Executive Summary

MOBILITY 2010
Plan Update

The Regional Transportation Plan for North Central Texas

North Central Texas Council of Governments
Introduction

The Mobility 2010 Plan Update was developed in response to the planning requirements set forth in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The plan serves as a guide for the expenditure of state and federal transportation funds through the year 2010 for the Dallas-Fort Worth Metropolitan Area within the North Central Texas Region. The plan includes the federally required Regional Congestion Management System.

The Mobility 2010 Plan Update identifies transportation needs that exceeded available resources, thereby documenting a requirement for additional transportation revenue in order to maintain mobility across the region.

The Mobility 2010 Plan Update responds to the ISTEA financial constraint requirement by examining both transportation needs and available revenue. The Mobility 2010 Plan Update focuses on cost-effective regional transportation system improvements, transportation management strategies aimed at reducing single occupant peak-period travel, and an aggressive financial program to generate the revenue needed to implement this plan.

The Mobility 2010 Plan Update affirms the need for cooperative development and implementation of the regional transportation system. Emphasis is placed on management of the system as a means of reducing demand and improving system efficiency and effectiveness. Transportation system funding strategies address the expansion of existing funding programs as well as the need to seek out and evaluate additional revenue sources. The plan calls for $15.2 billion in transportation system improvements in seven program categories.

This plan was adopted in October 1993 by the Regional Transportation Council and endorsed by the Executive Board of the North Central Texas Council of Governments, together serving as the Metropolitan Planning Organization for the Dallas-Fort Worth Metropolitan Area.

ISTEA requires that the regional transportation plan be constrained to available financial resources. Mobility 2010: The Regional Transportation Plan for North Central Texas, adopted in 1990, represents a system of transportation improvements needed to maintain mobility in the Dallas-Fort Worth Area over the next two decades.

MOBILITY 2010 PLAN UPDATE FINANCIALLY CONSTRAINED RECOMMENDATIONS

<table>
<thead>
<tr>
<th>Mode/Program</th>
<th>Cost (Billions $, 1993)</th>
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<tbody>
<tr>
<td>Congestion Management System</td>
<td>$1.0</td>
</tr>
<tr>
<td>HOV System</td>
<td>$1.2</td>
</tr>
<tr>
<td>Rail Facilities</td>
<td>$2.1</td>
</tr>
<tr>
<td>Freeways/Tollroads</td>
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</tr>
<tr>
<td>Arterial Streets</td>
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</tr>
<tr>
<td>Bicycle, Pedestrian and Other Transportation Enhancements</td>
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</tr>
<tr>
<td>Roadway/Transit Maintenance, Rehabilitation, Operations, Safety</td>
<td>$1.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$15.2</strong></td>
</tr>
</tbody>
</table>
Public Involvement

Public involvement in the transportation planning and decision-making process is a major emphasis of ISTEA. Involvement of citizens and local elected officials in the development of the regional transportation plan is key to the plan's viability and the likelihood of its implementation. A proactive public outreach program provided opportunity for public comment on the planning process. This initiative included presentations at public meetings, transportation technical committees, the NCTCOG Executive Board and the Regional Transportation Council. Several special workshops were held and numerous presentations made to planning agencies, transportation providers and city councils.

Consistent with the public involvement procedures adopted by the Regional Transportation Council, public meetings were held on the draft Mobility 2010 Plan Update, and thirty days were allowed for public comment prior to adoption of the plan. The purpose of this Executive Summary is to provide an overview of the Mobility 2010 Plan Update to citizens throughout the Dallas-Fort Worth area and to maintain continued public participation in the development and implementation of the regional transportation plan.

Plan Development

STEA requires metropolitan areas of the United States currently not in compliance with air quality standards to evaluate all reasonable transportation alternatives prior to making single-occupant vehicle (SOV) capacity recommendations. The Dallas-Fort Worth area is currently in noncompliance for the pollutant ozone. This plan focused initially on congestion management strategies, followed by bikeway and pedestrian facilities, high occupancy vehicle lanes, rail facilities and eventually toll roads prior to recommending additional freeway system capacity. Emphasis of the plan development process was on the identification of revenue sources and levels to meet plan needs.
Congestion Management System

Congestion management is an integral element of this regional transportation plan as a guide for implementing both near-term and long-range regional transportation improvements. The Congestion Management System (CMS) targets where congestion occurs or is likely to occur, identifies its causes, evaluates strategies for mitigating congestion and develops a plan for implementation of the most cost-effective strategies.

