Metroplex Freight Mobility Study

Phase I Freight and Passenger Rail Integration Study

Prepared: June 2019

Dallas / Fort Worth Area comprised of 16 Counties

CSJ: 83-1185-34-083

Texas Department of Transportation – Rail Division

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Introduction

The purpose of the Metroplex Freight Mobility Study is to conduct a comprehensive analysis of the freight and passenger rail transportation network in the 16-county area to identify mutually beneficial mobility improvements. The outcome of the analysis will be the development of a program of projects to address freight rail performance concerns in the Metroplex. The work includes two phases:

Phase I: Metroplex Freight and Passenger Rail Integration Study
A freight and passenger rail improvement plan will be developed for select railroad subdivisions based upon Railroad Traffic Control (RTC) modeling and qualitative data provided by the host railroads. The Phase I study area is a subset of the modeled territory and shall be comprised of portions of the BNSF Railway (BNSF) Subdivisions including Fort Worth, Creek, Madill, DFW and trackage rights over Union Pacific Railroad (UP), as well as portions of Trinity Railway Express (TRE), Dallas Area Rapid Transit (DART) and the TEXRAIL/Cotton Belt.

The objective of Phase I is to confirm infrastructure improvements needed to support expanded passenger service on the existing TRE route as well as new passenger service on the Madill Subdivision from Irving to Prosper without negatively impacting freight operations.

Phase II: Metroplex Freight Study
The RTC model will be expanded to include freight rail systems in the North Central Texas Council of Governments (NCTCOG) planning region to evaluate multimodal freight mobility and identify opportunities for public-private partnerships to improve multimodal freight movement across the region. Phase II excludes consideration of potential new passenger rail service on freight rail lines.

The objective of Phase II is to identify mutually beneficial mobility improvements needed to support growth on the freight rail and highway networks.

Report Outline

The *Phase I Metroplex Freight and Passenger Rail Integration Study* follows a process that includes:

- Background: This section summarizes the background and purpose for the Phase I study.
- Existing and Proposed Conditions: This section provides an overview of the study area including the existing and proposed conditions related to the railroad network.
- Model Development and Findings: This section summarizes the review of the Phase I RTC model.

- Identification of Railroad Improvements: This section summarizes the railroad improvements that will accommodate anticipated growth for freight and passenger rail movements on the Phase I network.
- Execution Strategy: The section will outline opportunities for collaboration in the implementation process.

Background

The regional railroad network in the Dallas-Fort Worth Metroplex routinely experiences congestion due to steady volume growth that outpaces the growth in capacity while the regional roadway system has similar congestion problems stemming from growing vehicular and truck volumes. TxDOT, along with various stakeholders, has worked over the last two decades to support mutually beneficially infrastructure improvements for freight and passengers.

In 2010, TxDOT completed the *Dallas-Fort Worth Region Freight Study* to identify infrastructure improvements in the Dallas and Fort Worth Districts with the potential to improve freight movements, mobility, and safety. Using the Texas Statewide Analysis Model (SAM), Dallas-Fort Worth Regional Travel Model (DFWRTM), and Rail Traffic Controller (RTC) the worst rail congestion was shown to occur at the Tower 55 interlocking near downtown Fort Worth, followed by Tower 60 north of the Trinity River. The study identified at-grade rail improvements associated with Tower 55 which would generate public and private benefits more than four times the cost. The study also suggested re-routing two Amtrak trains from Union Pacific's (UP) Dallas Subdivision over the Trinity Railway Express (TRE), necessitating some relatively low-cost infrastructure improvements to TRE lines. The study identified 44 potential grade separations and 37 potential crossing closures in the Metroplex.

The *Texas Freight Mobility Plan* (November 2017, currently undergoing updates) supports the view that the Dallas-Fort Worth Metroplex is a critical node on the railroad network in Texas and provides opportunity for public and private entities to collaborate in development of solutions to enhance freight movement. Specifically, the executive summary notes that the *Plan* "provides the state with a blueprint for facilitating continued economic growth through a comprehensive, multimodal strategy for addressing freight transportation needs and moving goods efficiently and safely throughout the state." Within this *Plan*, the Texas Freight Advisory Committee identified several short-term policy and program actions and projects aimed at accomplishing this goal, including "partner[ing] with railroads to develop rail solutions to ease highway traffic congestion."

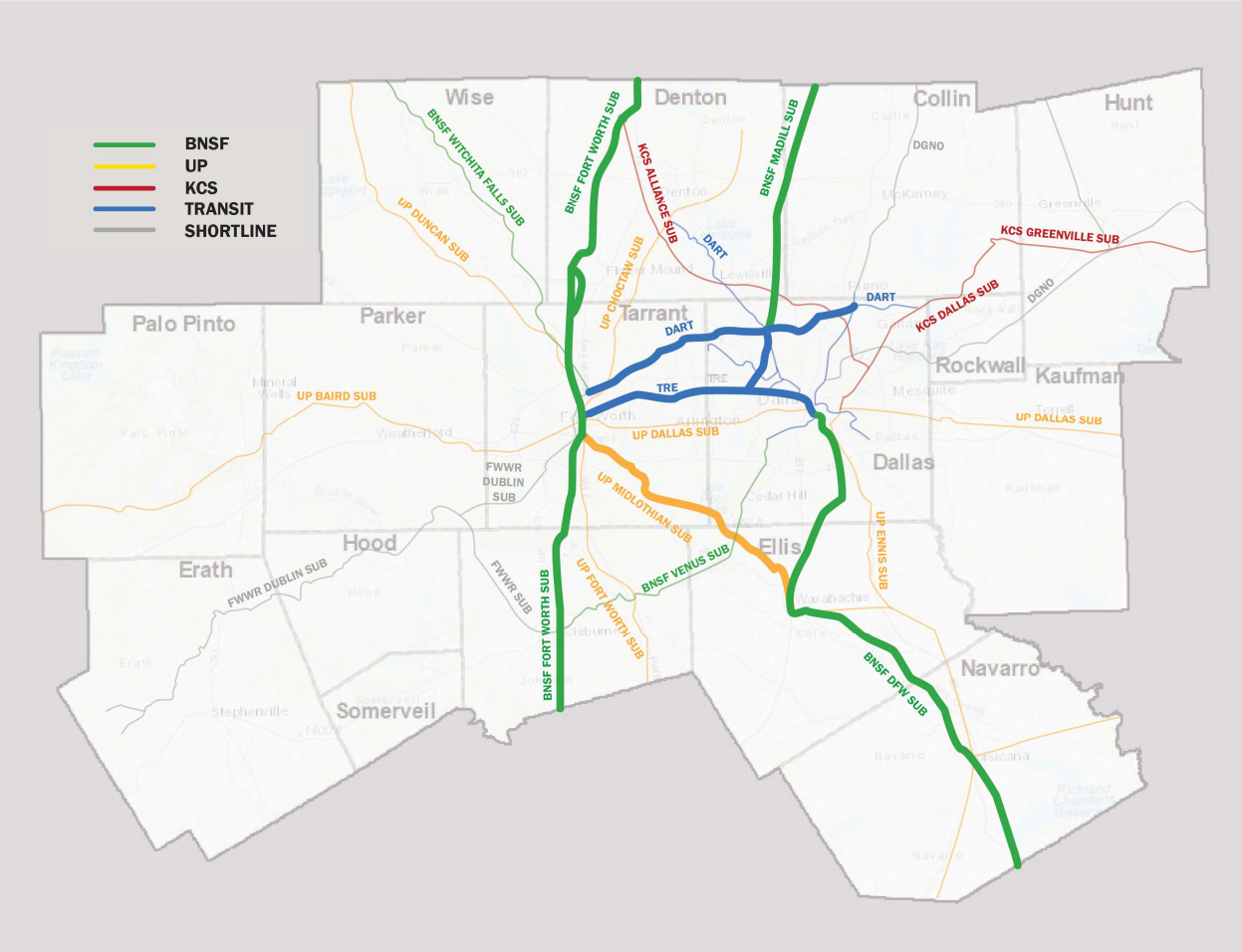
While solutions to improve mobility through railroad network improvements in the Metroplex advance, addressing passenger mobility remains an important focus. Regional planning by the North Central Texas Council of Governments (NCTCOG) and transit agencies, such as Dallas Area Rapid Transit (DART), recognizes the need to move an increasing number of passengers over existing routes and expansion corridors. NCTCOG's Mobility 2045 and DART's 2040 Transit System Plan (update in progress), illustrate new and expanded service like TexRail, Cotton Belt, and the future Irving to Prosper service on the Lower Madill subdivision. A timeline for implementation of future passenger service is undefined but it is prudent to continue comprehensive planning to develop infrastructure solutions, identify funding and required stakeholder agreements, and advance environmental clearances.

