Texas Bond Review Board

Debt Affordability Study

This study provides data on the state's historical, current and projected debt positions and develops financial data from which policymakers can review various debt strategies by use of the study's Debt Capacity Model.

February 2016

Debt Affordability Study
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Greg Abbott, Governor
Chairman

Dan Patrick, Lieutenant Governor

Joe Straus, Speaker of the House of Representatives

Glenn Hegar, Comptroller of Public Accounts

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Executive Summary

The 80th Legislature (2007) passed Senate Bill 1332 that amended the Texas Government Code Chapter 1231 to require the Texas Bond Review Board in consultation with the Legislative Budget Board to prepare annually the state's Debt Affordability Study (DAS).

The DAS' Debt Capacity Model (DCM) assesses the impact on general revenue of the state's annual debt-service requirements for current and projected levels of not self-supporting (NSS) debt over the next five years. Credit rating agencies examine variations of these debt capacity measures to assess the state's debt burden, a key factor affecting the state's credit rating and thus capacity for debt issuance.

State Debt Outstanding and the Constitutional Debt Limit
At the end of FY 2015, Texas had $47.09 billion in total debt outstanding. Of this amount $6.05 billion (12.8%) was NSS debt, and $41.04 billion (87.2%) was self-supporting. The state's total NSS debt outstanding has increased 103.0 percent from $2.98 billion in FY 2006, a compound annual growth rate of 7.34%.

As of August 31, 2015 the Constitutional Debt Limit (CDL) was 1.38 percent for outstanding debt and 2.65 percent for outstanding and authorized but unissued debt. For FY 2014 these figures were 1.20 and 2.71, respectively, and represent an increase of 15.0 percent and a decrease of 2.2 percent, respectively.

Assumptions for the Debt Capacity Model
The DCM contains assumptions for the fiscal years under review (2016-2020) including:

- Estimates of unrestricted general revenue (UGR)
- Estimates of NSS debt issuance
- Estimates of appropriations for Special Debt Commitments (Tuition Revenue Bonds (TRBs) for higher education as well as Instructional Facilities Allotment (IFA), Existing Debt Allotment (EDA) and the Additional State Aid for Homestead Exemption for Facilities (ASAHE – Facilities) for public education
- Estimates of Texas' future population and total personal income.

Ratios used in the Debt Capacity Model
The DCM uses five ratio calculations to assess the impact of the state's annual debt-service requirements paid from general revenue for current and projected levels of NSS debt over the next five years. A summary of each ratio follows:

- <u>Ratio 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue</u> measures the impact of debt service on the rolling three year average of UGR. Because NSS debt service as a percentage of UGR has historically been below 2 percent, Ratio 1 has a target of 2 percent, a cap at 3 percent and a maximum of 5 percent. Ratio 1 resembles the CDL but is only a guideline while the CDL is a legal limit set by the state's constitution (See Appendix D for a discussion of the CDL). Ratio 1 is calculated two ways: 1) using only NSS debt service and 2) using NSS debt service plus Special Debt Commitments to show the latter's impact on the state's debt capacity (see *Chapters 1, 3 and Appendix C*).
- <u>Ratio 2: Not Self-Supporting Debt Service as a Percentage of Budgeted General Revenue</u> measures the debt service as a ratio to the budgeted general revenue based on the 2016-2017

General Appropriations Act (House Bill 1). This ratio is generally more restrictive because it does not use a rolling three year average.

- Ratio 3: Not Self-Supporting Debt as a Percentage of Personal Income is an indicator of the state's ability to repay debt obligations by transforming personal income into revenue through taxation.
- Ratio 4: Not Self-Supporting Debt per Capita measures the dollar amount of debt per person.
- Ratio 5: Rate of Debt Retirement is the rate at which outstanding long-term debt is retired and measures the extent to which new debt capacity is created for future debt issuance.

Major Findings

- With moderate economic growth projected over the next five years, the state's General Revenue Fund is generally expected to increase for FY 2016-2020. Assuming projected NSS debt issuance of $3.94 billion and retirements of $1.65 billion over the next five fiscal years, Ratio 1 remains below the target of 2 percent. Assuming revenues available for NSS debt service averages $3 billion less per year than originally projected, the ratio still remains below the 2 percent target.
- Including Special Debt Commitments (TRBs, IFA, EDA and ASAHE – Facilities), total debt service exceeds Ratio 1's target of 2 percent and cap of 3 percent but remains below the 5 percent max. *(See Figure 1.2, Chapter 3 and Appendix C)*
- Special Debt Commitments are projected to account for more than half of the total NSS debt service for FY 2016-2020.
- For FY 2016-2020, NSS debt service including Special Debt Commitments is projected to peak in fiscal 2018 (see *Figure 4.1*).
- At FYE 2015, BRB staff estimated that almost $12.81 billion in additional debt capacity was available before reaching the CDL.
- NSS debt as a percentage of personal income and debt per capita are expected to be better than rating agency benchmarks through fiscal 2020.
- The rates of debt retirement for NSS debt for the five and ten year periods are better than rating agency benchmarks. However, the state's rate of debt retirement could decline if the remaining $1.44 billion of Texas Transportation Commission (Proposition 12) debt is issued with an expected 30-year maturity.
- Including the $3.94 billion of NSS debt expected to be issued over the next five fiscal years, Ratio 1 remains below the 2 percent target after a one-time hypothetical debt issuance of $1 billion.
- Assuming $3.94 billion of projected NSS debt issuance over the next five fiscal years, the state is expected to have approximately $1.13 billion of authorized but unissued NSS debt remaining by FY 2020.

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Cautionary Statements

Chapter 1231 of the Texas Government Code directs the Bond Review Board (BRB) to annually prepare a study regarding the state's current debt burden. The report must analyze the amount of additional not self-supporting debt the state can accommodate; include analysis which may serve as a guideline for debt authorizations and debt-service appropriations by including ratios of such debt to personal income, population, budgeted and expended general revenue, as well as the rate of debt retirement and a target and limit ratio for not self-supporting debt service as a percentage of unrestricted general revenues. BRB shall deliver the report to the governor, lieutenant governor, comptroller of public accounts, Senate Committee on Finance and House Appropriations Committee. This report is intended to satisfy these Chapter 1231 duties.

The data in this report and on the BRB's website is compiled from information reported to the BRB from various sources and has not been independently verified. The reported debt data of state agencies may vary from actual debt outstanding, and the variance for a specific issuer could be substantial.

State debt data compiled does not include all installment purchase obligations, but certain lease-purchase obligations are included. In addition, SECO LoanSTAR Revolving Loan Program and certain other revolving loan program debt and privately-placed loans are not included. Outstanding debt excludes debt for which sufficient funds have been escrowed to retire the debt either from proceeds of refunding debt or from other sources.

Future revenues, population and personal income information of the state are derived from third-party estimates. They are inherently subject to various known and unknown risks and uncertainties, including the possible invalidity of underlying assumptions and estimates; possible changes or developments in social, economic, business, industry, market, legal, and regulatory circumstances and conditions; extreme weather events; and actions taken or omitted to be taken by third parties, including consumers, taxpayers, and legislative, judicial, and other governmental authorities and officials, all of which are beyond the control of the BRB. Future debt issuance is based on estimates supplied by each issuing agency. Future debt service on variable rate, commercial paper, and other short-term and demand debt is estimated on the basis of interest rate and refinancing assumptions described in the report. Actual future issuance and debt service could be affected by changes in agency financing decisions, prevailing interest rates, market conditions, and other factors that cannot be predicted. Consequently, actual future data could differ from estimates included in this report, and the difference could be substantial. The BRB assumes no obligation to update any such estimate of future data.

Historical data and trends presented are not intended to predict future events or continuing trends, and no representation is made that past experience will continue in the future.

This report is intended to meet Chapter 1231 requirements and inform the state leadership and the Legislature to provide a guideline for state debt authorizations and debt-service appropriations. This report is not intended to inform investors in making a decision to buy, hold, or sell any securities, nor may it be relied upon as such. Data is provided as of the date indicated and may not reflect debt, debt service, population or other data as of any subsequent date. This data may have changed from the date as of which it is provided. For more detailed or more current information, see the issuers' web sites or their filings at Electronic Municipal Market Access (EMMA®). The BRB does not control or make any representation regarding the accuracy, completeness or currency of any such site, and no referenced site is incorporated herein by that reference or otherwise.

Chapter 1 – Summary of Results

Background

The 80th Legislature (2007) passed Senate Bill 1332 that amended the Texas Government Code Chapter 1231 to require the Texas Bond Review Board (BRB) in consultation with the Legislative Budget Board annually to prepare the state's Debt Affordability Study (DAS).

As defined in this study, debt affordability is the determination of the state's capacity for additional not self-supporting (NSS) debt, i.e., debt funded from unrestricted general revenues that has a direct impact on state finances. Debt affordability provides an integrated approach that helps manage and prioritize state debt by analyzing data on historical, current and projected uses of NSS debt in conjunction with the financial and economic resources of the state and its capital needs.

Debt service for NSS debt depends solely on legislative appropriations from the state's general revenue fund and thus draws upon the same sources otherwise used to finance the operation of state government. The DAS' Debt Capacity Model (DCM) provides financial data policymakers can use to review the impact of various strategies for NSS debt to determine acceptable levels of annual debt service and prioritize the state's available revenues to meet the priority needs.

The DCM uses five ratio calculations to assess the impact on general revenue of the state's annual debt-service requirements for current and projected levels of NSS debt over the next five years. Credit rating agencies examine variations of these debt capacity measures to assess the state's debt burden, a key factor affecting the state's credit rating and thus capacity for debt issuance.

The DAS' Debt Capacity Model does not take into account the States' pension liabilities. During the last legislative session, the Legislature took action to reduce unfunded plan liabilities. According to a Moody's report dated June 15, 2015 titled "Texas Acts to Strengthen Pension Contributions, a Credit Positive", Moody's states "the employee contribution increase to 9.5% of payroll, combined with the state's expected contribution increase to 10% of pay, will bring annual contributions much closer to the actuarially sound contribution (ASC) benchmark defined in Texas statute."

Summary of Results

This study is based on the $6.05 billion of NSS debt outstanding as of August 31, 2015 and an estimated $3.94 billion in authorized, NSS debt which is expected to be issued between FY 2016 and FY 2020 for the following transactions:

- $1.44 billion in General Obligation (GO) debt, related to Proposition 12 for transportation projects (TTC);
- $1.34 billion in GO debt, related to Proposition 15 for cancer research (TPFA);
- $930.0 million in GO and revenue debt for capital projects for certain state agencies (TPFA), including Proposition 4 authorization and debt authorized by the 84th Legislature for TFC (TPFA);
- $131.3 million in GO bonds for the Higher Education Assistance Fund; and
- $101.2 million in GO bonds for the Texas Water Development Board's (TWDB) Economically Distressed Areas Program.

In November 2011 voters approved Proposition 2 that enables the TWDB to issue additional debt for its Development Fund II Program in an amount not to exceed $6 billion of debt outstanding at any time. Legislative action is required for the issuance of NSS debt under this authorization. See Appendix B for an analysis of the debt ratios if a hypothetical $1 billion is issued in addition to the $3.94 billion in new NSS debt issuances currently projected for FY 2016-2020.

See *Figure E2* for detail on the state's debt outstanding as of August 31, 2015.

With moderate economic growth expected over the next five years, the General Revenue Fund is generally projected to increase at an average growth rate of 1.90%. Additionally, due to the $767.7 million of revenue bonds authorized by the 84th Legislature for the Texas Facilities Commission, the February 2016 DAS estimates an increase of 23% ($762.0 million) in NSS debt remaining to be issued during FY 2016-2020 compared to the $3.18 billion estimated for FY 2015-2019 in last year's DAS.

The following explains the ratios used in the DAS. The table below shows the results of the study.

Ratio 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue

Ratio 1 is calculated by dividing future debt service by the rolling three year average of unrestricted general revenue (UGR). Statute requires the DAS to include a target and cap for Ratio 1, both of which can be adjusted as requested or as directed by the BRB or Legislative Budget Board. Since Texas has historically appropriated less than 2 percent of its UGR for NSS debt service, the analysis of Ratio 1 utilizes 2 percent as the target ratio, 3 percent for the cap ratio and a maximum of 5 percent. UGR projections are provided by the Legislative Budget Board. (Ratio 1 should not be confused with the Constitutional Debt Limit (CDL) calculation. See Appendix D for further discussion of the CDL.)

Ratio 1 can be used to assess the impact of special debt commitments (SDC) on the general revenue fund. SDC consist of tuition revenue bonds (TRBs) for higher education and the Existing Debt Allotment (EDA), Instructional Facilities Allotment (IFA) and the additional state aid for homestead exemption for facilities (ASAHE – Facilities) for public education.

Figure 1.1 illustrates Ratio 1 for NSS annual debt service and SDC. *Figure 1.2* provides additional detail showing the impact of SDC on Ratio 1. (See *Chapter 3* and *Appendix C*.)

Figure 1.1
Debt Service Commitments as a Percentage of Unrestricted General Revenue

	2016	2017	2018	2019	2020
February 2016					
NSS Annual Debt Service	1.39%	1.47%	1.66%	1.70%	1.68%
Tuition Revenue Bonds (TRBs)	1.13%	1.11%	1.08%	1.05%	1.01%
IFA, EDA and ASAHE - Facilities	1.34%	1.35%	1.35%	1.14%	1.12%
Total	**3.86%**	**3.92%**	**4.09%**	**3.89%**	**3.80%**

Source: Texas Bond Review Board.

Results

- Excluding SDC, debt service as a percentage of unrestricted general revenue is projected to remain below the 2 percent target and the 3 percent cap. (See *Figure 1.2, Chapter 3 and Appendix C*). Assuming revenues available for NSS debt service will be less than originally forecasted, the ratio still remains below the 2 percent target and 3 percent cap. See Appendix A for a discussion of the methodology used for the DCM.

- Including SDC, debt service as a percentage of unrestricted general revenue is expected to exceed the 2 percent target and the 3 percent cap, but remains below the 5 percent maximum. SDC are projected to account for more than half of the total NSS debt service for FY 2016-2020.

<u>Ratio 2: Not Self-Supporting Debt Service as a Percentage of Budgeted General Revenue</u>

Unlike Ratio 1 this ratio does not use a rolling 3-year average of UGR but uses instead the budgeted general revenue figures for FY 2016 and FY 2017 based on House Bill 1 of the 2016-17 General Appropriations Bill.

Results

Ratio 2 is 1.27 percent for FY 2016 and rises to 1.39 percent for FY 2017. Historically, Texas' NSS debt-service commitment has been less than 1.5 percent of budgeted general revenue as shown in *Figure 3.3*.

<u>Ratio 3: Not Self-Supporting Debt as a Percentage of Personal Income</u>

This ratio is obtained by dividing NSS debt by total personal income and is an indicator of the state's ability to repay debt obligations by transforming personal income into revenues through taxation. This is one ratio the rating agencies review when establishing the state's credit rating. Personal income projections are provided by the Texas Comptroller of Public Accounts.

Results

Ratio 3 is 0.52 percent for FY 2016 and peaks at 0.54 percent in FY 2017. These figures are below the rating agency benchmark of 3 percent.

<u>Ratio 4: Not Self-Supporting Debt per Capita</u>

This ratio is the amount of NSS debt divided by the state's population and measures the dollar amount of debt per person. Like Ratio 3, Ratio 4 is reviewed when establishing the state's credit rating.

Results

Ratio 4 is $248 for FY 2016 and peaks to $272 in FY 2019. These figures are below the rating agency benchmark of $1,000 per Capita.

<u>Ratio 5: Rate of Debt Retirement</u>

The rate at which long-term debt is retired measures the extent to which new debt capacity is created for future debt issuance. Credit rating agencies review the length of time needed for debt to be retired with the expectation that on average, 25 percent of the principal amount of debt with a 20-year maturity is retired in five years and 50 percent is retired in 10 years.

Results

In five years 27.3 percent of NSS debt will be retired; 50.4 percent will be retired in 10 years. These figures are slightly better than rating agency benchmarks but are expected to decrease as the Texas Transportation Commission continues to issue Highway Improvement (Proposition 12) Bonds with a 30-year maturity. In 15 years, approximately 70.5 percent of NSS debt will be retired and all outstanding bonds are expected to mature in 29 years (year 2044).

Figure 1.2 summarizes the ratio analysis for FY 2016 through FY 2020. The negative numbers in Ratio 1 indicate shortfalls in debt service when compared to the corresponding target, cap or maximum percentage.

