HIGH-SPEED TRANSPORTATION
DALLAS-FORT WORTH

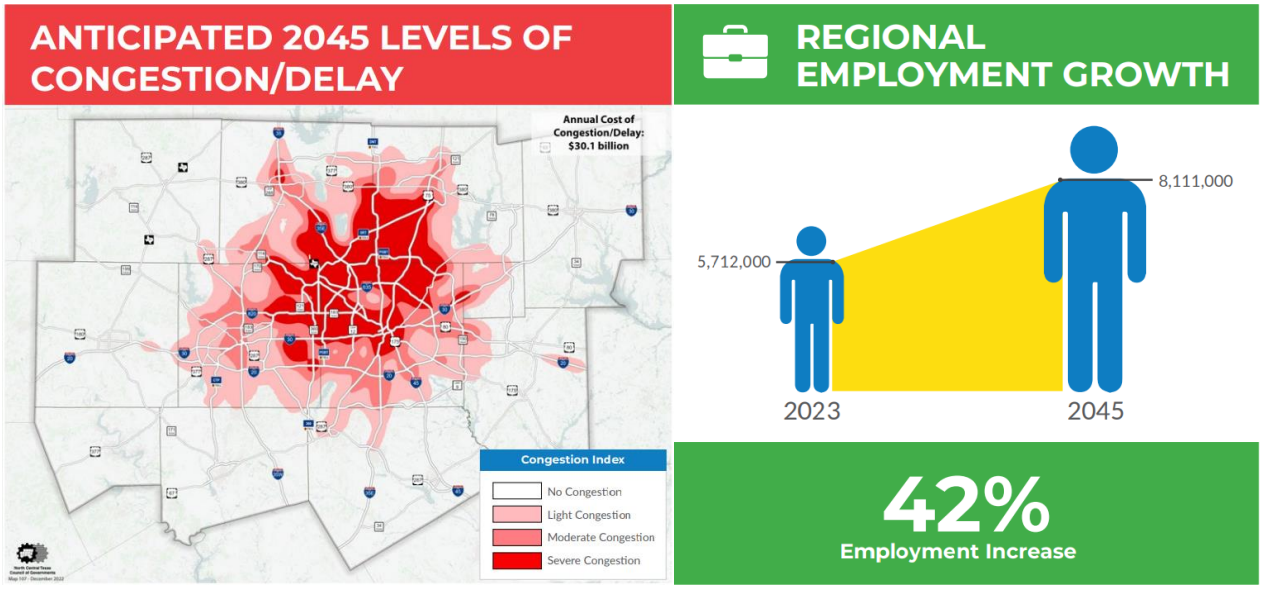
Dallas-Fort Worth High-Speed Transportation Connections (DFWHSTC) Study

Why the Trinity Railway Express (TRE) Cannot be Repurposed for High-Speed Rail

April 2024

Document Summary

A new high-speed transportation corridor between Dallas and Fort Worth would provide transportation service differing from that of an upgraded Trinity Railway Express (TRE) corridor. High-speed rail (HSR) and the TRE operate using different technologies serving different markets. In a region expected to grow to over 11 million people by 2045, additional travel options are necessary to alleviate traffic and promote economic sustainability. The following areas of consideration summarize the significant differences between the TRE corridor and a new high-speed transportation corridor between Dallas and Fort Worth.



DFWHSTC Study Background

The DFWHSTC Study was initiated in 2020 by the North Central Texas Council of Governments (NCTCOG) to examine the feasibility of high-speed travel connecting

downtown Dallas and downtown Fort Worth, with a possible mid-corridor station in the Arlington Entertainment District. Phase 1 of the study, which examined 5 transportation technologies and over 40 alignments, determined HSR predominantly along the IH 30 corridor is the best option to deliver high-speed transportation to North Texas. Now in Phase 2, the study is undergoing federally mandated environmental documentation and continuing stakeholder engagement.

TRE Background

The TRE is a commuter rail service operating between Dallas and Fort Worth, established in 1996 by an interlocal agreement between Dallas Area Rapid Transit (DART) and Trinity Metro. Each transit authority owns a 50 percent stake in the joint rail service, and contractor Herzog Transit Services operates the line. The TRE has 10 stations, with terminals in downtown Dallas and downtown Fort Worth. The newest station, Trinity Lakes in northeast Fort Worth, opened in February 2024. In 2022, ridership was approximately 1.1 million.

How are the TRE and the DFWHSTC Different Services?

