

## **SECTION V – RAIL PASSENGER TRANSPORTATION**

### **SYSTEM IDENTIFICATION**

Currently, Dallas Area Rapid Transit (DART), Denton County Transportation Authority (DCTA) and the Fort Worth Transportation Authority (The T) provide traditional transit service throughout much of the Dallas-Fort Worth (DFW) Metropolitan Area.

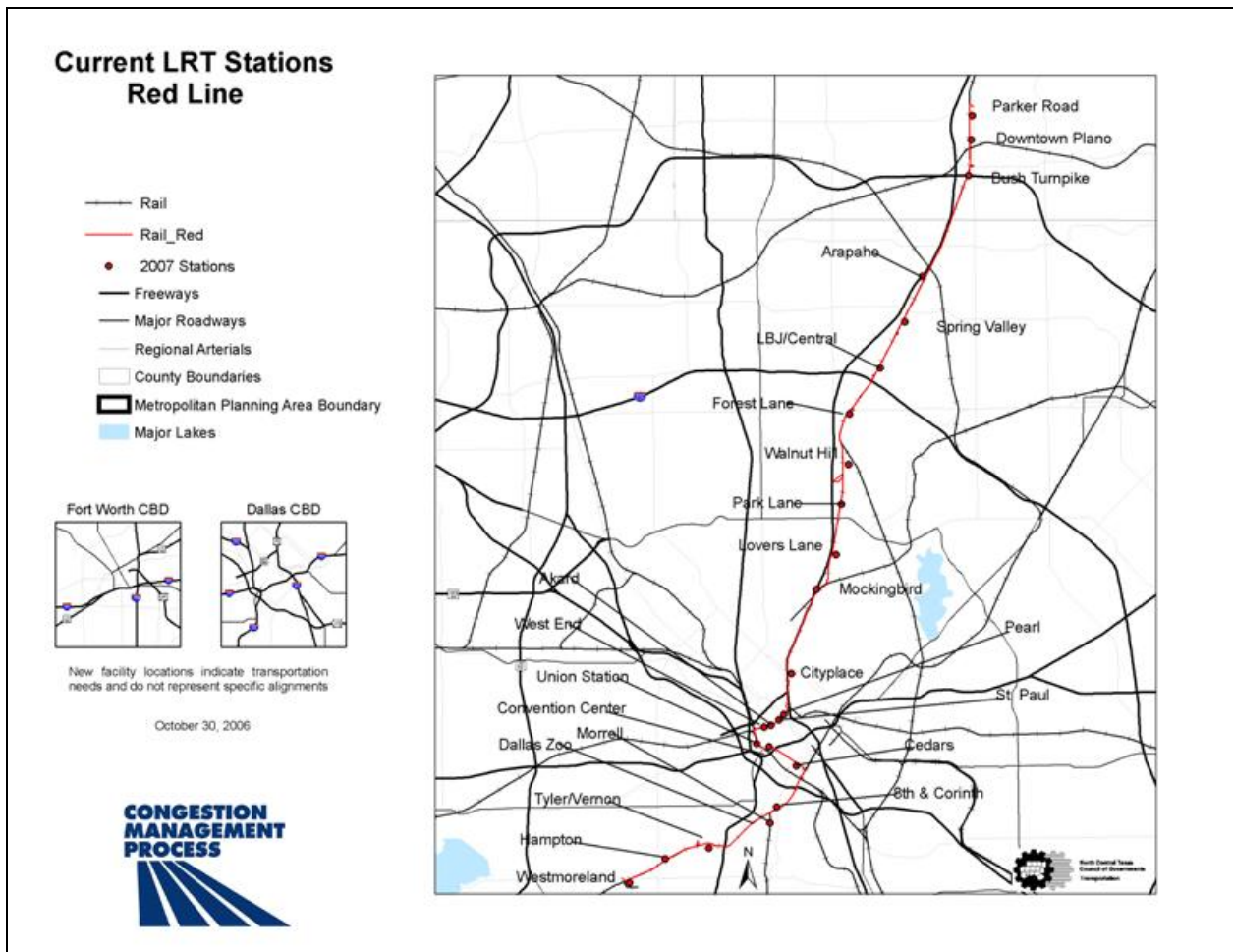
DART was created by voters in 1983 and is funded with a one-cent sales tax by 13 member cities. DART's 700-square-mile service area includes a broad range of services such as 130 bus routes, 45 miles of light rail transit (LRT), 31 miles of high occupancy vehicle (HOV) lanes, paratransit service for the mobility impaired, ridesharing programs, corporate travel demand management programs, and other general mobility programs. Maps of the Red and Blue lines are shown in Exhibits V-1 and V-2. DART continuously expands and upgrades transit facilities throughout their service area by reviewing routes to maximize efficiency. Local feeder routes improve the potential for increased rail ridership by providing reliable connections from residential areas to rail stations. DART's 2030 Transit System Plan reflects local and regional goals for mobility in the DART Service Area.

