State of Rhode Island

Debt Affordability Study
Phase One

March 14, 2017

State Tax-Supported Debt and Long-Term Liabilities

- Tax-Supported Debt
  - General Obligation Debt
  - Appropriation Debt
  - Performance-Based Obligations
  - Moral Obligation Debt
- Pension Liabilities
  - Unfunded Actuarial Accrued Liability (UAAL)
  - Annual Required Contribution (ARC)
- OPEB Liabilities
  - Unfunded Actuarial Accrued Liability (UAAL)
  - Annual Required Contribution (ARC)

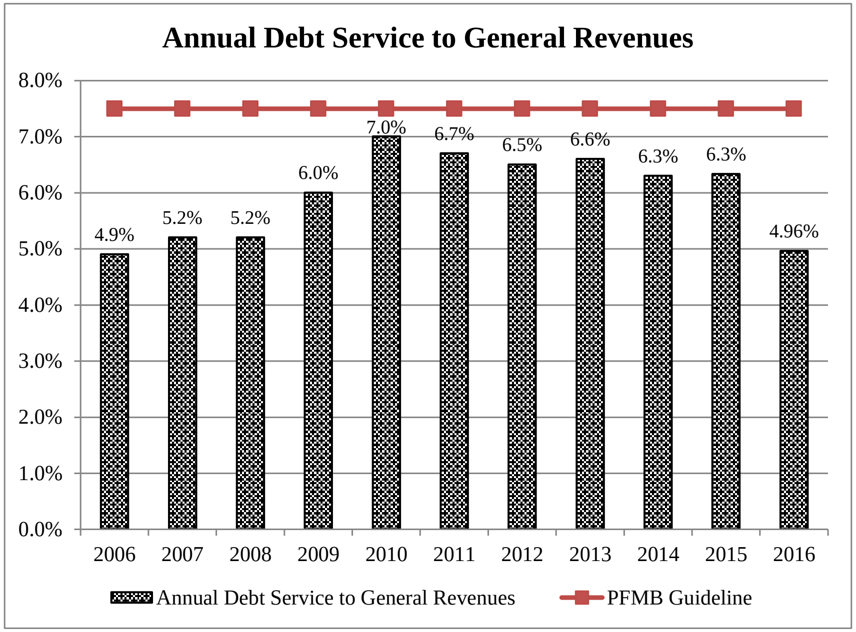
Outstanding State Tax-Supported Debt and UAAL

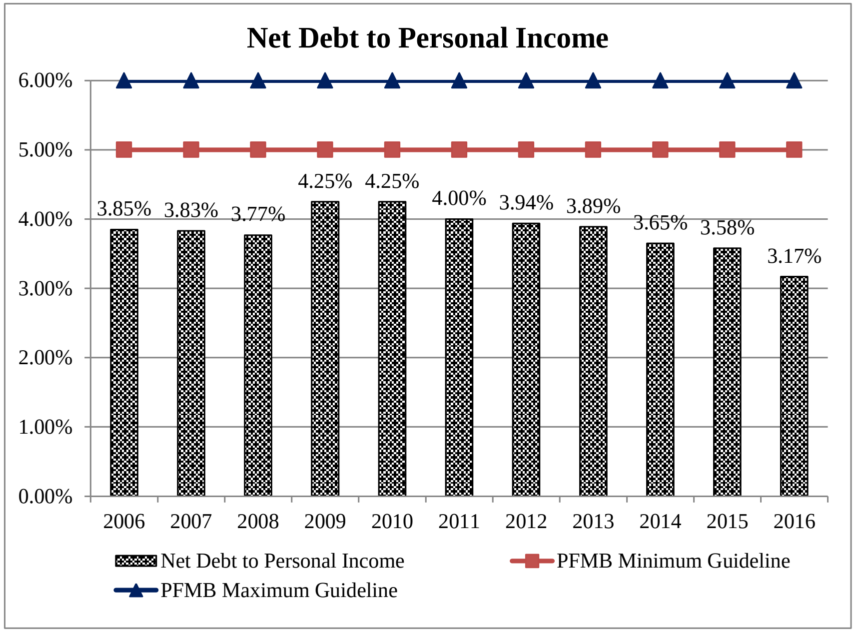
Tax Supported Debt	Amount Outstanding (in millions)*	FY 2017 Debt Service (in millions)
General Obligation Bonds	$1,051.81	$125.91
Certificates of Participation	209.30	31.12
Other State Tax Supported Debt	611.86	91.26
Total	$1,872.97	$248.29
Other Long-term Liabilities	**UAAL (in millions)***	**FY 2017 ARC (in millions)**
Pensions	$2,828.22	$261.13
Other Post Employment Benefits (OPEB)	647.50	60.70
Total	$3,475.72	$321.83

*State tax supported debt outstanding and State unfunded actuarial accrued pension liability as of June 30, 2016.

