



# 2016 Texas Rail Plan Update

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## Chapter 4: Potential Freight Rail Improvements and Investments

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## 4.1 Potential Freight Rail Improvements and Investments

This section identifies and describes the possible future improvements and investments that could address the freight-rail needs of Texas. Many of these projects address the opportunity for enhanced access to the state's rail network, rail service gaps, options for infrastructure improvements, the safety and efficiency of rail operations, climate change adaptation, and economic development. Projects specific to Class I and short line railroads, rail users (freight shippers), and the communities served by the state's rail network are included in the discussion. Options for funding rail projects are discussed in Section 2.12 of Chapter 2. This section also summarizes some of the issues and trends that are important factors favoring these proposals.

### 4.1.1 The Market – Population and Economic Growth

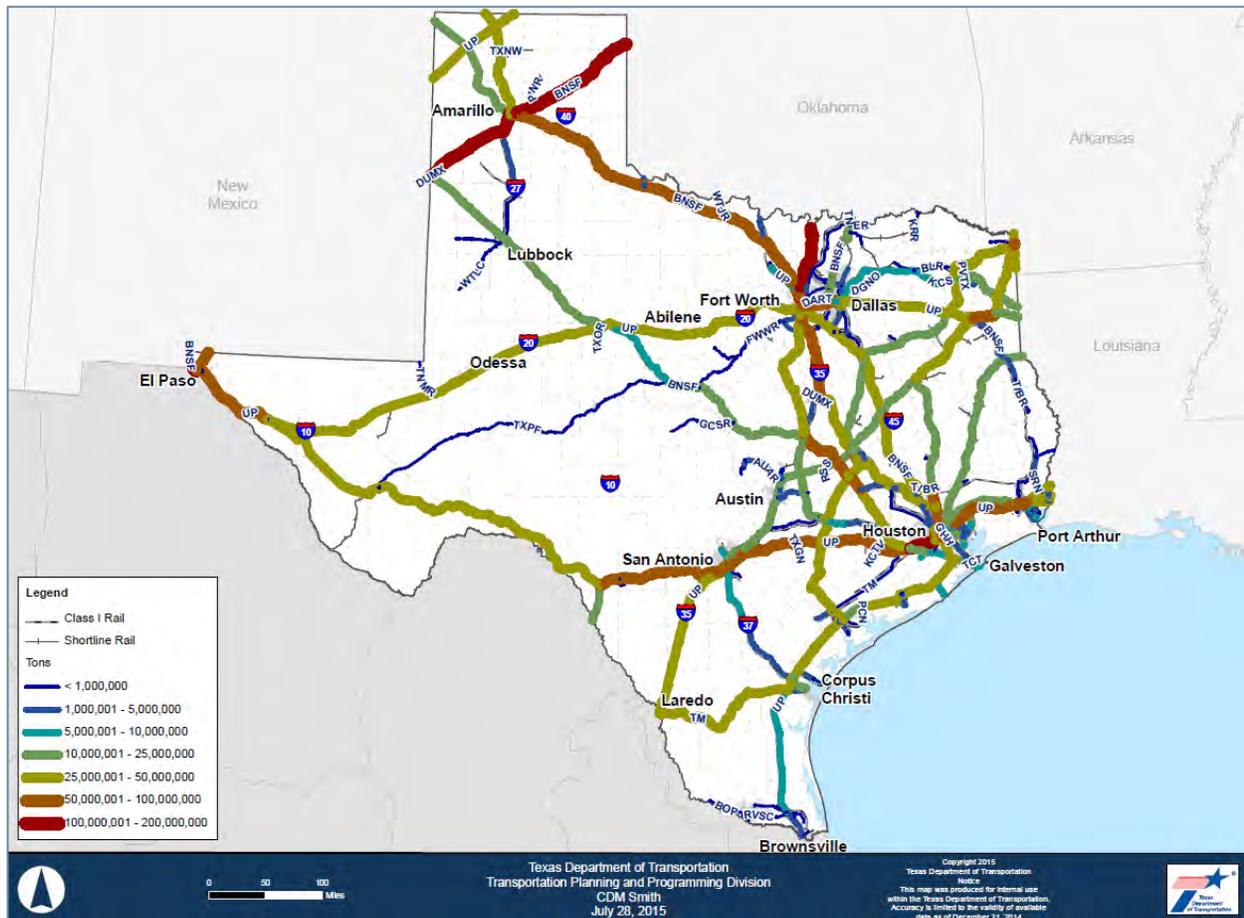
Utilizing 2014 volumes as has been outlined in previous chapters, rail accounted for 20 percent, or 397.5 million tons, of total freight movement in Texas. Rail tonnage is estimated to increase by approximately 90 percent to 764.3 million by 2040 and remain at 20 percent of total freight movements. The Texas freight rail system is a significant component of the national network. Through-rail traffic is projected to be the largest rail movement by 2040 at 276.1 million tons and 36 percent of total rail movements. The projected 2040 freight rail tonnage is depicted in **Exhibit 4-1**. The rail lines expected to handle the greatest increase in freight movements in Texas include:

