

January 17, 2008

Ladies and Gentlemen:

Growing Texas' economy is vitally important to the prosperity and quality of life of all in the state. As Comptroller, I am committed to creating an environment in which a healthy economy can flourish by assisting communities and businesses in their efforts to create new jobs and improve the standard of living of all Texans.

One of my responsibilities as Texas Comptroller is to analyze factors affecting the state's economy. So, my office will begin releasing a series of reports highlighting economic development issues unique to the various regions of this state.

Texas in Focus: A Statewide View of Opportunities is the first of these reports. It provides information on the cross-cutting issues that affect the state as a whole. Decision makers across Texas will be able to use these reports as a tool to drive growth in their regions.

The Texas economy is on the brink of a new era. How Texans meet these challenges is important for continued growth. I hope you will find this report helpful in meeting these challenges.

Sincerely,

Susan Combs





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Texas is one of the nation's fastest-growing states, and it is changing as it grows. The Texas population is aging, more ethnically diverse and increasingly urban.

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Texas communities must compete not only with each other but also with areas throughout the nation to attract business investment and jobs. Governments can employ a variety of economic development tools to pursue these benefits.

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Introduction

Texas is a unique state. Its enormous size, diverse population and vast natural resources have shaped its economy into the growing, thriving powerhouse it is today. As the second-largest state in the U.S., Texas plays a significant role in the national economy. In fact, if Texas were a nation, it would rank 10th on the list of the world's largest economies.

Economic growth plays a critical role in the well-being of all Texans by generating jobs and prosperity, providing us with oppor-

tunities to obtain a better quality of life. A vibrant economy ensures a successful Texas.

A strong Texas economy is also crucial in maintaining the state's leadership role in both the nation and the world. Increasing globalization makes it vitally important for Texas to use and extend its competitive advantages, which come from our wide knowledge and skills, our cutting-edge innovation and our legendary entrepreneurial culture.

A vigorous economy gives Texans the opportunity to expand their abilities, performance and potential. And the role of state government is to create an environment in which a healthy economy can flourish.

One of the responsibilities of the Texas Comptroller of Public Accounts is to analyze

DID YOU KNOW?

The Comptroller's office pays and audits the state's bills, monitors expenditures, operates the treasury, collects and enforces sales taxes, estimates revenue and disseminates vital information about the Texas economy.





factors affecting the state's economy and to use this information in the biennial forecast of state revenue. For this reason, it is vitally important to keep our fingers on the pulse of the state, to detect changes as they occur and to identify trends that will affect the future.

Texas in Focus: A Statewide View of Opportunities is the first in a series of reports that will be released by this office over the next few years. This volume takes a look at cross-cutting issues affecting the state as a whole. In the 12 volumes to follow – one for each of the Comptroller's economic regions – we will explore these issues in more detail at the regional level.

The purpose of these reports is twofold. First, it is a way to share information on the forces that are driving change in Texas and to present factors that may pose challenges to the state as a whole, affecting the economy.

Second, decision makers across Texas – state, county and city officials, chambers of commerce, economic development corporations and many others who work tirelessly to drive growth in their regions can use these reports as a tool. They can use this information to stay on top of the important issues facing the state. It can give them an edge as they continue working to keep their local economies thriving, providing greater opportunities and a better quality of life for the people of Texas with each passing year.

The continued success of the Texas economy depends on how our business and community leaders tackle the challenges that confront us and capitalize on the opportunities we have. Many of these challenges facing Texas are not exclusive to any one region; these are issues that affect all regions across

the state. The following are brief previews of the cross-cutting issues that will be discussed in this report.

Demographics

A growing economy needs a growing population, and Texas has it! But we are not only growing, we're changing in many other ways as well. The demographic data are compelling: Texas is becoming older, more diverse and more urban.

Infrastructure

Infrastructure plays a huge role in determining economic viability. Critical challenges in water, energy and transportation face us as we not only try to maintain our current infrastructure but to expand it to meet our growing needs.

Health Care

Health care is one of the fastest-growing sectors of the Texas economy. Rising health care costs, however, are among the largest obstacles confronting many Texas businesses. A viable and effective health care system that provides affordable care and greater access to Texans will be "healthy" for the Texas economy as well.

Education

Texas' most vital resource is the talent and ingenuity of its people. There's no limit to what we can achieve if we have the education and skills needed to compete in today's global economy. Starting early in life, our children must receive a good education and the ability to perform the jobs that will drive the economy in the future.



Economic Development

The best way to provide increased opportunities is to ensure economic growth. The outlook for Texas is good, and there are many resources to help businesses grow.

The Texas economy is on the brink of a new era, driven by globalization, demographic changes, environmental concerns and technology. How Texans will meet these challenges is important for continued growth and advancement in years to come.





Demographics

Texas is one of the fastest-growing states in the nation. Since 2000, the state's population has increased by 12.7 percent, nearly twice that of the nation (6.4 percent).¹ Our growing population is becoming older, less rural and more diverse. These changes will require business and community leaders to address the needs of maintaining and building our infrastructure, coping with the cost of health care and providing the educational system we need to compete in a global economy.

Texas had an estimated population of more than 23.5 million in 2006, or 12.7 percent more than in 2000.² In 2006, the U.S. Census Bureau estimated that more than half of all Texans — 52 percent — were aged 25 to 64. Those under the age of 25 accounted for 38 percent of the population, while 9.9 percent were aged 65 or older (**Exhibit 1**).

Nationally, the percentages are similar: 34.5 percent were under the age of 25, 53.1 percent were aged 25 to 64 and 12.4 percent were aged 65 and older (**Exhibit 2**).³

Texas has an aging population. From 1980 to 2005, the population of Texas as a whole rose from 14.2 million to 22.9 million, or about 60.7 percent. Over the same time period, the number of Texans aged 65 and

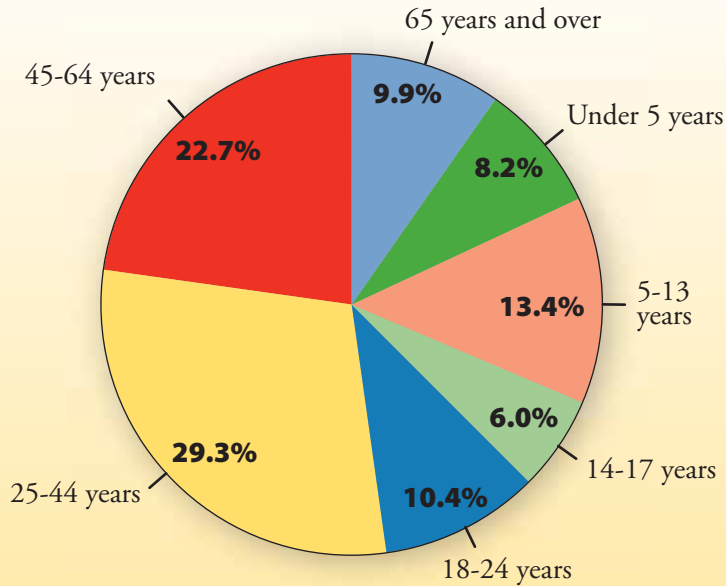
DID YOU KNOW?

Texas has the nation's largest rural population, with more than 3.6 million rural residents in 2000.



Exhibit 1

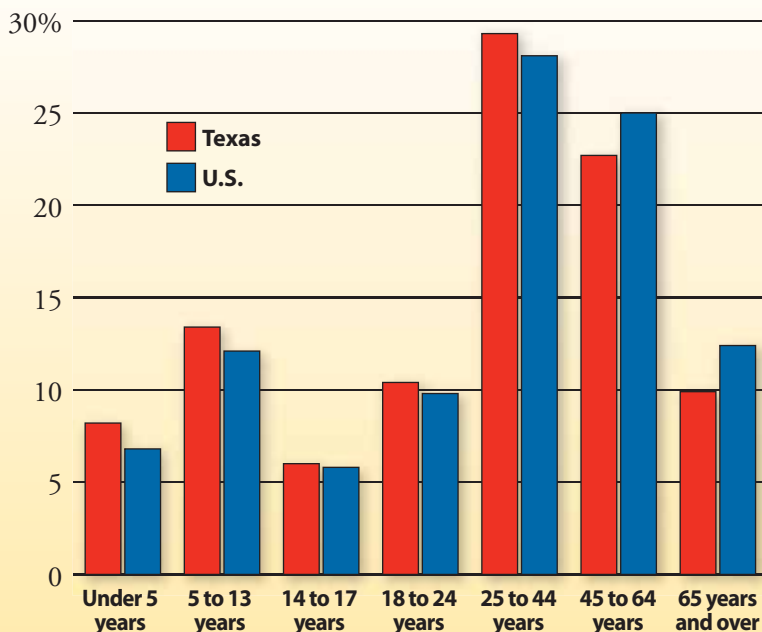
Texas Population by Age, 2006



Sources: Texas Comptroller of Public Accounts and U.S. Census Bureau.

Exhibit 2

U.S. and Texas Population by Age, 2006



Sources: Texas Comptroller of Public Accounts and U.S. Census Bureau.

over grew at a faster rate, 65.7 percent, from 1.4 million to 2.3 million.

In 2006, 48.3 percent of Texans were White; 35.7 percent were Hispanic; 11.4 percent were Black; and 4.6 percent fell into the “other” category, which includes persons of American Indian, Asian and Hawaiian descent, among others. This is in contrast to the U.S. as a whole, which was 66.4 percent White, 14.8 percent Hispanic, 12.3 percent Black and 6.6 percent “other” (Exhibit 3).⁴ Hispanics are the fastest-growing population group in Texas. The Hispanic population in Texas has grown by 10.9 percent since 2000, when Hispanics accounted for 32 percent of the Texas population.⁵

Texas became a “majority-minority” state in 2004, meaning various ethnic minority populations now outnumber Whites. Other “majority-minority” states include Hawaii, New Mexico and California.

Nearly 30 percent of Texas households had incomes of less than \$25,000 in 2005, while another 28 percent had incomes between \$25,000 and \$49,999 (Exhibit 4). The median income for Texas households in 2005 was \$42,139, 8.9 percent less than the U.S. median income of \$46,242.⁶

Although population growth in rural Texas has been slow, the state’s overall population increased by about 35 percent from 1990 to 2005. The entire state is expected to continue to grow over the next 40 years, with the urban areas growing the most and rural areas growing more slowly than urban areas. Population trends show that more people are moving from rural areas to urban/suburban areas. An estimated 86 percent of the 23 million people living in Texas in 2005 resided in



urban areas, while an estimated 14 percent lived in rural areas (Exhibit 5).

Texas still has the nation’s largest rural population, with more than 3.6 million rural residents in 2000 (Exhibit 6). While the state’s rural population increased between 1990 and 2000, from 3.2 million to 3.6 million, faster urban growth meant that the rural share of the state’s population actually fell from 18.8 percent in 1990 to 17.5 percent in 2000.⁷ Since then, the U.S. Census Bureau estimates that the portion of Texans living in rural areas has continued to fall to 14 percent in 2005.⁸

Between 2000 and 2005, 11 of Texas’ “metro” counties — counties with one or more urban areas — saw population increases of at least 20 percent, while 93 non-metro counties experienced losses (Exhibit 7). Metropolitan areas were far more likely to grow than their rural counterparts.

Demographic Shifts

The continuing shift of Texas’ population from rural to urban areas presents challenges and opportunities for both areas. In urban areas, while a rising population has spurred tremendous economic growth and diversification, it has also prompted a need for new and expensive roads, more construction and expanded water and sewer systems. The expansion of urban areas affects agricultural production by increasing the cost of land and disrupting transportation routes. And city governments can be hit by shrinking tax bases as people, businesses and industry move to suburban areas.⁹

As people move into metropolitan areas and away from rural areas, problems result

Exhibit 3

U.S. and Texas Population by Ethnicity, 2006

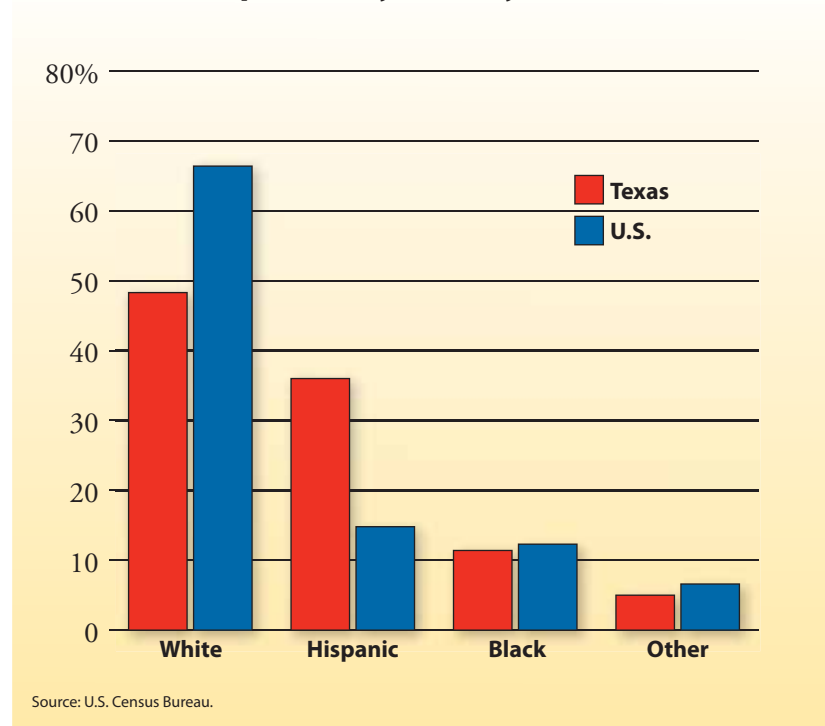


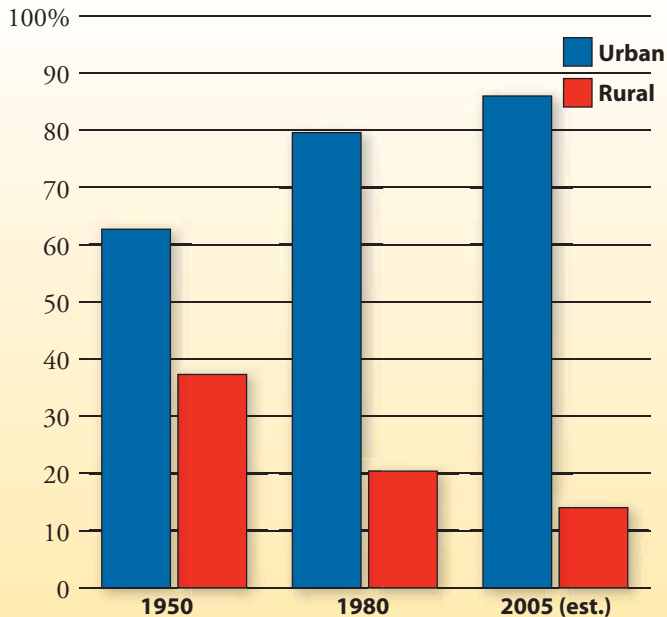
Exhibit 4

Texas Household Income, 2005

Household Incomes	Number of Households (1,000)	Percent of Total
Less than \$25,000	2,369	29.7%
\$25,000 to \$49,999	2,198	27.6%
\$50,000 to \$74,999	1,412	17.7%
\$75,000 to \$99,000	832	10.4%
\$100,000 to \$149,999	725	9.1%
\$150,000 to \$199,999	226	2.8%
\$200,000 and over	216	2.7%
Total	7,978	100.0%

Source: U.S. Census Bureau.

Exhibit 5

Texas Historical Rural and Urban Populations, 1950-2005

Source: U.S. Census Bureau.

from an aging infrastructure that needs to be replaced or repaired, an expensive but essential investment. In cases where metropolitan areas are expanding into areas that had been rural, water and sewer systems require maintenance and expansion to meet the growing needs of the community they serve.

Rural areas may have difficulty providing sufficient water systems to provide fire protection and drinking water. Regulatory requirements for water, sewer and other services have changed and small communities may be unable to meet the newer requirements.¹⁰ And as rural Texans move to urban areas in increasing numbers, a shrinking tax base may cause infrastructural improvements to be unaffordable.

Future Projections

The Texas Data Center and the Office of the State Demographer project that the state's population will increase by 71.5 percent between 2000 and 2040, from 20.9

Exhibit 6

Top Ten States with the Largest Rural Population, 2000

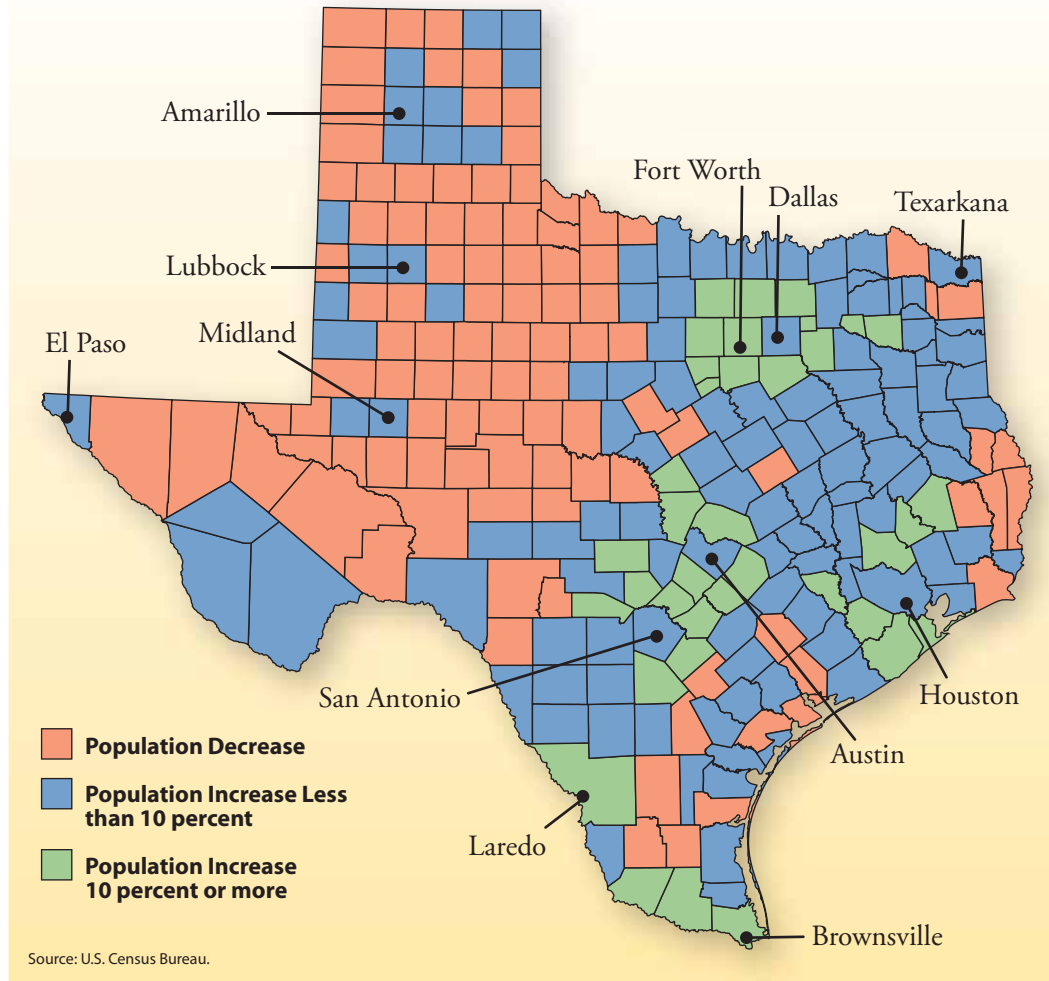
State	Rural Population	Urban Population	Total Population	Percent Rural
Texas	3,647,539	17,204,281	20,851,820	17.5%
North Carolina	3,199,831	4,849,482	8,049,313	39.8%
Pennsylvania	2,816,953	9,464,101	12,281,054	22.9%
Ohio	2,570,811	8,782,329	11,353,140	22.6%
Michigan	2,518,987	7,419,457	9,938,444	25.3%
New York	2,373,875	16,602,582	18,976,457	12.5%
Georgia	2,322,290	5,864,163	8,186,453	28.4%
Tennessee	2,069,265	3,620,018	5,689,283	36.4%
Alabama	1,981,427	2,465,673	4,447,100	44.6%
Virginia	1,908,560	5,169,955	7,078,515	27.0%

*Note: 2000 is the most recent year for which data is available.
Source: U.S. Census Bureau.



Exhibit 7

Percent Change in Population, 2000-2005



DID YOU KNOW?

80 percent of Texas' total land area is rural.

In 2040, Texas is projected to have 35.8 million residents. That's a 151 percent increase from 1980.

million to 35.8 million.¹¹ The 2040 projected population of 35.8 million is a 151 percent increase from the 1980 population of 14.2 million.¹²

By 2040, the Texas state demographer projects that the share of the population aged 65 or older in Texas will nearly double, to 18.0 percent.¹³ Nationally, the U.S. Census Bureau projects that Americans aged 65 or older will comprise 20.4 percent of the population.¹⁴

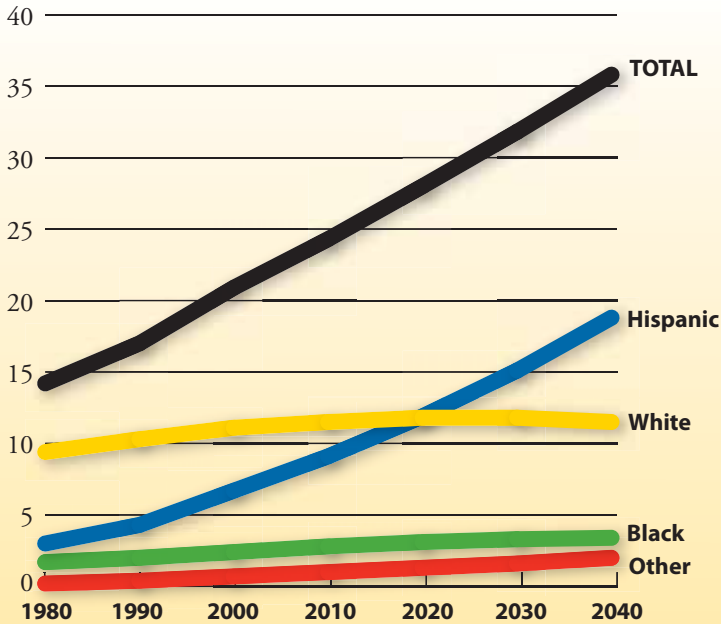
By 2020, the Texas Hispanic population is expected to outnumber the White population (**Exhibit 8**). Between 2000 and 2040 the Hispanic population will triple in Texas' urban areas, from 5.9 million to 17.2 million. In rural areas, the Hispanic population is expected to double, from 777,000 to 1.6 million.¹⁵

In 1980, the Hispanic population of Texas was just under 3 million.¹⁶ By 2040, there will be 18.8 million Hispanics in Texas.¹⁷

Exhibit 8

Texas Population Growth, 1980-2040

Population projections, in millions



Source: Texas State Data Center.

This projection indicates that the Hispanic population will grow by 530 percent from 1980 to 2040. These changes are being driven both by high immigration rates and high birth rates.

According to the state's demographer, from 1980 to 2040, the White population of Texas will grow from 9.4 million to 11.5 million. The percentage of Whites will sharply decrease, from 66 percent in 1980 to only 32 percent in 2040. The Black population of Texas will grow from 1.7 million in 1980 to 3.4 million in 2040. The percentage of Blacks will decrease slightly from 12 percent in 1980 to 10 percent in 2040.



Infrastructure

To ensure its continued success, Texas will require ready supplies of clean water, food, energy and an extensive network of roads and rails to ship commodities and supplies. All of these combine to create the infrastructure that makes our lives possible, healthy and prosperous, while fostering economic growth.

Water

Ensuring a plentiful, clean water supply for Texas' growing population continues to be a challenge. Texas has enormous climactic variety; average annual rainfall varies widely.

Texas has many rivers, but most have their origins in the drier areas of the state and generally cannot support large populations until reaching the central and southeastern part of the state. Texas' gentle topography means it also has few natural bodies of surface water. Of the state's 196 lakes, only Caddo Lake in East Texas is not man-made.