Figure 1.2
Summary of Ratios 1-5

Fiscal Year	2016		2017		2018		2019		2020	
RATIO 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue										
NSS Debt Service										
Issued	$ 656,158,699	1.34%	$ 593,109,719	1.19%	$ 574,399,338	1.15%	$ 553,530,412	1.09%	$ 510,016,672	0.98%
Authorized but Unissued	$ 23,749,859	0.05%	$ 133,517,246	0.27%	$ 236,895,990	0.47%	$ 271,785,890	0.53%	$ 297,975,598	0.57%
Projected	$ 1,297,773	0.00%	$ 6,057,723	0.01%	$ 19,185,794	0.04%	$ 39,146,033	0.08%	$ 64,012,082	0.12%
Total NSS Debt Service (excluding SDC)	$ 681,206,331	1.39%	$ 732,684,688	1.47%	$ 830,481,122	1.66%	$ 864,462,336	1.70%	$ 872,004,351	1.68%
Special Debt Commitments	$ 1,213,167,887	2.47%	$ 1,224,262,432	2.45%	$ 1,214,605,040	2.43%	$ 1,111,638,561	2.19%	$ 1,106,185,255	2.13%
Total NSS Debt Service (including SDC)	$ 1,894,374,218	3.86%	$ 1,956,947,120	3.92%	$ 2,045,086,162	4.09%	$ 1,976,100,896	3.89%	$ 1,978,189,606	3.80%
SDC as a % of Total	64.0%		62.6%		59.4%		56.3%		55.9%	
Remaining Debt-Service Capacity excluding SDC*										
Target (2%)	$ 299,186,125	0.61%	$ 264,997,769	0.53%	$ 170,205,602	0.34%	$ 152,145,514	0.30%	$ 168,905,116	0.32%
Cap (3%)	$ 789,382,354	1.61%	$ 763,838,997	1.53%	$ 670,548,964	1.34%	$ 660,449,439	1.30%	$ 689,359,849	1.32%
Max (5%)	$ 1,769,774,810	3.61%	$ 1,761,521,454	3.53%	$ 1,671,235,687	3.34%	$ 1,677,057,288	3.30%	$ 1,730,269,317	3.32%
Remaining Debt-Service Capacity including SDC*										
Target (2%)	$ (913,981,762)	-1.86%	$ (959,264,663)	-1.92%	$ (1,044,399,438)	-2.09%	$ (959,493,047)	-1.89%	$ (937,280,139)	-1.80%
Cap (3%)	$ (423,785,534)	-0.86%	$ (460,423,435)	-0.92%	$ (544,056,077)	-1.09%	$ (451,189,122)	-0.89%	$ (416,825,405)	-0.80%
Max (5%)	$ 556,606,923	1.14%	$ 537,259,022	1.08%	$ 456,630,647	0.91%	$ 565,418,728	1.11%	$ 624,084,062	1.20%
RATIO 2: Not Self-Supporting Debt Service as a Percentage of Budgeted General Revenue	1.27%		1.39%							
RATIO 3: Not Self-Supporting Debt as a Percentage of Personal Income	0.52%		0.54%		0.52%		0.50%		0.48%	
RATIO 4: Not Self-Supporting Debt Per Capita	$248		$270		$270		$272		$269	
Ratio 5: Rate of Debt Retirement in	5 Years	10 Years								
Not Self-Supporting Debt	27.3%	50.4%								
Self-Supporting Debt	20.2%	38.4%								

* Debt-service capacity is the available capacity to meet target, cap or maximum percentages.
Source: Texas Bond Review Board.

Chapter 2 – Current Debt Position of the State

Texas has a decentralized approach to debt management. Debt issuance occurs at the level of the agency or institution of higher education rather than at the state level. With the exception of Tax Revenue Anticipation Notes, State Highway Fund Revenue Anticipation Notes, Permanent University Fund issuances, and non-general obligation issuances by university systems that have an unenhanced long-term debt rating of at least AA- or its equivalent, the Bond Review Board provides oversight for all state debt issuances with a maturity of more than 5 years or a principal amount greater than $250,000.

When the legislature considers the issuance of new debt, the authorizing legislation is typically considered by legislative finance committees. The legislature usually appropriates debt-service payments for existing debt in the General Appropriations Act that is organized by article based on governmental function. Subsequently, this process leads policymakers to review, develop and approve proposed budget requests by agency or program.

Debt Types

Debt issued by Texas state entities falls into two major categories:

- **General Obligation (GO) debt** is legally secured by a constitutional pledge of the first monies coming into the state treasury that are not constitutionally dedicated for another purpose. GO debt must be passed by a 2/3 vote of both houses of the legislature and a majority of the voters.
- **Non-General Obligation (Revenue) debt** is legally secured by a specific revenue source and does not require voter approval.

State debt is further classified based on its impact on the state's General Revenue Fund:

- **Self-Supporting (SS) debt** is designed to be repaid with revenues other than state general revenue and can be either GO debt or revenue debt. Revenue SS debt also includes conduit debt that is not an obligation of the state and is repaid from funds generated by a third party borrower. For more information regarding conduit debt see the Bond Review Board's FY 2014 Annual Report.
- **Not Self-Supporting (NSS) debt** is intended to be repaid with state general revenue and can be either GO debt or revenue debt.

Figure 2.1 illustrates the classifications for state debt and provides program examples for each type.

Figure 2.1
Debt Type and Examples

Debt Type	General Revenue Impact	Debt Program
General Obligation	Not self-supporting	Highway Improvement (Prop 12) Bonds Cancer Prevention and Research Bonds
General Obligation	Self-supporting	Certain Texas Water Development Bonds Veterans' Land and Housing Bonds
Revenue	Not self-supporting	Texas Military Facilities Commission Bonds Parks and Wildlife Improvement Bonds
Revenue	Self-supporting	College and University Revenue Financing System Bonds Texas Department of Housing Single Family Mort. Bonds

Source: Texas Bond Review Board.

State Debt Outstanding

Figure 2.2 provides detail for the state's total debt outstanding at August 31, 2015.

Figure 2.2
Current Debt Outstanding (thousands)

Bond Types	Self-Supporting	Not Self-Supporting	Total
General Obligation	$ 11,395,298	$ 5,917,471	$ 17,312,769
Revenue	$ 23,529,316	$ 130,984	$ 23,660,300
Conduit Revenue	$ 6,111,994	$ -	$ 6,111,994
Total	**$ 41,036,608**	**$ 6,048,455**	**$ 47,085,063**

Source: Texas Bond Review Board.

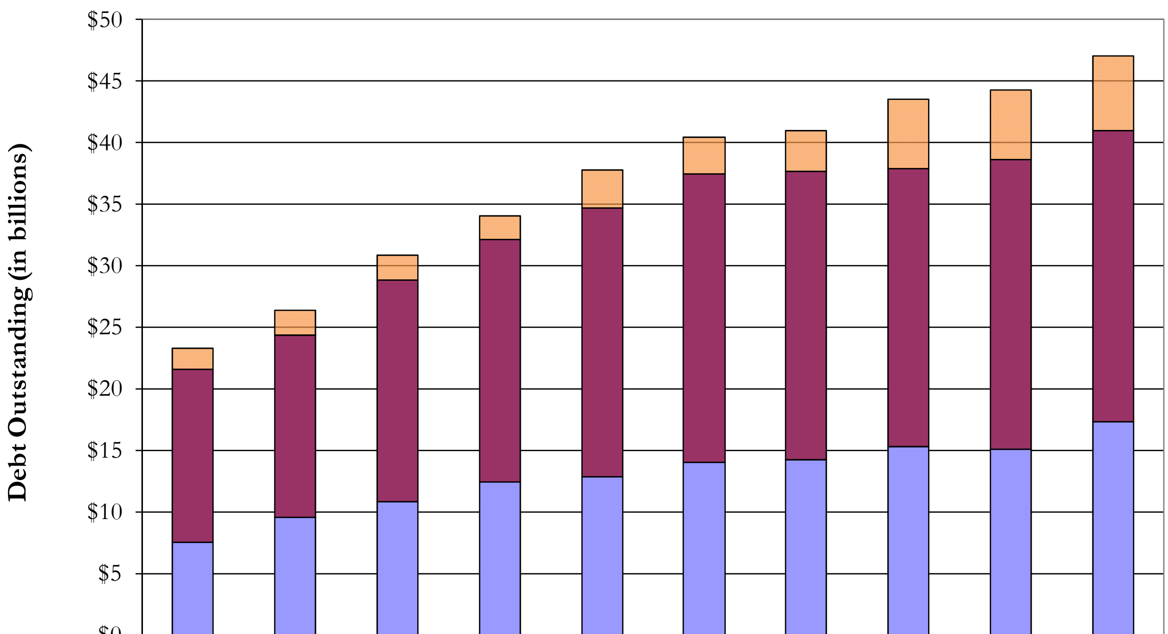
Growth Rates in Unrestricted General Revenue and Total Debt Outstanding

The state's Unrestricted General Revenue (UGR) increased from $33.39 billion in FY 2006 to $49.38 billion in FY 2015, an increase of 47.9 percent over the 10-year period.

GO debt increased by 129.6 percent from $7.54 billion in FY 2006 to $17.31 billion in FY 2015. At FYE 2015, 34.2 percent of the GO debt outstanding was NSS.

Figure 2.3 illustrates Texas' debt outstanding during the past 10-year period by debt type.

Figure 2.3
Texas Debt Outstanding: General Obligation and Revenue for Fiscal Years 2006-2015

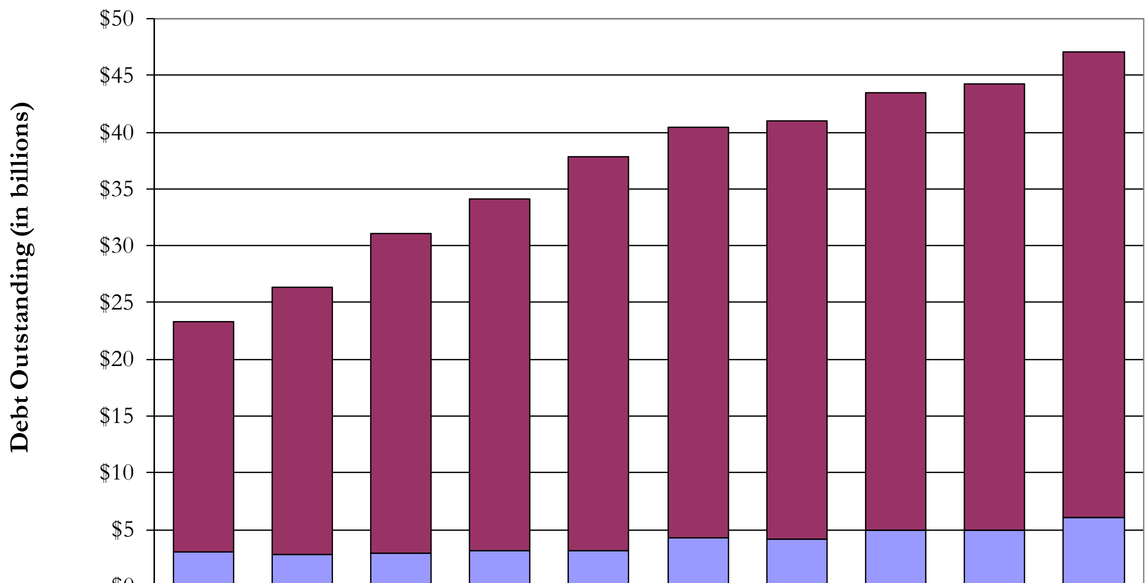


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total	$23.32	$26.37	$31.03	$34.08	$37.82	$40.50	$40.99	$43.54	$44.33	$47.09
Conduit	$1.68	$1.97	$2.03	$1.98	$3.11	$2.99	$3.30	$5.64	$5.68	$6.11
REV	$14.10	$14.81	$18.06	$19.65	$21.80	$23.48	$23.44	$22.55	$23.56	$23.66
GO	$7.54	$9.59	$10.78	$12.44	$12.90	$14.03	$14.25	$15.35	$15.09	$17.31

Source: Texas Bond Review Board.

During the 10-year period ending at FYE 2015, revenue debt increased by 67.8 percent from $14.10 billion to $23.66 billion, and conduit revenue debt outstanding increased by 263.7 percent from $1.68 billion to $6.11 billion. GO debt increased by 129.6 percent from $7.54 billion to $17.31 billion. During the same time period, the state's total debt outstanding increased by 101.9 percent from $23.32 billion to $47.09 billion.

Figure 2.4
Texas Debt Outstanding: Self-Supporting and Not Self-Supporting for Fiscal Years 2006-2015



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Self-supporting*	$20.34	$23.62	$28.18	$31.01	$34.72	$36.36	$36.90	$38.69	$39.50	$41.04
Not Self-supporting	$2.98	$2.75	$2.85	$3.07	$3.09	$4.15	$4.09	$4.84	$4.83	$6.05
Total	$23.32	$26.37	$31.03	$34.08	$37.82	$40.50	$40.99	$43.54	$44.33	$47.09

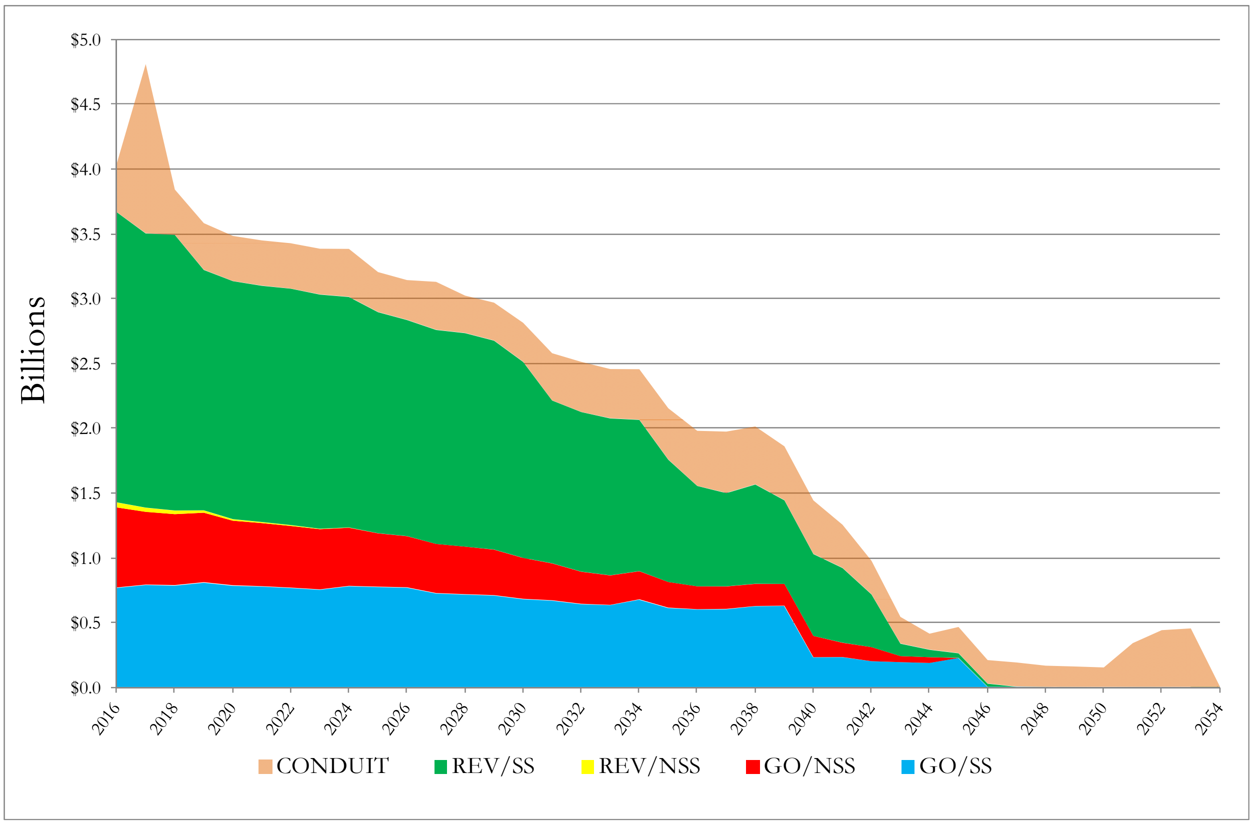
*Self-supporting debt portion includes all conduit debt.
Source: Texas Bond Review Board.

As shown in *Figure 2.4*, over the past 10-year period SS debt (including conduit revenue debt) which is repaid with program revenues, increased by 101.8 percent. During the same time period NSS debt which is typically repaid with general revenue, increased by 103.0 percent. With projected issuances of NSS debt totaling approximately $3.94 billion in FY 2016-2020 and retirements of issued NSS debt projected to be $1.65 billion during the same period, NSS debt outstanding is expected to continue to increase in upcoming fiscal years.

Debt-Service Commitments

Figure 2.5 illustrates the projected annual debt service for NSS and SS debt outstanding as of August 31, 2015. The spike in Conduit debt service during FY 2017 is attributed to the Grand Parkway Transportation Corporation issuance of its Series 2014 refunding bonds totaling $924.2 million, a portion of which are put bonds scheduled to mature on December 15, 2016.