- BNSF Railway (BNSF) lines between the Texas/New Mexico to/from Texas/Oklahoma state lines and Amarillo and between Amarillo to/from Fort Worth.
- Various Union Pacific Railroad (UP) lines between Texas cities, including Abilene to/from Fort Worth, Brownsville to/from Corpus Christi, Flatonia to/from Caldwell, Laredo to/from San Antonio and Marshall to/from Jefferson.

Future freight demand is subject to private investment, which could alter demand and travel patterns. System capacity improvements were not considered in these forecasts and may also alter these estimates.

Also, as previously described within Chapter 2, Texas has experienced significant population growth to become the second most populous state in the nation. Strong economic growth, especially international trade, is also expected, continuing the trend of Texas outpacing national growth rates. Due to this growth in population and economic activity, the railroads in Texas are constantly striving to meet these increased market demands with new infrastructure and increased efficiency. Much of this increased demand for freight movement will be in export/import goods and commodities through Texas' ports. This increased movement of freight will strain existing infrastructure beyond capacity and require additional capacity and fluidity options in order to avoid gridlock.

Exhibit 4-1: Projected Texas Rail Freight Tonnage, 2040



Source: Based on TRANSEARCH® data

Without expanded rail capacity, Texas' competitive position in the transportation and economic marketplace is likely to deteriorate, and the costs for business, manufacturing and trade will likely increase. These changes could hinder growth and possibly divert economic activity to other regions. As a result of these challenges, expansion is being proposed for the state and regional freight rail networks to increase Texas' goods movement transportation capacity and options. This future expansion will also generate environmental benefits by enabling more efficient land use patterns where freight transportation by truck is reduced.

#### 4.1.2 Freight Rail Project Needs

Texas is served by three Class I railroads (BNSF, KCS, and UP) and 46 Class III railroads, as described in Chapter 2. The needs of Class I railroads in the state vary from the needs of the Class III railroads in terms of the Class I railroads' ability to fund and facilitate infrastructure improvements. This section presents the challenges facing both classes of carrier and individual railroads serving the state, as determined by surveying the state's carriers. The information presented in this chapter was made available by the state's railroads during the development of the Texas Freight Mobility Plan. It should be recognized that private railroads are under no obligation to

provide complete information on their capital improvement plans and this analysis is based on the information that could be obtained.

As described above, the projected freight demands will result in a need for expanded capacity on Texas' freight rail network. Rail line capacity is also the underlying cause of the slow average speeds and unreliable nature of the current intercity passenger service (as described in Chapter 3). These slow average speeds for the most part do not reflect poor track conditions or restricted alignments, but are a reflection of a capacity-constrained network with frequent meet delays and delays due to train congestion. Additional rail line capacity will need to be constructed in the future for both the growing rail freight market as well as for any additional intercity passenger rail service (excluding greenfield development of new intercity passenger rail corridors). Key highway/rail crossings need to be separated with parallel crossings closed in order to create a more reliable and fluid rail line that can be operated without concerns regarding the blocking of highway crossings.