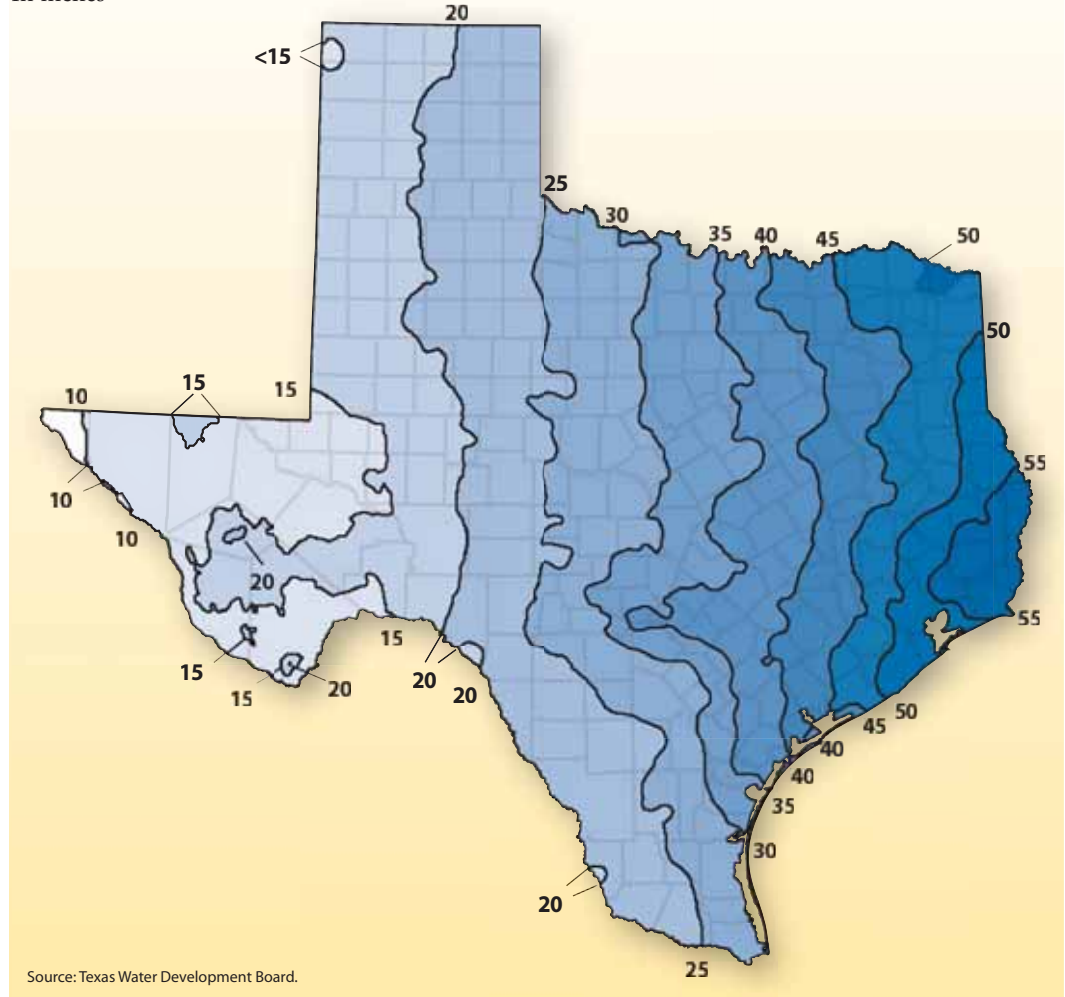
Texas also has many underground water formations known as aquifers, upon which agriculture, many cities and industries depend. Aquifers can be ancient bodies of water with very little recharge from rainfall, such as the Ogallala Aquifer in the Panhandle, or bodies that are continually recharged, such as the Edwards Aquifer in Central



Exhibit 9

Average Annual Texas Precipitation, 1971-2000

In inches



DID YOU KNOW?

Of Texas' 196 lakes — Caddo Lake — is the only natural lake.

Texas. Not all aquifers contain fresh water. Most contain at least some saline water; the water in many contains minerals, salts or naturally occurring radiation in excess of drinking water standards.¹⁸ Uses for these waters are limited without treatment.

Agricultural producers, urban, suburban and rural communities, industries and recreational interests all require water. Careful long-term planning and conservation is necessary to provide a limited supply of water to an increasing population. In 2004 (the

most recent data available), Texas consumed 15.5 million acre-feet of both ground and surface water.¹⁹ The Texas Water Development Board (TWDB) has projected that this demand could rise to 21.6 million acre-feet by 2060.²⁰ An acre-foot is the amount of water needed to cover an acre of land to a depth of one foot, or 325,851 gallons, about the average annual use of two families.

Texas has three state agencies with jurisdiction over water issues. TWDB is responsible for planning and funding projects



Exhibit 10

Major River Basins of Texas



that enhance water availability. The Texas Commission on Environmental Quality (TCEQ) is responsible for protecting the state's water quality and allocating the use of surface water; groundwater is neither allocated nor managed by a state agency, with a few exceptions (see the *Availability* section). And the Texas Parks and Wildlife Department (TPWD) ensures that the state's wildlife, including the vital fish, shrimp and oyster industries, have sustainable supplies of fresh water.

Texas Hydrology

Texas' average annual rainfall varies from 10 inches in the west to 55 inches in the east (**Exhibit 9**).²¹

High average temperatures, which range from less than 70 degrees Fahrenheit in the Panhandle to more than 82 degrees Fahrenheit in the Lower Rio Grande Valley, cause water evaporation to exceed precipitation in most of the state. The result is a semi-arid climate (less than 20 inches of precipitation annually) in the western half of Texas, except

in arid far West Texas, with 10 inches or less of precipitation annually.

Surface Water

Texas’ 191,000 miles of rivers and streams provide about 40 percent of the total water used in the state or 15.5 million acre-feet in 2004.²² Texas has 23 surface water basins; 15 are major river basins and eight are coastal river basins that lie between two river estuaries on the Gulf (**Exhibit 10**).

Texas has one advantage over other states in that 11 of its 15 major rivers begin and end within the state’s boundaries, greatly simplifying river management. The Canadian River in the Panhandle, the Red River in the North, the Pecos River in West Texas and the Sabine River in the East are shared with neighboring states and governed by interstate agreements and commissions. The Rio Grande is both an interstate and an international river. The Rio

Grande Compact Commission, with Texas, New Mexico and Colorado representatives, manages water sharing among the states. Once the Rio Grande becomes an international boundary with Mexico, an international treaty and commission governs water sharing by the two countries.

These rivers flow into estuaries, bays and eventually the Gulf of Mexico. The inflow of fresh water from these rivers mixes with the saline gulf waters, creating rich, diverse aquacultures supporting economically important populations of fish, shrimp and oysters. Many of these creatures can spawn and hatch only in these semi-saline waters, later migrating out to the deep gulf to grow to adulthood.

According to the National Wildlife Federation, “95 percent of the Gulf’s recreationally and commercially important fish and other marine species rely on estuaries during some part of their life cycle.”²³ TPWD estimated that the 2006 shrimp catch was valued at nearly \$87 million.²⁴ Texas bays also contribute to the state’s tourism industry and in all generate more than \$2.5 billion in economic activity each year.²⁵

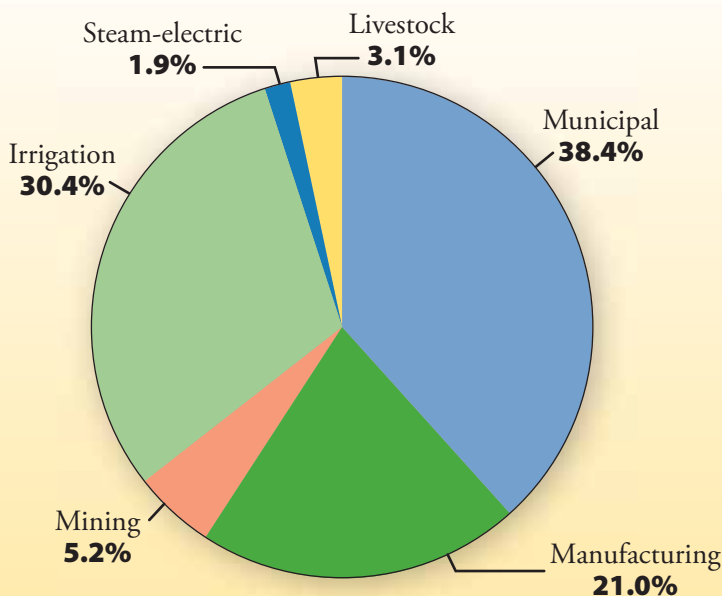
In 2004, Texans consumed 6.3 million acre-feet of surface water. **Exhibit 11** identifies the use of this water by sector.

Groundwater

While Texas’ rivers provide water for human, animal and industrial uses, groundwater supports irrigated agriculture and is increasingly important for human consumption. Since the 1970s, according to TWDB data, groundwater consistently has accounted for more than half of all Texas water use.²⁶

Exhibit 11

Texas Surface Water Use, 2004



Sources: Texas Water Development Board and Texas Comptroller of Public Accounts.



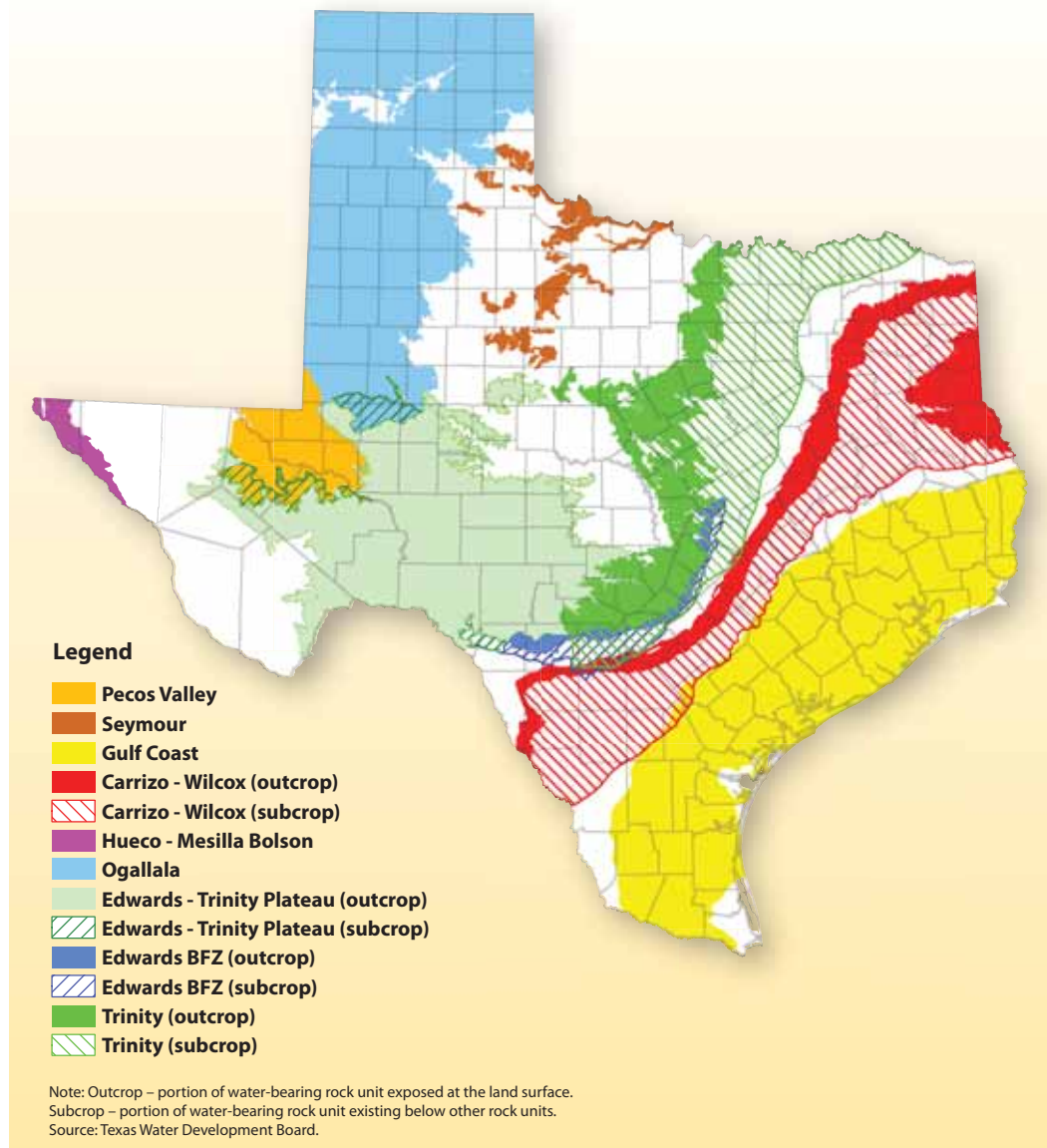
Groundwater exists in underground formations called aquifers. Texas has nine major aquifers and 21 minor ones (**Exhibit 12**).

Aquifers depend entirely on rainfall for replenishment. In the arid West and semi-arid Western-Central area of Texas, replenishment rates are not keeping up with pumping. The problem is particularly acute in the Ogallala aquifer, which lies beneath portions

of eight states, including much of the Texas Panhandle. Rainfall is limited in the area, and large areas of the surface are covered by a layer of nearly impermeable caliche, preventing much of the area's rainfall from percolating through the caliche into the aquifer.²⁷ Even so, use of Ogallala water is substantial; in 2000, for example, about 65 percent of the estimated 10 million acre-feet

Exhibit 12

Major Texas Aquifers



of groundwater used in Texas came from this aquifer.²⁸

In 2004, groundwater supplied 59 percent, or 9.2 million acre-feet, of Texas' water.²⁹ Of that amount, almost 80 percent was used for agricultural irrigation. Texas cities relied on groundwater for 36 percent of their water supplies, accounting for 15 percent of total groundwater use (Exhibit 13). The remaining 5 percent of groundwater use was for manufacturing, mining (generally in the oilfield), livestock and steam for electricity generation. TWDB projects that the amount of groundwater that can be used under current permits with existing pumping facilities will decrease by almost a third in the next 50 years.³⁰

Availability

Texas' surface water — all the water in its streams, rivers and lakes, with some exceptions

— is owned by the state. TCEQ issues permits to applicants on a “first-in-time, first-in-right” basis. A permit does not guarantee that water will be available; it only means that the permit holder is in line to use it. Owners of the most senior rights — that is, the oldest permits — can take whatever water is available up to the limit specified in the permit. The remaining water is apportioned in sequence to the holders of junior rights. When drought conditions reduce the amount of available surface water, generally only senior rights can be exercised.

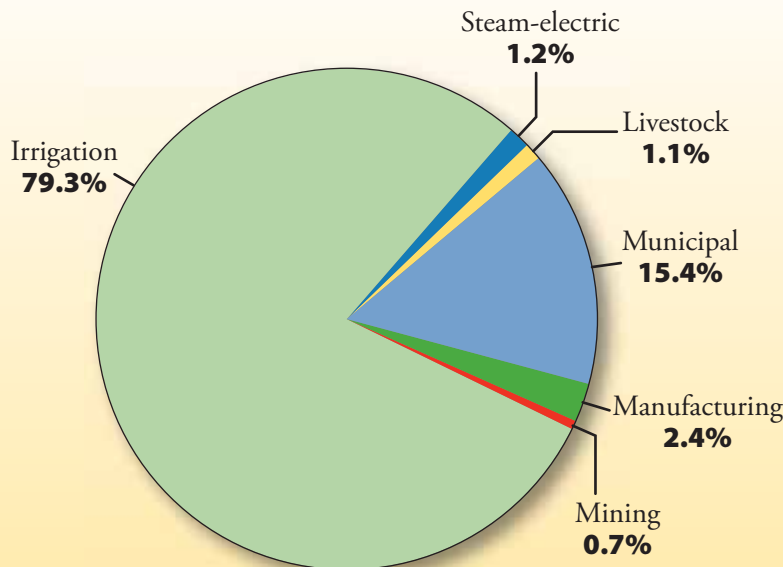
To acquire a water permit an applicant must prove that water is available, that the use is consistent with state law and, occasionally, that a defined amount of water has been obtained consistently from a known source, even if that use pre-dates the permit system. In fact, of the almost 10,000 permits active today, 98 date back to the 18th and 19th centuries.³¹

Texas has an international treaty with Mexico regarding the Rio Grande's water. Because the international border lies in the middle of the river, a 1944 agreement controls how its water should be divided between Mexico and Texas. During the past 15 years, however, many disputes have arisen over the quantity and timing of water transfers.³²

In September 2005, Texas and Mexico settled some elements of a long-standing dispute over water use in the Amistad and Falcon reservoirs on the Rio Grande, with Mexico repaying 1.5 million acre-feet of water it owed Texas citizens. Although the legal aspects of the treaty dispute between the countries are settled, some Rio Grande Valley farmers and irrigation districts are pursuing damage claims in international

Exhibit 13

Texas Groundwater Use, 2004



Sources: Texas Water Development Board and Texas Comptroller of Public Accounts.



courts, alleging that Mexico's withholding of water caused them economic harm.³³

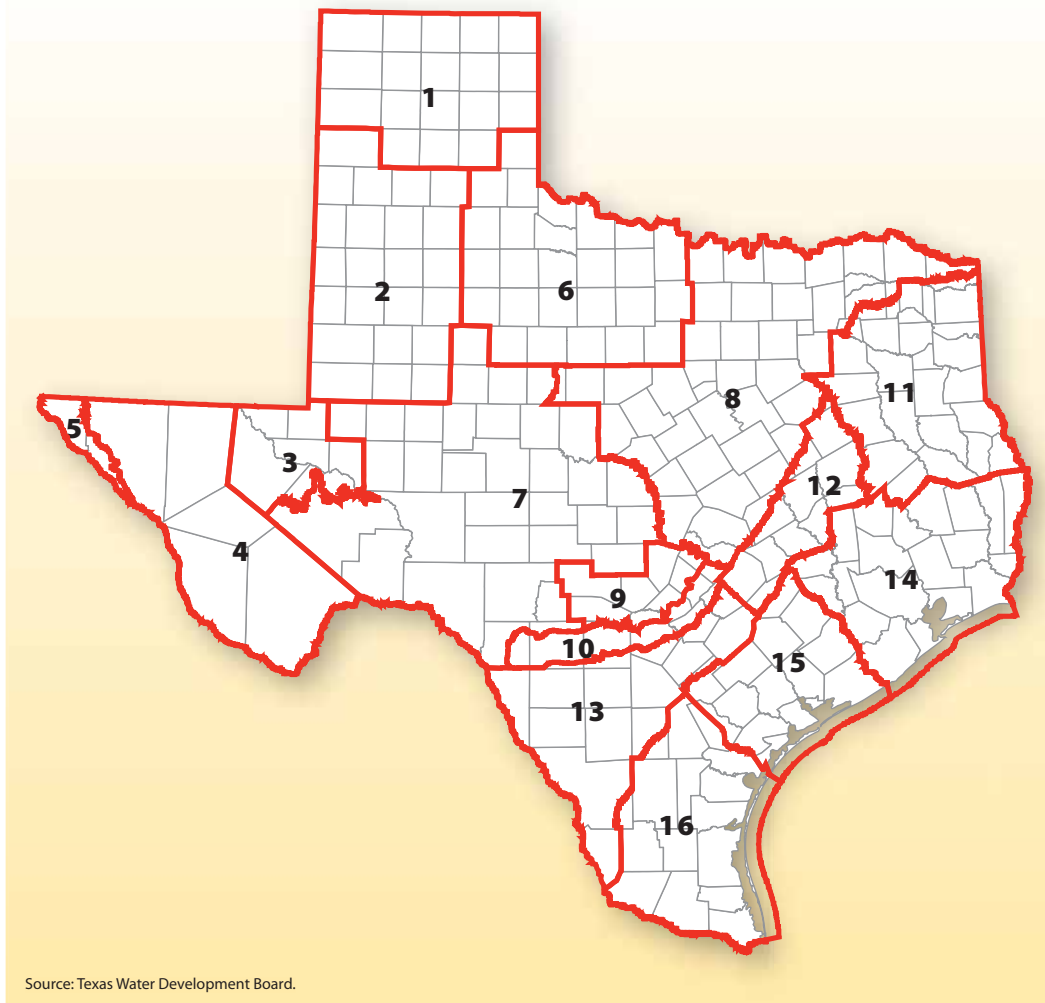
Access to Texas groundwater belongs to the owners of the land above it. Under the legal "rule of capture," landowners are entitled to pump as much groundwater as they can, as long as the use is not malicious or wasteful, even if pumping it deprives other landowners of water. Once pumped, groundwater may be used or sold as private property.

The state's 89 groundwater conservation districts (GCDs, or occasionally GWCDs),

some of which cover single counties and others multiple counties, were created under state laws and are governed by locally elected board members. GCDs may develop well-spacing rules, pumping permits, fees and overall pumping limits within their districts. Under Texas law, GCD enforcement of its rules is one of only two ways to limit groundwater pumping in an area; the other is a judgment in Texas courts, although the Edwards Aquifer Authority can restrict pumping within its statutory boundaries.

Exhibit 14

Groundwater Management Areas in Texas



Separate from but overlying the GCDs are the state's 16 groundwater management areas (GMAs) that generally encompass entire aquifers (**Exhibit 14**). The GMAs exist to bring the GCDs within them together to determine the region's anticipated groundwater use, supplies and demands. TWDB then uses these estimates to aid in planning for Texas' future water resources.³⁴

Texans are employing several strategies to extend existing fresh water supplies. The first and, in some ways, easiest strategy is simply to reduce consumption through conservation. Farmers in the High Plains have greatly reduced their groundwater consumption in the past 40 years by employing efficient drip irrigation systems; reducing evaporation losses by piping instead of trenching; and weaning themselves off irrigation altogether through dryland farming.³⁵ Although these techniques have conserved water, the equipment involved generally is expensive, and less water may increase the risk of crop failure.

Many if not most urban water utilities have conservation programs designed to reduce home usage via low-flow shower heads, low-volume toilets, xeriscaping (using low-water landscape plants), rain harvesting and drought restrictions. Industrial users are encouraged to reuse water, often by using "gray water" (that is, once-used water, such as water with non-hazardous contaminants like soap or food particles) when drinking water is not required, such as watering golf courses.³⁶

Other strategies include using groundwater and surface water together when appropriate, and removing water-loving plants and brush such as juniper and mesquite. One strategy suggested by planners but not widely imple-

mented is dredging reservoirs to increase their capacity. However, the cost of dredging is roughly twice that of building a new reservoir.³⁷

A new source of Texas water is desalination. Desalination is a promising albeit expensive strategy to reclaim fresh water from brackish or salt water. "Desal" technology is relatively straightforward. The most common is reverse osmosis, or RO. Source water is pumped under extremely high pressure through a series of membranes resembling thick rolls of wax paper. The membranes are capable of capturing salt molecules, viruses, bacteria and other microscopic organisms and molecules. Because the water is so highly pressured, RO plants consume large amounts of energy and thus are vulnerable to rising energy costs. The residual waste is generally highly toxic because of its high salt content. Injection wells usually are used to dispose of the residue deep underground, where it cannot migrate into other water sources. Desal plants near coastal areas often pipe the residue far out into coastal waters.

The potential for brackish groundwater as a future resource has received renewed attention in efforts to plan for meeting future water needs. An estimated 2.7 billion acre-feet of brackish groundwater is available in the state, and with RO costs coming down, efforts to access that water have gained importance in recent years. The Legislature appropriated state funding in 2005 to support desalination demonstration projects.³⁸

In August 2007, the city of El Paso opened a large desalination plant capable of supplying the city and the nearby U.S. Army installation at Fort Bliss with 27.5 million gallons of drinking water daily (or 30,800



acre-feet per year), about 30.8 percent of its 2006 daily usage.³⁹ The water comes from the mostly brackish Hueco Bolson aquifer in West Texas, and is desalinated by RO. The cost of the resulting water is expected to be \$1.65 per 1,000 gallons, which compares with current retail rates of a minimum \$1.68 per 1,000 gallons in El Paso, \$0.93 in Austin, \$1.41 in Dallas and \$3.23 in Houston.⁴⁰

Distribution

Water used for human consumption in municipalities, whether taken from surface or underground sources, is piped to water treatment plants. These plants filter and chemically treat the water to bring it to drinking water standards. From the treatment plants, the water is then pumped through water delivery pipes to the end users. Treatment and distribution is an energy-intensive process — up to 80 percent of treatment costs are due to electricity consumption.⁴¹

Treated drinking water is distributed by various entities including municipal water services, in most urban areas; “municipal utility districts” (MUDs), authorized by TCEQ at the request of property owners (usually in suburban subdivisions); and by private water supply companies. Federal laws including the Clean Water Act and the Safe Drinking Water Act set water quality standards for such water systems. In Texas, TCEQ enforces these standards.

Quality

The Federal Water Pollution Control Act of 1972, better known as the Clean Water Act, authorizes water quality programs; imposes federal effluent limits and state water quality

standards; and requires permits for the discharge of pollutants into navigable waters.⁴²

Under the terms of the act, states must establish standards for how their water bodies are to be used. The Texas Surface Water Quality Standards define water use as aquatic life use, contact recreation, public water supply and fish consumption. About 46 percent of Texas’ water bodies were not in compliance with the state’s water quality standards in 2000.⁴³ Non-compliance requires state and local officials to determine the reasons for and sources of pollution and develop a plan to correct the situation.

Sustainability

TWDB estimates the Texas population will rise from 21 million in 2000 to 46 million by 2060.⁴⁴ TWDB expects demand for water to increase by 27 percent, from 17 million acre-feet in 2000 to 21.6 million acre-feet in 2060. At the same time, the amount of water that can be stored in the state’s existing reservoirs is expected to decrease by 18 percent, from 17.9 million to 14.6 million acre-feet, because of increased sediment in the reservoirs.⁴⁵

Rivers and streams are not limitless resources, and their contribution of freshwater to coastal estuaries and bays is critical to maintaining the health of these uniquely valuable ecosystems. Even before they reach the coast, rivers themselves need to contain certain volumes of flowing water to be able to support fish and wildlife and the surrounding environment.