The CMS was developed for the entire Metropolitan Area. Using current and projected congestion levels, the region was divided into two focus areas. While CMS strategies will be implemented across the entire area, the congested area has been targeted for more intensive data collection and monitoring efforts as part of the Congestion Management System.

The performance of the current and future transportation system was measured in conjunction with the plan development process. A variety of quantifiable system performance measures were used to identify the extent and duration of traffic congestion. Candidate strategies were assessed for their effectiveness and feasibility of implementation in the region. Each of the strategies was either adopted for implementation, identified as needing further consideration, or not adopted.

A wide variety of regional congestion mitigation strategies are recommended for implementation. These are relatively low-cost measures designed to manage the transportation system and reduce travel demand. This program includes operational management and travel demand reduction strategies determined to be the most cost-effective for this region. Total program cost for the Congestion Management element of this plan is approximately $1 billion.
The adopted congestion mitigation strategies include traffic signal and intersection improvements aimed at reducing delay on arterial streets. Freeway bottleneck removal combined with deployment of incident detection and response systems, including motorist assistance and accident removal are proposed to maintain traffic flow on the freeway system. Travel demand management strategies such as employer trip reduction programs and vanpools are also included.

The aggregate effect of these strategies will be a reduction in single occupant vehicle travel, due in large part to vanpool programs, park-and-ride facilities, and employer trip reduction programs. Projected speed increases will likely occur as a result of the transportation system management strategies. Average speeds are expected to increase nearly 2 percent systemwide due to intersection improvements and traffic signal upgrades, while traffic control delay on the arterial street system will decrease by over 25 percent. The total effect of the congestion management strategies is an anticipated reduction in vehicle hours of travel. This 4.8 percent reduction reflects savings in travel time and energy use as well as vehicle emission reductions. Total annual benefits are estimated to be at $740 million per year.

The implementation of congestion management strategies needs to involve the public sector, private sector, and public/private partnerships. Transportation policies need to be developed to strengthen land use/transportation decision making processes and guide investment toward cost-effective solutions. The Mobility 2010 Plan Update documents that we can no longer afford to build ourselves out of our traffic congestion problem. While the construction of new facilities will take place, we must also find effective, practical solutions to address the air quality and traffic congestion challenges that confront us.

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.
Bicycle, pedestrian and other transportation enhancements

Bicycle, pedestrian and transportation enhancement projects are all identified as possible transportation strategies for inclusion in the regional transportation plan by the Intermodal Surface Transportation Efficiency Act which also established funding to support implementation of these projects. The Mobility 2010 Plan Update includes three transportation enhancement components: a Bicycle and Pedestrian Element, Common Heritage Corridors, and Scenic and Environmental Enhancements. Each of these areas was developed to different levels to be included in the regional transportation plan.

The Bicycle and Pedestrian element identifies a program of regional policies to encourage bicycle and pedestrian commuting. A system map forms an initial network of existing and future bikeway and pedestrian facilities throughout the Metropolitan Area. These projects, compiled from the plans of local governments and agencies, include both on- and off-road facilities. This plan provides the foundation for the development and coordination of regional bikeway and pedestrian facilities. The plan calls for the continued development of design standards and training programs to increase the safety and utilization of the bicycle and pedestrian modes.

BICYCLE AND PEDESTRIAN SYSTEM MAP

North Central Texas Council of Governments
The Common Heritage Corridors, developed as part of the plan, also forms a framework for the development of policies regarding the funding of regional transportation enhancements. A system map is shown which strives to link together the diverse cultural and historic facilities across the North Central Texas region. This inventory of corridors guides the nomination of projects for funding in the Statewide Transportation Enhancement Program as they relate by function, proximity, or impact to the regional transportation system. Included in these corridors are streams and rivers, explorer routes, settlement trails, railroads, and historic business districts.

This component centers on the development of regional policies which will guide the funding of enhancement projects such as gateways to cities and urban centers, scenic parkways, scenic rights-of-way and vistas, bridge crossings and storm water run-off mitigation.

Approximately $300 million in federal Transportation Enhancement funds are earmarked for construction of these types of projects in the plan.

