

AGENCY STRATEGIC PLAN

FOR THE FISCAL YEARS 2009-2013 PERIOD

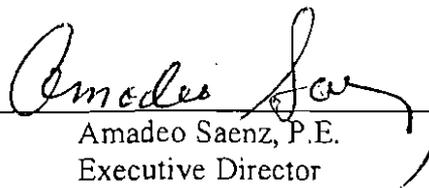
BY

TEXAS DEPARTMENT OF TRANSPORTATION

Commissioner Member	Home Town	Dates Of Term
Deirdre Delisi	Austin	2008-2013
Ned S. Holmes	Houston	2007-2011
Ted Houghton	El Paso	2003-2009
William Meadows	Fort Worth	2008-2013
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July 11, 2008

Signed:

  
Amadeo Saenz, P.E.  
Executive Director

Approved:

  
Deirdre Delisi  
Commission Chair

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## **Statewide Vision, Mission, and Philosophy**

### ***Texas State Government Mission***

Texas state government must be limited, efficient, and completely accountable. It should foster opportunity and economic prosperity, focus on critical priorities, and support the creation of strong family environments for our children. The stewards of the public trust must be men and women who administer state government in a fair, just, and responsible manner. To honor the public trust, state officials must seek new and innovative ways to meet state government priorities in a fiscally responsible manner.

Aim high . . . we are not here to achieve inconsequential things!

### ***The Philosophy of Texas State Government***

The task before all state public servants is to govern in a manner worthy of this great state. We are a great enterprise, and as an enterprise, we will promote the following core principles:

- First and foremost, Texas matters most. This is the overarching, guiding principle by which we will make decisions. Our state, and its future, is more important than party, politics, or individual recognition.
- Government should be limited in size and mission, but it must be highly effective in performing the tasks it undertakes.
- Decisions affecting individual Texans, in most instances, are best made by those individuals, their families, and the local government closest to their communities.
- Competition is the greatest incentive for achievement and excellence. It inspires ingenuity and requires individuals to set their sights high. Just as competition inspires excellence, a sense of personal responsibility drives individual citizens to do more for their future and the future of those they love.
- Public administration must be open and honest, pursuing the high road rather than the expedient course. We must be accountable to taxpayers for our actions.
- State government has a responsibility to safeguard taxpayer dollars by eliminating waste and abuse and providing efficient and honest government.
- Finally, state government should be humble, recognizing that all its power and authority is granted to it by the people of Texas, and those who make decisions wielding the power of the state should exercise their authority cautiously and fairly.

## **Relevant Statewide Goals and Benchmarks**

### ***Economic Development***

#### **Priority Goal**

To provide an attractive economic climate for current and emerging industries that fosters economic opportunity, job creation, capital investment, and infrastructure development by:

- Promoting a favorable and fair system to fund necessary state services;
- Addressing transportation needs;
- Promoting a favorable business climate; and
- Developing a well trained, educated, and productive workforce.

#### **Relevant Benchmarks**

- Percent of state highway system rated good or better based on the Pavement Management Information System Condition Score
- Percent reduction in traffic congestion using the Texas Transportation Institute's Travel Time Index.

### ***Public Safety and Criminal Justice***

#### **Priority Goal**

To protect Texans by:

- Preventing and reducing terrorism and crime
- Securing the Texas/Mexico border from all threats
- Achieving an optimum level of state wide preparedness capable of responding and recovering from all hazards
- Confining, supervising, and rehabilitating offenders.

#### **Relevant Benchmarks**

- Number of traffic deaths per 100,000 population
- Number of traffic deaths per 100,000 population involving alcohol

### ***Natural Resources and Agriculture***

#### **Priority Goal**

To conserve and protect our state's natural resources (air, water, land, wildlife, and mineral resources) by:

- Providing leadership and policy guidance for state, federal, and local initiatives;
- To maintain Texas' status as a leader in agriculture; and
- Encouraging responsible, sustainable economic development.

#### **Relevant Benchmarks**

- Percent of nitrogen oxide and criteria pollutants reduced in the air

## **TxDOT Mission**

We will provide safe, efficient, and effective means for the movement of people and goods throughout the state, facilitating trade and economic opportunity.

## **TxDOT Philosophy**

We will provide safe, efficient, and effective means for the movement of people and goods throughout the state, facilitating trade and economic opportunity.

## **External/Internal Assessment**

### ***TxDOT Scope and Functions***

The transportation needs of Texas are as diverse as the people that comprise this great state. TxDOT is committed to delivering maximum transportation value to Texas residents and visitors. The agency continuously reviews its business processes while focusing on institutional efficiencies. The agency's focus is on delivering the highest level of service possible for the taxpayer's dollar. In addition, TxDOT actively uses partnering and innovative financing methods such as toll equity, comprehensive development agreements, and the Texas Mobility Fund to leverage the transportation buying power of revenues collected.

In 1991, the Texas Department of Transportation was created by Sunset legislation which consolidated the State Department of Highways and Public Transportation, the Department of Aviation, and the Texas Motor Vehicle Commission. In 1995, the Motor Carrier Division was formed and assigned the motor carrier regulatory duties transferred to TxDOT from the Railroad Commission. In 1997, the Texas Turnpike Authority began operation as a TxDOT division with statewide jurisdiction for development of turnpikes. In 2005 the last remaining functions of the Railroad Commission related to railroad operations were transferred to TxDOT.

TxDOT is governed by a five-person commission, the Texas Transportation Commission, appointed by the governor with the advice and consent of the Texas Senate. The department's administration is comprised of the executive director, deputy director, chief financial officer, and four assistant directors. The agency's primary, core responsibility of constructing, maintaining and operating the state highway system is organized around twenty-five regional offices. The agency's headquarters operations are comprised of twenty-one divisions and five offices. Each division and office provides support to the agency in a particular functional area.

In addition to the Transportation Commission, there is one other governor-appointed board affiliated with TxDOT. The seven-person Automobile Theft Prevention Authority administers an auto theft prevention grant program.

## ***Discussion of Current-Year Activities***

### **Vision**

We will deliver a 21<sup>st</sup> century, multimodal transportation system that will improve the quality of life for Texas citizens and increase the competitive position for Texas industry.

### **Mission**

We will provide safe, efficient, and effective means for the movement of people and goods throughout the state, facilitating trade and economic opportunity.

### **Goals**

We have five clear goals to help us achieve our mission. We measure progress toward these goals:

1. Reduce congestion
2. Enhance safety
3. Expand economic opportunity
4. Improve air quality
5. Preserve the value of transportation assets

### **Strategies**

We have four strategies to guide how we accomplish our goals:

1. We will use all available financial tools to build transportation projects.
2. We will empower local and regional leaders to solve local and regional transportation problems.
3. We will harness market-based principles to maximize competition, reduce costs, and guide investments.
4. We will enable consumer-driven decisions that respond to market forces.

### **Tactics**

To support our strategies, we employ these tactics:

#### ***Financing***

- Public Private Partnerships
- Motor Fuel Tax Revenues
- Debt Financing
- Pass-Through Tolls

- Toll Equity

### ***Partnerships***

- Local Tolling Entities
- Metropolitan Planning Organizations
- Texas State Infrastructure Bank
- Strategic Highway Safety Plan
- Transit
- Aviation

### ***Project Delivery***

- Performance-Based Construction Contracts
- Innovative Construction Techniques
- Project Indices
- Comprehensive Development Agreements

### ***Multimodal Freight***

- Rail Relocation Fund
- Gulf Intracoastal Waterway Dredging
- Rail Partnerships

### ***System Preservation***

- Texas Pavement Preservation Center
- Infrastructure Condition Ratings
- Routine Airport Maintenance Program

### ***System Productivity***

- Advanced Traffic Management

### ***Trans-Texas Corridor Authority***

- Innovative Financing and Construction Solutions
- Unified Public and Private Sector Resources

- Multimodal Transportation Systems

### *Planning*

- Texas Metropolitan Mobility Plan
- Texas Urban Mobility Plan
- Key Transportation Corridors

## **Moving Texas Forward**

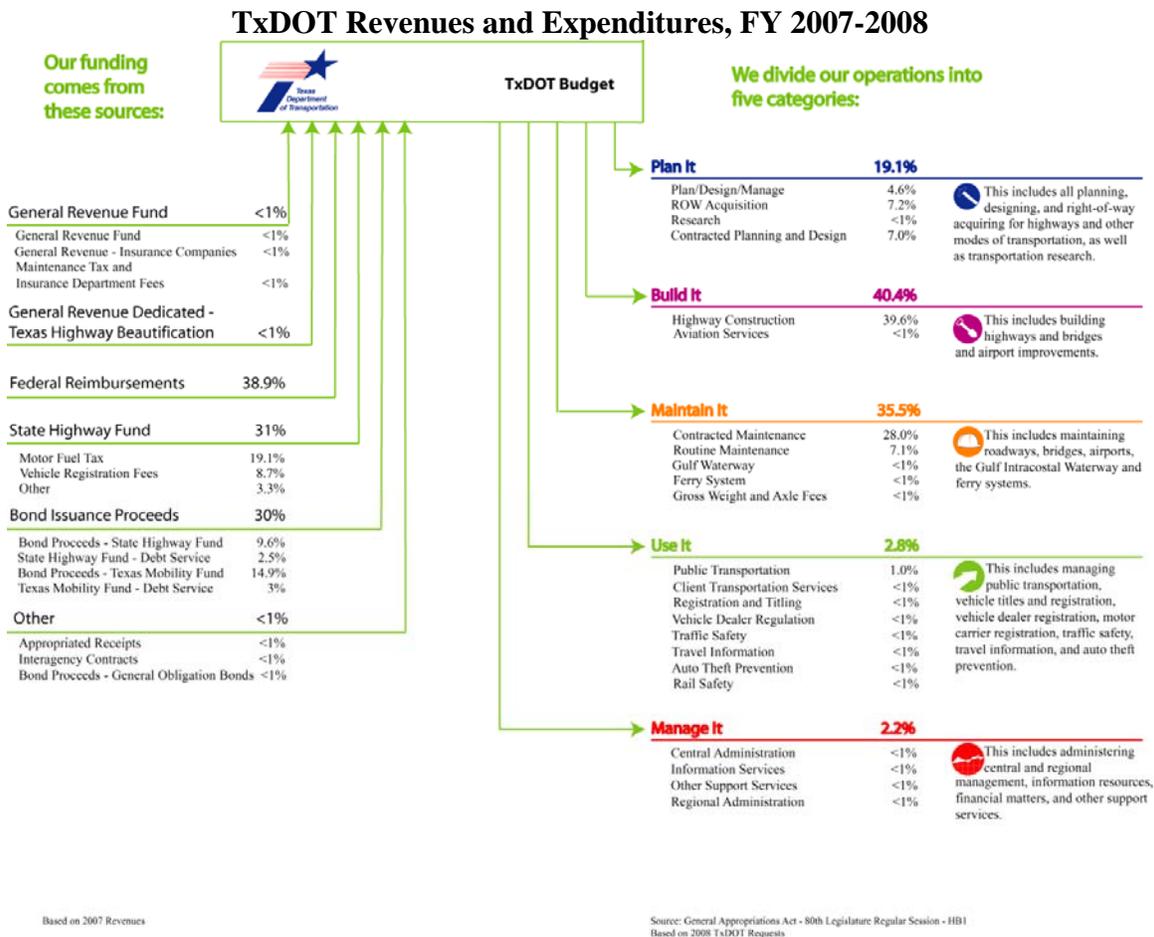
Managing Texas' transportation system efficiently and with careful use of available funding is critical to maintaining existing facilities and services. Optimizing the use of new technologies and continued technology innovation to increase efficiency is essential to our success. As our costs of doing business increase, we must take advantage of new technologies, market-based solutions, new business techniques, and practical partnerships. To achieve our goals, we will continue to innovate and look for new solutions.

## Fiscal Aspects

### Method of Finance

Funding sources for the agency appropriations include the following:

- State revenues deposited to the State Highway Fund No.006
- Federal reimbursement funds
- A minimal amount from the General Revenue Fund
- Texas Highway Beautification Account 71, a special account within the General Revenue Fund
- Texas Mobility Fund



State revenues deposited into State Highway Fund No. 006 are the primary funding source for the agency, accounting for 39.7 percent of funds available for transportation projects. Slightly less than 75 percent of the net state motor fuel tax revenues are dedicated for construction, improvement and maintenance of the state highway system. The available school fund receives approximately 25 percent.

TxDOT shares the vehicle registration responsibilities and fees collected with the county governments that assist TxDOT. TxDOT receives about 65 percent of the fees collected after each county retains its minimum allocation. Texas assesses no aviation fuel tax (only two other states do not tax aviation fuel) and none of the approximate \$2.7 billion in annual motor vehicle sales taxes are deposited into Fund No. 006.

The predominant source of funding for the Texas' Transportation System continues to be revenues generated from the state motor fuel taxes and vehicle registration plus the federal user fees. The state motor fuel taxes were last increased, for both gasoline and diesel, to 20 cents per gallon in 1991. The state registration fee on passenger vehicles was last changed beginning in 1984, with staggered increases in 1984, 1985, and 1986, the same year (1984) the basis for the fee was changed from vehicle weight to vehicle age.

### **Federal Role**

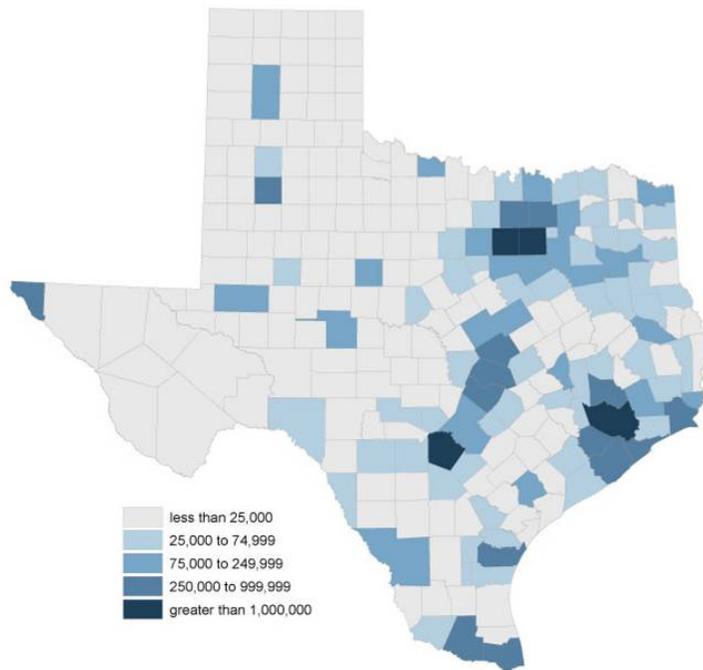
Federal funds account for 38.9 percent of the agency's total 2007-2008 funds. The federal government taxes motor fuel at a rate of 18.4 cents per gallon for gasoline and 24.4 per gallon for diesel. Federal funds' use is restricted to aiding highway construction, planning and research, and related activities. The state must finance 100 percent of the cost of federal-aid projects up-front. As work is completed and payments are made by TxDOT, the state is reimbursed in accordance with the federal-state participation matching ratios established for the program categories. The federal Highway Trust Fund reimburses a portion (usually 80 percent, depending upon the program) of the cost of a participating project over the life of that project. In some projects, TxDOT has been using the Tapered Match program to accelerate the 80% federal participation, so that 100% of the first 80% is reimbursed, then the remaining 20% is 100% state funded, without reimbursement.

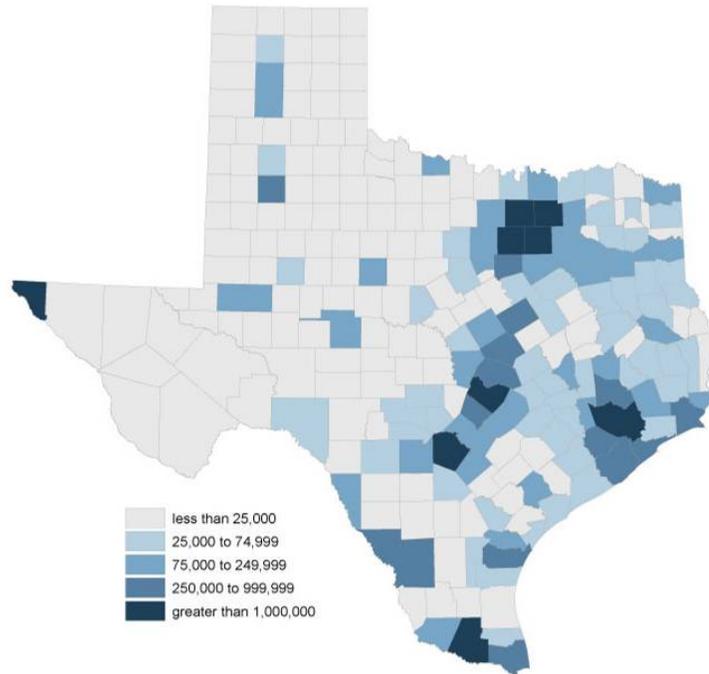
## ***Economic and Demographic Variables***

### **The Transportation Challenge**

The Texas transportation system plays a critical role in the economic and social well being of all Texans. It provides the basic infrastructure that supports our economy and quality of life: Our roads, rail, airports, and transit move people to and from work and school; move goods to and from Texas' manufacturers, distributors, businesses, and consumers; and move freight through Texas to destinations across the globe. Today, our system is under strain: Travel demand for people and goods is growing, the costs of construction are increasing markedly, and the purchasing power of our fuel tax revenues is declining. These factors are likely to persist as our transportation needs grow.

