially relieve freight congestion on Texas highways.

The recommended Institutional Coordination and Collaboration policy has a local and regional nexus. Its relevant objectives include to:

Advance the development of a “one-stop shop” permitting and compliance agency in Texas, empowered to coordinate permitting reviews within the state and with other permitting agencies at the local, regional, state and federal levels.

deliveries in the more challenging locations of the city. These systems have safety and productivity benefits, which in turn positively influence the cost of freight transportation.

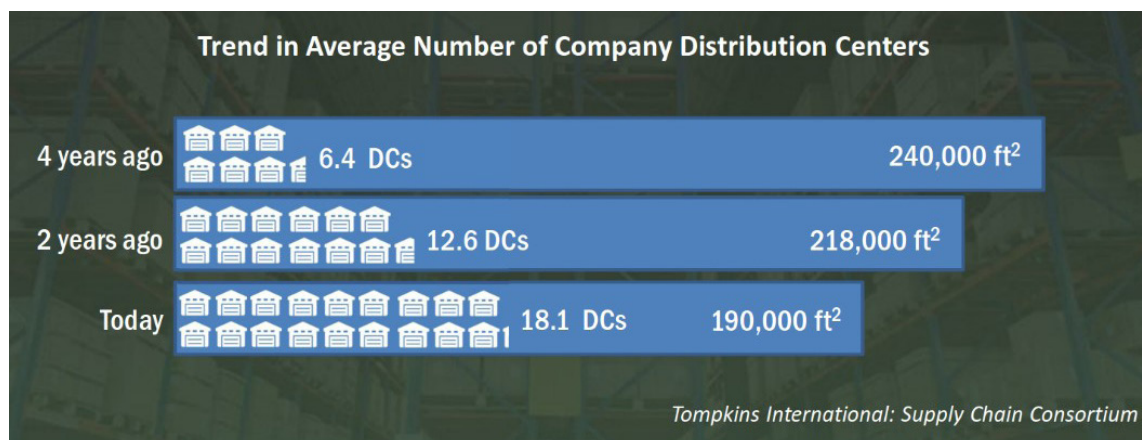
- » The major change in technology that needs to be planned for at every level is Connected and Automated/Autonomous Vehicles (CAV), because components of the technology already are in use and some of the more dramatic applications are in continuing testing. It is not unrealistic to anticipate truck platoons (multiple trucks traveling closely together, wind drafting and potentially using a single driver) operating in the Texas Triangle and

for long-haul border traffic. Quite apart from platooning - which is only one form of CAV, although one with major implications for rail competition - the technology has large safety benefits because vehicles sense one another and the roadway. This allows human error to be overcome and reaction times to become faster. In a metropolitan region where community concerns about truck activity are based on safety, a new generation of interactive trucks and infrastructure can improve safety performance and reduce community opposition to freight routes and economic development.

Improve communication between public agencies to streamline project delivery and build consistency among various jurisdictions in regulations, permitting, planning and preservation of the freight network.

Enhance coordination with MPOs and local governments to identify freight infrastructure needs of statewide significance.

Home Delivery: Fitting with the policy of state and local coordination is the growth in internet home delivery as a substitute for conventional retail, because it affects both state and local land use and transportation patterns. Retail distribution is one of the main markets for freight transportation and is the channel by which freight provides service to the population. The location of retail distribution centers dictates where freight will flow to and from, and what regions it serves. A pronounced trend in



recent supply chain design has been an emphasis on faster time to market, which requires more distribution centers placed closer to end users. The accompanying graphic from the Tompkins International Supply Chain Consortium shows that major American companies have tripled the number of distribution centers they use just in the last four years. A major driver of this trend is home delivery.

The battle front in the competition between store-based and web-based retail is convenience. The web can offer a vastly larger array of products but not the utility of possessing the product immediately. To combat this, web merchants have been offering faster delivery times and lower shipping charges. In San Antonio, the market leader Amazon began offering 2-hour delivery for certain products and zip codes in the fall of 2015,¹ with free shipping for its Prime members (membership costs \$99/

^[1] <http://www.sacurrent.com/Blogs/archives/2015/10/22/amazon-prime-now-brings-1-hour-delivery-to-san-antonio>

year). 1-hour delivery is available for \$7.99. The effect of this on consumers is to make it easy and cheap to change buying behavior, to the point that package delivery companies report that products on the home delivery channel now include every day and bulky household items like paper products and pet food. The effect on the transportation system is two-fold: distribution centers have to be close enough delivery points to make the 2-hours delivery deadline despite traffic conditions, and trucks large enough to supply routine household items will appear in residential neighborhoods. How Texas plans for this and the common needs of metropolitan regions in preparing for it are clear areas for coordination.

