



IH 10 Anthony

Recovery for Texans is Job #1

Protect Proposition 1 & 7, Create Jobs and Fund Essential Texas Highway Construction

October 2020

ACEC

AMERICAN COUNCIL OF ENGINEERING
COMPANIES OF TEXAS



About ACEC Texas

The American Council of Engineering Companies of Texas (ACEC Texas) is the business association of Texas engineering firms. The organization represents over 450 member firms, practicing in a variety of engineering disciplines, who are committed to advancing the private practice of engineering. We strive to enhance the market for private engineering services through advocating and educating on the importance of a fair, business friendly environment and investing in the future of infrastructure in Texas.



IH 10 Beaumont

EXECUTIVE SUMMARY

COVID-19 and the implosion of the oil and gas industry is dealing a devastating loss to transportation funding in Texas at a time the State has tremendous needs for transportation improvements. The Texas Comptroller projects the lost revenue to be approximately \$1.9 billion for the 2020-21 biennium, 14 percent of TxDOT's entire highway construction budget.

Transportation is a critical and essential service. The highway system supports the economic recovery, delivers jobs into the economy and drives economic development throughout the State.

The State of Texas has and will continue to see unprecedented growth in its population and economy. Every day, Texas gains over 1,000 people, adds hundreds of vehicles to the roadways and sees freight traffic grow at twice the rate of passenger vehicle traffic. Transportation improvements, however, have not kept pace with that growth.

In 2010, a panel of citizens called the 2030 Committee was charged with “developing a forecast for alternative levels of service for the four elements of the Texas transportation system – pavement, bridges, urban mobility and rural connectivity – along with analyzing potential sources of transportation revenue and determining the economic effects of under-investing in the system.” Their work, the 2030 Report, forms the basis for this report.

The 2030 Report concluded that \$270 billion in highway construction investment was necessary to maintain 2010 conditions throughout a 25-year period from 2011 to 2035. Of the total \$270 billion, only \$100 billion (\$4.0 billion per year in 2010 dollars) was identified as being available from existing funding sources. The additional \$170 billion (\$6.8 billion per year in 2010 dollars) would have to come from new revenue sources. The funding need identified in the

2030 Report, adjusted for inflation (1.8 percent per annum), totals \$343.3 billion in current dollars. The 2021 need is \$13.1 billion and grows to \$16.9 billion annually by 2035.

Over the years, the Legislature has taken positive steps to reduce this funding crisis—steps that have been overwhelmingly supported by voters. In 2014, 80 percent of Texas voters approved Proposition 1, a Constitutional amendment which dedicates a portion of oil and gas severance tax to the State Highway Fund (SHF). In the six fiscal years since the election, there have been total deposits of \$7 billion, an average of \$1.2 billion per year. In 2015, 83 percent of Texas voters approved Proposition 7, a Constitutional amendment which dedicates a portion of sales and use tax, and motor vehicle sales and rental taxes to be transferred to the SHF. In two fiscal years (2018 and 2019), total deposits equaled \$5 billion, an average of \$2.5 billion per year.

Proposition 1 and Proposition 7 funding adds significantly to the traditional highway funding revenue sources of motor fuels tax, vehicle registration fees and federal reimbursements. However, the Texas Department of Transportation (TxDOT) 2019 long-range forecast shows a declining revenue stream in the face of growing needs. The 2021 forecast has \$7.5 billion available for highway projects compared to the needed \$13.1 billion. Factor in the urban megaprojects and the total funding grows to \$14.7 billion, creating an annual shortfall of \$7.2 billion in critically needed transportation projects. The magnitude of this

funding crisis and shortage of transportation projects will continue to grow over time without action by the Legislature.

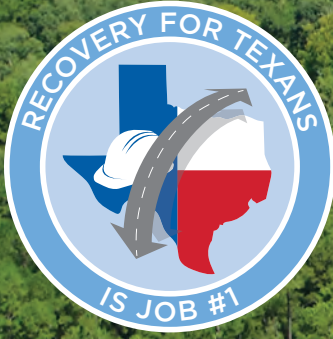
The effects of COVID-19 have created significant declines in oil and gas excise taxes that fund Proposition 1 and reductions in anticipated sales tax revenue that fund Proposition 7. The SHF alone is projected to have \$1.9 billion less than originally estimated for the current biennium due to these current economic factors.

For every dollar spent on transportation, the return on investment, according to the 2030 Report, creates benefits seven times greater than the cost. With the Texas unemployment rate higher than

normal, continued investment in transportation is critical for thousands of jobs and adds to the economic recovery of communities throughout Texas. According to a McKinsey report from July 2020, “In the U.S., \$1 billion in transportation infrastructure investment supports 13,000 jobs for a year.” Furthermore, any increase in transportation funding will benefit the overall economic health and competitiveness of the State.

The 87th Legislature must ensure that Proposition 1 and Proposition 7 funding streams dedicated to the State Highway Fund are not interrupted, diminished or diverted.

Transportation funding is essential for any successful economic recovery plan. The 87th Legislature must ensure that the Proposition 1 and Proposition 7 funding streams dedicated to the State Highway Fund are not interrupted, diminished or diverted, and should investigate methods to increase funding as a means of economic recovery, economic development and job creation both now and in the years to follow.



CONTENTS

EXECUTIVE SUMMARY	i	V. POTENTIAL ADDITIONAL REVENUE SOURCES	25
I. INTRODUCTION	1	A. Indexing Motor Fuels Tax	25
II. BACKGROUND	3	B. Options to Increase Revenue	27
A. 2030 Report	3	C. Vehicle Miles Traveled (VMT) Fee	28
B. 2030 Report Update—Adjustments for Inflation	5	D. Toll Roads	30
C. A Growing State with Aging Infrastructure.	6	E. Managed Lanes	31
D. Transportation and the Texas Economy	11	F. Public-Private Partnerships	31
III. TxDOT FUNDING AND PLANNING	15	VI. RECOMMENDATIONS	33
A. Revenue Sources	15	A. Protect Proposition 1 and Proposition 7 Funding	33
B. Long-Range Funding Forecast	17	B. Consider Additional Revenue Sources	34
C. Funding Available for Construction.	18	C. Allow Toll Roads and Managed Lanes	35
D. Megaproject Costs	19	D. Stimulate the Texas Recovery	36
IV. CURRENT FUNDING SHORTFALLS AND THREATS	21	E. Actions for the 87th Legislature	38
A. The Funding Gap	21	REFERENCES	40
B. Impact of COVID-19 on Funding	22		
C. Threats to Current Funding	23		



US 62 GUADALUPE MOUNTAINS Pine Springs



PERCY V. PENNYBACKER, JR. BRIDGE Austin

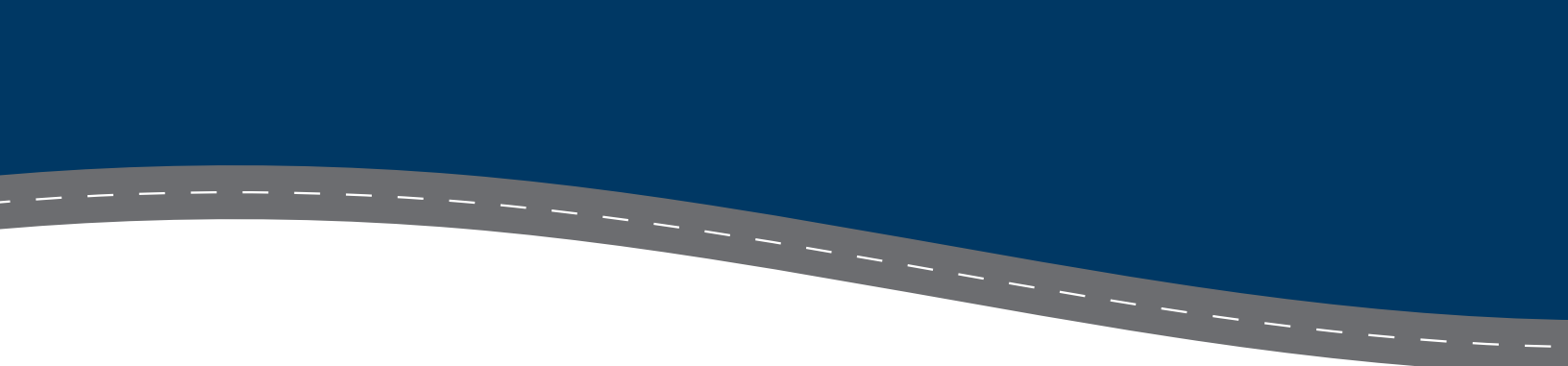
I. INTRODUCTION

Continued investment in highway infrastructure will be key to economic recovery and job creation.

The Texas highway system is the backbone of the economy. Highways facilitate the movement of people, goods and services, and are an economic engine facilitating economic development and investment throughout the State. As the State Legislature navigates the economic crisis created by COVID-19, continued investment in highway infrastructure will be key to economic recovery and job creation. The construction industry was identified as an essential business, and for good reason. These jobs fuel the economy and have a far-reaching positive impact to communities throughout Texas.

Current projections from the Texas Comptroller show that transportation funding will be severely reduced from the decline in motor fuels tax, and oil and gas severance tax revenues. A shortfall of \$1.9 billion is projected for the current 2020-21 biennium alone.

The 2030 Committee Report (2030 Report) developed in 2010 set the standards for needed roadway improvements across the State and the cost to provide those improvements. The State has not achieved the 2030 benchmark funding and continues to fall behind on improvements that are critical to economic development, safety and job growth throughout Texas.