Figure 2.5
Texas Debt Service on Outstanding Debt as of August 31, 2015



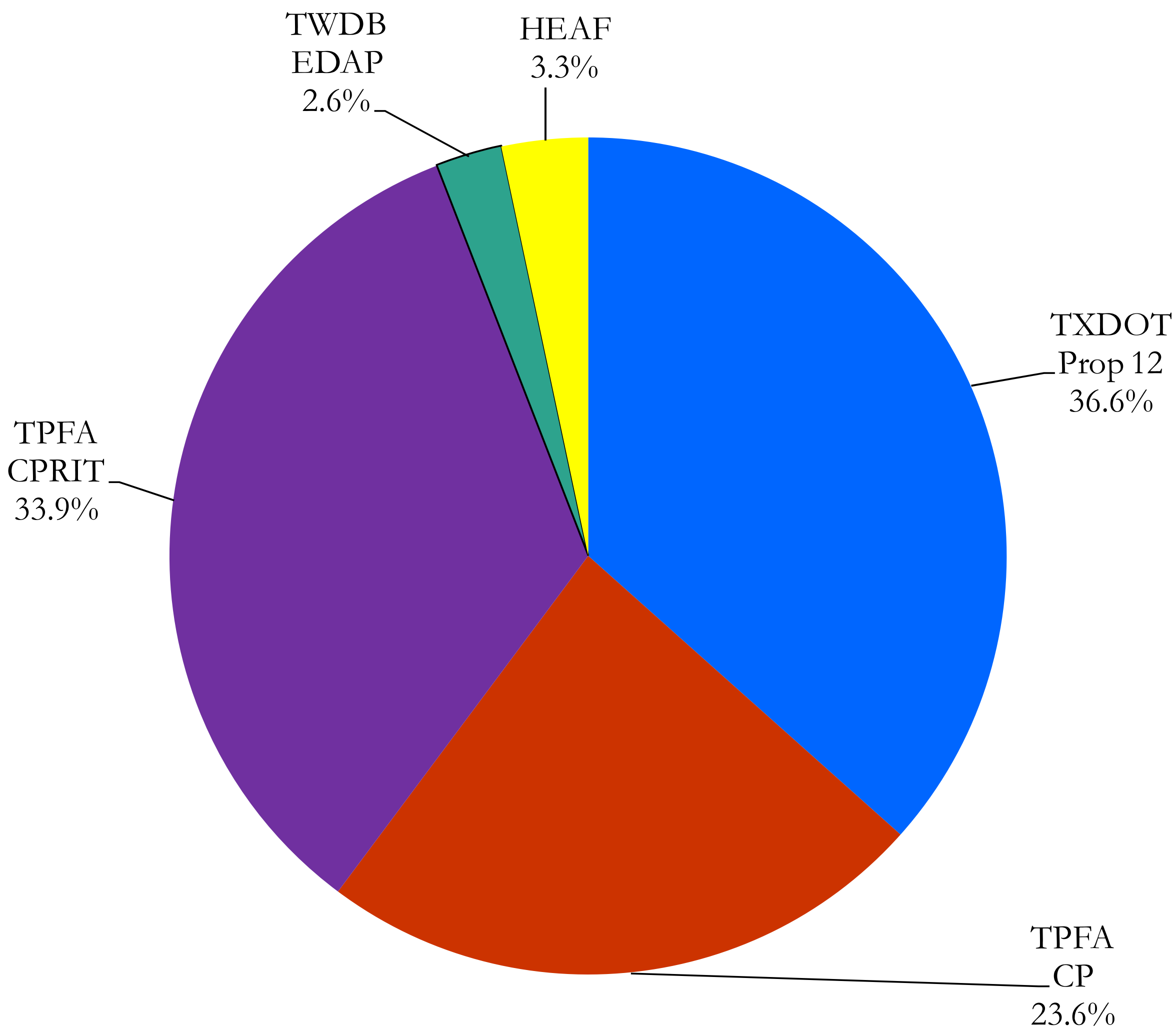
Source: Texas Bond Review Board.

Not Self-Supporting Debt

NSS debt is generally repaid from the state's General Revenue Fund. At FYE 2015 NSS debt outstanding comprised 12.8 percent ($6.05 billion) of the state's total debt outstanding and consisted of 97.8 percent GO and 2.2 percent revenue debt.

Based on the authorizations for which the approximate issuance date is known, an estimated $3.94 billion in authorized, NSS debt is expected to be issued between FY 2016 and FY 2020 while retirements of issued NSS debt is currently scheduled to be $1.65 billion during the same period. The issuances are included in each of the five ratios discussed throughout this report. *Figure 2.6* shows NSS debt issuance projections by debt program for FY 2016-2020.

Figure 2.6
NSS Debt Issuance Projections for Fiscal Years 2016-2020 ($3.94 billion)

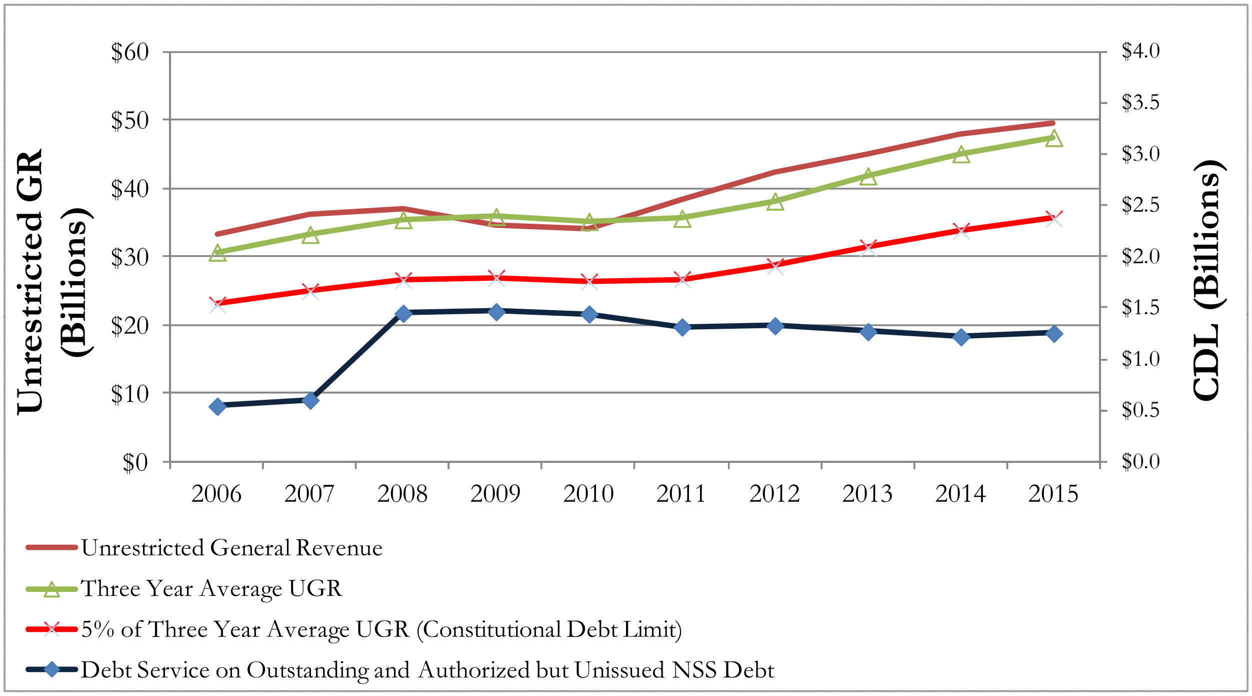


Source: Texas Bond Review Board.

The Constitutional Debt Limit

As of August 31, 2015 the Constitutional Debt Limit (CDL) remained below the maximum of 5 percent with 1.38 percent calculated for not self-supporting (NSS) debt outstanding and 2.65 percent calculated for both outstanding and authorized but unissued NSS debt. The CDL declined 2.3 percent from the 2.71 percent calculated for both outstanding and authorized but unissued debt calculated for FY 2014. (See *Appendix D* for more discussion regarding the CDL.)

Figure 2.7
Unrestricted General Revenue and Constitutional Debt Limit for Fiscal Years 2006-2015



Source: Texas Bond Review Board.

The two curves at the top of *Figure 2.7* show the state's UGR (brown curve) and the 3-year moving average for UGR (green curve) used to calculate the CDL. (Note the scale for those curves is on the left side of the graph.)

The red curve in the middle of *Figure 2.7* shows the maximum amount of UGR available for debt service under the CDL, i.e., five percent of the moving average of the UGR. The blue curve at the bottom shows debt service for outstanding and authorized but unissued NSS debt. (Note the scale for those curves is on the right side of the graph.) The white space between the red and blue curves represents available NSS debt-service capacity under the CDL.

During the 10-year period from FY 2006 to FY 2015, UGR increased by 47.9 percent from $33.39 billion to $49.38 billion. The projected debt service for outstanding and authorized but unissued NSS debt increased by 130.2 percent from $545.7 million in FY 2006 to $1.26 billion in FY 2015. The increase in the blue curve (Debt Service on Outstanding and Authorized but Unissued NSS Debt) for 2008 is a result of the increased debt service required for the $9.75 billion in authorized but unissued NSS debt approved by the voters in the November 2007 general election.

Chapter 3 - Debt Ratios in the Debt Capacity Model

An analysis of state debt ratios helps to assess the impact of bond issuances on the state's fiscal position. Credit rating agencies use ratios to evaluate the state's debt position and to help determine its credit rating. As a mechanism for the state to determine debt affordability, the Debt Capacity Model (DCM) computes five key ratios that provide an overall view of the state's debt burden. Projections of these ratios under varying debt assumptions can provide state leadership with guidelines for decision making for future debt authorization and debt-service appropriations.

Ratio 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue
Ratio 1 is calculated by dividing NSS debt service by a rolling three year average of unrestricted general revenue (UGR). Estimates for FY 2016 and 2017 were obtained from the Legislative Budget Board (LBB) using Table A-12 of the CPA October 2015 Certification Revenue Estimate excluding constitutional allocations and other restrictions. The LBB also provided revenue projections for FY 2018-2020. With moderate economic growth expected over the next five years, funds available for debt service are expected to increase.

This ratio is a critical determinant of debt capacity because both the abilities to generate revenue through taxation and to appropriate funds for debt service are within the state's control. State revenues available to pay debt service are legislatively determined by taxation on such items as sales, business franchises, fuels, crude oil production and natural gas production. The legislature then appropriates debt service based on the amounts needed for both existing and newly authorized debt.

Target and cap limits for Ratio 1 provide the legislature with realistic benchmarks against which to weigh the fiscal impact of new bond authorizations**.** For the purposes of this report, guideline ratios include a 2 percent target, a 3 percent cap to provide room for growth and flexibility and a maximum of 5 percent. Two percent is used as the target ratio because NSS debt service as a percent of UGR has historically been less than 2 percent.

Figure 3.1 shows that the annual debt-service requirements as of August 31, 2015 over the next five fiscal years for issued, authorized but unissued and projected NSS debt will increase from $681.2 million in FY 2016 to $872.0 million by FY 2020. Debt service as a percentage of UGR will increase from 1.39 percent in FY 2016 to a peak in FY 2019 of 1.70 percent. *Figure 3.1* only considers the projected debt-service ratios for NSS debt for which the state's general revenue is required for repayment. (Neither *Figure 3.1* nor Ratio 1 should be confused with the Constitutional Debt Limit (CDL) calculation. See Appendix D for further discussion of the CDL.)

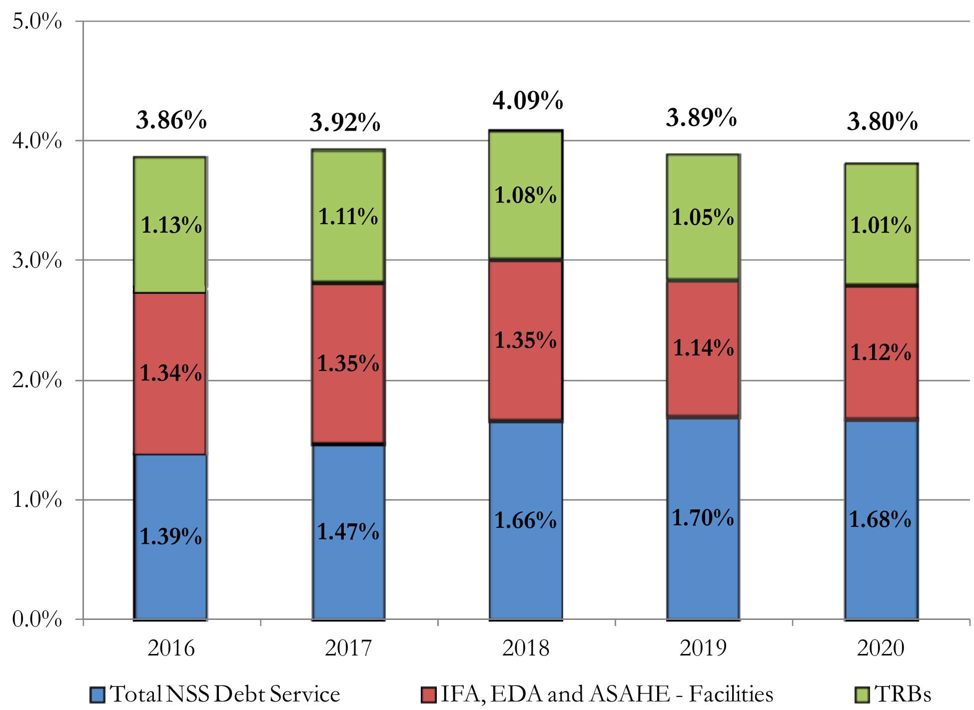
Figure 3.1
Ratio 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue for Fiscal Years 2016-2020

Fiscal Year	2016	2017	2018	2019	2020
Projected Unrestricted General Revenue	$49,723,369,525	$50,545,330,919	$49,834,308,122	$52,111,538,373	$54,190,573,596
Not Self-Supporting					
Annual Debt Service					
Issued Debt	$656,158,699	$593,109,719	$574,399,338	$553,530,412	$510,016,672
Authorized but Unissued Debt	$23,749,859	$133,517,246	$236,895,990	$271,785,890	$297,975,598
Projected Debt	$1,297,773	$6,057,723	$19,185,794	$39,146,033	$64,012,082
Total Debt Service	$681,206,331	$732,684,688	$830,481,122	$864,462,336	$872,004,351
Debt Service as a Percentage of Unrestricted General Revenue					
Issued Debt	1.34%	1.19%	1.15%	1.09%	0.98%
plus Authorized but Unissued Debt	1.39%	1.46%	1.62%	1.62%	1.55%
plus Projected	1.39%	1.47%	1.66%	1.70%	1.68%
Remaining Debt-Service Capacity					
Target (2.0%)	$299,186,125	$264,997,769	$170,205,602	$152,145,514	$168,905,116
Cap (3.0%)	$789,382,354	$763,838,997	$670,548,964	$660,449,439	$689,359,849
Max (5.0%)	$1,769,774,810	$1,761,521,454	$1,671,235,687	$1,677,057,288	$1,730,269,317

Source: Texas Bond Review Board, Comptroller of Public Accounts and Legislative Budget Board.

Ratio 1 of the DCM can be used to provide various scenarios to assess the impact of increasing or decreasing the debt-service capacity of special debt commitments. Special Debt Commitments (SDC) consist of tuition revenue bonds (TRBs) for higher education and the Existing Debt Allotment (EDA), Instructional Facilities Allotment (IFA), and the Additional State Aid for Homestead Exemption for Facilities (ASAHE – Facilities) for public education. The impacts of these payments on total debt capacity are shown in *Figure 3.2*.

Figure 3.2
Debt Service Commitments as a Percentage of Unrestricted General Revenue



Source: Texas Bond Review Board.

Ratio 1 resembles the CDL calculation, but the latter includes certain items that are not included in Ratio 1. For example, because debt service for Higher Education Fund (HEF) bonds is paid from a general revenue appropriation, the CDL calculation process requires that the maximum annual debt-service for these bonds be included while Ratio 1 uses annual projections for debt service.

In addition, the CDL calculation omits certain debt service for Economically Distressed Areas Program (EDAP) bonds issued by the Texas Water Development Board (TWDB). Proceeds from the sale of EDAP bonds are used to make loans or grants to local governments or other political subdivisions for projects involving water conservation, transportation, storage and treatment. Up to 90 percent of the bonds can be used for grants, and at least 10 percent must be used to make loans. For purposes of the CDL calculation, the debt service on the 10 percent used for loans is assumed to be repaid from sources other than general revenue and is thus omitted from the CDL calculation.

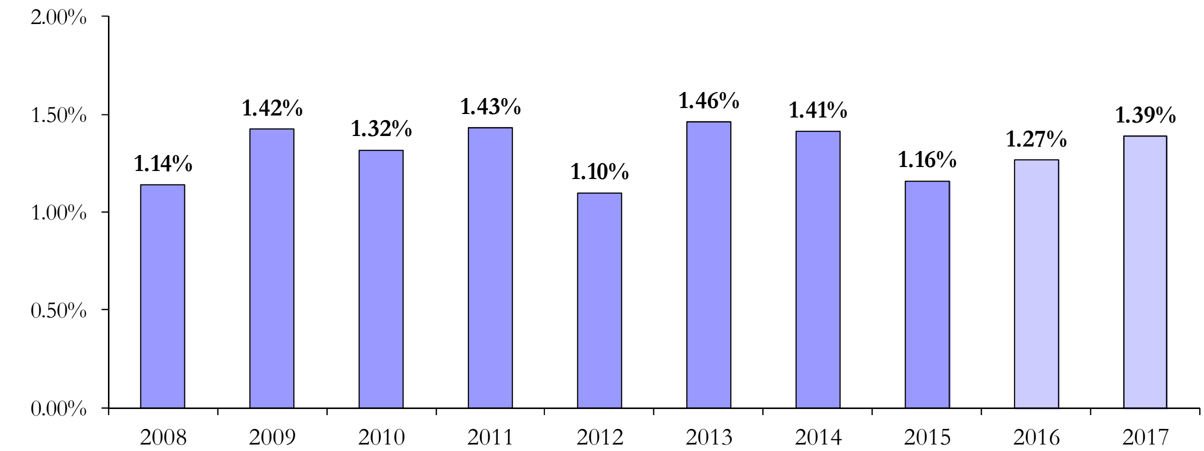
The CDL calculation for authorized but unissued debt assumes a single issue date for all debt, level debt service, a conservative interest rate (6 percent in recent fiscal years) and a 20-year term. By comparison, Ratio 1 uses projections provided by each issuer to more accurately reflect issuance timing, structure, interest rate and term.