Current PFMB Guidelines

- Debt Service on Tax-Supported Debt to not exceed 7.5% of General Revenues.
- Tax-Supported Debt to not exceed the target range of 5.0% to 6.0% of personal income.





Common Debt Affordability Measures

Debt Service as Percent of State Revenues =	Annual Debt Service Requirement General Revenues of the State
Debt per Capita =	Net Tax-Supported Debt State's Population
Debt as Percent of Personal Income =	Net Tax Supported Debt Total Personal Income of State's Population
Debt as Percent of State Revenues =	Net Tax Supported Debt General Revenues of the State
Debt as % of Full Valuation of Taxable Property =	Net Tax Supported Debt Full Valuation of All Taxable Property
Debt as % of Gross State Product =	Net Tax Supported Debt Gross State Product
Rapidity of Repayment =	Total Net-Tax Supported Debt Retired in 10 Years Total Net-Tax Supported Debt

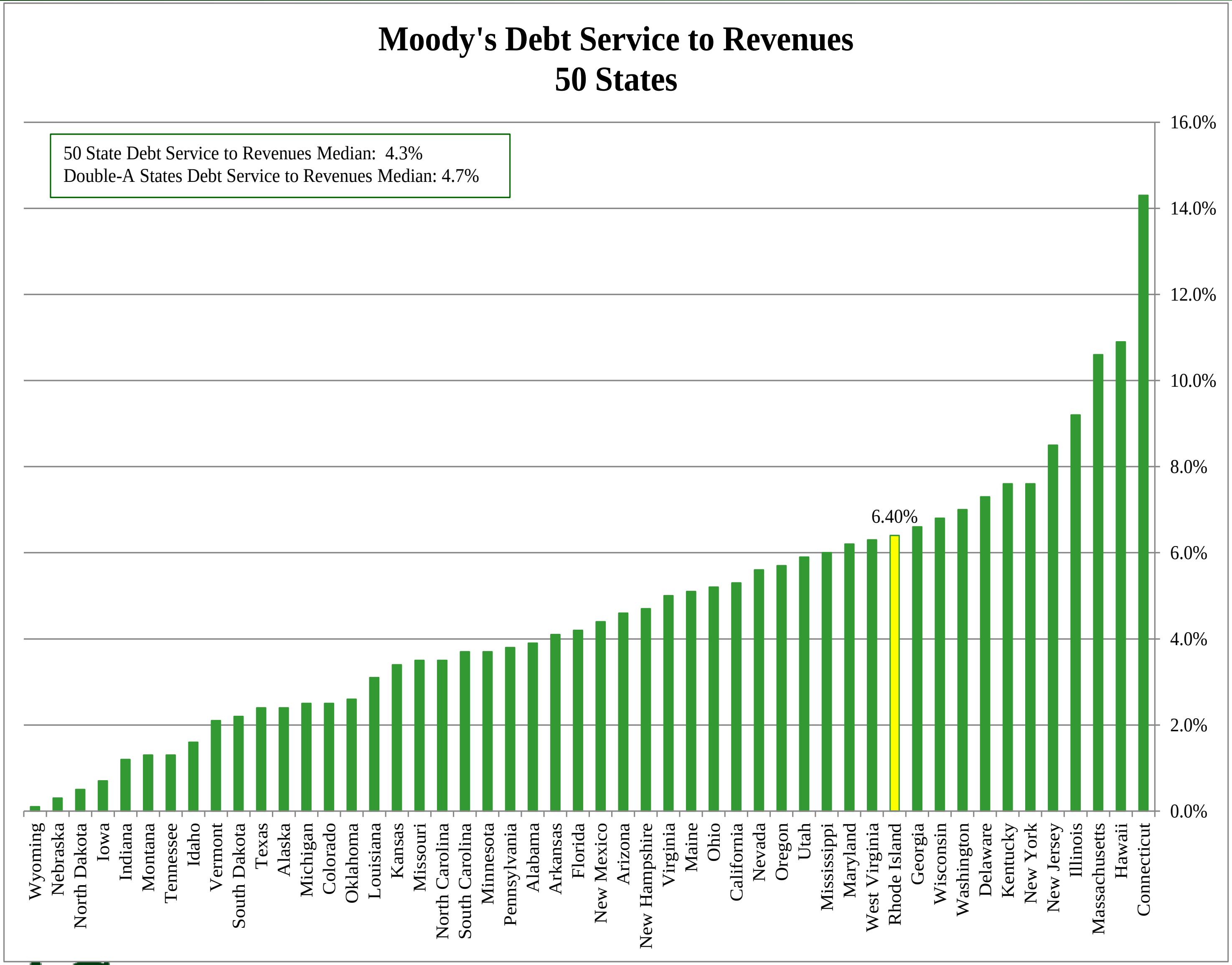
Debt Affordability Ratios Used By Peer States

