

Dallas/Fort Worth International Airport Rail Planning And Implementation Study

Executive Summary

North Central Texas Council of Governments
Dallas/Fort Worth International Airport
Dallas Area Rapid Transit
Fort Worth Transportation Authority
Texas Department of Transportation

Prepared by DMJM Aviation

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Introduction

The Dallas/Fort Worth International Airport (DFW Airport) has been a vital part of the region since its opening in 1974. It is the fourth largest airport in the country, serving approximately 60 million passengers per year, including local residents and visitors from other cities. In North Central Texas, it is one of the primary sources of employment and is a major stimulus to the local economy.

Historically, access to DFW Airport has been primarily by automobile, including private autos, taxis, and rental cars. Access via public transportation modes (bus and rail) has been very limited. Commuter rail service between Dallas and Fort Worth via the Trinity Railway Express (TRE) attracts a small percentage of air passengers and employees to access DFW Airport via the connecting bus service between the CentrePort TRE station and the terminals, as well as other airport employment centers.

Planning for future regional transportation systems has included an expansion of rail service options near DFW Airport for the year 2025, such as shown in Exhibit I. In addition to the TRE on the south side of DFW Airport, regional light rail passenger service from Dallas and commuter rail service on the existing Cotton Belt rail corridor would serve areas on the north side of DFW Airport. These plans and other issues such as airport and regional growth projections, the desire for expanded mode choices for passengers and employees, and the potential for reduced traffic congestion and air

quality impacts generated the desire to explore the prospects for enhanced passenger rail service to DFW Airport. An illustration of NCTCOG projected growth in the regional population densities between 1999 and 2025 is shown in Exhibit II.

Study Process

Discussions among the North Central Texas Council of Governments (NCTCOG), DFW Airport, and the local transit agencies [Dallas Area Rapid Transit (DART) and Fort Worth Transportation Authority (the T)] led to the development of this Rail Planning and Implementation Study to define and evaluate viable rail access alternatives, starting in early 2001. A Project Steering Committee (PSC) was formed with the chief executives of each of the above agencies, as well as the Dallas and Fort Worth offices of the Texas Department of Transportation (TxDOT). A consultant team led by DMJM Aviation, Inc. was selected in April 2001 to conduct the study under the direction of the PSC, and with the demand forecast analyses conducted by NCTCOG.