For FY 2016 Ratio 1 is 1.39 percent but increases to 3.86 percent with the addition of SDC. Including SDC, Ratio 1 peaks at 4.09 percent in fiscal 2018. (See *Appendix C* for more information on the impact of special debt commitments.)

Ratio 2: Not Self-Supporting Debt Service as a Percentage of Budgeted General Revenue
This ratio is similar to Ratio 1 but is generally more restrictive because the amount of available general revenue in this ratio is limited to budgeted general revenue. Unlike Ratio 2, UGR in Ratio 1 is based on a rolling three-year average (FY 2014-2016).

Texas expended an average of 1.31 percent of budgeted general revenue for NSS debt service in FY 2008-2015. Based on the amounts in the 2016-17 General Appropriations Act (House Bill 1), NSS debt service as a percentage of budgeted general revenue is projected to be 1.27 percent for FY 2016 and 1.39 percent for FY 2017. (See *Figure 3.3*).

Figure 3.3
Ratio 2: Not Self-Supporting Debt Service as a Percentage of Budgeted General Revenue for Fiscal Years 2008-2017

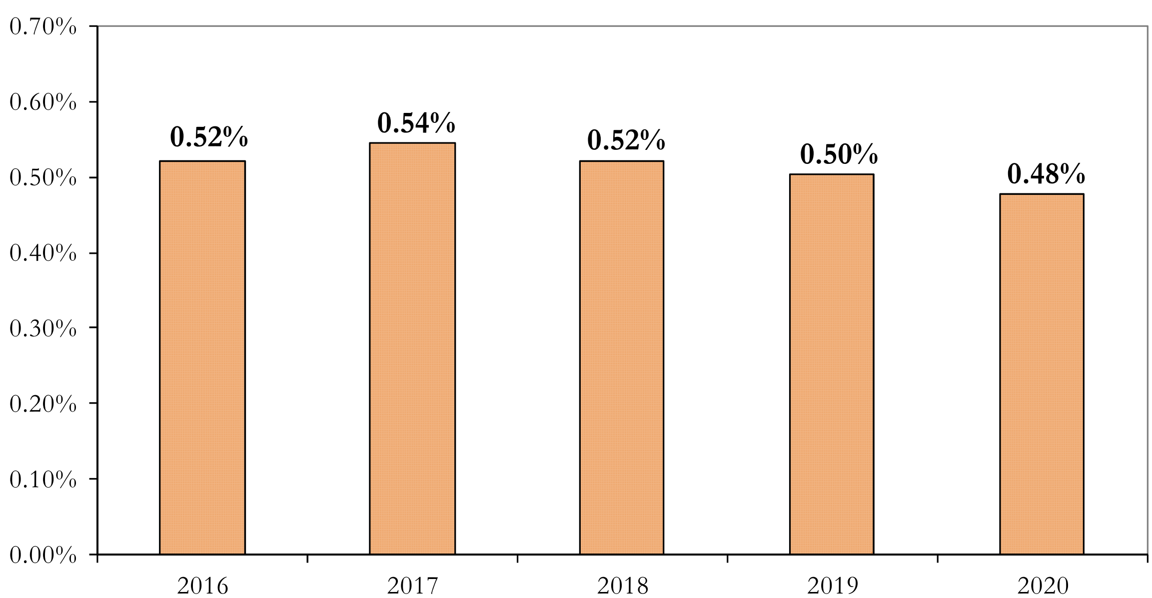


Source: Texas Bond Review Board.

Ratio 3: Not Self-Supporting Debt as a Percentage of Personal Income
Ratio 3 is NSS debt divided by total personal income and is an indicator of a government's ability to repay debt obligations by transforming personal income into revenues through taxation. The rating agencies review this ratio when establishing the state's credit rating.

Based on personal income projections from the Comptroller of Public Accounts, Ratio 3 ranges from 0.48 percent to 0.54 percent (*Figure 3.4*). Standard and Poor's considers a debt burden of less than 3 percent to be low.

Figure 3.4
Ratio 3: Not Self-Supporting Debt as a Percentage of Personal Income for Fiscal Years 2016-2020



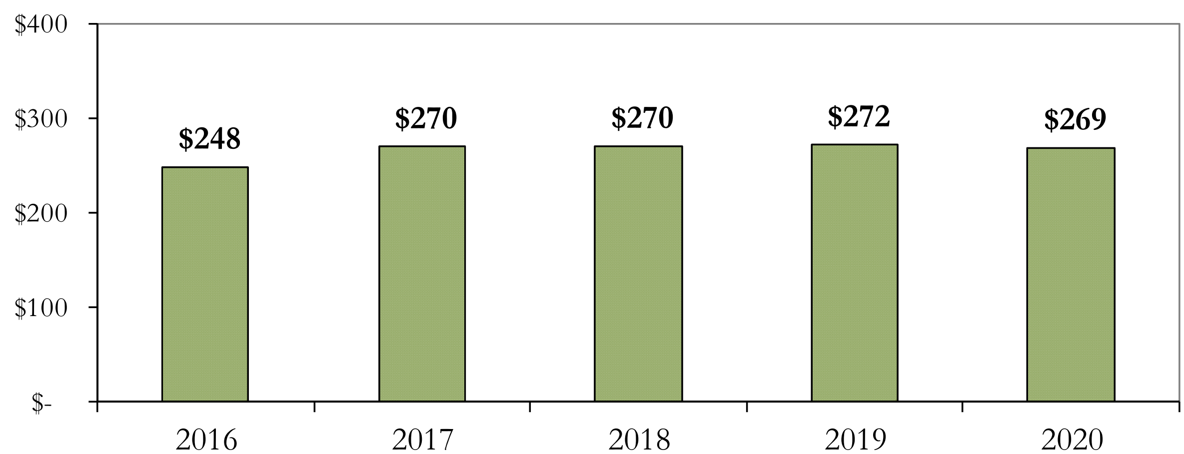
Source: Texas Bond Review Board.

Ratio 4: Not Self-Supporting Debt per Capita
Ratio 4 is the amount of NSS debt divided by the state's population and measures the dollar amount of debt per person. Like Ratio 3, the rating agencies review this ratio when establishing the state's credit rating.

Based on population projections by the Comptroller of Public Accounts, the NSS debt per capita is expected to be $248 in fiscal 2016 and is projected to increase to $272 in fiscal 2019 (*Figure 3.5*). Standard & Poor's considers less than $1,000 of state debt per capita to be low.

Although tax-supported debt per capita and debt as a percent of personal income at the state level are low, it is important to note that Texas' local debt burden is higher than other states'. Among the nation's ten most populous states, Texas ranks second in population, ninth in total state debt per capita but second in total local debt per capita with an overall rank of fifth for total (state and local) debt per capita. Approximately 85.0 percent of the state's total debt is local debt (Source: U.S. Census Bureau, State and Local Government Finances by Level of Government and by State: 2012-2013, the most recent data available). See *Appendix F* for a comparison of Texas' debt with that of other states.

Figure 3.5
Ratio 4: Not Self-Supporting Debt per Capita for Fiscal Years 2016-2020



Source: Texas Bond Review Board.

Ratio 5: Rate of Debt Retirement
The rate of debt retirement is calculated as Ratio 5 in the DCM. This rate measures the extent to which new debt capacity is created for future debt issuance. Level principal payments result in more rapid payment of principal than other structures such as level debt-service payments. Annual debt service is higher in the earlier years for debt structured with level principal payments, but the more rapid principal amortization results in lower overall interest costs and more rapid replacement of debt capacity than level debt payments. Credit rating agencies use the rate of principal retirement for NSS debt as a measure of the state's debt capacity and have benchmarked a rate of 25 percent of the principal amount of 20-year maturities to be retired in five years and 50 percent in 10 years.

Of Texas' NSS debt outstanding as of August 31, 2015, 27.3 percent will be retired in five years and 50.4 percent will be retired in 10 years (*See Figure 3.6)*. The rate of debt retirement decreased from

FY 2010's rates of 46.4 percent and 72.3 percent for the five year and ten year periods, respectively, primarily due to the Texas Transportation Commission's (TTC) issuance of $977.8 million of Proposition 12 Bonds in September 2010 and an additional $918.2 million issued in December 2012, both with level debt service instead of level principal payments, and a maturity of 30 years. In October 2014, TTC issued another tranche ($1.26 billion) of Proposition 12 Bonds with a level-principal structure to accelerate the repayment of the debt and reduce overall interest costs. In 15 years, approximately 70.5 percent of NSS debt will be retired and all outstanding bonds are expected to mature by 2044. The rate of retirement could decline slightly if TTC issues the remaining $1.44 billion of Proposition 12 debt over a 30 year period.

Approximately 20.2 percent of the state's self-supporting (SS) debt will be retired in five years and 38.4 percent of debt will be retired in 10 years. The slower rate of retirement for SS debt is due in part to the use of level debt service or other forms of delayed principal repayment as well as the issuance of debt with maturities of 30 years or more to match the useful life of the projects financed (i.e. housing and water development programs).

Figure 3.6
Ratio 5: Rate of Debt Retirement in Five and 10 Years for Not Self-Supporting and Self-Supporting Debt

	5 Years	10 Years
Not Self-Supporting Debt	27.3%	50.4%
Self Supporting Debt	20.2%	38.4%

Source: Texas Bond Review Board.

Chapter 4 - Conclusion

The 80th Legislature mandated the Texas Bond Review Board, in consultation with the Legislative Budget Board, to prepare annually the state's Debt Affordability Study (DAS). The DAS and its Debt Capacity Model provide the state's policymakers, leadership and credit rating agencies with a comprehensive tool to evaluate current and proposed debt levels.

Statute requires the DAS to include a target and cap for Ratio 1, both of which can be adjusted as requested or as directed by the BRB or Legislative Budget Board. Since Texas has historically appropriated less than 2 percent of its unrestricted general revenue (UGR) for not self-supporting (NSS) debt service, this study utilizes 2 percent as the target, 3 percent as the cap, and 5 percent as the maximum for the key ratio, NSS Debt Service as a Percentage of UGR (Ratio 1).

Major Findings – Figure 4.1

- With moderate economic growth expected over the next five years the state's General Revenue Fund is generally expected to increase for FY 2016-2020. Assuming projected NSS debt issuance of $3.94 billion over the next five fiscal years, Ratio 1 remains below the target of 2 percent. Assuming revenues available for NSS debt service averages $3 billion less per year than originally forecast, the ratio still remains below the 2 percent target.
- Including Special Debt Commitments (TRBs, IFA, EDA and ASAHE – Facilities), total debt service exceeds Ratio 1's target of 2 percent and cap of 3 percent but remains below the 5 percent max. *(See Figure 1.2, Chapter 3 and Appendix C)*
- Special Debt Commitments are projected to account for more than half of the total NSS debt service for FY 2016-2020.
- For FY 2016-2020, NSS debt service including Special Debt Commitments is projected to peak in fiscal 2018 (see *Figure 4.1*).
- At FYE 2015, BRB staff estimated that almost $12.81 billion in additional NSS debt capacity was available before reaching the CDL.
- NSS debt as a percentage of personal income and debt per capita are expected to be better than rating agency benchmarks through fiscal 2020.
- The rates of debt retirement for NSS debt for five and ten year periods are better than rating agency benchmarks. However, the state's rate of debt retirement could decline as the remaining $1.44 billion of Texas Transportation Commission (Proposition 12) debt is issued with an expected 30-year maturity.
- Ratio 1 remains below the 2 percent target after a one-time hypothetical debt issuance of $1 billion in addition to the $3.94 billion of NSS debt expected to be issued over the next five fiscal years.
- Assuming $3.94 billion of projected NSS debt issuance coupled with scheduled retirements of $1.65 billion over the next five fiscal years, Texas is expected to have approximately $1.13 billion of authorized but unissued NSS debt remaining by FY 2020.

Figure 4.1 - Summary of Ratios 1 – 5

Fiscal Year	2016		2017		2018		2019		2020	
RATIO 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue										
NSS Debt Service										
Issued	$ 656,158,699	1.34%	$ 593,109,719	1.19%	$ 574,399,338	1.15%	$ 553,530,412	1.09%	$ 510,016,672	0.98%
Authorized but Unissued	$ 23,749,859	0.05%	$ 133,517,246	0.27%	$ 236,895,990	0.47%	$ 271,785,890	0.53%	$ 297,975,598	0.57%
Projected	$ 1,297,773	0.00%	$ 6,057,723	0.01%	$ 19,185,794	0.04%	$ 39,146,033	0.08%	$ 64,012,082	0.12%
Total NSS Debt Service (excluding SDC)	$ 681,206,331	1.39%	$ 732,684,688	1.47%	$ 830,481,122	1.66%	$ 864,462,336	1.70%	$ 872,004,351	1.68%
Special Debt Commitments	$ 1,213,167,887	2.47%	$ 1,224,262,432	2.45%	$ 1,214,605,040	2.43%	$ 1,111,638,561	2.19%	$ 1,106,185,255	2.13%
Total NSS Debt Service (including SDC)	$ 1,894,374,218	3.86%	$ 1,956,947,120	3.92%	$ 2,045,086,162	4.09%	$ 1,976,100,896	3.89%	$ 1,978,189,606	3.80%
SDC as a % of Total	64.0%		62.6%		59.4%		56.3%		55.9%	
Remaining Debt-Service Capacity excluding SDC*										
Target (2%)	$ 299,186,125	0.61%	$ 264,997,769	0.53%	$ 170,205,602	0.34%	$ 152,145,514	0.30%	$ 168,905,116	0.32%
Cap (3%)	$ 789,382,354	1.61%	$ 763,838,997	1.53%	$ 670,548,964	1.34%	$ 660,449,439	1.30%	$ 689,359,849	1.32%
Max (5%)	$ 1,769,774,810	3.61%	$ 1,761,521,454	3.53%	$ 1,671,235,687	3.34%	$ 1,677,057,288	3.30%	$ 1,730,269,317	3.32%
Remaining Debt-Service Capacity including SDC*										
Target (2%)	$ (913,981,762)	-1.86%	$ (959,264,663)	-1.92%	$ (1,044,399,438)	-2.09%	$ (959,493,047)	-1.89%	$ (937,280,139)	-1.80%
Cap (3%)	$ (423,785,534)	-0.86%	$ (460,423,435)	-0.92%	$ (544,056,077)	-1.09%	$ (451,189,122)	-0.89%	$ (416,825,405)	-0.80%
Max (5%)	$ 556,606,923	1.14%	$ 537,259,022	1.08%	$ 456,630,647	0.91%	$ 565,418,728	1.11%	$ 624,084,062	1.20%
RATIO 2: Not Self-Supporting Debt Service as a Percentage of Budgeted General Revenue	1.27%		1.39%							
RATIO 3: Not Self-Supporting Debt as a Percentage of Personal Income	0.52%		0.54%		0.52%		0.50%		0.48%	
RATIO 4: Not Self-Supporting Debt Per Capita	$248		$270		$270		$272		$269	
Ratio 5: Rate of Debt Retirement in	5 Years	10 Years								
Not Self-Supporting Debt	27.3%	50.4%								
Self-Supporting Debt	20.2%	38.4%								

* Debt-service capacity is the estimated available capacity to meet target, cap or maximum percentages.

Source: Texas Bond Review Board

Appendix A - Methodology and the Debt Capacity Model

The core of the Debt Affordability Study is the Debt Capacity Model (DCM) which uses revenue and debt information to calculate the five debt ratios described in the study. This financial model provides a platform for economic sensitivity analyses by considering the state's financial condition, economic and demographic trends and outstanding debt levels. Local debt was omitted from the analysis in the DCM.

Economic Assumptions
The DCM contains three separate scenarios of general revenue available for not self-supporting (NSS) debt service to show the effect of economic factors on additional debt capacity (*Figure A1*.) The model uses information and projections for FY 2016 through FY 2025 for general revenues, personal income and population changes.

Scenario A (base scenario) uses a 10-year average for general revenues available for NSS debt service (i.e., 3.18 percent growth from FY 2016-2025), and a 10-year annual average for personal income (i.e., 5.67 percent growth from FY 2016-2025) as well as for population change (i.e., 1.65 percent growth from FY 2016-2025). All the figures listed in this report are based on Scenario A.

Scenario B (positive scenario) reflects a 0.5 percent increase in available general revenues over the base scenario. Total personal income and population change are based on the highest annual growth during the 10-year period.

Scenario C (negative scenario) assumes a 0.5 percent decrease relative to the base scenario in general revenues available for NSS debt service. Total personal income and population changes are based on the lowest rates during the 10-year period.

Figure A1
Percentage Growth Rates of Economic Factors Used in the Debt Capacity Model

Economic Factor	Base Scenario (A)	Positive Scenario (B)	Negative Scenario (C)
Revenues Available for Debt Service	3.18	3.68	2.68
Total Personal Income	5.67	6.30	5.16
Population Change	1.65	1.74	1.55

Source: Texas Bond Review Board.

Unrestricted General Revenue Available for Not Self-Supporting Debt Service
Unrestricted general revenue data for FY 2015 was obtained from Table 11 of the Comptroller of Public Account's (CPA) 2015 Annual Cash Report. Estimates for FY 2016 and 2017 were obtained from the Legislative Budget Board (LBB) using Table A-12 of the CPA October 2015 Certification Revenue Estimate excluding constitutional allocations and other restrictions. The LBB also provided revenue projections for FY 2018-2020.