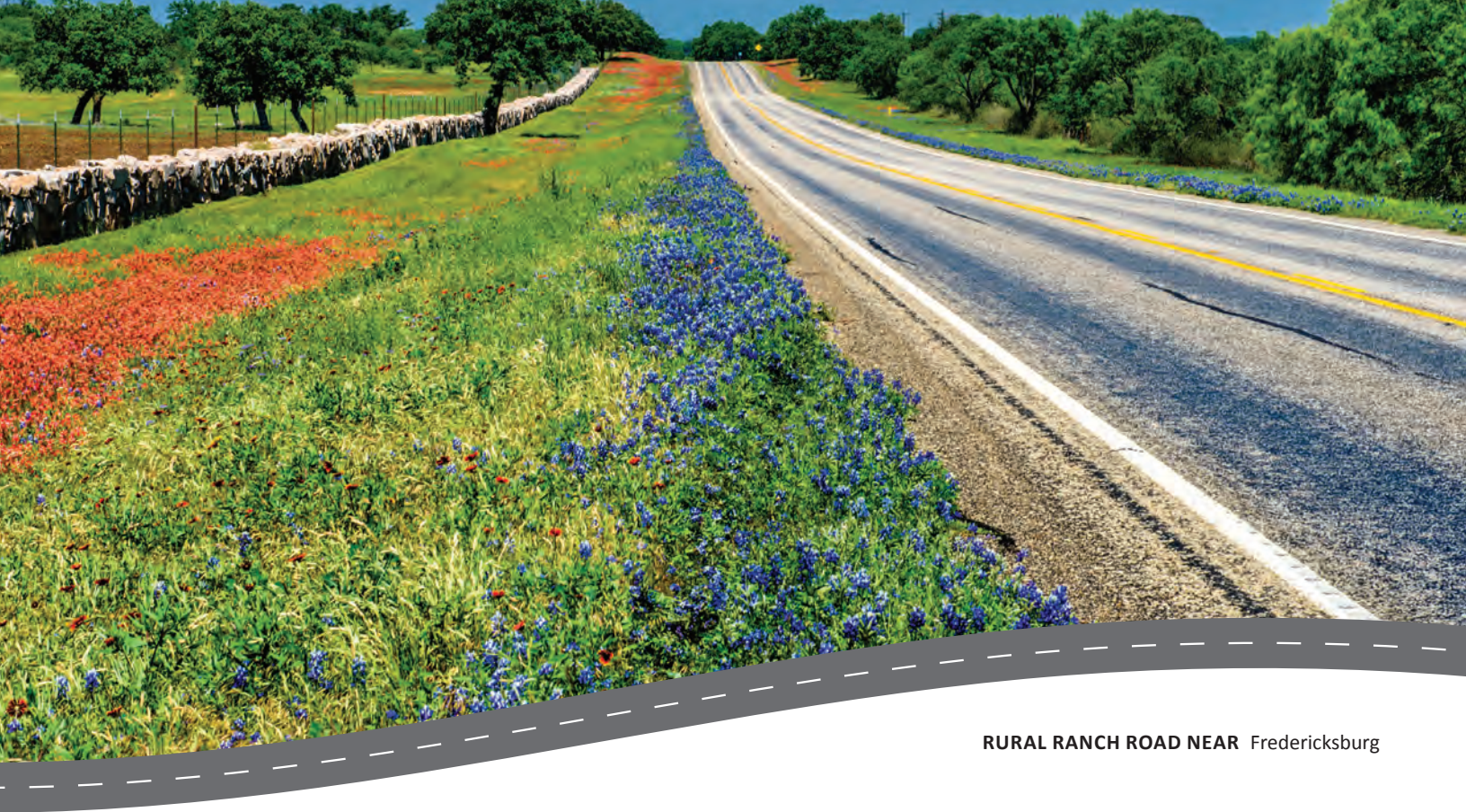


Although the 2030 Report provided a model that outlined critical needs to avoid highway obsolescence, it was based on funding to sustain the 80,000-mile highway system at 2010 levels. It did not actively contemplate current thinking and planning for several megaprojects in some of the major population centers aimed at reducing congestion and moving commerce through urban areas. Megaprojects like the re-routing of IH 45 in downtown Houston or the reconstruction of IH 35 through Austin add substantially to the funding crisis.

Voters overwhelmingly approved the two Constitutional Amendments known as Proposition 1 and Proposition 7 in 2014 and 2015, respectively, to boost funding for highways. However, Proposition 1 and Proposition 7 funding is susceptible to further reductions by the Legislature.

Texas cannot provide the needed highway improvements, including urban megaprojects, rural connectivity projects, safety improvements, and long-term congestion mitigation, all in support of economic recovery, job creation, and economic development, if the Legislature redirects any funds from either proposition. The 87th Legislature should protect current sources of highway funding and explore new sustainable and predictable revenue streams that will close the funding gap over time.





RURAL RANCH ROAD NEAR Fredericksburg

II. BACKGROUND

A. 2030 Report

The 2030 Report is a document that appropriately outlines the condition and status of the Texas Highway System. The report was a joint effort of the Texas Department of Transportation, Texas A&M Transportation Institute (formerly the Texas Transportation Institute), the Center for Transportation Research at The University of Texas at Austin and The University of Texas at San Antonio.

The funding needs from 2010 through 2035, based on 2010 dollars, are \$270 billion to maintain 2010 conditions.

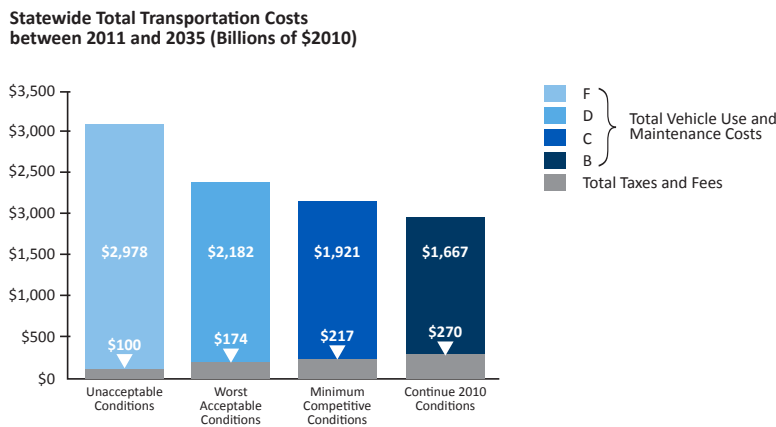
The entire 80,000-mile Texas Highway System was evaluated from a macro level to establish needed annual improvements to bridges and highways, urban mobility and rural connectivity, as well as costs for maintenance to sustain the system at various levels of service.

Ten years later, the State still has 80,000 plus miles of State-owned and operated roadways that need repair, replacement and upgrade at the rates generally projected in the 2030 Report. The cost to perform that work has risen with inflation and should be adjusted to reflect current costs.

Figure II.A.1 on the next page is an excerpt from the Executive Summary of the March 2011 update to the 2030 Report. As shown, the funding needs from

2010 through 2035, based on 2010 dollars, are \$270 billion to maintain 2010 conditions. In this scenario, the associated total vehicle use and maintenance costs are \$1,667 billion dollars. In contrast, funding \$100 billion results in unacceptable conditions with an associated total vehicle use and maintenance cost of \$2,978 billion. Therefore, an increase in spending from \$100 billion to \$270 billion results in a savings to Texans of \$1,311 billion (\$2,978 billion less \$1,667). The benefit to cost ratio of creating an additional \$170 billion in funding is 7.7 to 1. In other words, for every \$1 spent above \$100 billion on highway construction from 2011 to 2035, Texans benefit \$7.70. This return on investment is exceptional.

Figure II.A.1 2030 Report Exhibit ES-2



The 2030 Report summarizes costs for pavement, bridges, urban mobility and rural needs of the 80,000-mile highway system. The analysis includes consideration of the useful life of pavement and facilities and the general timing for required improvements to maintain our highways at 2010 levels.

Since the development of the 2030 Report, TxDOT has shifted its focus to include several megaprojects that will make substantial improvements, particularly for urban mobility – projects like IH 45 through downtown Houston and the IH 35 corridor through Austin. These projects fit the true critical needs of the State; however, the costs to provide these megaprojects will substantially reduce funding available for the remaining highways if additional funding is not added to the cost projections of the 2030 Report.

Proposition 1 and Proposition 7 funding sources were not considered in 2010. These two propositions, coupled with other SHF sources, provide a crucial component of the funding needs, but they do not provide the total amount of money the 2030 Report projected as the baseline need.

B. 2030 Report Update—Adjustments for Inflation

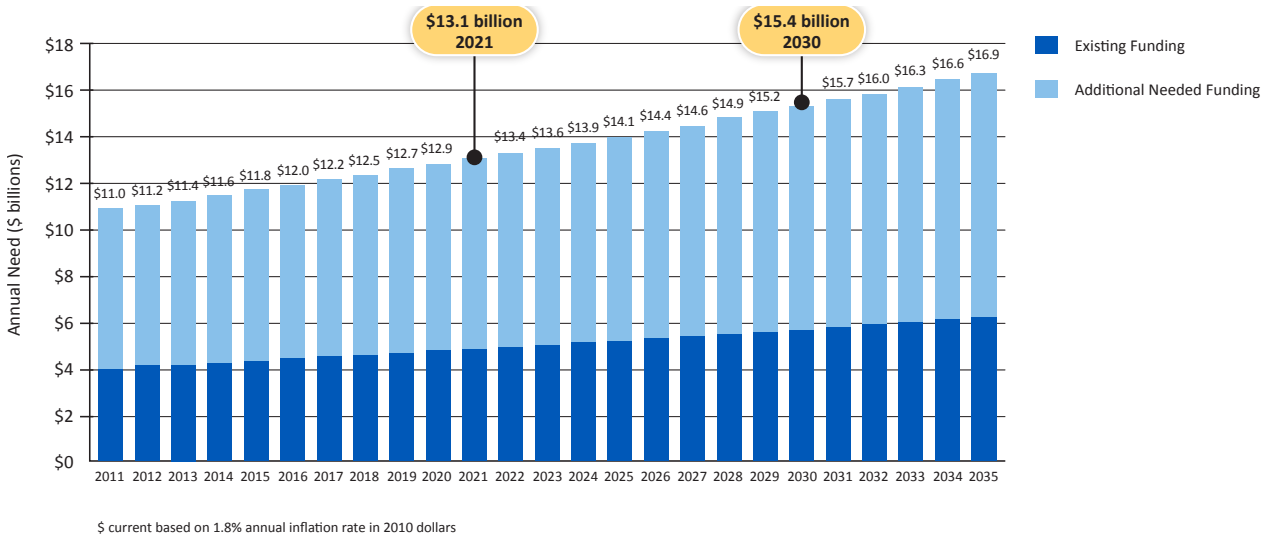
The 2030 Report presented highway needs and various funding scenarios from 2010 to 2035, each providing a level of service and associated funding using 2010 dollars. The costs used in the 2030 Report are adjusted for inflation herein. Figure II.B.1 on the next page shows 2030 Report costs escalated by 1.8 percent per year¹ to provide an annualized look at highway funding needs. The Consumer Price Index (CPI) value of 1.8 percent was used for the full range of years, including the projected years of 2020 to 2035.

In the 2030 Report, \$270 billion was identified as needed from 2010 to 2035 to maintain 2010 conditions. When 2010 dollars are adjusted to current dollars at a projected rate of 1.8 percent, the total equivalent need of \$270 billion in 2010 dollars is \$343 billion over the 25-year period shown. This translates to an annual funding need of \$13.1 billion in highway construction in 2021, growing to \$15.4 billion in 2030.

IH 10 Anthony



Figure II.B.1 2030 Committee Report Projection of Funding Needs (\$ Current)



C. A Growing State with Aging Infrastructure

Texas roadways require increased funding to meet the demands from the movement of people, goods and services across and through the State. Key factors that contribute to the growing funding need are population growth, job growth, economic development, increased vehicular and freight traffic, and an aging transportation network.

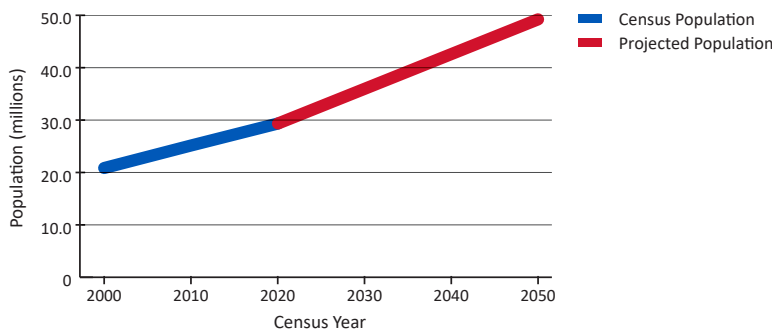
Population Growth

Texas leads the U.S. in population growth and ranks second in overall population, which is expected to be over 29 million residents in 2020. If current historical trends continue, Texas is projected to exceed 47 million residents by 2050, which will continue to strain the transportation system and funding needs. Figure II.C.1 shows census and projected population through 2050. Roads and highways account for 92 percent of Texas commuter travel and 38 percent of freight commerce.²

With Texas adding over 1,000 people each day, it comes as no surprise that Texans chart 540 million vehicle miles traveled (VMT) each day on TxDOT roadways (on-system roadways). VMT measures the amount of travel for all vehicles over a given period. Population growth creates traffic congestion and a need for additional roadways to help with traffic flow and connectivity.