Many, if not most, of the remaining policy recommendations in the Freight Plan may also have relevance to freight transportation planning in the San Antonio area. The preceding selection of recommendations from the Plan presents those that presented some issues of particular relevance.

Program Recommendations

Some elements of the Freight Plan's program recommendations that may be especially applicable to regional freight planning in the San Antonio area are listed below. These elements recommend that TxDOT/the State should:

- » Continue to develop and administer a comprehensive and multimodal TxDOT Freight Planning Program, focused both on developing strategies, policies and methodologies to improve the freight transportation system and on better ways to link transportation investments to the state's economic development goals.
- » Develop and implement a statewide Freight Technology-Based Solutions Program focused on enhancing freight transportation system safety, management, operations and asset management.
- » Develop a Texas Highway Freight Network Safety Program focused on improving safety by minimizing conflicts between trucks and passenger vehicles on the network.
- » Develop a Design, Construction and Safety Standards Program focused on reviewing and modifying standards to address safety and mobility needs for truck movements, increasing connectivity and increasing Texas Highway Freight Network efficiency and operations.
- » Develop a Bridge Reconstruction and Replacement Program to address deficient bridges, increase vertical clearance to 18.5 feet to accommodate oversize/overweight vehicles and military transportation needs and facilitate efficient movement of people and goods.
- » Develop an Interchange Reconstruction and Upgrade Program for all interstate highways to address obsolete designs and left exits to improve safety and mobility.
- » Develop a Statewide Construction Management and Coordination Program to proactively minimize traffic impacts and improve safety and mobility for motorist and trucks.
- » Develop, in cooperation with the freight industry, a comprehensive Rail Freight Development and Improvement Program to expand rail freight capacity and improve rail freight mobility.

Project Recommendations

As noted above previously, over 1,200 projects were recommended in the Freight Plan for the Texas Freight Network, which are currently under development or planned at an estimated cost of \$36.6 billion, but not all of which are fully funded. In addition to these recommended projects, 786 segments of the Highway Freight Network were identified with freight needs, but which do not yet have a planned project. These needs have an estimated cost of approximately \$25.9 billion. Urban areas account for 63 percent of total projects and 79 percent of total estimated project cost. Freight Plan goals upon which the identification of project recommendations and highway freight needs were based include:

- » Mobility/Connectivity
- » Alternate Routes
- » Commercial Motor Vehicle (CMV) Bottlenecks
- » At-Grade Rail Crossings
- » Truck Rollovers/CMV Hot Spots
- » Asset Management
- » Technology and Operational Improvements



Truck Traffic on IH 35 at Thousand Oaks, San Antonio, TX

The Freight Plan maps the needs represented by the first six bullet points for the state of Texas, with needs included under Asset Management as being focused on bridge deficiencies. The maps show that the San Antonio area has needs in all six areas categories.

The Freight Plan's rail recommendations provide for improving mobility and increasing capacity by double-tracking existing rail lines and adding new rail lines. Additionally, several rail grade separation projects are identified to reduce the number of incidents, alleviate bottlenecks and allow trains to operate more efficiently. The Freight Plan estimates over \$1.7 billion for 65 highway/rail grade separations projects from TxDOT's UTP. These projects are eligible for funding through TxDOT's railroad grade separation program. Highway-rail grade separation projects were selected, prioritized and targeted for:

- » New grade separation structures; and
- » Upgrading deficient railroad underpasses.



Grade Crossing on Fredericksburg Road, South of Myrtle Street, San Antonio, TX

Union Pacific Rail Road (UPRR) identified the following grade crossing locations in San Antonio that could benefit from grade separation. The locations were identified by UPRR as part of the Partner Agency Group efforts for the Multimodal Transportation Plan. UPRR based the selection on citizen complaints and safety statistics.

- » Houston Street crossing next to Freeman Coliseum & AT&T Center
- » Jones Maltzberger crossing at Quarry Market & US Highway 281
- » Frio City Road & Zarzamora crossing
- » Rittiman Road or Walzem Road along Gibbs Sprawl Road at the railroad crossing east of Kirby
- » Rittiman Road & I-35 crossing
- » Thousand Oaks along Wetmore Road at the railroad crossing

Opportunities to seek available state and/or federal funding for grade separating crossings should continue to be pursued. However, freight carriers should partner with the City and/or TXDOT to help

underwrite grade separation improvements for crossings that impede freight movement and contribute to safety issues. A partnership to improve these crossings would benefit both agencies and an agreement sharing the cost with the City and/or TXDOT to grade separate could speed up implementation greatly.