The 2007 Legislature passed House Bill 3 to determine how much instream water and coastal inflows, or “environmental flows,” are necessary to maintain viable river and bay systems. State leaders will appoint groups of

DID YOU KNOW?

Texas is the number one producer of wind energy, natural gas, crude oil, and electricity in the U.S.

stakeholders for each river and bay system. These groups will work with scientists and experts to develop recommendations that will ensure the ecological soundness of the water systems. Their recommendations will be submitted to TCEQ by September 1, 2009.⁴⁶

Aquifers can be depleted if pumping exceeds recharge, a situation now occurring in several aquifers in the state. GCDs have limited powers to remedy these situations.

Water Planning

In 1997, Texas embarked on a new approach to water planning with the passage of Senate Bill (SB) 1, which divided authority for water planning among 16 regional water planning groups (RWPGs), with their boundaries drawn to reflect major basins and communities of interest. Each group comprises representatives of every major water interest, including local governments, industries, agriculture, small businesses, environmental organizations, electric utilities, river authorities, water districts and the public.

Each RWPG is responsible for measuring its current water use and projecting population changes and future water use; assessing water supplies; identifying the location and amount of water surpluses and demands; evaluating water management strategies; receiving public input; and creating a plan to meet future needs. RWPGs may also submit recommendations for any changes in regulations, administration or statutes needed to ensure that the plan succeeds.⁴⁷

RWPGs must submit their plans to TWDB once every five years. TWDB then compiles the regional plans into a single State Water Plan. The 2007 version of this plan is the sec-

ond produced under the S.B. 1 planning process. Water projects and the financing needs of approved plans are eligible for state funding if and when such funds become available.

TWDB's 2007 Water Plan identifies 4,500 water management strategies that could add 9 million acre-feet per year to the Texas water supply. TWDB estimates that the capital costs of these projects — which include building new reservoirs, an expensive and controversial proposition, as well as desalination plants, conservation measures and increased transfers between river basins — could cost \$30.7 billion in current dollars.⁴⁸

TWDB also estimates that the cost of *not* implementing these strategies, assuming widespread drought conditions, would be about \$9.1 billion in current dollars in 2010 and \$98.4 billion in 2060. Without planning for expected population increases now, a drought in 2060 could mean that 85 percent of Texans would not have enough water to sustain their current levels of use.⁴⁹ Whether that level is necessary — and sustainable — is a question for all Texans.

Energy

Like water, affordable and readily available energy is vital to Texas and the Texas economy. In 2006, the Texas energy industry employed more than 375,000 people, who earned \$35 billion in wages.⁵⁰

Energy is used in the form of transportation fuels, both for personal transport and to move goods and provide services to consumers. And energy in the form of natural gas, propane and oil can be delivered directly to individual houses and businesses and burned to heat homes and cook food. Energy in the



form of electricity is used for residential and commercial heating, cooling and lighting and to power appliances and equipment; in manufacturing; and for industrial applications such as petroleum refining and chemical production.

Energy Production

Texas produces more energy than any other state in the nation. It leads all states in crude oil and natural gas production, accounting for 23 percent and 28 percent of total U.S. capacity, respectively. Texas has 25 oil refineries that have a refining capacity of 4.7 million barrels of oil per day, approximately one quarter of all U.S. refining capacity.⁵¹

Texas also is home to more than a fourth of all U.S. natural gas reserves and nearly a quarter of the nation's crude oil.⁵² Texas also has significant coal deposits coming from 13 surface mines, including five mines among the 50 largest mines in the nation.⁵³

Texas produces a significant amount of energy through nuclear power. Texas' two nuclear power plants accounted for 5.2 percent of total U.S. nuclear power generation. Texas ranks fifth in total nuclear power generation behind Illinois, Pennsylvania, South Carolina and New York.⁵⁴ In addition, Texas has 24 dams that can produce 672 megawatts (MW) of hydroelectric power.

The state also leads the nation in wind energy potential and production, accounting for 27 percent of the nation's total installed wind energy capacity.⁵⁵ In September 2006, Texas had a total installed wind capacity of 3,511 MW; West Texas accounted for the majority of installed capacity in the state, with some in the Panhandle.⁵⁶

Texas is the nation's largest producer of biodiesel. Its current production capacity is more than 200 million gallons annually, with another 87 million gallons in annual capacity under construction. In addition, Texas has four ethanol refineries under construction and slated for operation within the next year.

Energy Consumption

Texas is also the leading consumer of energy in the nation, consuming 12 percent of the nation's total energy or 11,971 trillion British thermal units (Btus) of energy each year (**Exhibit 15**).⁵⁷ California was a distant second, using 8,364.6 trillion Btus.⁵⁸

Texas' industrial sector accounts for nearly 20 percent of all U.S. industrial consumption and 53 percent of the state's total energy consumption. The U.S. industry sector, by contrast, accounts for just 33 percent of the total U.S. energy consumption (**Exhibit 16**).

Texas consumes energy from a wide variety of sources, including petroleum, natural gas, coal, nuclear power and renewable sources such as biomass, hydroelectric, geothermal,

DID YOU KNOW?

Texas consumers spent over \$95 billion on energy in 2004.

Exhibit 15

Total Energy Consumption by Sector, Texas vs. U.S., 2004

In trillion Btus

Sector	Texas	U.S.	Texas Share of Total U.S. Consumption
Residential	1,555	21,243	7.3%
Commercial	1,315	17,721	7.4%
Industrial	6,400	33,415	19.2%
Transportation	2,701	27,900	9.7%
Total	11,971	100,279	11.9%

Source: Energy Information Administration.

wind and solar. In 2004, Texas consumed 95 percent of its energy from petroleum, natural gas and coal (Exhibit 17).

Federal and State Regulations

While federal and state regulations and environmental standards are intended to ensure that we have clean air, they can also have a profound impact on the availability and cost of energy. These regulations and standards can affect energy production by regulating and limiting discharges from power plants, refineries, mines, wells and other energy enterprises into the air.

In 1970, Congress passed the Clean Air Act (CAA), which authorized the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS). The goal of the 1970 CAA was to set and achieve NAAQS in every state by 1975. The setting of standards was coupled with a requirement that states develop implementation plans to guide and direct their efforts to reduce pollution levels.

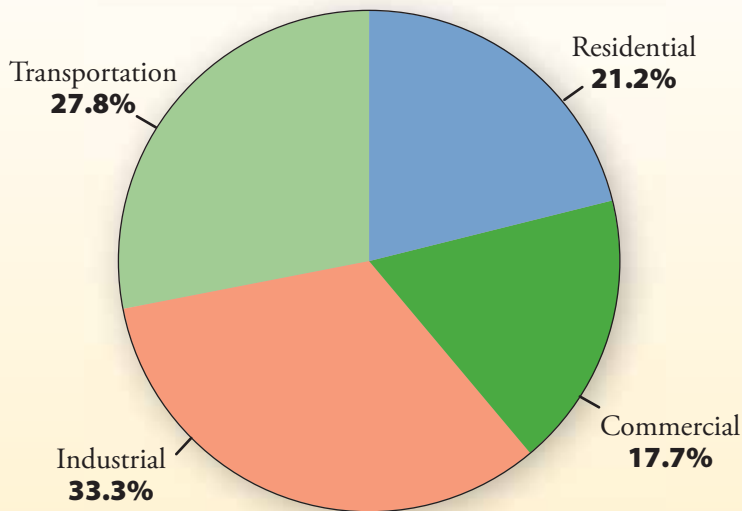
The CAA was amended in 1977, to set new dates for attainment of air standards, since many areas of the country had failed to meet the deadlines. The CAA was again amended in 1990 to meet problems including acid rain, ground-level ozone, stratospheric ozone depletion, and air toxics.⁵⁹ NAAQS, as amended, measures six outdoor air pollutants:

- ground-level ozone/smog (O₃)
- particulate matter (PM)
- lead (Pb)
- nitrogen dioxide (NO₂)
- carbon monoxide (CO) and
- sulfur dioxide (SO₂).⁶⁰

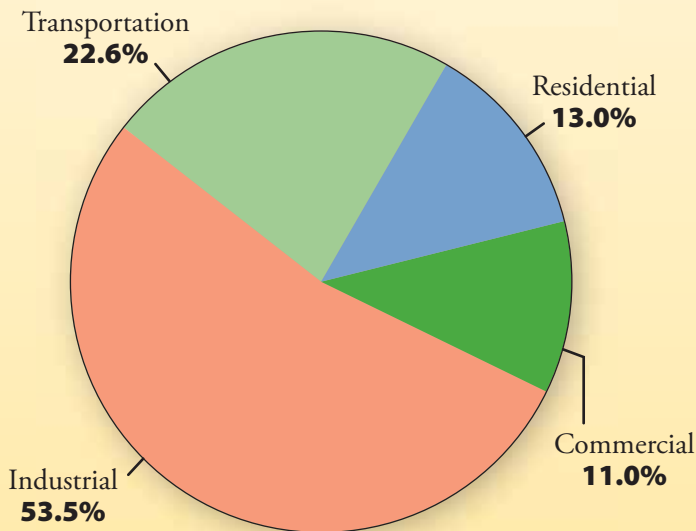
Texas has several large urban areas that do not meet the CAA requirements for carbon monoxide, particulate matter and ground-level ozone/smog. Specifically, El Paso does not meet the standards for carbon monoxide

Exhibit 16

U.S. Energy Consumption by Sector, 2004



Texas Energy Consumption by Sector, 2004



Note: Numbers may not total due to rounding.
Source: Energy Information Administration.

and particulate matter. Houston-Galveston-Brazoria, Dallas-Fort Worth, San Antonio and Beaumont-Port Arthur do not meet the standards for eight-hour ground-level ozone/smog. The ground-level ozone standard is 0.08 parts per million (ppm), as averaged over eight hours. Other areas including Austin, Corpus Christi and Victoria are close to violating CAA standards.⁶¹ The communities listed above have different dates by which they must meet the CAA standards or risk losing billions of dollars in federal highway funding for their areas.⁶² **Exhibit 18** shows the areas in the state that are in or near nonattainment status and the standards that are in question.

San Antonio, Austin and the Northeast region of the state have received Early Action Compacts — deferments from the EPA and the Texas Commission on Environmental Quality. These areas agree to institute pollution-reducing measures such as public transportation, public behavior advisories (voluntary driving restrictions and other public behavior management) and voluntary restrictions on business and industry to reduce pollution levels; in return, they are not subject to federal penalties (loss of federal transportation money). These agreements allow the areas' municipal and county authorities to design their own measures to reduce pollution, choosing the pollution prevention strategies that best fit their area.

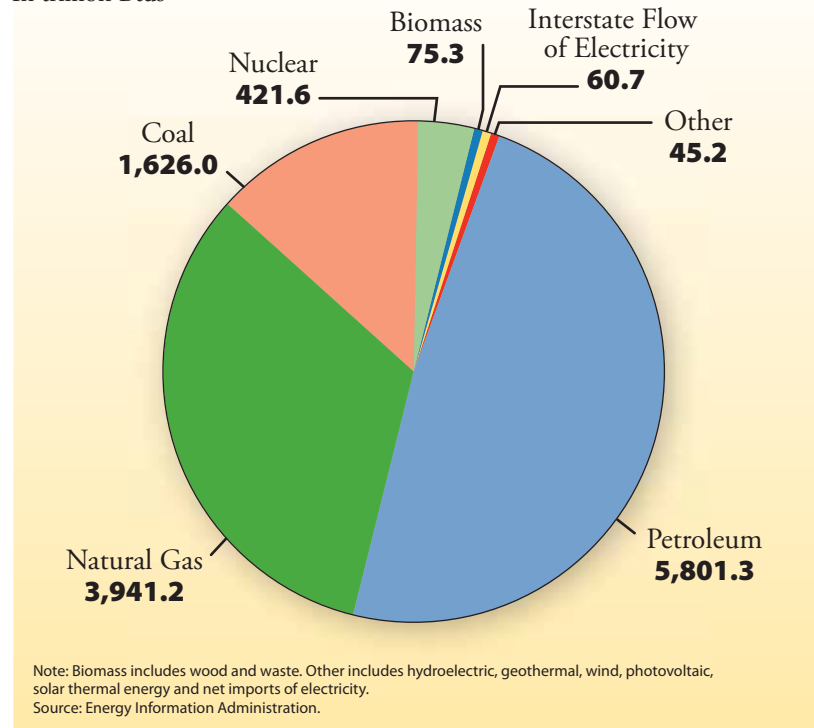
Energy Spending

Consumers in Texas spend more money on energy than those in any other state. Texas consumers spent just over \$95 billion on energy in 2004, or nearly 11 percent of total U.S. expenditures on energy. In addition, energy expenditures amounted to more than

Exhibit 17

Texas Energy Consumption, 2004

In trillion Btus



10 percent of the state's gross product (**Exhibit 19**). In the same year, total U.S. energy expenditures were nearly \$870 billion, or about 7 percent of the national gross domestic product.⁶³

Electricity

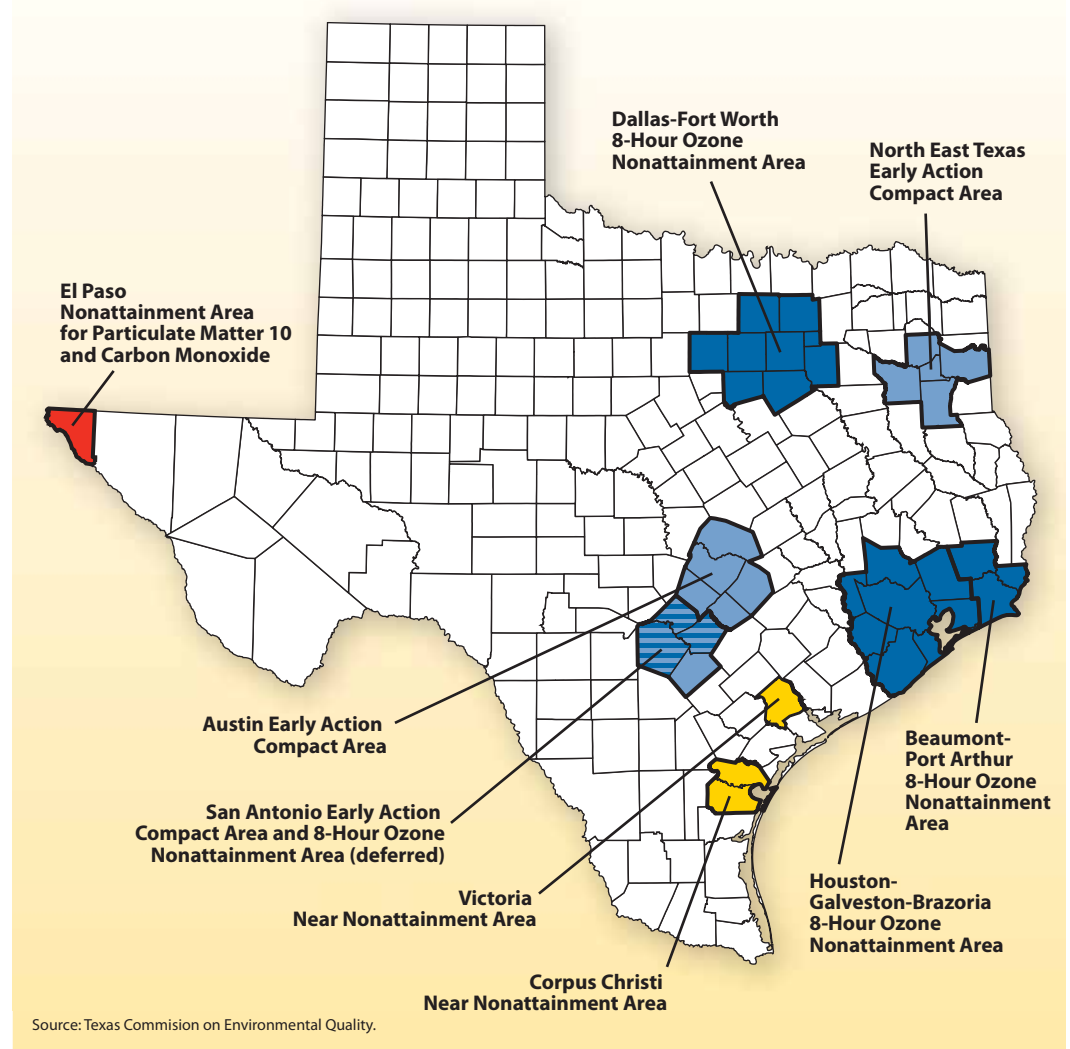
Texas' electricity market is both regulated and deregulated. Wholesale electricity sales between power generators and retail electric providers are deregulated across Texas, while retail electric sales are deregulated in most of the state, but only for privately owned utilities, not municipally owned or member-owned cooperatives. About 60 percent of the residents in Texas purchase retail electricity in the deregulated market.⁶⁴ The transmission and distribution of electricity over

DID YOU KNOW?

In 2006, the Texas energy industry employed more than 375,000 people, who earned \$35 billion in wages.

Exhibit 18

Texas' Nonattainment and Near Nonattainment Areas Under the Clean Air Act



wires remains regulated by the Public Utility Commission of Texas in all areas of the state.

The three most common fuel sources for electricity in Texas and the U.S. as a whole are natural gas, coal and nuclear power (**Exhibit 20**).

Projected Demand for Electricity

Texas' growing population will boost demand for electricity in all sectors. How this

demand is met will be determined by market forces and federal and state policies. The cost of natural gas and policies aimed at reducing pollution may mean that Texas will need to turn to alternative fuel sources as well as conservation and efficiency to help meet the growing demand for energy. The state, however, has access to enough coal and natural gas to meet its projected electricity demands through 2030 and beyond.



The federal Energy Information Administration (EIA) projects that U.S. commercial demand for electricity will rise by 63 percent by 2030, while residential demand will rise by 39 percent and the industrial sector will rise by 17 percent. The increase in demand will result not only from population growth but also from increased disposable income. This will result in increased purchases of products and additional floor space needing electricity.⁶⁵

The Electric Reliability Council of Texas (ERCOT), which manages the power grid covering about 75 percent of Texas' land area, expects consumption in its power region to increase by 39.4 percent from 2007 through 2025, or from about 313 million megawatt-hours (MWh) to more than 436 million MWh (**Exhibit 21**).⁶⁶

Meeting Projected Needs for Electricity

The fuel sources Texas will use to meet this growing demand will likely still be dominated by both coal and natural gas. To meet growing future demand, it is also likely that the state will make greater use of alternative energy sources such as nuclear power and wind power, among others. New nuclear and wind projects are being proposed and considered for approval. Increases in energy efficiency also will help diminish the projected growth in demand.

Direct Use Energy

Energy in the form of natural gas, propane and oil can be delivered directly to individual businesses and houses and burned for heating and cooking.

In 2006, 32.4 quadrillion British thermal units (Btus), or approximately 32 percent of all energy used nationwide, could be attrib-

Exhibit 19

Total Energy Expenditures, Texas vs. U.S., 2004

Nominal dollars, in millions

Sector	Texas	U.S.	Texas Expenditure as a Share of the U.S. Total
Residential	\$14,247	\$190,734	7.5%
Commercial	\$9,715	\$137,749	7.1%
Industrial	\$39,090	\$176,497	22.1%
Transportation	\$32,070	\$364,337	8.8%
Total	\$95,122	\$869,319	10.9%

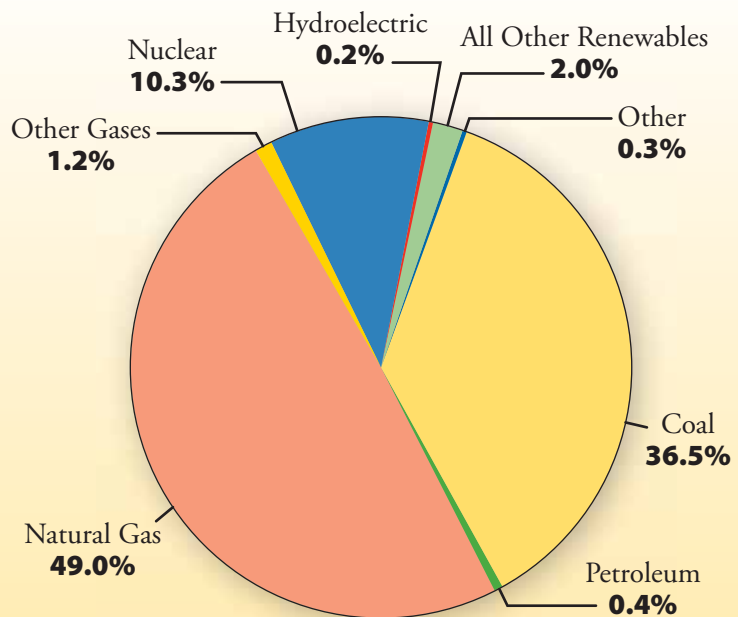
Note: Numbers may not total due to rounding.
Source: Energy Information Administration.

uted to the burning of combustible materials to produce heat for direct use.

Sixty-eight percent of all direct-use energy is used in the industrial sector to manufacture raw materials into finished products. Chemicals, plastics, metals, food and glass

Exhibit 20

Texas Electricity Generation, by Fuel Source, 2006

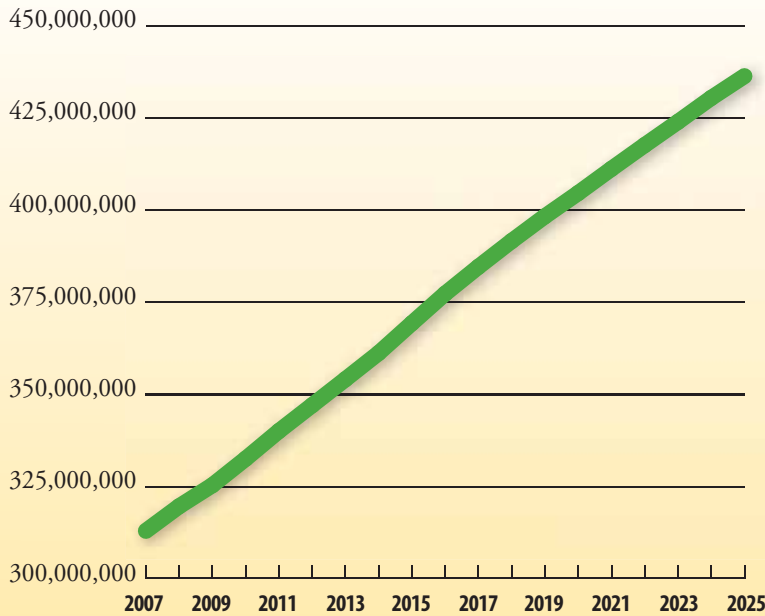


Notes: Other gases include: manufactured gas, coke-oven gas, blast-furnace gas and refinery gas. Renewable resources include: biomass, geothermal, solar, wind, ocean thermal, wave action and tidal action. Other includes: fuel cells, coal dust, wood and waste products.
Source: Energy Information Administration.

Exhibit 21

**Electricity Consumption Forecast
2007-2025 ERCOT Power Region**

In megawatt hours



Source: The Electric Reliability Council of Texas.

are all made through such processes. In 2006, 21,586 trillion Btus of energy were used nationwide to turn raw materials into finished products.⁶⁷

According to EIA, in Texas, natural gas accounted for 43 percent of the home heating, electricity accounted for 49 percent, liquefied petroleum gas accounted for 6 percent (including propane) and the remaining 2 percent was from other sources.⁶⁸

Direct-use energy also heats commercial buildings throughout the nation. In 2006, 3,927 trillion Btus of direct-use energy were used to heat commercial buildings; this includes the use of natural gas and fuel oil.⁶⁹

Transportation Energy

As America has become more reliant on transportation, more and more of the nation’s energy has been devoted to this purpose. In 2006, the U.S. expended 28.4 quadrillion Btus, or about 28 percent of all energy use nationwide, for transportation. Transportation’s share of the nation’s total energy usage has risen steadily since 1973. In 2004, Texans used 2,701 trillion Btus of fuel to transport people and goods from one place to another (**Exhibit 22**).⁷⁰

In the same year, the U.S. devoted just over 81 percent of its transportation energy to transportation used on local roadways and highways; the other 19 percent was used for other forms of transportation, such as airplanes, railroads and waterborne craft.⁷¹

Transportation Infrastructure

Texas’ transportation system is vital to its economic prosperity. Indeed, because of the state’s sheer size, its large and growing population

Exhibit 22

U.S. and Texas Transportation Fuel Sources, 2004

In trillion Btus

Fuel Source	U.S. Amount of Fuel Used	Percent	Texas Amount of Fuel Used	Percent
Petroleum Products	26,914.9	96.7%	2,640.2	97.8%
Natural Gas	607.7	2.2%	57.5	2.1%
Ethanol*	299.3	1.1%	2.4	0.1%**
Electricity	24.2	0.1%	0.3	0.1%**
Total	27,846.1	100.0%	2,700.4	100.0%

*On the original EIA document, ethanol is listed twice: blended into motor gasoline and included in motor gasoline category; and it is shown separately to display the use of renewable energy by the transportation sector.

**Ethanol and electricity used as fuel in Texas accounts for 0.1 percent of the total transportation sector fuel in the state, combined.