Except as noted below, the LBB estimates for many revenue sources for FY 2018 and later were based on the estimated average annual growth rate for each revenue object from FY 2005 through FY 2017, using actual 2005 data and the CPA estimates for 2017.

Some exceptions to this method must be noted:

- Sales tax is projected to grow at 5 percent annually after FY 2017.
- Cigarette tax revenues were adjusted to reflect their irregular collections cycle.
- Revenues from the natural gas tax and oil production tax were estimated using the Comptroller's Fall 2015 forecast for natural gas and oil price and production.
- Certain minor revenue sources that were estimated by the CPA to have no growth between FY 2016 and FY 2017 were maintained at the FY 2017 level throughout the forecast period.
- A constitutional amendment (Proposition 7) passed by voters in November 2015 dedicates for highway purposes certain portions of the sales tax and motor vehicle sales and rental tax. As a result of the amendment, an estimated $2.5 billion of sales-tax revenue was deducted from unrestricted general revenue each year from FY 2018 through FY 2032. The amendment also results in reduced motor vehicle sales and rental taxes in fiscal years 2020 through FY 2029.
- The below average growth rate for unrestricted General Revenue in FY 2017 is primarily attributable to the Comptroller's estimate of lower receipts from urban and rural hospitals for Uncompensated Care and the Delivery System Reform Incentive Payments to State Hospitals program (a Medicaid funding tool with a Federal match). The estimates after FY 2017 assume no revenue collections from this source.

Various scenarios can be generated at any time by simply varying the forecast assumptions in the DCM.

Appendix B - Debt Capacity – Ratio Analysis

The information presented in this appendix focuses on existing and projected debt issuances for NSS debt. Existing debt consists of both issued as well as authorized but unissued debt with a line item for each in the Ratio analyses.

Figure B1 illustrates Ratio 1 (Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue) assuming current and projected debt levels for FY 2016-2020. As discussed in Chapter 3, if no new debt is added to the existing or projected issuances, not self-supporting (NSS) debt service as a percentage of unrestricted general revenue will be less than the 2 percent target - ranging from 1.39 percent in FY 2016 to a high of 1.70 percent in FY 2019.

The report uses 2 percent as the target and 3 percent as the cap for Ratio 1. Based on projections from FY 2016 through FY 2020 for unrestricted general revenue and debt issuances, the 2 percent target for Ratio 1 would not be exceeded (See *Chapter 1* and *Appendix D* for a list of projected debt issuances). For FY 2016-2020 under the 2 percent target, the state's additional debt-service capacity ranges from a high of $299.2 million for FY 2016 to a low of $152.1 for FY 2019.

Figure B1
Ratio 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue for Fiscal Years 2016-2020

Fiscal Year	2016	2017	2018	2019	2020
Projected Unrestricted General Revenue	$49,723,369,525	$50,545,330,919	$49,834,308,122	$52,111,538,373	$54,190,573,596
Not Self-Supporting					
Annual Debt Service					
Issued Debt	$656,158,699	$593,109,719	$574,399,338	$553,530,412	$510,016,672
Authorized but Unissued Debt	$23,749,859	$133,517,246	$236,895,990	$271,785,890	$297,975,598
Projected Debt	$1,297,773	$6,057,723	$19,185,794	$39,146,033	$64,012,082
Total Debt Service	$681,206,331	$732,684,688	$830,481,122	$864,462,336	$872,004,351
Debt Service as a Percentage of Unrestricted General Revenue					
Issued Debt	1.34%	1.19%	1.15%	1.09%	0.98%
plus Authorized but Unissued Debt	1.39%	1.46%	1.62%	1.62%	1.55%
plus Projected	1.39%	1.47%	1.66%	1.70%	1.68%
Remaining Debt-Service Capacity					
Target (2.0%)	$299,186,125	$264,997,769	$170,205,602	$152,145,514	$168,905,116
Cap (3.0%)	$789,382,354	$763,838,997	$670,548,964	$660,449,439	$689,359,849
Max (5.0%)	$1,769,774,810	$1,761,521,454	$1,671,235,687	$1,677,057,288	$1,730,269,317

Source: Texas Bond Review Board, Comptroller of Public Accounts, and Legislative Budget Board.

The Debt Capacity Model (DCM) provides policymakers with the ability to review the impact on the state's finances of a state-bond financed project or projects of any size. *Figure B2* shows the impact of new, NSS debt authorizations on Ratio 1. The first scenario assumes a $250 million project, and the second scenario assumes a $1 billion project. For purposes of this analysis, the debt was assumed to be issued in September 2015 with first debt-service payments in February 2016. The examples also assume a 20-year repayment term with 6 percent interest and level principal payments.

Figure B2
Impact of Additional Debt on Ratio 1

Fiscal Year	2016	2017	2018	2019	2020
Debt Service as a Percent of Unrestricted General Revenue					
Actual	1.39%	1.47%	1.66%	1.70%	1.68%
With $250M Project	1.44%	1.52%	1.71%	1.75%	1.72%
With $1B Project	1.60%	1.68%	1.87%	1.90%	1.86%
Remaining Debt-Service Capacity					
Target (2.0%)					
Actual	$299,186,125	$264,997,769	$170,205,602	$152,145,514	$168,905,116
With $250M Project	$272,906,959	$238,218,602	$144,176,435	$126,866,347	$144,375,949
With $1B Project	$194,069,459	$157,881,102	$66,088,935	$51,028,847	$70,788,449
Cap (3.0%)					
Actual	$789,382,354	$763,838,997	$670,548,964	$660,449,439	$689,359,849
With $250M Project	$763,103,187	$737,059,831	$644,519,797	$635,170,272	$664,830,683
With $1B Project	$684,265,687	$656,722,331	$566,432,297	$559,332,772	$591,243,183

Source: Texas Bond Review Board.

The $250 million project would decrease annual debt-service capacity by approximately $26.2 million in each fiscal year beginning in 2016, and Ratio 1 would rise approximately 5 basis points (bps) (0.05%) during the five year period.

The $1 billion project would decrease annual debt-service capacity by approximately $105.1 million in each fiscal year beginning in 2016, and Ratio 1 would rise approximately 21 bps (0.21%) during the five year period. This percentage remains below the target ratio of 2 percent.

For the $1 billion project Ratio 2 (Not Self-Supporting Debt Service as a Percentage of Budgeted General Revenue) would increase from 1.27 percent to 1.46 percent in FY 2016, and from 1.39 percent to 1.59 percent in FY 2017. Only years 2016 and 2017 are analyzed for this ratio.

Figure B3 illustrates Ratio 3 (Not Self-Supporting Debt as a Percentage of Personal Income) for FY 2016-2020. For this time period the state will maintain a percentage of NSS debt to personal income from 0.52 percent in FY 2016 to a peak of 0.54 percent in FY 2017. The effects of the assumed $250 million and $1 billion projected debt are also shown in *Figure B3*.

Figure B3
Ratio 3: Not Self-Supporting Debt as a Percentage of Personal Income for Fiscal Years 2016-2020

Fiscal Year	2016	2017	2018	2019	2020
Not Self-Supporting Debt					
Beginning Outstanding	$6,048,455,094	$6,900,856,052	$7,627,237,408	$7,777,504,132	$7,950,475,778
Planned Issuances	$1,236,556,942	$1,074,880,108	$566,327,703	$602,174,558	$460,612,238
Retirements - Existing Debt	$381,451,934	$331,763,860	$326,849,517	$319,804,701	$289,467,124
Retirements - New Debt	$2,704,049	$16,734,892	$89,211,462	$109,398,211	$132,420,786
Ending Outstanding	$6,900,856,052	$7,627,237,408	$7,777,504,132	$7,950,475,778	$7,989,200,106
Total Personal Income	$1,322,800,000,000	$1,401,400,000,000	$1,489,700,000,000	$1,577,600,000,000	$1,673,600,000,000
Not Self-Supporting Debt as a Percentage of Personal Income	0.52%	0.54%	0.52%	0.50%	0.48%
with $250 million project	0.54%	0.56%	0.54%	0.52%	0.49%
with $1 billion project	0.60%	0.62%	0.59%	0.57%	0.54%

Source: Texas Bond Review Board and Comptroller of Public Accounts.

Figure B4 illustrates the impact of the $250 million and $1 billion projects on Ratio 4 (Not Self-Supporting Debt per Capita).

Figure B4
Ratio 4: Not Self-Supporting Debt per Capita for Fiscal Years 2016-2020

Fiscal Year	2016	2017	2018	2019	2020
Not Self-Supporting Debt Outstanding	$6,900,856,052	$7,627,237,408	$7,777,504,132	$7,950,475,778	$7,989,200,106
Projected Population	27,794,700	28,275,400	28,768,800	29,253,100	29,746,900
Not Self-Supporting Debt Per Capita	$248	$270	$270	$272	$269
with $250 million project	$257	$279	$279	$280	$277
with $1 billion project	$284	$305	$305	$306	$302

Source: Texas Bond Review Board and Comptroller of Public Accounts.

The $250 million and $1 billion project scenarios were structured with level principal payments over the 20-year term and do not impact Ratio 5 (Rate of Debt Retirement) as Ratio 5 is calculated using authorized and issued debt and does not consider projected debt. For FY 2016-2025, the NSS debt issued for both projects is retired at a rate of approximately 50 percent in 10 years.

Appendix C - Special Debt Commitments – TRBs, EDA and IFA

Two distinct versions of Ratio 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted Revenue have been computed. The first considers only debt service for not self-supporting (NSS) debt for which the state is legally obligated. The second shows the impact of Special Debt Commitments (SDC) on the DCM ratios. Although not legal obligations of the state, the state appropriates debt service for SDC which includes tuition revenue bonds (TRBs) for higher education and the Existing Debt Allotment (EDA) and Instructional Facilities Allotment (IFA) for public schools. The following tables provide policymakers with metrics to review not only the impact of NSS debt but also the impact of these special debt commitments that are paid with general revenue.

Description of Special Debt Commitments

Three special debt commitments (SDC) are either reimbursed by, or receive a contribution from the state. These obligations include:

<u>Tuition Revenue Bonds (TRBs)</u>

TRBs are revenue bonds issued by the individual higher education institutions, systems or the Texas Public Finance Authority (on behalf of certain institutions) for new building construction or renovation. The Legislature has to authorize the projects in statute, and the TRBs cannot be used for auxiliary space, such as dormitories. All college and university revenue bonds are equally secured by, and payable from a pledge of all or a portion of certain "revenue funds" as defined in the Texas Education Code, Chapter 55. Though legally secured through an institution's tuition and fee revenue, historically the state has used general revenue to reimburse the universities for debt service for these bonds. The 84th Texas Legislature authorized $3.10 billion in TRB debt with the passing of HB 100. Based on Section 64 in Special Provisions (III-260) of the 2016-17 General Appropriations Act (House Bill 1), $240.0 million was appropriated out of the General Revenue fund to the Texas Higher Education Coordinating Board in FY 2017 for distribution to the institutions of higher education for debt service on the authorized TRBs.

<u>Instructional Facilities Allotment (IFA)</u>

The IFA program was authorized in House Bill 4 by the 75th Legislature (1997). The provisions that authorize the IFA program are incorporated into the Texas Education Code as Chapter 46, Subchapter A. The IFA program provides assistance to school districts in making debt-service payments on qualifying bonds and lease-purchase agreements. Districts must make application to the Texas Education Agency (TEA) to receive assistance. Bond or lease-purchase proceeds must be used for the construction or renovation of an instructional facility. A maximum allotment is determined based upon the lesser of annual debt-service payments or $250 per student in average daily attendance (ADA).

Expansion of the IFA program through new award cycles is contingent on a specific appropriation for that purpose each biennium. Appropriations for the current biennium include $55.5 million for new IFA awards in FY 2017. The estimates below assume no additional IFA awards in FY 2018 and beyond.

Existing Debt Allotment (EDA)

In 1999, the 76th Legislature added Subchapter B to Chapter 46 of the Texas Education Code to create the EDA. The EDA is similar to the IFA program in that it provides tax-rate equalization for local debt-service taxes.

Bonds that have been issued during a biennium, with the first payment made during that biennium, are automatically eligible for the EDA in the following biennium without the need for legislative action.

EDA equalizes debt service that is not receiving IFA funding with a maximum rate of $0.29 per $100 of valuation. Currently, the guaranteed yield for EDA provides $35 per student in average daily attendance (ADA) per penny of tax effort.

EDA funding is shared between state and local resources. In addition to the $0.29 limit, the amount of state aid on eligible bonds during the current biennium (2016–2017) is further limited by the effective rate determined by 2015 Interest and Sinking tax collections. If a district's 2015 tax rate did not include tax effort for newly eligible bonds, it is possible the district may not receive EDA funding for those bonds until state FY 2018, depending on local circumstances.

The EDA program operates without applications and has no award cycles. Instead, the program is based on a statutory definition of eligible debt, presently determined by the first payment of debt service in accordance with Texas Education Code §46.033. Refunding bonds as defined by Texas Education Code §46.007 are also eligible for EDA assistance. Only general obligation debt is eligible for the program. The projects originally financed by the debt do not impact eligibility since no restriction to instructional facilities exists.

In 2015, the 84th Legislature increased the amount of homestead valuation that is exempt from school property taxation from $15,000 to $25,000. The IFA and EDA structures deliver additional state aid in response to changes in a school district's tax base but do not fully replace the local interest and sinking revenue lost due to the change in the homestead exemption. Beginning with FY 2016, §46.071 Education Code provides qualifying school districts additional state support to replace local interest and sinking revenue lost due to the increase in the homestead exemption. State support under this provision is limited to the lesser of actual EDA and IFA eligible debt service for bonds each year or EDA and IFA eligible debt service for bonds as of September 1, 2015. For each year, the additional state support to replace local interest and sinking revenue represents the difference between the calculated loss of local revenue associated with allowable debt service and the amount of additional state aid generated by the existing IFA and EDA funding structures in response to the change in taxable value resulting from the increase in the homestead exemption. In keeping with §46.071 Education Code, this additional state support of eligible debt service is commonly referenced as additional state aid for homestead exemption for facilities (ASAHE-Facilities) to distinguish from a similarly named aid provision for maintenance and operations.

State cost for IFA, EDA, and ASAHE-Facilities support for local interest and sinking revenue loss are estimated based on currently available data. Updates to key source data including local debt service, student counts, property values, and tax rates may change estimated state costs for IFA, EDA, and ASAHE-Facilities significantly.

By statute, both EDA and IFA have a higher priority for appropriations than any other portion of the Foundation School Program. The Foundation School Program, of which state support for school district bond indebtedness are a part, contains additional revenue sources not included in the definition of unrestricted General Revenue that are available to fund the state's obligations for EDA, IFA and ASAHE-Facilities. These sources include lottery proceeds (GR), the Property Tax Relief Fund, and school district recapture payments. *Figure C1* shows the expected annual debt-service payments to be made for TRBs, EDA, IFA, and ASAHE-Facilities assuming no further statutory changes are made to EDA and IFA guarantee levels or eligibility. The IFA estimates below assume new grants of $55.5 million are made in FY 2017 pursuant to appropriations. The estimates below assume no additional IFA awards in FY 2018 and beyond.

Figure C1
Annual Debt Service Payments for Special Debt Commitments for Fiscal Years 2016-2020

Commitment	2016	2017	2018	2019	2020
Special Debt					
Outstanding TRBs	$ 286,070,629	$ 284,065,174	$ 269,407,782	$ 262,741,302	$ 255,787,997
Authorized but Unissued TRBs*	268,997,258	268,997,258	268,997,258	268,997,258	268,997,258
Instructional Facilities Allotment	247,000,000	291,400,000	273,400,000	257,000,000	242,300,000
Existing Debt Allotment	323,400,000	293,800,000	316,300,000	231,200,000	243,700,000
ASAHE - Facilities**	87,700,000	86,000,000	86,500,000	91,700,000	95,400,000
Total Debt Service	**$ 1,213,167,887**	**$ 1,224,262,432**	**$ 1,214,605,040**	**$ 1,111,638,561**	**$ 1,106,185,255**

*Debt service based on $3.10 billion authorized in HB 100 84th Legislature.
**Additional State Aid for Homestead Exemption – Facilities
Source: Texas Bond Review Board and Legislative Budget Board.

Figure C2 summarizes Ratio 1 for FY 2016 through 2020. Special Debt Commitments are projected to account for more than half of the total NSS debt service for FY 2016-2020. The negative numbers indicate shortfalls in debt-service capacity for the corresponding target, cap or maximum percentage. Excluding SDC for Ratio 1, NSS Annual Debt Service never exceeds the target capacity of 2 percent. Including SDC, debt service exceeds the 2 percent target and 3 percent cap beginning in 2016.