The unique features of the rail network in the Metroplex, along with the varied priorities of the public and private entities operating on the railroad network, require a high degree of public and private collaboration to enable expansion of both freight and passenger rail capacity. This *Phase I Metroplex Freight and Passenger Rail Integration Study* provides the opportunity for a focused review of the rail capacity to ensure that future demand for both freight and passenger movement over the target network will be accommodated with a comprehensive solution that benefits all stakeholders.

Existing and Proposed Conditions

The Metroplex is comprised of the 16-county region of North Central Texas, which is centered around the two urban centers of Dallas and Fort Worth. For Phase I, the study area focuses on the joint-use freight and passenger rail network. The Phase I subdivisions include the BNSF Fort Worth, BNSF Madill (Madill, OK to Carrollton), DART Madill (Carrollton to Irving), BNSF DFW, UP Midlothian, along with TRE east-east corridor between Dallas and Fort Worth, the TexRail line and the planned Cotton Belt line that are highlighted in Figure 1.

Figure 1: Phase I Study Area



Source: TranSystems.

Existing Conditions

The existing infrastructure and operations related to this analysis are described in Table 1.

Table 1: Existing Conditions

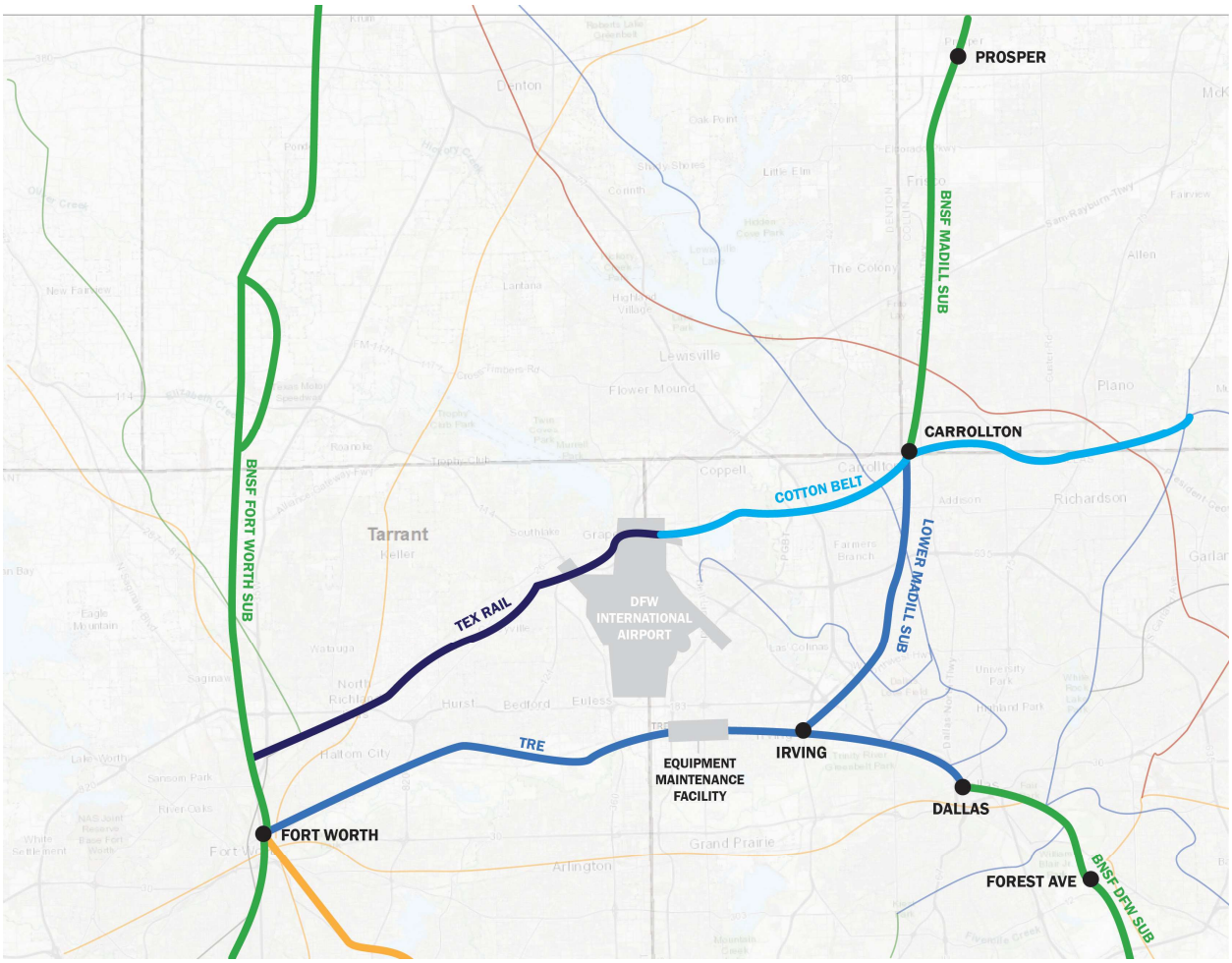
Subdivision	Service Type	Existing Conditions
BNSF Fort Worth	Freight	North of Fort Worth this subdivision operates with a high volume of freight trains in the vicinity of the Alliance Intermodal Yard. For this analysis, this subdivision was partially included for overall routing.
FWWR Fort Worth	Freight	Between Fort Worth and Carrollton, this single-track subdivision was modeled primarily for the diamond crossing with the Madill Subdivision. Subsequent to this model analysis, TEXRail commuter service was initiated on this subdivision.
UPRR Midlothian	Freight	This subdivision is used by BNSF trains from Tower 55 to Waxahachie and was modeled for overall network routing.
BNSF DFW	Freight	Trains using the TRE Subdivision route to this subdivision and it was included for overall network routing.
TRE Dallas	Passenger with Freight	TRE provides daily commuter rail service between Dallas and Fort Worth. This subdivision is mainly double-track with some remaining, key single-track segments. There are 65 weekday commuter trains. Amtrak trains also operate on this corridor. Outside of the passenger service windows, freight trains operate on this subdivision (BNSF, UP, DGNO, FWWR).
DART Lower Madill	Freight	Between Irving and Carrollton, this single-track railroad operates with Track Warrant Control (TWC). There are between 10-14 freight trains per day operating on this subdivision.
BNSF Madill	Freight	Between Carrollton and Madill, OK, this single-track railroad operates with TWC. Approximately 6-8 freight trains per day operate on this subdivision.