Source: Energy Information Administration.



and its proximity to Mexico and the Gulf of Mexico, Texas transportation affects the entire nation's economy and quality of life. U.S. trade with other countries, both import and export, relies on the Texas transportation system. According to the U.S. Bureau of Transportation Statistics, Texas has seven of the top 50 water ports (in terms of total tonnage) in the U.S., and more products and goods are shipped in and out of Texas than any other state.⁷²

Over the past century, Texas has created a transportation system with few rivals.⁷³ According to the *Texas Almanac*, Texas leads the states in total road and street mileage (300,000 miles), total railroad mileage (more than 10,000 miles) and total airports and airstrips (about 1,800).⁷⁴ Texas has 49,829 bridges; 423 miles of intracoastal waterways along the entire length of its coast; and 28 ports.⁷⁵

Future growth in Texas' population will bring challenges for the transportation system, forcing the state to increase capacity, repair deteriorating infrastructure facilities, decrease or at least control traffic congestion and address safety issues — while also meeting state and federal air pollution standards.

Roadways

The Texas Department of Transportation (TxDOT) is responsible for the maintenance and enhancement of the state highway system and allocating state and federal money to local areas to assist them with the construction and maintenance of local roads and streets. In addition to these funds, communities also fund road projects through local taxes and bond packages.

In 2007, the state highway system consisted of about 79,645 centerline miles (miles trav-

eled in a one-way direction regardless of the number of lanes) of road and carried about 74 percent of the state's vehicular traffic. Included are 28,357 miles of U.S. and state highways, carrying 36 percent of traffic (including 22 centerline miles of toll roads); 40,996 miles of farm-to-market roads, carrying 11 percent of traffic; 9,953 miles of interstate highways and frontage roads, carrying 26 percent of traffic; and 339 miles of parks and recreation roads, carrying less than 1 percent of traffic. An additional 65 centerline miles of toll roads are under construction.⁷⁶

In fiscal 2004, Texas also had about 143,578 centerline miles of county roads and 78,990 centerline miles of city streets that are not considered part of the state highway system.⁷⁷

Highways are also used to transport goods. Trucks move more freight to, from and within the state than any other mode of transportation. In 2002, almost 1 billion tons of freight, valued at \$866 billion, were moved by truck in Texas, or about 46 percent of all freight moved in Texas that year. This percentage is expected to increase to 52 percent by 2035, with an anticipated 2.3 billion tons valued at nearly \$3.2 trillion.⁷⁸

Funding

Texas funds its transportation system primarily through federal transportation aid, state and federal motor fuels taxes (20 cents per gallon and 18.4 cents per gallon, respectively), motor vehicle registration fees, bond proceeds and toll road revenues. These taxes and fees amounted to nearly \$7.7 billion in fiscal 2007.

For the 2006-07 biennium, the Legislature appropriated \$15.2 billion to TxDOT to

DID YOU KNOW?

Texas motor fuels tax totaled \$3.1 billion, about 8.3 percent of tax collections (and the fourth-highest tax in revenues) in fiscal 2007.

build and ensure safe and efficient roadways. This amount represented a 24 percent or \$2.9 billion funding increase over the total for the 2004-05 biennium (**Exhibit 23**).⁷⁹ describes TxDOT various funding sources.

In addition to these funds, TxDOT also can use construction funds from the Texas Mobility Fund (TMF). The TMF is composed of money collected primarily from drivers with traffic violations; bonds are issued on the balance of the TMF by the state. These revenues are then allocated to local transportation planning boards for improvements to the state highway system only. Once local transportation planning boards have decided on a project or improvement on the state highway system in their area,

TxDOT either completes the work or contracts it out to a private construction firm.

In fiscal 2007, the TMF contained \$2.3 billion that can be used to support bonds issued to fund transportation projects. **Exhibit 24** provides a breakdown of the funding in the Texas Mobility Fund.

Road Capacity

In fiscal 2006, Texans owned 20.1 million registered vehicles, second only to California.⁸⁰ In the same year, the state had about 17.7 million citizens of driving age (16 years or older), equating to an average of 1.1 registered vehicles per citizen of driving age.⁸¹

Over the last 25 years, Texas' population increased by 57 percent and road use grew by 95 percent, but the state's road capacity grew by just 8 percent. TxDOT estimates that the state's population will increase by another 64 percent over the next 25 years; road use will grow by 214 percent; and state road capacity will increase by just 6 percent, if current financing patterns continue.

TxDOT and regional metropolitan planning organizations (MPOs) have identified \$188 billion worth of transportation projects needed to achieve an acceptable level of mobility, as determined by MPOs and the citizens they represent, in Texas communities by 2030. According to TxDOT, however, traditional funding mechanisms will provide only \$102 billion over that period. This leaves the state with a significant funding gap. To help offset it, TxDOT is partnering with private companies to finance, build and operate toll roads.⁸²

Toll roads on the Texas state highway system currently include about 22 centerline miles on State Highway 255 (formerly the

Exhibit 23

State Highway Fund, Fiscal 2007

In millions

Revenue Sources	Dollars	Percent of Total
Federal funds	3,023.3	39.4%
State motor fuel tax	2,227.1*	29.0%
Vehicle registration	969.8	12.6%
Bond proceeds	1,000.0	13.0%
Other	455.2	5.9%
Total State Highway Fund	7,675.4	100.0%

*About a fourth of motor fuels taxes collected in Texas go to fund public education.
 Note: Numbers may not total due to rounding.
 Source: Texas Department of Transportation.

Exhibit 24

Texas Mobility Fund, Fiscal 2007

In millions

Revenue Sources	Dollars
Taxes, Fines, Fees & Misc.	\$147.0
Bonds Proceeds	\$2,200.0
Total Texas Mobility Fund	\$2,347.0

Source: Texas Department of Transportation.



Camino Colombia Toll Road) and about 65 centerline miles (currently open or under construction) on State Highway 130, State Highway 45N and Loop 1 (the Central Texas Turnpike Project). An additional eight centerline miles connecting Interstate 35 with State Highway 130 and U.S. Highway 183 are in the early stages of construction. Local toll authorities such as those in Dallas and Houston also oversee toll roads, as do some regional mobility authorities.

Other toll roads to be developed through comprehensive development agreements with private transportation infrastructure companies are in various stages of planning, including:

- Trans Texas Corridor-35;
- Interstate Highway 635 in Dallas;
- State Highway 121 in Dallas;
- Interstate Highway 820/State Highway 183 from Fort Worth to DFW; and
- Loop 1604 and U.S. Highway 281, in San Antonio.

Also, State Highway 99 (the Grand Parkway) around the Houston area is a toll road.⁸³

To help clarify roles, responsibilities and authorities regarding toll roads, the 80th Texas Legislature passed Senate Bill 792, which establishes several new rules regarding toll roads, who builds them and how they are financed. Perhaps the most important measure in S.B. 792 is that it designates local toll entities (county toll road authorities and regional tollway authorities) as having the first option to build projects within their jurisdiction. If local entities do not exercise the option, TxDOT may undertake the

projects. But in either event, the local entity or TxDOT must ensure that there are free roads equal to or greater than what existed prior to the construction of the toll road project.

S.B. 792 also requires TxDOT to assist local toll entities in the completion of their projects by providing rights of way owned by TxDOT and access to the state highway system by entering into an agreement with the local toll authority.⁸⁴

Infrastructure Maintenance

As noted above, TxDOT is responsible for the preservation and maintenance of the state highway system. System maintenance, in fact, is the agency's largest function in terms of the number of employees involved. In fiscal 2004, 6,466 full-time-equivalent TxDOT positions were directly involved in the maintenance function, or about 43.5 percent of the agency's personnel.

Highway system maintenance includes roadway surface improvement, road base repairs, bridge and drainage structure inspection and maintenance and road sign and traffic signal repair. It also encompasses litter cleanup, roadside mowing, rest area maintenance and the repair of damage caused by floods, hurricanes and other disasters. According to TxDOT, 85 percent of its annual funding, excluding money from the TME, is consumed by maintenance costs for existing transportation infrastructure. The 2007 Legislature appropriated about \$5.8 billion for contracted and routine and preventive highway maintenance for the 2008-09 biennium.

As noted earlier, Texas has 49,829 bridges, about 40 percent more than any other state.

DID YOU KNOW?

The Texas Department of Transportation was appropriated \$8.7 billion — about 10 percent of the state budget — for fiscal 2008.

DID YOU KNOW?

In 2002, freight shipments to, from and within Texas totaled 2.2 billion tons — with a value of \$1.3 trillion.

Their average age is 41 years for bridges on the state highway system and 30 years for those off the state highway system. As of September 2006, 77 percent of Texas bridges (38,425) were classified by TxDOT as in “good or better condition” or as having a “sufficient structure” to handle its current load and capacity and meet all state and federal requirements.

TxDOT conducts routine inspections of each bridge at least once every two years, classifying them by condition according to federal and state requirements. TxDOT estimates that Texas has 2,125 “structurally deficient” bridges. These bridges are limited in their load-carrying capacity or are frequently under water; they can handle their current capacity but create severe traffic delays. Texas also has 7,802 “functionally obsolete” bridges that do not meet current design standards and cannot handle today’s traffic volumes and types efficiently. Finally, Texas has 1,409 “substandard-for-load-only” bridges. These are not structurally deficient or functionally obsolete but have a load capacity less than the maximum permitted by state law.

Because TxDOT is continually upgrading the current bridge system, it is difficult to estimate what it would cost to fix all of the state’s bridges to the TxDOT definition of “good or better status” or that of a “sufficient structure,” (i.e., bridge meets current federal and Texas requirements and is not structurally deficient, functionally obsolete or substandard for load only). To address those bridges that are in the most need of repair or replacement, TxDOT contracts with private companies to fix these bridges. In

fiscal 2006, TxDOT contracted with various road and bridge construction companies to replace or rehabilitate 549 bridges at a price of \$544.6 million. In addition to the repair and replacement contracts in fiscal 2006, the agency also had several contracts with a combined value of \$417.5 million to build 249 new bridges.⁸⁵

TxDOT’s maintenance funding also is used to maintain the Texas portions of the Intracoastal Waterway and two toll-free ferry systems. The ferry systems connect Port Aransas to Aransas Pass and Galveston Island to the Bolivar Peninsula. In fiscal 2004, the ferry system at Port Aransas transported about 2.3 million vehicles, while the ferry system at Galveston transported about 2.1 million vehicles. Maintenance of these ferries and the Intercoastal Waterway was appropriated \$44 million for the 2006-07 biennium.⁸⁶

Congestion

Mobility — the simple ability to travel — has long been important to the American lifestyle. As more and more vehicles crowd our roadways, though, traffic congestion is having an increasingly debilitating effect on our quality of life. According to the Texas Transportation Institute’s (TTI’s) *2007 Annual Urban Mobility Report*, in 2005 congestion caused 4.2 billion hours of travel delay and 2.9 billion gallons of wasted fuel in urban areas in the U.S. The study reported that the average annual delay per traveler in those areas climbed from 14 hours in 1982 to 38 hours in 2005. Texas had nine cities among the 85 largest urban areas.⁸⁷

The TTI report recommended a number of solutions to alleviate congestion including:



- making the system more efficient by rapid removal of crashed or stalled vehicles and timing traffic signals so that more vehicles see more green lights;
- adding road and transit system capacity in critical corridors;
- relieving chokepoints in both the road and transit system;
- changing usage patterns through flexible work hours and combining trips;
- providing choices such as different routes, toll lanes, high occupancy vehicle lanes; and
- diversifying the residential development patterns in communities to include a blending of commercial and residential areas within close proximity so that walking is a viable option.

According to TTI, “public transportation improvements are particularly important in congested corridors and to serve major activity centers.” TTI advocates the use of mass transit, including buses and commuter or “light” rail (where appropriate), to help congested areas cope with their mobility problems.⁸⁸

Safety Issues

TxDOT coordinates the Texas Traffic Safety Program and the State and Community Highway Safety Program and implements the provisions of the Highway Safety Plan, which provides communities with state and federal grant funding for traffic safety projects. During fiscal 2007, TxDOT funded about 860 traffic safety programs at a cost of \$40.9 million. Program topics include safety belts, child safety seats, speeding, aggressive driving and driving under the influence.

TxDOT directly maintains 6,315 traffic signals costing \$24.5 million annually. Texas has 10,399 crossings between highways and railroads. The majority of these have electronic warning devices.⁸⁹ In addition to TxDOT’s efforts, the Texas Department of Public Safety, county sheriff offices and municipal police forces around the state enforce traffic and speed laws on Texas roads. Local municipalities maintain and service thousands of traffic signs, traffic control equipment and stop lights across the state.

Air Quality

Improving air quality in Texas’ urban areas is an enormously important priority that can improve the health and quality of life for all Texans and prevent the loss of federal highway dollars that are essential to the state’s transportation system.

The federal Energy Policy Act of 1992 required state governments to acquire light-duty vehicles powered by alternative fuels and to gradually convert their fleet to alternative fuels.⁹⁰ In addition to the Act, car manufacturers and the public have gradually accepted alternative fuels and hybrid technologies.

Since that time, the number of vehicles powered by alternative fuels has grown significantly. As of March 2007, there were more than 10.5 million vehicles using alternative fuel in the U.S. In Texas, 966,000 vehicles, or about 5 percent of all vehicles registered in the state, were classified as hybrids, flexible-fuel vehicles or vehicles capable of using alternative fuels. (Flexible-fuel vehicles can use multiple fuels to power their engine, such as either regular gasoline or an ethanol-gasoline mix.)⁹¹

DID YOU KNOW?

Texas sales and rental tax on motor vehicles and manufactured housing totaled \$3.33 billion (ranking second in tax revenues) in fiscal 2007.

Railroads

Economic development throughout the state and the U.S. largely depends on transportation infrastructure in Texas, particularly railways. Rail is one of the main modes of transporting goods throughout the country. For an area to have a thriving business climate, it must have an integrated way to move goods to and from the region for distribution to destinations in North America.

In 2002, about 271 million tons of freight (12.5 percent of the total), valued at \$66 billion were moved by rail in Texas. This percentage is expected to remain steady at 12.3 percent through 2035, with an anticipated 534 million tons valued at \$114 billion.⁹²

Texas has more than 10,000 miles of railroad tracks, more than any other state. Those tracks are owned or operated by Union Pacific Railroad (6,408 miles), the Burlington Northern/Santa Fe Railway (4,645 miles) and the Kansas City Southern Railway (379 miles).⁹³ One intermodal train (trains transporting freight) can take 280 trucks (equal to 1,100 cars) off highways.⁹⁴

Passenger rail, travel primarily for recreational purposes, has become more popular in Texas in recent years. Amtrak, which crisscrosses the state, has seen a significant increase in its ridership in Texas, from 189,594 riders in 1994 to 267,568 riders in 2004.⁹⁵

Many experts and citizen groups recommend diversifying our transport systems by increasing support for alternatives such as public transit. To accomplish this, many cities have made significant investments in buses, light rail and heavy rail systems. About two dozen U.S. cities have some sort of rail transit service. In Texas, the Dallas-Ft.

Worth Metroplex has a rail system, Dallas Area Rapid Transit (DART) and the Houston Metroplex has the Metropolitan Transit Authority (METRO) of Harris County.

Air Travel

Texas has 303 public-use airports, with hundreds more airports and airstrips that are exclusively for private use. More than 61,000 Texans work in aviation, earning about \$2.5 billion in annual salaries. Aviation generates nearly \$8.7 billion in Texas economic output.⁹⁶

More than 91 percent of the state's population lives within 50 miles of a commercial airport. In 2003, commercial carriers had more than 60 million enplanements in the state (that is, persons boarding a plane in Texas). Eighty percent of these enplanements occurred at one of four airports in the Dallas-Ft. Worth Metroplex and the greater Houston area (Dallas/Fort Worth International, Dallas Love Field, Houston George Bush Intercontinental and Houston's William P. Hobby).⁹⁷

In addition to air passenger travel, air freight transport plays a large role in air traffic throughout Texas, the U.S. and the world. Economic growth and development drives the need for more air cargo capacity, which is being seen in both the Metroplex and Houston.

Air freight transport accounts for a small portion of all freight transport. In 2002, fewer than 300,000 tons of freight valued at \$20 billion were moved by air in Texas. This is less than 1 percent of all freight moved in Texas that year. This share is not expected to increase by 2035, with an anticipated 900,000 tons valued at \$105 billion.⁹⁸



Dallas/Fort Worth International Airport (DFW) and Houston George Bush Intercontinental Airport (IAH) handle most of the air cargo in Texas. DFW handles almost 65 percent of all international air cargo in Texas, with nearly 3 million square feet of cargo space.⁹⁹ In 2006, DFW reached 281,486 tons of air cargo.¹⁰⁰ A recent renovation of the IAH cargo facilities increased the cargo area to nearly 900,000 square feet and increased the potential capacity to 454,000 tons.¹⁰¹

Ports

Ports, like railroads and air transport, are key in moving goods throughout Texas, the U.S. and the world, and thus are essential to economic growth and development. Texas' ports provide shipping access to international destinations such as Mexico and Central and South America, and even Europe, Asia and Africa.

Texas has 28 seaports, of which four — Houston, Beaumont, Corpus Christi and Texas City — ranked among the top ten U.S. ports for total cargo tonnage in 2005. In that year, Texas ranked first among states

in the total tonnage of products imported by waterway or seaport, with about 500 million tons of cargo or about 20 percent of the U.S. total.¹⁰²

Texas' marine and intermodal transportation (transportation of goods from ports to their eventual destinations) generates nearly \$65 billion in economic activity annually, equivalent to 10 percent of the gross state product. Each year, Texas ports generate almost \$5 billion in local and state tax revenue and support nearly a million jobs.

Texas ports also affect the national economy. The Port of Houston is the Gulf Coast's largest container port (that is, goods shipped in standardized containers that can be transferred directly to trucks or trains). In addition, Texas ports generate \$9 billion in federal import tax revenues each year.

The Gulf Intercoastal Waterway (GIWW) connects Texas ports with the rest of the U.S. In Texas, the GIWW moves more than 73 million tons of cargo each year. This cargo is carried on about 40,000 barges, capacity equivalent to more than 3 million semis or 570,000 rail cars.¹⁰³

Texas Infrastructure Questions for Further Consideration

- What strategies can Texas use to conserve water resources to ensure that all Texans have access to clean and affordable water?
- How can Texas generate enough affordable and clean energy for its rapidly growing population?
- What strategies can Texas use to fund new roads, rails and air capacity to meet the demand of a rapidly growing population?
- What strategies can Texas use to ensure adequate maintenance of roadways and bridges?





Health Care

A number of issues pose challenges for the provision of health care in Texas, including limited access to health care coverage, workforce shortages and the high cost and prevalence of chronic disease. These issues pose difficult and expensive challenges for businesses, their employees and state and local governments.

But some strategies are being developed to address these challenges. For example, disease management for chronic conditions and wellness programs can be used to hold

down health care costs for businesses; health information data can improve efficiency and quality of care; and telemedicine can bring specialty care or expert primary care to rural Texans.

Health care access is closely tied with economic development. A healthy work force is a productive work force. Preventive medicine and chronic disease management decrease absenteeism and increase productivity. In addition, occupations in the health care field — doctors, nurses and administrators — are generally high-paying jobs.

Health Insurance

One of every six Americans and one in four Texans has no health insurance coverage.¹⁰⁴

DID YOU KNOW?

Article II Health and Human Services agencies were appropriated \$27.9 billion — about 33 percent of the state budget — for fiscal 2008.





Texas Hospital Facts

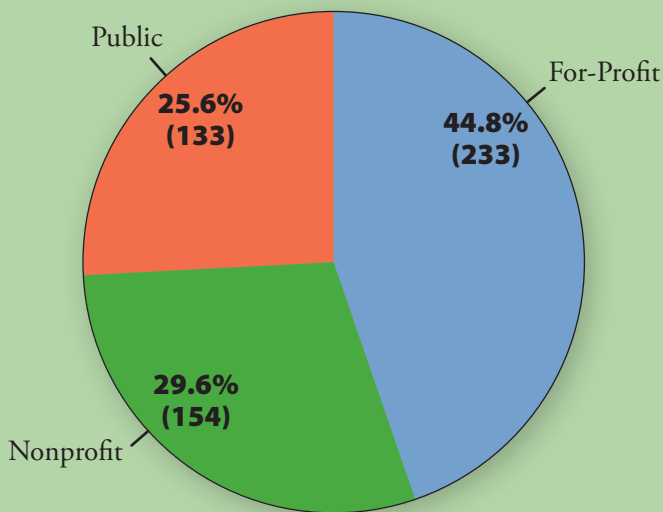
Fewer than half of Texas' 520 hospitals – 44.8 percent, or 233 hospitals – are for-profit institutions. Nonprofit (29.6 percent or 154) and public (25.6 percent or 133) hospitals make up the remainder (**Exhibit 25**).

Most for-profit and nonprofit hospitals are located in metropolitan areas, while most hospitals in non-metropolitan areas are public hospitals.

Texas is fortunate to have some of the best medical centers in the country. A recent ranking by *U.S. News and World Report* of 193 top hospitals placed 13 Texas facilities on the list, ranked nationally in various medical specialties. The University of Texas M. D. Anderson Cancer Center in Houston ranked first for cancer treatment, as well as seventh for both ear, nose and throat and urology and eighth for gynecology.¹⁰⁵

Exhibit 25

Acute Care Hospitals by Ownership Type, 2006



Note: Numbers may not total due to rounding.
Source: Texas Department of State Health Services.

According to the U.S. Census Bureau, Texas has the nation's highest percentage of uninsured residents.¹⁰⁶ This poses consequences for every person, business and local government

in the state who bear extra costs to pay for uncompensated care.

About 5.7 million Texans, or 24.5 percent of the state's population, were uninsured in 2006. That figure included about 1.4 million children, or about 21.2 percent of all Texans aged 18 or younger.¹⁰⁷

Texans who are uninsured include moderate- and low-income wage earners; younger Texans; employees who do not receive insurance through their jobs, including some small-business employees; and children in low-income families.¹⁰⁸

Health Insurance and Small Business

Most Americans receive health coverage through their jobs. In 2006, employment-based insurance covered 59.7 percent of U.S. residents. In that year, Texas ranked 47th among states including D.C. on this measure; just 52.2 percent of Texans, or about 12 million people, had employment-based insurance.¹⁰⁹

In 2005, businesses with fewer than 50 employees constituted 72.4 percent of all businesses in Texas, and 49.8 percent of those companies offered health care benefits. In the U.S. as a whole, 62.2 percent of businesses of this size offered health benefits.¹¹⁰

For the smallest businesses, insurance rates are even lower. In Texas, 31.3 percent of employers with fewer than 10 employees offered health insurance in 2005. Nationwide, 43.7 percent of employers of this size offered coverage.¹¹¹

Cost is the most common reason why people do not purchase health insurance. According to one annual survey of health premiums, costs for family coverage rose



by an average of 6.1 percent from 2006 to 2007. The average family premium, across all types of health plans, cost \$12,106 in 2007. Workers were expected to contribute \$3,281 toward that coverage.

The cost increase of 6.1 percent in 2007, while lower than the 7.7 percent rise in 2006, still outpaced the overall inflation rate by about 3.5 percent and the average increase in employment earnings by 2.4 percent. Since 2001, health insurance premiums have risen by an average of 78 percent, while inflation rose only by 17 percent, and worker's salaries by 19 percent.¹¹²

Federal law allows large companies to become "self-insured" — that is, to offer their own employee insurance backed with their own resources, and to control its costs by deciding what sort of coverage to offer. Small companies frequently cannot afford to self-insure and lack other options to reduce the cost of insurance. Instead, they must purchase coverage from insurance companies at higher rates, and if even one or two of their employees incur high medical expenses, rate hikes may price them out of the insurance market entirely.

One factor sending health coverage rates upward is Texas' large population of uninsured residents. A 2004 study by the Greater Houston Partnership found that hospitals shift the cost of providing unpaid health care to private insurers, in the form of higher charges; insurers, in turn, pass along their higher costs in the form of higher health insurance premiums. And given rising premiums, private employers may decide to drop coverage altogether, thus compounding the problem.¹¹³

Hospitals and the Uninsured

So how do uninsured persons obtain medical care? In cities with large hospitals, they often use emergency rooms for general medical care. Under federal law, hospitals must treat anyone who shows up in their emergency rooms, regardless of their ability to pay. Thus emergency rooms often must treat many patients with conditions that do not warrant this highly expensive care, interfering with their ability to serve those patients who truly need emergency care.

In a news report on this trend, Dr. Bill Hinchey, a San Antonio pathologist and president of the Texas Medical Association, said the uninsured place a significant burden on emergency rooms. "A lot of these people will get their basic medical care in the emergency room, and that clogs our emergency rooms for truly emergent care," he said.¹¹⁴

A number of Texas public hospitals offer community clinics, where care is free or low-cost. The care provided by these clinics, especially for chronic diseases such as heart disease, high blood pressure, or diabetes, can have positive impacts on a hospital's bottom line. In Austin, Seton Hospital's director of community clinics, Dr. Melissa Smith, stated that patients with chronic diseases "...can have better care and we can reduce the costs for the hospital."¹¹⁵

Private for-profit and nonprofit hospitals also offer such clinics, where care can be delivered and costs are much less than if they were provided in a hospital. Texas Children's Hospital, a nonprofit hospital, has five pediatric health center locations in the greater Houston area, where families have access to non-emergency care.¹¹⁶

**DID YOU KNOW?**

In 2006, there were 639 registered nurses and 65 primary care physicians for every 100,000 Texans.