Figure C2
Impact of Special Debt Commitments on Ratio 1 for Fiscal Years 2016-2020

Fiscal Year	2016		2017		2018		2019		2020	
RATIO 1: Not Self-Supporting Debt Service as a Percentage of Unrestricted General Revenue										
NSS Debt Service										
Issued	$ 656,158,699	1.34%	$ 593,109,719	1.19%	$ 574,399,338	1.15%	$ 553,530,412	1.09%	$ 510,016,672	0.98%
Authorized but Unissued	$ 23,749,859	0.05%	$ 133,517,246	0.27%	$ 236,895,990	0.47%	$ 271,785,890	0.53%	$ 297,975,598	0.57%
Projected	$ 1,297,773	0.00%	$ 6,057,723	0.01%	$ 19,185,794	0.04%	$ 39,146,033	0.08%	$ 64,012,082	0.12%
Total NSS Debt Service	$ 681,206,331	1.39%	$ 732,684,688	1.47%	$ 830,481,122	1.66%	$ 864,462,336	1.70%	$ 872,004,351	1.68%
Remaining Debt-Service Capacity (Without SDC)										
Target (2%)	$ 299,186,125	0.61%	$ 264,997,769	0.53%	$ 170,205,602	0.34%	$ 152,145,514	0.30%	$ 168,905,116	0.32%
Cap (3%)	$ 789,382,354	1.61%	$ 763,838,997	1.53%	$ 670,548,964	1.34%	$ 660,449,439	1.30%	$ 689,359,849	1.32%
Max (5%)	$ 1,769,774,810	3.61%	$ 1,761,521,454	3.53%	$ 1,671,235,687	3.34%	$ 1,677,057,288	3.30%	$ 1,730,269,317	3.32%
Debt Service including Special Debt Commitments										
NSS Debt Service	$ 681,206,331	1.39%	$ 732,684,688	1.47%	$ 830,481,122	1.66%	$ 864,462,336	1.70%	$ 872,004,351	1.68%
Special Debt Commitments	$ 1,213,167,887	2.47%	$ 1,224,262,432	2.45%	$ 1,214,605,040	2.43%	$ 1,111,638,561	2.19%	$ 1,106,185,255	2.13%
Total	$ 1,894,374,218	3.86%	$ 1,956,947,120	3.92%	$ 2,045,086,162	4.09%	$ 1,976,100,896	3.89%	$ 1,978,189,606	3.80%
Remaining Debt-Service Capacity (Includes SDC)										
Target (2%)	$ (913,981,762)	-1.86%	$ (959,264,663)	-1.92%	$ (1,044,399,438)	-2.09%	$ (959,493,047)	-1.89%	$ (937,280,139)	-1.80%
Cap (3%)	$ (423,785,534)	-0.86%	$ (460,423,435)	-0.92%	$ (544,056,077)	-1.09%	$ (451,189,122)	-0.89%	$ (416,825,405)	-0.80%
Max (5%)	$ 556,606,923	1.14%	$ 537,259,022	1.08%	$ 456,630,647	0.91%	$ 565,418,728	1.11%	$ 624,084,062	1.20%

Source: Texas Bond Review Board and Legislative Budget Board

Appendix D - Constitutional Debt Limit

Constitutional Debt Limit

Article III, Section 49-j of the Texas Constitution prohibits the legislature from authorizing additional state debt if the annual debt service in any fiscal year on state debt payable from the General Revenue Fund exceeds 5 percent of the average of unrestricted general revenue (UGR) from the preceding three fiscal years. The Texas Constitution also stipulates that state debt payable from the General Revenue Fund does not include debt that, although backed by the full faith and credit of the state, is reasonably expected to be paid from other revenue sources and is not expected to create a general revenue draw.

The Constitutional Debt Limit (CDL) is expressed as a percentage of debt service to the three-year average of UGR funds. As of August 31, 2015 the CDL percentage remained below the maximum of 5 percent with 1.38 percent calculated for not self-supporting (NSS) debt outstanding and 2.65 percent calculated for both outstanding and authorized but unissued debt, a 2.3 percent decline from the 2.71 percent calculated for FY 2014.

Based on the authorizations for which the approximate issuance date is known, an estimated $3.94 billion in authorized, NSS debt is expected to be issued between FY 2016 and 2020 for the following transactions:

- $1.44 billion in General Obligation (GO) debt, related to Proposition 12 for transportation projects (TTC);
- $1.34 billion in GO debt, related to Proposition 15 for cancer research (TPFA);
- $930.0 million in GO and revenue debt for capital projects for certain state agencies (TPFA), including Proposition 4 authorization and debt authorized by the 84th Legislature for TFC (TPFA);
- $131.3 million in GO bonds for the Higher Education Assistance Fund; and
- $101.2 million in GO bonds for the Texas Water Development Board's (TWDB) Economically Distressed Areas Program.

Factors Affecting the Constitutional Debt Limit

Five main factors impact the CDL percentage. The first is the level of outstanding NSS debt service. Assuming all other variables are held constant, the CDL varies directly with the amount of NSS debt service to be paid.

The second factor is the inverse relationship between UGR and the CDL, i.e., as UGR increases, the CDL percentage decreases and vice-versa. Because the calculation uses the average of UGR over the previous three years, the impact of a substantial change in UGR for one year is reduced.

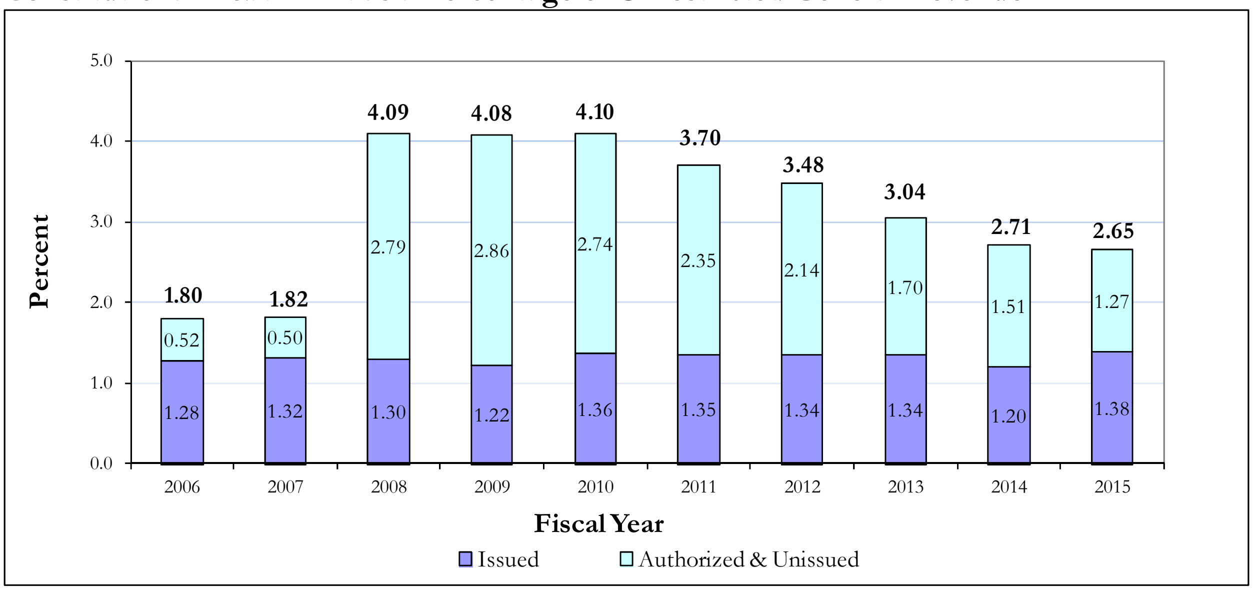
The third factor is the estimate of debt service for the authorized but unissued NSS debt. Debt-service amounts vary directly with interest rates, and a conservative rate of 5.0 percent was used for the Master Lease Purchase Program and 6.0 percent for all other authorized but unissued debt. In addition, debt service varies inversely with the debt-amortization period, and a conservative maturity of 20 years is used.

The impact of the fourth factor is determined by legislative action. The Constitution provides that debt service for NSS debt reasonably expected to be paid from other revenue sources and not expected to create a general revenue draw is excluded from the CDL calculation. Thus NSS debt is excluded from the CDL calculation if it becomes self-supporting (SS) through legislative action that provides debt-service support from an adequate revenue stream. For example, without a stated revenue stream for debt service, $5.00 billion transportation authorization approved by the 80th Legislature and later approved by voters in the November 2007 general election is defined as NSS debt but would be reclassified to SS if legislative action provided a dedicated revenue stream for debt service.

The impact of the fifth factor is determined by a reclassification of NSS debt to SS debt. This occurred for the first time in FY 2010 when seven series of bonds totaling $369.9 million comprised of $139.6 million from the TWDB State Participation Program and $230.1 million from the Water Infrastructure Fund were certified by the TWDB to have sufficient cash flow for debt service. In March 2013 an additional $35.1 million of State Participation Program debt was removed for a total of $405.0 million of TWDB debt removed from the CDL. These reclassifications reduced the CDL by approximately 7 basis points (0.07%).

Figure D1 shows the CDL percentages from FY 2006-2015. For FY 2015 the CDL percentage was 1.38 for issued debt and 2.65 for issued and authorized but unissued debt.

Figure D1
Constitutional Debt Limit as a Percentage of Unrestricted General Revenue



Source: Texas Bond Review Board.

Calculation of the Constitutional Debt Limit

The CDL is calculated by dividing: 1) the total annual debt service for the fiscal year with the highest debt service for *issued* not self-supporting (NSS) debt, plus 2) an estimate of the projected annual debt service for one fiscal year for *authorized but unissued* NSS debt under the assumptions of an interest rate of 6.0 percent and 20-year maturity with level debt-service payments, by the average of UGR from the preceding three fiscal years. The Constitution prohibits the legislature from authorizing additional state debt if this calculation yields a percentage greater than five percent.

Calculation of the CDL requires the use of three components of state debt (see *Figures D2* through *D4*):

- *Unrestricted General Revenue for the three preceding fiscal years*
- *Debt Service on Outstanding Debt*
- *Debt Service for Authorized But Unissued Debt*

Unrestricted General Revenue

UGR is the net amount of general revenue remaining after deducting all constitutional allocations and other restricted revenue from total general revenue. The UGR figure can be found in Table 11 in the *Comptroller's Annual Cash Report*. The average UGR was $47.46 billion for FY 2013-2015 (*Figure D2*). Thus the maximum amount available for debt service is five percent of $47.46 billion, or $2.37 billion.

Figure D2
Unrestricted General Revenue

Unrestricted General Revenue (amounts in thousands)	
General Revenue Available After Constitutional Dedications (Year Ending 8/31/13)	$ 45,045,108
General Revenue Available After Constitutional Dedications (Year Ending 8/31/14)	47,951,831
General Revenue Available After Constitutional Dedications (Year Ending 8/31/15)	49,383,668
Average Amount of Unrestricted General Revenue Available for the three preceding Fiscal Years	$ 47,460,202

Source: Texas Bond Review Board and Comptroller of Public Accounts.

Debt Service on Outstanding Debt

The Debt Service on the outstanding debt portion of the CDL calculation uses debt service for the peak year for GO and non-GO NSS debt. Due to debt service amortizations and staggered issuances, the peak year usually occurs within five years of the current year. For the August 31, 2015 CDL the peak debt service year is 2016 (*Figure D3*).

Figure D3
Not Self-Supporting Debt-Service Requirements of Texas State Debt by Fiscal Year

NOT SELF-SUPPORTING DEBT-SERVICE REQUIREMENTS OF TEXAS STATE DEBT BY FISCAL YEAR (amounts in thousands)	2016	2017	2018	2019	2020	2021 & beyond
Not Self-Supporting[1]						
General Obligation Debt						
Higher Education Constitutional Bonds [2]	$1,424	$1,415	$1,414	$1,408	$185	$1,880
Texas Public Finance Authority Bonds	242,662	190,835	182,145	176,560	147,362	1,079,780
Park Development Bonds	1,682	1,631	843	795	743	0
Agriculture Water Conservation Bonds	-	-	-	-	-	-
Cancer Prevention and Research Institute of Texas	66,645	66,082	64,944	63,760	62,467	677,980
Water Development Bonds - EDAP [3]	27,591	27,271	26,917	26,324	23,188	154,212
Water Development Bonds - State Participation	-	-	-	-	-	-
Water Development Bonds - WIF	51,972	50,949	49,892	48,840	47,731	405,026
TTC GO Transportation Bonds	225,082	222,981	220,877	218,778	216,370	4,100,060
Total General Obligation Debt	**$617,058**	**$561,164**	**$547,034**	**$536,465**	**$498,048**	**$6,418,938**
Non-General Obligation Debt						
Texas Public Finance Authority Bonds	$24,762	$19,216	$15,555	$6,710	$3,506	$5,173
TPFA Master Lease Purchase Program	9,922	8,366	7,512	7,013	6,484	11,369
Texas Military Facilities Commission Bonds	1,238	1,243	1,242	1,253	1,256	4,021
Parks and Wildlife Improvement Bonds	3,179	3,120	3,058	2,090	723	0
Total Non-General Obligation Debt	**$39,101**	**$31,945**	**$27,366**	**$17,065**	**$11,969**	**$20,563**
Total Not Self-Supporting	**$656,159**	**$593,110**	**$574,399**	**$553,530**	**$510,017**	**$6,439,501**

[1] Bonds that are not self-supporting (general obligation and non-general obligation) depend solely on the state's general revenue for debt service.

[2] While not explicitly a general obligation or full faith and credit bond, the revenue pledge contained in Constitutional Bonds has the same effect. Debt service is paid from annual constitutional appropriation to qualified institutions of higher education from first monies coming into the state treasury not otherwise dedicated by the Constitution.

[3] Economically Distressed Areas Program (EDAP) bonds do not depend totally on the state's general revenue fund for debt service.

Source: Texas Bond Review Board - Bond Finance Office.

As of August 31, 2015, debt service for issued debt will require 1.38 percent of the average of UGR for the prior three fiscal years.

Debt Service for Authorized but Unissued Debt

The CDL calculation for authorized but unissued debt is based on the cumulative debt-service for all authorized but unissued debt assuming that the debt is issued at an interest rate of 5.0 percent for the Master Lease Purchase Program and 6.0 percent for all other authorized but unissued debt. The calculation assumes a maturity of 20 years and level debt-service payments. *Figure D4* illustrates the principal amounts used for the CDL calculation for authorized but unissued debt as of August 31, 2015.

Figure D4
Authorized but Unissued Not Self-Supporting Debt

Not Self-Supporting Program Name	Constitutional Authorization	Statutory Authorization	Total Authorized but Unissued ($ in thousands)
Agricultural Water Conservation Bonds	Article III Section 50-d	Texas Water Code, Chapter 15, Subchapters G, H, I & J	$164,840
Higher Education Constitutional Bonds (HEF)	Article VII Section 17	No bond issuance limit, but debt service may not exceed $131.25 million per year.	**
Texas Public Finance Authority	Article III 49-h, 49-h(a), 49-h-(c)(1), 49-h-(d)(1), 49-h(e)(1), 50-f, 49-l, 50-g, 67		$2,370,637
Transportation Commission GO Bonds	Article III Section 49-p	Transportation Code, Section 222.04	$1,442,008
Water Development Bonds - EDAP[1]	Article III Sections 49-d-7 & 40-d-10	Texas Water Code, Chapter 17, Subchapter K	$101,748
Water Development Bonds - State Participation	Article III Sections 49-c, 49-d, 49-d-2, 49-d-6 thru 49-d-9	Texas Water Code, Chapter 16, Subchapters E & F, Ch 17	$0
Water Development Bonds - WIF	Article III Sections 49-d-8 & 49-d-9	Texas Water Code, Chapter 15, Subchapter Q	$0
Total General Obligation Authorized But Unissued			**$4,079,233**
	Revenue Authorization		
Texas Public Finance Authority Bonds		Texas Government Code, Sections 1232.104, 1232.110; Senate Bill 1, 81st Leg. RS, p. II-93, Rider 33; House Bill 1, 84th Leg. RS, p. I-45, Rider 19	$888,551
TPFA Master Lease Purchase Program		Texas Government Code, Section 1232.103	$106,981
Texas Military Facilities Commission Bonds	No issuance limit has been set by the Texas Constitution.	Bonds may be issued by the agency without further authorization by the Legislature. However, bonds may not be issued without the approval of the Bond Review Board and the Attorney General.	**
Total Revenue Authorized But Unissued			**$995,532**
Total Not Self-Supporting			**$5,074,765**

[1] Economically Distressed Areas Program (EDAP) bonds do not depend totally on the state's general revenue fund for debt service.

Source: Texas Bond Review Board - Bond Finance Office

As of August 31, 2015, debt service for authorized but unissued debt will require 1.27 percent of the average of UGR for the prior three fiscal years.

Completing the CDL Calculation

For fiscal 2015 the CDL for both debt classifications was computed by adding the 1.38 percent computed for debt service on outstanding debt plus the 1.27 percent computed for debt service on authorized but unissued debt to obtain the total of 2.65 percent.

Calculation detail for the CDL for the fiscal year 2015

Figure D5 illustrates the calculations made for fiscal 2015.

Additional debt capacity under the CDL

At fiscal year-end 2015, BRB staff estimated that approximately $12.81 billion in additional debt capacity was available before reaching the CDL. This figure accounts for the $767.7 million of revenue bonds authorized by the 84th Legislature for the Texas Facilities Commission. Because the interest rate for authorized but unissued debt is conservatively assumed to be 6.0 percent, debt issuance actually increases debt capacity under the CDL. Staff thus expects the CDL capacity for authorized but unissued debt to increase with the issuance of authorized debt.