People and businesses relocate to Texas for many reasons, most notably the business-friendly environment. The impact on roadways is not only significant

Figure II.C.1 State of Texas Projected Population Growth

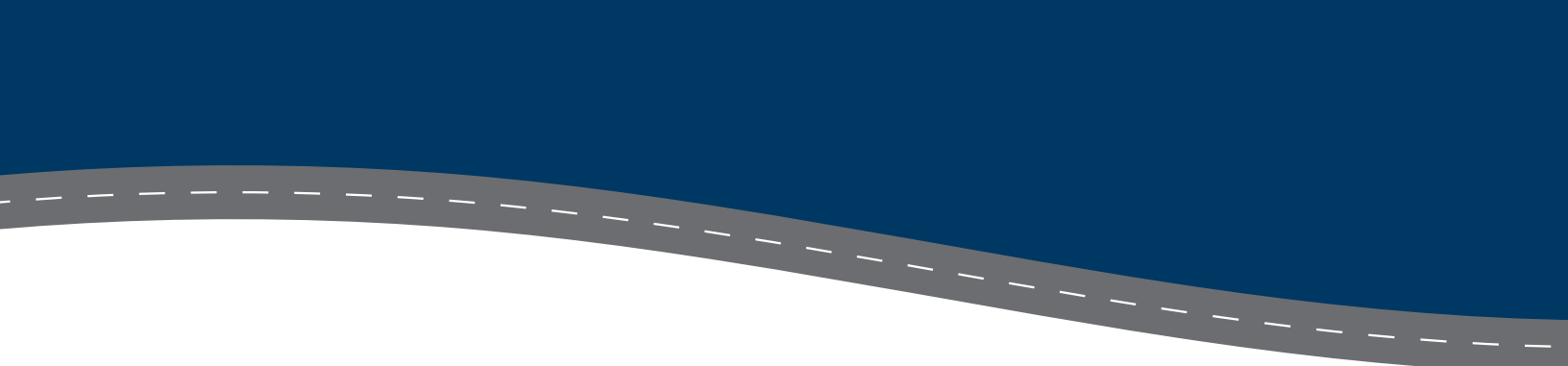


from a population growth standpoint, but also from the increase in demand for goods and services to residents. The 2021 Unified Transportation Program (UTP) has identified 8,000 planned transportation projects with total funding of just over \$6 billion expected to be available for construction for fiscal year 2021. The next 10 years of funding available for planned transportation projects is expected to be close to \$70 billion. It is important to note that these UTP funding levels are revenue constrained to what can be built with projected available funds. These revenue

projections are subject to change depending on updated economic and population forecasts.

Job Growth and Economic Development

The Texas economy outpaces the entire nation in economic growth. Home to 50 Fortune 500 companies and the 9th largest economy globally, the State's economy is expected to grow an average of 2.8 percent per year through 2046.³ Texas has won a record 15 Governor's Cup Awards, which recognizes the top-performing state for job creation, capital investment and business innovation.⁴ Factors that give Texas an advantage are the available workforce, education, taxes and incentives, high wage employers, and infrastructure. As the largest energy-producing state in the nation, Texas is home to 11 deepwater ports,



including the Port of Houston (the second largest in the nation,) and six of the top 50 busiest airports in the U.S. In highway commerce from 2010 to 2016, total daily vehicle miles traveled in Texas rose by 15.5 percent, largely due to an increase in economic activity and overall population growth.

Texas tops the nation in freight shipped annually, with increases expected to continue for the foreseeable future. In 2016, more than 2.2 billion tons of freight moved within the State, supporting 1 in every 16 Texas jobs.⁵ Highway truck freight tonnage is projected to increase from 1.2 billion tons in 2016 to 2.5 billion tons in 2045, with a projected value of \$5.2 trillion in commerce.⁶ Texas, however, continues to struggle with keeping up with freight demand due to key factors, including congestion and roadway connectivity that can be attributed to funding shortfalls. Increased time on roadways due to congestion not only causes traffic delays, but also increases fuel cost, projected travel times for delivery of goods and services, and an overall loss of business efficiency. On the top 10 most congested state highway segments, the annual truck congestion cost was over \$730 million.⁷ Economic implications from congestion on the top 100 most congested roadways in Texas was \$4.1 billion in 2018.⁸ Gross state product will increase from an estimated \$2 trillion to \$7 trillion by 2046.⁹

Preservation and Maintenance of an Aging Highway System

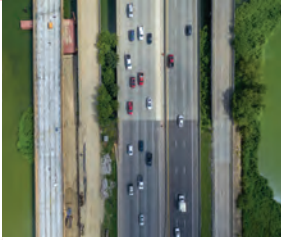



TxDOT maintains over 80,000 centerline miles of state highways, the largest state transportation system in the U.S. The primary costs for preserving the highway system are related to maintenance of pavement and bridges. Several highways are rapidly aging and deteriorating from increased traffic volume associated with population and business growth. Major highways, including segments of IH 10, IH 20, IH 30, IH 35, IH 45, IH 410, IH 610, and IH 635, are all over 50 years old.

As of 2018, 88 percent of TxDOT's on-system lane-miles are considered to be in "good" or "better" condition from a pavement standpoint.¹⁰ TxDOT is targeting 90 percent by 2028, and therefore, anticipating a need to invest an average of slightly more than \$1.95 billion each year to achieve this goal. According to the 2050 Plan, pavement funding is expected to total \$15 billion, and maintenance operations program funding is expected to total \$5.7 billion between fiscal years 2020 and 2027.¹¹

TxDOT oversees 55,000 bridges and structures at an overall condition score of 89 percent, with a goal of achieving 90 percent by 2027.¹² The current UTP includes \$4.3 billion for bridge-related funding between fiscal years 2020 and 2027, with maintenance operations expected to total \$0.3 billion.¹³

Figure II.C.2 below is an excerpt from the 2050 Plan that outlines the estimated impact of investing \$1 billion in highway funding. These values should not be used as an exact estimating tool for true future costs, but they do highlight the limited purchasing power of \$1 billion in today's dollars.

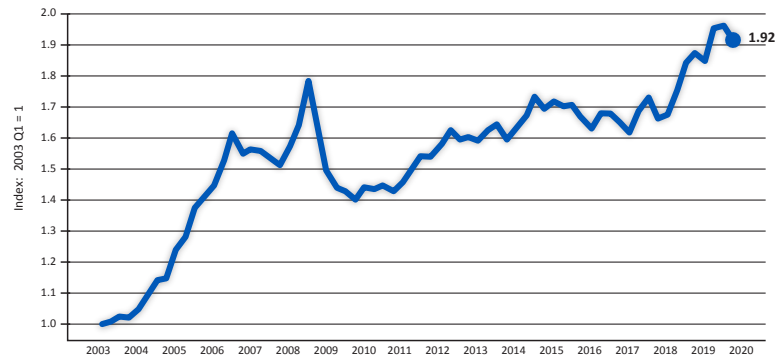
Figure II.C.2 Estimated Impact of \$1 Billion (estimates)

				
	Safety	Pavement Preservation	Bridge Preservation	Congestion
\$1 Billion Buys:	3,700 centerline miles of safety improvements in rural areas	4,400 lane-miles of rehabilitated pavement	1,000 bridge replacement projects	160 lane-miles of additional capacity in urban areas
Which Translates To:	5.6% of State-owned rural system	2.2% of State-owned roadways	3% of State-owned bridges	1% of State-owned roads in urban areas

Inflation and the cost of labor, materials and equipment continue to impact future funding projections. The buying power of a dollar will be considerably lower in the year 2050. According to the 2050 Plan, using the four percent rate of inflation defined in the Plan, the buying power in 2020 of \$1.00 will be 31 cents in 2050.¹⁴

Additionally, the cost of materials continues to rise. According to the U.S. Department of Transportation Federal Highway Administration, the National Highway Construction Cost Index (used to measure the average change over time in the prices paid by state transportation departments for roadway construction materials and services) continues to increase each year. As shown in Figure II.C.3, the index has nearly doubled in the 18 years from Year 2003 (Index of 1.0) to Year 2020 (Index of 1.92).

Figure II.C.3 National Highway Construction Cost Index (NHCCI)²⁶



US 380 Brownfield



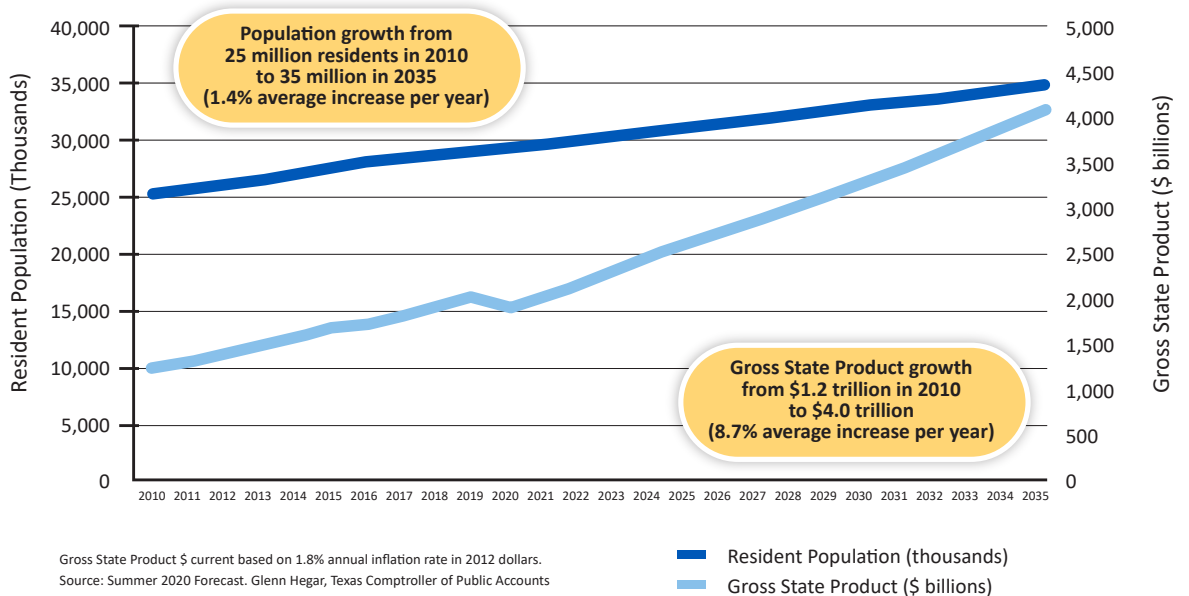
D. Transportation and the Texas Economy

Gross State Product Growth

Having an effective transportation/highway system links the activities of the production of goods and services. This linkage is essential for sustaining growth of the gross state product (GSP). For Texas, transportation in support of the energy and technology sectors is essential for continued growth. The Texas economy is growing at an annualized rate of 8.7 percent.¹⁵

As shown in Figure II.D.1, growth of the economy is projected to outpace growth in population. The population of Texas has grown at an annualized rate of 1.4 percent. Correspondingly, the use of highways, as measured by vehicle miles traveled, has grown by about the same rate.

Figure II.D.1 Gross State Product and Population Projections

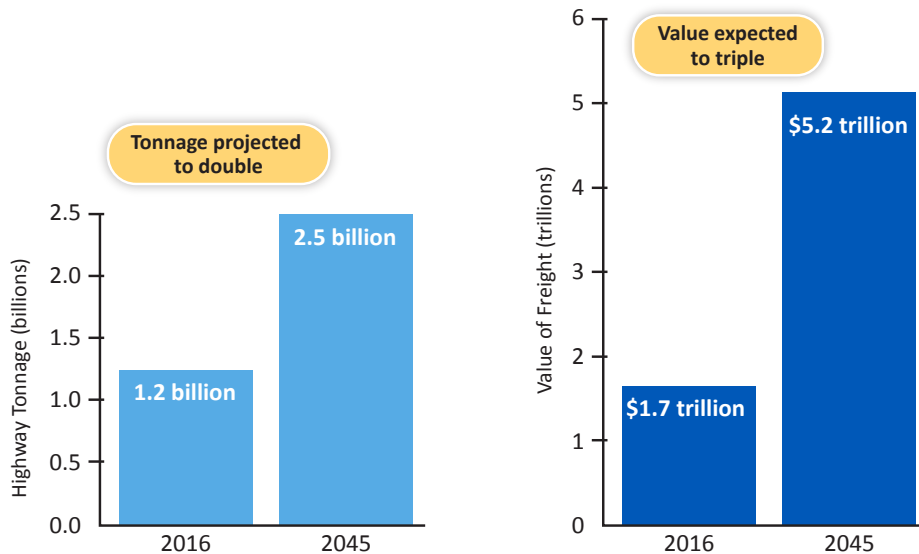


Freight Growth

Population growth is a significant factor that affects freight growth in Texas because residents consume commodities that must be transported throughout the State and beyond. As Texas' population is projected to grow by an additional 15 million people by 2045, freight movement on highways is expected to increase dramatically.