In 2002, Denton County voters recognized the need to establish reliable and progressive transportation as they voted to confirm DCTA, a coordinated county transportation authority, on November 5, 2002. The outcome of the DCTA election held on September 13, 2003 resulted in three municipalities, Denton, Highland Village, and Lewisville, approving a half-cent sales tax to fund various transportation services in their cities. Collection of their sales tax began January 1, 2004. Regional rail is the central element of the DCTA Service Plan. The service plan's concept is to implement initial rail service in Denton County to connect with DART's light rail service. Other aspects of the service plan include a park-and-ride transfer network along the

regional rail corridors to connect with all planned services; regional connector bus service as an interim measure where rail service will eventually be implemented; local fixed route bus services; paratransit service; and a local assistance program to help improve traffic mobility in the near term.

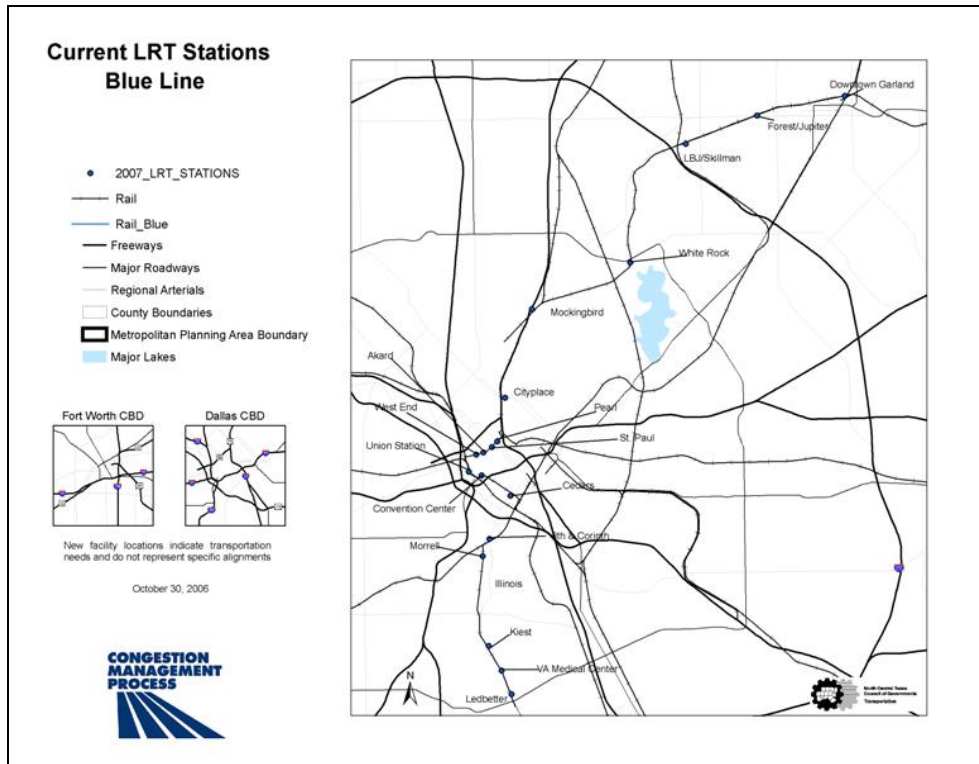
## EXHIBIT V-1

### DART LRT RED LINE



## EXHIBIT V-2

### DART LRT BLUE LINE

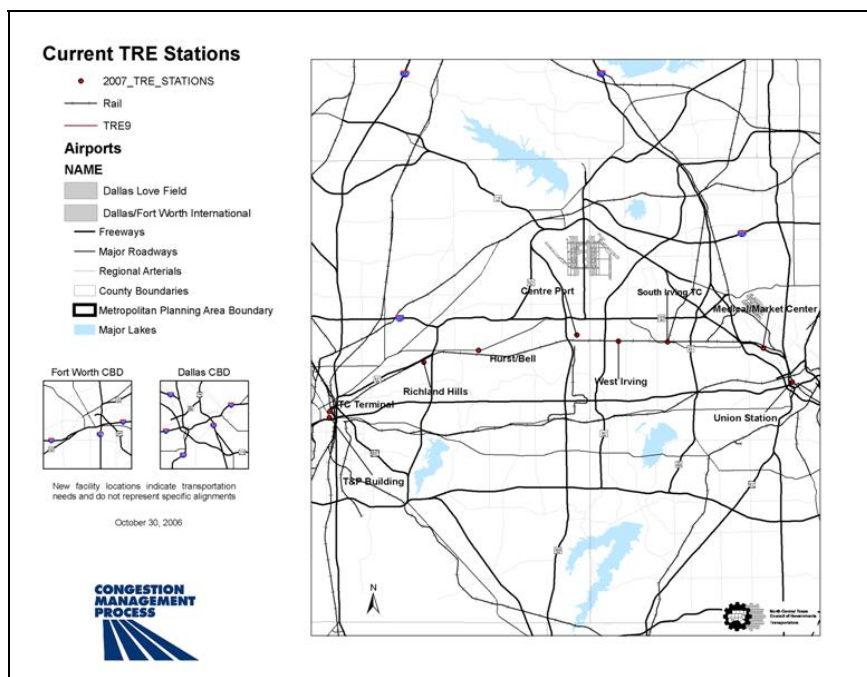


The T provides fixed route bus, express bus, and/or Rider Request service throughout Fort Worth, Richland Hills, and Blue Mound. Four express routes allow virtually non-stop travel weekdays from designated park-and-ride lots to downtown Fort Worth and the Trinity Railway Express commuter rail station at the Intermodal Transportation Center (ITC). Park-and-ride locations offer a convenient meeting point for carpools and vanpools; all-day parking is free, compliments of the T, participating businesses and churches. The Rider Request Program within Richland Hills offers the choice of having a bus meet a passenger where they desire as long as travel is within the route's designated service area. The base fare for most local trips is \$1.25.