Figure D5
Constitutional Debt Limit Calculation

Constitutional Debt Limit - Article III Section 49-j
Based on estimated Debt Outstanding as of 8/31/15
(All figures are thousands, except percentages)

Maximum Annual Debt Service on Outstanding Debt*		Authorized Debt	Debt Service	Percentage of UGR
Debt Service on Bonds Payable from the General Revenue Fund				
General Obligation Bonds (Not Self-Supporting)			$617,058	
(10 % of EDAP Considered Self-Supporting)			(2,759)	
Non-General Obligation Bonds (Not Self-Supporting)			29,179	
			643,478	
Debt Service on Commercial Paper Payable from the General Revenue Fund				
TPFA MLPP Commercial Paper ($62.1 million MLPP outstanding)***			9,922	
Lease-Purchase Payments Greater Than $250,000 Payable from the General Revenue Fund			-	
Total Debt Service on Outstanding Debt Payable from the General Revenue Fund			653,400	**1.38%**
Authorized but Unissued Debt				
TTC Prop 12 General Obligation Bonds (Not Self-Supporting)	$	1,442,008		
General Obligation Bonds (Not Self-Supporting) excluding TTC Prop 12		2,637,225		
(10 % of EDAP Considered Self-Supporting)		(10,175)		
Non-General Obligation Bonds (Not Self-Supporting) excluding MLPP		$888,551		
Total Authorized but Unissued Bonds Payable from the General Revenue Fund	$	4,957,609		
Estimated Debt Service on Authorized but Unissued Bonds Payable from the General Revenue Fund**			$432,227	
Estimated Debt Service on HEAF Bonds Payable from the General Revenue Fund			129,826	
Amount of Authorized but Unissued MLPP Commercial Paper		106,981		
Estimated Debt Service on MLPP Commercial Paper****			41,009	
Total Debt Service on Authorized but Unissued Debt Payable from the General Revenue Fund			$603,062	**1.27%**
Debt Service on Outstanding and Authorized but Unissued Debt			1,256,462	**2.65%**
Unrestricted General Revenue				
General Revenue Available After Constitutional Dedications (Year Ending 8/31/13)		45,045,108		
General Revenue Available After Constitutional Dedications (Year Ending 8/31/14)		47,951,831		
General Revenue Available After Constitutional Dedications (Year Ending 8/31/15)		49,383,668		
Average Amount of Unrestricted General Revenue Available for the three preceding Fiscal Years		47,460,202		
Debt Limit Percentages				
Debt Service on Outstanding Debt as a Percentage of Unrestricted General Revenue			**1.38**	
Debt Service on Authorized but Unissued Debt as a Percentage of Unrestricted General Revenue			**1.27**	
Debt Service on Outstanding and Authorized but Unissued Debt as a Percentage of General Revenue After Constitutional Dedications (**The Constitutional Debt Limit**)			**2.65**	

Notes:
* Debt service is based on maximum annual debt service payable from general revenue. The maximum amount occurs in FY 2016.
** Estimated debt service assumes 20 year, level debt service financing @ 6.0%
*** Amortization provided by TPFA
**** Interest rate provided by TPFA

Source: Texas Bond Review Board and Comptroller of Public Accounts.

Appendix E - State Debt Overview and Debt Outstanding

As the state's debt oversight agency, the Texas Bond Review Board (BRB) approves state debt issues and lease purchases that have an initial principal amount greater than $250,000 or a term longer than five years excluding the approval of Permanent University Fund debt, Tax and Revenue Anticipation Notes, and non-general obligation debt issuances by university systems that have an unenhanced long-term debt rating of at least AA- or its equivalent.

Texas has nineteen state agencies and institutions of higher education, as well as 4 non-profit corporations authorized to issue debt (*Figure E1*).

Figure E1
State Debt Issuers

Midwestern State University	Texas State Affordable Housing Corporation
Office of Economic Development and Tourism	Texas State Technical College System
Stephen F. Austin State University	Texas State University System
Texas Department of Agriculture	Texas Tech University System
Texas Department of Housing and Community Affairs	Texas Veterans Land Board (General Land Office)
Texas Department of Transportation	Texas Water Development Board
Texas Higher Education Coordinating Board	Texas Woman's University
Texas Private Activity Bond Surface Transportation Corp	The Texas A&M University System
Texas Grand Parkway Transportation Corp	The University of North Texas System
Texas Public Finance Authority	The University of Texas System
Texas Public Finance Authority Charter School Finance Corp	University of Houston System
Texas Southern University	

Source: Texas Bond Review Board.

The Texas Public Finance Authority (TPFA) is authorized to issue debt on behalf of twenty-two state agencies and four universities as well as for specific projects as authorized by the legislature. TPFA issues a significant portion of the state's not self-supporting (NSS) debt payable from general revenue and administers the state's Master Lease Purchase Program. Even though TPFA has historically been the issuer of most of the state's NSS debt, the Texas Transportation Commission has become the largest issuer of such debt. For detail on state debt outstanding, see *Figure E2*.

Classifications of Debt Used by the State of Texas

General Obligation (GO) debt is legally secured by a constitutional pledge of the first monies coming into the State Treasury not constitutionally dedicated for another purpose and must be approved by a 2/3 vote of both houses of the legislature and a majority of the voters. GO debt may be issued in installments as determined by the legislatively appropriated debt service or by the issuing agency or institution and often has a 20 to 30 year maturity with level principal or level debt-service payments. The final maturity may depend on the useful life of the project to be financed. Examples include GO bonds issued by TPFA to finance correctional and mental health facilities, GO bonds issued by the Veterans Land Board to finance land and housing loans to qualified veterans and GO bonds issued by the Texas Transportation Commission for road improvements.

Revenue debt is legally secured by a specific revenue source(s), does not require voter approval and usually has a 20 to 30 year final maturity depending on the project to be financed. Examples include State Highway Fund bonds issued by the Texas Department of Transportation secured by the motor fuels tax and other revenues for construction and maintenance of the state's highway system, and bonds issued by institutions of higher education secured by tuition and fees used to finance projects such as classroom facilities, dormitories and other university buildings.

Self-Supporting (SS) debt is repaid from revenues other than state general revenues. SS debt can be either GO or revenue debt. Examples of SS GO debt include Veterans Land Board bonds that are repaid from mortgage loan payments made by qualified veterans and related interest earnings, and GO bonds issued by the Texas Water Development Board that are repaid with loan payments made by political subdivisions for water projects and related interest earnings. Examples of SS revenue debt include bonds issued by institutions of higher education that are repaid from tuition, fees and other revenues generated by colleges and universities. Revenue SS debt also includes conduit debt that is not an obligation of the state and is repaid from funds generated by a third party borrower.

Not Self-Supporting (NSS) debt is intended to be repaid with state general revenues. NSS debt can be either GO debt or revenue debt. NSS GO debt is included in the Constitutional Debt Limit. Examples of NSS GO debt include TPFA bonds to finance the Cancer Prevention and Research Institute of Texas. Examples of NSS revenue debt include TPFA bonds to finance parks and wildlife improvements.

Debt Instruments used by the State of Texas

Commercial Paper (CP) is a short-term debt obligation with a maturity between 1 and 270 days. A CP program can be secured by the state's GO pledge or by a specified revenue source(s). A CP program secured by the state's GO pledge must be initially approved by 2/3 vote of both houses and a majority of the voters. When CP matures it can be rolled-over (reissued) or refinanced (repaid) with long-term debt. Examples include CP issued by TPFA to finance its Master Lease Purchase Program and CP issued to finance the early stages of construction projects.

Tax and Revenue Anticipation Notes (TRAN) are issued by the Comptroller of Public Accounts - Treasury Operations to address cash flow shortfalls caused by the timing mismatch of state revenues and expenditures in the general revenue fund. TRAN issuances must be repaid by the end of the biennium in which they are issued but are usually repaid by the end of each fiscal year with tax receipts and other revenues of the general revenue fund. TRAN issuances must be approved by the Cash Management Committee that is comprised of the Governor, Lieutenant Governor, Comptroller of Public Accounts and Speaker of the House as a non-voting member.

Lease purchases finance the purchase of an asset over time through lease payments that include principal and interest. They can be financed through a private vendor or through one of the state's pool programs such as TPFA's Master Lease Purchase Program. Lease purchase financings include purchases such as automobiles, computers, data/telecommunications equipment and equipment purchased for energy savings performance contracts.

The legislature periodically authorizes Tuition Revenue Bonds (TRB) for specific institutions for specific projects or purposes. TRBs are revenue bonds issued by the institution, equally secured by and payable from the same pledge as the institution's other revenue bonds and are considered to be SS debt. However, historically the legislature has appropriated general revenue to the institution to offset all or a portion of the debt service on TRBs. The passage of House Bill 100 during the 84th Legislative Session authorized certain universities and university systems to issue additional TRBs in the aggregate amount of $3.10 billion.

The University of Texas and Texas A&M University Systems may issue obligations backed by income of the Permanent University Fund (PUF) in accordance with the Texas Constitution, Article VII, Section 18. The state's other institutions may issue Higher Education Assistance Fund (HEAF) bonds in accordance with the Texas Constitution, Article VII, Section 17.

Refunding bonds are issued to refinance existing bonds. They may be issued to obtain lower interest rates, change bond covenants or change repayment schedules (i.e., "restructure" the bonds). A current refunding is a refunding in which the municipal securities being refunded will mature or be redeemed within 90 days or less from the date of issuance of the refunding issue. An advance refunding is a refunding in which the refunded issue remains outstanding for a period of more than 90 days after the issuance of the refunding issue. For tax-exempt bonds issued after 1986, federal tax law allows only one advance refunding but places no limit on the number of current refundings for an issue.

Debt Guidelines

The state's Debt Guidelines for State Issuers and Policies for Interest Rate Management Agreements can be found online at http://www.brb.state.tx.us/state_debt.aspx.

Figure E2
State Debt Outstanding, As of August 31, 2015* (in thousands)

Debt Type	Amount
General Obligation Debt	
Veterans' Land and Housing Bonds	$2,672,253
Water Development Bonds	1,090,430
Water Development Bonds-State Participation	118,340
Water Development Bonds - WIF	199,855
Economic Development Bank Bonds	45,000
College Student Loan Bonds	826,965
Texas Agricultural Finance Authority	6,750
Texas Mobility Fund Bonds	6,400,485
Texas Public Finance Authority - TMVRLF	35,220
Total - Self-Supporting	**$11,395,298**
Higher Education Constitutional Bonds	$6,521
Texas Public Finance Authority Bonds	1,512,875
Cancer Prevention and Research Institute of Texas	716,440
Park Development Bonds	5,260
Water Development Bonds - EDAP	216,210
Water Development Bonds - State Participation	0
Water Development Bonds - WIF	468,755
TTC GO Transportation Bonds	2,991,410
Total - Not Self-Supporting	**$5,917,471**
Total - General Obligation Debt	**$17,312,769**
Non-General Obligation Debt	
Permanent University Fund Bonds	
The Texas A&M University System	$953,145
The University of Texas System	2,169,085
College and University Revenue Bonds	11,652,483
Texas Water Resources Finance Authority Bonds	0
Texas Department of Transportation Bonds - CTTS	2,402,352
Texas Department of Housing & Community Affairs - SF	567,675
Economic Development Program (Leverage Fund)	25,000
Veterans' Financial Assistance Bonds	0
Texas Workforce Commission Unemp Comp Bonds	628,355
State Highway Fund	4,461,105
Water Development Board Bonds - State Revolving Fund	670,115
Total - Self-Supporting	**$23,529,315**
Texas Public Finance Authority Bonds	$68,175
TPFA Master Lease Purchase Program	43,019
Texas Military Facilities Commission Bonds	8,640
Parks and Wildlife Improvement Bonds	11,150
Total - Not Self-Supporting	**$130,984**
Texas Windstorm Insurance Association	$500,000
Texas Small Business I.D.C. Bonds	0
Texas Dept. of Housing and Community Affairs Bonds - MF	965,353
Texas State Affordable Housing Corporation	280,262
Texas Grand Parkway Transportation Corporation	2,900,940
Texas PAB Surface Transportation Corporation	1,289,030
TPFA Charter School Finance Corporation	176,410
Total - Conduit	**$6,111,995**
Total - Non-General Obligation Debt	**$29,772,294**
Total - Debt Outstanding	**$47,085,063**

*Does not indude the TRAN or SECO LoanSTAR Revolving Loan Program debt
Source: Texas Bond Review Board.

Appendix F – Texas Debt Compared to Other States

The use of debt affordability studies and debt capacity models is becoming more common, particularly by states with "highest" or "high" credit ratings. Of the eight states that receive triple-A ratings from all three rating agencies, five – Georgia, Maryland, North Carolina, Texas and Virginia – use a debt affordability tool. In addition, other highly-rated states including Florida, Alaska, South Carolina, Vermont, Washington and Oregon as well as lower-rated states such as California, Kentucky, New York, and West Virginia use a debt affordability tool. *Figure F1* provides a comparison of highly-rated states that use debt affordability tools vs. highly-rated states that do not.

Figure F1
Comparison of Highly-Rated States and Debt Affordability Usage as of January 2016

State	Debt Affordability Study?	Moody's	Standard & Poor's	Fitch
Delaware	No	Aaa	AAA	AAA
Georgia	Yes	Aaa	AAA	AAA
Maryland	Yes	Aaa	AAA	AAA
Missouri	No	Aaa	AAA	AAA
North Carolina	Yes	Aaa	AAA	AAA
Texas	Yes	Aaa	AAA	AAA
Utah	No	Aaa	AAA	AAA
Virginia	Yes	Aaa	AAA	AAA
Florida	Yes	Aa1	AAA	AAA
Alaska	Yes	Aaa	AA+	AAA
New Mexico	No	Aaa	AA+	Not Rated
South Carolina	Yes	Aaa	AA+	AAA
Tennessee	No	Aaa	AA+	AAA
Vermont	Yes	Aaa	AA+	AAA

Source: Moody's, Standard & Poor's and Fitch Ratings.

Factors Affecting State Debt Ratings

Moody's *2015 State Debt Medians* report provides a helpful framework to compare Texas' debt burden with other states. This report annually tracks four key debt measures: 1) net tax-supported debt, 2) gross tax-supported debt, 3) net tax-supported debt per capita and 4) net tax-supported debt as a percentage of personal income. The gross tax-supported debt metric is intended to capture the extent to which a state has made a general obligation pledge of its resources but the debt has a self supporting source of repayment other than taxes. Gross tax supported debt also includes self-supporting debt that the state may have a moral obligation to repay if revenues are insufficient to cover the debt service. Net tax-supported debt refers only to debt issued for which the state secures taxes and fees for the repayment of the debt. For example, this type of debt includes highway bonds secured by gasoline taxes and DMV fees. Moody's cites gross and net tax-supported debt as the most commonly used measurements in determining state bond ratings. (The numbers used for Texas throughout this Appendix are slightly different from those in the DCM due to timing and classification differences for data available to Moody's at the time its report was created.)

Texas' Debt Compared to Other States

Based on U. S. Census Bureau data for the nation's 10 most populous states, Texas' state debt remains below the mean and median for three of the debt measures computed in Figure F2 (Net Tax-Supported Debt, Gross Tax-Supported Debt, Net Tax-Supported Debt per Capita and Net Tax-Supported Debt as a percentage of 2013 Personal Income). Texas ranks seventh for Net Tax-Supported Debt with $10.95 billion, compared to the group median of $13.57 billion. Moody's no longer considers the Texas Mobility Fund bonds as part of net tax supported debt outstanding. Texas ranks fourth for Gross Tax-Supported Debt with $27.43 billion, compared to the group median of $22.92 billion. Texas ranks tenth in Net Tax-Supported Debt per Capita with $406 compared to the group median of $1,076. For Net Tax-Supported Debt as a percentage of 2013 Personal Income, Texas ranks tenth with 1.0 percent compared to the group median of 2.6 percent (Please note that in *Figure F2* and *Figure F4* debt burdens are ranked on a scale of 1 to 10, with 1 being the highest debt burden. For *Figure F3*, 1 indicates the highest debt burden while 50 represents the lowest).

Figure F2
State Debt: Texas Compared to Ten Most Populous States, 2015

State	Population	Moody's Credit Rating	Net Tax-Supported Debt (billions)		Gross Tax-Supported Debt (billions)		Net Tax-Supported Debt per Capita		Net Tax-Supported Debt as a % of 2013 Personal Income	
California	38,802,500	Aa3	$93.41	1	$99.84	1	$2,407	3	5.1%	3
Texas	**26,956,958**	**Aaa**	**10.95**	**7**	**27.43**	**4**	**406**	**10**	**1.0%**	**10**
Florida	19,893,297	Aa1	19.37	4	20.19	7	973	7	2.4%	7
New York	19,746,227	Aa1	61.05	2	61.49	2	3,092	1	5.7%	1
Illinois	12,880,580	A3	34.53	3	36.85	3	2,681	2	5.7%	2
Pennsylvania	12,787,209	Aa3	14.28	5	21.80	6	1,117	4	2.4%	6
Ohio	11,594,163	Aa1	12.86	6	18.40	8	1,109	5	2.7%	5
Georgia	10,097,343	Aaa	10.53	8	10.53	9	1,043	6	2.8%	4
North Carolina	9,943,964	Aaa	7.35	10	7.35	10	739	9	1.9%	8
Michigan	9,909,877	Aa2	7.51	9	24.03	5	758	8	1.9%	9
Ten Most Populous Mean			**$27.18**		**$32.79**		**$1,433**		**3.2%**	
Ten Most Populous Median			**$13.57**		**$22.92**		**$1,076**		**2.6%**	
National Mean							**$1,419**		**3.1%**	
National Median							**$1,012**		**2.5%**	

Source: Moody's 2015 State Debt Medians Report; U.S. Census Bureau – July 1, 2014 data.