Highway tonnage is expected to more than double from 1.2 billion tons in 2016 to 2.5 billion tons in 2045.¹⁶ During this period, the value of freight moved in and through Texas is forecasted to roughly triple from \$1.7 trillion to \$5.2 trillion. This is shown below in Figures II.D.2 and II.D.3.

Figures II.D.2 and II.D.3



Texas is the number one state in the nation for exports, a title the State has held for more than 15 consecutive years. This trade is another significant factor for freight growth. By 2045, congestion and truck tonnage are projected to increase significantly on interstate highways throughout the State, particularly those located in the Texas Triangle between Dallas-Fort Worth, Houston and Austin-San Antonio; and along the border in Laredo, El Paso and the Rio Grande Valley.

The State's growing highway tonnage will lead to increased daily truck trips and truck miles traveled, which in turn will further increase the need for transportation investment. This increase in truck trips will result in more truck miles traveled on Texas roadways, acceleration of wear and tear on highway infrastructure, and a significant increase in maintenance costs.

The economic impact of freight handling businesses in Texas is also significant, supporting 1 in every 16 jobs in the State, with more than 1 million full-time jobs related to highway freight. In addition to the job impacts, highway freight transportation accounts for \$85.7 billion in gross state product and \$18.4 billion in tax revenue each year.

Highway accessibility has ranked first or second in importance among site selection factors for more than a quarter-century.

Highway Construction Industry

Investing in highway construction raises the Texas economic productive capacity and has one of the highest fiscal multipliers of any government funding. Studies have shown that fiscal multipliers on the economic output from highway programs range from 1.5 to 3.¹⁷ It is one of the most strategic investments Texas makes in promoting economic growth and attracting new business. The Comptroller reported that a survey of corporate executives by *Area Development* magazine ranked highway accessibility second among the top site selection factors, just behind the availability of skilled workers. Highway accessibility has ranked first or second in importance among site selection factors for more than a quarter-century.¹⁸

Comptroller analyses have shown that tens of thousands of jobs are created in the construction, manufacturing, retail trade, and professional and business sectors from transportation funding.

Investment in highway construction funding is an effective way to stimulate economic development. Investments yield near-term benefits in employment. Comptroller analyses have shown that tens of thousands of jobs are created in the construction, manufacturing, retail trade, and professional and business sectors from transportation funding.¹⁹ According to a McKinsey report from July 2020, "In the U.S., \$1 billion in transportation infrastructure investment supports 13,000 jobs for a year." Long-term impacts include cost reductions in transportation and access to goods and services, resulting in the addition of tens of thousands of jobs and a significant multiplier in lifting real gross state product.



FARM-TO-MARKET ROAD Texas Hill Country



IH 45 Houston

III. TxDOT FUNDING AND PLANNING

A. Revenue Sources

Transportation projects are paid for from a variety of sources. The largest sources include state and federal motor fuels tax, vehicle registration fees, Proposition 1 and Proposition 7.

Pre-COVID-19, TxDOT's total revenue projection for FY2021 is \$14.75 billion, with \$7.46 billion available for construction.

Figure III.A.1 on the next page shows the projections of revenue for fiscal year 2021 from various sources per the TxDOT 2019 Long-Range Revenue Forecast. As shown, pre-COVID-19, TxDOT's total revenue projection for FY2021 is \$14.75 billion, with \$7.46 billion available for construction. The \$7.29 billion in revenues not used for construction goes toward maintaining the highway system, right-of-way acquisition, engineering, debt service and administrative/employee expenses. These projections were prepared prior to COVID-19.

Figure III.A.1 TxDOT Fiscal Year 2021
Revenue Projections
Pre-COVID-19 Projections

Revenue Source	Revenue (\$ billions)
State Highway Fund	
Vehicle Registration Fee	1.63
State Motor Fuels Tax	2.83
FHWA Reimbursements	5.06
Other Revenue	0.66
<i>Subtotal</i>	\$10.18
Texas Mobility Fund Taxes and Fees	
Driver's License Fees	0.19
Driver Record Info Fees	0.07
Vehicle Inspection Fees	0.10
Certificate of Title Fees	0.15
Other Taxes and Fees	0.03
<i>Subtotal</i>	\$0.54
Proposition 1 Oil and Gas Severance	
Transfer In	1.46
Interest	0.04
<i>Subtotal</i>	1.50
Proposition 7 Sales and Use Tax	
Transfer In	2.50
Interest	0.03
<i>Subtotal</i>	\$2.53
TOTAL	\$14.75
Revenue for Maintenance and Operations	\$7.29
Revenue Available for Construction	\$7.46

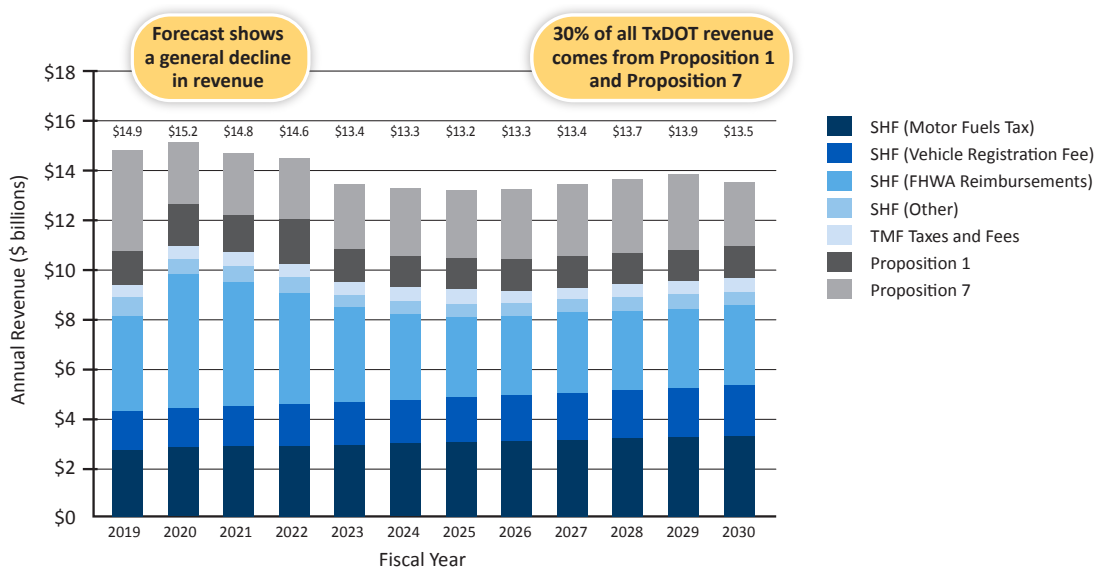
Source: TxDOT

B. Long-Range Funding Forecast

TxDOT plans and prepares long-range revenue forecasts to anticipate needs and prioritize programs and projects. The 2019 long-range funding forecast encompasses a 25-year period from 2019 to 2043. The plan includes projections of revenue and expenditures. As shown in Figure III.B.1 below, total annual revenue from all sources is projected to range from a high of \$15.2 billion in 2020 to a low of \$13.2 billion in 2025. In general, roughly half of TxDOT’s annual revenue is available for construction, with the other half used for maintenance, operations, right-of-way acquisition and engineering. The new funding sources of Proposition 1 and Proposition 7 contribute an average of 30 percent of all TxDOT revenue between 2019 and 2030. This demonstrates two things. First, Proposition 1 and Proposition 7 funding sources are significant. Second, TxDOT depends heavily on these sources of funding to meet its revenue forecasts.

An area of concern is that forecasted revenue is trending down, mostly from declining Federal Highway Administration (FHWA) Reimbursements with other sources showing some level of modest growth. This trend runs counter to other trends in Texas that are on a much higher upward trend, namely population, job and economic growth. To keep pace, all of these upward trends necessitate a similar upward trend in highway funding.

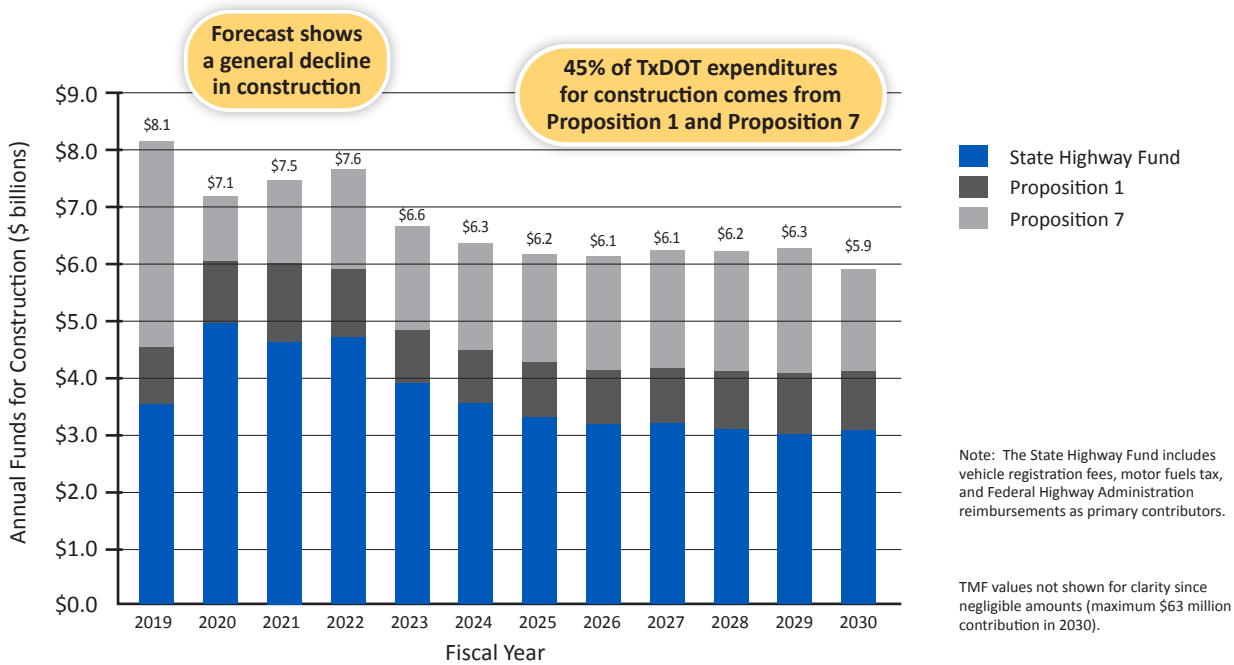
Figure III.B.1 TxDOT Long-Range Revenue Forecast



C. Funding Available for Construction

The long-range forecast for highway construction expenditures, as shown in Figure III.C.1 below, ranges from a high of \$8.1 billion in 2019 to a low of \$5.9 billion in 2030. Proposition 1 and Proposition 7 funds comprise a significant portion, 45 percent, of the total projected spend on construction projects. The downward trend in forecasted construction funding is pronounced, and contrary to trends associated with a growing State.