The Trinity Railway Express (TRE) is a cooperative commuter rail service provided by DART and The T. The TRE includes approximately 35 miles of track, linking downtown Fort Worth, downtown Dallas, and the Dallas/Fort Worth International Airport (Exhibit V-3). Scheduled train service is provided Monday through Saturday. No regularly scheduled service is available on Sunday. Special Sunday service may be promoted for announced special events only. The TRE Strategic Plan has recently been completed and the report is in the approval process.

### **EXHIBIT V-3**

#### **TRE STATIONS**



#### **DEVELOP PERFORMANCE MEASURES**

Performance measures are developed from already collected or planned to be collected transit data in the Dallas-Fort Worth Region. Transit data is collected and compiled by transit agencies. Exhibit V-4 outlines the existing and planned performance measures data to be incorporated into the CMP.

**EXHIBIT V-4**

**PERFORMANCE MEASURES  
RAIL TRANSPORTATION**

<b>Observed or Modeled Data</b>	<b>Data Element</b>	<b>Source</b>
Observed see Exhibits V-5 chart and graph V-6	DART Light Rail Train Ridership	DART
Observed see Exhibit V-7	TRE Average Weekday Ridership by Station	TRE
Observed see Exhibit V-8	TRE Ridership from West to East	TRE
Modeled	Total Rail Boardings	TransCAD– Transit Summary Report, Transit Summary Daily Report & OnOff table
Modeled	HBW, HNW, NHB and all Transit Person Trips Produced	TransCAD– Transit Summary Report, Transit Summary Daily Report & Mode of Access Reports
Modeled	Transit Passenger Miles	TransCAD – Transit Summary Report & Transit Summary Daily Report
Modeled	Transit flow information in each route	TransCAD - Flow table
Modeled	Transit route system	TransCAD - ACTTRNTR
Observed	Subsidy per Passenger – All Modes, Light Rail, Commuter Rail	DART/FWTA
Observed	Transit Ridership – System wide, Light Rail, Commuter Rail	DART/FWTA
Observed	On-time performance – All Modes, Light Rail, Commuter Rail	DART
Observed*	Parking Utilization	Transit Agencies/Local Agencies

Gray Shading = Possible future data elements.

## **MONITOR AND EVALUATE PERFORMANCE**

One of the CMP goals is to have an on-going process to monitor and evaluate system performance. The monitoring and evaluation of transit performance measures will be used to assess the impact that transit has on congestion in the DFW Region. Exhibits V-5 – V-8 are examples of transit performance measures that were collected from the transit agencies and formatted into charts and graphs for the CMP.

Exhibit V-5 lists the DART light rail train ridership by station. The weekday ridership was calculated per month. The month ridership was then averaged for 12 months, November 2005 to October 2006. The individual DART light rail station average ridership was then divided by the Total DART light rail station riderships for the Average Percentage.

**EXHIBIT V-5**

**DART LIGHT RAIL TRAIN RIDERSHIP - CHART**

<b>Dart Light Rail Train Ridership 12 Month Weekday Average November 2005 to October 2006</b>			
	<b>Terminal station</b>		
<b>Line</b>		<b>12-Month Average</b>	<b>% Average</b>
red / blue	<b>West End</b>	8,746	14.08%
red / blue	<b>Akard</b>	4,034	6.49%
red	<b>Parker Road</b>	3,280	5.28%
red / blue	<b>Mockingbird</b>	3,261	5.25%
red / blue	<b>Union Station</b>	3,251	5.23%
red / blue	<b>St Paul</b>	2,765	4.45%
red	<b>Westmoreland</b>	2,551	4.11%
red / blue	<b>Pearl</b>	2,334	3.76%
blue	<b>Ledbetter</b>	2,238	3.60%
red	<b>Park Lane</b>	2,228	3.59%
red / blue	<b>City Place</b>	2,188	3.52%
blue	<b>Downtown Garland</b>	2,159	3.48%
red / blue	<b>Corinth &amp; Eighth</b>	1,891	3.04%
red	<b>Forest Lane</b>	1,636	2.63%
blue	<b>LBJ/Skillman</b>	1,475	2.37%
red	<b>Walnut Hill</b>	1,457	2.34%
red	<b>Arapaho Center</b>	1,456	2.34%
red	<b>Lovers Lane</b>	1,344	2.16%
red	<b>Hampton</b>	1,253	2.02%
red	<b>Spring Valley</b>	1,171	1.89%
red	<b>Bush Turnpike</b>	1,154	1.86%
blue	<b>Illinois</b>	1,107	1.78%
red / blue	<b>Cedars</b>	1,099	1.77%
blue	<b>Kiest</b>	1,097	1.77%
blue	<b>White Rock</b>	987	1.59%
red	<b>LBJ/Central</b>	871	1.40%
blue	<b>Forest/Jupiter</b>	870	1.40%
blue	<b>V A Medical Center</b>	832	1.34%
red	<b>Dallas Zoo</b>	809	1.30%
red / blue	<b>Convention Center</b>	802	1.29%
red	<b>Downtown Plano</b>	753	1.21%
red	<b>Tyler Vernon</b>	354	0.57%
red / blue	<b>Morrell</b>	343	0.55%
blue	<b>Galatyn Park</b>	333	0.54%
	<b>Total</b>	<b>62,128</b>	<b>100.00%</b>