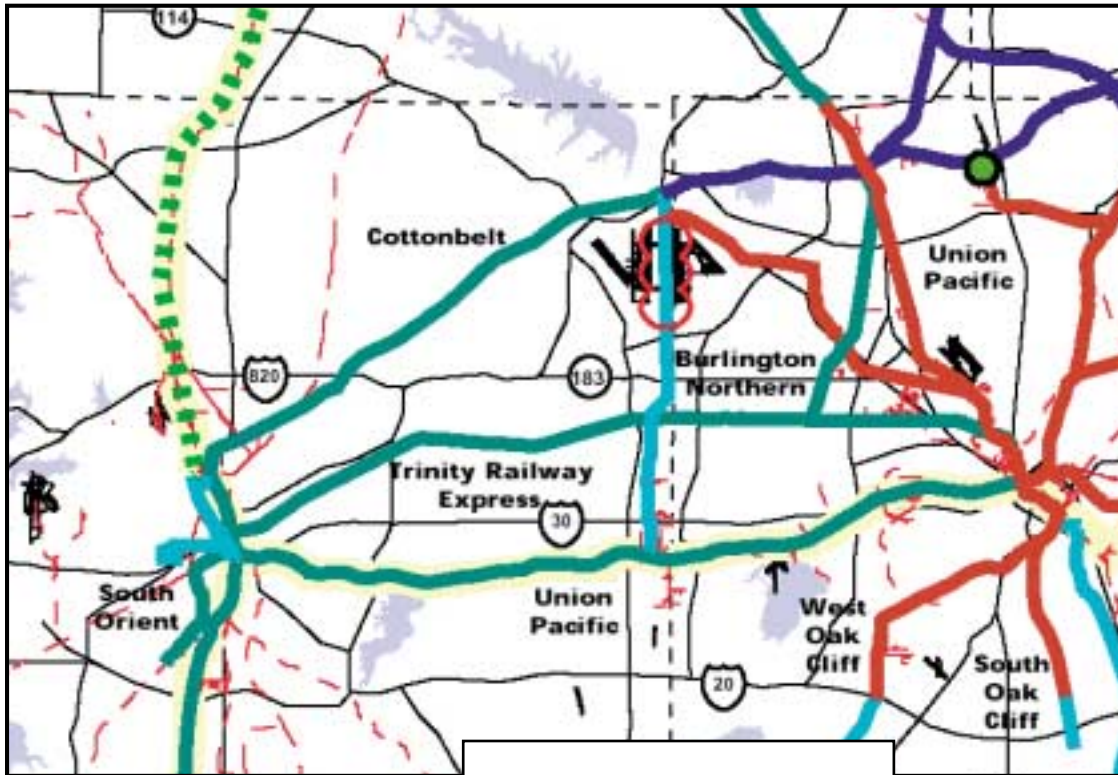


EXHIBIT I
2025 Rail Corridors

**Mobility 2025 Update
Rail System**

Legend

- Commuter Rail
- Light Rail
- North Crosstown Corridor Study
- Possible Eastern Terminus
- Staged Rail *
- - - Special Events
- - - Intercity Rail Corridor
- Freeways/Parkways
- - - Existing Rail Corridors

Study Goal

The PSC established the goal of the study as follows: “To provide a seamless, customer sensitive, affordable, clearly achievable rail interface between the regional rail system and the DFW International Airport Central Terminal Area. This service would provide airport rail access to as many customer markets as feasible. These include airport passengers and employees in both eastern and western portions of the region. The product is a set of recommendations and an action plan for immediate implementation.”

The year 2025, consistent with the locally adopted metropolitan transportation plan, was established as the planning horizon for the study to make comparative evaluations among alternatives. In addition to the horizon year, consideration was given to other phases: immediate, 2010, and ultimate (or beyond year 2025).

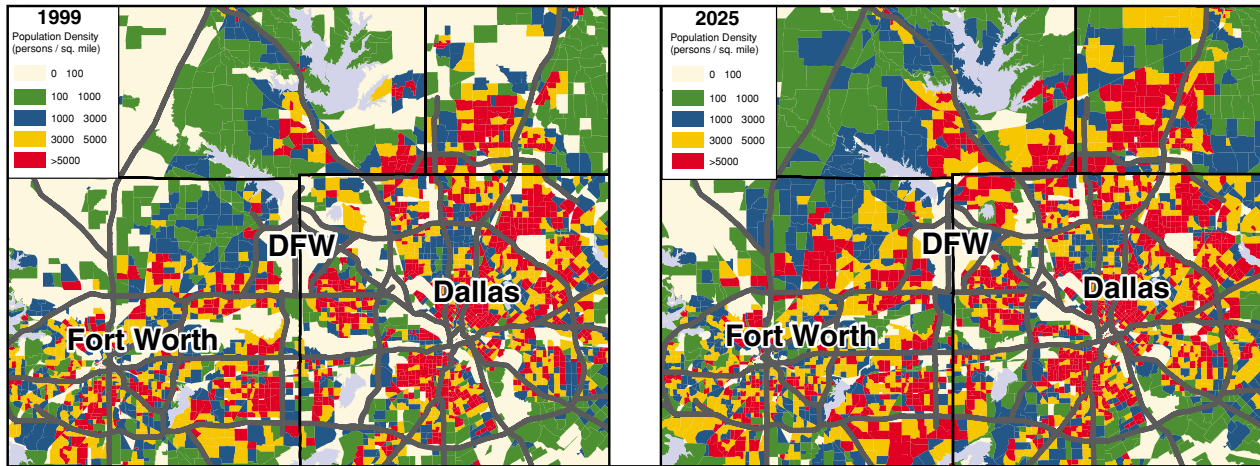


EXHIBIT II
1995 and 2025 Regional Population Growth

*Source: North Central Texas
 Council of Governments*

Study Objectives

The objectives of the study, also defined by the PSC, were as follows:

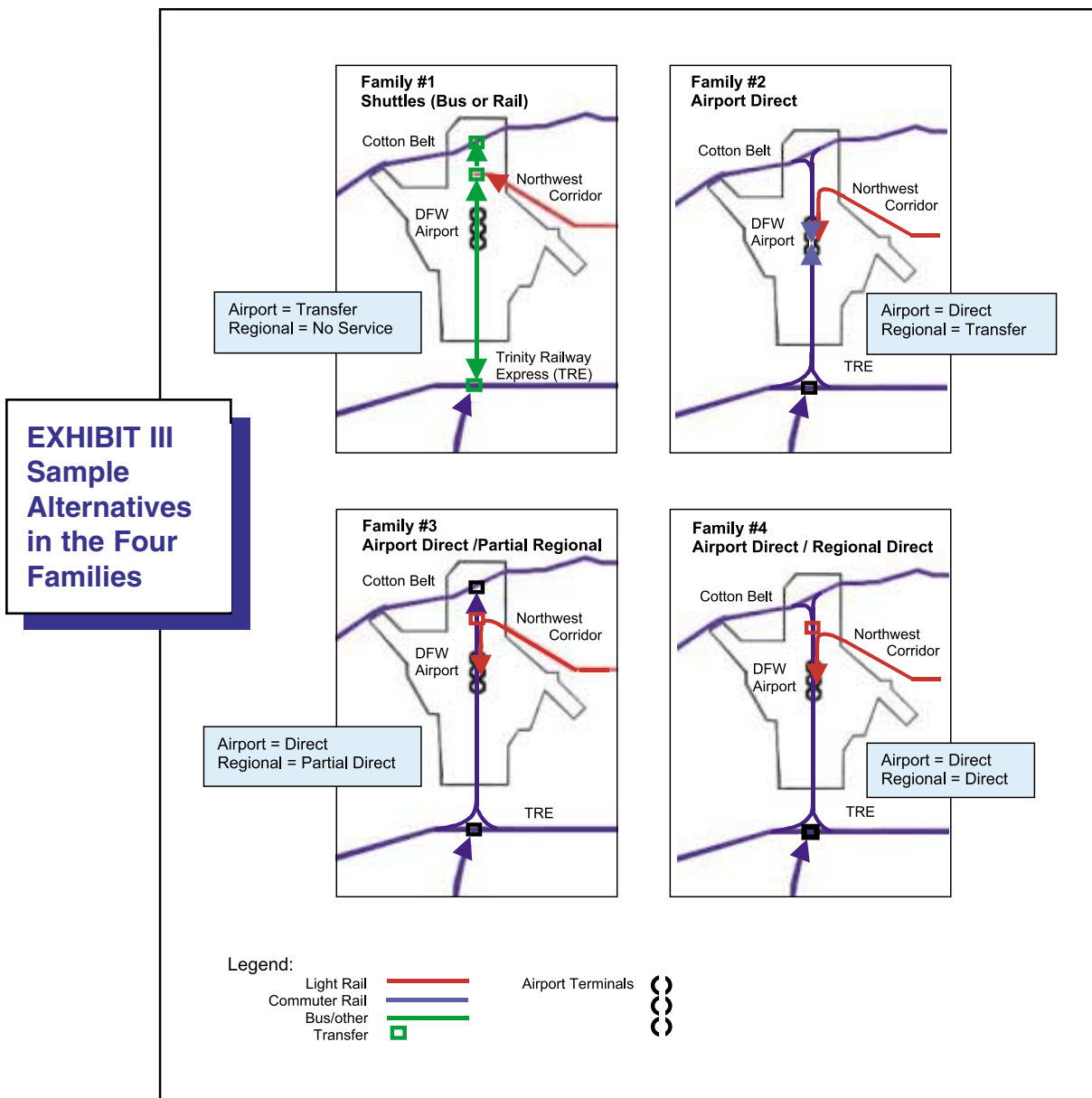
- Strive for the most seamless (fewest mode transfers) rail solution as possible;
- Provide direct rail access to Central Terminal Area (CTA) and Automated People Mover (APM) system with as few transfers as possible;
- Provide rail service for potential 2012 Olympic sites and transportation distribution nodes from DFW Airport;
- Provide equitable rail service from DFW Airport to both the Dallas and Fort Worth Central Business Districts with a total trip time competitive with parallel auto travel time;
- Develop transit options that are compatible with existing and planned regional rail projects;
- Identify options that are capable of being strategically staged for implementation;
- Provide rail options that can be developed using a variety of funding sources;
- Ensure the solution is realistically achievable and that a step-by-step action plan is included in the recommendation;
- Strive for a solution that enhances the attainment of regional air quality goals;
- Identify solutions independent of transit authority or other jurisdictional boundaries;
- Provide service options for all potential markets – employee, business traveler, vacation traveler, entertainment traveler, and “out-of-town” visitor such as convention visitors; and
- Identify a solution that is environmentally sensitive and physically suitable to the areas surrounding its operations.