State	Debt Service to Revenues	Debt to Personal Income	Debt to Revenues	Debt per Capita	Other
Rhode Island (Aa2/AA/AA)	7.5% of General Revenues	5.0% - 6.0%			
Delaware (Aaa/AAA/AAA)	MADS < 15% of General + Transportation Trust Fund Revenues		New debt ≤ 5% of Net Budgetary General Fund Revenue for Fiscal Year		G.O. MADS < Estimated Cash Balance for following fiscal year
Connecticut (Aa3/AA-/AA-)			Outstanding and Authorized but Unissued Debt ≤ 160% of General Fund Tax Receipts		
Maine (Aa2/AA/AA)	5.0% of General Revenues				
Massachusetts (Aa1/AA+/AA+)	8.0% of Annual Budgeted Revenues				
New Hampshire (Aa1/AA/AA+)	10% of Unrestricted General Fund Revenues in Prior Fiscal Year				
Vermont (Aaa/AA+/AAA)	6.0% of Annual Aggregate of General + Transportation Trust Fund Revenues	≤ 5-Year Average of the mean and median of a peer group of triple-A rated states		≤ 5-Year Average of the mean and median of a peer group of triple-A rated states	

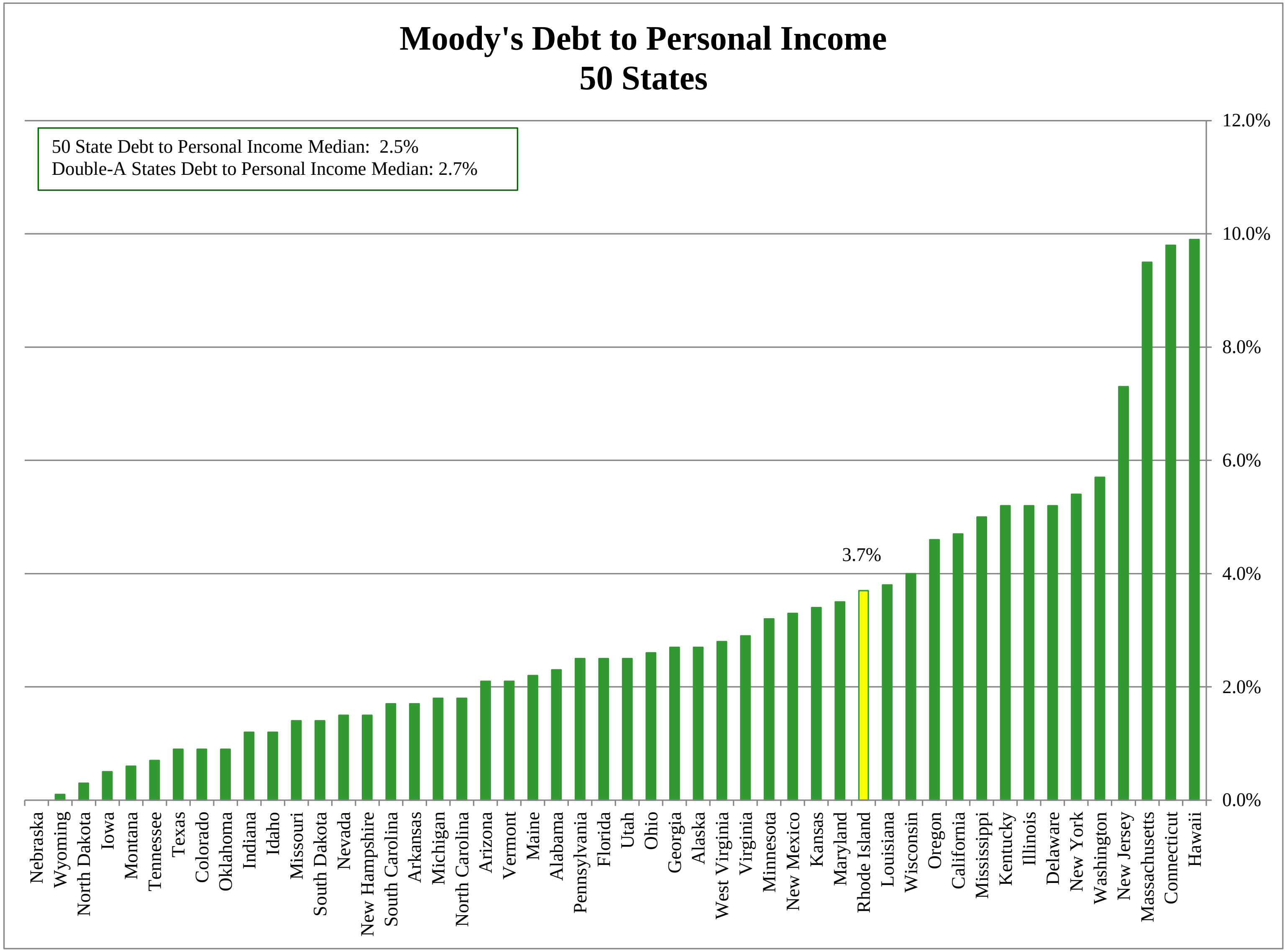
Debt Affordability – Rating Agency Liability Ratios