Source: TranSystems

Proposed Conditions

The primary changes associated with the Phase I network include new and expanded passenger service. TEXRail passenger service was initiated in January 2019 on the FWWR Fort Worth subdivision between Fort Worth and the DFW airport. The Cotton Belt passenger service from DFW airport to Carrollton continuing to the east is under design and DART has advanced implementation to the year 2022 in its FW2017 Twenty-Year Financial Plan.

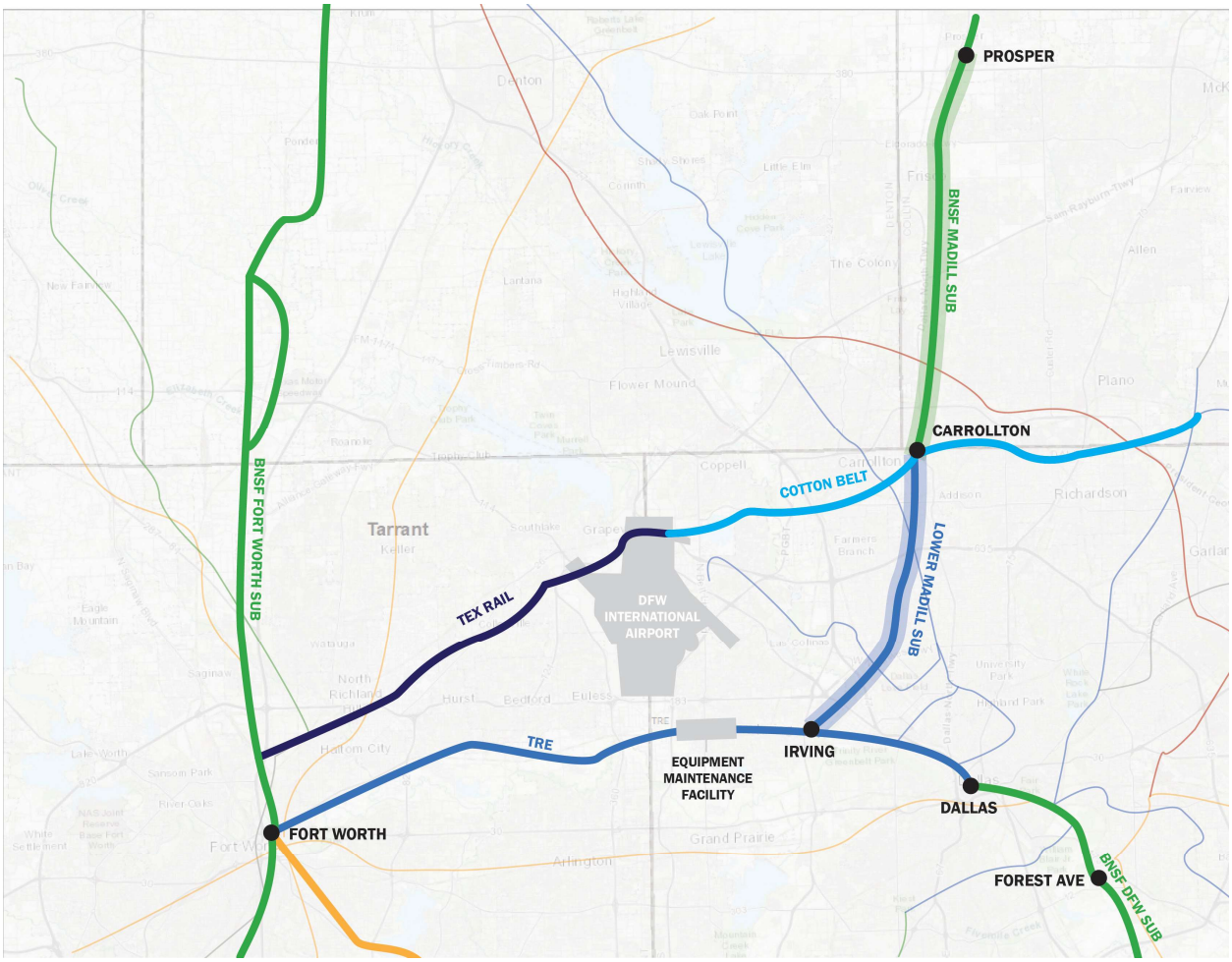
Figure 2: Phase I Target Network



Source: TranSystems.

Proposed passenger service on the Madill Subdivision from Irving to Prosper (See Figure 3) is included in the NCTCOG and DART regional planning documents. While a service implementation date is not certain, the Phase I RTC model analysis considered scenarios for 2022 and 2030. Commuter service between Irving and Prosper contains five train sets during 30 minute peaks and three train sets during 60 minute off peaks. Ten stations are modeled along the route. Background growth for freight traffic at 2% annual growth was included in each scenario tested.