Emergency room care for people without insurance is largely uncompensated, or unpaid, by government programs or any other third party. But *someone* has to pay for this treatment. In the case of public hospitals, local taxpayers end up bearing much of the cost through their local property taxes.

And again, hospitals also shift this cost to insurers in the form of higher bills, driving up the rate of health insurance for both employers and employees — and driving some employers out of the market.

Texas hospitals reported spending \$10.2 billion on uncompensated care in calendar year 2005.¹¹⁷ Roughly two-thirds of the cost of uncompensated care is borne through higher insurance premiums paid by insured patients and their employers. Various federal, state and local government programs pay the remaining third.

In 2005, Texas families spent an extra \$1,551 in health insurance premiums to cover the unpaid health care bills of the uninsured. In that year, the average premium cost for family coverage in Texas was \$11,533, of which employers paid about 75 percent and families paid about 25 percent. Texas' average premium was 7.5 percent higher than the national average of \$10,728.¹¹⁸

The Nursing Shortage

Hospitals must have enough health care providers to pursue their missions effectively. They rely on a wide variety of specialized professions, but the most critical health care work force issue identified in the *2005-2010 Texas State Health Plan*, a major state planning document, issued by the Texas Department of State Health Services, was a nursing

shortage. In 2005, Texas had 144,602 registered nurses practicing in Texas, with 85.8 percent working full time and 14.2 percent employed part-time.¹¹⁹

The Texas Center for Nursing Workforce Studies and the Texas Department of State Health Services estimated that Texas will be some 71,000 full-time nurses short of the number it will need by 2020. If Texas is to meet this projected need, its 84 nursing programs must educate an estimated 25,000 new nursing graduates annually by 2020, roughly four times the 6,300 who graduated in 2005.¹²⁰

When nurses are in short supply, hospitals must reduce their services, leading to overcrowded emergency rooms, longer waits for elective surgeries and limited or discontinued programs.¹²¹ More important, the quality of patient care can suffer. A number of studies have found that more hours of care by registered nurses lead to better care and fewer complications. Increases in registered nurse-to-patient ratios have been associated with lower hospital-related mortality rates as well as shorter hospital stays.¹²²

One of the biggest problems limiting nurse training is a lack of qualified nursing faculty. Many qualified students are turned away each year simply because nursing programs are full.¹²³ In 2006, the American Association of Colleges of Nursing estimated that U.S. nursing colleges and universities turned away more than 32,000 qualified applicants, primarily due to a shortage of nursing educators.¹²⁴

In 2005, the Texas Higher Education Coordinating Board reported that 12,250 qualified applicants — 54 percent of the total — were not offered admission to Texas



nursing programs. (It should be noted that this number may include duplicates, since students can apply to multiple schools.) In 2005, administrators of Texas nursing programs reported that many qualified applicants were not admitted due to a lack of budgeted faculty positions, qualified faculty applicants and clinical teaching space.¹²⁵

Texas faculty salaries lag behind what nurses with advanced degrees can make in other jobs. Nurses with a master’s degree in an advanced practice specialty are qualified to teach, but often can earn more money as nurse practitioners or in advanced clinical or administrative positions. For example, a Texas instructor in a bachelor’s degree nursing program earned an average of \$5,064 monthly in 2004, but a nurse manager in

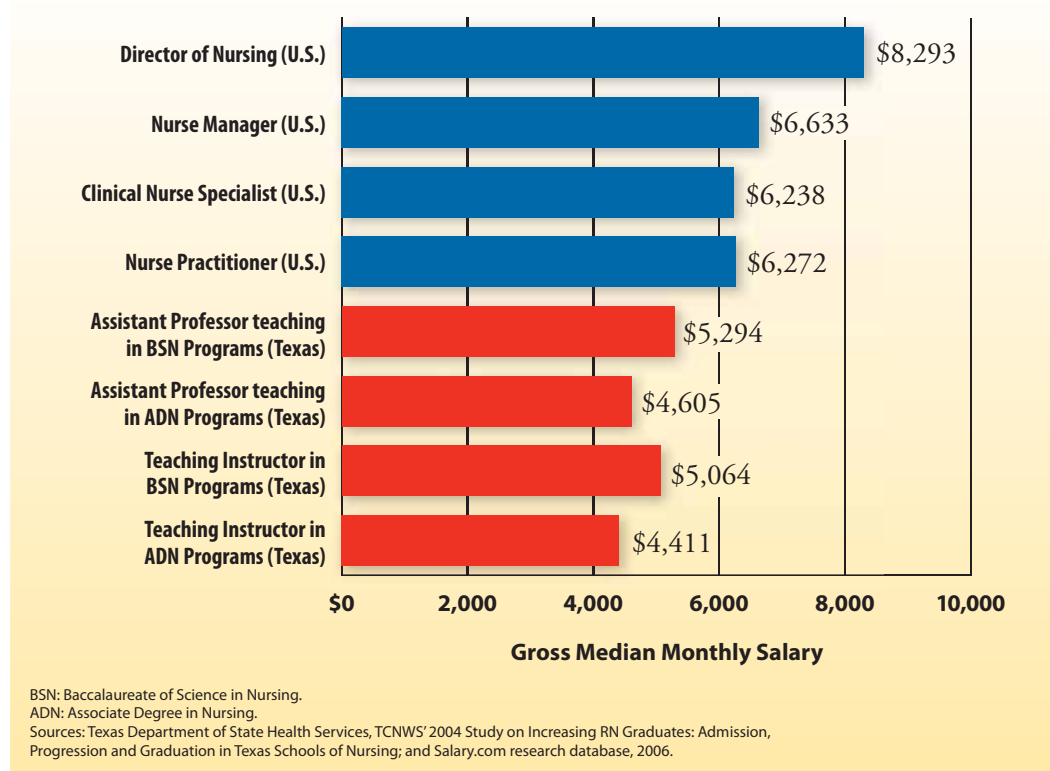
the U.S. earned an average of about \$6,633 (**Exhibit 26**).¹²⁶

The nursing shortage is even more acute in rural Texas, where only 9 percent of Texas’ registered nurses practice. Nonmetropolitan counties in Texas have a much lower ratio of registered nurses to population than urban counties. In 2006, urban areas had a ratio of 678 registered nurses to 100,000 residents, compared to 406 registered nurses per 100,000 in rural areas.¹²⁷

Some progress has been made in recent years, under the Texas Professional Nursing Shortage Reduction program. In 2007, the Texas Legislature appropriated \$7.4 million to the Texas Higher Education Coordinating Board for the program. The funding will be distributed to nursing programs showing

Exhibit 26

U.S. and Texas Median Monthly Salaries for Nursing Positions





an increase in the total number of nursing graduates at all academic levels. As much as \$11,850 per new graduate could be earned by nursing programs, and the funding must be used to create additional nursing faculty positions, add salary supplements for nursing faculty or expand nursing faculty capacity. The Nursing Innovation Grant program is a competitive grant program designed to increase the number of nurse graduates in Texas and has focused on recruiting and retaining nursing faculty and students. In 2006-07, \$825,556 was awarded to three universities that practice “regionalization,” under which nursing programs share faculty, space, and other resources, and another \$328,540 went to efforts to ensure that nursing students successfully completed their programs.¹²⁸

The Cost of Chronic Disease

Chronic diseases such as heart disease, stroke, cancer, asthma, arthritis and diabetes are major contributors to the rising costs of health care.¹²⁹ Chronic diseases account for three out of every four deaths in Texas and the U.S. Such diseases are prolonged, do not resolve themselves spontaneously and are rarely cured completely.¹³⁰

Unhealthy behaviors such as poor nutrition, tobacco use and inactivity can influence the development of chronic disease. Tobacco use is the most common cause of premature death in Texas; more than 24,800 Texans died due to its use in 2001 — more than from alcohol, automobile accidents and several other preventable causes of death combined.

Heart disease takes the largest toll; it was the leading cause of death in Texas in 2003.

Twenty-seven percent of Texas deaths, or 41,654 in that year, were due to diseases of the heart. And heart disease is expensive to treat. According to the Texas Department of State Health Services, a 2003 hospital stay related to heart disease resulted in an estimated \$8,995 average charge per day. In all, Texas hospital charges for heart disease exceeded \$5.2 billion in 2003. Medicare, the federal health insurance program for elderly and disabled people, paid 56 percent of this amount. Commercial insurers paid 24 percent and Medicaid, the state’s health care program for poor, elderly and disabled people, paid about 4 percent.¹³¹

Nearly two-thirds (64.1 percent) of Texas’ adult population is estimated to be overweight or obese. Overweight and obesity are linked to an increased risk of heart disease, diabetes, and several other chronic illnesses. About 7.9 percent of adult Texans have diabetes, and the chance of developing diabetes goes up with age. An estimated 17.6 percent of Texans aged 65 or older have diabetes.¹³²

And today, many children are being diagnosed with Type 2 diabetes, a condition seen only rarely in children 20 years ago. One researcher estimated that between eight percent and 45 percent of recently diagnosed cases of diabetes among children and adolescents in the U.S. are Type 2 diabetes. The development of a chronic disease so early in life has significant consequences for the costs of health care.¹³³ The American Diabetes Association estimated that direct and indirect the costs of diabetes in the U.S. were \$132 billion in 2002. Annual health care costs for a person with diabetes was \$13,243 in 2002, compared to \$2,560 annually for people without diabetes.¹³⁴



Disease Management and Wellness Programs

To hold down health care costs due to chronic disease, many states and private companies have implemented *disease management programs*. These programs coordinate health care services delivered to persons with a chronic disease or condition, and educate them about how to care for themselves in order to prevent expensive hospitalizations or the development of further medical complications. Patients may be monitored more closely, and their doctors may receive professional education on the best ways to improve the quality of health care. The goal of disease management is to involve patients in their own health care and to improve health outcomes while reducing costs.¹³⁵

In Texas, major companies including USAA, H-E-B, and Dell Computer offer workplace wellness programs. USAA, a San Antonio-based financial services company, offers its employees on-site fitness centers, smoking cessation and weight management classes, and healthy food choices in cafeterias and vending machines. The company's overall wellness program participation rose to 68.5 percent in 2005. Employees who have participated report significant decreases in weight, smoking rates and other health risk factors. USAA employees' claims under workers' compensation insurance have declined, as has absenteeism. The decline in absenteeism alone is expected to save USAA more than \$105 million over three years.¹³⁶

H-E-B, Texas' largest independent grocery company with 65,000 employees, operates a "Healthy at H-E-B" wellness initiative. Each employee who completes a health risk

appraisal receives a financial incentive. By the fourth year of the wellness program, 79 percent of employees participated. H-E-B's health care costs were rising by 25 percent annually before starting the program, but increased by just 2.9 percent in 2006. In 2005, they actually fell, by 3.7 percent.

Dell Computer's "Well at Dell" program offers on-site wellness and disease management programs. A 24-hour health hotline can answer employee's health care questions. Since Dell's program began in 2004, participants have experienced reduced cost increases, primarily due to reduced inpatient admissions.¹³⁷

Health Information

Health information data, maintained electronically, can be used to improve the quality and efficiency of health care. Health data and health technology range from a simple electronic medical records system in a doctor's office to complex, interwoven systems of doctors, hospitals, specialists, pharmacies and labs that can share and update patient information electronically. Such information can improve the quality of health care and patient safety, while reducing administrative costs and eliminating the need for duplicate medical tests.¹³⁸ In 2004, the U.S. Department of Health and Human Services estimated that a national health information database could save \$140 billion annually.¹³⁹

Electronic medical records can be lifesavers. New Orleans residents who fled to Houston in the wake of Hurricane Katrina in 2005 lost many things, including their medical records. One group of survivors, however, came with their medical records intact. For

DID YOU KNOW?

In 2006, rural areas had 406 registered nurses and 47 primary care physicians for every 100,000 rural Texans.



veterans who sought care at the Michael E. DeBakey Veterans Affairs Medical Center, medical histories, lab reports and prescription drug records were available immediately and in full on an electronic system.¹⁴⁰

Yet physicians and hospitals have a long way to go in adopting existing technologies. This means that it is more difficult to use medical records to improve medical care, measure the quality of care, or reduce errors. Federal laws and regulations on health information privacy pose additional complications in using such data. Privacy and security are key issues in handling patient records.¹⁴¹

Most doctors' offices and hospitals still store medical records on paper. Only one quarter of U.S. physicians reported using full or partial electronic medical records in 2005.¹⁴²

A 2005 survey by the Texas Medical Association found that only 27 percent of Texas physicians were using electronic health records. Many doctors stated that cost was the primary factor preventing them from adopting electronic systems. Estimated median costs per doctor for automation were put at \$20,000, and larger groups of physicians reported higher estimated costs.¹⁴³

A 2006 Rural Health Resource Center survey of 58 Texas rural hospitals found that only 48 percent of respondents had a formal information technology plan. Most had computerized health claims submission, payroll and admissions processes, but an overwhelming 84 percent did not have electronic medical records.¹⁴⁴

Some Texas communities are developing regional initiatives to link their medical facilities and data electronically. In Austin, for example, a pilot program called Critical

Connection links South Austin primary care physicians with specialists and the South Austin Hospital. The program intends to add labs and pharmacies to the network as well. Physicians using the system will be able to see and enter test results, specialists' consultation notes and hospital visit records on their office computers or at the hospital.¹⁴⁵

Telemedicine

Some rural areas lacking in health care professionals or transportation to health care centers are turning to telemedicine. Telemedicine or, as it is sometimes called, telehealth, involves the use of information technology to provide long-distance health care.¹⁴⁶

Using videoconferencing or other specialized equipment, doctors can sit in their offices miles away from a patient and provide expert or specialist care, helping to diagnose or treat illnesses. They can see and interact with patients and other health care providers by the patient's side. And doctors and nurses in remote areas can use telemedicine to learn new techniques or continue their medical educations without traveling hundreds of miles.

Telemedicine can be used to reduce or eliminate unnecessary health care costs. A Texas Tech physician and burn specialist, Dr. John Griswold, said that before telemedicine started, burn patients would stay home and get even sicker, until they needed hospital care. Now, he said, "We're seeing the patients sooner, with almost no complications or readmissions."¹⁴⁷

Telemedicine technology is readily available, but its cost can be prohibitive. Many telemedicine projects obtain funding from federal sources or nonprofit groups, but such funding has been limited.¹⁴⁸



At present, Texas' Medicaid program will not reimburse the cost of telemedicine equipment. Furthermore, under current Texas rules, Medicaid will provide reimbursement only for consultations or interpretations of medical data delivered through telemedicine, and for a standard office visit to the remote physician.¹⁴⁹

Several recent state laws have provided a basis for increased Medicaid coverage of telemedicine. Most recently, 2007 legislation requires the Texas Health and Human Services Commission, the state's Medicaid administrator, to better provide for reimbursing remote consulting physicians and health care professionals who are present with a patient at the remote site.¹⁵⁰ Previously, Medicaid would only reimburse the provider at the patient's side for a standard office visit.¹⁵¹

Texas' health science centers, most notably Texas Tech University Health Sciences Center and the University of Texas Medical Branch at Galveston (UTMB), have paved

the way for telemedicine in the state. Since 1990, Texas Tech has conducted more than 18,000 consultations via telemedicine technology. Specialists in orthopedics, general surgery, internal medicine, urology, gastroenterology, neurology, psychology, pediatrics and psychiatry have shared their expertise.¹⁵² A physician's office in Alpine, in the Big Bend region, is linked electronically to Texas Tech health experts; a school nurse in Hart, Texas relies on their expertise as well. Texas Tech also operates a correctional telemedicine program for Texas Department of Criminal Justice (TDCJ) facilities in the western part of the state.¹⁵³

UTMB has used telemedicine since 1995. At this writing, the school provides indigent medical care in Brazoria and Liberty counties; contracts with five school districts and counsels domestic abuse victims at a women's crisis center in Nacogdoches. UTMB's telemedicine system also provides correctional health care for inmates at the TDCJ facilities.¹⁵⁴

Health Care Questions for Further Consideration

- What types of strategies can Texas explore to address the shortage of registered nurses?
- What kinds of programs will help Texas recruit high-quality faculty to nursing schools?
- How can rural Texas compete for medical professionals?
- What can Texas do to keep health insurance costs down?
- What can Texas do to make medicine more accessible and affordable to rural areas, including telemedicine?





Education

Education is the foundation for a free and independent society. It is the cornerstone of economic development and the key to excelling in the global race for economic success. Most importantly, education is the path to a bright and healthy future for our children.

Public Education

Texas has been a leader among states in taking steps to improve the quality of its public education. It has increased accountability and instituted more rigorous curricula, but it continues to face challenges in preparing its students for success in the 21st century.

Student Population

Texas has the nation's second-largest elementary and secondary school enrollment, accounting for 9 percent of the U.S. total.¹⁵⁵ The state's 1,031 public school districts, including 7,729 campuses, and 191 charter operator, including 332 campuses, provide early education through twelfth grade for about 4.6 million students, 20 percent more than ten years ago.¹⁵⁶

The State Data Center estimates that the public elementary and secondary school population will grow by about 900,000 between 2010 and 2040, assuming net migration rates of about one-half of that experienced during the 1990-2000 decade.¹⁵⁷

The state's student population has become more diverse over the last decade and will con-

DID YOU KNOW?

Public education was appropriated \$24.4 billion — about 28 percent of the state budget — for fiscal 2008.





continue to do so through 2040, according to current projections. The segment with the greatest growth is Hispanics, whose share will grow to about 60.9 percent of the total; Whites will decline to 25.9 percent; Blacks will decline to 9.5 percent; and “Other” ethnicities will grow to 3.7 percent of the total (Exhibit 27).¹⁵⁸

In addition, the state’s share of students identified as Limited English Proficient (LEP) rose from 13.4 percent in 1996-97 to 16 percent of all children in 2006-07.¹⁵⁹ The Texas Education Agency (TEA) reports that 127 languages are spoken by the state’s schoolchildren.¹⁶⁰

Texas also has seen a significant increase in the number and percentage of economically disadvantaged students in public schools. In the 1996-97 school year, about 1.8 million students, or 48.1 percent of all Texas students, were identified as economically disadvantaged. In the 2006-07 school year, about 2.5 million children — 55.5 percent of all Texas students — were considered economically disadvantaged.¹⁶¹

Accountability

In 1990, the Texas Legislature established the state’s first accountability system for public

education based on school district and campus ratings tied to certain measurable indicators. The system currently uses TAKS test scores, alternative test scores for Special Education students, annual dropout rates and school completion rates.¹⁶² Using these indicators, the system rates school districts and campuses as “Exemplary,” “Recognized,” “Academically Acceptable” or “Academically Unacceptable.”¹⁶³

As of August 2007, excluding charter schools, 19 Texas public school districts were rated Exemplary; 190 were rated Recognized; 801 were rated Academically Acceptable; and 21 were rated Academically Unacceptable. Of total campuses, again excluding charter operators, 628 were rated Exemplary; 2,317 were rated Recognized; 3,891 were rated Academically Acceptable; 232 were rated Academically Unacceptable; and 661 were listed as “Not Rated: Other.”¹⁶⁴ The latter category includes districts and campuses that are not rated in the accountability system, such as alternative education or early childhood programs.

The key criterion of the accountability system is the competency of students in core subjects as measured by testing against academic standards.¹⁶⁵ The most current standards, the Texas Essential Knowledge and Skills (TEKS), became effective on September 1, 1998. Texas Assessment of Knowledge and Skills (TAKS) testing based on these standards began in spring 2003, and accountability ratings using the new tests began in fall 2004.¹⁶⁶

The 2007 Texas Legislature, however, passed legislation that phases out TAKS for grades 9-12, including the exit-level test required to receive a diploma. In its place, beginning in the 2011-12 school year, ninth-grade students will take end-of-course exams in core subjects,

Exhibit 27

Ethnicity of Students in Texas Public Schools 1996-97 Actual – 2040 Projected

Ethnicity	1996-97 Actual	2006-07 Actual	2040 Projected
White	45.6%	35.7%	25.9%
Black	14.3%	14.4%	9.5%
Hispanic	37.4%	46.3%	60.9%
Other	2.7%	3.6%	3.7%
Total	100%	100%	100%

Sources: Texas Education Agency and Texas State Data Center.



including those previously covered in the exit-level test. To pass these exams, a student must score at least 60 points on a scale of 100; to receive a diploma, students must score a cumulative average of at least 70 points when all tests are considered.¹⁶⁷

TAKS testing will continue for students in grades 3 through 8 in reading; grades 4 and 7 in writing; grades 3 through 8 in mathematics; grades 5 and 8 in science; and grade 8 in social studies. **Exhibit 28** provides the percentage shares of students who passed all assessments in the 2006-07 academic year.¹⁶⁸

In addition, Texas has also instituted the “Student Success Initiative,” which requires students to pass the TAKS reading assessment or an approved alternate test in third grade, or receive a unanimous decision by a school’s grade placement committee, to advance to fourth grade. Students must also meet requirements for reading and mathematics in fifth grade and in eighth grade to be promoted to the next grade.¹⁶⁹

A National Center for Educational Statistics report for 2007, *The Nation’s Report Card*, provides interstate comparisons based on the National Assessment of Educational Progress (NAEP), administered by the U.S. Department of Education and a bipartisan governing board; the NAEP is a collection of tests that measure levels of proficiency in core subject areas.¹⁷⁰

The report found that Texas eighth-graders scored above the national average of 280 in mathematics, ranking 15th in the nation; their reading scores were tied at the national average; and science scores, last measured in 2005, were slightly lower than the national average of 147. Their reading rank among

Exhibit 28

**2007 TAKS Results
Selected Characteristics
Sum of All Tests, All Grades Tested**

Student Population	Percent Passing All TAKS Tests
State	67%
Black	52%
Hispanic	59%
White	80%
Native American	71%
Asian/Pacific	87%
Male	67%
Female	67%
LEP	47%
Economically Disadvantaged	57%

Note: Includes 8th grade Science.
Source: Texas Education Agency.

the states was 31st, however, and their science rank was 35th. In addition, while mathematics scores and ranking improved from 2000, reading and science scores remained relatively stable, and the state’s rankings declined (**Exhibit 29**).¹⁷¹

Although Texas’ fourth-graders improved their scores during the same time period in all three subjects, so did children in other

Exhibit 29

Average Scores for Texas Students in Grade 8 and State Rankings, National Assessment of Educational Progress 2000-2007

Subject	2000 Average Score	2000 State Ranking	2007 Average Score	2007 State Ranking
Mathematics	273	20	286	15
Reading*	262*	26	261	31
Science*	143	28	143*	35

* Reading average score is for 2002; no 2000 score is available. Science average score is for 2005; no 2007 score is available. Six states were not included in the Science assessment.
Source: National Center for Educational Statistics.



Exhibit 30

Average Scores for Texas Students in Grade 4 and State Rankings, National Assessment of Educational Progress 2000-2007

Subject	2000 Average Score	2000 State Ranking	2007 Average Score	2007 State Ranking
Mathematics	231	7	242	20
Reading*	217*	29	220	31
Science*	145	29	150*	29

* Reading average score is for 2002; no 2000 score is available. Science average score is for 2005; no 2007 score is available. Six states were not included in the Science assessment. Source: National Center for Educational Statistics.

states, causing Texas' state ranking to decline in mathematics and reading (Exhibit 30). Their mathematics score was higher than the national average of 239, their reading score tied the national average, and they scored one point higher in science.¹⁷²

The federal No Child Left Behind Act (NCLB) of 2001 requires all states to have students proficient in math and reading by

2013-14. To measure their proficiency, all states must have a state-defined accountability system and report "adequate yearly progress" toward proficiency on a state, district and campus basis. They must measure progress based on annual tests and related academic indicators, such as graduation rates, and have annual goals designed to ensure that all districts and campuses have students proficient by 2013-14.¹⁷³ To comply with the law, Texas measures districts and schools against TAKS or alternative test participation and performance standards or performance improvement standards and against graduation rates, if the district or school offers Grade 12, or attendance rates if they do not.¹⁷⁴

Parents whose children attend schools receiving federal Title I funds (aid awarded based on the percentage of students from low-income families) that do not meet these annual improvement goals for two consecutive years may transfer their child within the district, and the district must pay for the transportation. If school districts fail to meet adequate yearly progress goals for three years running, they must provide free tutoring services outside the regular school day; schools that remain in this status after three years are subject to corrective action and restructuring, including takeover or reorganization.