### LEVEL OF PLANNING DETAIL

<table>
<thead>
<tr>
<th>Plan Components</th>
<th>Regional Policies</th>
<th>System Maps</th>
<th>Specific Projects</th>
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<tbody>
<tr>
<td>Bicycle &amp; Pedestrian Element</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Common Heritage Corridors</td>
<td>✗</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>SEE North Central Texas</td>
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High Occupancy Vehicle and Express Lanes

High occupancy vehicle lanes are critical components of the Mobility 2010 Plan Update. These facilities are aimed at increasing the person-carrying capacity of heavily congested freeways. The plan recommends a 150-mile system primarily in the central and eastern portions of the Metropolitan Area; this includes the majority of radial freeway corridors approaching the Dallas Central Business District. Implementation of the HOV system will generate greater travel-time savings for car pools, vanpools and express buses. Total cost for the proposed HOV system is estimated at $1.2 billion.

Approximately 40 miles of HOV lanes are now being constructed as Immediate-Action HOV facilities using Congestion Mitigation Air Quality (CMAQ) funds combined with matching funds from the Texas Department of Transportation and Dallas Area Rapid Transit. These Immediate-Action facilities will eventually be converted to permanent HOV lanes as HOV volumes increase.

Because of the strong directional orientation of traffic along many of the region’s freeway corridors during peak-travel periods, the majority of the HOV lanes will be constructed as reversible facilities. For example, HOV lanes will accommodate in-bound traffic to the Dallas Central Business District in the morning and out-bound traffic in the evening. The HOV system map indicates by arrow, the direction of HOV lanes in place in the a.m. peak travel period. In the evening, p.m. peak-period travel direction of these facilities would be reversed. In a few corridors, HOV demand will warrant lanes in both directions in both the morning and evening.

Where HOV demand requires two lanes of capacity in one or both directions, the Mobility 2010 Plan Update calls for a feasibility study to determine whether HOV facilities can be used in the off-peak period as express lanes or toll lanes for all types of traffic. This approach will be refined as each of these HOV facilities are evaluated as part of Major Investment studies.
Regional rail and bus transit system improvements are also key components to this plan as many of the region's freeway corridors are becoming more congested. The plan includes the rail system being implemented by Dallas Area Rapid Transit in the eastern portion of the Metropolitan Area: RAILTRAN, the regional commuter rail system between Dallas and Fort Worth, and bus transit services throughout the urban area.

The plan identifies seven categories of rail system investments based upon anticipated levels of ridership and estimated costs in each corridor. The first category, the Light Rail Starter System, is currently under construction. Initial operation of the South and West Oak Cliff sections are anticipated to begin in 1996.

The next category is Light Rail/Staged Lower Cost Light Rail, representing the extension of the Dallas North Central line into Richardson and Plano. The plan recommends extending this line so that it is consistent with ongoing construction of the starter system. The appropriate staging of this facility in the corridor should be considered when examining dual tracks, rail sidings and stations as ways to minimize costs relative to ridership levels. Staged Lower Cost Light Rail is also recommended for the extension from downtown Dallas to Pleasant Grove. Staged Lower Cost Light Rail or Commuter Rail is recommended for both the Northeast Corridor into Garland and the Stemmons Corridor from downtown Dallas to the Carrollton/Farmers Branch area. The South Oak Cliff light rail extension is proposed for construction with local funds at the discretion of DART.

Two commuter rail facilities are identified in the plan, including the RAILTRAN line between Dallas and Fort Worth and the Cotton Belt line from U.S. 75 to I.H. 35E. The Cotton Belt facility could potentially interline directly with commuter rail service in the Stemmons corridor.

Finally, pending further study and eventual ridership demand sufficient to warrant service, Staged Commuter Rail Service is proposed to the Dallas-Fort Worth International Airport via the RAILTRAN line on the south and the Cotton Belt line on the north. A total of $2.1 billion is included in the plan for rail system improvements. Like the HOV system, Major Investment Studies on each proposed rail corridor will be required prior to seeking federal funding support for these projects.

The plan recommends additional transit system improvements, including express buses to serve HOV facilities, and local feeder buses to serve proposed rail lines and park-and-ride lots. Expanded cross-town bus service accommodates suburban-to-suburban commuting. Specific bus transit needs should be identified through detailed Major Investment Studies and transit system studies conducted by the transit operators and NCTCOG before these projects are programmed in the Transportation Improvement Program.
Freeway and Thoroughfare Improvements

Commuters in the Dallas-Fort Worth Metropolitan Area travel over 90 million vehicle miles per day. By the year 2010, travel is expected to grow by an additional 30 percent to over 124 million vehicle miles of travel. In the future, as today, our freeways and thoroughfares will serve as the backbone of the regional transportation system. With nearly 50 percent of this travel anticipated to occur on the freeways, maintaining and expanding this system is critical to the regional transportation plan. The plan calls for an additional $6.7 billion to be invested in the regional freeway system by the year 2010. Of this amount, approximately $1 billion in proposed freeways could be constructed as toll roads.