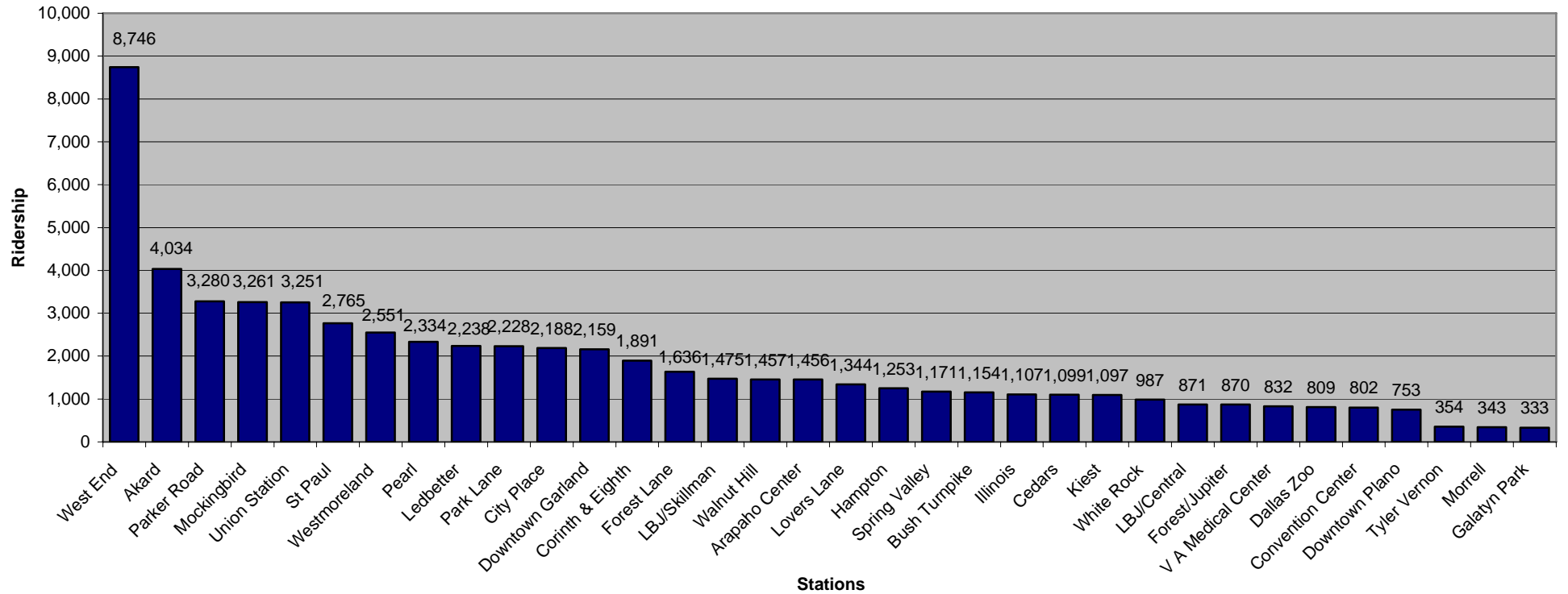
Exhibit V-6 illustrates the individual DART light rail average 12-month ridership by station, with the West End Station showing heaviest use. Exhibit V-7 lists the average TRE weekday ridership per station per month. The average 12 month ridership was calculated per station.

**EXHIBIT V-6**

**DART LIGHT RAIL TRAIN RIDERSHIP - GRAPH**



Dart Light Rail Train Ridership  
 12 Month Weekday Average  
 November 2005 to October 2006



**EXHIBIT V-7**

**TRE AVERAGE WEEKDAY RIDERSHIP BY STATION**



														
TRE Average Weekday Ridership by Station														
Station	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06		12- Month
T & P Station	382	376	346	347	327	372	349	374	436	515	442	401		389
Ft. Worth ITC	787	726	686	718	729	865	843	837	942	1,008	878	843		822
Richland Hills	581	563	516	518	501	536	497	509	543	588	575	541		539
Hurst/Bell	514	538	490	521	493	511	515	522	546	545	540	512		521
Centreport/ D	1,352	1,202	1,077	1,083	1,068	1,152	1,111	1,110	1,211	1,274	1,238	1,166		1,170
West Irving	521	479	412	449	428	446	457	453	471	485	466	448		460
South Irving	929	870	781	793	768	887	802	833	862	920	906	883		853
Medical Mark	936	873	778	824	825	831	856	914	920	901	918	897		873
Victory	309	376	309	350	351	310	198	109	127	124	138	110		234
Dallas Union	2,946	2,769	2,487	2,488	2,457	2,832	2,720	2,790	2,930	3,138	2,944	2,777		2,773
<b>Total</b>	<b>9,257</b>	<b>8,773</b>	<b>7,883</b>	<b>8,091</b>	<b>7,948</b>	<b>8,742</b>	<b>8,347</b>	<b>8,451</b>	<b>8,988</b>	<b>9,498</b>	<b>9,045</b>	<b>8,576</b>		<b>8,633</b>

Exhibit V-8 lists the TRE on and off boardings per station for one month. The TRE was traveling from west to east when the data was gathered. The graph below shows that the Fort Worth Intermodal Transportation Center, Centreport DFW, South Irving Station, Medical Market Center, and Dallas Union Station all have boardings over 600 passengers.