**Projected Population Growth: 2005 to 2025**





### ***Growth in Travel Demand***

Economic and population growth affect the performance of our transportation system. As travel demand increases, congestion worsens; air quality suffers, safety concerns grow, and maintenance needs multiply. We seek to minimize these impacts by setting bold goals for TxDOT. Through innovative strategies and tactics, we will achieve our goals and move Texas' transportation system forward.

### ***Increase in the Costs of Doing Business***

Throughout the past five years, every transportation agency in Texas experienced large increases in the costs of doing business. Cost inflation has greatly increased the amount of capital required to meet Texas' mobility and maintenance needs. Costs of commodities like asphalt, concrete, fuel, and steel are rising steadily. The highway construction cost index increased by about 62% between 2002 and 2007; this increases the time it takes to fund a ten-year construction program to more than sixteen years. At TxDOT, we are using all available financing options and exploring new, innovative solutions to meet the transportation funding challenge.

### ***Decreasing Adequacy of the Motor Fuel Tax***

The purchasing power of the motor fuel tax is decreasing. Our national highway system was built with federal and state motor fuel tax revenues collected on the user fee principle. The capacity for motor fuel tax revenues to fund transportation needs continually erodes as inflation in the economy persists. In addition, as vehicles become more fuel efficient and more alternative fuels become available, the link between fuel consumption and highway use weakens. As a result, each year Texas' highway users pay less per mile for a product that costs more to deliver.

## ***Organizational Aspects***

### **Organizational Structure**

TxDOT is organized into the following divisions and offices:

*Divisions:*

- Aviation
- Bridge
- Construction
- Design
- Environmental Affairs
- Finance
- General Services
- Government and Public Affairs
- Human Resources
- Maintenance
- Motor Carrier
- Motor Vehicle
- Occupational Safety
- Public Transportation
- Right of Way

- Technology Services
- Texas Turnpike Authority
- Traffic Operations
- Transportation Planning and Programming
- Travel
- Vehicle Titles and Registration

*Offices:*

- Audit
- Automobile Burglary and Theft Prevention Authority
- Civil Rights
- General Counsel
- Research and Technology Implementation

### **Workforce Demographics**

In FY2007, TxDOT employed a workforce population of 14,925 employees. Of the total employees:

- 24% female, 76% male
- Average age of 44.7 years
- 57% have 10 years or less of department service
- Average length of department service time 11 years
- 10.8% turnover rate
- 34% of the workforce will be eligible to retire by FY2013

## ***Capital Improvements***

### **Capital Improvement Program for FY 2010-2011**

TxDOT's facilities are considered significant structures that either directly or indirectly support the agency's mission and transportation functions and highway operations.

TxDOT continues to be committed to a comprehensive facilities master plan to either replace or renovate all significant substandard and obsolete facilities statewide. Due to substantial reductions in capital funding during the 80<sup>th</sup> Legislative Session, TxDOT's primary goal for the FY2010-2011 is to provide essential maintenance, emergency repairs and renovation for existing facilities with the greatest needs.

TxDOT continues to operate in several outdated and substandard facilities that are in critical need of essential repair or replacement causing increased emergency repairs each biennium. As a result, TxDOT facilities are experiencing an increasing number of safety and code deficiencies, and indoor air quality problems from asbestos and toxic mold.

With limited capital funding for new construction, funding for new facilities will be allocated only to those buildings that have reached the end of their useful life due to serious life safety issues, building code deficiencies, outdated mechanical and electrical systems, or functionally obsolete for current operations.

The priorities for the FY 2010-2011 capital improvement projects are:

1. Essential Maintenance and Major Repairs, including life safety, building code, and regulatory compliance related projects required to provide for a safe and healthy working environment for employees and the public.
2. Renovations and Additions to existing facilities to extend useful life the asset.
3. Land Acquisitions for the expansion of existing facilities or construction of a new facility.
4. New Construction to replace obsolete facilities.

## ***Border Issues***

### **Texas' Role in International Trade and the Importance of the Border Area**

Mexico and the United States are important trading partners, sharing 1,254.7 miles of common border and twenty six crossings. Eighty percent of U.S.-Mexican trade, or \$243 billion of goods, travels over Texas highways. For the year 2007, approximately 3.37 million commercial trucks, 95.8 thousand buses, 46.9 million personally owned vehicles and 20.5 million pedestrians crossed the border northbound. By 2025, freight traffic is projected to grow 132 percent, which translates into an average of 260,465 commercial trucks each day on Texas roads. Currently two interstates serve the border area.

The population of the border area is approximately 10 million, and it is expected to increase nearly sixty percent by the year 2020. This increase alone is greater than the population of twelve U.S. states. Furthermore, by 2020, inflation adjusted border retail sales are expected to increase to \$78 billion. It is anticipated that by 2020, machinery, electronics and transportation industries will be the Region's strongest growth industries.

According to the United Nations Commodity Trade database, in 2001 Chinese exports to Mexico totaled \$281.1 million, and by 2006 the value had increased to \$1.688 billion, or an astounding 499%.

TxDOT, through its border Districts, the Government and Public Affairs International Relations Section and the Transportation Planning and Programming division, coordinates with Mexican counterparts to plan for accommodating the flow of trade through this important region

Reflecting TxDOT's commitment to this crucial region, the Statewide Transportation Improvement Plan indicates that for the years of 2006-2008, funds equaling \$955.3 million have been committed to the El Paso, Pharr, and Laredo districts. TxDOT is divided into 25 districts; in terms of total portion of TxDOT's expenditures for 2006-2008 these districts rank respectively 7<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup>. Additionally, TxDOT has already committed \$21 million to the construction of Border Safety Inspection Facilities (BSIFs), which will provide more efficient and safe movement of goods border at the eight busiest crossings. Two of the eight BSIFs (Bridge of the Americas and Zaragoza-Ysleta) are already operating out of their permanent facilities.

## ***Historically Underutilized Business Plan***

### **Policy on Utilization of Historically Underutilized Businesses (HUBs)**

In accordance with the Texas Government Code, Sections 2161.181-182 and Title 34, Section 20.11 of the Texas Administrative Code (TAC), the Texas Department of Transportation (TxDOT) is committed to assisting Historically Underutilized Businesses (HUBs) in providing equal opportunities to compete for all procurement opportunities within the Agency; TxDOT adopts the HUB rules under Section 2161.002 as the Agency's own rules. It is TxDOT's policy to promote and encourage contracting and subcontracting opportunities for HUBs in all contracts and as such, TxDOT shall make a good faith effort to utilize HUBs in contracts for construction, commodities, and services, including professional and consulting services contracts and encourage prime contractors to make a good faith effort to solicit and utilize certified HUB contractors,

In accordance with the State of Texas HUB Rules, 34 TAC20.11-20.28 which encourage the use of HUBs by implementing policies through race, ethnic, and gender-neutral means, the TxDOT's Business Outreach & Programs Services Branch of the General Services Division is responsible for coordinating business opportunities with HUBs as well as Disadvantage Business Enterprises (DBE's) under the federal DBE Program and state Small Business Enterprises (SBEs) with Prime Contractors and TxDOT Purchasers, Divisions and Districts contacts as mandated by this legislation.

The TxDOT Business Outreach & Programs Services Branch coordinates services that provide business opportunity information, technical assistance, trainings, workshops and other outreach activities for HUB/DBE/SBE contractors that assist in promoting HUB/DBE/SBE contract opportunities with TxDOT and the State of Texas.

The Agency HUB Coordinator works with department staff, other state agencies and with local, county and regional business development organizations and Prime Contractors to coordinate and promote the agency's HUB Program and the utilization of HUBs.

### **HUB Goals by Procurement Category**

The Agency has developed internal policies and coordinates activities to provide education, outreach, training and the dissemination of information to ensure increased HUB participation. TxDOT will demonstrate its good faith effort to utilize HUBs and will strive to meet or exceed HUB program goals and objectives in all its procurement efforts in the applicable procurement categories identified below:

- (1) 11.9% for heavy construction other than building contracts
- (2) 26.1% for all building construction, including general contractors and operative builders contracts
- (3) 57.2% for all special trade construction contracts
- (4) 20% for professional services contracts
- (5) 33% for all other services contracts
- (6) 12.6% for commodities contracts

It is the policy of TxDOT to achieve the annual program goals by contracting directly with HUBs or indirectly through subcontracting opportunities in accordance with the **Comptroller's Texas Procurement and Support Services (TPASS) HUB Rules, 34TAC Section 20.14.**

### **Agency Use of HUBs by Procurement Category**

Of the six procurement categories, TxDOT largely expends funds in the "Heavy Construction Other than Building Contracts" Category in which the agency primarily receives federal funding and operates contracting with DBEs following the Federal DBE Program guidelines. In the five remaining categories, TxDOT has implemented several internal procedures to aggressively promote contracting directly or indirectly with HUBs which includes the following:

- On Professional Service Contracts with an HSP, TxDOT does not accept Self Performance Plans as an option to submitting a Good Faith Effort.
- On all solicitations under \$25,000.00 TxDOT requires two of the three solicitations be from a State of Texas HUB with one solicitation from an ethnic minority HUB.
- In addition, TxDOT Purchasing Department solicits additional State of Texas HUB vendors with several BOP Section programs in an effort to solicit a greater pool of responses from HUB vendors.

### **HUB Subcontracting Plan (HSP)**

In accordance with the Texas Government Code, Chapter 2161, Subchapter F, each state agency that considers entering into a contract with an expected value of \$100,000 or more shall, before the agency solicits bids, proposals, offers, or other applicable expressions of interest, determine if subcontracting opportunities are probable under the contract.

If subcontracting opportunities are probable, the agency will state such probability and require submission of a HUB Subcontracting Plan (HSP) with its bids, proposals, offers, or other applicable expressions of interest. The HSPs, acceptable to the agency, will become a provision of the contract.

If the potential contractor/vendor response does not include or does not complete the HSP, the potential contractor/vendor offer will be considered non-responsive and will be rejected. In accordance with the **Comptroller's (TPASS) HUB Rules, 34TAC Section 20.14**, TxDOT will use the standardized State of Texas HSP which can be found on **Comptroller's TPASS** website, the Agency website and will be included as an attachment to all TxDOT bids and offers.

### **Good Faith Effort Compliance**

To obtain HUB credit, TxDOT must report its HUB subcontracting expenditures to the **Comptroller's TPASS**. Any contractor/vendor that seeks to satisfy the good faith effort requirement shall report to TxDOT the volume of work performed under the contract, the

portion of the work that was performed with its employees, non-HUB contractors/vendors, and other HUB contractors/vendors.

- (1) Therefore, if TxDOT makes an award, the contractor/vendor will provide the Historically Underutilized Business Prime Progress Assessment Report to TxDOT on a monthly basis documenting all work subcontracted with HUBs and Non-HUBs in accordance with the HSP and as stipulated in the purchase order/contract.

All required forms must be submitted to TxDOT in accordance with the contract specification. Failure to do so can result in non-payment and or suspension of contract award. TxDOT may also request payment documentation in accordance with State HUB Rules, and the HSP that confirms the performance of the contractor/vendor.

During the course of the contract, TxDOT shall monitor the good faith effort compliance of the contractor/vendor and document the contractor's/vendor's compliance in the contract file. TxDOT shall audit the contractor/vendor compliance with the HSP. TxDOT shall give the contractor/vendor an opportunity to submit documentation and explain to the state agency why failure to fulfill the HSP should not be attributed to a lack of good faith effort by the contractor/vendor. Any deficiencies will be identified by TxDOT and must be rectified prior to the next reporting period.

## **Programs to Increase HUB Participation**

Business Outreach & Programs Services Branch coordinates several programs to assist HUB businesses with information and training on how to do business with TxDOT. The BOP Branch coordinates several outreach programs to inform minority/women-owned businesses about contracting opportunities with the Agency and to link them, if necessary, with the appropriate agency staff to assist in providing information on contract opportunities and technical assistance that improves technical business skills and knowledge about the agency procurement process. Business Outreach & Programs Services Branch also provides networking opportunities with prime contractors as well as business development activities such as:

- Sponsor, Co-Sponsor and Participate in Economic Opportunity/HUB Forums
- One On One Business Appointment Program
- LINC Mentor Protégé Program
- Business Liaison Networking Meeting
- Small Purchasing & Contract Notification Program
- Sponsor, Co-Sponsor and Participate in Spot Bid Fairs
- Conduct Procurement and Marketing Presentations at Small & Minority Business Development Workshops and Conferences
- Establish Memorandum of Agreement with **Comptroller's Texas Procurement and Support Services** to assist with the certification of qualified DBE's in the state HUB Program

- Established Memorandum of Agreement with the Texas Association of African-American Chambers of Commerce, Texas Association of Mexican American Chamber of Commerce and other state, regional and local organizations that promote the utilization of minority and women owned businesses.
- Provide training on State of Texas and TxDOT HUB Program Procedures
- Coordinate and Conduct Technical Business Development Workshops
- Host TxDOT Small Business Briefings

TxDOT encourages the use of HUBs by partnering with other state agencies and with local, county and regional business development organizations whenever possible, through formal and informal cooperative agreements and participation on interagency committees and task forces that promote the Agency HUB Program and the utilization of HUBs in the State of Texas.

## **Key Organizational Events**

1917

- By the end of the year, the department registers 194,720 motor vehicles.
- Commission designates a highway system of 8,865 miles of “improved roadways.” When completed, the department estimates, the system will make highways readily accessible to 89 percent of the state’s population.
- Highway Commission increases the speed limit to 25 mph.
- Commission sets vehicle registration fee at 35 cents per horsepower, with a minimum of \$7.50.
- April 4 – House Bill 2, creating the Texas Highway Department, is signed into law by Gov. James Ferguson. The measure vested a three-member commission with administrative control of the department. Members would be appointed to two-year terms by the governor, with consent of the Senate.
- June 4 – The Texas Highway Commission meets for the first time. Commissioner J.C. Odle moves that George A. Duren be named the state’s first highway engineer. The department has 10 employees.

1918

- July – The department’s first paving project begins along a 25-mile stretch of roadway in Hays County, roughly following the route of future Interstate 35.
- October – Work begins on the department’s first new highway construction project, a 20-mile section of untreated flexible base between Falfurrias and Encino in Brooks County. The roadway opens to traffic in June 1920.

1921

- Congress amends the Federal Aid to Roads Act of 1916 requiring states to take over exclusive control of road design, construction and maintenance after 1925.

1923

- 38th Legislature passes Texas’ first gasoline tax – one cent a gallon. The State Highway Fund would receive 75 percent of the revenue with the rest going to the Available School Fund.
- Legislature sets terms of Highway Commission members at six years, with one seat becoming vacant every two years.
- Highway Commission sets the maximum speed limit at 35 mph.

1924

- January 1 – Highway Department assumes responsibility for maintenance of all state highways. Prior to this time, roadway maintenance rests with the counties.

1925

- 39th Legislature vests the Highway Department with responsibility to survey, plan and build highways, as well as maintain them. Lawmakers also authorize the department to acquire highway right of way by purchase or condemnation.

1925-1926

- Texas loses all federal highway aid from the U.S. Bureau of Public Roads because of poor maintenance.

1927

- Federal highway funding for Texas is restored, with the department receiving \$10.2 million in construction reimbursement for fiscal 1928-1930.
- Legislature increases gasoline tax to three cents a gallon from March 1927 to September
- 1928, at which time it would be reduced to two cents a gallon.
- Legislature authorizes creation of Right of Way division and State Highway Patrol to enforce license and weight provisions.

1928

- Highway Commission sets the maximum speed limit at 45 mph.

1929

- Legislature increases gasoline tax to four cents a gallon, but reduces vehicle registration fees.
- September 1 – Duties of the Highway Patrol expand to include traffic law enforcement.

1930

- Texas has 1,445,250 registered vehicles. Department abandons horsepower as the basis for registration fees and converts to a system based on vehicle weight.

1932

- Legislature enacts State Assumption Highway Bond Law, making the financing of highways a state responsibility. The law limits county participation to providing right of way. One cent of gasoline tax is dedicated to refunding the bonded indebtedness of counties and road districts.

1933

- National Recovery Act allows use of federal-aid funds for urban and secondary roads.

1935

- Legislature creates the Department of Public Safety, removing the Highway Patrol from the Highway Department.

1937

- January – First farm-to-market road is completed between Mount Enterprise and Shiloh in Rusk County, a distance of 5.8 miles. Total cost: \$48,000.

1941

- Highway Commission raises the speed limit to 60 mph.
- State begins taxing diesel at one cent per gallon.

1942

- Because of wartime fuel and rubber shortages, the speed limit in Texas is dropped to 35 mph.

1944

- Congress passes the Federal Aid Highway Act describing a 40,000-mile network called a “National System of Interstate Highways.” But no money to build the system is appropriated.

1945

- With World War II over, the speed limit is reinstated at 60 mph.

1946

- November 5 – Voters approve an amendment to the Texas Constitution, a measure known as the “Good Roads Amendment.” The amendment makes the longstanding 75-25 percent State Highway Fund-Available School Fund distribution a matter of organic law.

1949

- Legislature passes the Colson-Briscoe Act. The measure provides an annual \$15 million appropriation from the State General Fund to build farm-to-market and ranch-to-market roads.

1951

- Diesel fuel tax increased to two cents a gallon.

1955

- Legislature increases gasoline tax to five cents, the first hike since 1929.