Figure III.C.1 TxDOT 2019 Construction Revenue Forecast and Sources



D. Megaproject Costs

Each year, TxDOT develops its Unified Transportation Program (UTP), a 10-year forecast of projects by TxDOT District. The UTP identifies project location, cost and an estimated time frame for letting. In TxDOT's 2021 UTP, TxDOT is programming approximately \$74.6 billion in transportation funding over the 10-year period. These projects range in size and complexity from smaller safety-oriented projects to large-scale megaprojects.

A megaproject can have a number of definitions; however, for the purposes of this discussion, megaprojects are those projects with a construction cost over \$500 million. The 2021 UTP identifies 10 megaprojects to be let for construction in the next 10 years, worth a combined \$23.2 billion. Figure III.D.1 identifies the projects.

Figure III.D.1 Texas Megaprojects

District	Project	Cost (\$)
Austin	IH 35	\$5.60 billion
Houston	NHHIP (IH 45/IH 69)	\$8.43 billion
San Antonio	LP 1604	\$0.69 billion
San Antonio	IH 35 NEX	\$2.52 billion
Dallas	IH 30	\$1.31 billion
Dallas	IH 35E	\$0.71 billion
Dallas	US 380	\$1.10 billion
Dallas	US 80 East Corridor	\$0.64 billion
Dallas	IH 35 Denton County	\$0.60 billion
Fort Worth	SE Connector	\$1.59 billion
TOTAL		\$23.19 billion

These 10 projects are critical and essential for Texas – for economic recovery, congestion relief and safety, long-term competitiveness for moving goods and services, and meeting the surge in freight traffic through these urban corridors. While mission critical, these 10 projects represent one-third of the overall letting budget for 10 years, or approximately \$2.3 billion per year out of an approximately \$7 billion per year letting budget.

TxDOT's Alternative Delivery Program includes \$9.4 billion in megaproject construction spending over the next three biennia, or an average of \$1.6 billion per year over the next six fiscal years.²⁰ The funding shown below in Figure III.D.2 below represents Oak Hill Parkway, IH 35 NEX Central, IH 35E (Phase II), Southeast Connector, IH 69/SH 288 Interchange, IH 35 NEX South, NHHIP Segment 3 (IH 10 Corridor), SH 199, and NHHIP Segment 3 (IH 69 Corridor).

Figure III.D.2 TxDOT Alternative Delivery Program Design-Build Cadence

Biennium	Cost Estimate (\$)
FY 2020-2021	\$2.6 billion
FY 2022-2023	\$2.7 billion
FY 2024-2025	\$4.1 billion
TOTAL	\$9.4 billion

The 2030 Report did not contemplate these megaprojects. They are clearly needed, but were not included in the 2030 Report funding models. Going forward these megaprojects should be added to the total funding needs.

DOWNTOWN San Antonio





IV. CURRENT FUNDING SHORTFALLS AND THREATS

A. The Funding Gap

The 2030 Report identified a \$270 billion need in 2010 dollars, adjusted for inflation to \$343 billion in current dollars. This correlates to \$12.9 billion and \$13.1 billion in highway construction funding in FY2020 and FY2021, respectively. The 2019 TxDOT revenue forecast projected \$7.1 billion and \$7.5 billion in construction funding in FY2020 and FY2021, respectively.

Figure IV.A.1 on the next page shows the construction revenue forecast and the additional funding needed. As shown, the total funding gap for the 2020-21 biennium is \$11.5 billion. Over the 12 years from 2019 to 2030, the total funding gap is \$88.1 billion, or an average of \$7.34 billion per year.

In addition, the urban megaprojects, estimated to cost \$23.2 billion are not included in the funding need in Figure IV.A.1. If they were, the total funding gap would increase from \$88.1 billion to \$111.3 billion, or an average of \$9.3 billion per year.

Figure IV.A.1 TxDOT 2019 Construction Revenue Forecast and Additional Funding Need



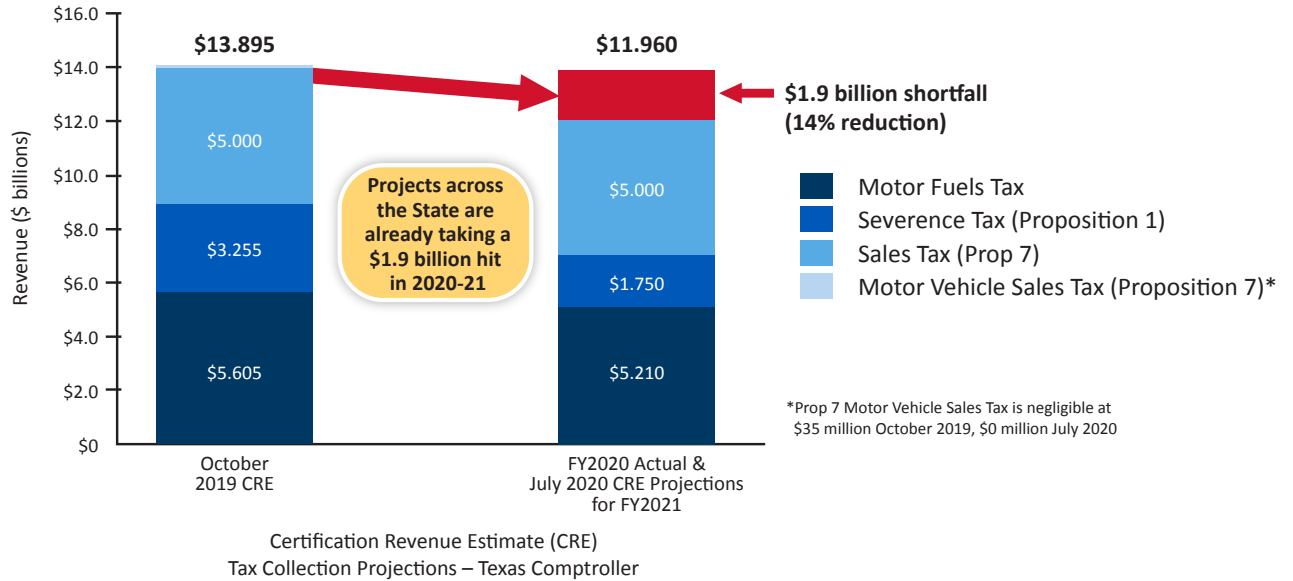
B. Impact of COVID-19 on Funding

The impact of COVID-19 on Texas highway funding has been pronounced. The October 2019 Certification of Revenue Estimate (CRE) provided by the Comptroller for motor fuels tax, severance tax (Proposition 1), sales tax (Proposition 7), and motor vehicle sales tax (Proposition 7) was a total of \$13.895 billion for the 2020-21 biennium. In July 2020, the CRE for these revenue sources was reduced to \$11.960 billion. Future estimates could change the anticipated revenue for the biennium.

TxDOT has already taken a \$1.9 billion hit to its revenue source.

As the Legislature contemplates methods to fill an estimated \$4.6 billion deficit in the current budget (FY20-21) and the potential that there will be an estimated \$18 to \$20 billion less to spend for the next budget (FY21-22), it should realize that TxDOT has already taken a \$1.9 billion hit to its revenue source, which correlates to a 14 percent reduction in available highway construction funding as shown on the next page in Figure IV.B.1. This condition only further exacerbates the long-term funding shortfall identified in the 2030 Report.

Figure IV.B.1 State Highway Fund Revenue Reduction (2020-21 Biennium)



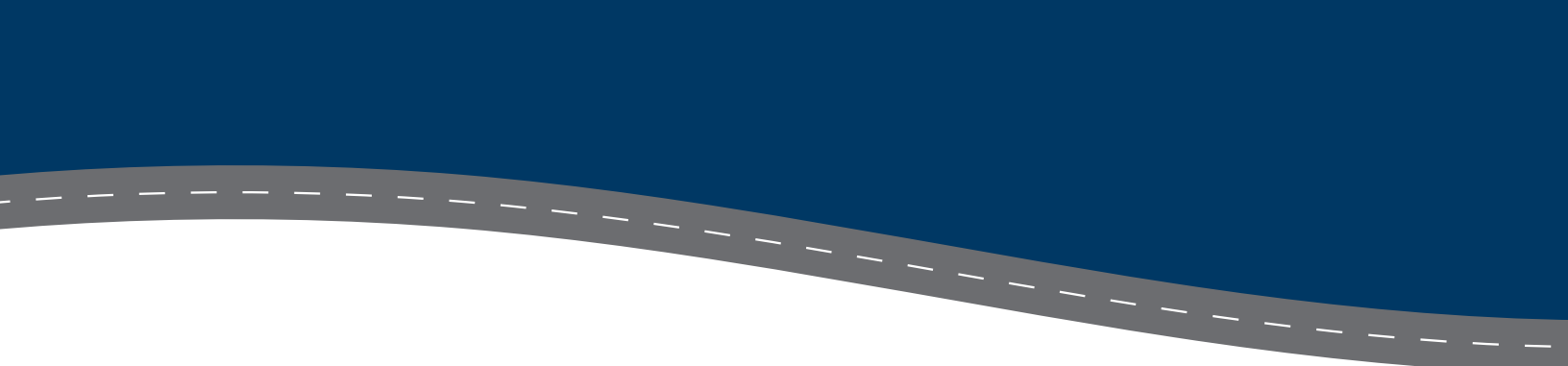
C. Threats to Current Funding

Funding Threats to Proposition 1

The main threat to the funding stream created by Proposition 1 is the volatility in the oil and gas markets. If oil and gas prices go up, transfers to the State Highway Fund (SHF) are strong; however, when the oil and gas markets are weak, fund transfers from oil and gas severance tax will diminish accordingly.

In 2019, a legislative committee set a sufficient fund balance in the Economic Stabilization Fund (ESF) of \$7.5 billion for the 2020-21 state budget biennium. However, the 86th Legislature set a seven percent fixed rate of state general revenue (GR) as the sufficient fund balance starting in fiscal year 2022.

The funding threat to Proposition 1 could come from the ESF fund not meeting the sufficient fund balance due to the Legislature spending down the fund on other state budgetary needs. It is important to note that transfers to the SHF from Proposition 1 funding cannot happen unless the ESF sufficient fund balance is met first. At this time, the ESF is estimated to have \$11 billion



going into the 2021 Legislative Session. With the passage of Senate Bill 69 in 2019, the Comptroller will now determine the ESF sufficient balance to be equal to seven percent of the certified general revenue-related appropriations made for that fiscal biennium.

Moving forward, the Legislature will have an initial understanding of what transfers will occur to the ESF and SHF from Proposition 1 funding based on the Comptroller's Biennial Revenue Estimate (BRE) issued at the beginning of each session, which forecasts general revenue total estimates. However, the sufficient balance threshold will not be official until the Comptroller certifies the budget passed by the Legislature for the upcoming biennium, through the CRE, typically released in the month of October following each session. Only then will the sufficient balance be set and transfers to both the ESF and SHF be made. The Legislature must ensure the ESF sufficient fund balance is exceeded so that Proposition 1 funds are transferred to the SHF.

Funding Threats to Proposition 7

Proposition 7 funds are sourced from portions of state sales tax revenue, motor vehicle sales and rental tax revenue. The main threats to funding from Proposition 7 are drops in these tax revenue categories, resulting in reductions in the amount transferred to the SHF. The Legislature can, by adopting a resolution with a two-thirds vote in both the Senate and House, reduce the transfer to the SHF by up to 50 percent, which would amount to \$1.25 billion annually of the \$2.5 billion that is typically transferred from the state sales tax revenue. By way of illustration, a \$1.25 billion reduction to TxDOT's pre-COVID-19 revenue projection of \$14.75 billion would result in an 8.5 percent decrease in its budget. The Legislature must ensure the transfer of Proposition 7 funds to the SHF are not interrupted, diminished or diverted.