Financial constraints on available revenue will limit the amount of freeway construction which can be accomplished in this time period. A major emphasis of the Mobility 2010 Plan Update was to examine the appropriate amount of capacity to be constructed in each freeway corridor. Historically, freeway improvements have been built to satisfy traffic demand during the peak hour of the day. Recognizing the financial constraints on the system, this plan proposes to fund the construction of facilities to accommodate traffic demand during the fourth highest hour of the day as a more affordable strategy.

Greater travel demand and traffic management during the higher peak hours, would result in more appropriate system capacity during off-peak travel periods. Particular emphasis must also be placed on traffic management strategies to reduce the congestion delay that regularly occurs as a result of incidents and accidents on the freeway system.

Four categories of freeway system improvements are recognized in the plan: Improved Freeways, New Staged Freeways/Toll Roads, Future Freeways, and Preservation of Right-of-Way.
Improved Freeways are identified as existing facilities where capacity improvements are anticipated to be needed. New Staged Freeways/Toll Roads represent the construction of new facilities needed by the year 2010. Where these facilities are to be built as freeways, the plan requires that each facility be built using staged construction. Frontage roads and overpasses are constructed initially, and right-of-way is preserved in the median. As traffic volumes on the frontage roads increase, funding is programmed for the construction of freeway main lanes. Frontage roads may not be feasible in conjunction with candidate toll roads, therefore requiring toll road main lanes to be constructed initially. Toll road feasibility will be considered on a case-by-case basis by the Texas Turnpike Authority and the Texas Department of Transportation.

Future Freeways are identified as those corridors in which main lanes are not anticipated to be needed by the year 2010. Frontage roads or arterial street cross sections may be considered to provide initial access in the corridor and to satisfy low level traffic volumes.

Finally, Preservation of Right-of-Way is shown in those corridors in which construction is not warranted prior to the year 2010. However, right-of-way should be preserved by local governments to accommodate future construction needs.

Included as part of the Mobility 2010 Plan Update is a regional system of thoroughfare improvements identified as the Regional Thoroughfare Plan. Also published as a separate document, the Regional Thoroughfare Plan represents an ultimate thoroughfare network or build-out thoroughfare system for the Metropolitan Area. This system will be constructed by local governments and the Texas Department of Transportation dependent on timing and financial constraints. Many projects from this candidate list of facilities may be selected and constructed using federal Surface Transportation Program or National Highway System funds. In some locations, state funds or city and county bond program funds may be used. The timing and selection of these projects are determined in the annual Transportation Improvement Program process.
Transportation System Performance

Transportation system performance information was generated as a product of the Dallas-Fort Worth Regional Travel Model throughout the plan development process. This information was provided to staff, elected officials and the public as a tool to guide the development of transportation system alternatives and communicate the potential impacts of various strategies.

To serve as means of comparison, a year 2010 No-Build travel forecast was prepared assuming 2010 travel demand on the current year (1990) transportation system. The results of this forecast, as illustrated in the accompanying graphic, indicate that over 40 percent of the region’s roadway system would experience peak-hour congestion. Severe congestion levels would occur in Dallas County with over 60 percent of the road system congested in some areas. The estimated cost of this congestion to Dallas-Fort Worth motorists in the No-Build scenario is $7.7 billion annually.

Implementation of the proposed plan will greatly reduce regionwide congestion levels. Approximately 30 percent of the system is anticipated to experience moderate congestion at an estimated annual cost of $4.6 billion. Reducing this congestion level and its related safety, air quality, and social costs to a minimum is the primary goal of the regional transportation plan. However, due to the financial constraints placed on this plan, additional capital expenditures are not feasible without additional revenue. Further reduction of congestion must be achieved through increased revenue and more aggressive travel demand reduction and transportation system management strategies as outlined in the Congestion Management element of this plan.
Air Quality Conformity

The Dallas - Fort Worth Metropolitan Area is classified as moderate nonattainment for the pollutant ozone. This includes the four-county area of Collin, Dallas, Denton and Tarrant. The Clean Air Act Amendments of 1990 specify that as a nonattainment area, the regional transportation plan must demonstrate through the air quality conformity process that the implementation of this plan will result in positive air quality benefits.