Debt Ratio	Fitch	Moody's	S&P
Debt to Personal Income	✓	✓	✓
Debt to Revenues		✓	
Debt Service to Revenues		✓	
Debt Service to Expenditures			✓
Debt Per Capita		✓	✓
Debt to Gross State Product		✓	✓
Rapidity of Repayment	✓		✓
Pension Ratio			
3-Year Average Pension Funded Ratio			✓
Pension Funding Levels	✓		✓
Unfunded Pension Liabilities Per Capita			✓
Pension Liabilities to Personal Income			✓
3-Year Average Pension Liability to Revenues		✓	
Debt + Unfunded Pension Liability to Personal Income	✓		

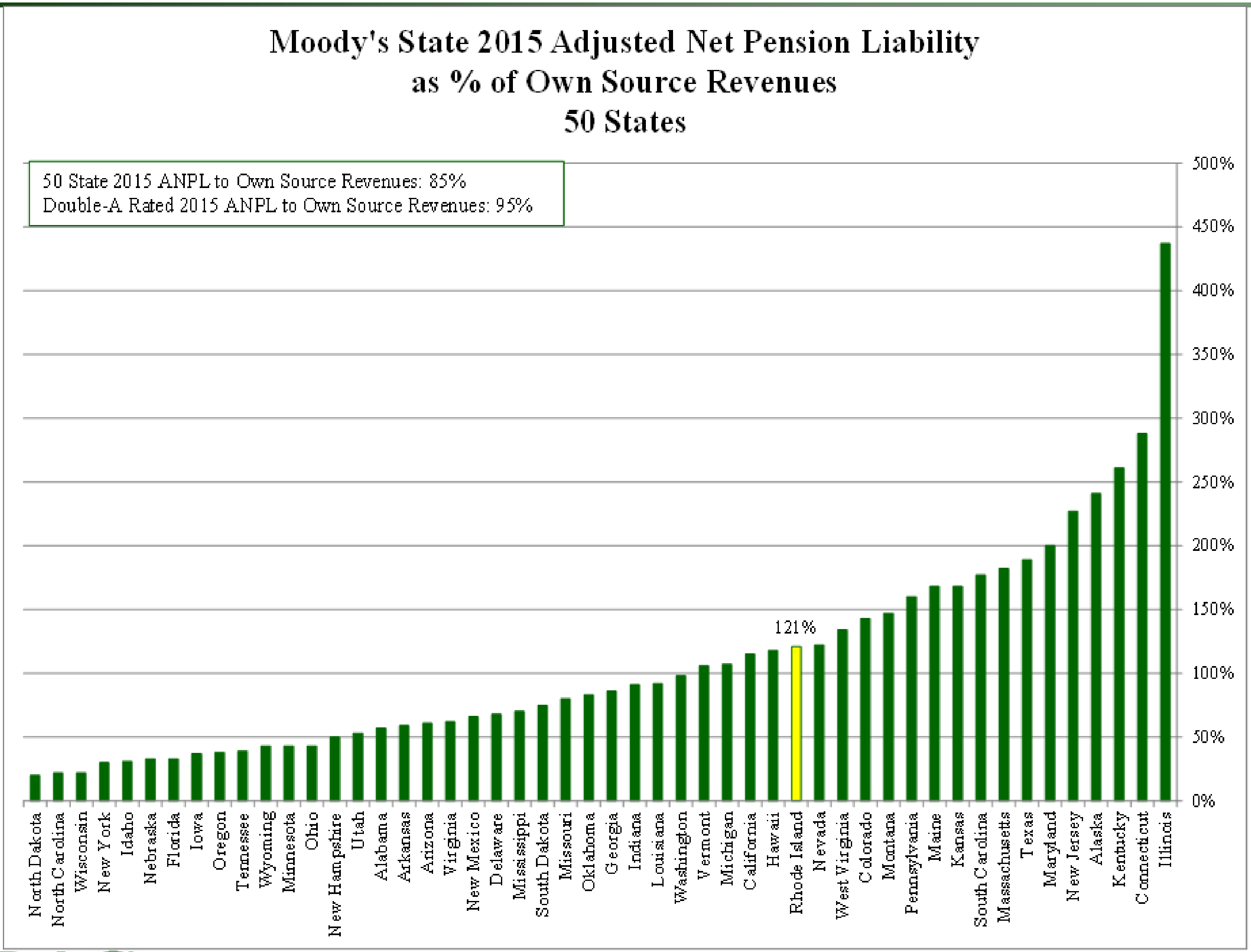
Debt Service to Revenues



State Debt to Personal Income



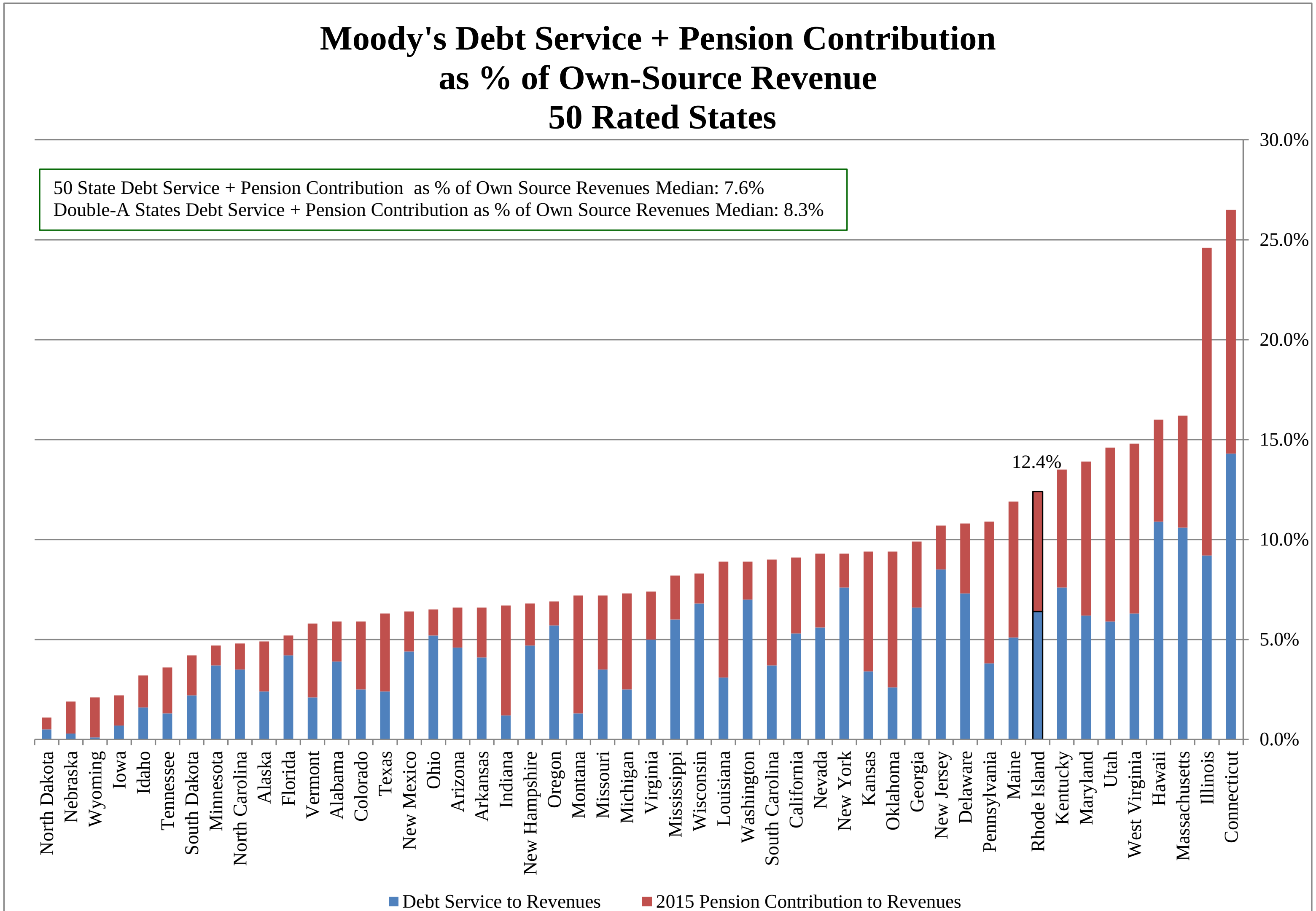
Adjusted Net Pension Liability as a % of Revenue