**EXHIBIT V-8**

**TRE RIDERSHIP FROM WEST TO EAST**

<b>TRE Ridership from West to East Weekday Average October 2006</b>		
<b>Station</b>	<b>Passengers</b>	
	<b>On</b>	<b>Off</b>
T & P Station	395	0
Ft. Worth ITC	670	10
Richland Hills	486	85
Hurst/Bell	481	84
Centreport/ DFW	899	316
West Irving	384	79
South Irving Station	691	167
Medical Market Center	264	676
Victory	3	99
Dallas Union	0	2758
<b>Total</b>	<b>4273</b>	<b>4273</b>



**STRATEGY IDENTIFICATION**

Congestion management strategies on the rail transportation system include the implementation of Transportation System Management (TSM), Travel Demand Management (TDM), and Intelligent Transportation System (ITS) improvements. All TSM, TDM and ITS strategies are outlined in Appendices A, B and C. The rail transportation facilities have a variety of strategies

that can be deployed to alleviate congestion. The type of strategy implemented depends on the type of congestion experienced.

Long-term strategies have been developed to improve the transit system in the region. The transit component of the Mobility 2030: The Metropolitan Transportation Plan includes regional rail, light rail, intercity rail, and rail technologies yet to be determined (Exhibits V-9 & V-10). The total cost for the rail system construction is approximately \$9.6 billion. Recommendations include five categories of rail throughout the transportation authority service areas and are included below. Future rail must meet the following conditions: refined rail forecasts that are necessary to determine appropriate technology and alignment, and institutional structures for implementation.

The five categories of rail are as follows:

#### Light Rail

- Anticipate rail volumes to support Light Rail investment. Light Rail is typically electric and operates with overhead, catenary wires and in its own exclusive right-of-way. Typical station spacing is one-half to two miles.

#### Light Rail – New Technology

- Anticipate rail volumes to support Light Rail – New Technology, also known as Light Rail Transit -Compliant investment. Light Rail Transit -Compliant (LRT-C) technology could be used in corridors that connect to Light Rail corridors. LRT-C vehicles are similar in size and weight of the Light Rail vehicles. LRT-C vehicles are powered by diesel engines instead of electricity.

#### Regional Rail

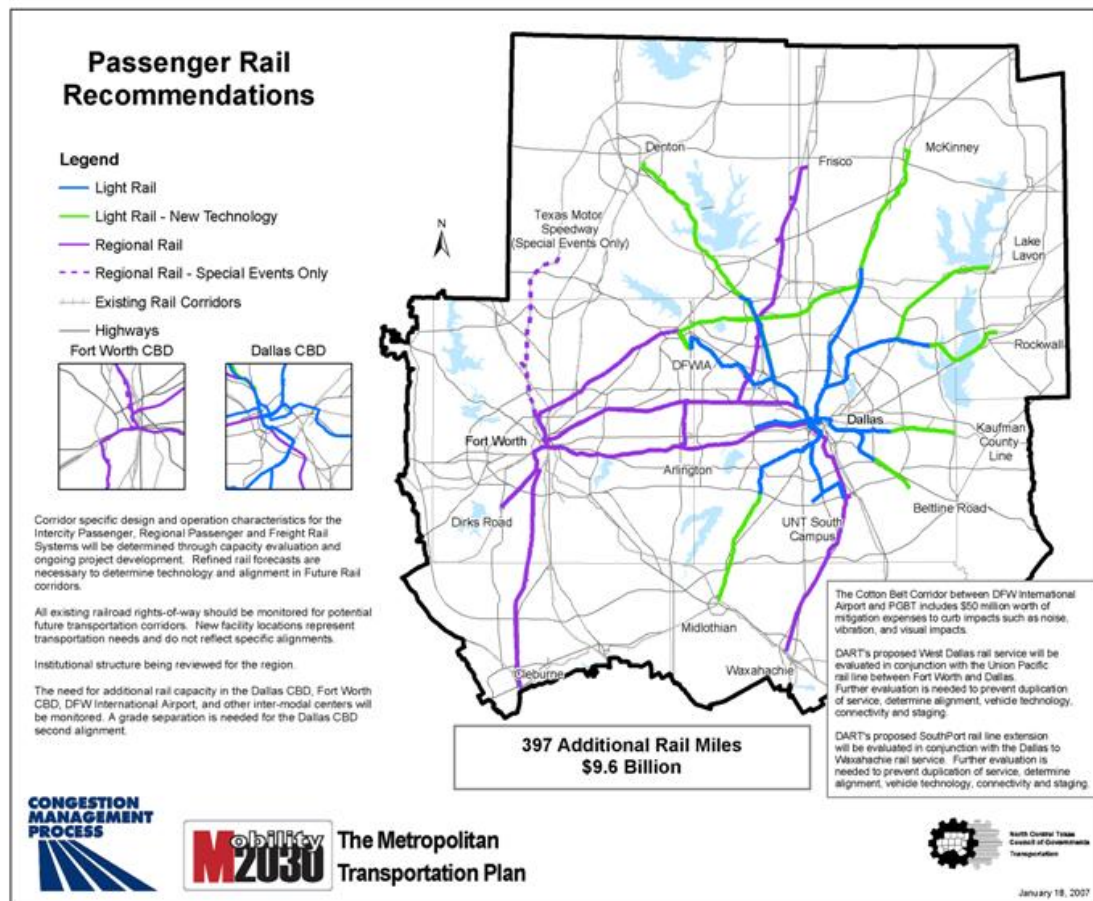
- Anticipate rail volumes to support future Regional Rail investment. Regional Rail, also known as Commuter Rail, often operates in existing freight railroad corridors and exhibits typical station spacing of three to five miles.