### **Class I Railroad Investments**

Class I railroad companies in Texas mostly use private financing to cover the cost of equipment acquisition (locomotives and railcars) and infrastructure improvements aimed at renewing, upgrading, or expanding the state rail network (rail, ties, bridges, signal systems). Railroads rely on a regulatory framework (according to Surface Transportation Board requirements) that provides sufficient return on investment as a means to accommodate these capital expenditures.

Class I railroad investment in rail infrastructure in the state of Texas has been robust and continuous since the 1970s. Historically, most projects were aimed at developing the capacity necessary to efficiently handle the surge of increased freight imports and exports coming through the gulf ports in Texas, as well as the movement of consumer-based goods into the state from locations such as the Ports of Los Angeles and Long Beach, along with the development of associated land ports. These efforts spawned full upgrades to and multiple-tracking of existing mainlines, construction of new lines, and expansion of existing or creation of new terminal facilities. Funds are budgeted by the Class I railroads each year to facilitate ongoing capital investment in the state's rail network.

Class I railroads have continued to invest heavily in their networks during the last five years in order to solve ongoing factors constraining the capacity, efficiency, and velocity of the high volumes of through traffic in Texas; to eliminate or mitigate operational chokepoints; to handle various upgrades associated with maintenance and safety (including implementation of federally mandated positive train control [PTC] systems, which reduce the likelihood of train overspeed incidents and collisions between trains); and to accommodate routine infrastructure renewal.

Class I railroads are expected to continue to improve their infrastructure in the state in the future, including the need for new intermodal capacity, as the container business continues to expand at Texas' ports. Existing intermodal facilities such as BNSF's intermodal facility in Alliance are being expanded to increase their container handling capacities, and new intermodal facilities such as

UP's Brazos Yard in Hearne, KCS' Wylie Yard in Wylie, and UP's South Dallas Yard are being designed and built to also increase capacity.

These future Class I railroad needs were discussed with each of the carriers during the stakeholder outreach process during the development of the Texas Freight Mobility Plan. These projects are listed in the Section 4.1.3.

### **Short Line Railroads**

Short line, or Class III railroads, face a different set of challenges to meet their needs since they do not usually have the capital and technical resources, operating capacity and flexibility, or modern infrastructure of the larger Class I railroads. Typically, the largest constraints on U.S. short line railroads involve accommodating railcars with a 286,000-pound (lb.) maximum gross weight (the heavier car loadings are an advancement over lighter cars and have become the industry standard) and operational chokepoints caused by insufficient operating capacity.

Railcars with larger loading capacity provide greater operating efficiency by reducing labor, fuel, and maintenance costs while increasing capacity and synergy for rail operations and rail shippers. Most Class III railroads have a legacy infrastructure suited to low-density operations and railcars of lighter weight (263,000-lb. and 268,000-lb. gross weight capacity). In order to accommodate the 286,000-lb. cars, short line railroads must make upgrades to the track structure and substructure (that is, rail, switches, ties, and ballast section) and bridges to handle the additional stress caused by transporting the heavier cars. Short line railroads that are unable to make the appropriate upgrades might lose business to transportation competitors, namely trucks or other nearby railroads that are capable of handling the 286,000-lb. cars.

Short line railroads were often formed as a result of Class 1 railroads selling or abandoning low volume lines that did not merit investment in their infrastructure. As such, short line railroad chokepoints are often attributed to this legacy infrastructure tailored to historical railroad practices, which can limit capacity and hamper efficient modern operations. Such factors include yard capacity that is insufficient for building trains, switching and staging cars, and sidings that are of inadequate number, length, or location to accommodate the demands of present-day train operations and schedules. Some short line railroads are further constrained by delays that stem from interchanging railcars with another carrier or in the use of trackage rights to access an isolated segment of their network. These deficiencies not only compromise rail transit times and operations safety and cause mainline and yard congestion, but they have the unintended consequence of affecting the quality of life for adjacent communities. Among other things, this condition can lead to protracted delays for motorists and emergency vehicles at highway-rail grade crossings.