The TRE corridor alignment does not connect to other planned high-speed corridors or to major mid-corridor activity centers that will support development at a mid-corridor station. The service provided by the TRE connects riders to destinations supported by the corridor's 10 stations and does not support significant demand for end-to-end travel—only 5 percent of TRE riders travel the full distance between Dallas and Fort Worth. The TRE is predominately used by local residents commuting to nearby stations, which is why there are many stations only miles apart.

DFWHSTC, by contrast, supports commuters traveling long distances to major population centers. DFWHSTC would provide service to and from Dallas and Fort Worth—with only one proposed stop in Arlington—for a total of three stations over the 31-mile corridor. The proposed Arlington station would have express tracks, allowing some trains to continue directly to Fort Worth or Dallas without stopping at the station, reducing travel times.

Unlike DFWHSTC, the TRE does not serve Arlington's Entertainment District, while DFWHSTC does not serve other intermediate employment areas like the TRE service. The DFWHSTC service sacrifices the number of access points for speed, while the TRE service sacrifices speed for a larger number of access points. In this way, the two services would be complementary with one another, resulting in overall enhanced mobility options within the region.

Travel Time, Infrastructure, and Maximum Speed

Current TRE travel time along the 34-mile corridor between Dallas and Fort Worth is 63 minutes.[1] The maximum operating speed for TRE vehicles is 83 mph,[2] but travel speeds would need to exceed 125 mph with intermediate stations removed to achieve a 20-minute travel time between Dallas and Fort Worth along the existing TRE corridor. Even then, the TRE would not serve the Arlington Entertainment District.

In accordance with industry standards, these travel speeds require grade-separated track infrastructure with a closed corridor (meaning no at-grade crossings with roadways or railroads and no shared tracks) and new trains for the TRE that would be capable of achieving speeds of 125 mph and higher.[3] Accommodating new grade-separated high-speed transportation infrastructure, along with the existing at-grade commuter rail/freight infrastructure, would require additional right-of-way acquisition.

Considering these requirements, the infrastructure upgrades required to allow the TRE to achieve a 20-minute travel time would essentially be equivalent to constructing a new rail corridor and providing a new fleet of vehicles capable of traveling over 125 mph.[4]

Corridor Upgrade Requirements

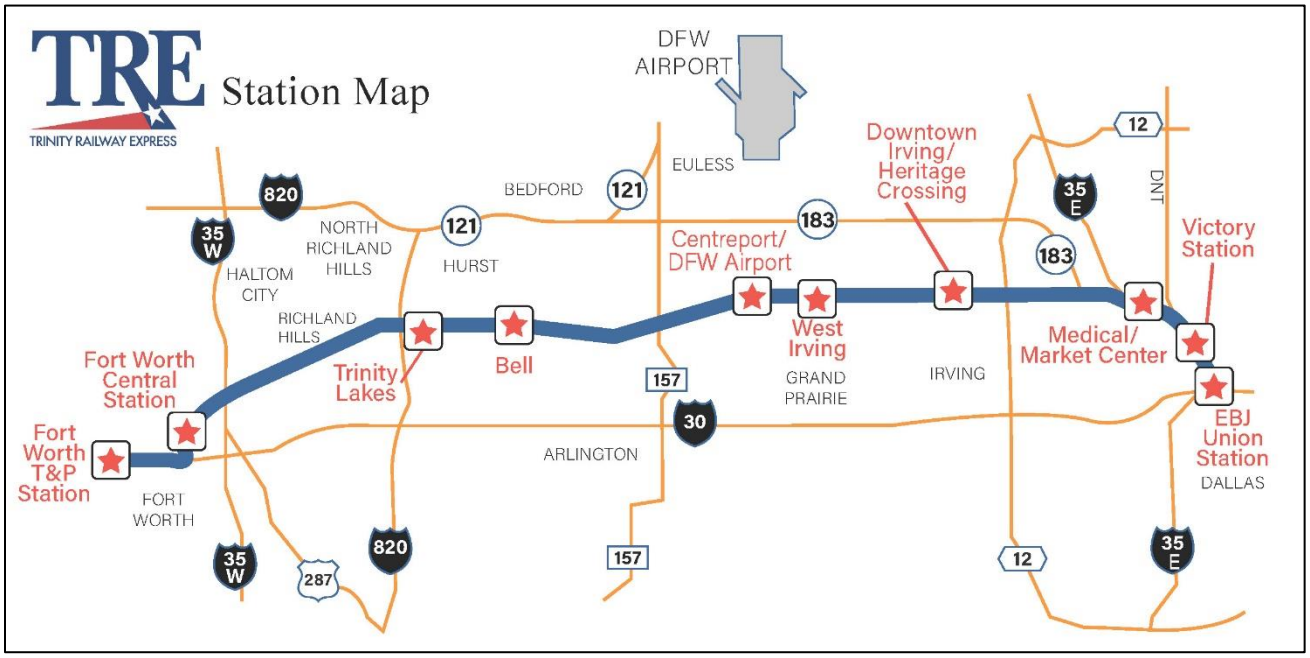
The use of the existing TRE right-of-way for new high-speed transportation service was considered during the DFWHSTC Study Phase 1 Alternatives Analysis Screening process. Infrastructure conflicts were identified in repurposing the TRE right-of-way for a HSR alignment. Refer to the "Travel Time, Infrastructure, and Maximum Speed" section of this document for details regarding conflicts.