Figure 3: Proposed Irving to Prosper Passenger Service Route

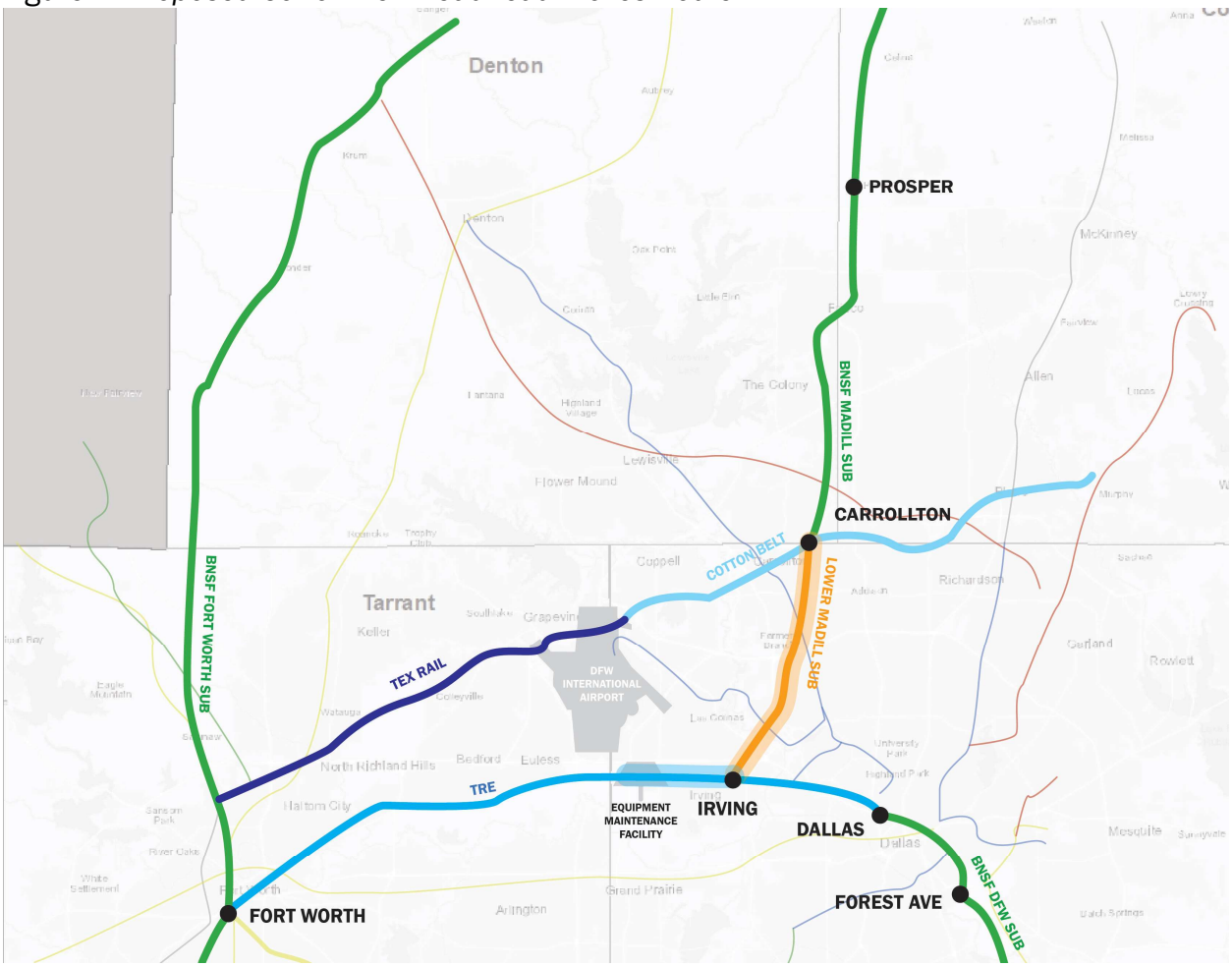


Source: TranSystems.

While the main set of improvements identified are related to the future proposed Irving to Prosper passenger service, the more immediate need to operate Cotton Belt equipment deadhead moves was also analyzed (see Figure 4 for route). Due to changes in the location of the Equipment Maintenance Facility (EMF), DART will co-locate equipment for the Cotton Belt with the existing TRE EMF west of Irving. This will create a need to move 12 equipment sets per day on the TRE and Lower Madill to position them for service. An additional Phase I RTC model scenario used 2030 freight growth and the additional 12 Cotton Belt deadhead equipment sets per day to identify interim infrastructure additions and modifications to existing railroad and related facilities. While a 2030 scenario for the Cotton Belt was modeled, DART advanced implementation of the Cotton Belt to the year 2022 in its FY2017 Twenty-Year Financial Plan. The DART 2045 Transit System Plan, which is under development, will reflect this change to the project schedule.[1]

[1] The model analysis of the Cotton Belt support moves was done exclusive of the planned Irving to Prosper passenger service. In the future as both services operate, additional modeling will be needed to verify capacity is available with both operations.

Figure 4: Proposed Cotton Belt Deadhead Moves Route



Source: TranSystems.

Model Development and Findings

Rail Traffic Controller (RTC) is a software used to simulate train operations over a network. RTC is used by Class I railroads in North America to analyze and plan their operations and capital expenditures. This project uses RTC software because the Class I railroads in the study area are familiar with the model methodology and accept the standard outputs for use in measuring performance of modifications to operation schemes or infrastructure.

RTC allows for "cases" to represent different infrastructure or rail traffic volume scenarios. RTC file structure is organized to facilitate scenario analysis with separate sets of files to define network and train traffic characteristics.

- Network files represent the physical infrastructure upon which trains operate, this includes track configuration, speed limits, grades, and curves. For train dispatching, additional network detail such as signals, track classification, switch type, track ownership, foul areas, and rail crossings provide the information for safe train spacing, routing options, and allowable locations where trains can safely "sit" for meet and pass decisions.
- Train files include information related to individual trains and key physical characteristics, this includes locomotives, tonnage, number of cars, length of cars, relative train priority, schedule information that includes day and time of arrival and intermediate stops, network routing points including origin/destination and intermediate stops are included in the train files and provide most of the information to accurately dispatch and move trains.

RTC provides numerous metrics to compare rail performance between scenarios. There are a number of different measures provided to assist in both validating system performance, quantify scenario differences, and diagnose congestion areas. For this study Delay Minutes/100 Train-miles was the primary performance measure used. This is a railroad industry measure to normalize delay across 100 train-miles.

Network File Review

In the network review, two primary elements were reviewed:

- Scope of Network: The review of the overall scope of the RTC network configuration showed that some subdivisions were partially encoded or included in the RTC files but not used for train routing. The difference in these network elements were not substantial enough to impact overall model results.
- Network Level of Detail: The level of detail encoded in the RTC files accurately captures mandatory network information to support RTC train performance and dispatching logic.

- RTC Nodes versus Track Chart Nodes: The subdivisions reviewed appropriately included nodes to separate tracks sections for elevation, speed, turnouts, crossovers, switch locations, foul locations, and road crossings with minor differences with track charts.
- Mile Posts and RTC Node Location: Track charts reference "Mile Posts" that often do not exactly coincide with actual mileage. RTC requires actual mileage. The "RTC mile post" was appropriately used in the BNSF files to note actual mileage.
- Signalized/CTC Control: RTC displays used to review signals show that all of the subdivisions are defined with some signalization and that less traveled subdivisions have more permissive blocks.

Train File Review

In the train file review, the train characteristics were reviewed to examine the RTC route, schedule information, and confirm how the different types of trains (passenger and freight) use the network.