Alternatives Evaluated

Based on the PSC goal and objectives, over 90 potential conceptual airport access alternatives were considered, including combinations of bus, light rail transit (LRT), commuter rail (CR), and bus rapid transit (BRT) alignments and services, from the north, south, east, and west. Throughout the study, the complete range of technologies was considered, including the above, plus monorails and other types of APMs. In addition, the term “commuter rail” is used generically in the study to represent all freight rail compatible technologies. To simplify the range of conceptual alternatives,

four families of alternatives were suggested by the PSC for presentation during the public meetings. These included the following, as shown in Exhibit III:

- Family 1)** Shuttles (with transfers at the regional rail corridors);
- Family 2)** Airport Direct (rail direct to the CTA, but with transfers for regional riders);
- Family 3)** Airport Direct with partial regional connections; and
- Family 4)** Airport Direct with direct regional service through DFW Airport.



Based on guidance from the PSC and public comments, a total of 22 detailed alternatives were ultimately developed and evaluated using a two-level set of evaluation criteria, as follows:

Primary Criteria (quantitative and qualitative evaluations): convenience, trip times, ridership, costs, and cost efficiency ratios.

Secondary Criteria (quantitative and qualitative evaluations): traffic congestion, impacts to regional trip times, service coverage, regional directional equity, compatibility with airport operations, compatibility with regional plans and operations, schedule and staging compatibility, financial feasibility, land acquisition requirements/impacts, compatibility with DFW Airport and regional facilities and land use, economic development opportunities, welfare-to-work support, public and employee safety, aesthetics and world class image, potential liabilities and legal considerations, benefits to local and regional air quality, environmental fatal flaws, and public/agency acceptance and support.

The detailed alternatives ranged from a bus only alternative to various rail alternatives with LRT into the CTA and “x pattern” routing of Commuter Rail through DFW Airport serving both airport and regional riders. Shuttle options included bus, BRT, and APM. Among the other alternatives were partial solutions, i.e. solutions with only some of the types of rail services and with only some of the directions of approach. Elevated, at-grade, and tunnel (for LRT) alignments were included in the range of alternatives.

A numeric technique was developed to evaluate elements of passenger convenience, such as transferring between modes, waiting times, walking distances, vertical level changes, and baggage handling. Alternatives with the more direct rail services were rated the highest in passenger convenience.

Cost-Effective Measures

Projected daily ridership varied from approximately 9,000 to 15,000 passengers per day. Higher ridership levels were associated with more direct airport service. Average trip times to various regional destinations ranged from 46 to 57 minutes with longer times for alternatives with more transfers, and shorter times for alternatives with more direct and frequent service. The capital costs of the alternatives ranged from \$26 million for the all-bus alternative to approximately \$949 million for the APM shuttle. The Family 4 alternatives ranged from approximately \$430 to \$770 million. The other solutions ranged from approximately \$200 to \$400 million. While the bus only alternative from Family 1 was the most cost efficient, the various partial service options from Families 2 and 3 were also significantly more cost efficient than Family 4.