Travel Demand Consideration for Current TRE Corridor Users

Approximately 95 percent of TRE's daily riders use at least one of the eight intermediate stations at some point during each of their trips.

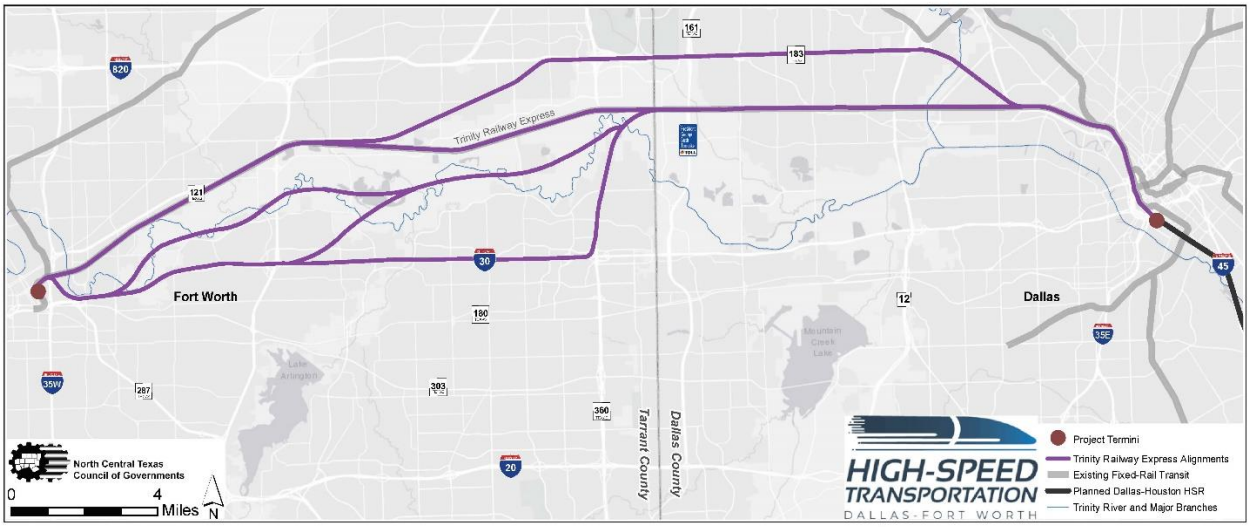
Travel demand modeling of trips taken on the TRE indicates only 5 percent of all TRE riders travel the entire length of the corridor (see map below). The proposed high-speed transportation corridor is anticipated to primarily meet the needs of riders traveling between the Dallas and Fort Worth urban centers. Replacing the existing TRE infrastructure to accommodate high-speed transportation would eliminate stations currently used by most TRE riders and remove a vital transportation corridor from riders who need it.

Additionally, repurposing the TRE right-of-way for high-speed transportation service would displace existing freight and Amtrak passenger rail service currently operating within the corridor. BNSF Railway (BNSF), Union Pacific Railroad (UPRR), and regional short-line carriers Fort Worth & Western (FWWR) and Dallas Garland Northeastern (DGNO) operate freight on the TRE commuter line through agreements with the TRE. Rail traffic on the TRE is bidirectional with an average daily count of 95 trains, of which approximately 70 are passenger trains.



TRE Corridor Suitability for High-Speed Transportation Service

The DFWHSTC Study initially considered five corridor alternatives, shown below, aligning along the existing TRE corridor. All five of these corridor alternatives were eliminated due to infrastructure challenges and lack of access to activity centers.