1956

- Federal Highway Revenue Act increases gasoline and other motor-vehicle taxes and creates the Highway Trust Fund.
- Congress appropriates \$25 billion for building the interstate highway system from 1957 to 1968. The amount of money appropriated would grow.

1961

- Legislature passes state's first sales tax. Lubricants are included among taxable items.

1962

- Colson-Briscoe Act is amended by the legislature to allow \$8 million of the state's annual General Revenue funding for farm-to-market and ranch roads to be matched with federal funds.

1963

- August 23 – Maximum speed limit for two-thirds of the state highway system increases to 70 mph during the day, 65 mph at night.

1967

- Department celebrates its golden anniversary. It now has 17,000 employees and 66,000 miles of highway.

1969

- Legislature establishes Texas Mass Transportation Commission.

1971

- Legislature establishes Texas Motor Vehicle Commission and another agency to coordinate public transportation, the Texas Mass Transit Commission.

1974

- January 20 – With the nation struggling through a gasoline shortage caused by the 1973 Arab-Israeli War, the maximum speed limit is reduced to 55 mph to conserve fuel.

1975

- Legislature passes Texas Coastal Waterway Act authorizing the state's nonfederal sponsorship of the Texas extent of the Gulf Intracoastal Waterway. The measure

also designates the State Highway and Public Transportation Commission (now the Texas Transportation Commission) to act as agent for the state in fulfilling the new responsibility.

- June 19 – Gov. Dolph Briscoe signs legislation folding the Mass Transportation Commission into the Highway Department, renaming the agency the State Department of Highways and Public Transportation.

1984

- Gas tax raised five cents to 10 cents a gallon.

1987

- Lawmakers increase gas tax to 15 cents a gallon.

1991

- Legislature passes House Bill 9 merging the Department of Aviation and the Motor Vehicle Commission into the State Department of Highways and Public Transportation, renaming the agency the Texas Department of Transportation.
- Congress passes the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.
- The new six-year transportation bill encourages more emphasis on safety, connectivity and pedestrian-bicycle traffic.
- Legislature establishes the Automobile Theft Prevention Authority.
- Legislature raises gas tax five cents to 20 cents a gallon.

1995

- Legislature moves the Automobile Theft Prevention Authority to TxDOT. Responsibility for railroad planning and motor-carrier regulation is transferred from the Railroad Commission to TxDOT. Legislature also abolishes the High Speed Rail Authority.
- December 8 – Speed limit returns to 70 mph.

1997

- The Texas Turnpike Authority merges into TxDOT as a division.

1998

- Congress passes Transportation Efficiency Act for the 21st Century. Known as TEA-21, it guarantees Texas a 90.5 percent return on some federal motor-fuel tax dollars paid from Texas.

## 2001

- November 6 – Texas voters approve Proposition 15, a constitutional amendment giving the state authority to finance and build transportation infrastructure in innovative ways.
- The amendment provides for the creation of a Texas Mobility Fund, the use of toll equity for roadway construction, and authorizes the Transportation Commission to create regional mobility authorities.

## 2002

- January 30 – In a three-page letter to Transportation Commissioner John W. Johnson,
- Texas Gov. Rick Perry lays out broad concept of a 21st century transportation network for Texas, the Trans-Texas Corridor. The governor asks TxDOT to “assemble the department’s top talent” to develop an implementation plan within 90 days.
- June 27 – TxDOT presents a 95-page report on the Trans-Texas Corridor to the Transportation Commission. The commission unanimously approves the action plan, which sets forth a basic design for a 4,000-mile multi-use transportation system.

## 2003

- June 19 – Governor Perry signs HB 3588 into law. “This mobility package,” the governor says, “gives the Texas Department of Transportation new oversight authority, new planning and development tools, and innovative financing options to build the
- Trans-Texas Corridor more efficiently and at a lower cost.”
- September 13 – Voters overwhelmingly approve Proposition 14, a constitutional amendment making possible the bonding authority contained in HB 3588. For the first time in its history, TxDOT has the authority to enter the bond market to finance projects.
- October 3 – Ground is broken for State Highway 130, a 49-mile toll way that will extend from Interstate 35 near Georgetown to U.S. 183 near Mustang Ridge in southeast Travis County. At \$1.5 billion, this is the largest single highway construction project in Texas history and the largest active highway contract in the nation. The largest element of the planned Central Texas Turnpike Project, SH 130 is the result of the state’s first and only use of an exclusive development agreement.

## 2004

- February 26 – Trans-Texas Corridor public hearings completed in all 254 Texas counties.

- December 16 – In the largest single roadway-safety program the department has ever undertaken, the Transportation Commission approves the allocation of \$600 million for 644 safety projects across the state. To be funded through bond sales, the program will pay for widening narrow, two-lane roads, installing median barriers on divided highways, adding needed left-turn lanes, and building new overpasses.
- December 16 – Transportation Commission selects Cintra-Zachry, a Spanish-Texas consortium, to develop the Trans-Texas Corridor-35, stretching from Oklahoma to
- Mexico. The private-sector proposal includes investing \$6 billion in a multi-lane toll road from Dallas-Fort Worth to San Antonio by 2010 and giving Texas \$1.2 billion for additional transportation improvements between Oklahoma and Mexico.

#### 2005

- February 24 – Transportation Commission votes to execute the state's first pass-through toll agreement – expediting transportation improvements in Montgomery County.
- March 11 – Executive Director Mike Behrens, Cintra Executive Chairman Rafael del Pino and Zachry Construction Corp. President David Zachry sign a 103-page
- Comprehensive Development Agreement to begin the early planning for TTC-35, including its funding mechanisms.
- March 18 – Commissioner Robert Nichols and Richard Davidson, Union Pacific's chief executive officer, sign an agreement between TxDOT and the railroad to work together to move freight-rail lines out of densely populated urban areas.
- March 19 – A similar agreement is signed in Fort Worth with officials of the Burlington
- Northern Santa Fe railroad company.

#### 2006

- March 29 – A private-sector proposal submitted to the department by Cintra-Zachry declares that the consortium believes a new 600-mile freight-rail line from Dallas-Fort Worth to Mexico is timely and ready for development. As envisioned, the rail project could pull one million trucks a year off of I-35.
- April 4 – The Federal Highway Administration approves a 4,000-page draft environmental impact statement for the Trans-Texas Corridor 35. The report narrows the corridor study area to roughly 10 miles wide from Gainesville to Laredo.
- April 11 – The department issues a request for qualifications as the first step in a competitive selection process to develop a public-private partnership for developing the I-69/Trans-Texas Corridor from Northeast Texas to Mexico.

- May 25 – Texas became the first state in the nation to set an 80 mph daytime speed limit on 521 of its more than 79,000 miles of highway. The higher speed is posted only in low population areas in the western portion of the state and amounts to less than one percent of the state roadway system. The limit was approved by a unanimous vote of the
- Transportation Commission based upon legislation enacted during the last regular session of the 79th Legislature.
- June 14 – Proposals for development of TTC-69, a segment of the Trans-Texas Corridor, were received from two competing private-sector groups, marking the beginning of development of the 600-mile, multi-billion dollar project, which will extend from Northeast Texas to Mexico.
- June 29 – The Texas Transportation Commission approved the first comprehensive development agreement, estimated at \$1.3 billion, with the Cintra-Zachry consortium to finance and build the 40 remaining miles of State Highway 130 from Austin to Seguin.
- August 2007 TxDOT Self-Evaluation Report Page 20
- The public-private partnership will finance costs of the project in return for the right to collect tolls on the roadway over the next 50 years.
- September 1 – TxDOT awarded a record \$5.3 billion in construction projects in the 2006 fiscal year. The total surpassed the \$4.5 billion obligated the previous fiscal year and almost doubled statewide spending four years ago.
- September 28 – The master development plan for the first phase of the Trans-Texas
- Corridor 35 segment (TTC-35) was released. Designed by Cintra-Zachry, the plan envisions a parallel alternative toll road to I-35, funded by the private sector. The project will include multiple separate lanes for tractor trailers, passenger vehicles, commuter and freight rail as well as a utilities passageway.
- October 18 – Texas became the first state to receive tax-exempt federal private activity bonds (PABs) since the bonds became eligible to fund highway projects. The bonds, totaling \$1.8 billion, were made available through approval of the Texas Transportation Commission. The bonds will accelerate development of SH 121 in the Dallas area.
- Legislation stipulates private companies become the ultimate borrowers of the funds and arrange to repay the debt through toll revenue rather than state funds.
- October 30 - An economic impact study, conducted by the Perryman Group, was commissioned by TxDOT in response to public demand for information on what TTC will mean to the Texas economy. According to the report, the economic stimulus over the next 25 years of the TTC-35 project from Oklahoma to Mexico is conservatively estimated at \$1.4 trillion (in 2005 dollars), with 14.8 million person-years of employment gained.

2007

- February 28- Cintra Concesiones de Infraestructuras de Transporte (Cintra) will be recommended as the Comprehensive Development Agreement (CDA) developer for State Highway 121 in Collin and Denton Counties. As part of its proposal, Cintra will pay the region \$2.8 billion to be used on other congestion-relieving projects.
- March 29- State transportation officials authorized funding reductions for multiple highway programs in response to a mandate from the federal government to return \$288 million to Washington by April 19.
- May – 80th Legislature passes legislation that affects TxDOT including:
  - The Legislature approved an additional \$3 billion in Proposition 14 bonds that will require us to mortgage future gas tax revenues in order to pay for projects now.
  - HB 1857 by Murphy/Carona provides more authority to counties that wish to regulate development around future transportation corridors.
  - SB 792 prohibits most CDAs, except for a few projects that can move forward in the major metropolitan areas. The authority to enter into concession CDAs expires in 2009, and the authority to enter into design-build CDAs, and CDAs exempted from the two-year moratorium expires in 2011. The bill authorizes toll authorities to issue bonds to pay for any costs associated with a toll project or to terminate a CDA contract.
  - An additional \$3 billion in Proposition 14 bonds are authorized in SB 792 (up to \$1.5 billion can be issued per year), 20 percent of which must be spent on safety projects.
- June 14 - The Texas Transportation Commission authorized TxDOT to work with local toll entities such as regional tollway authorities, regional mobility authorities and counties to begin moving forward on 87 projects that are currently years away from being fully funded.
- June 28 - The Texas Transportation Commission approved a recommendation from North Texas leaders to accelerate improvements to SH 121 and 30 other congestion relieving projects throughout North Texas by pursuing a proposal from the North Texas Tollway Authority (NTTA).
- July 26 – The Texas Transportation Commission approved the addition of six new counties to the Northeast Texas Regional Mobility Authority (NETRMA): Bowie, Cass, Panola, Titus, Van Zandt and Wood.
- September 1 - The Ports-to-Plains Corridor took a step closer to becoming a reality with announcement of a working group to develop a financial master plan for the western trade route. Ports-to-Plains is intended to expand economic opportunity and serve international trade from Mexico to Canada. The roadway will stretch from Laredo through West Texas to Denver, Colorado.

- November 13 – The Draft Environmental Impact Statement (DEIS) for the proposed I-69/TTC project was released. The 1,072 page report is the result of nearly three years of work with local officials and input from citizens through hundreds of public meetings. State transportation officials will work to identify an alignment for I-69/TTC which will make transportation safer, faster, more reliable and provide for faster hurricane evacuation.
- December 3 - The Texas Department of Transportation made a formal request for proposals from two private developer teams for detailed plans on how to finance, design, construct, operate and maintain I-69/TTC.
- December 11 – A program was initiated to help inform the public of the dangers of drinking and driving allowing friends and family members of DWI victims to purchase memorial signs to be placed near the location of fatal crashes. The 80th Texas Legislature created the program aimed at reducing the more than 1,670 traffic fatalities in 2006 that involved drivers under the influence of alcohol or drugs.
- December 13 – The commission approves the creation of advisory committees to provide public input on where the Trans-Texas Corridor should be located, what it should look like and how it should be developed to best serve local communities.
- December 21 – The North Texas Tollway Authority (NTTA) and the Texas Department of Transportation (TxDOT) have reached an agreement on the terms, conditions and cost assumptions to build State Highway 161 as a toll road. The two organizations came to an agreement for the purposes of market valuation on financial aspects including terms and payments and traffic and revenue figures.

## 2008

- January 7 – The TxDOT administration expanded by three members to allow increased emphasis on functions previously performed by the assistant executive director for engineering operations. The new positions will be assistant executive directors in charge of district operations and innovative project development.
- January 15 – An unprecedented public comment period regarding I-69/TTC begins with 11 town hall meetings and 46 public hearings scheduled through early March. These meetings allow citizens more opportunity to ask questions about transportation issues including the Trans-Texas Corridor.
- February 28 – The commission approves the Lone Star Texas design for the state's new general-issue license plate. The move endorses an online voters' selection of a design that features the big Texas sky, the Lone Star and the mountains of West Texas.
- March 24 – The TxDOT administration announces a 30-day extension of the public comment period for I-69/TTC. The extension through early April affords citizens more opportunity to express their views about the Trans-Texas Corridor.

- March 27 – The commission selects members to serve on the Corridor Advisory Committees. The two committees will enhance public dialogue in the planning and development of the Trans-Texas Corridor.
- April 30 – Governor Perry names Deirdre Delisi as chair of the Texas Transportation Commission and William Meadows as a new commissioner.
- May 29 – The commission adopts policies that will govern the development, construction and operation of state toll road projects and the Trans-Texas Corridor. The policies reflect citizen input from the public comment phase of I-69/TTC.

## ***Technological Developments***

### **Impact of technology on current agency operations**

TxDOT develops partnerships and processes between the Information Systems Division's information technology (IT) providers and TxDOT business areas (DDOs). This partnering delivers IT products and services that promote effective and efficient information sharing. It ensures that the information provided is secure, accurate, timely, relevant, and easily available for integrated business solutions, which is an essential element of the information resources (IR) vision at TxDOT. Joint projects permit IT providers to research, implement, and integrate IT solutions that serve as the foundation for TxDOT business decisions and operations. It is this IT infrastructure that enables TxDOT to manage and deliver what it needs, when it needs it.

Development and continuous improvement of the department's enterprise technology architectures, standards, and infrastructure are essential elements of this vision and mission. Over three decades ago, TxDOT established and continues to build upon and maintain an IR environment with skilled personnel, and the necessary technology, infrastructure, policies, standards, procedures, and services to support all department operations and enable sound business solutions.

The department's strategic IR objectives include processes that:

- integrate IT planning and budgeting;
- structure an environment of best practices to leverage delivery success;
- define and continuously enhance data, application, and technology architecture;
- research, evaluate, select, develop, and deliver new technologies;
- provide customers with secure, timely, and efficient application and data access across all technical platforms;
- provide appropriate tools for the development, maintenance, and enhancement of applications;
- enable single points of contact for end user and service provider problem resolution;
- enable a tiered support mechanism to provide department personnel solutions to IT challenges as related to their business needs;
- build capability to identify IR related training needs, design curricula, and deliver training for end users; and
- continue to build upon the established project management and quality assurance processes that are integrated into IR processes and business decisions.

These processes reduce costs, improve efficiency, improve user satisfaction, reduce development and implementation timelines for applications and new technologies, and

improve the quality and delivery of IT at TxDOT. The TxDOT Information Resource Council (IRC) is an example of these processes at work.

The IRC is responsible for IR prioritization at TxDOT. It serves this function by setting information resource strategic direction and policy. The IRC consists of the deputy executive director, assistant executive director for engineering operations, assistant executive director for support operations, a district engineer selected by the executive director, and the director of the Information Systems Division (ISD), who also chairs the committee and serves as TxDOT's Chief Information Officer and Information Resources Manager. The IRC meets quarterly or at the call of the chairperson, and it publishes a list of currently approved projects.

Many years ago, TxDOT implemented a system development life cycle methodology as a standard process for developing IT projects. This methodology identifies a common or standard set of activities to be performed and deliverables to be produced for an IT project. Also identified are the roles that should be involved in these activities and the standards and guidelines to be followed.

The development and publication of "Office of Primary Responsibility (OPR) Roles and Responsibilities for Information Technology Assets" is another example of the efforts to continually improve IT communications. This document clarifies the roles and responsibilities forming the partnerships between the OPR and ISD for the life of IT assets. It also identifies OPR responsibilities and interrelated roles and provides references for existing and future enterprise IT efforts.

### **Impact of anticipated technological advances**

Ongoing development and large projects benefit from the above initiatives and processes. The following is a summary of projects with significant impacts on TxDOT operations and goals:

#### **Enhance Safety:**

##### ***TxRAIL Crossing Inventory System (RXIS)***

RXIS will update the statewide highway-rail grade crossing inventory. This will include an on-site inventory update, verification of existing data, and collecting new data. This project will also upgrade and integrate existing and new IT architecture and infrastructure capabilities, i.e., geographic information system capabilities and multi-entity connectivity into the database. The upgrading and integration of the current database with web-based, multi-user functionality will facilitate timely, accurate and relevant analysis for effectively planning, funding and implementing the highway-rail grade crossing safety programs administered by TxDOT. Improved data collection will enable direct updates with the Transportation Planning and Programming Division, the Federal Railroad Administration and the Traffic Operations Division, and provide up-to-date data for analyzing and evaluating the efficiency of the railroad safety improvement programs.

## **Mobility:**

### ***Traffic Management***

This project will further develop existing systems and build new traffic management systems in Texas that use information systems and communications technologies to monitor and respond to traffic conditions as they occur. These traffic systems are the foundation of intelligent transportation systems (ITS).