- Existing Passenger Service (TRE from Fort Worth to Dallas)
  - Schedule: Minor discrepancies with the existing schedule were noted but they are unlikely to change the model results.
  - Station locations: The review confirmed that the correct locations for each station were used.
  - Dwell: Some variance (45 seconds vs 60 seconds) in dwell time was noted but the difference is unlikely to change the model results.
- Proposed Passenger Service (Lower Madill from Irving to Prosper)
  - Schedule: An appropriate schedule was developed based on existing TRE passenger service.
  - Station Locations: No information on how station locations were selected is available but the locations appear reasonable based on regional geography.
  - Dwell: Some variance (2 minutes vs 1 minute) in dwell time was noted but the difference is unlikely to change the model results.
- Freight Trains
  - Priority: The review noted that priority was consistently set based on train type.
  - Routes: There are some event nodes used to force directional routing through the network. Overall routes are consistent. Some "empties" use other return routes.
  - Volume: The review noted that the model processed the input number of train starts/week into each scenario.

Summary of Findings

RTC model cases were run to validate the performance metrics using Delay Minutes per 100 Train Miles for baseline, Irving to Prosper service and the Cotton Belt Deadhead Moves service scenarios.

The results confirm that the model construction is correctly implemented with respect to industry acceptable specifications and assumptions. Therefore, the identified infrastructure improvements required to support freight and passenger rail growth without negatively impacting freight operations are valid.

Identification of Rail Improvements

The identified infrastructure improvements required to support freight and passenger rail growth without negatively impacting freight operations are outlined in Table 2. Figure 5 identifies on a regional map the infrastructure improvements listed by number in Table 2.

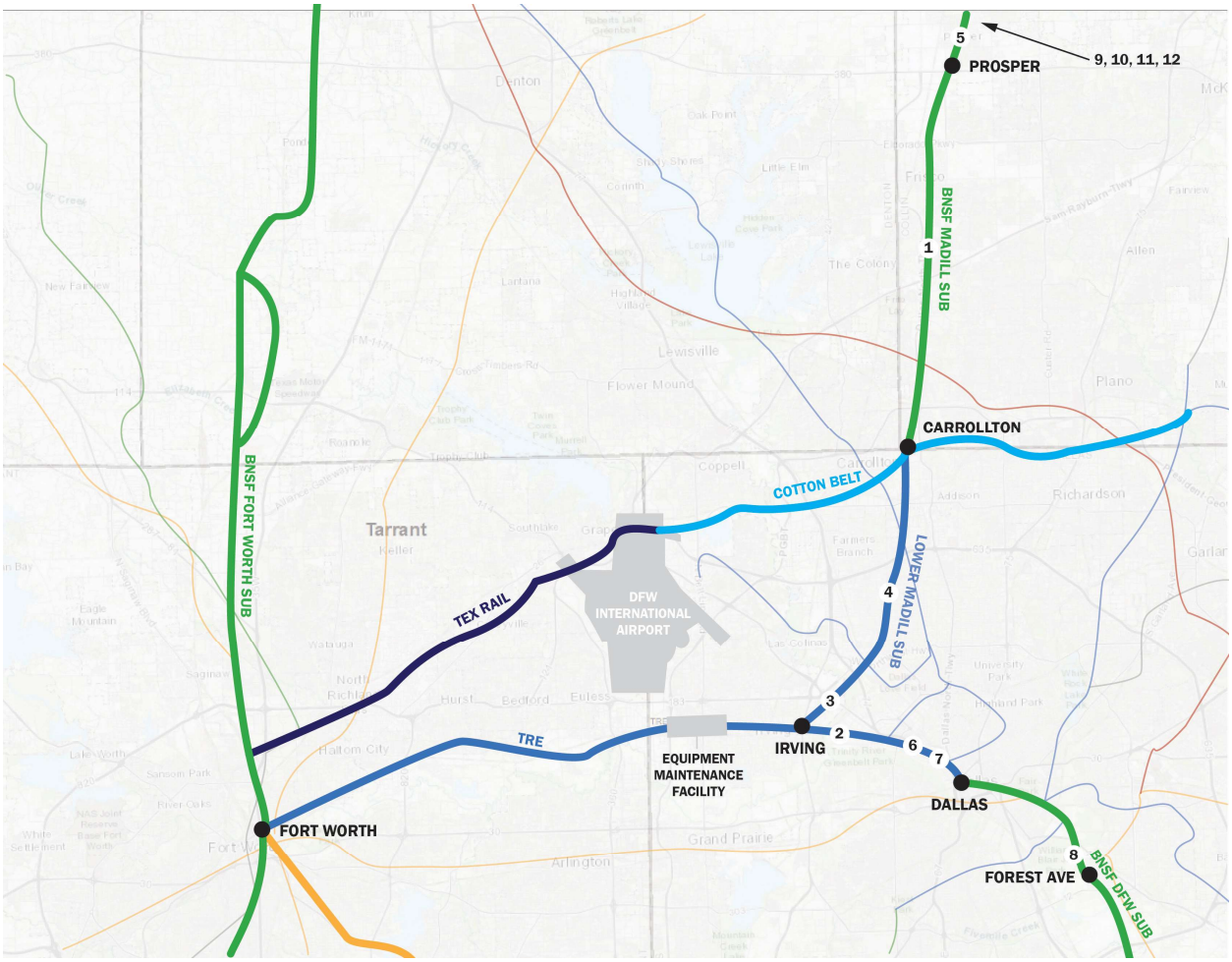
Table 2: Summary of Infrastructure Improvements Required

	Infrastructure Improvement	2030 Irving to Prosper Passenger Service	2022/2030 Cotton Belt Deadhead Moves[2]
1	Double Track, CTC, Crossovers at 5-6 mile increments from Irving to Prosper	✓	
2	CTC from Irving to Carrollton, Irving Wye Speed Increase to 30 mph		✓
3	Extension to 10,000-foot siding near Irving Depot	✓	✓
4	New 10,000-foot siding at New Gribble	✓	✓
5	CTC on Madill Subdivision between Prosper, TX and Staley, OK	✓	
6	Double Track 1.4 miles from East Mockingbird (MP 639.3) to Medical Center (MP 640.7)	✓	✓
7	Double track 0.45 miles from North Junction (MP 643.9) to Union Station (MP 214.2)	✓	✓
8	Speed Increase from 25 mph to 40 mph on DFW Subdivision from MP 769.3 to MP 770.4 near Forest Avenue through MP 779.5	✓	
9	New 10,000-foot siding at Sherman	✓	
10	Extension to 10,000-foot siding at Hebron	✓	
11	New 10,000-foot siding at Clark, OK	✓	
12	New 10,000-foot siding at Madill, OK	✓	✓

Source: BNSF RTC Network and TranSystems.

[2] Assumes Cotton Belt equipment coupled for 3 trains per day (tpd) at 04:30, 1 tpd at 19:30, and 2 tpd at 00:30.

Figure 5: Map of Infrastructure Improvements Required



Source: TranSystems.