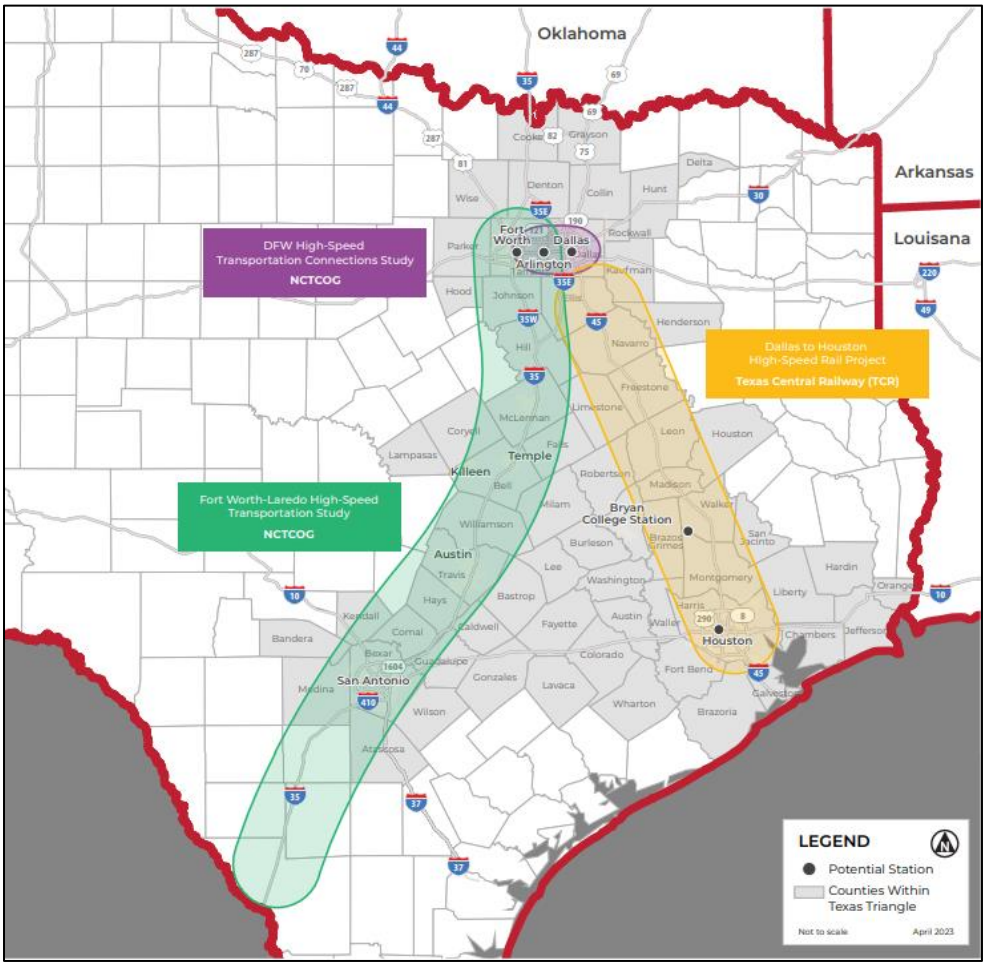


Connectivity to Other Planned High-Speed Corridors

The Dallas-Fort Worth high-speed transportation corridor will terminate at a new underground station, immediately west of the existing Fort Worth Central Station and at the proposed Dallas high-speed rail station, both providing connectivity to future statewide high-speed transportation corridors. Other proposed HSR routes in Texas would connect at these stations. While the existing TRE corridor does stop at Fort Worth Central Station, it does not connect to the proposed Dallas high-speed rail station.

Regarding future statewide high-speed transportation, Amtrak and Texas Central Partners (TCP) have existing environmental approval for high-speed rail service between the Dallas HSR station and a Houston HSR station with an intermediate stop in Grimes County serving Texas A&M University, among other activity centers. The DFWHSTC would connect with the Amtrak/TCP service at the environmentally approved Dallas HSR station, with the DFWHSTC serving as an extension of the Houston to Dallas HSR service, extending HSR service beyond Dallas to Arlington and Fort Worth.

The connection at the Dallas HSR station would provide a "one-seat ride," meaning that passengers coming from Houston through to Arlington and Fort Worth, or vice versa, would be able to remain in their seats and, after a brief stop for loading/unloading at the Dallas HSR station, continue on to their final destination. The Regional Transportation Council (RTC), which is the independent transportation policy body of the Metropolitan Planning Organization, has an established policy requiring this "one-seat ride." This policy was adopted on June 16, 2016 as part of R16-06: Resolution Approving a Memorandum of Understanding with Texas Central Partners Regarding High-Speed Passenger Rail Initiatives after the need was identified during the evaluation of the Fort Worth, Arlington, and Dallas stations as part of NCTCOG's previous Station Area Planning Studies for the three stations. This resolution can be found at the end of this document.