Pension and OPEB Considerations

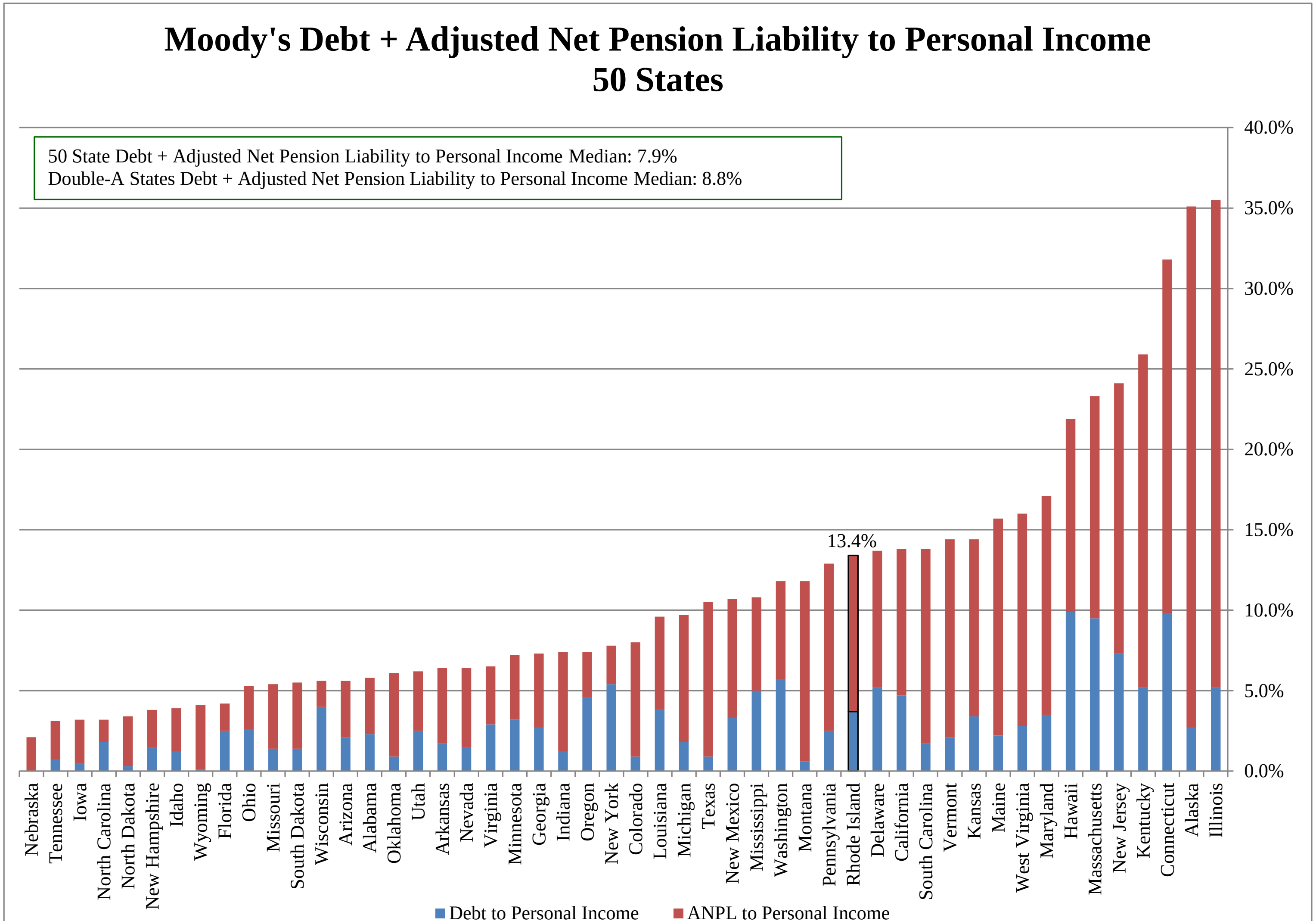
- Municipal debt market has seen increasing attention on pension liabilities and OPEB liabilities over the years.
- Updated rating agency methodologies released in recent years have included increasing quantification of pension liabilities.
- Pension ARCs are long-term fixed costs, similar to debt service.
- OPEB liabilities not viewed as similar to debt since generally there is legal flexibility to adjust OPEB liabilities.

Debt Service and Pension ARC as a % of Revenues



Source: Moody's State Debt Medians 2016, May 6, 2016, US: Medians - Low Returns, Weak Contributions Drive Growth of State Pension Liabilities, Oct. 6, 2016.

Debt and Pension UAAL to Personal Income



Source: Moody's State Debt Medians 2016, May 6, 2016, US: Medians - Low Returns, Weak Contributions Drive Growth of State Pension Liabilities, Oct. 6, 2016

Recommended Debt Affordability Measures

- Debt Service on Net Tax-Supported Debt as a percentage of General Revenues;
- Net Tax-Supported Debt as percentage of Personal Income;
- Rapidity of Repayment or the amount of debt to be retired over the next ten years
- Net Tax-Supported Debt Service + projected Pension ARC as a percentage of General Revenues
- Net Tax-Supported Debt + projected Pension Liability (UAAL) as a percentage of Personal Income
- Pension ARC and OPEB ARC should be funded at 100%

Ratios Using Outstanding and Authorized Debt

Debt and Pension Ratios Based on Current Outstanding Net Tax-Supported Debt

Ratio	Maximum Level (Year of Occurrence)
Debt Service on Tax-Supported Debt to General Revenues	6.64% (FY2018)
Net Tax-Supported Debt as Percentage of Personal Income	3.40% (FY2017)
Rapidity of Repayment over 10 Years	76% (FY2017)
Net Tax-Supported Debt Service + Pension ARC as a Percentage of General Revenues	13.83% (FY2023)
Net Tax-Supported Debt + Pension Liability (UAAL) as a Percentage of Personal Income	8.52% (FY2017)
Pension ARC and OPEB ARC Funding Level	100%

Debt and Pension Ratios Based on Current Outstanding and $766,285,000 Authorized but Unissued Net Tax-Supported Debt