Several of the rail improvements identified are on what are currently BNSF-owned freight-only subdivisions. Since these projects are not on the publicly-owned network, they were not reviewed:

- CTC on Madill Subdivision between Prosper, TX and Staley, OK (5)
- Speed Increase from 25 mph to 40 mph on DFW Subdivision from MP 769.3 to MP 770.4 near Forest Avenue through MP 779.5 (8)
- New 10,000-foot siding at Sherman (9)
- Extension to 10,000-foot siding at Hebron (10)
- New 10,000-foot siding at Clark, OK (11)
- New 10,000-foot siding at Madill, OK (12)

The required infrastructure improvements were reviewed to determine implementation priorities and technical feasibility. During the design review process, several projects were

modified from the original configuration identified through modeling. These modifications resulted from input from BNSF engineering and operations staff, right-of-way constraints, and topography. The modifications would not likely substantially change model results.

Madill Subdivision Double Track (1, 2)

In the 2030 scenario with full passenger service from Irving to Prosper, the rail infrastructure required includes double track with Centralized Traffic Control (CTC) signalization and crossovers every 5-6 miles on the Lower Madill subdivision for the full length of passenger service.

Double tracking this nearly 30-mile corridor would be an extensive undertaking that would include numerous bridges, crash walls, retaining walls, and redesigned industry connections. A cost estimate was not developed for the double track as staged implementation is likely for this effort. Additionally, a select set of the other required improvements may incorporate some of the double track elements and the costs would be duplicative.

For the Cotton Belt deadhead moves, a subset of improvements would include CTC from Irving to Prosper and a 30 mph track increase at the Irving Wye. A track concept to double track the Irving Wye for a 30 mph speed was completed. This double track wye concept would impact the existing TRE Maintenance-of-Way (MOW) facility located in the center of the current wye. Consideration of relocation of the MOW activities would need to be undertaken to implement this concept.

Irving Siding + Wye (2, 3)

In the 2030 scenario with full passenger service from Irving to Prosper, the rail infrastructure required includes an extension to 10,000 feet of the siding at the Irving Depot. This project is also required to support the Cotton Belt deadhead moves. During concept development of this improvement, it was determined that the project would be combined with the 30 mph speed increase and double track at the Irving Wye. The distance separating the two projects was minimal and, if separated, additional signals would be required.

For this project, connections to the TRE east-west tracks would be required including realigning the industry connection to Owens Corning east of Britain Road. Modifications to the highway-rail grade crossing at Britain Road would include a fourth track and relocation of the warning device. Modifications to the MOW facility would require reconfiguration or relocation of these activities.

On the Lower Madill Subdivision, modifications at the Pioneer Drive highway-rail grade crossing include an additional track, changes to the center median, and relocation of the warning device. Similar changes would occur at the Britain Road highway-rail grade crossing.

A second railroad bridge over Grauwyler Road would be constructed to connect to the second main track through the Irving Yard.

At the Irving Yard, track realignments would allow for two continuous tracks on the west side of the yard (one mainline and one siding). Track shifts would occur in the yard to maintain as much track storage as possible. A crash wall is proposed under SH 183 due to the proximity to the existing overpass piers. The Irving Depot on the north end of the Irving Yard would need to be relocated to an undetermined location. North of the Irving Yard, the second track would continue to just south of SH 114. In this segment, a new railroad bridge over Northgate Drive would be constructed.

An opinion of probable cost was prepared for the Irving Siding + Wye project with and without railroad signal costs included. Costs are listed in Table 3.

Table 3: Irving Siding + Wye Opinion of Probable Cost

Project	Probable Cost
Irving Siding + Wye without Signals	$30.8 M
Irving Siding + Wye with Signals	$59.1 M

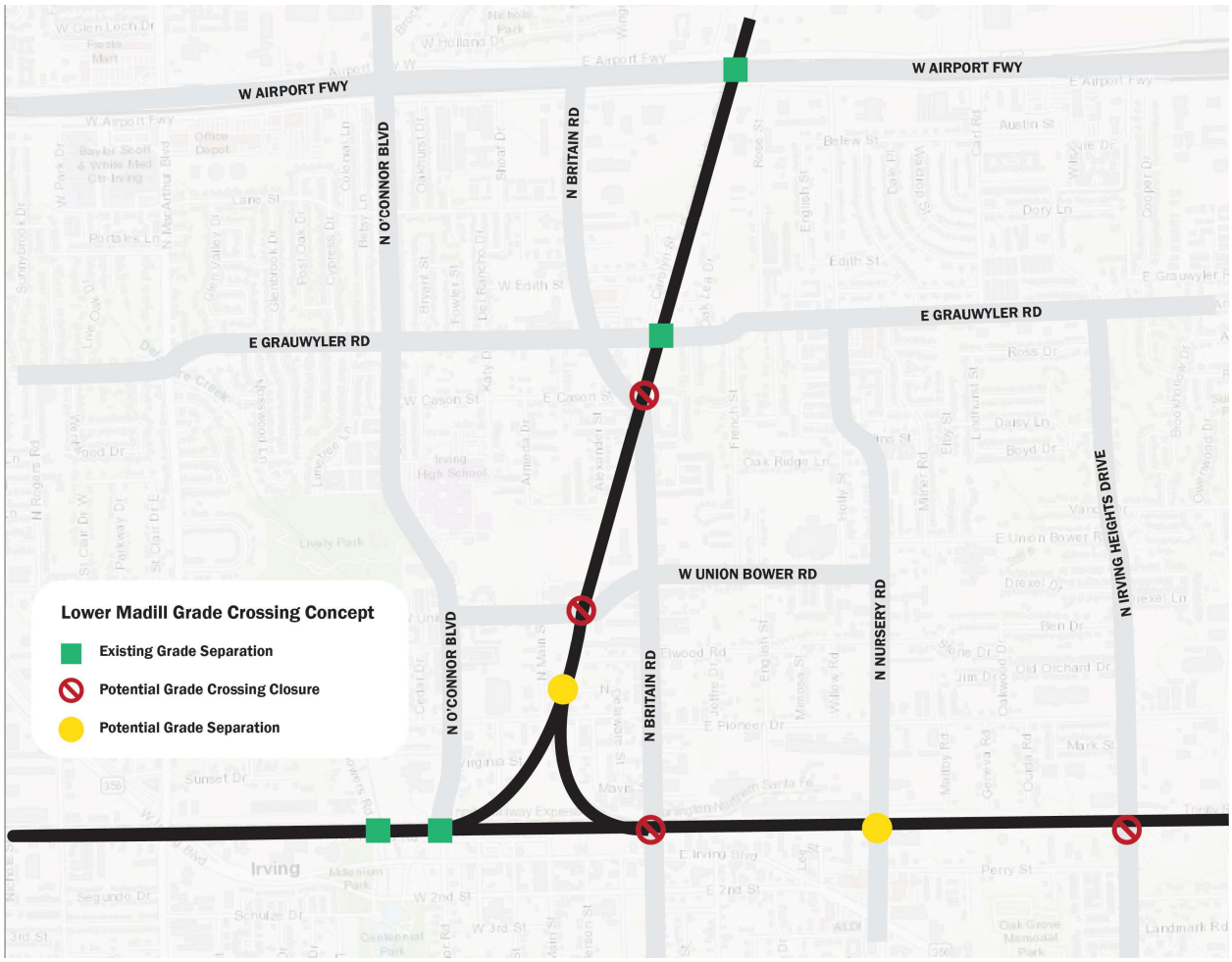
Source: TranSystems.