### ***Statewide Analysis Model Version 2(SAM-V2)***

SAM-V2 supports the analysis of complex transportation corridors. The passage of the North American Free Trade Agreement created a strong need to analyze freight traffic in the rural transportation corridors of Texas. In addition, federal legislation requires TxDOT to develop a statewide plan for all areas of the State that considers all modes of transportation. This project supports these objectives.

## **Electronic Government:**

### ***Texas Permit Routing Optimization System (TxPROS)***

TxPROS will acquire and integrate a software component into TxDOT's existing Central Permit System (CPS) to provide true automated routing for the transport of oversize and overweight loads. The program will provide customers with a web-based, fully self-service system that is compatible with TxDOT's base GIS and bridge data and will include required parameters such as structure height, lane width, load ratings, one-way attributes, access roads, turn restrictions, and at-grade railroad crossings. The proposed system will also allow customers to self-permit via the Internet (for vehicles within a certain 'envelope' of characteristics).

## **Efficiency in TxDOT operations planning, designing, building, operating and maintaining the transportation system:**

### ***Compass Project – Maintenance Management System (MMS)***

Compass will acquire and integrate a commercial off the shelf solution (COTS) to automate the six phases of the maintenance management cycle into a new software application called the Maintenance Management System (MMS). Successful implementation of the chosen solution will eliminate duplicate entry of information, provide information in a timely manner to the maintenance managers, and provide useful tools to assist maintenance managers at all levels in the organization. It will also replace the current MMIS with a solution that would provide support for all phases of the maintenance management cycle at all management levels.

***Storm Water Management System (SWMS)***

SWMS will complete the system development and implementation for a statewide storm water management system. This system will be used by TxDOT district/division environmental staff and/or designated consultants to monitor, track and test storm water runoff and any discharge of pollutants that might encroach on or near department rights-of-way. In addition, the system will assist the districts in complying with the Texas Commission on Environmental Quality (TECEQ) regulatory requirements. SWMS will track this data through an automated Global Positioning System (GPS) data collection application and store the data in a web-based geographical database solution.

***Laboratory Information Management System (LIMS)***

LIMS will define, analyze, and develop an application to streamline the materials testing laboratory operation process making it more efficient and minimizing potential errors. The software application developed will operate on desktop computers in the central and district laboratories.

***LRFD / STD Precast Prestressed Concrete Girder Design and Analysis Program***

This project will provide TxDOT bridge engineers and consultants with prestressed concrete bridge girder design and analysis software that is compliant with the AASHTO Load and Resistance Factor Design (LRFD) Specifications and with TxDOT design, analysis and construction policies.

***Enterprise Document Technologies Implementation and Support Project (EDTIS)***

EDTIS will promote the efficient and cost-effective management of information, primarily business documents and forms, within TxDOT. It will also create document library standards for all TxDOT document management projects and implement a tiered infrastructure to support electronic document management users.

**Stronger partnerships/Increased accountability for contractors:**

***Electronic Project Records System (EPRS)***

EPRS will improve TxDOT's communications with the contracting community and assist TxDOT districts/divisions in sending and receiving information to and from contractors with the development of a standard secure electronic data transmission method. Phase 1 of this project will enable contractors to electronically submit payroll data via a secure method for update and storage. Digital certificates will be used to prevent unauthorized access to the data.

Anticipated need for automation

In order for TxDOT to complete these projects and continue to take advantage of ever changing technological advances, the following critical success factors must be an integral part of all activities of the organization:

- maintaining a TxDOT IR organization that manages and readily adapts to continuous technological innovations and changes;
- retaining qualified information resources professionals;
- improving IT project management and the development life cycle;
- improving the speed and efficiency of the procurement process and the accuracy and efficiency of the project planning process;
- delivering quality products promptly;
- researching, evaluating and implementing new technology; and
- creating an enterprise computing environment that promotes cross platform migration, uniform development, and a comprehensive technology infrastructure.

The IT activities and implementations below reflect the critical success factors for the future:

- ongoing support for doing business on the web;
- implementation of new technologies and procedures to effectively integrate geographic information systems with business processes and applications;
- continued investigation into integrating geographic information and global positioning data with survey and design;
- ongoing support for computer aided design, drafting and surveying technologies;
- ongoing implementation and support of electronic document management, imaging and electronic forms technologies; and
- continued development of Enterprise Systems Management to manage the network infrastructure.

### **Critical External Threat:**

Thousands of dollars are spent annually on the detection, monitoring, and clean-up of viruses. TxDOT network monitoring indicates a yearly growth rate of 500% over the last 3 years, from 50,000 to 330,000 viruses in 2006. In 2006, there were 819,234 virus attempts on our systems. All microcomputers, including servers, are scanned for viruses to prevent loss of information or damage to files from a virus attack or infection. Virus scanning software on the TxDOT GroupWise e-mail server detects and isolates externally introduced e-mail viruses.

### **Degree of agency automation, telecommunications, etc.**

TxDOT has over 250 software applications with associated databases or data stores. Of these, 40 are mission or agency critical, with over \$60 million invested in entering data into these systems. TxDOT supports over 15,300 workstations on the TxDOT domain at more than 840 locations statewide.

TxDOT's Enterprise Information Technology Architecture provides the framework, principles, guidelines, standards, specifications, policies, and procedures to direct the process of designing, acquiring, constructing, modifying, maintaining, and interfacing technologies, data, applications, and other information resources required to support TxDOT's business needs. The Enterprise Information Technology Architecture is designed to be secure, manageable, consistent, comprehensive, scalable, supportable, and easily integrated.

TxDOT's Core Technology Architecture defines the strategic direction for networking, telecommunications, operating systems, workstations, laptops, servers, mainframes, printers, plotters, database management systems, general purpose workstation software, groupware, enterprise system management, information systems security, and reliability and fault tolerance. The Core Technology Architecture and the associated Technology Infrastructure provide the foundation for all information resources and services at TxDOT.

The Technology Infrastructure is the result of the physical implementation of the core technologies identified in the Core Technology Architecture. The Technology Infrastructure consists of the specific components that make up the local area network, wide area network, servers, operating systems, common desktop software, and relational database management systems.

TxDOT's Geographic Information System (GIS) and Computer Aided Design and Drafting (CADD) architectures provide the framework, principles, guidelines, standards, specifications, policies and procedures, which direct the process of acquiring, constructing, and enhancing TxDOT's engineering applications. These architectures extend the technology architecture defined in the Core Technology Architecture and utilize the basic components of the core technology infrastructure.

The Document Management Architecture provides the framework, principles, guidelines, standards, specifications, policies and procedures to direct the process of acquiring, constructing and enhancing applications that capture, store, access, and manage documents and related information. This architecture extends the technology architecture defined by the Core Technology Architecture and utilizes the basic components of the core technology infrastructure. It is also being developed in conjunction with the GIS and CADD Architecture to ensure that vector and raster engineering drawings, plan sheets, maps, orthophotography, and digital photo logs are addressed.

The Data Architecture is the conceptual description of how the data components of a computer system are organized and integrated. TxDOT's Data Architecture provides

guidance for the data design process in the form of data naming, modeling, and dictionary standards, and provides a standard format for documenting system interfaces. To promote understanding and data sharing, TxDOT's Data Architecture includes a data inventory, TxDOT Online Data and Application Inventory (TODAI).

The Agency Configuration Management Plan provides overall definition and methods that form a configuration management environment for information technology assets. Configuration management provides for the identification, control, reporting, and auditing of selected configuration items.

The Application Architecture is the conceptual description of the organization and integration of computer programs. The TxDOT Online Data and Application Inventory (TODAI) provide an inventory of TxDOT applications. The TxDOT System Interface Diagrams (TSID) provides a description of the integration of TxDOT applications.

### **TxDOT Presence on the Internet:**

TxDOT maintains a presence on the Internet to provide information and online services related to TxDOT business areas. There are over 380,000 visitors to TxDOT's web site per month and 750 email requests for information are received monthly through the web. TxDOT's web site contains over 60,000 documents. There are 40 million average hits to the web site each month. TxDOT also maintains five Intelligent Traffic System (ITS) web sites for the Amarillo, Dallas / Fort Worth, El Paso, Houston, Laredo, San Antonio and Wichita Falls districts. These sites provide a variety of traffic related information to the public. The Texas Highways web site provides information about cultural events, destinations, and other travel related information.

The TxDOT GIS unit maintains a web portal which serves historical Right of Way maps and project control information to our external customers, this alone saves many hours of reproduction costs and enhances the ability for the public free unrestricted access to our information.

### **Applications Supported at TxDOT:**

ISD is responsible for more than 82 major software application systems that support the business and engineering functions of TxDOT. The majority of these applications were developed by ISD staff, although some were purchased or developed by third party providers. These applications use one of the six supported operating systems, more than a dozen programming languages and over eight data management technologies on both mainframe and client/server platforms. TxDOT has 1,473 MicroStation licenses which are used statewide (in all 25 districts and 15 divisions) to provide CADD support for TxDOT's annual construction letting of over \$3 billion and maintain over 1200 installations of GIS software which are used in the planning, environmental and ROW departments to assist with the preparation and development of future construction projects.

### **Engineering Production Services at TxDOT:**

The ISD Photogrammetry Branch provides services which include assisting and providing district personnel with design-level mapping products and photo lab services for the daily engineering operations of the department. This process includes securing requests, scheduling flights, tasking the aerial contractor, approving the paneling, approving the photography, scanning the film, performing aerotriangulation, digitizing planimetrics and digital terrain models, generating orthophotography, delivering final mapping products, and archiving project data. Photo lab services include reproduction of photography, paper enlargements, contact prints, and quality control for photogrammetric projects. Approximately 500 miles of roadway in TxDOT districts and over 8,500 photographic products such as enlargements, photo indexes, contact prints, negative map reproduction, and county aperture card maps are produced each year.

TxDOT's Global Positioning System (GPS) Network is currently comprised of 94 base stations collecting high accuracy reference data 24 hours a day, 7 days a week. Data is available via the TxDOT web site and is accessed by surveyors, Geographic Information System (GIS) professionals, engineers, and scientists. The TxDOT network served as a model for, and is a component of the National Geodetic Survey (NGS) Continuously Operating Reference Station (CORS) network that provides a high accuracy reference framework in support of positioning across the United States.

## **TxDOT Goals**

We have five clear goals to help us achieve our mission. We measure progress toward these goals:

1. Reduce congestion
2. Enhance safety
3. Expand economic opportunity
4. Improve air quality
5. Preserve the value of transportation assets

## Objectives and Outcome Measures

Goal		Objective		Outcome	
1	Transportation Planning	1	Effective Planning and Design	1	Project to Funding Ratio
				2	Percent of Projects Awarded on Schedule
2	Transportation and Construction	1	Construction and Reconstruction	1	Percent of Construction Projects Completed on Budget
				2	Percent of Two-Lane Highways with Improved Shoulders
				3	Percent of Railroad Crossings with Signalization
				4	Percent of Construction Projects Completed on Time
				5	Urban Congestion Index
				6	Statewide Congestion Index
3	Maintenance and Preservation	1	System Maintenance	1	Percent of Bridges Rated in Good Condition or Higher
				2	Statewide Maintenance Assessment Program Condition Score
				3	Statewide Traffic Assessment Program Condition Score
4	Optimize Services and Systems	1	Optimize Services, Medical Transport, Systems, Programs, and Resources	1	Percent Change in the Number of Public Transportation Trips
				2	Percent of Motor Vehicle Consumer Complaints Resolved
		2	Public Safety and Security	1	Number of Fatalities per 100,000,000 Miles Traveled

## Strategies and Output, Efficiency, and Explanatory Measures

Goal		Objective		Strategy		Measure		Type		
1	Transportation Planning	1	Effective Planning and Design	1	Plan, Design, and Manage Transportation Projects	1	Number of Construction Project Preliminary Engineering Plans Completed	OP		
						2	Dollar Volume of Construction Contracts Awarded in Fiscal Year	OP		
						3	Number of Projects Awarded	OP		
						4	Dollar Volume of Pass-Through Financing Agreements Entered	OP		
2	Transportation and Construction	1	Construction and Reconstruction	2	Support and Promote General Aviation	1	Administration and Support Costs as Percent of Expended Funds	EF		
							Number of Airports Selected for Financial Assistance	OP		
3	Maintenance and Preservation	1	System Maintenance	1	Contract for Transportation System Maintenance Program	1	Number of Lane Miles Contracted for Resurfacing	OP		
						2	Provide for State Transportation System Routine Maintenance/Operations	1	Number of Oversize/Overweight Permits Issued	OP
								2	Number of Highway Lane Miles Resurfaced by State Forces	OP
4	Optimize Services and Systems	1	Optimize Services, Medical Transport, Systems, Programs, and Resources	1	Support and Promote Public Transportation	1	Administration and Support Costs as Percent of Grant Expended	EF		
						2	Support Medical Transportation	1	Average Cost Per One-Way Trip	EF
									Recipient One-Way Trips	OP
				3	Registration and Titling	1	Number of Vehicle Titles Issued	OP		
						2	Number of Vehicle Registration Transactions	OP		
				4	Vehicle Dealer Regulation	1			Average Number of Weeks to Resolve a Motor Vehicle Complaint	EF
									Number of Motor Vehicle Consumer Complaints Resolved	OP
				4	Auto Theft Prevention	1	Automobile Theft Prevention	1		APT Administration and Support Costs as Percentage of Total Expenditures
			Number of Cars Stolen Per 100,000							OP
		5	Improve Rail Safety	1	Ensure Rail Safety Through Inspection and Public Education	1		Number of Federal Railroad Administration (FRA) Units Inspected	OP	

## Technology Initiative Alignment

<b>TECHNOLOGY ALIGNMENT FOR TxDOT</b>					
<b>TECHNOLOGY INITIATIVE</b>	<b>RELATED AGENCY OBJECTIVES/ GOALS</b>	<b>RELATED SSP STRATEGY(IES)</b>	<b>STATUS</b>	<b>ANTICIPATED BENEFIT(S)</b>	<b>INNOVATION, BEST PRACTICE, BENCHMARKING</b>
Support TxDOT's engineering and business needs with the highest and most secure level of information technology through the implementation and application of a well developed technology infrastructure.	All Goals	(Agency Layer) 5-1	Current	The timely and relevant support of the statewide transportation plan.	Best Practice: TxDOT continues to provide one of the best transportation systems in the country.
Support technology initiatives through partnering and participating in managed services.	All Goals	(Statewide Infrastructure Layer) 1-1, 1-2, 1-3	Current	Participation in TEX-AN communications services, Texas Online, and the Data Center Services Contract.	
Continue to partner with other state agencies to share technology, information, resources, and data.	All Goals	(Statewide Infrastructure Layer) 1-4  (Collaboration Layer) 4-1, 4-2, 4-4  (Agency Layer) 5-1	Current	Continued collaboration with other state agencies to make the most effective use of state resources. (Crash Records Information System; Traffic Safety E-Grants; Statewide Traffic Analysis and Reporting System 2).	
Replace or update the existing Registration & Title System (RTS) to meet increased customer demands. ( Vision 21)	All Goals	(Collaboration Layer) 4-1, 4-2, 4-4  (Agency Layer) 5-1	Current	Provide the motoring public with easier access to vehicle information; improve responsiveness to law enforcement requests; increase the efficiency of revenue collection; and enhance system security and data integrity.	Best Practice: Web access for customers; and reduce cyber security risks.
Upgrade the railroad crossing inventory database to interface with vehicle crash records information and GIS applications. (TxRAIL II)	All Goals	(Collaboration Layer) 4-1, 4-2, 4-4  (Agency Layer) 5-1	Current	Enhanced accuracy and timeliness of railroad crossing information to federal, state, and local entities and railroad companies for the improvement of safety at highway-rail crossings.	Best Practice: Web access for customers; and GIS integration.  Innovation: Enable direct updates to the Federal Railroad Administration and integrate GIS into the existing system.

<p>Integrate software components into the existing Central Permit System to provide automated routing for the movement of oversize and overweight loads on the state's highways. (TxPROS)</p>	<p>All Goals</p>	<p>(Collaboration Layer) 4-1, 4-2, 4-4  (Agency Layer) 5-1</p>	<p>Current</p>	<p>Improve highway safety due to enhanced accuracy of mapping/routing; reduce wear and damage on state highways because of reduced errors in routing; improve service to motor carrier industry; improve ability to meet customer demands for permits.</p>	<p>Best Practice: Web access for customers; and GIS integration.</p>
<p>Enhance the software application designed to automate and augment traffic monitoring processes under federal guidelines. (STARS II)</p>	<p>All Goals</p>	<p>(Collaboration Layer) 4-1, 4-2, 4-4  (Agency Layer) 5-1</p>	<p>Current</p>	<p>Increased efficiency through elimination of manual processes; clients will gain online access to traffic data, and the ability to produce adhoc reports; and the reliability of data will be increased.</p>	<p>Best Practice: Production of automated reports for FHWA; Web based application; GIS spatial data analysis.</p>
<p>Integrate new software into the current system to upgrade the Maintenance Management System (MMS) application. (Compass)</p>	<p>All Goals</p>	<p>(Collaboration Layer) 4-1, 4-2, 4-4  (Agency Layer) 5-1</p>	<p>Current</p>	<p>Eliminate duplicate information and provide more efficient use of time and a more cost effective system for maintenance managers to use statewide.</p>	<p>Best Practice: Web access for customers.  Innovation: Production of automated reports for TxDOT Maintenance Management.</p>

## **Appendix A: Description of Agency's Planning Process**

### **TxDOT's Vision**

We will deliver a 21<sup>st</sup> century, multimodal transportation system that will enhance the quality of life for Texas citizens and increase the competitive position for Texas industry.