Texas' short line railroads were queried during the stakeholder outreach process of the Texas Freight Mobility Plan about the specific challenges they face now and for the next 10 years in terms of capacity constraints, infrastructure needs and upgrades, railroad regulation, and capital funding needs. Their responses are listed in Section 4.1.3.

## **Port Rail Projects**

As the port infrastructure in the state continues to grow and expand, so must the associated rail infrastructure. Several port facilities are served by one or more freight railroads that are critical components of their goods movement logistics. Several rail improvements at port facilities are listed in Section 4.1.3.

## **Border Crossing Rail Projects**

Freight rail crossings at the border are also a focus for future infrastructure improvements. Existing border rail crossings should continue to be improved (via grade separations) and potential new rail crossings at the border will be studied and possibly implemented.

### *4.1.3 Potential Projects*

Over the past several years, specific projects have been proposed to increase rail capacity in the state, or to improve existing infrastructure. These projects have been categorized below as being one of the following project types (based on need):

- Class I Capacity/Velocity Improvement Projects
- New Intermodal Terminal/Yard Projects
- Short Line Projects
- Port-Rail Projects
- Border Crossing Projects
- Highway-Rail Crossing Projects

## **Class I Railroad Capacity/Velocity Improvement Projects**

A listing of Class I Railroad projects that are intended to improve capacity or system velocity is provided below in **Exhibit 4-2**. In this table, costs for the intended project (as briefly described) have been estimated, the source of the project information provided, and the project need (i.e. type) are listed. The project priority is that as identified by the project source. The subsequent exhibits show tables in the same manner.

Exhibit 4-2: Potential Class I Freight Rail Capacity/Velocity Projects in Texas

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
Beaumont	Neches River Rail Crossing	Construction of a second bridge for a rail crossing of the Neches River at Beaumont: The existing single track lift bridge is a significant capacity constraint on a major intercontinental rail line between Los Angeles and New Orleans. More than 30 trains per day cross the existing bridge at reduced speeds and are often delayed by trains entering/ leaving the Port of Beaumont, which is adjacent to the existing lift bridge, and by watercraft moving along the Neches, requiring the bridge to lift	\$240,000	TxDOT Freight Mobility Plan	Class I Capacity/ Port Related	High
Beaumont	Beaumont Rail Capacity	Expand rail capacity through the Beaumont, Texas rail corridor to address projected rail traffic increases through that corridor, improve fluidity and reduce traffic congestion	TBD	KCS	Class I Capacity	Low
Houston	Dayton Wye	Dayton Wye (BNSF-UP 50/50 Line)	TBD	BNSF	Class I Capacity	Low
Houston	Tower 76 Wye	SE Wye at Tower 76	TBD	BNSF	Class I Capacity	Low
Houston	Double Track Rail (Sinco to Harrisburg Junction)	Double Track Sinco Junction to Harrisburg Junction	TBD	UP	Class I Capacity	High
Houston	Double Track Rail (Mykawa sub)	Double Track BNSF Mykawa sub	TBD	UP	Class I Capacity	Low
Hurst	Double Track Rail on TRE	Double Track TRE - Tower 55 to Hurst	TBD	BNSF	Class I Capacity	Low
Rosenberg to Arcola	Second Main Line ROW and Design (Galveston Subdivision)	Right-of-way and design costs for a second main between Rosenberg and Arcola on BNSF's Galveston Subdivision	\$18,400	BNSF	Class I Capacity	High
Sheldon to Dayton	Second Main Line Construction (BNSF)	Second Main, Sheldon to Dayton, Tx (BNSF-UP 50/50 Line)	TBD	BNSF	Class I Capacity	Low
Teneja	Teneja Wye Connection	New Wye Connection at Teneha, Tx (Longview Subdivision)	TBD	BNSF	Class I Capacity	Low
Conroe Subdivision	Conroe Subdivision Capacity Improvements	Construct siding extensions on Conroe Subdivision and north to east connection from Houston Subdivision to Conroe Subdivision	\$32,000	BNSF	Class I Capacity	Medium

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
Llano/ Marble Falls to Giddings	N/A	Increase capacity and provide rail transportation of aggregates for the US 183 improvements (Bergstrom Express) and the I-35 expansion in Austin	\$5,000	CapMetro	Class I Capacity	Medium
Dobbin	Dobbin Wye Connection	New Wye Connection at Dobbin, TX (Houston, Conroe Subdivisions)	TBD	BNSF	Class I Capacity	Low

Source: 2015 Texas Freight Mobility Plan

## New Intermodal Terminal/Yard Projects

A listing of a new intermodal terminal and new yard project that is intended to be designed and constructed in the future is provided below in **Exhibit 4-3**.