QUEEN ISABELLA CAUSEWAY Port Isabel

V. POTENTIAL ADDITIONAL REVENUE SOURCES

A. Indexing Motor Fuels Tax

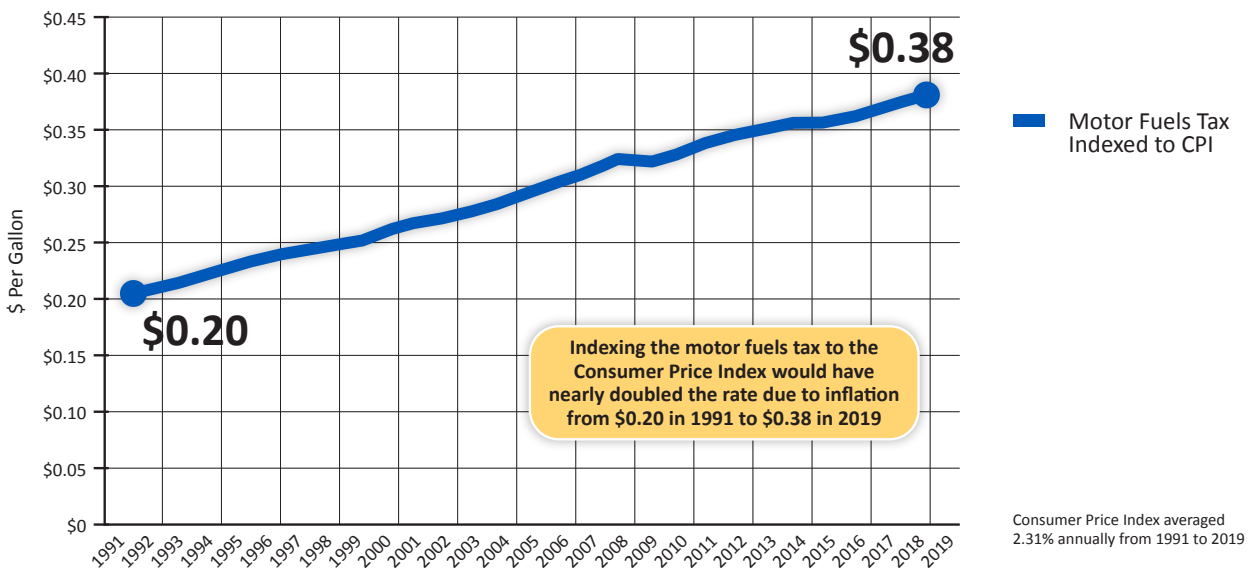
Without being indexed to inflation, the fuels tax has lost half of its purchasing power since 1992.

In 1991, the state motor fuels tax was set at 20 cents per gallon, and the rate has not changed since then. Without being indexed to inflation, the fuels tax has lost half of its purchasing power since 1991. Twenty cents in 1991 is equivalent to 10.5 cents today. Even though the fuels tax has not been increased in almost 30 years, the revenue raised has continued to grow over time. This is due to the increase in population and the corresponding increase in fuel usage, and continuing increases in freight traffic. Future projections in fuels tax revenue show a continued growth over the next 20 years, making fuels tax a key component of future transportation funding in Texas.

As noted on the next page in Figure V.A.1 on the next page, the 20 cent fuels tax has not been increased to keep pace with inflation since it was set in 1991. As a result, the tax has lost half of its purchasing power since that time. By way of illustration, this figure shows how the value of 20 cents increases over time when indexed to the Consumer Price Index (CPI). The CPI averaged

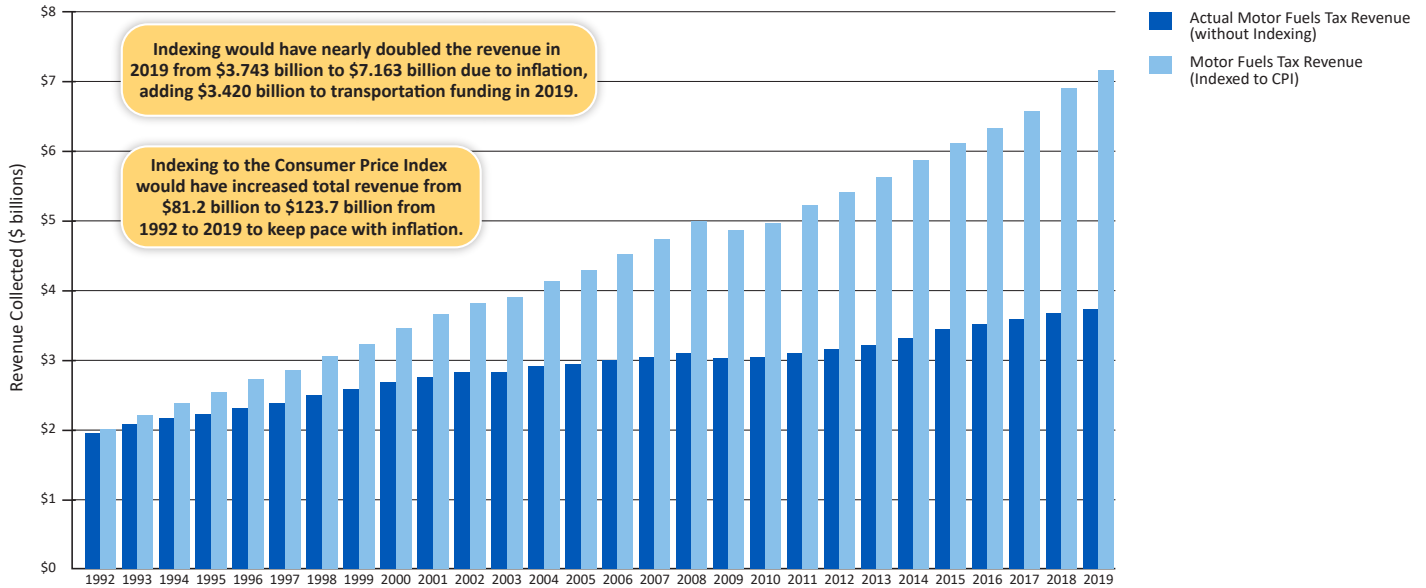
2.31 percent per year from 1991 to 2019. As shown, 20 cents in 1991 grows to 38 cents in 2019 to keep pace with inflation and preserve the purchasing power of the tax.

Figure V.A.1 Indexing State Motor Fuels Tax to Keep Pace with Inflation



To continue the illustration, Figure V.A.2 shows the positive impact on revenue that would have resulted from indexing the fuels tax to the CPI in 1992. As shown, indexing would have doubled the revenue collected in 2019 from \$3.743 billion²¹ to \$7.163 billion. Over the 28-year time frame from 1992 to 2019, indexing would have increased total revenue from \$81.2 billion to \$123.7 billion to keep pace with inflation.

Figure V.A.2 The Positive Impact on Revenue of Indexing State Motor Fuels Tax



B. Options to Increase Revenue

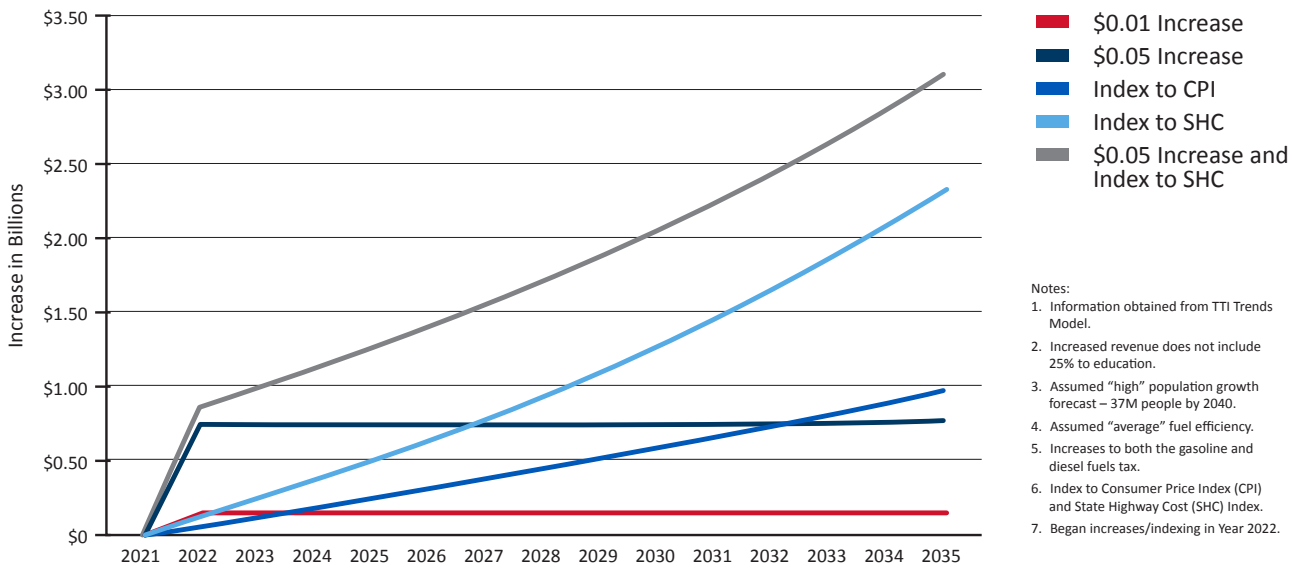
With increasing fuel efficiency (miles per gallon) in passenger and commercial vehicles, and increases in electric vehicle usage, the revenue collected per mile of travel continues to drop. At the same time, the buying power of the fuels tax continues to decrease each year due to the escalation of construction costs over time. There are several options to explore to increase revenue and provide an enhanced funding stream for transportation projects. Five scenarios are presented below that can be extrapolated or combined as a funding model to fully or partially address the growing transportation needs of Texas:

1. Increasing the fuels tax by \$0.01
2. Increasing the fuels tax by \$0.05
3. Indexing the fuels tax to the Consumer Price Index (CPI)
4. Indexing the fuels tax to the State Highway Cost (SHC) Index
5. Increasing the fuels tax by \$0.05 and indexing to the SHC Index

Figure V.B.1²² shows the increased revenues produced by each scenario. As shown, just increasing the fuels tax produces a flat increased amount. Indexing the fuels tax produces increased revenues each year. Seventy-five percent of the fuels tax is used for transportation projects, with the remaining 25 percent going toward funding education. An extra benefit to increasing/indexing the fuels tax is additional revenues for education funding as well as transportation funding.

Indexing the fuels tax produces increased revenues each year.

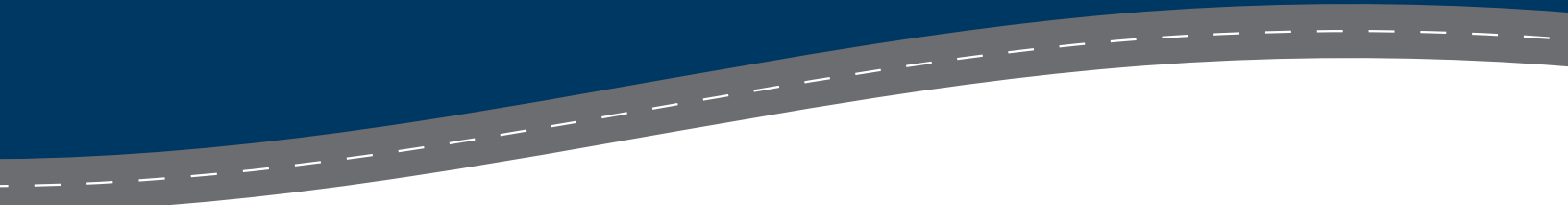
Figure V.B.1 Illustration of Additional Revenue Options by Indexing or Increasing Fuels Tax



- Notes:
1. Information obtained from TTI Trends Model.
 2. Increased revenue does not include 25% to education.
 3. Assumed "high" population growth forecast – 37M people by 2040.
 4. Assumed "average" fuel efficiency.
 5. Increases to both the gasoline and diesel fuels tax.
 6. Index to Consumer Price Index (CPI) and State Highway Cost (SHC) Index.
 7. Began increases/indexing in Year 2022.