### **TxDOT's Mission**

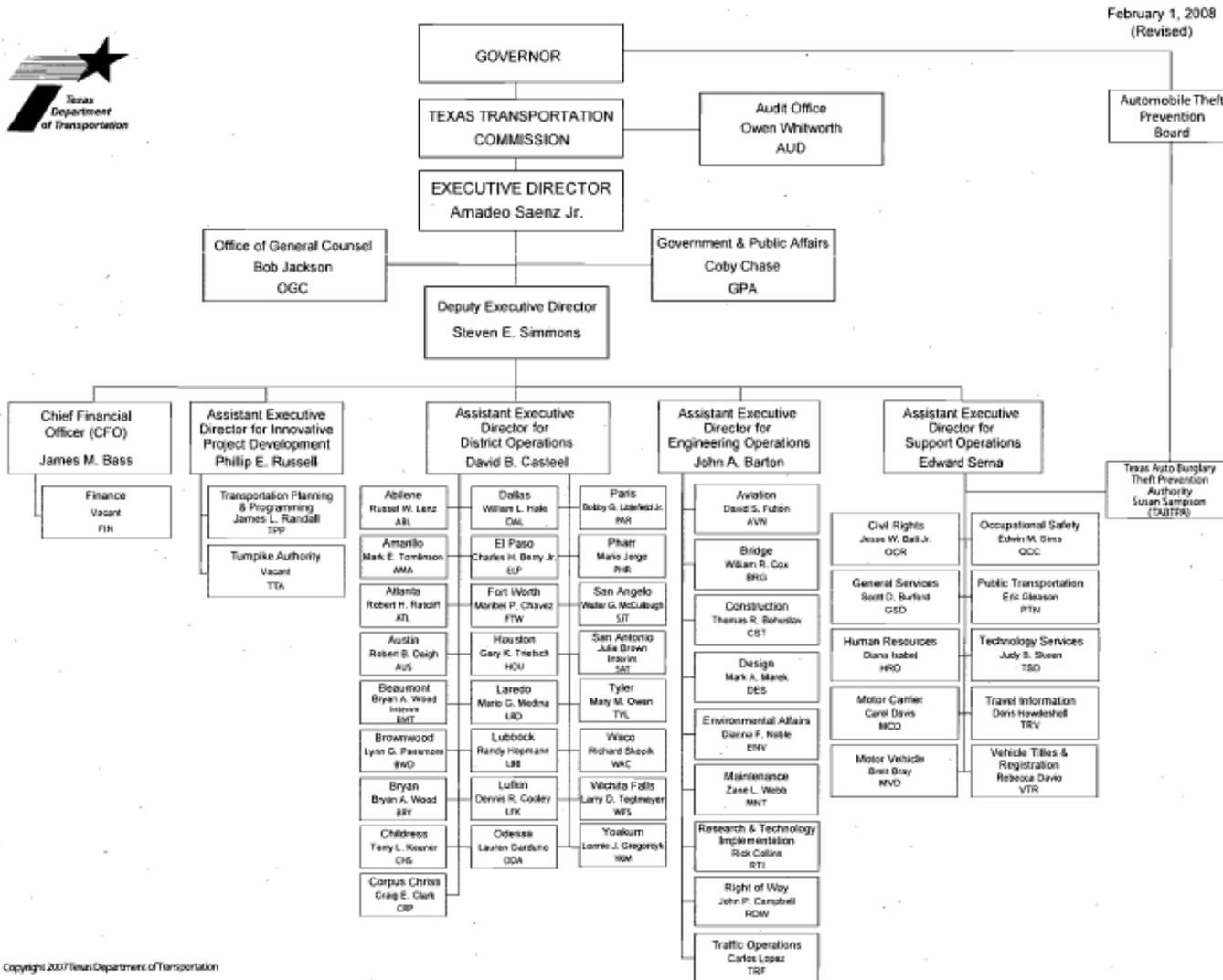
We will provide safe, efficient, and effective means for the movement of people and goods throughout the state, facilitating trade and economic opportunity.

### **TxDOT's Goals**

We have five clear goals to help us achieve our mission. We measure progress toward these goals:

1. Reduce congestion
2. Enhance safety
3. Expand economic opportunity
4. Improve air quality
5. Preserve the value of transportation assets

## Appendix B: Current Organizational Chart



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## Appendix C: Five-Year Projections for Outcomes

Outcome Measures					Estimated Targets - FY 2009-2013				
Reporting Division	Goal / Objective	Measure	Measure Type	Description	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
DES	01-01	.01	OC	Project to Funding Ratio	1.1	1.1	1.1	1.1	1.1
DES		.01	OC	Percent of Projects Awarded on Schedule	100	100	100	100	100
CST	02-01	01	OC	Percent of Construction Projects Completed on Budget	97	97	97	97	97
TPP		02	OC	Percent of Two-lane Highways with Improved Shoulders	54	54	54.25	54.5	54.75
TRF		03	OC	Percent of Railroad Crossings with Signalization	54.6	55.8	57	58.04	59.08
CST		04	OC	Percent of Construction Projects Completed on Time	74	74	74	74	74
TPP		05	OC	Urban Congestion Index	1.45	1.45	1.45	1.45	1.45
TPP		06	OC	Statewide Congestion Index	1.1	1.1	1.1	1.1	1.1
BRG	03-01	.01	OC	Percent of Bridges Rated in Good Condition or Higher	78.3	78.93	79.57	80.21	80.85
MNT		02	OC	Statewide Maintenance Assessment Program Condition Score	80	80	80	80	80
TRF		03	OC	Statewide Traffic Assessment Program Condition Score	76.5	77	77	78	78
PTN	04-01	.01	OC	Percent Change in the Number of Public Transportation Trips	2.08	3.25	2.36	2.82	2.41
MVD		.02	OC	Percent of Motor Vehicle Consumer Complaints Resolved	72	72	72	72	72
TRF	04-02	.01	OC	Number of Fatalities Per 100,000,000 Miles Traveled	1.4	1.38	1.35	1.32	1.28

## **Appendix D: Implementing the Texas Transformation**

### ***Implementing the Texas Transformation***

#### **MANAGED SERVICE DELIVERY**

- 1. Has the agency considered use of managed services in order to focus more on its business needs?*

TxDOT is currently participating in the Department of Information Resources (DIR) Data Center Services (DCS) contract, TEX-AN communications services, and TexasOnline (IRP).

To date, the Data Center Services (DCS) contract has cost the department lost time, higher operating costs, and negative impacts to core services. These issues present challenges on a day-to-day basis. More time is spent monitoring systems than prior to contract commencement, as TxDOT personnel are ultimately responsible to ensure systems and applications are functional. Routine tasks once performed by TxDOT personnel are now monumental and take much longer to complete, resulting in lost time to TxDOT IT staff and the business users.

#### **MANAGED IT SUPPLY CHAIN**

- 2. Does the agency leverage and obtain additional value from the Information and Communications Technology (ICT) Cooperative Contracts program; for example, by further negotiating not-to-exceed pricing?*

Yes, TxDOT negotiates directly with vendors to obtain the best value when purchasing commodities.

#### **SECURITY AND PRIVACY**

- 3. Describe the agency's strategies to align with the State Enterprise Security Plan*

(<http://www.dir.state.tx.us/pubs/securityplan2007/index.htm>).

TxDOT puts great emphasis on protecting its information technology and resources. As noted in our 2007 IR Deployment Review for DIR, TxDOT listed the status as "Implemented" to all of PART 3: COMPLIANCE WITH STATE STANDARDS 3.1 SECURITY except one, which is in progress with DIR to use network security services provided through DIR's NSOC.

TxDOT's executive director designated the director of the Technology Services Division (TSD) as the agency's information resources manager (IRM). The TSD director also

serves as the information security officer (ISO) for TxDOT. Within TSD, under the guidance of the ISO, staff of the Information Security Branch and the Infrastructure Delivery & Management Services Section are primarily responsible for setting security policy within the agency. They also are responsible for reviewing and approving projects for security features; analyzing security risks, determining budget requirements to address security risks, and for identifying cyber security violations. TxDOT uses a variety of automated security tools in the areas of risk assessment, incident reporting, cyber vulnerability detection, and remediation. TxDOT also uses incident response mechanisms and provides related security and awareness program training for its managers and employees.

TSD implements and maintains the standards, policies, and practices that protect TxDOT's information resources by publishing both an information security manual and an information security procedures document. These documents provide the foundation for TxDOT's security policy, a policy which exists within the framework of state and federal laws and regulations. It also reflects state policies regarding information integrity and confidentiality. TSD also implements and maintains the Information Resources Security Compliance and Confidentiality Agreement that all employees and contractors are required to sign annually.

TSD also publishes a quarterly security bulletin posted on the intranet which provides information to employees on computer and other IT security issues.

TxDOT spends thousands of dollars annually on the detection, monitoring, and clean-up of viruses. TxDOT network monitoring indicates a yearly growth rate of 500percent over the last 3 years, from 50,000 to 330,000 viruses in 2006. In 2006, there were 819,234 virus attempts on our systems. Due to these attempts, all microcomputers, including servers, are scanned for viruses to prevent loss of information or damage to files from a virus attack or infection. Further virus scanning software detects and isolates externally introduced e-mail viruses prior to their delivery to user accounts.

*4. Describe the agency's policies, practices and programs, implemented or planned, that comply with relevant statutes and administrative rules to ensure the privacy of confidential data. Consider federal privacy requirements (e.g., the Health Insurance Portability and Accountability Act or the Family Educational Rights and Privacy Act) that apply to the agency. List the organizational units (program, offices, IT, legal, etc.) that manage privacy functions. Describe any future plans for improvement.*

TxDOT physically segregates medical information as required under laws such as the Americans with Disabilities Act and the Family and Medical Leave Act. Information related to employee ADA or FMLA is kept in the medical folder of the employee's personnel file. The employee's medical folder is segregated from the other portions of the employee personnel file.

TxDOT retains electronic personal data in protected storage areas or in non-public databases. Information is only accessible by the citizen who stores it, through the system

used, such as submitting a job application online through HR Online.

TxDOT also uses SSL encryption to transmit information as well as site to site virtual private networks.

*5. What current practices or plans are in place to improve usability and searchability of the agency's Web content? (2007 SSP, Strategy 4-1)*

TxDOT has an application design staff devoted to the agency's Internet and intranet sites. Web pages and site designs are tested for functionality when a new design is developed, when an existing design is modified, and when a problem is identified. Accessibility compliance is validated via automated validation tools and manual testing.

There is also an accessibility policy for the Web site(s) and required elements are addressed. TxDOT's home page includes links to "Site Policies" and the accessibility policy, site validation, contact information for the agency's accessibility coordinator, and a link to the Governor's Committee on People with Disabilities Web site.

TxDOT maintains a varied presence on the Internet in order to provide information and online services related to almost all TxDOT business areas. There are over 40 million hits from over 380,000 visitors to TxDOT's Web site per month, and more than 750 email requests for information are received monthly through the Web. TxDOT's Web site contains over 60,000 documents.

TxDOT also maintains Intelligent Traffic System (ITS) Web sites for the Amarillo, Dallas / Fort Worth, El Paso, Houston, Laredo, San Antonio, Austin, and Wichita Falls districts. These sites provide a variety of traffic related information to the public.

The Texas Highways Web site provides information about cultural events, destinations, and other travel related information.

The TxDOT GIS unit maintains a Web portal which serves historical Right of Way maps and project control information to external customers. This alone saves many hours of reproduction costs and enhances the ability for the public to receive free and unrestricted access to our information.

TxDOT continues to focus more and more on using the Web to deliver information. Three projects currently under development are:

The Texas Permit Routing Optimization System (TxPROS) will acquire and integrate a software component into TxDOT's existing Central Permit System (CPS) to provide true automated routing for the transport of oversize and overweight loads. The program will provide customers with a Web-based, fully self-service system that is compatible with TxDOT's base GIS and bridge data and will include required parameters such as structure height, lane width, load ratings, one-way attributes, access roads, turn restrictions, and at-grade railroad crossings. The proposed system will also allow customers to self-permit via the Internet for vehicles with certain characteristics.

The Storm Water Management System (SWMS) will complete the system development and implementation for a statewide storm water management system. This system will be used by TxDOT district/division environmental staff and/or designated consultants to monitor, track, and test storm water runoff and any discharge of pollutants that might encroach on or near department rights-of-way. In addition, the system will assist the districts in complying with the Texas Commission on Environmental Quality (TCEQ) regulatory requirements. SWMS will track this data through an automated Global Positioning System (GPS) data collection application and store the data in a Web-based geographical database solution.

The Adopt A Highway (AAH) Web application will allow the public to access TxDOT's currently adopted highway segments in order to make decisions on which segments are available for adoption.

6. *What current practices or plans are in place to improve life cycle management of agency data and information? Include the agency's approach and ability to meet future open records and e-discovery requests. (2007 SSP Strategy 4-1)*

As reported in our 2007 IR Deployment Review, the Records Management Unit of TxDOT's General Services Division manages and coordinates the agency's Records Management Program to ensure compliance with state records management laws, which includes a chapter in the Records Management Manual devoted exclusively to the management of electronic state records in a manner consistent with the Electronic Records Standards and Procedures and places the management of electronic records in the context of the overall agency records management program. The records manager also directly consults with department clients on files and records management policy, procedure, techniques, and technologies for records in all media, including electronic. The department's records manager is the co-manager for business processes for the department's enterprise electronic document management system (EDMS) project. In that role, the records manager developed electronic system management tools, such as a document-centric file plan, for use by system administrators in performing records management functions, including the identification and preservation of electronic records of potential archival value.

Engineering data is presently stored and archived on servers. Engineering personnel may work on local disks; however, data is returned to the server for backup purposes on a daily basis. A hierarchy is created on the server that is project specific and rights are assigned to those individuals that require access on the project. Once completed, the projects are archived to CD/DVD for long term storage. Future plans include the evaluation of electronic document management systems to improve the overall security, access, and storage of data.

7. *Describe agency methods and standards (federal, state, industry), implemented or planned, intended to enhance data sharing (i.e., improve interoperability) with other entities. (2007 SSP Strategy 4-2)*

As reported in our 2007 IR Deployment Review, TxDOT is collaborating with the Department of Insurance (TDI) and the Department of Public Safety (DPS) on the Financial Responsibility Verification Project. TxDOT is also collaborating with DPS on the Crash Records Information System (CRIS) and making vehicle registration information available to troopers. TxDOT collaborates with local governments (counties) on the Registration and Titling System. DIR participated with TxDOT on the eGrants project. TxDOT participates in the PeopleSoft maintenance contract and the Data Center Services project and supplies map data to the TNRS GIS data clearinghouse.

TxDOT collaborates with city, county, and federal governments in the operation of its traffic centers throughout the state. Collaboration is also ongoing with other state agencies, and universities, on transportation issues and research projects with the Center for Transportation Research and the Texas Transportation Institute.

TxDOT's Global Positioning System (GPS) Network is nationally recognized and is currently comprised of 90 base stations collecting high accuracy reference data 24 hours a day, 7 days a week. Data is available via the TxDOT Web site and is accessed by professional land surveyors, survey technicians, geographic information system (GIS) analysts, professional engineers, and scientists. The TxDOT network serves as a model for, and is a component of the National Geodetic Survey (NGS) Continuously Operating Reference Station (CORS) network that provides a high accuracy reference framework in support of positioning across the United States.

TSD is partnering on several projects which cross federal, state, and local jurisdictions. Ongoing development of these large projects benefit from the impact of anticipated technological advances and processes. The following is a summary of projects with significant impacts on TxDOT operations and that directly support TxDOT's goals to reduce congestion, enhance safety, expand economic opportunity, improve air quality, and preserve the value of transportation assets.

Several initiatives are under way to improve the overall security and interoperability of engineering data used in construction plan sets. These include the use of digitally signed plan sheets, design data exports via a model to automated machine guidance devices for grade cutting, and integration between the department's computer aided design and drafting (CADD) systems with Microsoft's Virtual Earth mapping engine.

### ***TxRAIL Crossing Inventory System (RXIS)***

RXIS will update the statewide highway-rail grade crossing inventory. This will include an on-site inventory update, verification of existing data, and collecting new data. This project will also upgrade and integrate existing and new IT architecture and infrastructure

capabilities, i.e., geographic information system capabilities and multi-entity connectivity into the database. The upgrading and integration of the current database with Web-based, multi-user functionality will facilitate timely, accurate, and relevant analysis for effectively planning, funding, and implementing the highway–rail grade crossing safety programs administered by TxDOT. Improved data collection will enable direct updates with the Transportation Planning and Programming Division, the Federal Railroad Administration, and the Traffic Operations Division, and provide up-to-date data for analyzing and evaluating the efficiency of the railroad safety improvement programs.

### ***Statewide Analysis Model Version 2 (SAM-V2)***

SAM-V2 supports the analysis of complex transportation corridors. The passage of the North American Free Trade Agreement created a strong need to analyze freight traffic in the rural transportation corridors of Texas. In addition, federal legislation requires TxDOT to develop a statewide plan for all areas of the State that considers all modes of transportation. This project supports these objectives.

### ***Compass Project – Maintenance Management System (MMS)***

Compass will acquire and integrate a commercial off the shelf solution (COTS) to automate the six phases of the maintenance management cycle into a new software application called the Maintenance Management System (MMS). Successful implementation of the chosen solution will eliminate duplicate entry of information, provide information in a timely manner to the maintenance managers, and provide useful tools to assist maintenance managers at all levels in the organization. It will also replace the current Maintenance Management System with a solution that would provide support for all phases of the maintenance management cycle at all management levels.