Exhibit 4-3: Potential New Intermodal Terminals/Rail Yards in Texas

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
Hearne*	Brazos Yard	Design and Construction of new Intermodal/ Classification Yard	TBD	UP	Class I Infrastructure Improvement/ Intermodal	High

\* Project not listed in 2015 Texas Freight Mobility Plan

## Short Line Projects

A listing of potential short line railroad projects is provided below in **Exhibit 4-4**.

Exhibit 4-4: Potential Short Line Freight Rail Projects in Texas

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
Fort Stockton to Alpine	South Orient Rail Line Rehab (Alpine)	Rehabilitation of the South Orient rail line between Fort Stockton and Alpine to open the interchange with UP at Alpine: This section of the rail line is constructed of rail manufactured in 1912 that is substandard for today's loadings. Rehabilitation is essential to enable shipments to/from the border at Presidio and to provide interchange capability with UP and foster competition for SORR freight between BNSF and UP. This would also allow crude oil shipments west to California across UP's Sunset Route	\$50,000	TxDOT Rail Division	Short Line Capacity/ Infrastructure Improvement	High
Greenville to Mount Pleasant	Northeast Texas Rural Rail Transportation	Rehabilitation of the Northeast Texas Rural Rail Transportation District (NETEX) rail line from	\$32,000	TxDOT Rail Division	Short Line Infrastructure Improvement	High

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
	District Rail Line Rehab	Greenville to Mount Pleasant (66 miles): TxDOT owns the 31 miles of the NETEX ROW and has a security interest in the infrastructure from a Grant Funding Agreement in 1996. Track speeds on the NETEX line are limited to 10 mph due to defective cross ties and bridge deficiencies. The rail line must be rehabilitated to continue providing service to existing customers and to attract new business to the line and the region. TxDOT would seek additional ownership in the line and infrastructure as a condition to rehabilitating the line				
Greenville to Wylie	Reconstruction of NETEX Rail Line	Reconstruction of an abandoned rail corridor owned by the NETEX rail line from Greenville to Wylie (23.2 miles): This reconstruction would provide additional rail capacity into the Dallas-Fort Worth metroplex. TxDOT funded the purchase of this right-of-way by NETEX	\$25,000	TxDOT Legislative Appropriations Request	Short Line Infrastructure Improvement	High
Houston	Second Main Line Construction (Houston)	Construction of a second main line in Houston from the GH&H Junction to Manchester Junction on the Port Terminal Railway Association track: This would eliminate more than 2.5 hours of train delay daily, which is caused by this single track constraint that connects to double track in both directions	\$22,000	TxDOT Rail Division	Class I Capacity/ Short Line Infrastructure Improvement /Port Related	High
Houston	Houston Rail Grade Separation (PRTA Railroad)	Remediate at grade rail crossing in Houston at Federal Road over PRTA railroad	TBD	Houston Listening Session	Short Line Infrastructure Improvement	Low
Paisano Junction and Presidio	South Orient Rail Line Rehab	Rehabilitation of the South Orient rail line between Paisano Junction and Presidio to open the international gateway at competitive speeds: Rehabilitation is essential to enable shipments to/from the border at Presidio, to provide interchange capability with UP and to foster competition for SORR freight between BNSF and UP	\$46,000	TxDOT Rail Division	Short Line Infrastructure Improvement /Border Crossing	High