While the plan meets these conformity requirements, continued emphasis must be placed on the implementation of transportation control measures. These measures include projects such as HOV lanes, intersection improvements, and travel demand reduction strategies, all of which are components of the plan and as such are required by federal law to meet clean air goals.

In order that the Dallas-Fort Worth Metropolitan Area continues to thrive economically, efforts must remain focused on our commitments to implement transportation improvements with positive air quality benefits. Failure to do so will jeopardize both our environment and our ability to receive federal transportation system funds critical to the implementation of this regional transportation plan.

### MOBILITY 2010 PLAN UPDATE

**Volatile Organic Compound Emissions**

<table>
<thead>
<tr>
<th>Year</th>
<th>1990</th>
<th>1996</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC Emissions (tons/day)</td>
<td>306.60</td>
<td>155.05</td>
<td>105.66</td>
</tr>
</tbody>
</table>

**VOC Emission Budget** = 155.40
In order to implement this $15.2 billion regional transportation plan, a detailed financial analysis of system component costs and anticipated revenues was completed. As additional increments of capacity to the system were proposed for each mode, additional costs and revenue needs were considered until a balance was achieved between available revenue and mobility plan needs.

In addition to accounting for current revenue, four categories of transportation funding sources were targeted for future increases to construct this plan. These sources include state and federal motor fuel taxes, state vehicle registration fees, state and federal discretionary funds, and toll road revenues.

The likelihood of future increases in transportation revenue from each of these categories was considered based upon historical trends and current rates. Achieving these proposed increases in transportation revenue will be contingent on the success of elected officials at all levels of government as they continue to address the need for increased transportation funding.

The plan acknowledges that if these increases in revenue do not come to fruition, other sources of funding must be identified or the plan must be scaled back. Federal law requires that this plan be reviewed for financial feasibility every three years. Beyond consideration for additional transportation system revenue, the Mobility 2010 Plan Update also includes a series of financial strategies to maximize current resources.

- Funding only those transportation improvements which prove to be cost effective when compared against all other modes
- Pursuing greater shares of both federal and state discretionary funding for transportation improvements in the Dallas-Fort Worth Metropolitan Area
- Developing greater incentives for local governments and private sector participation in the funding and implementation of regional transportation improvements
- Continuing efforts to advance transportation funding options through education of the public, private sector and elected officials
- Implementing a multimodal congestion management system approach aimed at greater levels of coordination between local governments, transit authorities, the Metropolitan Planning Organization, Texas Department of Transportation and Texas Turnpike Authority in the planning, feasibility study, design, construction and operation of the regional transportation system

Five additional documents are available regarding the Mobility 2010 Plan Update which provide more detailed information on the development and content of the Plan:

- Mobility 2010 Plan Update - Summary
- Mobility 2010 Plan Update - Congestion Management System
- Mobility 2010 Plan Update - Air Quality Conformity Analysis
- Mobility 2010 Plan Update - Technical Findings
- Regional Thoroughfare Plan
North Central Texas Council of Governments

The North Central Texas Council of Governments (NCTCOG) is a voluntary association of local governments within the 16-county North Central Texas region. The agency was established in 1966 to assist local governments in planning for common need, cooperating for mutual benefit, and coordinating for sound regional development. North Central Texas is a sixteen-county region with a population of 4.2 million and an area of approximately 12,800 square miles. NCTCOG has 223 member governments, including all 16 counties, 158 cities, 25 independent school districts, and 24 special districts.

NCTCOG’s structure provides that each member government appoints a voting representative from its governing body. These voting representatives make up the General Assembly which annually elects an 11-member Executive Board (9 local elected officials and 2 regional citizens). The Executive Board is supported by policy development, technical advisory, and study committees as well as a professional staff.

Since 1974, NCTCOG has served as the Metropolitan Planning Organization (MPO) for transportation in the Dallas-Fort Worth Metropolitan Area. The Regional Transportation Council is the policy body for the Metropolitan Planning Organization. The Regional Transportation Council consists of 35 members, predominantly local elected officials, overseeing the regional transportation planning process. NCTCOG’s Department of Transportation is responsible for support and staff assistance to the Regional Transportation Council and its technical committees, which comprise the MPO policy-making structure.