### ***Laboratory Information Management System (LIMS)***

LIMS will define, analyze, and develop an application to streamline the materials testing laboratory operation process making it more efficient and minimizing potential errors. The software application developed will operate on desktop computers in the central and district laboratories.

### ***LRFD / STD Precast Prestressed Concrete Girder Design and Analysis Program***

This project will provide TxDOT bridge engineers and consultants with prestressed concrete bridge girder design and analysis software that is compliant with the AASHTO Load and Resistance Factor Design (LRFD) Specifications and with TxDOT design, analysis, and construction policies.

### ***Electronic Project Records System (EPRS)***

EPRS will improve TxDOT's communication with the contracting community and assist TxDOT districts and divisions in sending and receiving information to and from

contractors with the development of a standard secure electronic data transmission method. Phase 1 of this project will enable contractors to electronically submit payroll data via a secure method for update and storage. Digital certificates will be used to prevent unauthorized access to the data.

### ***BGS - Bridge Geometry System***

This project provides bridge specific design and analysis functions taken from the department's Roadway Design System (RDS) and incorporates into a more compact application. This application is used by TxDOT bridge engineers, consultant bridge engineers, and fabrication engineers involved in TxDOT projects. This system is maintained by TxDOT developers.

## **CORE MISSIONS**

8. *Does the agency have any plans to simplify or reduce the number of existing software platforms (e.g., operating systems, application development environments, database systems, office suites, other COTS applications)? If no, is the agency fully leveraging its technology to support both its current and future business environment?*

TxDOT is currently undergoing a regionalization analysis and will be reviewing all of its organizational structures and business processes. This will in turn identify ways to improve systems, operations, and applications.

TxDOT has over 250 software applications with associated databases or data stores. Of these, 40 are mission or agency critical, with over \$60 million invested in entering data into these systems. TxDOT supports over 15,300 workstations on the TxDOT domain at more than 840 locations statewide.

TSD is responsible for more than 82 major software application systems that support the business and engineering functions of TxDOT. The majority of these applications were developed by TSD staff, although some were purchased or developed by third party providers. These applications use one of the six supported operating systems, more than a dozen programming languages and over eight data management technologies on both mainframe and client/server platforms. TxDOT has 1,473 MicroStation licenses which are used statewide (in all 25 districts and 15 divisions) to provide CADD support for TxDOT's annual construction letting of over \$3 billion and maintain over 1,200 installations of GIS software which are used in the planning, environmental and ROW departments to assist with the preparation and development of future construction projects.

TxDOT develops partnerships and processes between the Technology Services Division (TSD), information technology (IT) providers, and TxDOT business areas. This partnering model supports the delivery of IT products and services to promote effective and efficient information sharing. It ensures that the information provided is secure, accurate, timely, relevant, and easily available for integrated business solutions, which is

an essential element of the information resources (IR) vision at TxDOT. Joint projects permit IT providers to research, implement, and integrate IT solutions that serve as the foundation for TxDOT business decisions and operations. It is this IT infrastructure that enables TxDOT to manage and deliver what it needs, when it needs it.

Development and continuous improvement of the department's enterprise technology architectures, standards, and infrastructure are essential elements of this vision and mission. Over three decades ago, TxDOT established and continues to build upon and maintain an IT environment with skilled personnel, and the necessary technology, infrastructure, policies, standards, procedures, and services to support all department operations and enable sound business solutions.

The department's strategic IT objectives include processes that:

- integrate IT planning and budgeting;
- structure an environment of best practices to leverage delivery success;
- define and continuously enhance data, applications, and technology architectures;
- research, evaluate, select, develop, and deliver new technologies;
- provide customers with secure, timely, and efficient application and data access across all technical platforms;
- provide appropriate tools for the development, maintenance, and enhancement of applications;
- enable single points of contact for end user and service provider problem resolution;
- enable a tiered support mechanism to provide department personnel solutions to IT challenges related to their business needs;
- build capability to identify IT related training needs, design curricula, and deliver training for end users; and
- Continue to build upon the established project management and quality assurance processes that are integrated into IT processes and business decisions.

These processes reduce costs, improve efficiency, improve user satisfaction, reduce development and implementation timelines for applications and new technologies, and improve the quality and delivery of IT at TxDOT.

In order for TxDOT to complete projects and continue to take advantage of ever changing technological advances, the following critical success factors must be an integral part of all activities of the organization:

- maintaining a TxDOT IT organization that manages and readily adapts to continuous technological innovations and changes;
- retaining qualified information resources professionals;
- improving IT project management and the development life cycle;
- improving the speed and efficiency of the procurement process and the accuracy and efficiency of the project planning process;
- delivering quality products promptly;

- researching, evaluating and implementing new technology; and
- Creating an enterprise computing environment that promotes cross platform migration, uniform development, and a comprehensive technology infrastructure.

The IT activities and implementations below reflect the critical success factors for the future:

- ongoing support for doing business on the Web;
  - implementation of new technologies and procedures to effectively integrate geographic information systems with business processes and applications;
  - continued investigation into integrating geographic information and global positioning data with survey and design;
  - ongoing support for computer aided design, drafting and surveying technologies;
  - ongoing implementation and support of electronic document management, imaging and electronic forms technologies; and
  - Continued development of enterprise systems management to manage the network infrastructure.
9. *Describe any current or planned activities targeted at reducing the environmental resource consumption of technology equipment (recycling, consolidating, virtualizing, buying energy efficient equipment, etc.).*

TxDOT has policies in place to ensure the use of recycled products. These include printer/copier paper, print cartridges, and others. TxDOT has also made recommendations to users to power down systems when not in use, and has implemented 'Wake on Lan' to bring systems back on line via the network for updates, patches, etc. TxDOT regularly evaluates new equipment and almost all systems now use energy efficient devices. TxDOT closely monitors required hardware and regularly consolidates systems which will reduce costs and impact on applications. Systems are monitored to ensure peak performance and minimal duplication. TxDOT also is evaluating power management strategies for workstations to reduce the overall operating costs of these devices.

In September of 2005, TxDOT migrated its mainframe applications to run on the IBM System Z architecture (z990 mainframe), taking advantage of the small footprint, much improved environments, and exceptional virtualization. In addition, starting in July 2003, TxDOT consolidated its UNIX applications on the IBM p/series AIX servers with features that parallel those of the System Z. Moreover, the planned DCS consolidation of the Intel based servers will be on a high capacity servers utilizing VMware ESX virtualization software. TxDOT also uses a series of virtualized Windows servers focused on local Web application development. This virtualization represents a four to one utilization ratio of a single Windows server.

## **Appendix E: Workforce Plan**

### **Anticipated Changes Over the Next Five Years**

Historically, the Texas transportation system has served the state well. However in recent decades it has been unable to keep pace with the state's population growth, increased road usage, new trade agreements, changing trends in business practices, and the need for additional funding and revenue sources. The transportation infrastructure, much of it built many decades ago, is now badly in need of rehabilitation and reconstruction. Significant mobility needs are at a critical point, some requiring immediate infrastructure improvements while at the same time promoting long-term economic prosperity, and a sustained ability to provide a safer transportation system and cleaner air to all Texans.

The state's leadership, Governor Rick Perry, proposes several new strategic directions for the Texas Department of Transportation (TxDOT) in meeting tomorrow's transportation challenges. Project prioritization will be at the regional level allowing local leaders to better meet their transportation needs and concerns. Funding new capacity projects will be through toll revenues so that regional and local beneficiaries realize the true cost of highway improvements. The escalating cost of highway construction and automobile fuel has made other modes of transportation more favorable as transit options; therefore, expanding transportation planning will increase into areas such as commuter and freight rail.

The economic prosperity of the state and all Texans' quality of life are inextricably tied to the value and convenience of the state's transportation systems. Infrastructure improvements, whether to the existing systems or through new alternatives, are needed to address congestion, efficiency and safety issues and will promote and sustain job growth in Texas. Texas must have multi-modal transportation systems that can economically move people and goods throughout the state. This is essential to support long-term economic vitality, quality of life, the natural environment, U.S. military preparedness, and to minimize dependency on foreign energy.

The department employs up to approximately 15,000 state workers and exercises control of an \$8.4 billion budget for transportation needs of the state. Emerging technologies, consumer demands for viable transportation options and the necessity for the right mix of workforce competencies and experiences are redefining TxDOT's role and responsibility as the state's transportation leader.

A system whereby the department can develop well-trained and productive employees must include innovative foresight for progressive advancement in acquiring skills, abilities and knowledge competencies. Strategic workforce planning will allow the department to proactively integrate organizational processes that can avoid labor surpluses, mitigate talent shortages (panic hirings), and establish opportunities for competent employees to advance their transportation careers.

The following workforce plan examines the current workforce skill level, assesses future requisite worker competencies and advocates for a progressive succession system, all which will facilitate the department's efforts in cultivating capable knowledge workers to meet its evolving challenges.

## **Current Workforce Profile (Supply Analysis)**

### **Critical Workforce Skills**

The department employs qualified individuals in a myriad of program disciplines. Strong employee competencies are critical to meet ongoing business objectives and goals.

Current critical workforce skills include the following:

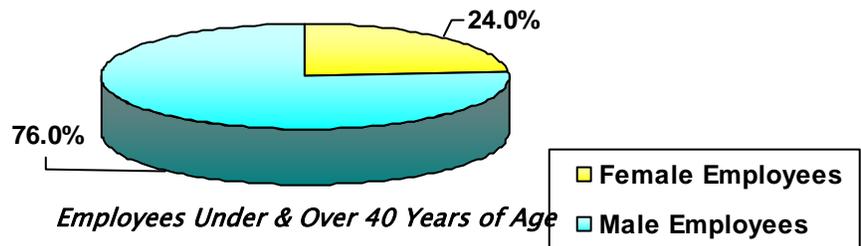
- Leadership/Management
- Transportation Public Policy
- Information Technology
- Engineering/Design
- Roadway System Maintenance
- Finance
- Human Capital Management
- Aviation/Waterway/Rail Operations
- Customer Service Assistance
- Environmental/Archeological Contract Negotiation/Administration
- Project Management

## Workforce Demographics

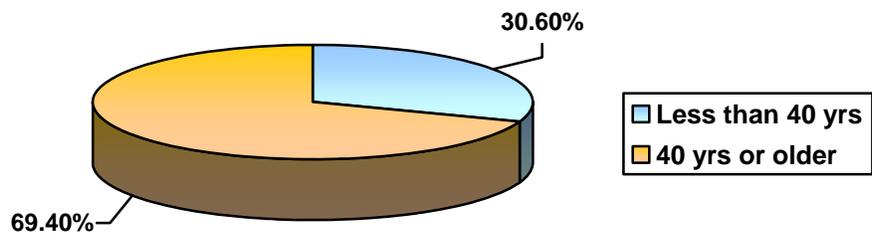
### Gender, Age, Diversity

In FY2007, the department employed a workforce population of 14,925 employees. Of the total employees, there were 3,574 females (24%) and 11,351 males (76%). The average age was 44.7 years, and 69.4% of the employees were over the age of 40.

*Male and Female Employee Population*



*Employees Under & Over 40 Years of Age*



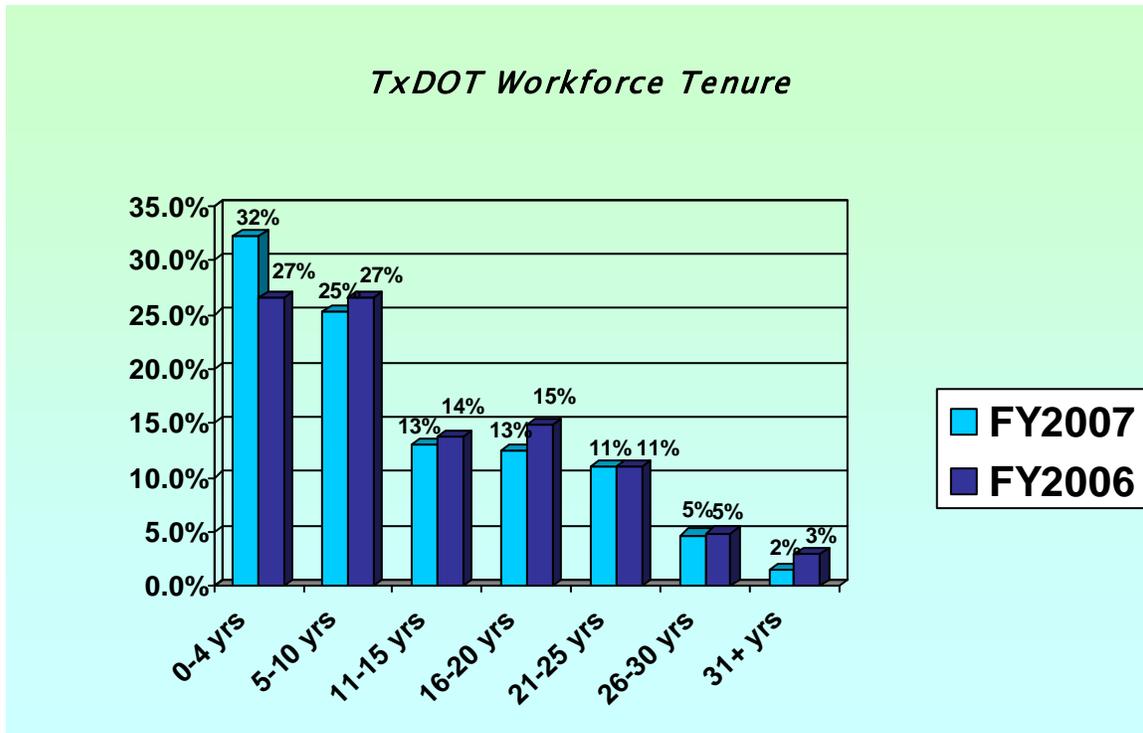
### Tenure

Of the department staff, 8,558 (57%) employees have 10 years or less department service. There are 1,863 (13%) employees with 16 to 20 years service while 2,571 (17%) employees have 20+ years department service. The average length of department service time is 11 years while overall state government longevity service time is 12.6 years.

With slightly more than half of the workforce with 10 years or less department experience, the number of employees who possess a professional expertise and institutional process “wisdom” is in short supply. The data clearly shows the tenure accruing years (11- 20) are represented by smaller groups of employees and gives credence to the prevailing thought that these employees will leave state government to pursue more lucrative compensation packages during their wealth building years.

Worker knowledge recruitment and competency/experience development (beyond entry-level and basic process understanding) is the cornerstone to succession planning. Without

adequate market-driven pay scales, future-oriented leader development and technically qualified replacement personnel, all efforts of succession planning will falter. And the upward trend of losing valuable human assets to private industry should be expected. It is paramount to implement strategies that will increase employee job satisfaction, loyalty to the transportation mission, and ensure long-term employment relationships with high performing employees. Through these strategies the department can cultivate a skilled workforce that is truly subject matter experts and leaders in the transportation field.



### Job Categories

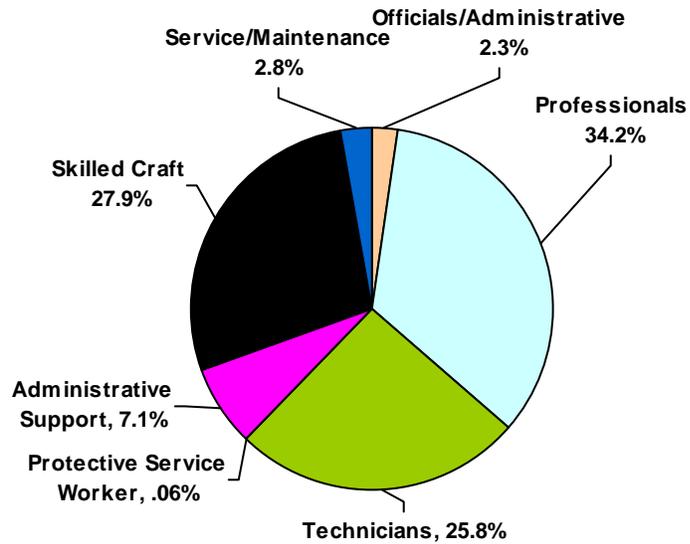
Three main job categories comprise the largest number of department employees. The categories, “*Professionals (34.2%), Technicians (25.8%), and Skilled Craft (27.9%),*” underscore the broad range of competencies utilized in accomplishing the department’s mission. Department data in most of the job categories reflect comparable to or above statewide workforce statistics.