Selected Alternative

Based on the detailed evaluations of alternatives and the inputs from the community, the PSC selected a preferred alternative that serves all areas of the region, but at a relatively low cost. By 2025, both Commuter Rail from the Cotton Belt and LRT from Dallas along the Northwest Corridor will provide direct service to DFW Airport's CTA at the 13th station of the APM. At that time, the TRE will continue to be served by bus connections to the terminals. The ultimate system could include Commuter Rail service through DFW Airport, with an extension of the

Commuter Rail from the Cotton Belt along a preserved corridor to the TRE.

The selected alternative, or locally preferred alternative, is shown conceptually in Exhibit IV. Included are three options for the LRT alignment, depending upon the final alignment through the City of Irving, to be defined during the Northwest Corridor environmental and preliminary engineering studies. The northern and southern options are elevated or at-grade, while the central option is a tunnel under DFW Airport.

EXHIBIT IV Locally Preferred Alternative Concept



Outreach Efforts

Throughout the study, efforts were made to involve the community, including the related agencies, local governments, state and federal agencies, and the general public. Several meetings were held to present information from the study team at various stages of the study and

to solicit feedback from the community. These meetings are summarized in Exhibit V. All public meetings were conducted by NCTCOG. Project materials were made available to the various agencies and the public through the NCTCOG website.

EXHIBIT V Summary of Project Presentations

Date	Meeting Type	Location	Subject
02/14/01	PSC	DFW Airport	Project definition
03/21/01	PSC	DFW Airport	Project scoping
04/18/01	PSC	DFW Airport	Project contract
06/19/01	DFW Board Comm.	DFW Airport	Project status
07/18/01	PSC	DFW Airport	Conceptual alternatives
07/19/01	DFW Board Comm.	DFW Airport	Conceptual alternatives
08/06/01	Public	DFW Airport	MIS background & approach
08/07/01	Public	Dallas	MIS background & approach
08/09/01	Public	Fort Worth	MIS background & approach
08/24/01	PSC	DFW Airport	Screening of alternatives
09/19/01	PSC	DFW Airport	Detailed alternatives
09/19/01	Partnering	NCTCOG	Detailed alternatives
10/01/01	DFW Board Comm.	DFW Airport	Detailed alternatives
11/13/01	DFW Board Comm.	DFW Airport	Evaluation of alternatives
11/14/01	PSC	DFW Airport	Evaluation of alternatives
11/15/01	Partnering	NCTCOG	Additional alternatives
12/19/01	PSC	DFW Airport	Evaluation of alternatives
02/22/02	PSC	DFW Airport	Evaluation of alternatives
04/01/02	PSC	DFW Airport	Evaluation of alternatives
04/01/02	Partnering	NCTCOG	Evaluation of alternatives
04/02/02	Public	Fort Worth	MIS background and Conceptual alternatives
04/03/02	Public	Dallas	MIS background and Conceptual alternatives
04/12/02	DFW Board Retreat	DFW Airport	Evaluation of alternatives
04/18/02	Public	DFW Airport	Evaluation of alternatives
05/09/02	Public	Fort Worth	Evaluation of alternatives
05/30/02	PSC	DFW Airport	Project phasing/responsibilities

Phasing and Lead Agency Responsibilities

Commuter Rail service via the Cotton Belt would provide direct airport service from Fort Worth, cities in northern Tarrant County and from the cities on the north side of Dallas. Since the Cotton Belt service and the extension of LRT to DFW Airport are not expected until the 2009 to 2015 timeframe, the only immediate action recommended is the enhancement of the bus service for TRE connections to the terminals and other employee work locations. Also during the 2009 to 2015 timeframe, the 13th station of

the APM would be completed, serving Commuter Rail from Fort Worth and LRT from Dallas. Commuter Rail service to the east of DFW Airport on the Cotton Belt would be added later, within the 2015 to 2025 timeframe, depending upon future developments. At that time, direct regional Commuter Rail service between Fort Worth and the north side of Dallas could also be added. A summary of the Phasing and Lead Agency Responsibilities is provided below in Exhibit VI.