In 2007, 96.8 percent of Texas school districts and 67.6 percent of campuses, including charters, received Title I funds.¹⁷⁵ While most of the state's 1,205 regular and charter public school districts measured for adequate yearly progress met standards in 2007, 131 Title I districts and another five non-Title I districts did not. Of 7,111 regular and charter campuses measured statewide, 485 Title

Exhibit 31

Comparison of Proficiency in Reading and Mathematics TAKS (Spring 2007) and NAEP (2007)

Grade/Subject	TAKS Percent Meeting Standard	NAEP – Percent At or Above Proficiency (Texas)	NAEP – Percent At or Above Proficiency (National Average)
4th Grade Reading	84%	30%	32%
4th Grade Mathematics	86%	40%	39%
8th Grade Reading	89%	28%	29%
8th Grade Mathematics	73%	35%	31%

Note: Meeting the 4th grade TAKS reading standard required getting 27 of 40 points correct; the mathematics standard required getting 28 of 42 points correct. Meeting the 8th grade TAKS reading standard required getting 33 of 48 points correct; the mathematics standard required getting 30 of 50 points correct. The NAEP "proficient" standard for reading required fourth graders to score 238 or more and eighth graders to score 281 or more on a 500-point scale score. The NAEP "proficient" standard for mathematics required fourth graders to score 249 or more and eighth graders to score 299 or more on a 500-point scale score. Sources: Texas Education Agency and National Center for Educational Statistics.



I campuses and 179 non-Title I campuses missed the standards.¹⁷⁶

Although the state uses TAKS results to comply with NCLB, TAKS is not comparable with other states' tests. The NAEP tests, however, provide for interstate comparisons of proficiency in core subject areas.¹⁷⁷

In 2007, the NAEP found that 30 percent of Texas' fourth-graders were proficient or better in reading compared to a national average of 32 percent. Forty percent were proficient or better in mathematics, compared to a national average of 39 percent. On the other hand, 84 percent of fourth-graders met the TAKS reading standard in 2007, and 86 percent met the TAKS mathematics standard (**Exhibit 31**).¹⁷⁸

The NAEP also found that 28 percent of Texas eighth-graders were proficient or better in reading, compared to a national average of 29 percent; 35 percent were proficient or better in mathematics compared to a national average of 31 percent. About 89 percent of eighth-graders met the TAKS reading standard in 2007, and 73 percent met the TAKS mathematics standard.¹⁷⁹

Outcomes

Texas business and educational experts have stressed the need to continue increasing educational standards to make more students college-ready.¹⁸⁰ The number of credits required to graduate under Texas' "Recommended" graduation plan has risen to 26, beginning with students entering the ninth grade in the 2007-08 academic year; the number of advanced mathematics and science credits required under the program increased from three to four.¹⁸¹

The more stringent Recommended plan became the standard graduation plan for

entering ninth-graders in the 2004-05 school year; this plan includes all of the courses that most colleges require for admission. Students also may graduate under the Distinguished Achievement plan, which has even more stringent requirements; or the Minimum plan, which is less stringent than the Recommended plan, requiring only 22 credits to graduate, but parental and school approval are required for participation.¹⁸²

As a result of these changes, the percentage of students graduating under the Recommended or Distinguished Achievement plans rose from about 51 percent in 2000-01 to more than 75 percent in 2005-06, although the total number of public high school graduates in Texas peaked in 2003-04 with 244,165; in 2005-06, only 240,485 graduated (**Exhibit 32**).¹⁸³

In addition to stronger graduation requirements, the state has made more college-level courses available to students in high school. Students are being offered more Advanced Placement (AP) and International Baccalaureate (IB) courses, which provide college credit if students score high enough on exams. In 2006, 18.9 percent of students attempted at least one AP or IB exam, and 51.3 percent of them met the minimum score for college credit on at least one exam.¹⁸⁴ Concurrent or dual-enrollment courses, which provide both high school and college credit, are becoming more common as well.

Despite recent progress, many education and business leaders remain concerned that Texas is not producing enough high school graduates with the skills needed to succeed in college or the workplace. To help address this concern, the Texas Legislature in 2006 directed the State Board of Education (SBOE) to develop college



Exhibit 32

Texas Public School Graduates

Graduation Plan	2000-01	Percent of Total	2003-04	Percent of Total	2005-06	Percent of Total
Recommended	99,454	46.2%	147,051	60.2%	157,626	65.5%
Distinguished Achievement	10,661	5.0%	19,920	8.2%	24,355	10.1%
Minimum	105,201	48.9%	77,194	31.6%	58,504	24.3%
Total	215,316	100.0%	244,165	100.0%	240,485	100.0%

Note: Numbers may not total due to rounding.
Source: Texas Education Agency.

readiness standards and incorporate them into the TEKS. To assist SBOE in this task, the Legislature also directed the commissioners of education and higher education to appoint “vertical teams” of high school and college faculty. These vertical teams are responsible for developing college readiness standards in English language arts, math, science and social studies. These standards will be subjected to public comment before being approved by the Commissioner of Education and the Texas Higher Education Coordinating Board. They will then be submitted to SBOE for consideration; SBOE has final authority for deciding what will be included in the new curriculum standards.¹⁸⁵

In April 2007, Governor Perry appointed the Commission for a College Ready Texas to “engage all Texans in a discussion of what skills and knowledge a student must possess to be college ready, and to provide expert resources and general support to the vertical teams and the State Board of Education (SBOE).” The commission, of which Comptroller Susan Combs is a member, released a report in November 2007 outlining its findings and recommendations. The report made recommendations to strengthen the state’s high school curriculum to help ensure

graduates are prepared to succeed in college or the workforce. As noted above, SBOE will make the final decisions on what to include in the TEKS.¹⁸⁶

Many students are not reaping the advantages of recent educational improvements. The most common reason for dropping out is falling behind in school. Freshmen have the highest retention rates — that is, the rate at which they are forced to repeat a grade. In 2005-06, 16.5 percent of Texas freshmen were retained in Grade 9, the highest rate by far of any grade. Grade 10 had the next highest rate, at 8.7 percent; on the other hand, only 1.8 percent of eighth-graders were retained. Hardest-hit are minorities, who are about twice as likely to be held back; about one in five Black and Hispanic students do not advance to Grade 10 after Grade 9.¹⁸⁷

The Texas Education Agency’s (TEA’s) reported attrition rate, which compares ninth-grade enrollment in 2002-03 (372,396) to twelfth-grade enrollment in 2005-06 (256,799) was 31 percent; however, this rate does not take into account such factors as student enrollment growth or retention and students who graduate early, receive a GED



or leave for a legitimate reason other than dropping out.¹⁸⁸

Using TEA's current definition, the 2005-06 annual dropout rate for Texas public school students in Grades 9-12 was 3.7 percent; for Grades 7-12, it was 2.6 percent. TEA's annual dropout rate is much lower than its attrition rate because it only measures the number of students who dropped out in one year — the "annual" rate. TEA recently changed its dropout rate definition to the National Center for Education Statistics' definition, to allow for interstate comparisons, so TEA's current rates cannot be compared with its previous rates. NCES defines a dropout as a student who "does not return to public school the following fall, is not expelled, and does not graduate, receive a GED, continue school outside the public school system, begin college, or die."¹⁸⁹

Males represented a higher proportion of dropouts than females — 55.5 percent compared to 44.5 percent; of the total 7th-12th grade population, males represented 51.3 percent compared to 48.7 percent for females. Among ethnic groups, Hispanics represented 56.5 percent of total dropouts compared to 22.6 percent for Blacks and 19.4 percent for Whites; of the total 7th-12th grade population, Hispanics represented 41.5 percent compared to 15.4 percent for Blacks and 39.6 percent for Whites.¹⁹⁰

Of the total students who graduate from high school, about one-half attend a two-year college or undergraduate university within a year of graduation. Of total graduating students, about 41.6 percent of Hispanics, 44.5 percent of Blacks, 46.6 percent of Native Americans, 57.7 percent of Whites

and 63.5 percent of Asians attend college within a year of graduating.¹⁹¹

For those who do not, some may attend proprietary schools to obtain a skill or credential while others begin employment, usually in low-skilled, low-wage positions. For students who do not intend to further their education beyond high school, career and technology education is their only chance to learn a skill before entering the work force.

Career and Technology Education

Secondary career and technology education in Texas and throughout the nation has become more expansive, rigorous and integrated with academics in recent years. This trend began in the 1990s, in response to demands for more skilled and knowledgeable employees that could adapt to the changing demands of a global economy.

About 941,000 Texas public school students were enrolled in a career and technology program in 2006-07, a number representing almost half of all students in grades 7-12.¹⁹² Business education has the highest concentration of students, with 35 percent of career and technology students enrolled in at least one of these courses in 2004-05. About 19 percent were enrolled in family and consumer sciences; the remaining study areas each had less than 15 percent of total enrollment.¹⁹³

The variety of courses in career and technology has expanded in recent years, as computer technology has opened new fields and occupations and gender barriers have been reduced. Some schools have developed "academies" in certain areas, such as business or allied health, which offer courses that are integrated to provide for a cohesive continuum of training.



Another significant change in career and technology education has been the infusion of academics and an understanding of global competitiveness, making them more relevant and challenging than in the past.

To provide more course options and the latest technologies, texts, equipment and information, many high schools have formed partnerships with community colleges and universities; if they qualify academically, students may take some courses at a community college or university campus or from a college professor who teaches at the high school. Students may receive high school and college credit for these dual or concurrent enrollment classes.

Texas Higher Education Coordinating Board (THECB) rules allow students to take no more than two dual or concurrent enrollment classes per semester unless they meet certain exceptional qualifications. Some high schools may further limit this number.¹⁹⁴ More commonly, students enroll in Tech Prep programs, which provide college credit for college-level technology courses taken in high school upon graduation and enrollment in the community college.

High schools generally require students enrolling concurrently to pay for course

tuition, fees and books, which can provide a disincentive, although colleges may waive all or some portion of these tuition and fees. TEA currently has a pilot project to reimburse certain districts for books bought for economically disadvantaged students.¹⁹⁵

School Finance

The total actual cost of Texas public education, including capital outlay and debt service, was \$9,629 per student in 2005-06; instruction represented 44.6 percent of that amount. Since the 2000-01 school year, the total actual cost per student has risen by 16.8 percent, from \$8,245. The average teacher salary increased by 8.8 percent during the same time period.¹⁹⁶

State funding for public education is provided through the Permanent School Fund, the Available School Fund and the Foundation School Program. The Foundation School Program, composed of state revenue and local property tax revenue, funds the largest share of education. State funds are disbursed according to a system of formulas based on district and student characteristics. State funding is intended to ensure that each school district can provide adequate educational resources to

Exhibit 33

Revenue Sources for Texas Public Education (in billions)

Sources	2000-01 Actual Revenue	Percent	2005-06 Actual Revenue	Percent	2006-07 Budgeted Revenue	Percent
Local Taxes	\$12.9	43.0%	\$19.1	48.3%	\$18.8	51.0%
State	\$12.5	41.8%	\$13.4	33.9%	\$15.3	41.5%
Federal	\$2.4	8.2%	\$4.5	11.5%	\$1.3	3.5%
Other Local*	\$2.1	7.1%	\$2.5	6.3%	\$1.4	3.9%
Total	\$29.9	100.0%	\$39.5	100.0%	\$36.8	100.0%

*'Other Local' refers to local revenues primarily from services provided to other school districts. Data do not include equity transfers or certain other receipts, such as sale of bonds. Note: Numbers may not total due to rounding. Source: Texas Education Agency.



meet the needs of its students regardless of its local property tax base.

One issue that has been debated for many years has been the declining state share of public school funding. By 2005-06, local property taxes were providing 48.3 percent of all revenue used to fund public schools, as opposed to 43 percent in 2000-01; the state’s share declined from 41.8 percent to 33.9 percent over the same period (**Exhibit 33**).¹⁹⁷ In 2004-05, compared with other states, Texas ranked 49th in the state’s share of per pupil revenue but 17th in its local share of per pupil revenue.¹⁹⁸

In an effort to ease the burden on property taxpayers, the 2005 Legislature cut school property taxes by an estimated 11 percent in 2007 and 33 percent in 2008; however, increasing property values are likely to offset some of this relief. Budgeted financial data for 2006-07 show the state’s share of revenue growing to 41.5 percent and increasing by almost \$2 billion over the previous year. In addition, revenue from local taxes is budgeted to decline to \$18.8 billion from \$19.1 billion in 2005-06; however, the percent of local share is

budgeted to increase primarily because federal and other local revenue are expected to decline sharply. State share is likely to increase again for the 2007-08 school year as the new school funding system is fully implemented.¹⁹⁹

Preliminary data from TEA confirm that the state share of aid will expand in fiscal 2007 and 2008 as a result of actions by the 2007 Legislature. **Exhibit 34** shows the state share growing from 52.6 percent in fiscal 2006 to 61.5 percent in 2008; the total funding per student, as measured by Refined Average Daily Attendance (RADA), will also grow by 44.7 percent, from \$4,852 in fiscal 2006 to \$7,026 in fiscal 2008.²⁰⁰

As the state’s accountability system has matured, funding teacher pay according to performance has become a subject of debate. Starting in fall 2007, Texas began funding the “Awards for Student Achievement” teacher incentive program at \$97.5 million per year for teachers at educationally disadvantaged campuses; in addition, the new Educator Excellence Awards Program will provide \$147.8 million in fiscal 2009 for

Exhibit 34

State Aid Funding

	2002-03	2005-06 (p)	2006-07 (p)	2007-08 (p)
Total Refined ADA (RADA)	3,939,620	4,187,231	4,252,288	4,361,881
Total State Aid	\$10,824,191,130	\$10,683,875,820	\$14,462,444,375	\$18,831,899,272
Local Share	\$8,097,616,916	\$9,631,462,023	\$10,445,878,115	\$11,785,994,760
Total State and Local	\$18,921,808,046	\$20,315,337,843	\$24,908,322,490	\$30,617,894,032
State Aid per RADA	\$2,748	\$2,552	\$3,401	\$4,317
Local Share per RADA	\$2,055	\$2,300	\$2,457	\$2,702
Total per RADA	\$4,803	\$4,852	\$5,858	\$7,019
Percent State	57.2%	52.6%	58.1%	61.5%
Percent Local	42.8%	47.4%	41.9%	38.5%

Note: Data as of December 10, 2007.
Source: Texas Education Agency.



teacher incentive funding in districts with approved plans.²⁰¹

The base amount that teachers are paid is another ongoing issue; as a result, the 2005 Legislature provided funding for a net \$2,000 base salary increase for teachers.²⁰² The 2007 Legislature further increased educator salaries by about \$430 for the 2008-09 biennium.²⁰³

During 2006-07, Texas teachers earned an average of \$44,897 for regular duties, 17 percent more than the \$38,361 average for 2000-01.²⁰⁴ (The average is affected by the teachers' collective number of years of experience and state and local pay increases. Average salaries for teachers may also be less

than for people with comparable education and experience because they work under a 10-month contract.)

A related issue has been the need to reduce high turnover rates, especially among less experienced teachers. Average salaries for all teachers have risen over the last several years, but pay for beginning teachers, especially, and those with less experience has increased at a higher rate than that for more experienced teachers since 2000-01 (Exhibit 35).²⁰⁵

The state's number of teachers with less experience also increased at a higher rate (Exhibit 36).²⁰⁶

This shift has reduced Texas teachers' average years of experience from 11.9 in 2000-01 to 11.3 years in 2006-07. The average turnover rate also declined, from 16 percent in 2000-01 to 15.6 percent in 2006-07, possibly due to the salary increases.²⁰⁷

Exhibit 35

Texas Average Actual Salary, Public School Teachers, 2000-01 and 2006-07 School Years

Experience	2000-01 Average Actual Salary	2006-07 Average Actual Salary	Percent Change
Beginning	\$29,824	\$38,095	27.7%
1-5 Years	\$31,987	\$39,880	24.7%
6-10 Years	\$35,304	\$42,380	20.0%
11-20 Years	\$41,755	\$47,042	12.7%
>20 Years	\$48,183	\$55,028	14.2%

Source: Texas Education Agency.

Higher Education

Higher education is critical to the Texas economy because it is the key to providing a highly qualified work force in an increasingly technical world. Higher education also helps to meet specific local and regional employer demands for skilled employees. Finally, it provides higher salaries throughout a graduate's lifetime, increasing the quality of life for these individuals and their families.

The Texas Legislature recognized the importance of these factors by referencing the Texas Higher Education Coordinating Board's *Closing the Gaps* master plan for higher education in state law.²⁰⁸ The plan calls for improved statewide participation, better graduation outcomes, improved excellence and increased research funding by 2015.²⁰⁹

Exhibit 36

Texas Public School Teachers, By Years of Experience, 2000-01 and 2006-07 School Years

Experience	2000-01	2006-07	Percent Change
Beginning	21,493.2	25,153.0	17.0%
1-5 Years	75,174.0	90,607.2	20.5%
6-10 Years	49,717.2	60,919.8	22.5%
11-20 Years	69,508.6	73,448.4	5.7%
>20 Years	58,923.6	61,337.9	4.1%

Note: Number of teachers is based on full-time equivalent teachers. Source: Texas Education Agency.



In recent years, partly in response to THECB’s plan and its tracking measures, the state has made major changes to its higher education system, including its funding methods, student financial aid and admission policies. In the process, the state has explored fundamental questions about the system, its structure and purpose; enacted innovative and sometimes untried policies; and addressed controversial issues — some of which remain unresolved.

Availability

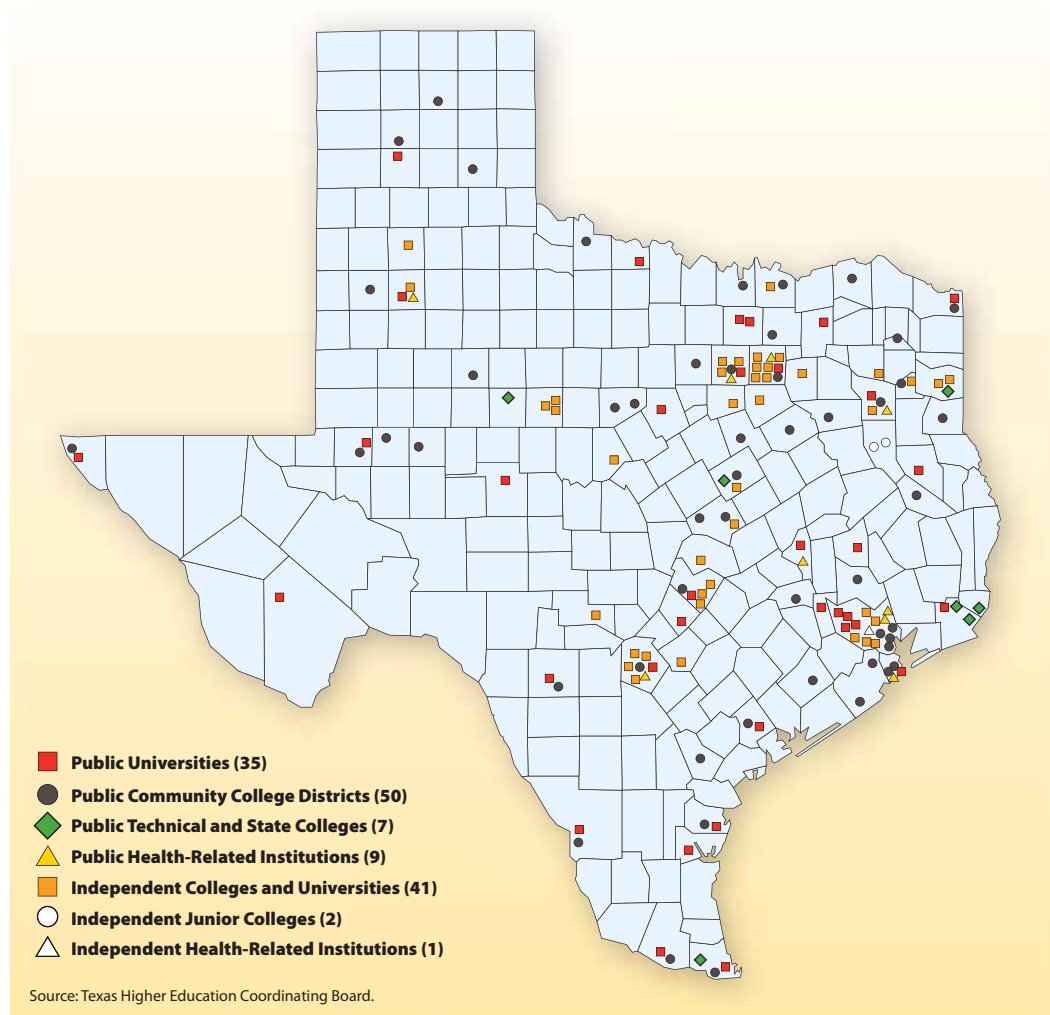
One factor affecting higher education participation is the availability of educational opportunities. Texas has 145 higher education institutions, including 101 public universities and colleges. Public institutions include 35 universities, nine health-related institutions, seven technical and state colleges and 50 community college districts; private institutions include 39 universities, two junior colleges, two chiropractic colleges and one medical school (**Exhibit 37**).²¹⁰

DID YOU KNOW?

Higher education was appropriated \$10.1 billion — about 12 percent of the state budget — for fiscal 2008.

Exhibit 37

Texas Public Institutions of Higher Education





In addition, the Texas Workforce Commission lists about 250 proprietary and nonprofit schools in the state, many with multiple campuses, offering career and technology training.²¹¹ Online opportunities also have increased the availability of higher educational programs to anyone with access to a computer.

To make more classroom education available in regions with growing or high demand, and to conserve on costs, the state has established nine higher education centers, sometimes called multi-institution teaching centers (MITCs), that offer courses at one central location or at several sites. MITCs are partnerships between institutions of higher education and may include public community and technical colleges, public universities and independent colleges and universities. Students enroll through their college or university but can attend classes at the MITC.²¹²

In addition, Texas is establishing a new medical school in El Paso and has authorized a new MITC in East Williamson County.²¹³ Certain junior colleges also have been authorized to offer up to five baccalaureate programs.²¹⁴ These additions will increase availability for undergraduate and graduate education in areas of the state where demand has outpaced availability.

Texas' community colleges, which are open to anyone who applies and serve almost all areas of the state, offer a variety of one-year technical certifications and two-year associate degrees in a wide variety of technical and academic subjects. In addition, the community college system offers many classes at night and on weekends year-round, through the Internet and at satellite centers such as high schools,

providing flexibility that allows the system to respond relatively quickly to changes in enrollment, employer and regional demand.

Even so, THECB reports that 17 percent of two-year students in its Southeast region and 15.6 percent in its Northwest region attended Texas two-year institutions outside their home region in 2005, compared with just 5.6 percent statewide. This may reflect a lack of institutions within these (generally more rural) areas; closer proximity of students to institutions in neighboring regions; or greater availability of course offerings in other regions.²¹⁵

THECB's Northwest and Upper East Texas regions ranked highest in 2005 for the percentage of students traveling outside the region but within the state to attend undergraduate universities — 65.3 percent and 64.1 percent respectively, compared with 36.3 percent statewide. These percentages probably reflect the relatively low number of universities in those regions.²¹⁶

Demand has outstripped the supply of certain programs, such as nursing, throughout the state. In response, Texas has increased incentive funding for nursing and other allied health programs in short supply and streamlined the process for establishing new nursing programs beginning in 2007.²¹⁷ As a result, some areas are starting to see lower nursing demand or are projecting additional nurses being available in the near future.²¹⁸ Although the demand is still greater than the supply, THECB reports that the state is now on target for meeting its 2015 goals for graduates in health fields.²¹⁹

Accessibility

Another factor affecting participation in higher education is the accessibility of



educational opportunities. One of the most debated aspects of this issue has been admission to Texas universities.

Since 1998, the state has guaranteed admission to Texas public universities to all Texas high students ranked in the top 10 percent of their high school graduating classes. Starting in 2008-09, freshmen must also graduate under the more demanding Recommended or Distinguished Achievement high school graduation plans to gain automatic admission under the 10 percent rule. (See the Outcomes section for a discussion of graduation plans.)²²⁰

Higher education leaders attribute the increased numbers and percentages of minorities, particularly Hispanics, enrolled in Texas institutions, and particularly at the University of Texas at Austin (UT), primarily to the 10 percent rule; other factors, such as increased recruitment and incentives, also have contributed.²²¹

The Hispanic population in Texas rose by 22.1 percent from 2000 to 2005 (most recent data available).²²² Total Hispanic enrollment at Texas public universities rose from 81,180 in fall 2000 to 117,816 in fall 2007, a 45.1 percent increase; UT's total Hispanic enrollment rose from 5,920 to 7,991 over the same period, a 35 percent increase.

The increase in UT's Hispanic enrollment is more significant than these numbers indicate, however, since UT kept its total enrollment relatively flat from fall 2000 to fall 2007 at about 50,000 students, compared with an 19.9 percent increase in total enrollment for public universities statewide. UT increased the Hispanic share of its total enrollment from 11.8 percent in fall 2000 to 15.9 percent in fall 2007, compared with 19.6 percent to 23.7 percent statewide.