### *EEO Job Categories*

*FY 2007*

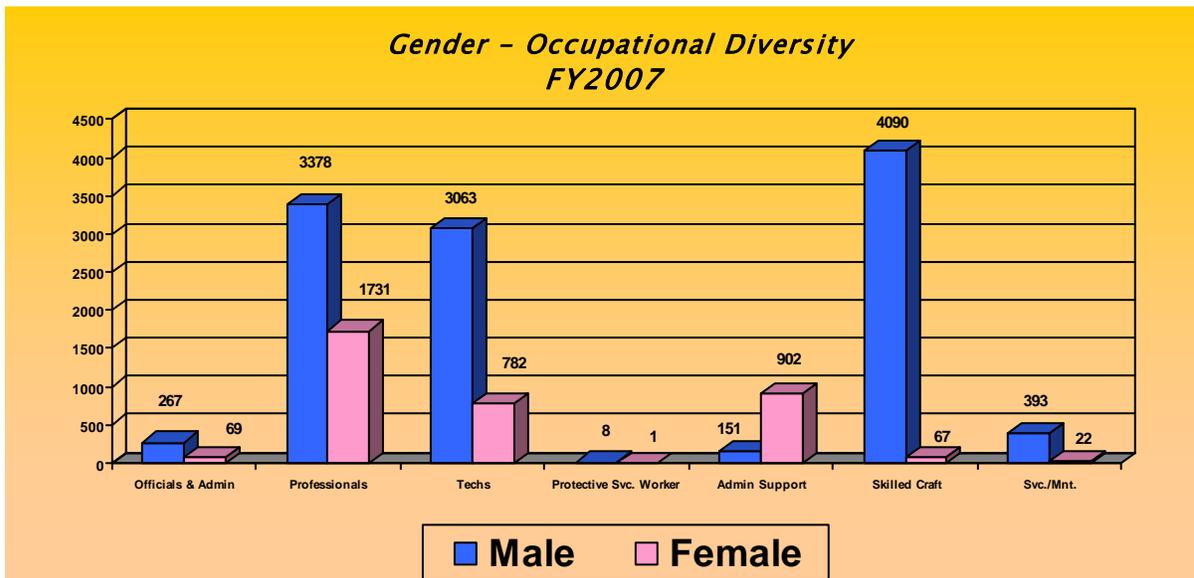
	White		Black		Hispanic		Asian/PI		American Indian	
	TxDOT	State	TxDOT	State	TxDOT	State	TxDOT	State	TxDOT	State
<b>Officials /Administrative</b>	85.0%	74.0%	2.7%	6.7%	11.7%	15.6%	.7%	2.9%	0%	.76%
<b>Professionals</b>	68.3%	71.7%	7.4%	8.4%	20.0%	15.3%	4.0%	5.5%	.3%	.78%
<b>Technicians</b>	65.7%	62.1%	8.3%	12.6%	23.9%	20.4%	1.6%	4.0%	.5%	1.0%
<b>Protective Service Worker</b>	56.7%	59.0%	21.7%	16.5%	10.8%	21.9%	0%	.60%	10.8%	.90%
<b>Administrative Support</b>	64.8%	60.2%	9.9%	11.9%	24.3%	24.7%	.6%	2.4%	.3%	.81%
<b>Skilled Craft</b>	64.4%	53.5%	8.6%	6.4%	26.2%	37.4%	.3%	1.8%	.5%	.91%
<b>Service/Maintenance</b>	48.8%	43.4%	11.6%	14.8%	38.5%	38.5%	.6%	1.6%	.5%	.77%

**Percentage of Employee Population**



**Gender**

The department female population is represented mostly in the “*Professional, Technicians and Administrative Support*” job categories. The categories “*Skilled Craft and Service/maintenance*” have historically been occupied by males, and we continue to experience little interest by the female population in this kind of work.



## **Department Turnover and Projected Attrition**

### **Employee Turnover and Projected Attrition**

During the last decade TxDOT has enjoyed one of the lowest turnover rates when compared to other state agencies and to the statewide workforce. This has been a testament to its good fortune even though it continues to lose some knowledge workers.

However, recent data indicates a growing trend that employees with four years or less department service are leaving state employment for more lucrative positions (\$5,000 or more per annum) with other governmental entities, transportation industry-related firms and comparable private sector organizations. In FY2007, approximately 40% of the Texas state government workforce turnover occurred in the 16 to 29 years age group, followed by 18% in the 30 to 39 age group.

Also, in the past five years there has been an inverse relationship between the state's unemployment rate and state government's turnover rate; whenever the unemployment rate decreased, the turnover rate increased and vice versa. Turnover data (17.4%) for FY2007 followed this same pattern and data figures released for Texas state turnover has averaged around 16.4% (excluding interagency transfers) for the last five years. The percent turnover increase between FY2006 and FY2007 was 10.1%. This may sound a few alarm bells because the last time such a significant difference occurred was during the retirement incentive fiscal years.

The Texas Workforce Commission released information about Texas' 2007 April and May jobless rate. The Texas unemployment rate fell to 4.1 percent in May; the lowest point since 1976 and less than the 5 percent rate one year ago. They also estimated the state's annual job growth at 2.4 percent which is double the national increase of 1.4 percent. Metropolitan areas such as Midland reported a 2.6 percent unemployment rate while the Rio Grande Valley reported a 5.7 percent high. Trade, transportation and utilities gained approximately 2,600 jobs. This data illustrates emerging labor market opportunities and reflects Texas' growth as the next trade center as strong.

In an era where more department employees are retirement eligible, fewer workers stay long term, and top talent attraction is restrained by limited competitive compensation and benefit packages, the challenges become further heightened by a recovering economy. Also, high profile news media coverage of the imminent talent shortage and emerging job market opportunities clearly underscore the need to drive and mold an organization strategy for long term department workforce impact. The department, through carefully directed workforce strategies, can strongly position itself by attracting and retaining optimal staffing.

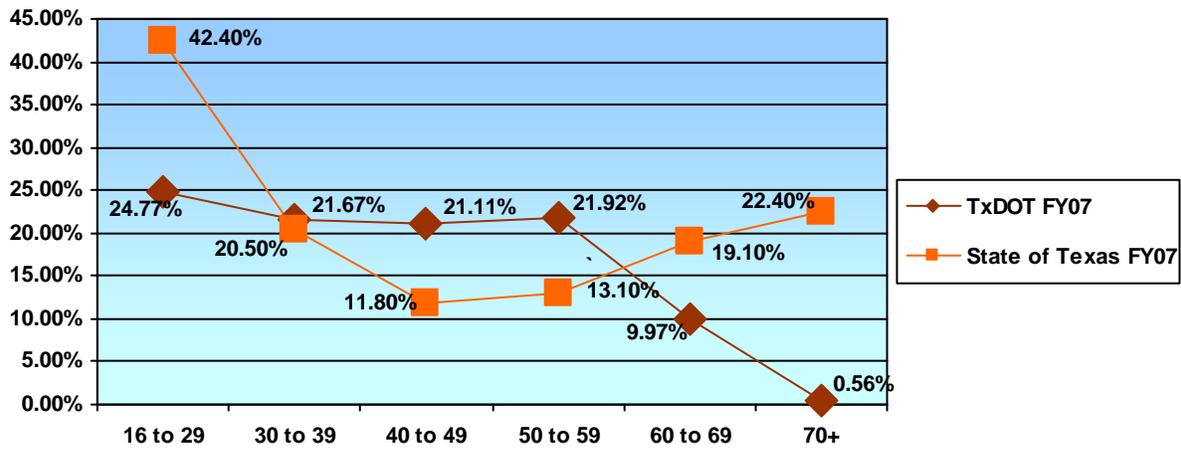
<b>EMPLOYEE TURNOVER</b> <b><u>FIVE-YEAR TREND</u></b>					
<b>Fiscal Year</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>TxDOT</b>	11%	8.0%	10%	9.7%	10.8%
<b>All Agencies<sup>2</sup></b>	18%	42%*	19%	18%	19%

\*Note: Impacted by early retirement incentive and legislated mandated Health and Human Services reorganization.

<sup>2</sup>Figures include all interagency transfers.

<b>Tenure of Separating Employees Compared to Tenure of All Employees</b>				
<b>Length of Service - FY2007</b>				
<b>Tenure in Years</b>	<b># Separating Employees</b>	<b>% Separating Employees</b>	<b>All Employees</b>	<b>% All Employees</b>
0 – 4	861	53.31%	4,803	32.18%
5 – 10	282	17.46%	3,754.5	25.16%
11 – 15	91	5.63%	1,932.8	12.95%
16 – 20	103	6.38%	1,863.3	12.49%
21 -25	105	6.50%	1,646.5	11.03%
26 - 30	101	6.25%	702.8	4.71%
31 & above	72	4.46%	221.8	1.49%
<b>Total</b>	<b>1615</b>	<b>100%</b>	<b>14,924.5</b>	<b>100%</b>

*Age of Separated Employees*



## Occupations

During the past four years the department maintained a consistent cyclical turnover rate (8% to 11%), averaging about 9.7% each year. However, some job categories (particularly core functions) are beginning to show upward increases from previous years which may be early signals of trend shifting.

BUSINESS TITLE CATEGORY	FY2004			FY2005			FY2006			FY2007		
	AVG*	TOTAL	ANN**	AVG	TOTAL	ANN	AVG	TOTAL	ANN	AVG	TOTAL	ANN
	O/B	TERMS	T/O	O/B	TERMS	T/O	O/B	TERMS	T/O	O/B	TERMS	T/O
A-EXECUTIVE/ ADMIN/ CLERICAL/LEGAL	1,272.00	102	8.02%	1,310.0	135	10.31%	1,351.5	113	8.40%	1,352.3	139	10.30%
B-FINANCE/ ACCOUNTING	272	18	6.62%	270.3	18	6.66%	277.3	22	7.90%	285.3	26	9.10%
C-INFORMATION TECHNOLOGY	655	38	5.80%	653.3	48	7.35%	670.8	57	8.50%	651.0	61	9.40%
D-ARCHITECTURE	43.5	1	2.30%	47.0	4	8.51%	49.5	3	6.10%	53.5	3	5.60%
E-ENGINEERING/ ENGR. SUPPORT	4,192.80	258	6.15%	4,364.0	358	8.20%	4,548.0	380	8.40%	4,539.8	450	9.90%
G-CIVIL RIGHTS/BUS OPPORTUNITY	28.3	2	7.07%	27.5	4	14.55%	27.0	4	14.80%	29.5	3	10.20%
H-HUMAN RESOURCES	164	22	13.41%	155.0	13	8.39%	160.5	11	6.90%	160.0	10	6.30%
I-OCCUPATIONAL SAFETY	58.3	3	5.15%	59.8	3	5.02%	62.8	1	1.60%	63.0	6	9.50%
J-GENERAL SERVICES/CONTRACT	473.5	41	8.66%	481.0	47	9.77%	503.0	35	7.00%	505.3	46	9.10%

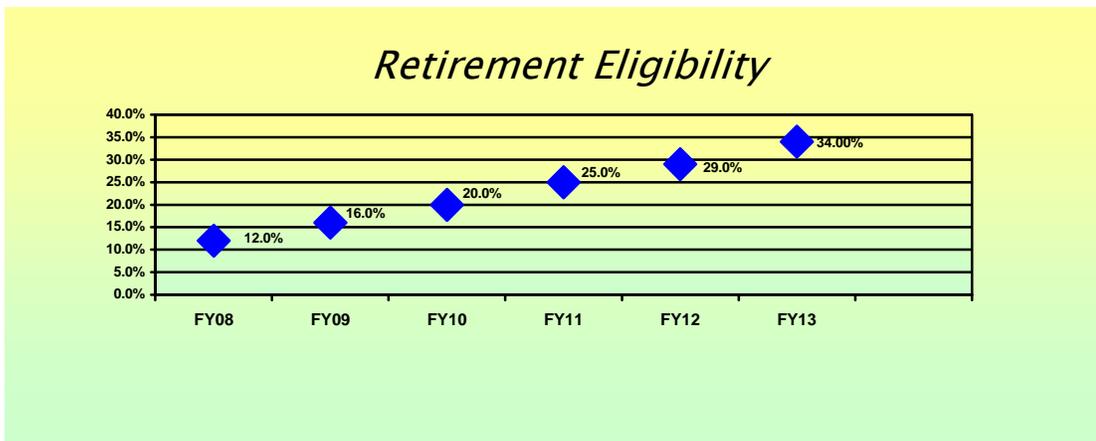
SVCS/PURCH												
K- MAINTENANCE/SKILL CRAFT/FERRY	5,186.00	483	9.31%	5,455.8	672	12.32%	5,616.5	626	11.15%	5,613.0	684	12.20%
L-LABORATORY/ MATERIALS	368	25	6.79%	350.8	41	11.69%	351.3	26	7.40%	346.5	24	6.90%
M-MOTOR VEHICLE/VEHICLE TITLES & REGISTRATION	342.5	21	6.13%	366.3	42	11.47%	354.8	35	9.90%	343.0	38	11.10%
N- PLANNING/AVIATION/ PUBLIC TRANS/ LEGISLATIVE	293.8	37	12.59%	344.8	44	12.76%	392.0	73	18.60%	401.3	64	16.00%
P-RIGHT OF WAY	233.8	18	7.70%	234.8	26	11.08%	232.8	30	12.90%	237.5	31	13.10%
Q-TRAVEL/PUBLIC INFORMATION	160.3	21	13.10%	157.8	16	10.14%	180.8	14	7.80%	184.3	18	9.80%
V-ENVIRONMENTAL	120.8	14	11.59%	123.0	23	18.70%	136.3	11	8.10%	144.0	8	5.60%
Z-NOT DEFINED/ SPECIAL CASES	29.5	3	10.17%	37.8	2	5.30%	20.0	3	15.00%	14.8	3	20.30%
<b>TOTAL</b>	<b>13,893.8</b>	<b>1,107</b>	<b>7.97%</b>	<b>14,438.5</b>	<b>1,496</b>	<b>10.36%</b>	<b>14,935.0</b>	<b>1,445</b>	<b>9.70%</b>	<b>14,924.5</b>	<b>1,615</b>	<b>10.80%</b>

\* AVG O/B (average on board) is sum of full-time employees active on payroll at the end of each quarter divided by 4.

\*\* ANN T/O is the annual percent turnover for the fiscal year.

Retirement turnover is important to department operations because of the institutional knowledge and expertise exodus. The organizational level of succession planning is also affected and the plan should encompass marketable approaches to attract new employees and/or train existing staff in key competencies to assume leadership, professional, and technical and support roles.

The chart below depicts projected increases in the number of employees eligible to retire. Current data projects that approximately 34% of the workforce will be eligible to retire by FY2013. In FY2007, the average age of retiring employees was 58 years with 23.6 years of TxDOT service time.



## Retirees by Job Category

<b>BUSINESS TITLE CATEGORY</b>	% Eligible FY08 or Before	% Eligible FY09 or Before	% Eligible FY10 or Before	% Eligible FY11 or Before	% Eligible FY12 or Before	% Eligible FY13 or Before
A-EXECUTIVE/ ADMINISTRATION/ CLERICAL/LEGAL	21.86%	23.33%	28.29%	31.98%	33.58%	37.39%
B-FINANCE/ ACCOUNTING	19.78%	21.56%	25.28%	35.17%	33.57%	36.46%
C-INFORMATION TECHNOLOGY	16.77%	17.69%	20.69%	24.43%	29.47%	32.92%
D-ARCHITECTURE	20.93%	22.45%	26.53%	38.77%	43.14%	52.94%
E-ENGINEERING/ ENGR. SUPPORT	15.38%	16.23%	20.25%	24.80%	27.29%	32.33%
G-CIVIL RIGHTS/BUINESS OPPORTUNITY	31.03%	34.62%	13.31%	46.15%	46.67%	50.00%
H-HUMAN RESOURCES	24.36%	24.53%	32.10%	35.85%	35.53%	40.79%
I-OCCUPATIONAL SAFETY	30.00%	33.33%	39.68%	42.86%	41.27%	49.21%
J-GENERAL SERVICES /CONTRACTS/PURCHASING	21.97%	25.15%	32.45%	36.30%	36.38%	40.56%
K-MAINTENANCE/SKILLED CRAFT/FERRY OPERATIONS	19.20%	18.23%	22.29%	26.41%	27.11%	31.07%
L-LABORATORY/MATERIALS	16.17%	19.77%	25.29%	29.94%	31.71%	35.67%
M-MOTOR VEHICLE/VEHICLE TITLE & REGISTRATION	27.51%	27.89%	32.11%	36.62%	38.08%	41.80%
N-PLANNING/AVIATION/PUBLIC TRANS./LEGISLATIVE	13.20%	21.32%	25.26%	32.10%	32.16%	36.76%
P-RIGHT OF WAY	21.40%	25.55%	30.84%	36.12%	35.71%	37.50%
Q-TRAVEL/PUBLIC INFORMATION	20.61%	19.89%	26.52%	33.15%	35.33%	43.11%
V-ENVIRONMENTAL	11.67%	12.03%	14.29%	18.04%	20.86%	23.74%
Z-NOT DEFINED/ SPECIAL CASES	13.33%	16.67%	34.78%	39.13%	42.11%	42.11%
<b>TOTAL</b>	<b>15.16%</b>	<b>18.38%</b>	<b>18.97%</b>	<b>23.28%</b>	<b>29.25%</b>	<b>33.54%</b>

This retirement turnover will have enormous impact on the department's organizational structure and service delivery.

While collectively supervisory, midlevel and executive employees make up a small percentage of those eligible to retire, eligibility data forecasts a 34% turnover rate in all management levels between now and FY2013. Also of concern is that significant supervisory and upper management staffing adequacy issues could become problematic as early as FY2011, if optimum staffing acquisition, training and development succession planning strategies are not executed well and timely.

**Percentage of Management Staff eligible to retire within the next five years**

<b>MANAGER/WORK LEVEL</b>	<b>FY09 OR BEFORE</b>	<b>FY10 OR BEFORE</b>	<b>FY11 OR BEFORE</b>	<b>FY12 OR BEFORE</b>	<b>FY13 OR BEFORE</b>
SUPERVISOR	27%	33%	39%	44%	51%
BRANCH	23%	30%	41%	48%	56%
SEC/STAFF	27%	33%	42%	51%	59%
EXEC MGR	37%	44%	69%	70%	81%
EXEC DIR	100.00%	100.00%	100.00%	100%	100%
<b>TOTAL</b>	<b>16%</b>	<b>20%</b>	<b>25%</b>	<b>29%</b>	<b>34%</b>

**Projected Attrition**

The State of Texas Employee Exit Survey review examines reasons for employee separation, length of tenure service and turnover movement within occupational categories. A four-year trend analysis performed using this data revealed compensation and benefits (28-33%) as the top reasons for state employment departures.