EXHIBIT VI Phasing and Lead Agency Responsibilities

Irving/DFW Corridor LRT Line

LRT from Dallas Northwest Corridor to 13th station of APM
Lead agency: DART
Potential timeframe for start of service: 2009-2015
Final alignment to be selected during PE/EIS (expanded to cover 13th station destination)

Cotton Belt West CR Corridor

CR (freight rail compatible passenger rail service) from Fort Worth to 13th station of APM
Lead agency: the T and NCTCOG
Potential timeframe for start of service: 2009-2015
Corridor and technology characteristics to be developed during near term major investment study

Cotton Belt East CR Corridor

CR from the north Dallas area to 13th station of APM and to Fort Worth
Lead agency: DART
Potential timeframe for start of service: Undefined
Corridor and technology characteristics: Undefined

TRE CR Corridor (East and West)

Bus service to the terminals from CentrePort Station
Lead agency: DFW Airport
Potential timeframe: Currently operating
Preservation of right of way for future rail options to connect to APM

DFW Airport APM 13th Station

Lead agency: DFW Airport
Potential timeframe for start of service: 2009-2015
Support CR from the north and south, as well as LRT from the east



EXHIBIT VII
Conceptual View of the Intermodal Station

Conclusion

A conceptual view of the intermodal station is shown in Exhibit VII. Its location will be on the west side of the DFW Airport spine road (International Parkway) between Terminal D and (future) Terminal F. Commuter Rail, LRT, and the APM platforms will be constructed at varying (vertical) levels as appropriate. Connections to passenger check-in, a passenger security checkpoint, and a pedestrian bridge providing access with both a central bus station and the east side terminals, and a potential heliport will also be included, as appropriate.

The DFW Airport related portion of the selected alternative will cost approximately \$220 million for the full 2025 configuration in the

year 2025, with annual operating and maintenance costs of approximately \$20 million. A wide range of potential local, state, and federal funding sources were identified in the study. These will be more fully developed in conjunction with future environmental, design, and construction activities. In summary, high quality rail service to and from the Dallas/Fort Worth Airport can be achieved within the next ten years with expansions occurring by 2025. Such service offers a reliable airport access alternative for travelers going to and from the DFW Airport daily and on a less frequent basis. It also contributes towards the reduction of regional roadway traffic, while helping meet regional air quality objectives.

What is NCTCOG?

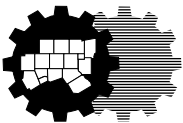
The North Central Texas Council of Governments is a voluntary association of cities, counties, school districts, and special districts which was established in January 1966 to assist local governments in **planning** for common needs, **cooperating** for mutual benefit, and **coordinating** for sound regional development.

It serves a 16-county metropolitan region centered around the two urban centers of Dallas and Fort Worth. Currently the Council has **231 members**, including 16 counties, 164 cities, 24 independent school districts, and 27 special districts. The area of the region is approximately **12,800 square**

miles, which is larger than nine states, and the population of the region is over **5.5 million**, which is larger than 30 states.

NCTCOG's structure is relatively simple; each member government appoints a voting representative from the governing body. These voting representatives make up the **General Assembly** which annually elects a 15-member Executive Board. The **Executive Board** is supported by policy development, technical advisory, and study committees, as well as a professional staff of 208.

The contents of this report reflect the views of the authors who are responsible for the opinions, findings, and conclusions presented herein. The contents do not necessarily reflect the views or policies of the Federal Highway Administration, the Federal Transit Administration, or the Texas Department of Transportation. This document was prepared in cooperation with the Texas Department of Transportation and the U.S. Department of Transportation, Federal Highway Administration, and Federal Transit Administration.



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