Access to Major Mid-Corridor Activity Centers

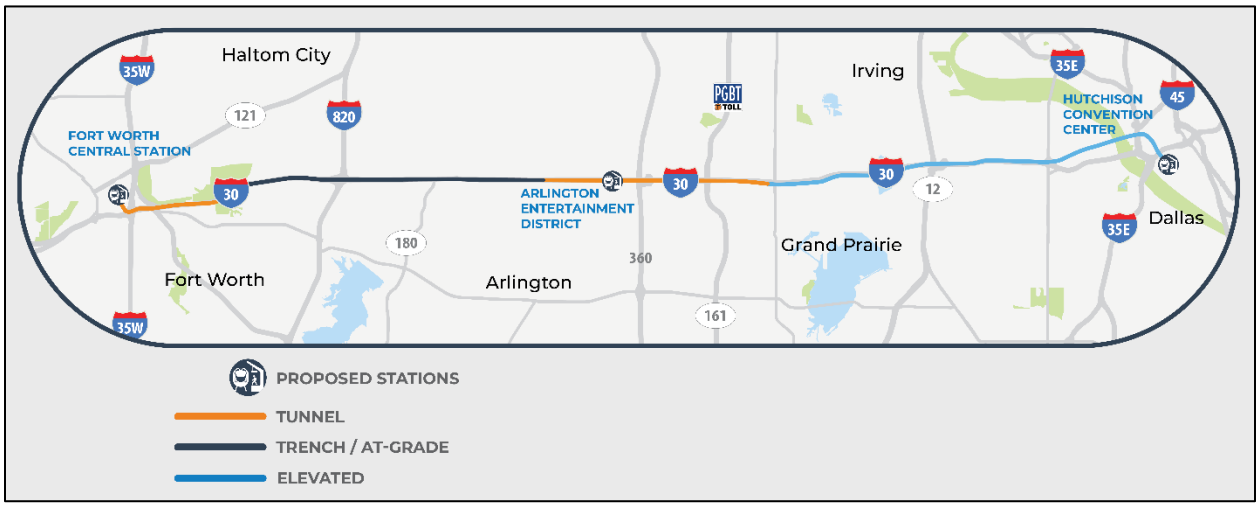
The new proposed high-speed transportation corridor is anticipated to provide access to major activity centers through a mid-corridor station in Arlington. Service to Dallas Fort Worth International Airport is also planned via the Arlington HSR station. The existing TRE corridor provides connectivity to Dallas Fort Worth International Airport but lacks proximity to other major economic development activity centers throughout the Mid-Cities.

TRE vs. HSR Alignment and Stations

The TRE eastern terminus is the Eddie Bernice Johnson (EBJ) Union Station in downtown Dallas. The western terminus is the Fort Worth T&P Station in downtown Fort Worth. The alignment is roughly parallel to SH 183 to the north and IH 30 to the south. The TRE has 10 stations in total located in Dallas, Irving, Hurst, and Fort Worth.

High-speed rail will be predominantly aligned along the existing IH 30 right-of-way. The relatively straight path along IH 30 allows for higher speeds as compared to the TRE corridor that is a longer distance and includes more curves. The eastern terminus will be a new station south of downtown Dallas in the Cedars, which was studied and environmentally cleared as part of the Texas Central High-Speed Rail Project from Dallas

to Houston. The western terminus will be an underground HSR station connecting to the existing Fort Worth Central Station. A midpoint station near the Arlington Entertainment District will grant easy access to attractions in Arlington and transit connections to Dallas Fort Worth International Airport.



[1] Trinity Railway Express website. Schedule tab. https://trinityrailwayexpress.org/stations/#schedules

[2] Blaydes, L. (2007, July 20). Commuter Rail In Texas [Slide show; slide 6]. Texas Transportation Forum. TxDOT.https://www.dot.state.tx.us/ttf2007/assets/SpeakerPresentations/Session%20VIII%20Blades.pdf

[3] AREMA Chapter 17

[4] 49 CFR 238.201 for equipment classification Tier 1 (not to exceed 125 mph). 49 CFR 238.401 for equipment classification Tier 2 (exceeding 125 mph but not to exceed 150 mph).