Figure F3 provides selected tax-supported debt measures for all fifty states. Texas' Net Tax-Supported Debt as a percentage of 2013 Personal Income was 1.0 percent, 44th among the states and below the national mean and median of 3.1 percent and 2.5 percent, respectively. Texas' Net Tax-Supported Debt per Capita was $406, 44th among the states and below the national mean of $1,419 and median of $1,012.

Figure F3
Selected Debt Measures by State

State	Moody's Rating	Net Tax-Supported Debt as a % of 2013 Personal Income	Rank	Net Tax-Supported Debt Per Capita	Rank
Hawaii	Aa2	10.8%	1	$4,867	3
Connecticut	Aa3	9.0%	2	5,491	1
Massachusetts	Aa1	8.7%	3	4,887	2
New Jersey	A2	7.4%	4	4,138	4
Washington	Aa1	6.2%	5	2,892	6
New York	Aa1	5.7%	6	3,092	5
Illinois	A3	5.7%	7	2,681	7
Delaware	Aaa	5.5%	8	2,438	8
Kentucky	Aa2*	5.3%	9	1,921	11
California	Aa3	5.1%	10	2,407	9
Mississippi	Aa2	5.1%	11	1,747	14
Rhode Island	Aa2	4.2%	12	1,985	10
Wisconsin	Aa2	4.2%	13	1,794	13
Oregon	Aa1	4.1%	14	1,636	15
Louisiana	Aa2	3.9%	15	1,566	16
Maryland	Aaa	3.5%	16	1,889	12
New Mexico	Aaa	3.5%	17	1,258	20
Minnesota	Aa1	3.2%	18	1,538	17
Alaska	Aaa	3.0%	19	1,489	18
Utah	Aaa	3.0%	20	1,060	24
Virginia	Aaa	2.8%	21	1,356	19
Georgia	Aaa	2.8%	22	1,043	25
West Virginia	Aa1	2.7%	23	980	26
Ohio	Aa1	2.7%	24	1,109	22
Kansas	Aa2*	2.5%	25	1,099	23
Pennsylvania	Aa3	2.4%	26	1,117	21
Florida	Aa1	2.4%	27	973	27
Arizona	Aa2*	2.3%	28	846	31
Maine	Aa2	2.3%	29	942	29
Alabama	Aa1	2.3%	30	824	32
Vermont	Aaa	2.1%	31	954	28
North Carolina	Aaa	1.9%	32	739	34
Michigan	Aa2	1.9%	33	758	33
South Carolina	Aaa	1.9%	34	672	35
Arkansas	Aa1	1.9%	35	669	36
Nevada	Aa2	1.7%	36	665	37
New Hampshire	Aa1	1.7%	37	848	30
Missouri	Aaa	1.5%	38	606	38
Idaho	Aa1*	1.4%	39	494	40
Indiana	Aaa*	1.2%	40	474	43
South Dakota	NGO**	1.2%	41	547	39
Oklahoma	Aa2	1.2%	42	493	41
Colorado	Aa1*	1.0%	43	478	42
Texas	**Aaa**	**1.0%**	**44**	**406**	**44**
Tennessee	Aaa	0.8%	45	327	45
Montana	Aa1	0.7%	46	254	46
Iowa	Aaa*	0.6%	47	250	47
North Dakota	Aa1*	0.3%	48	193	48
Wyoming	NGO**	0.1%	49	50	49
Nebraska	NGO**	0.0%	50	10	50
Mean		3.1%		$1,419	
Median		2.5%		$1,012	
Puerto Rico***	Caa2	87.5%		$15,637	

* Issuer Rating (No G.O. Debt)
** No general obligation debt
*** Included for comparison purposes only. Not included in any totals, averages or median calculations.
Source: Moody's Investors Service, *2015 State Debt Medians.*

It is important to note that states with higher state debt levels may have lower local debt levels and vice-versa. During calendar year 2013 (most recent data available compared to other states) local debt accounted for approximately 85.0 percent of Texas' total debt burden. (Local debt includes debt issued by cities, school districts, water districts, counties, community colleges, special districts and health and hospital districts) Among the nation's ten most populous states, Texas ranks second in population, ninth in state debt per capita but second in local debt per capita with an overall rank of fifth for total state and local debt per capita (*Figure F4*).

Figure F4
Total State and Local Debt Outstanding

	Total State and Local Debt				State Debt				Local Debt			
State	Population (thousands)	Amount (millions)	Per Capita Amount	Per Capita Rank	Amount (millions)	% of Total Debt	Per Capita Amount	Capita Rank	Amount (millions)	% of Total Debt	Capita Amount	Capita Rank
New York	19,746	$346,238	$17,535	1	$136,014	39.3%	$6,888	1	$210,224	60.7%	$10,646	1
Illinois	12,881	148,689	11,543	2	63,660	42.8%	4,942	2	85,028	57.2%	6,601	4
California	38,803	420,284	10,831	3	152,186	36.2%	3,922	3	268,098	63.8%	6,909	3
Texas	**26,957**	**264,723**	**9,820**	**5**	**39,625**	**15.0%**	**1,470**	**9**	**225,098**	**85.0%**	**8,350**	**2**
Pennsylvania	12,787	130,238	10,185	4	47,021	36.1%	3,677	4	83,217	63.9%	6,508	5
Michigan	9,910	76,315	7,701	6	30,377	39.8%	3,065	5	45,938	60.2%	4,636	7
Florida	19,893	146,427	7,361	7	37,892	25.9%	1,905	8	108,535	74.1%	5,456	6
Ohio	11,594	82,483	7,114	8	33,133	40.2%	2,858	6	49,350	59.8%	4,257	8
Georgia	10,097	55,679	5,514	9	13,293	23.9%	1,317	10	42,386	76.1%	4,198	9
North Carolina	9,944	51,524	5,181	10	19,055	37.0%	1,916	7	32,469	63.0%	3,265	10
MEAN		**$172,260**	**$9,279**		**$57,226**	**33.6%**	**$3,196**		**$115,034**	**66.4%**	**$6,083**	

Note: Detail may not add to total due to rounding.
Source: U.S. Census Bureau, *State and Local Government Finances by Level of Government and by State: 2012-2013,* the most recent data available.

Appendix G – Investment Grade Credit Ratings

Rating Agencies

The three major credit rating agencies for state debt are Moody's Investors Service (Moody's), Standard & Poor's (S&P) and Fitch Ratings (Fitch). Ratings from these agencies provide investors with a measure of an issuer's overall financial soundness and ability to repay its debt and have a direct impact on the interest rate state issuers will pay on debt issuances - higher credit ratings result in lower financing costs. Ratings for the state's general obligation (GO) debt are the most important because the state's full faith and credit is pledged to its repayment, and GO ratings provide a benchmark rate for the state's revenue debt. *Figure G1* provides a summary of the investment grade ratings scale for each rating agency.

Figure G1
Investment Grade Bond Ratings by Rating Agency

Rating	Moody's	S & P	Fitch
Highest	Aaa	AAA	AAA
High	Aa1 Aa2 Aa3	AA+ AA AA-	AA+ AA AA-
Medium	A1 A2 A3	A+ A A-	A+ A A-
Lower medium	Baa1 Baa2 Baa3	BBB+ BBB BBB-	BBB+ BBB BBB-

Source: Moody's; S&P and Fitch Ratings.

Rating agencies consider four factors in determining a state's GO bond rating: economy, finances, debt and management. Specific items considered are shown in *Figure G2*.

Figure G2
Factors Affecting State General Obligation Bond Ratings

Economy	Finances
Population trends	Change in major general revenue sources
Wealth	Change in permanent or FTE positions
Economic diversity	Spending per capita
Economic stability	General fund balances, rainy day fund balance
Infrastructure needs	Accounting and financial reporting practices
	Tax and revenue administration
	Investment practices
	Pension Liabilities
Debt	**Management**
Pay-down price for net long-term debt	Coherent structure of governance
Net debt per capita	Constitutional constraints
Net debt as a percent of personal income	Initiatives and referenda
Net debt as a percent of tax valuation	Executive branch controls
Annual debt service on net debt as a percentage of general fund	Mandates to balance budget
	Fund reserve policies

Source: Texas Bond Review Board.

Ratings for Texas General Obligation Debt
Texas GO debt receives the highest available credit rating from Moody's, Fitch, and S&P and is perceived as a strong credit in the municipal bond market.

S&P's latest action on Texas' GO rating was to affirm its AAA rating and stable outlook on December 15, 2015. In its report of that date entitled, "Texas Veterans Land Board; General Obligation; General Obligation Equivalent Security," S&P stated that "the AAA GO ratings reflect our view of the state's economy which is expected to perform more strongly than that of the nation as a whole, despite the recent employment slowdown due to the oil and energy sector declines, as characterized by Texas' relatively low unemployment and a significant increase in state per capita personal income; strong revenue forecasting and cash management practices, including comprehensive monthly revenue and expenditure cash monitoring and forecasts, as well as a willingness to maintain strong liquidity to meet Texas' constitutionally defined priorities, including the repayment of debt service; low overall net debt; growing level of unfunded pension liabilities, which have largely been the result of contributions below the actuarially determined annual required contribution. Should this trend continue, it could put downward pressure on the rating; and potential long-term budgetary pressure, primarily related to the growing proportion of public school expenses that Texas is required to fund and its currently insufficient new sources of recurring dedicated tax revenue to support the increased education funding."

Moody's latest action on Texas' GO rating was to affirm its Aaa rating and stable outlook on November 4, 2015. In its report of that date entitled "Rating Action: Moody's Assigns Aaa Rating to

$150M of Texas GO Student Loan Bonds; Outlook Stable," Moody's stated that "The Aaa rating reflects the strong fundamentals of the Texas economy; a rainy day fund that provides a healthy budgetary cushion; and low bonded debt levels. Those strengths are offset by low oil prices that could challenge the state's economy; above average pension liabilities and ongoing structural pressure to balance the state's finances as it seeks to maintain education and property tax relief spending amid high population growth."

Fitch's latest action on Texas' GO rating was to affirm its AAA rating and stable outlook on October 13, 2015. In its report of that date entitled "Fitch Rates Texas' $222MM GO Water Dev Board Bonds 'AAA'; Outlook Stable," Fitch stated that "Texas' long-term 'AAA' GO rating reflects its low debt burden, conservative financial operations and a growth-oriented economy that has outpaced national averages through most of the current expansion. The oil price plunge that began in late 2014 has slowed the state's economic and revenue momentum, although broader gains continue despite weakness in some regions and sectors."

The state's GO bond ratings history is shown in *Figure G3*.

Figure G3
Changes in Texas' GO Bond Ratings from years 1961 to Current

Year	Moody's	Standard & Poor's	Fitch
1961 (Initial)	*	AAA	*
1962-1985	Aaa	AAA	*
1986	Aaa	AA+	*
1987-1992	Aa	AA	*
1993-1996	Aa	AA	AA+
1997-1998	Aa2**	AA	AA+
1999-2008	Aa1	AA	AA+
2009	Aa1	AA+	AA+
2010-2012	Aaa**	AA+	AAA**
2013-Current	Aaa	AAA	AAA
* Not Rated ** Recalibration			

Source: Texas Bond Review Board.

Appendix H - Glossary

Advance Refunding – A refunding transaction in which the issue to be refunded remains outstanding for a period of more than 90 days after the issuance of the refunding issue.

Authorized but unissued – Debt that has been authorized for a specific purpose by the voters and/or the legislature but has not yet been issued. Authorized but unissued debt can be issued without the need for further legislative action.

Average Daily Attendance (ADA) –The total number of students in attendance each day of the entire school year divided by the number of instructional days in the school year.

Bond – A certificate of debt issued by a government or corporation guaranteeing payment of the original investment plus interest by a specific future date. The bond specifies the date the debt is due ("term" or "maturity," i.e. 20 years), the interest rate (i.e. 5%), the repayment dates (i.e. monthly, semi-annually, annually) and the revenue source pledged to make the payments.

Budgeted General Revenue – The amount of revenue budgeted by the legislature to be expended during each fiscal year for state operations. This figure is generally less than unrestricted general revenue available for debt service.

Commercial Paper (CP) – Short-term, unsecured promissory notes that mature within 270 days and are backed by a liquidity provider (usually a bank) that stands by to provide liquidity in the event the notes are not remarketed or redeemed at maturity.

Constitutional Debt Limit (CDL) – Article III, Section 49-j of the Texas Constitution prohibits the legislature from authorizing additional state debt if the annual debt service in any fiscal year on state debt payable from the General Revenue Fund exceeds 5 percent of the average of unrestricted general revenue from the preceding three fiscal years. The Texas Constitution also stipulates that state debt payable from the General Revenue Fund does not include debt that, although backed by the full faith and credit of the state, is reasonably expected to be paid from other revenue sources and is not expected to create a general revenue draw.

Coupon – The interest rate paid on a security.

Current Refunding – A refunding transaction in which the securities to be refunded will mature or be redeemed within 90 days or less from the date of issuance of the refunding issue.

Debt Capacity Model (DCM) – A financial model that assesses the impact on unrestricted general revenue of the state's annual debt-service requirements for current and projected levels of not self-supporting debt over the next five years.

General Obligation (GO) Debt – Debt legally secured by a constitutional pledge of the first monies coming into the State Treasury not otherwise constitutionally dedicated for another purpose. General obligation debt must be approved by a 2/3 vote of both houses of the Texas Legislature and by a majority of the voters.

General Revenue (GR) – The amount of total state tax collections and federal monies distributed to the state for its operations.

Higher Education Fund (HEF) – Appropriations that became available beginning in 1985 through Constitutional Amendment to fund permanent capital improvements for certain public higher education institutions. This term may refer either to Higher Education Assistance Fund (HEAF) Treasury Funds (funds reimbursed from the State HEAF appropriation for university expenditures) or HEAF Bond Funds (monies received through the issuance of bonds and secured by HEAF Treasury Funds).

Instructional Facilities Allotment (IFA) – A program authorized in House Bill 1 by the 75th Legislature (1997) and incorporated into the Texas Education Code as Chapter 46. The IFA program became effective on September 1, 1997 and provides assistance to school districts in making debt-service payments on qualifying bonds and lease-purchase agreements. Districts must make application to the Texas Education Agency (TEA) to receive assistance. Bond or lease-purchase proceeds must be used for the construction or renovation of an instructional facility. A maximum allotment is determined based upon the lesser of annual debt-service payments or $250 per student in average daily attendance (ADA).

Existing Debt Allotment (EDA) – A program created in 1999 by the 76th Legislature that added Subchapter B to Chapter 46 of the Texas Education Code. The EDA is similar to the IFA program in that it provides tax-rate equalization for local debt-service taxes. Equalization is provided for local levies of up to $0.29 for eligible debt service. Excluding debt service that is supported through the IFA program, scheduled debt service for school district bonds for which a payment has been made during a prior biennium is generally eligible under the EDA program. Currently, the guaranteed yield for EDA provides $35 per student in average daily attendance (ADA) per penny of tax effort.

Lease Purchase – The purchase of an asset over time through lease payments that include principal and interest. Lease purchases can be financed through a private vendor or through one of the state's pool programs such as the Texas Public Finance Authority's Master Lease Purchase Program.

Municipal Bond – A debt security issued by a state, municipality or county. Municipal securities are generally exempt from federal taxes and from most state and local taxes.

Non-General Obligation (Revenue) Debt – Debt legally secured by a specific revenue source and does not require voter approval.

Not Self-Supporting (NSS) Debt – Either general obligation or revenue debt intended to be repaid with state general revenues.

Permanent University Fund (PUF) – The PUF is a state endowment contributing to the support of certain institutions and agencies of The University of Texas System and The

Texas A&M University System. The PUF was established by the Texas Constitution in 1876 with land grants ultimately totaling 2.1 million acres, primarily in west Texas (PUF Lands).

Put Bond – A bond that allows the holder to force the issuer to repurchase the security at specified dates before maturity. The repurchase price is set at the time of issue, and is usually par value.

Refunding Bond – Bond issued to retire or defease all or a portion of outstanding debt.

Self-Supporting (SS) Debt – Debt that is designed to be repaid with revenues other than state general revenues. Self-supporting debt can be either general obligation debt or revenue debt.

Special Debt Commitments – Revenue debt commitments supported by state general revenues but not legally backed by the state's GO pledge: Tuition Revenue Bonds, Existing Debt Allotment and Instructional Facilities Allotment.

Tax and Revenue Anticipation Notes (TRAN) – Short-term loans that the state uses to address cash flow needs created when expenditures must be incurred before tax revenues are received.

Tuition Revenue Bonds (TRB) – Revenue bonds issued by the revenue finance systems of institutions of higher education or the Texas Public Finance Authority (on behalf of certain institutions), for new building construction or renovation. The Legislature has to authorize the projects in statute, and the TRBs cannot be used for auxiliary space, such as dormitories. All college and university revenue bonds are equally secured by, and payable from a pledge of all or a portion of certain "revenue funds" as defined in the Texas Education Code, Chapter 55. Though legally secured through an institution's tuition and fee revenue, historically the state has used general revenue to reimburse the universities for debt service for these bonds.

Unrestricted General Revenue (UGR) – The net amount of general revenue remaining after deducting all constitutional allocations and other restricted revenue from total general revenue.

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