## Special Events Service

- A goal of the Mobility Plan is to provide rail service to all major special events centers. Therefore, rail service to the Texas Motor Speedway during special events is recommended.

### EXHIBIT V-9

## PASSENGER RAIL RECOMMENDATIONS



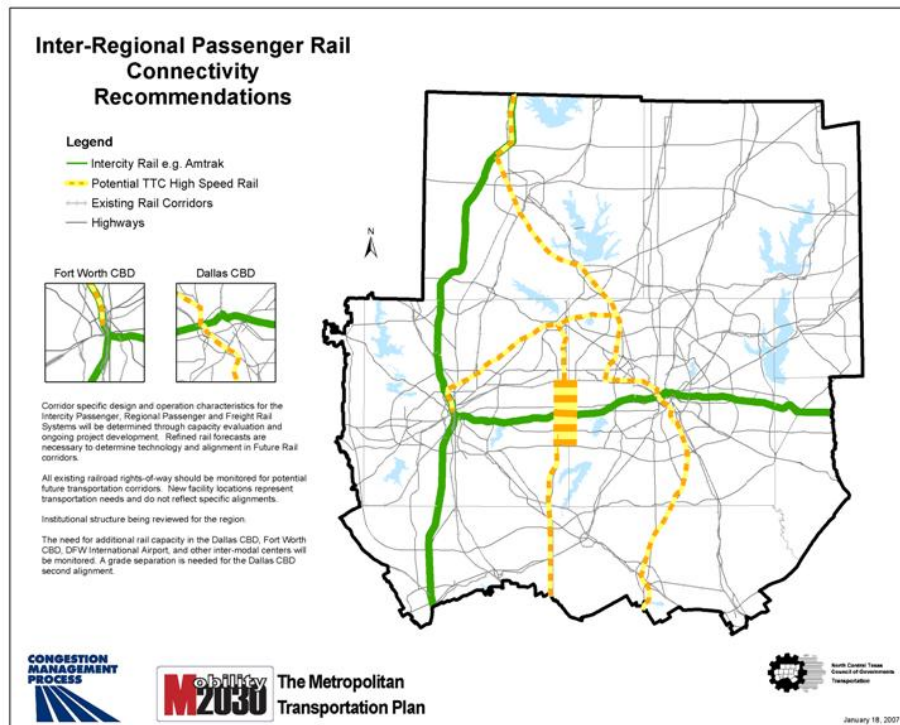
## Intercity Rail

- This transportation mode is designated for passenger rail service into and out of the region or service into the Dallas/Fort Worth International Airport on a train similar to Amtrak.

- Higher Speed Rail would have speeds between 80 mph and 150 mph. To allow for increased speeds, roadway and rail improvements would be needed such as crossing gates and grade separations.
- High Speed Rail has speeds above 150 mph. This service is anticipated to function within the Trans-Texas Corridor (TTC).

## EXHIBIT V-10

### INTER-REGIONAL RAIL PASSENGER RAIL CONNECTIVITY RECOMMENDATIONS



Bus system recommendations are also included in the Mobility 2030: The Metropolitan Transportation Plan. A mature bus system is assumed throughout the transportation authority service areas. Included in the transit recommendations are feeder and/or express buses designed to utilize the high occupancy vehicle/managed lanes and service to rail stations, park and ride locations and transfer centers. Bus Rapid Transit (BRT) is another recommended transit mode. BRT can be utilized in a fixed guide-way similar to a rail line but has the flexibility

to utilize the existing roadway when needed. Decreased travel times are achievable by signal prioritization, priority queuing, and a fixed guide-way.

Short-term strategies such as Travel Demand Management (TDM) and Intelligent Transportation Systems (ITS) have been developed. Advanced Public Transportation System (APTS) is an ITS strategy recommended in the Mobility 2030: The Metropolitan Transportation Plan. APTS will serve as a communication hub for DART and The T and will be integrated with state and local government centers. APTS includes automatic vehicle location technology, automated fare collection and transit security systems. These technologies will not only enhance transit service but also increase the safety of riders and provide greater level of service. Opportunities will arise in the future for APTS to be applied to HOV lanes and special events. TDM strategies are also critical components to the transit system's utilization capacity. TDM strategies complement the transit system by promoting and educating the public of the different services that cater to the transit system. Examples of TDM strategies are Employer Trip Reduction and Ozone Season; both programs promote the use of transit. For a full listing of TDM and ITS strategies refer to Appendices B and C.