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
Sulphur Junction to Fort Stockton	South Orient Rail Line Rehab (Fort Stockton)	Rehabilitation of the South Orient rail line between Sulphur Junction and Fort Stockton (13.6 miles): This section of the rail line is constructed of rail manufactured in 1912 that is substandard for today's loadings and is expected to become inoperable due to infrastructure deficiencies within 5 years. Rehabilitation is essential to provide service to existing customers and attract new businesses to the area	\$15,000	TxDOT Rail Division	Short Line Infrastructure Improvement	High
Statewide	South Orient Rail Projects	South Orient Rail Projects: TxDOT and Texas Pacifico (TXPF) have executed a contract amendment that requires TXPF to pay a \$50 carload fee to reimburse Texas for any State funds expended on rehabilitation of the line. The 83rd Legislature appropriated \$5 million in general revenue for rehabilitation work. TxDOT estimates that TXPF will repay \$1 million annually through the carload fee. This request is to allow TxDOT to use these funds again for additional work as a "revolving" fund investment	\$2,000	TxDOT Rail Division	Short Line Infrastructure Improvement	High
Statewide*	Various 286K Upgrades	Replacement of existing track with 286K track to enable the servicing of heavier rail cars	TBD	OmniTrax	Short Line Infrastructure Improvement	Medium
Statewide*	Various 286K Upgrades	Replacement of existing track with 286K track to enable the servicing of heavier rail cars	TBD	Watco Companies	Short Line Infrastructure Improvement	Medium
Statewide*	Various 286K Upgrades	Replacement of existing track with 286K track to enable the servicing of heavier rail cars	TBD	Genesee & Wyoming	Short Line Infrastructure Improvement	Medium

Source: 2015 Texas Freight Mobility Plan

\* Project not listed in 2015 Texas Freight Mobility Plan

## Freight Rail – Port Projects

A listing of potential freight rail improvement projects associated with ports is provided below in Exhibit 4-5.

Exhibit 4-5: Potential Rail–Port Projects in Texas

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
Port of Freeport*	Proposed Line to Rosenberg	New rail line that could run parallel to SH 36 and portions of SH 36A, once a route is determined. The plan calls for the addition of rail road infrastructure within the SH 36 and 36A corridor, in response to the Panama Canal expansion that is expected to be completed by 2016. The rail line between Freeport and Rosenberg would connect with the UP line going west to San Antonio, the UP line to Dallas and the BNSF line to Fort Worth.	TBD	Port of Freeport	Port Related	High

Source: 2015 Texas Freight Mobility Plan

\* Project not listed in 2015 Texas Freight Mobility Plan

## Border Crossing – Rail Projects

A listing of potential freight rail improvement projects associated with border crossings in Mexico is provided below in Exhibit 4-6.

Exhibit 4-6: Potential Border Crossing–Rail Projects in Texas

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
Laredo	Laredo Bridge Double Track	Construction of a second bridge or double track bridge at Laredo to improve rail traffic flows to/from Mexico	TBD	UP	Class I Capacity/ Border Crossing	Low
El Paso County	USB-Rail-02	Perform various upgrades to 31 bridges on the BNSF El Paso Subdivision within the next 10–15 years	TBD	El Paso/ Santa Teresa– Chihuahua Border Master Plan	Class I Capacity/ Border Crossing	TBD
Eagle Pass	Eagle Pass Rail Improvements	Eagle Pass Rail Improvements – include double-tracking segments between BNSF and UP sidings and between UP siding and tracks at Eagle Pass in the vicinity of the bridge to Piedras Negras, an intermodal facility with lay-down pad for container movements, and improvements to assist CBP in conducting border security measures	\$18,000	UP	Class I Capacity/ Border Crossing	High
Laredo	F-01	Proposed rail link north of Laredo	TBD	Laredo-Coahuila/ Nuevo León/ Tamaulipas Border Master Plan	Class I Capacity/ Border Crossing	Low

Source: 2015 Texas Freight Mobility Plan

## Highway-Rail Crossing Projects

A listing of potential freight rail improvement projects associated with highway-rail crossings is provided below in **Exhibit 4-7**.