Ratio	Maximum Level (Year of Occurrence)
Debt Service on Tax-Supported Debt to General Revenues	6.97% (FY2018 and FY2023)
Net Tax-Supported Debt as Percentage of Personal Income	3.40% (FY2017)
Rapidity of Repayment over 10 Years	76% (FY2017)
Net Tax-Supported Debt Service + Pension ARC as a Percentage of General Revenues	15.42%% (FY2023)
Net Tax-Supported Debt + Pension Liability (UAAL) as a Percentage of Personal Income	8.52% (FY2017)
Pension ARC and OPEB ARC Funding Level	100%

Outstanding Tax-Supported + Authorized and Unissued Debt and Pension Liabilities

	Outstanding Tax-Supported Debt Service (as of June 30, 2016)			Estimated Authorized but Unissued @ 5.00% Interest ($766.285M Issued In Equal Amounts Over Next 5 Years)				Pension Liability		Outstanding+Authorized but Unissued (Current Revenue Projections)		Debt + Pension Ratios	
Fiscal Year	Principal	Interest	Debt Service	Principal	Interest	Debt Service	Total Outstanding + Projected Debt Service	Projected Pension ARC	Projected UAAL	Total Debt Service to Revenues	Total Debt to Personal Income	Tax-Supported DS + Pension ARC to Revenues	Tax-Supported Debt + UAAL to Personal Income
2017	133,790,034	90,290,186	224,080,220	0	0	0	224,080,220	256,320,447	2,828,215,805	6.10%	3.40%	13.07%	8.52%
2018	165,060,675	83,230,201	248,290,876	4,600,240	7,772,455	12,372,695	260,663,571	261,126,905	2,918,866,146	6.97%	3.30%	13.96%	8.38%
2019	150,585,806	75,098,791	225,684,597	9,433,719	15,311,670	24,745,389	250,429,986	277,426,348	3,004,305,781	6.69%	3.13%	14.09%	8.15%
2020	158,950,838	67,634,825	226,585,663	14,512,271	22,605,813	37,118,084	263,703,747	290,025,315	3,071,643,695	6.95%	2.99%	14.59%	7.92%
2021	157,374,658	59,946,158	217,320,816	19,848,326	29,642,453	49,490,779	266,811,595	301,981,514	3,108,735,096	6.93%	2.85%	14.78%	7.63%
2022	139,598,928	52,587,439	192,186,367	25,454,947	36,408,526	61,863,473	254,049,840	314,563,239	3,048,958,469	6.57%	2.70%	14.70%	7.21%
2023	163,135,655	45,976,221	209,111,876	26,745,621	35,117,852	61,863,473	270,975,349	328,173,642	2,996,583,946	6.97%	2.38%	15.42%	6.68%
2024	131,860,827	47,490,278	179,351,105	28,101,770	33,761,703	61,863,473	241,214,578	336,619,084	2,926,205,254	6.18%	2.05%	14.79%	6.13%
2025	115,334,697	32,294,100	147,628,797	29,526,717	32,336,757	61,863,473	209,492,270	347,668,886	2,842,280,241	5.34%	1.77%	14.19%	5.62%
2026	109,072,537	26,784,455	135,856,992	31,023,954	30,839,520	61,863,473	197,720,465	357,229,504	2,745,552,992	5.01%	1.53%	14.07%	5.14%
2027	94,844,641	21,597,804	116,442,445	32,597,150	29,266,324	61,863,473	178,305,918	367,034,977	2,627,011,783	4.50%	1.31%	13.76%	4.66%
2028	62,460,000	16,190,823	78,650,823	34,250,160	27,613,313	61,863,473	140,514,296	377,587,891	2,416,083,834	3.53%	1.11%	13.00%	4.10%
2029	48,255,000	13,471,412	61,726,412	35,987,037	25,876,436	61,863,473	123,589,886	388,321,482	2,179,178,470	3.09%	0.96%	12.78%	3.58%
2030	48,085,000	10,915,362	59,000,362	37,812,037	24,051,436	61,863,473	120,863,835	393,125,091	1,992,471,964	3.00%	0.84%	12.77%	3.16%
2031	36,925,000	8,405,458	45,330,458	39,729,633	22,133,840	61,863,473	107,193,932	398,648,318	1,708,668,534	2.65%	0.72%	12.51%	2.65%
2032	38,710,000	6,633,052	45,343,052	41,744,527	20,118,947	61,863,473	107,206,525	410,250,226	1,398,683,392	2.64%	0.61%	12.73%	2.15%
2033	28,375,000	5,121,850	33,496,850	43,861,657	18,001,817	61,863,473	95,360,324	415,020,461	1,102,739,500	2.33%	0.51%	12.49%	1.68%
2034	23,540,000	3,917,056	27,457,056	46,086,213	15,777,261	61,863,473	89,320,529	421,819,279	810,101,503	2.18%	0.42%	12.45%	1.26%
2035	20,505,000	2,899,734	23,404,734	48,423,649	13,439,824	61,863,473	85,268,207	431,856,018	489,595,532	2.07%	0.33%	12.53%	0.83%
2036	10,965,000	2,011,000	12,976,000	50,879,696	10,983,777	61,863,473	74,839,473	134,231,144	191,592,647	1.80%	0.26%	5.04%	0.44%
2037	6,440,000	1,584,050	8,024,050	53,460,376	8,403,097	61,863,473	69,887,523						
2038	6,740,000	1,286,750	8,026,750	43,799,322	5,691,456	49,490,779	57,517,529						
2039	7,085,000	941,125	8,026,125	33,648,261	3,469,823	37,118,084	45,144,209						
2040	7,450,000	577,750	8,027,750	22,982,326	1,763,063	24,745,389	32,773,139						
2041	7,830,000	195,750	8,025,750	11,775,391	597,304	12,372,695	20,398,445						
	1,872,974,296	677,081,628	2,550,055,924	766,285,000	470,984,468	1,237,269,468	3,787,325,392						