## **STRATEGIC SELECTION/PROJECT IMPLEMENTATION**

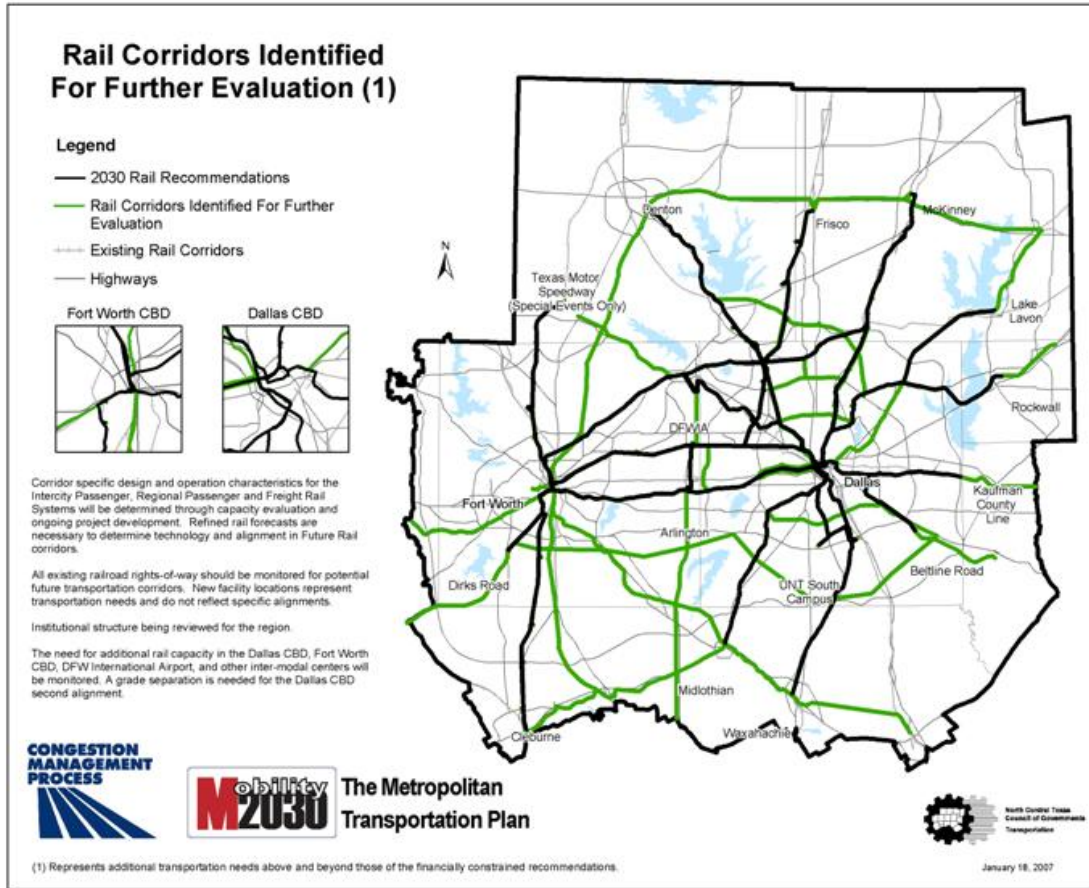
As mentioned in Section I of this document, the Regional Transportation Council (RTC) passed resolution number R98-01 (Appendix D), which requires that all Major Investment Studies (MIS) include an evaluation of operation management and travel demand reduction solutions to congestion and air quality concerns. Each congestion management recommendation and commitment documented in the inventory will be monitored to ensure its inclusion in the Metropolitan Transportation Plan (MTP) and the Transportation Improvement Program (TIP) by an applicable deadline. There are over 30 active transit projects from 2006 – 2012 that are currently in the TIP. The various transit projects listed in the TIP are the following:

- Thirteen safety projects
- Six rail expansion projects
- Three fixed guideway modernization projects
- Two double tracks to rail projects
- Planning and design for future stations
- Engineering and rail extension studies
- Railroad grade separation
- Corridor preservation projects
- Access and track improvement
- Light rail minimum operating segment
- Tunnel lining and fixed guideway

An inventory of rail transit and rail corridors that will be examined for future mobility plans is provided in Exhibit V-11.

## EXHIBIT V-11

### RECOMMENDATION



## PROJECT PERFORMANCE EVALUATION

The goal of the project performance evaluation is to have an on-going program to evaluate the benefits of transportation programs and projects that reduce single occupant vehicle (SOV) travel in the Dallas-Fort Worth region. Exhibit V-12 identifies current and future transit project performance evaluations.