Typically, the number of survey responses is about 24% with pay ranking as the number one motivating factor for separation of employment. Also, these same employees tell us they are going to the private sector with possibly a \$5,000 or more increase in annual salary. While the majority of exiting employees state they would work again for the department in the future, they cite improvement changes in the compensation and benefits areas as the most needed.

Turnover in business title categories range from a low 5% to a high 20%, all dependent on various influencing factors such as the employee group size, legislative restructuring and general labor market conditions this past fiscal year. In past the department has done well balancing the retention of core competencies against normal retirement and attrition. However, critical workforce concerns will rise as top management and seasoned professionals leave, taking with them much technical expertise and long term organizational knowledge.

As the department examines workforce trends and its business needs, the use of technology-driven systems assistance in critical functions will become a standard mode of operation. Delivery of efficient services requires employees to possess a wide range of competencies including process knowledge as well as abilities to acclimate to new or modified application systems. Future administration directives will adjust required skills sets accordingly but a sound general understanding of the department's mission is essential in accomplishing positive transportation solutions for Texas communities and its citizens.

## **Future Workforce Profile (Demand Analysis)**

### **Future Staffing Outlook**

A surging population growth in Texas and shifting demographic trends will increase the state's demand for efficient movement of goods and people. Five years ago it was estimated that two-fifths of the state and local government employees would be eligible to retire in 15 years. Human resources strategists now predict the disappearance of U.S. worker skills and experience from the job market will begin in 2008.

The workforce crisis is heavily influenced by the convergence of two demographic trends: the growing number of aging Baby Boomers exiting the workforce and the dwindling talent availability that follows behind. Competition for younger knowledge workers trained in "hard skill" disciplines such as science and engineering has become very competitive in the marketplace. Certain clusters of occupational groups will see dramatic increases in vacancies due to employee retirements including executive, administrative and managerial occupations. Some of the fastest growing occupations in Texas will require high levels of education and skills while also demanding higher wages. According to the Bureau of Labor Statistics (BLS), professional and technical occupations such as engineers, architects, and environmentalists are expected to grow faster and open more new positions than any other occupations.

Higher-skilled professions will require more education and better communication, math, information technology, and reasoning skills. The department has already experienced problems in recruiting engineering graduates, as the number of engineering degreed graduating students has been on the decline in recent years. Demographics show not only will more skills and education be needed, but that the available workforce will be less skilled and less educated due to waning student interest in science and engineering. This coupled with academia's inability to keep pace with the rapid technology expansion and complexity. Also the hiring of other types of engineers, i.e., petroleum, and higher private sector starting salaries, has exacerbated the problem in attracting newly graduated and/or licensed engineers into transportation public service.

### **Gap Analysis**

Looking ahead towards future labor market changes, the department will be challenged to acquire, develop, deploy and retain a competent workforce. The Standing Committee on Training (SCOT) is working towards a comprehensive training program that will address and will sustain a viable management and employee technical training program. The department's strategic objectives are evolving at such an accelerated pace; the ability to meet its current and future workforce demands are being impacted.

The department relies on a competent, knowledgeable workforce to accomplish its business goals. Even though data suggests the department's employee retirement rate is consistent with normal business, a potential skills gap could occur due to the imminent retirement of key employees in core functions. Because a greater number of employees are leaving employment with less than four years, the department is losing ground in

building long term expertise and experience. These factors heavily influence the urgency to create a strong competency foundation for the future.

Business workplace knowledge and skill alignment to the organization's mission is the foundation for success. Employee and functional core competencies are listed below.

- Leadership
- Multinational Relations
- Enterprise Information Technology
- People Management
- Engineering/Design
- Roadway System Preservation
- Asset/Risk Management
- Human Capital Management
- Customer Relations Management
- Natural/Cultural Resources
- Contract Administration
- Aviation/Rail/Waterway Operations
- Marketing/Negotiation
- Project Management
- Business Process Analysis
- Research/Development
- Government Rules/Regulations
- Community/Citizen Outreach
- Multilingual
- Performance Metrics
- Change Management
- Financial Analysts
- Bond/Debt Financing
- Transportation Public Policy

### **Strategy Development**

A renewed emphasis on employee engagement will be necessary if TxDOT is to be a competitive player in the talent pool market war. A recent Deloitte research study asked employees about their expectations from employers. The top three responses cited were

1) interesting, challenging work, 2) open two-way communication and 3) opportunities for growth and development.

These responses mirror The *Survey of Organizational Excellence*, conducted by the School of Social Work of the University of Texas at Austin during the spring of 2008. The instrument is designed to assist state agency executives in analyzing organization areas for continual improvement. Scoring levels indicate employee viewpoints regarding the competitiveness of the total compensation package and also addresses how well the package “holds up” when employees compare it to similar jobs in their communities. Survey results showed low scoring by employees on fair pay.

Such responses indicate a shift in employee attitudes that include the multi-generational workforce. Transportation career attraction, motivation, and retention strategies must focus on aligning employees’ talents, career aspirations and evolving life circumstances with organization goals. Most common retention strategies often fall short of resolving turnover issues and fail to recognize the things that generate the most value and matter to most employees. Therefore it is incumbent upon the department to recognize these values and create a work environment that maximizes employee engagement opportunities.

TxDOT currently offers a plethora of talent market programs that facilitate its organizational success in attracting and retaining transportation knowledge and skill workers. These programs include accelerated hiring processes, high school/college summer employment opportunities, a balanced work/life environment, flexible work weeks, career development programs, temporary recruitment programs, job rotation/cross training, executive training, tuition assistance, award and recognition programs, recruitment and retention bonuses.

The Standing Committee on Training (SCOT) is dedicated through its efforts to address critical training needs in technical areas. The department should consider adopting a uniform and well communicated plan for the development, tracking, delivery and evaluation of all department training. This allows the department to a proactive strategic partner in addressing immediate training and development needs as they occur rather than being reactive to documented trends.

TxDOT continues to work with local Texas Prefreshman Engineering Programs (TexPREP), an eight-week academic enrichment program for middle and high school students, to encourage students to pursue careers in transportation. Also, department personnel work with colleges and universities by providing input into school curriculum development to assure students have the foundation knowledge needed for successful careers in transportation.

The department has also joined the ranks of other state transportation agencies in implementing a new initiative called Knowledge Management. This project is a visionary approach in identifying, collecting and cataloging “legacy and current knowledge” into one repository capable of providing information services through

decentralized networks to users. The idea behind the approach is to provide information tools that capture critical business knowledge while at the same time create an environment which can facilitate learning by employees from in-house professionals, support continued knowledge development and provide a forum for sharing best practices.

As the labor market begins to tighten, TxDOT will need to assess its competitive position and align its recruiting, hiring and training programs. It must offer competitive starting salaries and promote performance based pay incentives to create a higher level of employee engagement to business performance. The development and promotion of in-house talent will be essential for long term mission objectives.

Now is the time to establish a career ladder progression for the next generation of TxDOT leadership. Data and demographics lay the foundation in determining employee retirements and targeted areas for organizational change, and provide the business need for creative recruitment strategies. Competition for the same pool will become fierce between the private sector, government and not-for-profit organizations. Ensuring employee competency readiness from the policy level to the execution level will provide the department with the most productive and efficient workforce.

Attracting and retaining critical work segments will require positioning the department as a top draw in the public sector transportation world. Future employee development programs will have a central focus on maximizing already acquired employee knowledge, skills and abilities and cultivating additional strengths to enhance the full suite of management skills, abilities and technical expertise. Management leadership will push towards stronger analytical and business intelligence capabilities. This means a greater investment in capturing and harnessing information necessary to facilitate decision making processes, financial management, public-private collaborations and customer service.

Current data and demographic profiles, as well as labor trends, all influence the department's ability to attract and retain qualified workers. Of these factors the increased enterprise risks, rising retirement eligibility ranks, and the shortage of seasoned mid-level management personnel and scarce qualified entry-level candidates weigh most heavily. However, clear workforce capability understanding and actionable strategy steps as outlined below will facilitate the department in its efforts to build a sustainable continuity and forward moving transportation workforce.

## **HR Strategy and Organizational Alignment**

- Promote organization cultural commitment to excellence through inspired leadership.
- Establish a change management program to assess business environment capabilities and needs.
- Implement support operations continuity and succession management.

- Advocate work/life balance programs by weaving employee talent/aspiration/life responsibilities into the organization goals.
- Showcase formal employee recognition programs and recipients on the intranet and through Administration employee communications.
- Articulate business transformation plan to employees for role ownership and participation in change.

### **Talent Management**

- Utilize nationally recognized training institutes to acquire contemporary business knowledge in areas such as comprehensive development agreements.
- Market department brand as a leading transportation organization offering competitive starting salaries, pay for performance incentives, sign-on and retention bonuses, cost of living adjustments (as authorized by the Legislature), flexible work schedules (work hours/telecommuting), family friendly worker policies, and comparable industry benefit packages.
- Develop experiential leadership development programs.
- Implement flexible, dynamic designed department cross-training initiatives.
- Enhance the performance management process with the addition of goals and competencies measurements for all employees.
- Review and revise business job descriptions to meet new department objectives.
- Expand community outreach and partnerships to engage students and potential candidates in the transportation industry.
- Assess experience bench markets for critical workforce segments (i.e., engineering assistants and specialists, maintenance, waterway operations) across all functions, as well as individuals with unique skill sets.
- Consider feasibility exception to management-to-staff ratios for maintenance sections at remote locations due to larger span of control and other functions where ratios impede mid-level management development.
- Roll out formal transfer knowledge program; pair season workers with new hires or existing staff for specified time periods to assist in learning institutional knowledge.
- Provide career customization for department jobs through lattice path climbs, lateral moves or planned descents.

## Appendix F: Survey of Organizational Excellence Results

### *Survey of Organizational Excellence*

Information Item	Number of Survey Respondents	Percent of Survey Respondents
Surveys Distributed to TxDOT personnel – 14,468 (represents 100% of TxDOT population)	6279	43.40%
Gender		
Male	4238	67.49%
Female	1615	25.72%
Race/Ethnic Identification		
African-American	281	4.48%
Hispanic-American	1131	18.01%
Anglo-American	3855	61.40%
Asian/Pacific Islander/Native American	130	2.07%
Other/multiracial	146	2.33%
Age		
16 to 29 years old	449	7.15%
30 to 39 years old	1067	16.99%
40 to 49 years old	2290	36.47%
50 to 59 years old	1883	29.99%
60 years old and up	392	6.24%
Education		
Did not finish high school	79	1.26%
High School Diploma or GED	1351	21.52%
Some college	1666	26.53%
Associate's Degree	520	8.28%
Bachelor's Degree	1602	25.51%
Master's Degree	346	5.51%
Doctoral Degree	39	.62%

The *Survey of Organizational Excellence*, conducted by the School of Social Work of the University of Texas at Austin during the spring of 2008, was designed to assist management in analyzing the organization for continual improvement. At its highest level, the survey is a framework consisting of five workplace dimensions that capture the total work environment. Each of the five workplace dimensions consist of several constructs designed to broadly profile areas of strength and of concern so that each area can be reviewed objectively.

The data reported below are categorized by workplace dimension and include TxDOT's current survey score for each of its constructs and the construct scores from the five previous surveys. Also included for comparison is the average score of state agencies for 2007-2008. A construct with a score above the neutral midpoint of 300 suggests that employees perceive the issue more positively than negatively. Scores of 400 or higher indicate areas of substantial strength for TxDOT. Conversely, constructs with scores below 300 indicated employees have a negative perception about the issue. Constructs with scores of 200 or below should be investigated for validity and possibly corrective action.

According to the results obtained through the *Survey of Organizational Excellence*, the following areas of strength and concern for TxDOT are:

◆ **Strengths:**

1. Physical Environment – 380
2. Quality – 370
3. Strategic – 362
4. Job Satisfaction – 359
5. Time and Stress – 357

◆ **Concerns:**

1. Fair Pay – 218
2. Internal Communication – 308
3. Team Effectiveness – 319
4. Change Oriented – 322
5. Supervisor Effectiveness – 323

Results of the State of Texas Biennial Survey of Organizational Excellence as Reported by the UT School of Social Work, Spring 2008							
Constructs	Current TxDOT Score (100%) <sup>1</sup>	2007-2008 Agency Average Score	2005-2006 TxDOT Score (100%)	2003-2004 TxDOT Score (20%)	2001-2002 TxDOT Score (100%)	1999-2000 TxDOT Score (20%)	1998-1999 TxDOT Score (20%)
<b>Organizational Features</b> This dimension addresses the organization's interface with external influences. It is an internal evaluation of the organization's ability to assess changes in the environment and make needed adjustments. Also included are assessments of the quality of relations the organization shares with the public. In essence, this dimension captures the "corporate" culture.							
<b>Change oriented</b> measures employees' perceptions of TxDOT's capability and readiness to change based on new information and ideas.	322	346	328	331	332	315	304
<b>Goal oriented</b> addresses TxDOT's ability to include all its members in focusing resources towards goal accomplishment.	335	362	344	348	347	328	311
<b>Consistency (Holographic)</b> measures the degree to which all actions of TxDOT are consistent and understood by all. It concerns employees' perceptions of the consistency of decision-making and activity within TxDOT.	328	355	336	338	341	313	297
<b>Strategic orientation</b> measures what employees' think about TxDOT's response to external influence, including those which play a role in defining the mission, services and products provided by TxDOT.	362	394	378	382	379	393	386
<b>Quality</b> focuses on the degree to which quality principles, such as customer service and continuous improvement, are a part of TxDOT's organization culture.	370	391	380	384	382	364	352
<b>Information</b> This dimension measures how consistent and structured communication flow is within TxDOT and to outside groups. It examines the degree to which communication is directed towards work concerns. How focused and effective it is, as well as, how accessible information is to employees.							
<b>Internal communication</b> captures the nature of communication exchanges within TxDOT. It addresses the extent to which employees view information exchanges as open and productive.	308	335	316	321	316	314	292

<sup>1</sup> Percentages indicate the percentage of TxDOT employees surveyed

<b>Availability</b> of information provides insight into whether employees know where to get needed information and whether they have the ability to access it in a timely manner.	351	373	357	363	356	313	297
<b>External communication</b> looks at how information flows in and out of TxDOT. It focuses upon the ability of the organization to synthesize and apply external information to work performed by TxDOT.	350	378	362	368	364	358	345
<b>Accommodations</b> This dimension looks at the physical work setting and the factors associated with compensation, work, technology and tools. It is the total benefit package provided to employees by TxDOT.							
<b>Fair pay</b> is an evaluation from the viewpoint of employees of the competitiveness of the total compensation package. It addresses how well the package “holds up” when employees compare it to similar jobs in their communities.	218	260	219	218	235	286	278
<b>Adequacy of the physical environment</b> measures employees’ perceptions of the work setting and the degree to which employees believe that a safe and pleasant working environment exists.	380	380	380	387	377	352	332
<b>Benefits</b> provide an indication of the role that the employment benefit package plays in attracting and retaining employees.	356	361	350	345	366	367	361
<b>Employment development</b> measures perceptions of the priority given to the career and personal development of employees by TxDOT.	351	357	352	354	355	333	321
<b>Personal</b> This dimension reports on how much internalization of stress is occurring and the extent to which debilitating social and psychological conditions appear to be developing at the level of the individual employee. It addresses the interface between employees’ home and work lives and how this relationship may impact job performance and organizational efficiency.							
<b>Time and stress management</b> looks at how realistic job demands are given the time and resource constraints, and also captures employees’ feelings about their ability to balance home and work demands.	357	366	362	364	363	335	326
<b>Burnout</b> measures the extent that employees feel extreme mental exhaustion that can negatively affect employees’ physical health and job performance, leading to lost resources and opportunities in TxDOT.	345	371	353	356	360	316	299
<b>Job satisfaction</b> measures the employees’ satisfaction with their overall work situation. Weighed heavily in this construct are issues concerning employees’ evaluation of the availability of time and resources needed to perform jobs effectively.	359	369	364	367	365	351	337

<b>Empowerment</b> measures the degree to which employees feel they have some control over their jobs and outcome of their efforts.	340	363	348	351	354	299	281
<b>Work Group</b> This dimension is related to employees' activities within their immediate work vicinity. It includes factors that concern how employees interact with peers, supervisors, and all of the persons involved in day-to-day work activity. This is an assessment of the immediate work environment of the employee.							
<b>Supervisor effectiveness</b> provides insight into the nature of the supervisory relationships in TxDOT, including the quality of communication, leadership, and fairness that employees perceive exists between supervisors and themselves.	323	344	326	329	331	291	272
<b>Fairness</b> measures the extent to which employees believe that equal and fair opportunity exists for all members of TxDOT.	337	363	336	337	343	288	268
<b>Team effectiveness</b> measures employees' perceptions of the effectiveness of their work group and the extent to which TxDOT supports teamwork among employees.	319	344	323	327	329	314	293
<b>Diversity</b> measures the extent to which employees' feel that individual differences, including ethnicity, age and lifestyle may result in alienation and/or missed opportunities for learning or advancement.	336	359	339	340	343	319	309