C. Vehicle Miles Traveled (VMT) Fee

Fuel-efficient vehicles and alternative-fuel vehicles (electric, fuel cell, etc.) pay less or no gas tax than conventional gasoline/diesel vehicles. Consequently, the gas tax revenue into the SHF is lessened. Use of the roadways is measured as vehicle miles traveled. One method to bring parity in payment for the use of a roadway is through a Vehicle Miles Traveled (VMT) fee. With a VMT, each motorist would pay a fee (tax) based on the actual miles driven rather than paying a fuels tax on the gasoline/diesel used. The VMT fee would then



capture revenue in proportion to road usage rather than in proportion to the amount of gasoline or diesel used. Based on 2018 data,²³ an estimate for VMT fees of 0.23 cents per mile (\$23 per 10,000 miles) for cars and 1.16 cents per mile (\$116 per 10,000 miles) for trucks would generate roughly \$1 billion in revenue.

Several transportation entities (TTI,²⁴ TxDOT, FHWA, Oregon DOT and California DOT) have performed studies and pilot programs to assess the viability for VMT fees. In general, the consensus is that a VMT fee will be a productive, effective and equitable means of collecting fees to fund highway programs in the long run. In the short run, there are several issues to work through for implementation, such as:

- Public acceptance of paying a fee instead of a long-established tax.
- Development of the actual means and methods for tracking mileage and collecting revenue.
- If the tracking method includes a GPS device on the vehicle, then allaying the public's fears of government invasion of privacy.

IH 35W Fort Worth



D. Toll Roads

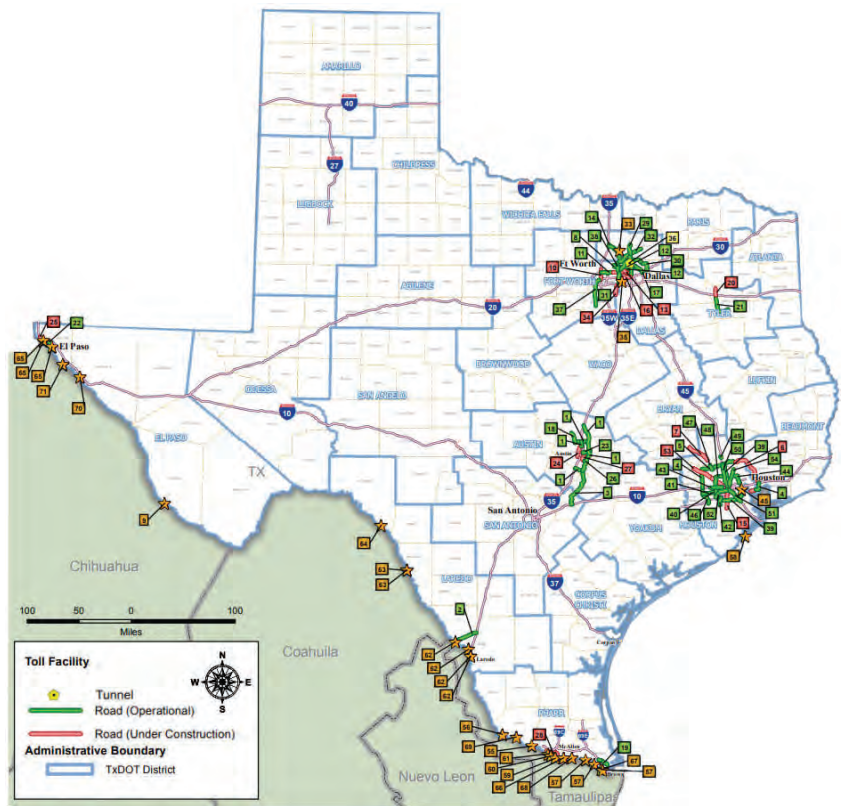
Over the past two decades, as Texas and the demand for additional transportation options have grown, TxDOT has built toll roads in various areas of the State to make travel more efficient. Building toll roads provides new transportation options without straining existing transportation funding sources as the facilities are either largely funded through private financing or toll revenue bonds.

TxDOT is the sole state-wide toll authority, and TxDOT's network of approximately 230 centerline miles of toll roads includes the Central Texas Turnpike System around Austin and several segments of the Grand Parkway (SH 99) in Harris, Montgomery and Chambers counties.

In addition to TxDOT's facilities, Texas toll roads are operated by various authorized governmental entities, including regional mobility authorities and state, regional and county toll authorities. Figure V.D.1 shows all the toll facilities in Texas.²⁵ TxDOT and the Texas Transportation Commission have limited legal oversight roles that vary for each type of toll authority in Texas.

In the 2030 Report, it was estimated that \$1.8 billion per year would be financed through toll roads and managed lanes, which left \$5 billion of need in 2010 dollars. For the last few years, however, the Texas Transportation Commission has been operating in a non-tolled environment, removing that anticipated \$1.8 billion worth of additional funding capacity, which in turn increases the annual need to \$6.8 billion in 2010 dollars.

Figure V.D.1 Texas Toll Facilities



E. Managed Lanes

Managed lanes are vital for reducing congestion and offering drivers more reliable time frames for getting to their destinations. By actively managing the flow of traffic in a lane, transportation agencies can adjust lane strategies as needed to maximize roadway efficiency, improving traffic flow on both the managed and general-purpose lanes. Managed lanes provide users an alternative to heavy-use roads, while decreasing traffic on major routes.

In Texas, most managed lanes contain no fee component. Where fee-based managed lanes exist, they offer drivers the option and convenience of bypassing congestion on adjacent general-purpose lanes. Managed lane strategies fall into three main categories:

Access Control	Vehicle Eligibility	Pricing
<ul style="list-style-type: none">• Express lanes• Reversible lanes	<ul style="list-style-type: none">• High-occupancy vehicle (HOV) lanes• Truck lane restrictions• Off-peak use of HOV lanes by non-HOV vehicles	<ul style="list-style-type: none">• Value-priced lanes• Toll lanes

Alone or combined, all these lane types are under the umbrella of a comprehensive managed lane strategy.

F. Public-Private Partnerships

TxDOT's traditional method of building transportation projects is known as Design-Bid-Build, where the project is designed and then advertised for bid by contractors. The construction contractor that provides the lowest bid is selected to construct the project. In addition to the traditional method, TxDOT has utilized public-private partnerships, which are referred to as Comprehensive Development Agreements (CDAs) in Texas. These contracts are awarded based on a best-value approach (price, qualifications of firm and project approach) and combine various components of a project's implementation into one contract. Additionally, they leverage limited state resources with private investment in the projects.

Concession agreements require a private-sector developer to develop, finance, construct, operate and maintain a facility for a specific time of up to 52 years. These concession agreements allow the State to share the risks and responsibilities associated with the design, construction and maintenance of a project. In exchange, the developer and TxDOT may share revenues from tolls collected.

TxDOT has five concession projects (shown in Figure V.F.1) in operation or under construction, but the broad authority to enter into additional CDAs expired in 2017, with the exception of Grand Parkway (SH 99). These five projects have provided nearly \$9 billion in infrastructure projects with only \$1 billion in funding coming from the State, with the State’s portion helping to fund the reconstruction of existing capacity or additional general-purpose lanes. Additionally, the State benefits from the developer paying for the maintenance costs of the facility for up to 52 years.

Figure V.F.1 TxDOT Concession Projects

Project	Project Cost	State Investment
SH 130 (Segment 5 & 6)	\$1.4 billion	\$0.0
North Tarrant Express	\$2.1 billion	\$570 million
LBJ-635 Corridor	\$2.795 billion	\$496 million
North Tarrant Express/IH 35 West	\$1.35 billion	\$62 million (from the MPO)
SH 288 Toll Lanes Project	\$1.06 billion	\$17 million
PUBLIC-PRIVATE PARTNERSHIP PROJECT COSTS	\$8.705 billion	\$1.145 billion



PALO DURO CANYON Amarillo

VI. RECOMMENDATIONS

A. Protect Proposition 1 and Proposition 7 Funding

The funding crisis identified in the 2030 Report still exists. According to the 2030 Report, the 2021 funding need for highway construction is \$13.1 billion in current dollars. Factoring in urban megaprojects at \$1.6 billion (the average cost estimated over six fiscal years from FY 2020 to FY 2025) puts the total funding need at \$14.7 billion. These numbers are in stark contrast to the \$7.5 billion in TxDOT revenue projections for highway construction, creating a shortfall of \$7.2 billion in 2021.

By 2030, the shortfall is projected to grow to \$9.5 billion. With an additional \$2.3 billion in urban megaprojects, the total shortfall is \$11.8 billion in 2030.

Proposition 1 and 7 funding is essential to the TxDOT highway construction program. A significant reduction in the ESF would jeopardize the Proposition 1 revenue stream. Proposition 1 funding comes from oil and gas severance tax and has already taken a \$1.9 billion hit (14 percent reduction) from the impact of COVID-19 in the current 2020-21 biennium. Proposition 7 funding is generated from State sales tax revenue. The



Legislature should fully protect this funding source and not allow any claw-back from legislative action to interrupt, diminish or divert these funds.

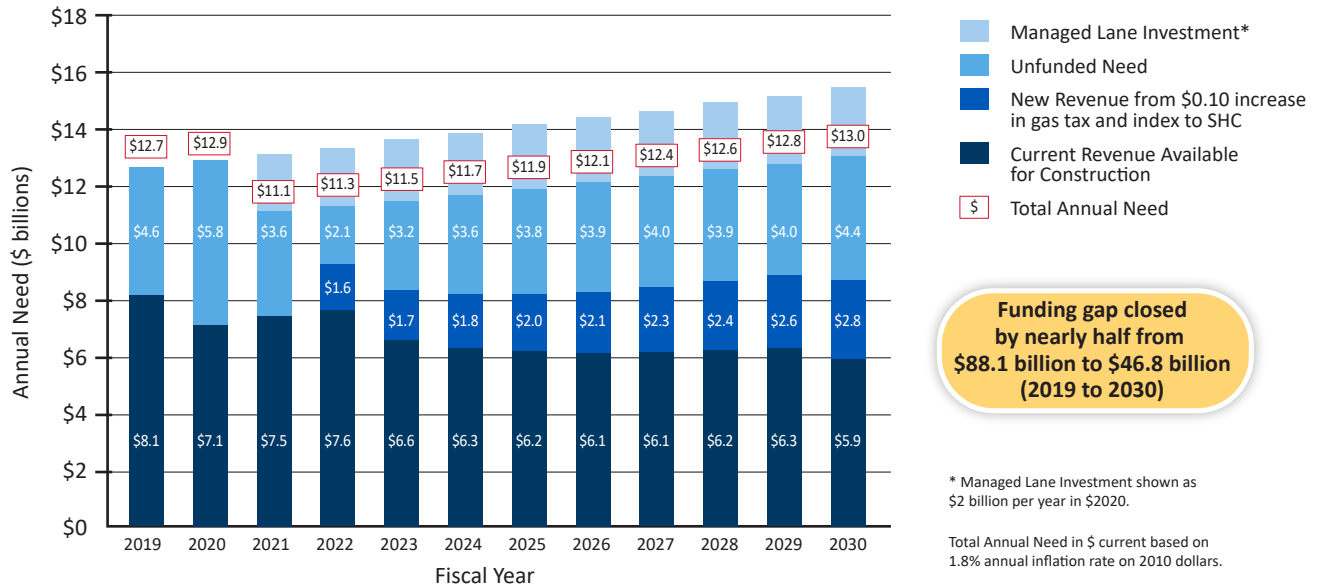
The voters of Texas overwhelmingly passed Proposition 1 in 2014 and Proposition 7 in 2015 with over 80 percent in favor of these Constitutional Amendments. Based on this strong support for Texas highway infrastructure investment, the Legislature should protect the full measure of Proposition 1 and 7 funding.