Despite these increases, since the statewide share of Hispanic enrollment also increased, the university continues to lag about 7.8 percentage points behind the statewide share.²²³

In all, then, UT's Hispanic share of total enrollments rose by 4.1 percentage points from fall 2000 to fall 2007, the same as statewide enrollment growth of 4.1 percentage points. From fall 2000 to fall 2005, however, the Hispanic share of the state's total population increased by 3.6 percentage points, from 32 percent to 35.6 percent. At this rate of growth, enrollments statewide and at UT will continue to lag behind the Hispanic share of the state's population.²²⁴

Black enrollment at UT grew by 33.6 percent from fall 2000 to fall 2007, from 1,582 to 2,113; this represents an increase from 3.2 percent of total enrollment to 4.2 percent during the same period. Statewide, Black enrollment increased from 9.8 percent of total enrollment to 11.4 percent.²²⁵ The Black share of the state's total population fell from 11.5 percent in 2000 to 11.4 percent in 2005, which means that the gain in share of enrollment has been a real gain when compared with population growth.²²⁶

The 10 percent rule also is having an effect on the number and percentage of females accepted to Texas public universities. Statewide, 62 percent of students accepted under the 10 percent rule in summer and fall 2006 were female, compared with only 54.8 percent of total students accepted; females represented 53.9 percent of all applicants. At UT, 58.5 percent of students accepted under the top 10 percent rule were female, but only 46.5 percent of students accepted under other criteria were female. Females represented 54.3 percent of all students accepted to the university.



The percentage of first-time undergraduates accepted to Texas public universities who ranked in the top 10 percent of their high school graduating class rose from 21.1 percent in fall 2000 to 23 percent in fall 2006. First-time undergraduate acceptances at UT under the 10 percent rule, however, have increased from 31.9 percent in fall 2000 to 72.8 percent in fall 2006. The top 10 percent group at UT increased from 52.1 percent of fall enrollment of first-time undergraduates in 2000 to 75.8 percent in fall 2006. Statewide, the top 10 percent group enrollment rose from 25.3 percent to 26.5 percent of the total enrolled (**Exhibit 38**).²²⁷

The increase in the top 10 percent group as a percentage of the total enrolled as first-time graduates at UT was due primarily to rela-

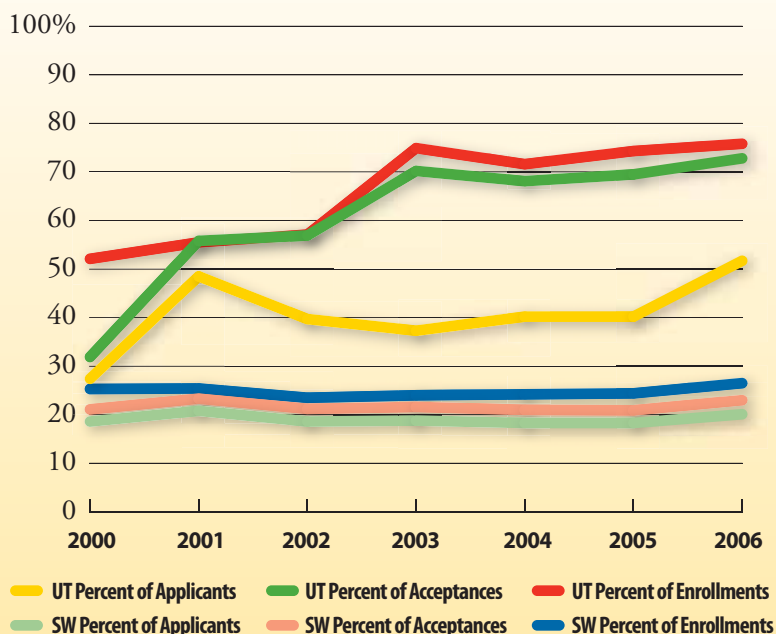
tively flat total acceptances and enrollment compared to an increase in applicants in the top 10 percent group and a cut in total acceptances in fall 2003. UT cut total acceptances in fall 2003 by almost 1,000 students from the year before and did not exceed fall 2002 acceptance levels until fall 2006. Although UT increased total acceptances by 11.2 percent over the fall 2000 to fall 2006 period, total first-time undergraduate enrollment rose only slightly, by 2.6 percent, after dipping below fall 2000 levels in fall 2003 (**Exhibit 39**).²²⁸

Nearly 40 percent of all Texas students who qualify for automatic admission under the 10 percent rule apply to UT.²²⁹ A continuing rise in the number of high school graduates accepted to UT under the rule poses a potential problem for some who prefer that the university maintain its current size, as it has for many years, and employ more than one criterion to select students; others view it as a positive way to increase qualified candidates and minority enrollment.²³⁰

Although the total number of first-time undergraduate students at Texas public universities has increased, the percentage of applicants accepted has declined slightly, from 88.5 percent in fall 2000 to 87.6 percent in fall 2006; the number of applications grew by 41 percent and the number of applications that were accepted grew by 39.6 percent. The top 10 percent group grew as a percentage of enrollment from 25.3 percent to 26.5 percent from fall 2000 to fall 2006.²³¹ These data indicate that for the most part, universities are expanding to accommodate applicants, and the top 10 percent group is having little effect on competitiveness.

Exhibit 38

The University of Texas at Austin and Statewide Students Under Top 10 Percent Rule as Percent of Total First-time Undergraduates



Source: Texas Higher Education Coordinating Board.



For UT, the percentage of first-time undergraduate applicants accepted to the university declined from 85.8 percent in fall 2000 to 71 percent in fall 2006.²³² Total fall applicants to UT increased by 4,386 over this period, but the total accepted increased by only 1,224; applicants accepted under the top 10 percent rule increased by 5,348.²³³ If these trends continue and UT does not expand its capacity, gaining admittance to this institution may become increasingly difficult for those who do not qualify under the 10 percent rule.

Affordability

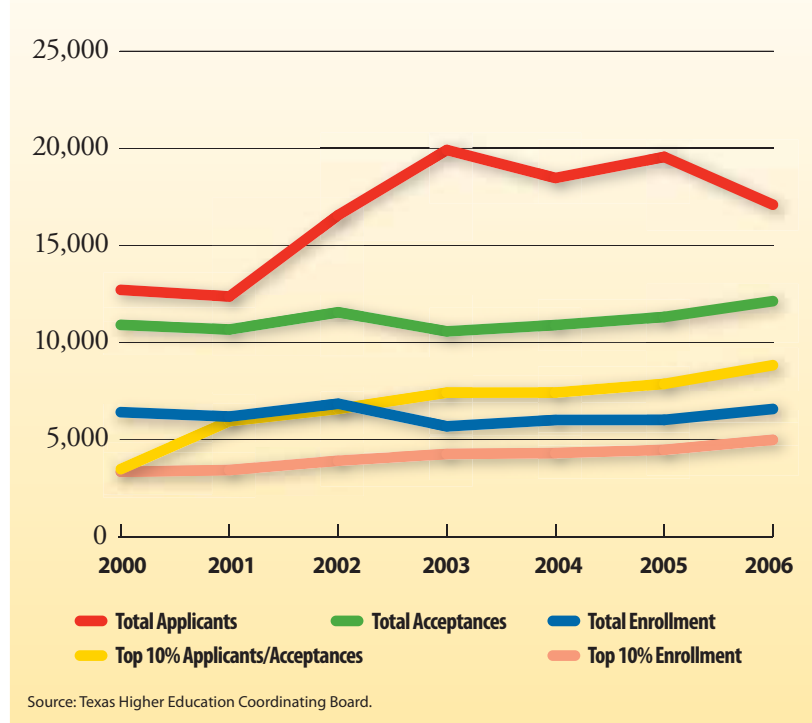
Another key to increasing both participation and graduation outcomes is ensuring the affordability of higher education. Traditionally a “low tuition, low aid” state, Texas deregulated tuition in 2003, allowing institutions to set their own rates.²³⁴ To offset the resulting tuition increases, the state expanded financial aid—but not enough to curb a growing gap between college costs and aid.

The state requires its public undergraduate institutions to set aside 15 percent of state-mandated resident tuition and, since deregulation, not less than 20 percent of other tuition above \$46 per semester credit hour, to assist undergraduate students with financial aid.

In addition to institutional and federal financial assistance and tax incentives, eligible students can access a wide variety of state aid as well as a 529 college savings plan, which provides special tax benefits under section 529 of the Internal Revenue Code to families that set aside funds for future college costs. In Texas, the plan is called the Texas College Savings Plan; it was established and is maintained by the Texas Prepaid Higher Education

Exhibit 39

UT Applicants, Acceptances and Enrollments First-time Undergraduates Total and Top 10 Percent Group Fall 2000 - Fall 2006



Tuition Board (TPHETB) and staffed by the Comptroller of Public Accounts.²³⁵ The 2007 Legislature passed a program of prepaid tuition contracts, also administered by TPHETB and staffed by the Comptroller’s office, which starts September 1, 2008, and will allow families to purchase tomorrow’s tuition at today’s costs.²³⁶

Texas public and private institutions of higher education received about \$4.8 billion in total need-based financial aid to assist students in fiscal 2006. Need-based aid includes gift aid, which does not have to be paid back, loans and work-study. The federal government awarded 76.1 percent of that amount; the state provided another 11.3 percent, or about \$541 million; institutions gave 6.8 percent



of the total; and 5.8 percent came from other sources.²³⁷ Total annual aid has risen by about 60 percent since fiscal 2002, but the state has more than doubled the amount it contributes.²³⁸

The state's largest program, the TEXAS Grant Program, which began in fiscal 2000 with \$19.8 million, disbursed \$198.7 million to 62,435 recipients in fiscal 2008. An estimated 42,000 students that qualify for the grant in fiscal 2008 will not receive it due to inadequate funding levels.²³⁹

Another new effort, the B-On-Time Loan Program, which forgives loans of students who graduate on time, provided 7,384 students with \$26.9 million in fiscal 2006. Currently, the program has no funding for new students.²⁴⁰

In fiscal 2006, about half of all students attending Texas public and private institutions, more than 582,000, received some type of need-based aid. This represented 62.5 percent of students who enrolled and applied for such aid. Of the total receiving aid, 94 percent registered Texas as their home state.²⁴¹

Despite recent increases in state financial aid, the gap between actual college costs and aid received by Texas students rose from \$2.3 billion in fiscal 2001 (in constant 2006 dollars), to \$3.9 billion in 2006, a 71 percent increase in costs that students and their families must cover (**Exhibit 40**).²⁴²

Estimated average annual tuition and fees at Texas undergraduate universities, based on 30 semester credit hours, increased by \$2,128, or 61.8 percent, from 2003 to 2007.²⁴³

Community colleges have the lowest tuition and fee requirements, although students who live outside community college taxing districts must pay more than in-district students. Annual public community college tuition and fees for students living within the community college taxing district, based on 15 credit hours for each semester, averaged an estimated \$1,639 in 2007-08, compared with \$5,569 for undergraduate universities. THECB estimates total 2007-08 resident costs of attending community colleges — including tuition and fees, books and supplies, room and board, transportation and personal expenses — at \$10,456, and undergraduate institutions at \$16,995.²⁴⁴

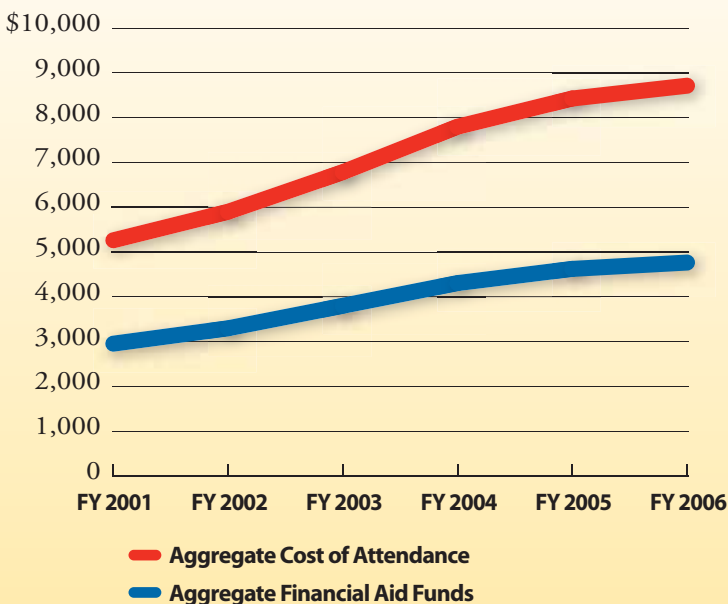
Participation

By fall 2006, Texas was about a third of the way to reaching its *Closing the Gaps* participation outcomes for total enrollment in undergraduate education for 2015. Progress

Exhibit 40

Aggregate Costs of Attendance vs. Aggregate Financial Aid Funds Constant 2006 Dollars

In millions



Source: Texas Higher Education Coordinating Board.



toward the goal, however, as measured by the percentage of the population enrolled in higher education institutions, is slowing. The plan also sets goals for increased participation of Hispanic and Black students; while progress is on target for Blacks, it is below target for Hispanics.²⁴⁵

Fall 2006 enrollment in all colleges and universities in the state was 1.2 million, about 5.3 percent of the state’s population. Enrollment was 5 percent of the population in 2000; the 2010 goal is 5.6 percent and the 2015 goal is 5.7 percent, which would place Texas third among the ten most populous states behind California and Illinois.²⁴⁶ Enrollment in public institutions represented 90.3 percent of the total in 2006. Enrollment in two-year institutions amounted to 48 percent of the total.²⁴⁷

Community colleges absorbed the greatest enrollment increase, rising 29.2 percent from fall 2000 to fall 2006, an increase representing more than 126,000 students. Public universities increased their enrollment by 18.5 percent, or more than 76,000 students, over the same period.²⁴⁸

Although Hispanic enrollment at all Texas public and independent institutions rose by 40.7 percent from fall 2000 to fall 2006, their participation represented only 3.9 percent of the Hispanic population in 2006. While this was an improvement over the 3.7 percent participation rate in 2000, it is well below the *Closing the Gaps* targets of 4.8 percent for 2010 and 5.7 percent for 2015. To reach the 2010 target alone, Hispanic enrollment must increase by another 41.9 percent.²⁴⁹

Black enrollment is on target for meeting the *Closing the Gaps* goals for both 2010 and

2015, and THECB cited this improvement as “one of the most important accomplishments” since the start of the effort. Enrollment for this group was 31.5 percent higher in fall 2006 than in fall 2000 and is equivalent to 5.4 percent of this group’s estimated population — up from 4.6 percent in 2000.²⁵⁰

The public college and university population is projected to increase to 1.1 million by 2040, assuming 50 percent of the net migration rate that occurred during the 1990-2000 decade. Enrollment in public community colleges is projected to grow to about 588,000 and to 478,000 for public colleges and universities.²⁵¹

Hispanic enrollment as a share of the total is projected to increase to 44.2 percent by 2040; all other ethnicities are projected to decline as a percentage of the total. White enrollment is projected to decline to 38.4 percent; Black enrollment, to 9.4 percent; and other ethnicities, to 7.9 percent (**Exhibit 41**).²⁵²

About half of all Texas high school graduates enroll in a higher education institution in the fall following graduation; of these, about half attend two-year institutions. In recent years, Texas has strengthened its high school

Exhibit 41

Public College and University Enrollment by Ethnicity

	Fall 2000	Fall 2006	2040 Projected
White	55.4%	49.7%	38.4%
Black	10.4%	11.3%	9.4%
Hispanic	24.4%	28.4%	44.2%
Other	9.8%	10.6%	7.9%
Total	100.0%	100.0%	100.0%

Note: Numbers may not total due to rounding.
Sources: Texas Higher Education Coordinating Board and Texas State Data Center.



graduation requirements, improved academic content in all grades, established standards and accountability systems and expanded its offerings of dual-enrollment classes.²⁵³

These changes should improve student preparation for the work force and increase the share of students who attend college after high school. The share of Texas high school graduates entering Texas public higher education institutions in the fall following graduation rose from 43.4 percent in 2000 to 46.1 percent in 2006, a difference of more than 18,000 students.²⁵⁴

Graduation

Trends show that *Closing the Gaps* college graduation outcomes are on target for meeting overall 2015 goals, but the state is slightly below its target for producing math and science teachers and well below its target for

math and science graduates. On the other hand, the state is above target for increasing allied health and nursing graduates by 2015, an area that is still in high demand. Growth from 2000 to 2006 was 30.9 percent despite a decline from 2000 to 2001 that did not recover for two-year institutions until 2003 and for four-year institutions until 2004.²⁵⁵

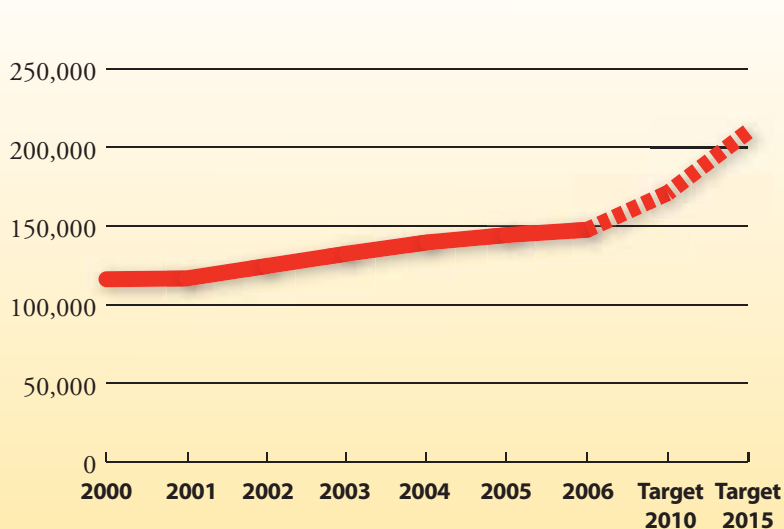
Although the increase in the total number of bachelor's and associate's degrees and certificates awarded is currently on target, the trend is slowing and flattening. The 27.1 percent increase in degrees awarded since fiscal 2000, which rose to 147,705 degrees in fiscal 2006, will not be enough to reach the 2015 goal of 210,000. To meet this goal, institutions must increase the number of degrees awarded by another 42.2 percent from fiscal 2006 (**Exhibit 42**).²⁵⁶

Improving the college readiness of high school students can improve the number of students who stay in college, which in turn will improve graduation rates. A steadily increasing percentage of first-time, full-time, degree-seeking students entering Texas public universities are now graduating — about 24.3 percent within four years and about 56.7 percent within six years.²⁵⁷

For Texas community colleges, 11.7 percent of first-time, full-time students received a credential within three years as of fiscal 2005, and 30.6 percent did so within six years. This represents an improvement from fiscal 2000, when 10.8 percent received a credential within three years and 25.7 percent received one within six years.²⁵⁸ About a third of students who graduated from a Texas university in 2005 had completed at least 30 semester credit hours at a community college.²⁵⁹

Exhibit 42

Public and Independent Institutions' Bachelor's and Associate's Degrees and Certificates Awarded and "Closing the Gaps" Targets



Source: Texas Higher Education Coordinating Board.



In fall 2003, about one-half of first-time entering students did not meet state standards in at least one area of math, reading or writing. For public universities, the total was 21.2 percent and for two-year institutions, it was 61.6 percent.²⁶⁰

About 65.8 percent of the high school graduating class of 2006 took either the SAT or ACT college entrance exams; of those, only 27.1 percent scored at or above the criterion used to determine college readiness. In 2007, about 53 percent of high school students were college-ready in English Language Arts and 54 percent in Mathematics, according to the TEA's higher education readiness testing program.²⁶¹

Recent increases in high school graduation requirements and the strengthening of academics throughout public education may improve these percentages in the future. In the meantime, students and institutions must rely primarily on costly noncredit, remedial courses to prepare students for college-level work.

Quality

Besides participation and graduation outcomes, *Closing the Gaps* calls for increasing excellence in higher education.

The *Closing the Gaps* target for 2010 is for one research institution, either public or private, to be ranked in the top 10 nationally and for two additional universities to rank among the top 30. For 2015, the goal is for two public research institutions to be in the top-ten national rankings for public research institutions, and four in the top 30.²⁶²

THECB uses the rankings from *U.S. News & World Report*, which produces the best-

known ranking in this field, as one source to evaluate this measure.²⁶³ The publication uses a wide variety of criteria, including acceptance, retention and graduation rates, class size, faculty measures, expenditures per student, peer assessment, alumni giving, student selectivity and other measures.²⁶⁴

For the upcoming 2008 year, *U.S. News & World Report* ranked UT 13th among public institutions, and Texas A&M University, 23rd.²⁶⁵ UT has steadily improved its ranking, from 17th in 1999; but A&M has fallen from 15th, a place it held from 1999 through 2002.²⁶⁶

For public and private research institutions, THECB employs rankings from Arizona State University's Center for Measuring University Performance.²⁶⁷ The center uses criteria based on factors such as research and development expenditures, including federally sponsored research expenditures; endowments; significant faculty awards; doctorates granted; the number of postdoctoral appointments supported; and median entering student SAT scores (as an indicator of student competitiveness).²⁶⁸

In 2006, according to the Center for Measuring University Performance rankings based on 50 criteria, among public and private institutions, UT tied at 28th nationally, A&M ranked 32nd and Baylor College of Medicine tied at 40th. Among public institutions only, the center ranked UT tied at 13th with the University of Florida and A&M at 16th.²⁶⁹

On the other hand, the plan is on target for meeting national recognition goals for excellence in certain programs, including those of community colleges. In addition, the plan calls for increasing the state's share



of federal research and development funding for science and engineering research, a goal that is slightly below target as of 2007.²⁷⁰

The plan's other research goal — to increase overall research funding in real dollars — is on target for meeting its 2015 goal.²⁷¹ Increased research funding, and particularly an increased share relative to other institutions, is one measure of quality since it demonstrates the degree of confidence that funding sources have in an institution's capability.

Funding

State appropriations to higher education, including federal and other funds, totaled \$16.9 billion in 2006-07 — 11 percent more than in the previous biennium.²⁷²

Higher education received \$10.1 billion in state general revenue appropriations for operations support for the 2006-07 biennium, an 8 percent increase from 2004-05. Of this amount, public universities received \$4.3 billion; health-related institutions, \$2.4 billion; community and technical colleges, \$2.1 billion; and other higher education programs, \$1.3 billion.²⁷³

In fiscal 2006, total revenue for Texas public undergraduate universities amounted to \$7.1 billion, excluding funds from the Permanent

University Fund and the Higher Education Fund that are used for capital expenditures. Of this total, 36.4 percent came from state appropriations; 28 percent from tuition and fees; 19.3 percent from the institutions' funds; and 16.3 percent from federal funds. The fiscal 2006 general revenue appropriation per full-time equivalent (FTE) student was \$6,259, 8.4 percent more than in fiscal 2004. Total revenue per FTE student was \$17,185, an 18.2 percent increase since fiscal 2004. The difference was due mostly to higher tuition and fee revenue.²⁷⁴

Community colleges receive funding for their operations primarily from tuition and fees and state appropriations, augmented by local tax revenue; local tax revenue pays for their infrastructure and equipment. State appropriations are based on a dollar amount per "contact" hour — each hour a student spends in class with a professor. The state's technical two-year colleges receive funding primarily from tuition and fees and state appropriations.

Average general revenue funding per contact hour for community colleges declined from \$7.47 in 2000-01 to \$6.62 in 2006-07 — about 11.4 percent — after reaching a high of \$7.71 in 2002-03. Funding will increase to \$7 per contact hour for these institutions in 2008-09.²⁷⁵

Education Questions for Further Consideration

- What can Texas do to keep the costs of higher education affordable for all Texans?
- What can Texas do to increase the number of bachelor's and associate's degrees awarded?
- What can Texas do to draw in more research dollars for institutions of higher education?
- How do we prepare non-college bound Texans for careers that will provide economic benefit to them, their families and the state?



Economic Development

Communities in Texas and throughout the nation are constantly competing to attract capital investment and create more and better-paying jobs for their residents. Such investments increase income and enhance the community's quality of life.

Businesses consider many factors in deciding where to locate or expand, such as the skill of an area's work force, the quality of its schools and infrastructure and the economic incentives it offers. Federal, state and local governments can employ a variety of economic development tools to pursue these businesses, including grants, loans and other incentives.

Economic Snapshot

The Texas economy remained strong in 2007, continually outpacing the U.S. in many key economic indicators. Texas nonfarm employment rose by 2 percent from November 2006 to November 2007, the fifth-highest growth rate among states and nearly doubled the national rate of 1.1 percent. Texas added more jobs over this period than second-place Florida and third-place California combined.²⁷⁶

Even so, Texas employment growth cooled somewhat in 2007; in 2006, the state added 313,000 jobs, a 3.2 percent increase representing the state's fastest growth since 1998 (**Exhibit 43**).²⁷⁷

In January 2007, the Texas unemployment rate dipped below the national rate for the first

DID YOU KNOW?

Sales tax account for 54.9 percent of taxes.

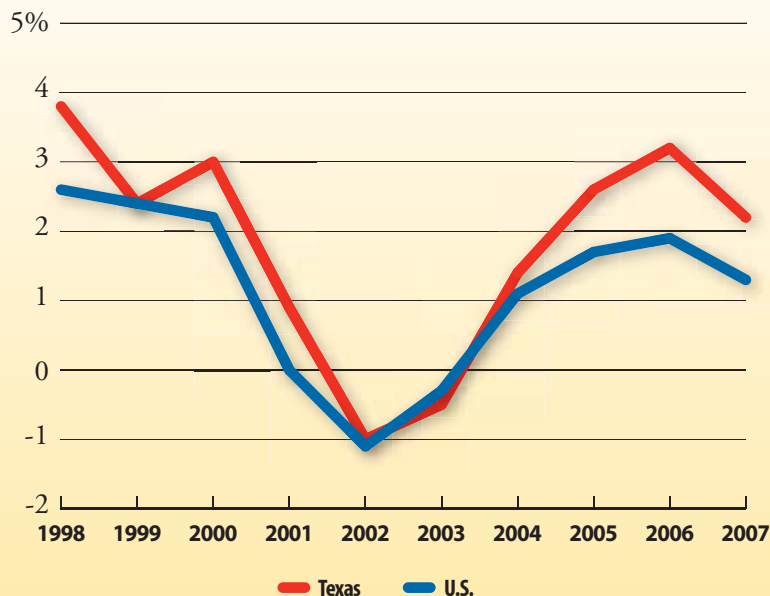
Texas collected \$37 billion in taxes for fiscal 2007, a 10.2 percent increase from fiscal 2006.