The increase in train volume with the Irving to Prosper service along with changes to the track configuration at the highway-railroad grade crossings suggests that a transportation network plan be considered for mobility on the public roadway network. Figure 6 illustrates a potential plan to grade separate and close highway-railroad grade crossings in the vicinity of the Irving Siding + Wye rail network improvements. A more detailed review of this transportation network plan will be included in Phase II including a review of the technical feasibility of grade separations, traffic volume changes, and a benefit-cost analysis.

Gribble Siding (4)

In the 2030 scenario with full passenger service from Irving to Prosper, the rail infrastructure required includes a new 10,000-foot siding at Gribble. This project is also required to support the Cotton Belt deadhead moves. During concept development of this improvement, it was determined that the project should be combined with DART's project to replace and double track the bridge at the Elm Fork River and install CTC to Hebron. The distance separating the projects was minimal and, because CTC signals would be required for passenger service, it was not technically feasible to execute them separately.

Figure 6: Lower Madill Transportation Network Plan



Source: TranSystems.

The Elm Fork Bridge is a project under design by DART to retrofit/repair the four existing steel spans (approximately 341 linear feet) of the main line single-track bridge (MP 707.45) and replacing the 35 spans of end-of-life open-deck, timber-pile trestle components with concrete structures. The project would also construct a second track permanent structure of similar length to the existing single-track main line bridge (approximately 822 linear feet). The project would also include extending the limits of the track south to the existing (MP 707.7) turnout which is the north end of the existing River Storage Track. The project would remove the existing #11 turnout and install #20 turnout at the River Storage Track (MP 708.54). The project includes extending track (approximately 1,850 track feet) from the Elm Fork Bridge to the bridge at MP 707.04.

The project would continue north with modifications at the California Street highway-rail grade crossing including an additional track and relocation of the warning device. A crash wall would be installed at TX 384/Northwest Highway and a new bridge constructed over a channel immediately to the north of the highway. Modifications to the Gribble Yard and

industry tracks would allow for a 10,300-foot siding (7,300 feet of clear distance). The siding would extend through the highway-rail grade crossing at Royal Lane. At a minimum, the warning device at the crossing would be modified. A more appropriate improvement may be to grade separate Royal Lane given the intended use of the siding as a storage track serving industry and this will be reviewed as part of Phase II of the Metroplex Freight Mobility Study. Additionally, associated crossovers at the DGNO interchange are needed to effectively maintain the siding capacity needed.

To provide CTC from Irving to Hebron, signals would be added at control points spaced every 2-3 miles throughout the corridor. Signals would be upgraded at turnouts for sidings and industry tracks. Upgrades to warning devices would also be required to integrate with the CTC system.

An opinion of probable cost was prepared for the Gribble Siding + Elm Fork + CTC to Hebron project with and without railroad signal costs included. Costs are listed in Table 4.

Table 4: Gribble Siding + Elm Fork + CTC to Hebron Opinion of Probable Cost

Project	Probable Cost
Gribble Siding + Elm Fork + CTC without Signals	$51.2 M
Gribble Siding + Elm Fork + CTC with Signals	$72.7 M

Source: TranSystems.

Double Track Segments of the TRE (6, 7)

In the 2030 scenario with full passenger service from Irving to Prosper, the rail infrastructure required includes two double track projects on the TRE east toward Dallas:

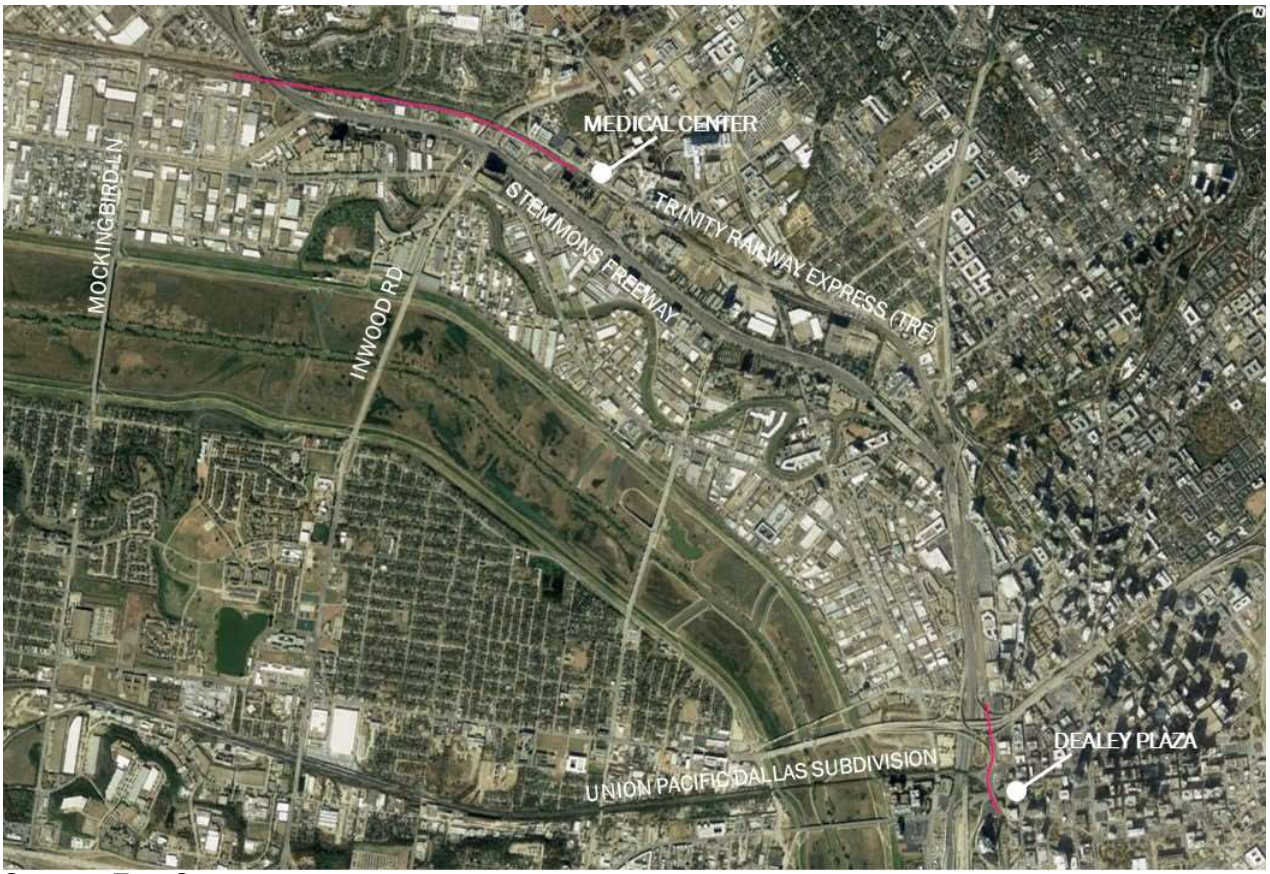
- Double Track 1.4 miles from East Mockingbird to Medical Center
- Double Track 0.45 miles from North Junction to Union Station

DART completed preliminary engineering for the 1.4-mile double track project from East Mockingbird to Medical Center. This project includes replacing an existing culvert, Obsession Bridge, Knight's Branch Bridge, and Inwood Bridge with new double track structures. Construction of a double track from Medical Market Center Boulevard to the Stemmons Freeway (I-35) is included. The estimated cost of this project provided by DART is $23.5M.