Exhibit 4-7: Potential Highway-Rail Crossing Projects in Texas

Location	Project Name	Project Description	Estimated Cost (\$1,000)	Source	Project Need	Project Priority
Corpus Christi	Corpus Christi Rail Grade Separation	Remediate rail crossings on US 181 and US 77 in Corpus Christi	TBD	Corpus Christi Listening Session	Class I Capacity/ Safety	Low
Fort Worth	School Road Grade Separation	BNSF Sycamore School Rd Grade Separation (Fort Worth Subdivision)	TBD	BNSF	Class I Capacity/ Safety	Low
Fort Worth	Hemphill Street Grade Separation	Hemphill St Grade Separation (Fort Worth Subdivision)	TBD	UP	Class I Capacity/ Safety	Low
Fort Worth	Blue Mound Road Grade Separation	BNSF Blue Mound Rd Grade Separation (Fort Worth Subdivision)	TBD	BNSF	Class I Capacity/ Safety	Low
Fort Worth	Seminary Drive Grade Separation	BNSF Seminary DR Grade Separation (Fort Worth Subdivision)	TBD	BNSF	Class I Capacity/ Safety	Low
Houston	Houston Rail Grade Separation (West Belt Subdivision)	Construction of five grade separations and the closure of five additional crossings: This would create a 5.9-mile sealed corridor in Houston on the West Belt Subdivision between Tower 26 and TNO Junction	\$57,600	TxDOT Rail Division	Class I Capacity/ Safety	High
Houston	Houston Rail Grade Separation	Eliminate the at-grade rail crossings in Houston at Griggs, Mykawa, and Long and replace them with a series of over and under passes	TBD	Houston Listening Session	Safety	Low
Laredo	Laredo Grade Separations	Relieve congestion in downtown Laredo caused by the 14 at-grade crossings along the existing Texas-Mexico approach to the existing Laredo rail bridge	TBD	KCS	Class I Capacity/ Border Crossing/ Safety	Low
Madill	Trinity Mills Grade Separation	Trinity Mills Rd Grade Separation (Madill Subdivision)	TBD	BNSF	Class I Capacity/ Safety	Low
Port Arthur	SH73 Grade Separation	Provide railroad grade separation on SH 73 near the Port of Port Arthur	TBD	Panama Canal Stakeholder Working Group	Class I Capacity/ Port Related/ Safety	Medium
Hearne	Hearne Area Crossing Mitigation	Grade crossing closures or separations to improve vehicular fluidity and improve safety of the Hearne Terminal area	TBD	UP	Class I Capacity/ Safety	Medium
Griggs Road	Griggs Road Grade Separation	Construct grade separation at Griggs Road	TBD	BNSF	Class I Capacity/ Safety	Medium

Source: 2015 Texas Freight Mobility Plan

## 4.2 Future Tasks

Additional planning studies and analyses need to continue to gather further information that would help TxDOT, public officials and citizens to make informed decisions about future freight rail development in the state. Related recommendations include:

- Communicate and coordinate with the three Class I railroads operating in the state to better understand their needs and priorities. For example, TxDOT and BNSF are currently engaged in a “Joint Project Partnership Opportunities” program to better coordinate on projects where state projects and BNSF projects may overlap in the future.
- Develop a working relationship with the Class III railroads in the state to better understand and prioritize critical freight rail infrastructure needs associated with these smaller operations. An example would be to gain a better understanding of the state of repair on the rail bridges, tracks, and structures of these smaller railroads and perhaps develop a funding strategy to assist with the identified improvements that are needed.
- Perform engineering studies (including train operation models) and environmental analyses to specify which freight rail lines that are essential for us as intercity corridors capable of accommodating higher speed train services, to better understand capacity, geometry, and operating challenges.
- Develop cost estimates for capital and operating costs of freight rail alternatives (different technologies and equipment operating at different speeds on specific corridors) that could allow comparisons among alternatives.

With this information, Texans will be clearly informed about the importance of freight rail in the state and be able to make decisions about future rail investments. This kind of deliberate study has distinguished states that have received more funding from the FRA for freight and HSIPR projects, and such studies would be required if TxDOT seeks project funding from the federal government for freight and passenger rail improvements.

**Chapter 4-References**

2015 Texas Freight Mobility Plan