Exhibit 43

Annual Employment Change Since 1998



Sources: Texas Comptroller of Public Accounts and Global Insight, Inc.

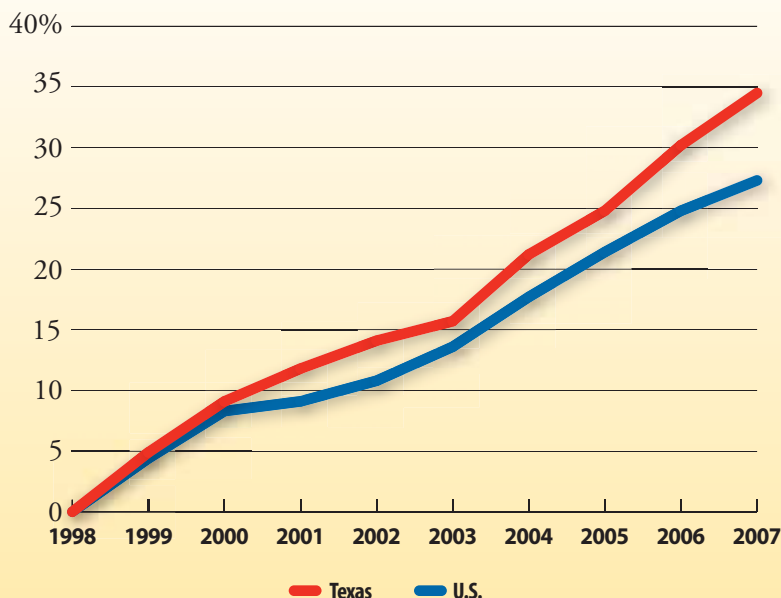
time since 1992, and reached a record low of 4.1 percent in May 2007. As of November 2007, Texas unemployment stood at 4.2 percent compared to 4.7 percent for the nation.²⁷⁸

Growth in Texas' gross domestic product (GDP) also slowed in 2007, to an estimated 3.3 percent, compared to stronger-than-usual growth of 4.3 percent in 2006. Since 1998, Texas' GDP has risen by 34.5 percent, compared to 27.3 percent nationally (**Exhibit 44**).²⁷⁹

Texas' personal income growth also has outpaced the national average, rising by 75.2 percent since 1998 compared to 57.5 percent nationally (**Exhibit 45**). Strong job gains and higher wages both contributed to this growth.²⁸⁰ The Comptroller's office expects personal income growth to decline slightly in 2008 and 2009, mirroring a slow-down in employment gains.

Exhibit 44

Growth in Gross Domestic Product Since 1998



Sources: Texas Comptroller of Public Accounts and Global Insight, Inc.

Texas Employment by Industry

Texas employment is continuing a natural transition towards a service-oriented economy. In 2006, services accounted for 83 percent of Texas jobs and three out of every four new jobs.²⁸¹ Services accounted for 63 percent of Texas' economic output in 2006, compared to a 70 percent share for the U.S., reflecting the state's role as an energy leader and its relatively strong manufacturing sector.²⁸² As **Exhibit 46** shows, Texas' loss of manufacturing jobs since 1990 has been far lower than the nation's as a whole.

The shift toward services was disrupted in 2005 and 2006, however, as rapid employment growth in the oil and gas industry allowed the Texas goods sector to outpace services for the first time since 1998. In 2006,



growth in goods-producing jobs outpaced that of the services industries by 5.1 percent to 2.8 percent (**Exhibit 47**).

Goods-Producing Industries

Natural resources and mining, which includes oil and gas, led job growth in all industries in 2005 and 2006, with an 11.4 percent increase in 2006.²⁸³ This industry also led growth in 2007, as oil and gas exploration continued to expand. Despite some stabilization in fuel prices, Texas had an average of 834 oil and gas drilling rigs in operation at the end of 2007, marking the most active year for exploration since 1984.²⁸⁴

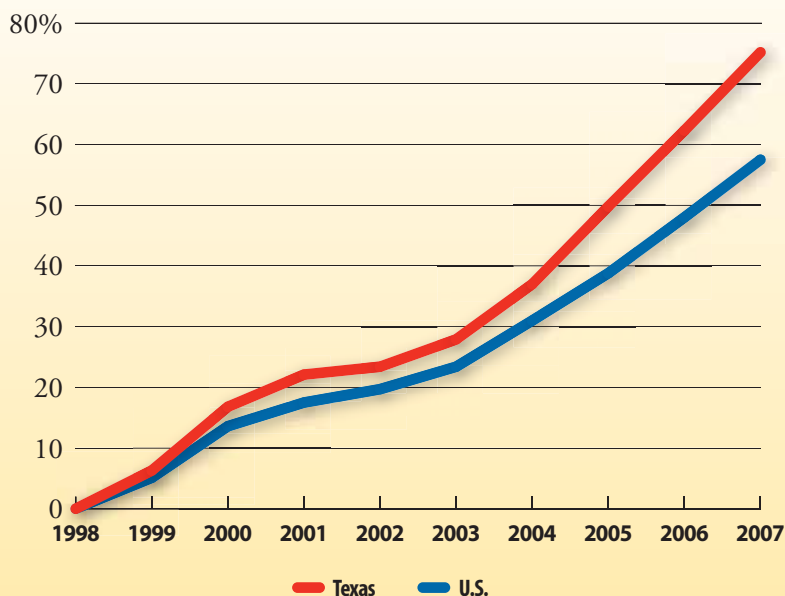
In all, employment in natural resources and mining rose by 8 percent from November 2006 to November 2007; these included many high-paying jobs in drilling and marketing operations. (Note that all subsequent 2007 annual figures refer to the November 2006 to November 2007 period.)

Construction continued to expand in Texas in 2007, although at a slower pace than in the previous year. Due to an increasing number of housing foreclosures, construction for single-family housing declined in 2007, but this decline was nearly offset by increased construction of multi-family housing. Heavy construction projects of pipelines and petrochemical refineries rose considerably, while projects for roads and other infrastructure remained strong. In all, employment in construction rose by 2.4 percent in 2007.

Employment in manufacturing declined by 1.2 percent in 2007, following two consecutive years of increases.²⁸⁵ Despite these losses, manufacturing productivity expanded due

Exhibit 45

Growth in Total Personal Income Since 1998



Sources: Texas Comptroller of Public Accounts and Global Insight, Inc.

to advancements in technology. Output in manufacturing is expected to increase by 3.0 percent in 2007.²⁸⁶

Increased demand for exports prompted additional hiring in chemical manufacturing. Machinery and fabricated metal manufacturing employment rose due to increased oil and gas rig production. On the other hand, computer and electronics manufacturing employment declined due to a slump in prices and lower demand for computers and related technologies. And the housing downturn hurt related industries such as electrical equipment appliances and component manufacturing.

Service-Providing Industries

Service-providing jobs include trade, transportation, and utilities; information; financial activities; professional and business services; educational and health services; and

DID YOU KNOW?

Texas cigarette and tobacco tax totaled \$1.3 billion in fiscal 2007.

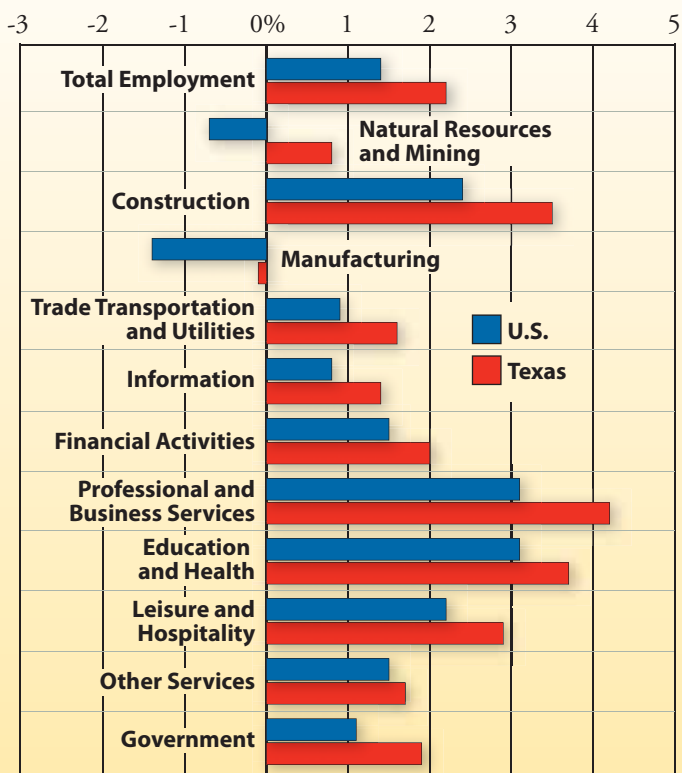
Texas hotel occupancy taxes totaled \$340.6 million in fiscal 2007.

Texas franchise tax totaled \$3.1 billion or 8.5 percent of total tax collections in fiscal 2007.



Exhibit 46

Average Annual Employment Change by Industry 1990-2006



Sources: Texas Comptroller of Public Accounts, Global Insight, Inc. and U.S. Bureau of Labor Statistics.

government. All service sectors experienced job gains in 2006 except for information, an industry that is still recovering from the dot-com “bubble” of several years ago, and contending with increased competition and lower prices. All service industries increased employment in 2007, including a slight increase in the information sector.

In 2006, professional and business services led the services industries both in job growth and the number of jobs produced. This sector is important to Texas, consisting as it does of many knowledge-based, high-paying positions, such as architects, system designers and engineers. Despite a decline in

high-technology manufacturing, computer systems design employment increased by 10 percent in 2007. Demand for professional services related to energy and construction, such as architectural engineering services and management and professional and scientific consulting, also increased.²⁸⁷ In 2007, professional and business services employment continued with an impressive 4 percent growth, or 50,500 new jobs, just lagging gains in leisure and hospitality.²⁸⁸

Despite recent moderation in employment growth, education and health services increased their job counts by an average of 3.7 percent annually between 1990 and 2006.²⁸⁹ Their growth corresponded to a nationwide trend, as more health services are needed as the population increases and ages. This sector added 25,900 jobs in 2007, a 2.1 percent increase.²⁹⁰

Texas Exports

Exports are extremely important to the Texas economy. Texas exports have achieved four consecutive years of double-digit growth and now account for 15 percent of Texas GDP, the highest share of any state. Today, Texas leads the country in export trade and accounts for 14 percent of all U.S. exports.²⁹¹

Texas has emerged as a leading exporter in high-tech manufacturing, including computer and electronics manufacturing. Twenty-six percent of all export-related jobs are in computer and electronics equipment manufacturing, the most skill-intensive work associated with exports. This figure compares to 16 percent for the nation as a whole. Research shows that the higher the skill level among export-related jobs, the greater the

DID YOU KNOW?

Texas added more jobs than any other state in fiscal 2007.



positive effects on technological progress and economic growth.²⁹²

Economic Outlook

As the Texas economy continues to diversify, it will increasingly mirror the U.S. economy, although it has fared better compared to the country during a period of rising energy prices. The Comptroller's office expects the growth in Texas GDP to slow to 3.2 percent for 2007, 3 percent in 2008 and 3 percent in 2009. The outlook in Texas is largely positive, despite this expected slowdown.

Texas must focus on attracting and creating innovative and highly paid jobs to maintain its strong economic development. The following section describes programs to achieve these goals.

Federal Assistance Programs

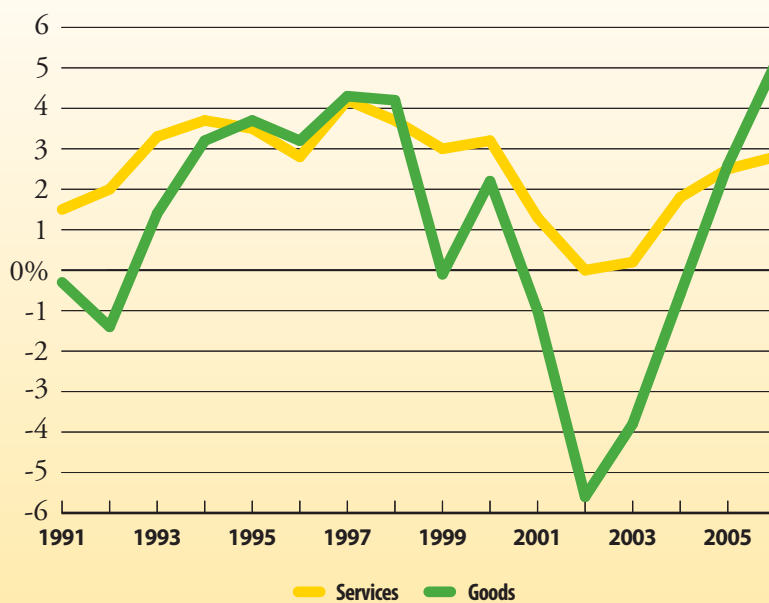
The federal government offers states, local governments and communities a number of economic and community development grants and loans. These provide funds for construction, operations and other projects needed to foster or revitalize economic development. Available funding includes:

Community Development Block Grants (State Programs) — These funds from the Department of Housing and Urban Development (HUD) are distributed to states for the expansion of economic opportunities in both urban and rural communities. For more information, please visit <http://www.hud.gov/>.

Community Facilities Loans and Grants — These loans and grants from the U.S. Department of Agriculture are provided to local and state governments for the construction

Exhibit 47

Annual Change in Texas Goods and Services Employment



Sources: Texas Comptroller of Public Accounts and Global Insight, Inc.

of or improvements to community facilities.

For more information, please visit <http://www.rurdev.usda.gov/rhs/cf/cp.htm>.

Grants for Public Works and Economic Development Facilities — These grants from the U.S. Department of Commerce are for improving the physical infrastructure of regions in economic distress to attract new business and industry. States, counties, institutions of higher education and other political subdivisions are eligible for the grants. For more information, please visit <http://www.eda.gov/InvestmentsGrants/Investments.xml>.

State Assistance Programs

Emerging Technology Fund — The ETF provides grants for applied research and development activities for the purposes of creating a commercialized product and acquiring new

DID YOU KNOW?

In 2006, Texas media industries (film, television, commercials, animation and video games) spent \$330.1 million on production spending in Texas. Since 1997, they've spent \$1.8 billion.

In 2006, Texas media industries added about 10,900 permanent jobs and 6,700 temporary crew jobs in Texas.



or enhancing existing research talent at institutions of higher education. The ETF seeks to establish new jobs and medical and scientific breakthroughs. Grants are awarded by the governor. The ETF has \$116.6 million available for fiscal years 2008 and 2009. For more information, please visit <http://www.governor.state.tx.us/divisions/ecodev/etf/>.

Texas Enterprise Fund — The fund was created to provide grants to economic development projects. The governor awards these grants to projects for the purposes of infrastructure development, community development, job training programs and business incentives. Grants are used to attract new businesses and expand existing businesses. The Enterprise Fund has \$224.4 million available for fiscal years 2008 and 2009. For more information, please visit http://www.governor.state.tx.us/divisions/ecodev/ed_bank/tefund.

§4a Sales Tax — This tax can be levied by cities in counties with fewer than 500,000 residents to support manufacturing and industrial development. The funds generated can be used to improve infrastructure; purchase land and buildings; or develop new businesses. For more information, please visit

http://www.window.state.tx.us/taxinfo/taxpubs/tx96_302.html.

§4b Sales Tax — This tax can be levied by all cities, regardless of population, for quality-of-life improvements intended to attract or maintain businesses, such as streets and roads and related improvements. The funds may be used to improve infrastructure and build facilities including sports, entertainment and convention centers.

§4a and §4b are collectively known as the economic development sales tax. For more information, please visit http://www.window.state.tx.us/taxinfo/taxpubs/tx96_302.html.

Economic Development Refund Program — The Property Tax Division of the Comptroller's office administers this program that allocates state refunds for economic development. To be eligible, a property owner must have established a new business in a reinvestment zone or expanded or modernized an existing business located in the zone. For more information, please visit <http://www.window.state.tx.us/taxinfo/proptax/>.

Texas Leverage Fund — This fund allows cities that have adopted the economic development sales tax to leverage future tax revenue for

Low-Income Energy Assistance

Many of those who spend a greater proportion of their income on energy use are those who cannot afford to remedy the problem. The majority of low-income individuals spend more than 40 percent of their income on utilities, often due to older, inefficient home appliances and an inability to pay for home energy efficiency improvements. The State Energy Conservation Office and the federal Energy Star program are combining resources and efforts to facilitate two projects that address such issues with low-income households. Both projects are designed to enable sponsors to provide services and outreach to Texas citizens that might not otherwise participate due to a lack of resources. These projects are some of the first of their kind in the country and are already proving to be examples for others. Energy Star is a joint partnership of the Environmental Protection Agency and the U.S. Department of Energy. For more information, visit the State Energy Conservation Office Web site at <http://www.seco.cpa.state.tx.us>.



the purpose of financing community projects (such as purchasing land or equipment or building public parks and entertainment facilities) and industry expansion. For more information, please visit http://www.governor.state.tx.us/divisions/ecodev/ed_bank/leverage_fund.

Texas Industry Development Program —

This program, administered by the Texas Small Business Industrial Development Corporation, provides communities with funds for job creation and industry expansion. The funds can be used to purchase land, facilities, construction, equipment and infrastructure improvements. For more information, please visit http://www.governor.state.tx.us/divisions/ecodev/ed_bank/TID_loan_program.

Texas Capital Fund — This fund supports four programs, each administered by the Texas Department of Agriculture through the Office of Rural and Community Affairs. The programs are designed to create new jobs or retain existing jobs, primarily for low- or moderate-income individuals, in cities with fewer than 50,000 residents and counties with fewer than 200,000 residents that do not receive direct funding from HUD. For more information, please visit http://www.agr.state.tx.us/agr/program_render/0,1987,1848_6050_0_0,00.html?channelId=6050.

The four programs include the Downtown Revitalization Program, the Infrastructure Development Program, the Main Streets Improvement Program and the Real Estate Development program. These programs provide funds for land acquisition, public infrastructure improvements and real estate development designed to encourage business development and expansion.

Sales Tax Assistance Provided to Escobares

In November 2006, the recently incorporated city of Escobares contacted the Local Government Assistance Division for help related to a sales tax election. Upon meeting with local officials in Escobares, LGA assisted them with drafting documents to hold a sales tax election for city sales tax, street maintenance sales tax, section 4A sales tax and section 4B sales tax; all of which were adopted. LGA continued to work with local officials to help the city implement the new taxes. The city of Escobares received its first allocation from the Comptroller's office in June 2007.

More information on economic development grants, loans and tax incentives for communities can be found at <http://www.window.state.tx.us/specialrpt/fedstate05/> and <http://www.window.state.tx.us/specialrpt/stateloc05/>. In addition to the grants and loans for cities and communities listed above, many other opportunities exist for businesses, industry and farms including the Small Business Association and the U.S. Department of Agriculture.

Comptroller Assistance

One of the many functions of the Texas Comptroller's office is providing economic development information to local governments and other groups, and analyzing the demographic, labor force and other economic factors needed to generate economic growth in communities. Through the Texas EDGE (Economic Data for Growth and Expansion) Program, the agency can run economic models and provide analyses that identify occupational and industry trends and their effects on the regional economy. The Comptroller's office also can provide

DID YOU KNOW?

Texas received \$24.4 billion in federal funds during fiscal 2007, a decrease of 1.4 percent from fiscal 2006.



Texas EDGE

Short for Economic Data for Growth and Expansion, the Texas EDGE program has received more than 100 requests and has assisted many local entities since its inception in August 2007. Here are a few examples of what the Comptroller's Texas EDGE has done for Texans:

- provided a regional economic model (REMI) analyzing the economic impact of the World Cheerleading Hall of Fame on the Houston – Sugar Land – Baytown MSA.
- in response to a request for information on retail sales data for Cameron County, provided Sites on Texas Executive Summary Report for Cameron County and the city of San Benito. In addition, the program calculated sales tax allocation data per capita.
- provided a REMI report for the economic impact of a new biomedical research company that opened in Jim Wells County.
- provided sales tax history for the last 10 years for the city of Gonzales in graph and table form.
- provided information on changes in manufacturing employment in Texas from September 2000 to September 2007.
- provided economic data, including income statistics, on Tarrant County and Southeast Fort Worth, down to the zip code level.
- provided a State of Texas Automated Information Retrieval System (STAIRS) report for Aransas County.
- provided Standard Occupational Classification forecast information for construction professionals from the Texas Workforce Commission for the Gulf Coast Workforce Development Board and for the state.

For more information, visit the Texas EDGE Web site at <http://www.window.state.tx.us/texasedge>.

local demographic data, identify business clusters and provide maps of regional infrastructure including highways, railroads and other public facilities. For assistance, please visit www.window.state.tx.us/texasedge or e-mail texas.edge@cpa.state.tx.us.

Since August 2007, the Comptroller's office has responded to more than 100 Texas EDGE requests. Requests have come from city government officials, county government officials, economic development corporations, private businesses and members of the media. Requests have come in for information on many topics including demographics, economic development, economic modeling and taxes. Most of the

requests thus far, about one third, have been on economic development.

The Comptroller's office also provides local governments with information about tax-related programs and identifies opportunities to raise funds for economic development efforts through property, sales and franchise tax revenues, exemptions and credits. The agency also provides information on special assessments and other opportunities related to disaster relief.

The Local Government Assistance and Economic Development Division at the Comptroller's office can provide a free risk assessment to local governments. A risk assessment can give reasonable assurance that



risks to accomplishing a local government's objectives have been identified. It will also show the controls and mitigations associated with the risks.

Finally, the State Energy Conservation Office (SECO) helps Texas make the most of domestic energy, reduce state and local government energy costs and promote cost-effective clean energy technologies. SECO offers a free preliminary energy audit for local governments. The audit provides recommendations on reducing electricity consumption by improving the efficiency of heating and air conditioning systems and using more efficient lighting.

Sales Tax Assistance Provided to Princeton

In November 2007, the city of Princeton contacted the Comptroller's office seeking information on original ballot language regarding sales tax. The city of Princeton was inquiring as to whether the sales tax collected by the city could be used only for street improvements, or if it could be used for other purposes. The Local Government Assistance Division obtained this information from the State Library and Archives Commission. LGA informed the city of Princeton that sales tax collections may be used for any purpose allowed by the Economic Development Act, allowing it to use tax revenues for new purposes. For more information, visit the Local Government Assistance Division Web site at <http://www.window.state.tx.us/lga/>.

Economic Development Questions for Further Consideration

- What can local communities do to create more and better-paying jobs?
- What strategies can Texas explore to keep the economy diversifying and growing in the future?
- What types of industry do the state and local communities get the most benefit from? How can we encourage those businesses to locate here?
- What information is needed in order to assist prospective employers or local employers that are growing?
- How do we link the economic development goals of our state with our education goals?





Conclusion

To ensure the continued success of the Texas economy, the entire state and its communities will need to confront the challenges of an increasing and changing population. Texans will have rising demands for water, energy and transportation. These needs must be met, and balanced with challenges of the environment. Texans also will face the increasing costs of health care for businesses, families and the uninsured and the need for a capable, educated work force.

Texas' rapidly growing population presents not only challenges, but also opportunities for the state. An increasing population means increased opportunities for economic growth and development. Already, Texas has the second-largest economy of any state, behind California, and it is poised to grow in the future.

Texas is a vast and diverse state, with numerous economic bases, strengths and vulnerabilities. As community, business and local government leaders address these issues, the Comptroller's office stands ready to assist them in assuring that Texas continues to grow and prosper.

To assist in meeting the state's challenges and opportunities, the Comptroller will release a series of reports on Texas' 12 economic regions (**Exhibit 48**). These reports will be released starting in 2008.

While this report was designed to give local and statewide leaders detailed statistics and research for Texas as a whole, each of the 12 subsequent reports will focus on the issues directly affecting each region and its economy.

These reports will examine the regions' demographic characteristics, including population information and educational attainment level. As with this report, the regional reports will examine the major issues facing businesses and communities including, water, energy, transportation, health care and education, tailored to a regional level.

Each report also will summarize the region's most popular industries and occupations. Projecting forward, specific economic indicators for each region will be discussed identifying growth sectors and projecting future growth areas.

We hope that you will find these reports useful to further promote local economic development in your areas. We look forward to hearing your feedback and stand ready to assist local communities in any way we can. For assistance, please contact the Comptroller's Local Government Assistance and Economic Development Division at <http://www.window.state.tx.us/lga/> or (800) 531-5441 ext. 3-4679.

Exhibit 48

Map of Economic Regions





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