Design is not started for the 0.45-mile double track project from North Junction to Union Station. This project would double track the last remaining segment of the TRE from Irving to Dallas. New track would be constructed connecting North Junction to Union Station for use by TRE and BNSF. This project would likely require modifications to the west leg of the UP Dallas Subdivision Wye. Modifications to Riverfront Boulevard and Union Boulevard may be

needed in the vicinity of the Dealey Plaza historic preservation area. As part of Phase II of the Metroplex Freight Mobility Study, a track concept for this project will be considered.

Figure 7: Double Track Segments of the TRE



Source: TranSystems.

Execution Strategy

TxDOT and NCTCOG, along with the regional transit agencies, include rail improvements in their state and regional planning documents to address freight and passenger needs for efficient and safe travel. Relevant statewide planning documents include the Freight Mobility Plan and the Rail Plan (update in progress). Regional planning documents include NCTCOG's Mobility 2045 and DART's 2040 Transit System Plan (update in progress).

All of the freight and passenger rail projects identified in the analysis of the potential future Irving to Prosper service and the Cotton Belt deadhead moves should be included in these planning documents. If they receive regional funding they will be placed on the NCTCOG's Transportation Improvement Program (TIP) or TxDOT's Statewide Transportation Improvement Program (STIP) if they receive state or federal funding.

At the regional level, NCTCOG along with project parties including DART, Trinity Metro, TRE, TxDOT, and BNSF submitted an application for federal discretionary grant funds through the Infrastructure for Rebuilding America (INFRA) program. The grant was submitted under the program of projects identified as the North Texas Multimodal Operations, Velocity, Efficiency, and Safety Program (NT MOVES). Phase 1A projects were identified by BNSF as freight capacity needs on BNSF-owned track. The Phase 1B projects are located on the DART's Lower Madill Subdivision and TRE's line between Irving and Dallas:

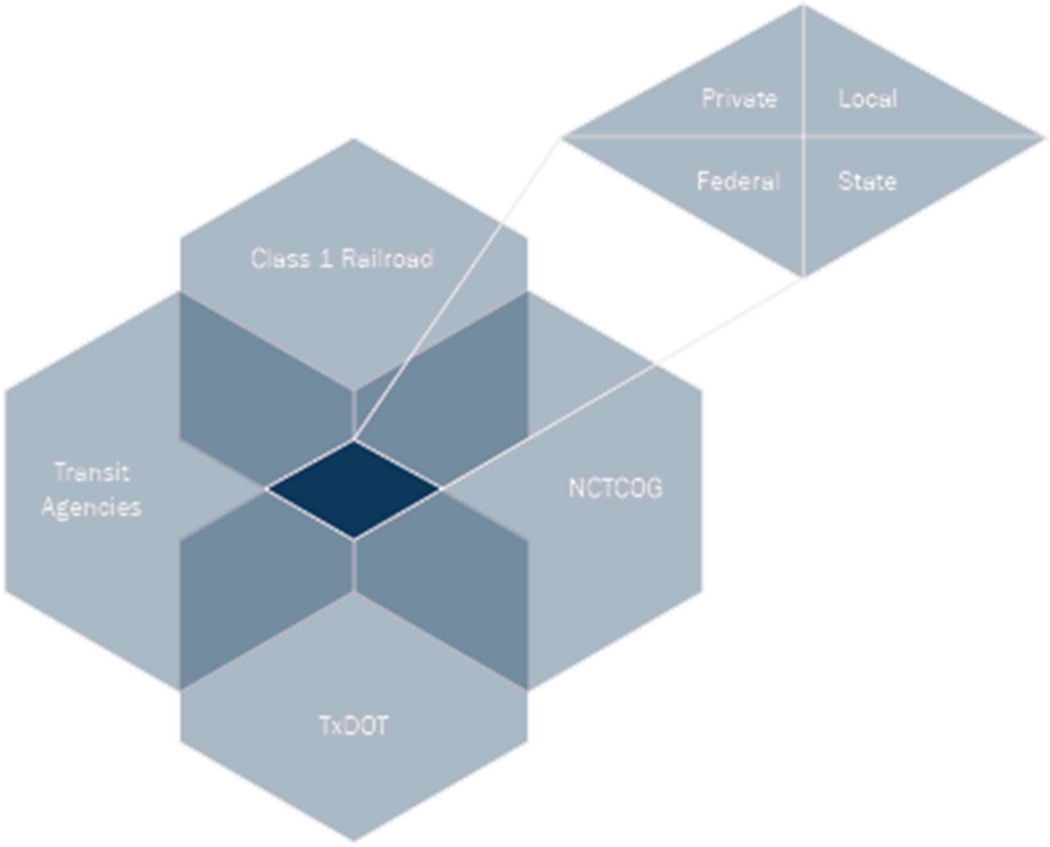
- Construct the Gribble Siding with CTC and Install CTC from Irving to Hebron
- Design a Double Track Stemmons Freeway Bridge
- Construct Double Track 1.4 miles from East Mockingbird to Medical Center
- Design Double Track 0.45 miles from North Junction to Union Station
- Implement Clear Path Technology[3]

The Double Track Irving Wye should also be considered for Phase I but was not included in the grant application due to funding limitations for the local project match. There is an immediate need to advance design of all the identified projects so they can be ready for timely implementation.

[3] According to Railinc, a product manufacturer the "Clear Path™ System is an application that helps railroads plan the movement of trains through the Chicago Terminal, the busiest rail gateway in North America. Clear Path is part of the ongoing Gateway Operations Services program, which focuses on enabling the exchange of timely, accurate and actionable information to support the Chicago Integrated Rail Operations Center and to facilitate proactive inter-carrier operations in the Chicago Terminal. Railinc is developing Clear Path under the guidance of the AAR's Chicago Planning Group." (https://www.railinc.com/rportal/clear-path-system, June 2019).

NCTCOG and the project parties plan to continue seeking federal, state, local and private funds with a coordinated vision for these projects needed to support expanded passenger service on the existing TRE route as well as new passenger service on the Madill Subdivision from Irving to Prosper, including the Cotton Belt support moves from Irving to Carrollton, without adversely impacting freight operations.

Figure 8: Project Party Coordination Diagram



Source: NCTCOG and TranSystems.