**EXHIBIT V-12**

**PROJECT PERFORMANCE EVALUATION  
RAIL TRANSPORTATION**

<b>Projects</b>	<b>Source</b>	<b>Implementation</b>	<b>Comments</b>
TRE Survey – 2002 Ridership	NCTCOG		See attached executive summary.
DFW International Airport Rail Planning and Implementation Study	Prepared by DMJM Aviation		See attached executive summary. <a href="http://www.nctcog.org/trans/transit/planning/studies/DfwExeSum.pdf">http://www.nctcog.org/trans/transit/planning/studies/DfwExeSum.pdf</a>
Regional Rail Momentum	NCTCOG		See attached report. <a href="http://www.nctcog.org/trans/transit/planning/rtr/rail-4.pdf">http://www.nctcog.org/trans/transit/planning/rtr/rail-4.pdf</a>
Regional Rail Corridor Study	NCTCOG		See attached report. <a href="http://www.nctcog.org/trans/transit/planning/rtrcs/index.asp">http://www.nctcog.org/trans/transit/planning/rtrcs/index.asp</a>
DCTA Alternative Analysis	URS Corp.		See attached report.
Regional Mobility Initiatives - Rail Station Access	NCTCOG		See attached Regional Mobility Initiatives. <a href="http://www.nctcog.org/trans/outreach/rmi/accessrail.pdf">http://www.nctcog.org/trans/outreach/rmi/accessrail.pdf</a>
DART Annual Operating Budget Reports 2004 – ongoing	DART		<a href="http://www.dart.org/debtdocuments/DARTFinancialStatements2006.pdf">www.dart.org/debtdocuments/DARTFinancialStatements2006.pdf</a>
DART Light Rail Expansion Impact Analysis	Prepared by NuStats for NCTCOG and DART		See attached report. <a href="http://www.nctcog.org/trans/admin/rfp/DART_LRT_Impact_Analysis.pdf">http://www.nctcog.org/trans/admin/rfp/DART_LRT_Impact_Analysis.pdf</a>
FWTA System-Wide Boarding & Alighting Study	Prepared by GeoStats LP for NCTCOG and The T		Report available at NCTCOG offices
TRE Boarding and Alighting Survey 2004	Federal Transit Administration		Data being provided to NCTCOG

Tracking national performance measures is important in order to view what type of data is collected by other agencies and the benefits of different strategies. The American Public Transportation Association (APTA) collects data from the DFW region as well as other

metropolitan areas, which allows for a national comparison of performance measures. Below is a list of national performance evaluations and associated mobility benefits.

### **National Performance Evaluations**

#### Commuter and Light Rail Transit Agencies Mileage and Station Data

- Sponsored by APTA
- <http://www.apta.com/research/stats/rail/crmiles.cfm>
- <http://www.apta.com/research/stats/rail/lrmiles.cfm>

#### Commuter and Light Rail Transit Agencies Ridership

- Sponsored by APTA
- <http://www.apta.com/research/stats/rail/crservuse.cfm>
- <http://www.apta.com/research/stats/rail/lrservuse.cfm>

#### Public Transportation Performance Indicators Statistics – Service Consumption per Service

##### Output Ratios and Miles per Vehicle Maintenance Expense 1996-2001

- Sponsored by APTA and Federal Transit Administration (FTA)
- <http://www.apta.com/research/stats/perform/index.cfm>

#### Public Transportation Performance Indicators Statistics – Service Supplied Ratios 1996-2001

- Sponsored by APTA and FTA
- <http://www.apta.com/research/stats/ridership/index.cfm>

#### Public Transportation Ridership Statistics – APTA Ridership Report 2000-ongoing

- Sponsored by APTA
- <http://www.apta.com/research/stats/ridership/index.cfm>

#### Public Transportation Ridership Statistics – Unlinked Passenger Trips and Passenger Miles

- Sponsored by APTA and FTA
- <http://www.apta.com/research/stats/ridership/index.cfm>

## Urban Travel in the Houston-Galveston Area

- Sponsored by Houston-Galveston Area Council (H-GAC) in cooperation with TxDOT
- <http://www.hgac.com/NR/rdonlyres/e7iwwcblyhirbs6552y5zejwzc5mnzdf4gsrxbheuj2xhahnfnjmzwxvku6d2omy6jaolawgy6vlmdrclsygemjtss3e/hgacexec.pdf>

## 2030 Metro Vision Regional Transportation Plan - Chapter 6 Transportation Benefits and Impacts (2005 compared with 2030)

- Sponsored by Denver Regional Council of Governments
- <http://www.drcog.org/index.cfm?page=RegionalTransportationPlan>

## **SUMMARY**

With a population that is expected to exceed 8.5 million by 2030, the need for a reliable transportation system in North Central Texas is particularly important. The proven ability of rail service to improve mobility will play a crucial role in meeting those future transportation needs. Transportation professionals and policy makers are working to develop innovative solutions to these challenges.

The Regional Transit Initiative (RTI) represents the overarching framework to provide a bottom-up process for the exchange of information and ideas among elected representatives, policy officials, and the general public regarding options for the implementation of a seamless transit system for North Central Texas. The Regional Rail Corridor Study (RRCS) was a part of this Initiative, wherein the specific technical needs were evaluated and identified. The RTI efforts included strategies for funding and implementation of the RRCS recommendations, with the overall purpose being to create a consensus position for implementation of regional passenger rail throughout North Central Texas.

Nearly 300 elected and appointed officials unanimously embraced a statement of principles for seamless public transit in North Central Texas, complete with a local financing plan and governance structure at the August 2004 Regional Transit Summit. Their unanimous approval included a \$3.5 billion, 260-mile regional rail blueprint that will require an increase of a half-cent sales tax. Over the course of the study, hundreds of local leaders met more than 70 times to discuss how to create seamless public transit for Collin, Dallas, Denton, Ellis, Johnson, and Tarrant Counties. The regional leaders participating in the Summit endorsed the conclusions and recommendations of the RTI process by adopting a statement of principles, which calls for a new Regional Rail Authority, funded through additional sales tax capacity and allowing for a region-wide local option election. The next steps leading to implementation of regional rail service include further refinement of the details of such a regional rail authority, gathering support for necessary state legislative change, and developing the organizational structure to plan and implement the new Regional Rail Authority System.