B. Consider Additional Revenue Sources

The Texas Legislature should consider, both now and in future sessions, creating opportunities for additional voter-approved revenue sources. In Figure VI.B.1, a combination of additional revenue sources illustrates the scope and magnitude of funding necessary to create an upward trend in funding that closes the gap in funding identified in the 2030 Report. As shown, a combination of increases to the gas tax, indexing to state highway cost escalation, and utilizing toll road and managed lane financing closes the funding gap from \$88.1 billion to \$46.8 billion. When urban megaprojects are included in the funding needs, an additional \$2.3 billion per year in funding is needed from 2021 to 2030.

US 377 Del Rio

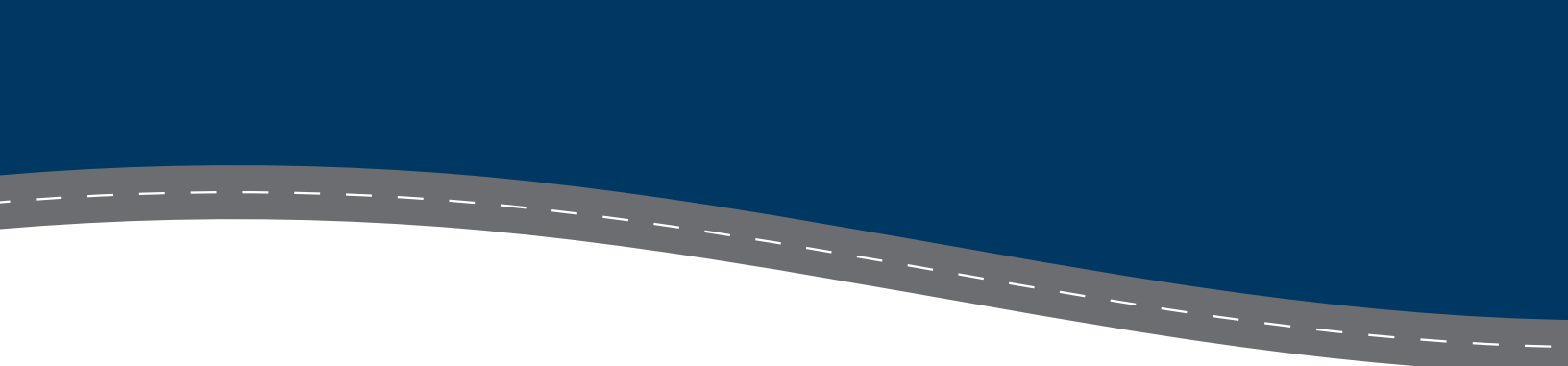
Figure VI.B.1 Illustration of Additional Revenue Sources and Residual Funding Need



The Legislature should explore ways for electric and hybrid vehicle users to pay their fair share of the cost for the roads and bridges they use, just as all other users of the system currently do.

C. Allow Toll Roads and Managed Lanes

In the discussion that led to the passage of Propositions 1 and 7, proponents talked about a \$5 billion funding gap that was derived from the 2030 Report. Not only did the new revenue sources afforded by Proposition 1 and 7 not reach that threshold, but it was understood that even this gap assumed the continued aggressive use of toll strategies across the State, from green-field projects to managed lanes. For the last few years however, the Texas Transportation Commission has been operating in a non-tolled environment, such that closing the funding gap to prevent further degradation in mobility is even more daunting.



For Texas to meet the transportation needs of its rapid growth in population and economic development, it is vital to consider the use of managed lanes and toll roads as strategies for improving roadway efficiency and funding.

D. Stimulate the Texas Recovery

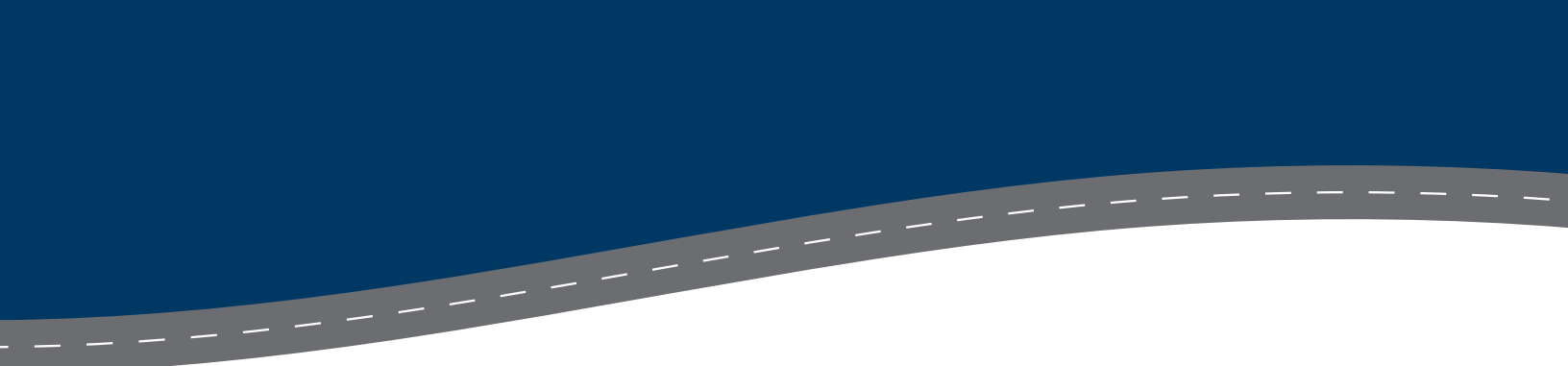
The multiplier effect of infrastructure investment impacts local communities in three primary ways—job creation, benefits to local tax base and competitive advantages.

Job Creation

The jobs generated by transportation projects are wide-ranging and real. A major highway project coming through local Texas communities will significantly increase the amount of work and jobs for the local concrete batch plant, the aggregate suppliers, utility crews, tradespeople, truck drivers and other trades directly related to construction. Equally important are the associated jobs and positive impact from the construction project, including local equipment rental stores, local work clothing stores, wait staff at restaurants, hotel staff, mechanics and auto servicing. The cumulative impact on the community is significant and is the right kind of true economic stimulus as Texans work to recover from the double and far-reaching impact of COVID-19 and the downturn in the oil and gas industry.

Benefits to Local Tax Base

Directly related to the positive effect of local jobs from highway construction projects is the benefit to local tax revenue. While somewhat challenging to get a direct correlation, the increase in local tax revenue will come from local sales tax (restaurants, hardware stores, etc.), hotel tax, car rental taxes and even property tax revenue from people who may relocate to the project area. Many



Texas communities continue to suffer from the sudden disruption to planned tax revenue during the prolonged COVID-19 shutdown, and infrastructure investment is one of the most useful tools to drive local tax revenue back up toward pre-COVID-19 levels.

Competitive Advantages

In addition to increased jobs and taxes, completing critical transportation projects provides long-term competitive advantages for a community long after the construction is finished. These include:

- Increased ability for local businesses to deliver goods/services – across Texas or around the world.
- Increased economic development through the attraction of new businesses.
- Decreased congestion and delay.
- Improved air quality and the health of those in the community.
- Improved safety for residents.

The impact to a local community may be best described by what happens when a critical project is not constructed. When the project doesn't happen, there is the potential that existing businesses relocate or that new businesses cannot be attracted, resulting in diminished job creation. There may also be a loss of significant future tax revenue to local entities including school districts. Economic activity spurred by the development of land surrounding the project is lost.



E. Actions for the 87th Legislature

Texas continues to be recognized as a global leader for economic production and population growth. The State stands alone in the U.S. as the place for business creation and relocation, and job creation, creating an environment poised for future development. As Texans work together to recover from the COVID-19 pandemic and global oil price volatility that led to a significant downturn in the Texas economy, infrastructure will play a vital role in recovery. Continued investment in transportation infrastructure is a key component of economic recovery, economic development, job creation and the everyday connectivity that is essential for all Texans. The 87th Texas Legislature should:

- Ensure that the Proposition 1 and Proposition 7 funding streams dedicated to the State Highway Fund are not interrupted, diminished, or diverted.
- Consider current and future highway funding needs and implement additional revenue sources to close the gap on an estimated \$7.2 billion shortfall in 2021 that grows to a \$11.8 billion by 2030.
- Take action to create economic recovery, economic development and jobs for Texans through a robust and visionary Texas highway investment policy.



MARGARET HUNT HILL BRIDGE Dallas

References

- 1 Consumer Price Index, Yearly Average of Inflation from 2010 to 2020.
- 2 Texas Department of Transportation, "Texas Transportation Plan 2050," Page 26.
- 3 State of Texas, Office of the Governor, Texas Economic Development, 2020.
- 4 State of Texas, Office of the Governor, Texas Economic Development, 2020.
- 5 Texas Department of Transportation, "Texas Transportation Plan 2050," Page 13.
- 6 Texas Department of Transportation, "Texas Transportation Plan 2050," Page 39.
- 7 Texas Transportation Institute, "Most Congested Roadways, Freight Report," 2019.
- 8 Texas Transportation Institute, "Most Congested Roadways," 2019.
- 9 Texas Department of Transportation, "Texas Transportation Plan 2050," Page 1.
- 10 Texas Department of Transportation, "Texas Transportation Plan 2050," Page 28.
- 11 Texas Department of Transportation, "Texas Transportation Plan 2050," Page 28.
- 12 Texas Department of Transportation, "Texas Transportation Plan 2050," Page 29.
- 13 Texas Department of Transportation, "Texas Transportation Plan 2050," Page 29.
- 14 Texas Department of Transportation, "Texas Transportation Plan 2050."
- 15 Texas Comptrollers Office, "Texas Real Gross State Product Detail, 1990-2046," Summer 2020.
- 16 Texas Department of Transportation, "Texas Freight Mobility Plan."
- 17 U.S. Office of the White House, "An Economic Analysis of Transportation Infrastructure Investment," July 2014.
- 18 TJ Costello and Ginger Lowry, Texas Comptroller of Public Accounts, "Texas Roads Finance Part II: Economic Impacts – Infrastructure Spending Boosts Economy," June 2016.
- 19 TJ Costello and Ginger Lowry, Texas Comptroller of Public Accounts, "Texas Roads Finance Part II: Economic Impacts – Infrastructure Spending Boosts Economy," June 2016.
- 20 Texas Department of Transportation, "Alternative Delivery Program – Discussion Document (Subject to Change), D-B Cadence," Revised September 10, 2020.
- 21 Texas Comptroller of Public Accounts
- 22 Texas A&M University Texas Transportation Institute
- 23 Texas Department of Transportation, Data Management, Transportation Planning and Programming, "2018 Roadway Inventory Annual Reports."
- 24 Texas Transportation Institute, "Exploratory Study: Vehicle Mileage Fees in Texas," January 2011.
- 25 State of Texas, <http://ftp.dot.state.tx.us/pub/txdot-info/tod/toll-roads-bridges.pdf>.
- 26 U.S. Department of Transportation Federal Highway Administration, National Highway Construction Cost Index.



AMERICAN COUNCIL OF ENGINEERING
COMPANIES OF TEXAS



ACEC

AMERICAN COUNCIL OF ENGINEERING
COMPANIES OF TEXAS