Proposed PFMB Affordability Targets

Debt and Pension Affordability Ratios and PMFB Recommended Targets

Ratio	Recommended Target
Debt Service on Tax-Supported Debt to General Revenues	Not to exceed 7.5% within the next five years and 7.0% thereafter
Net Tax-Supported Debt as Percentage of Personal Income	Not to exceed 4.0%
Rapidity of Repayment over 10 Years	Amount of debt to be retired over the next ten years targeted at no less than 50%
Net Tax-Supported Debt Service + Pension ARC as a Percentage of General Revenues	Not to exceed 16%
Net Tax-Supported Debt + Pension Liability (UAAL) as a Percentage of Personal Income	Not to exceed 8% within the next five years
Pension ARC and OPEB ARC Funding Level	100%

Structural Factors that Limit Debt Capacity

- The State's current debt service is front loaded due to the prior debt restructuring the State completed to free up budget capacity for economic development projects
- The amount of authorized but unissued debt, including the debt authorized in the November 2016 referendum, is substantial compared to the current amount of debt outstanding
- The projections for future State revenue available to pay long-term obligations is conservative
- The Pension Annually Required Contribution (ARC) is projected to increase over time at rate greater than projected revenue growth

Capacity Limiting Debt Service to 7.5% of Revenues In Next Five Years and 7.0% Thereafter

Fiscal Year	Outstanding Tax-Supported Debt Service (as of June 30, 2016) Principal	Interest	Debt Service	Estimated Authorized but Unissued @ 5.00% Interest ($766.285M Issued In Equal Amounts Over Next 5 Years) Principal	Interest	Debt Service	Total Outstanding + Projected Debt Service	Additional Debt Capacity @ 5.00% Interest / Debt and Pension Ratios: Additional Debt Over Next 10 Years	Additional Debt Service	Total Debt Service to Revenues	Total Debt to Personal Income	10-Year Payout	Tax-Supported DS + Pension ARC to Revenues	Tax-Supported Debt + UAAL to Personal Income
2017	133,790,034	90,290,186	224,080,220	0	0	0	224,080,220	0		6.10%	3.40%	76%	13.07%	8.52%
2018	165,060,675	83,230,201	248,290,876	4,600,240	7,772,455	12,372,695	260,663,571	0	0	6.97%	3.30%	76%	13.96%	8.38%
2019	150,585,806	75,098,791	225,684,597	9,433,719	15,311,670	24,745,389	250,429,986	221,840,000	0	6.69%	3.13%	75%	14.09%	8.15%
2020	158,950,838	67,634,825	226,585,663	14,512,271	22,605,813	37,118,084	263,703,747	0	17,801,016	7.42%	3.35%	69%	15.06%	8.27%
2021	157,374,658	59,946,158	217,320,816	19,848,326	29,642,453	49,490,779	266,811,595	15,470,000	17,801,016	7.40%	3.18%	68%	15.25%	7.96%
2022	139,598,928	52,587,439	192,186,367	25,454,947	36,408,526	61,863,473	254,049,840	0	19,042,368	7.06%	3.03%	67%	15.20%	7.54%
2023	163,135,655	45,976,221	209,111,876	26,745,621	35,117,852	61,863,473	270,975,349	0	19,042,368	7.46%	2.69%	69%	15.91%	6.99%
2024	131,860,827	47,490,278	179,351,105	28,101,770	33,761,703	61,863,473	241,214,578	331,535,000	19,042,368	6.66%	2.34%	70%	15.28%	6.42%
2025	115,334,697	32,294,100	147,628,797	29,526,717	32,336,757	61,863,473	209,492,270	162,600,000	45,645,595	6.50%	2.49%	66%	15.36%	6.34%
2026	109,072,537	26,784,455	135,856,992	31,023,954	30,839,520	61,863,473	197,720,465	257,925,000	58,693,039	6.50%	2.42%	66%	15.56%	6.02%
2027	94,844,641	21,597,804	116,442,445	32,597,150	29,266,324	61,863,473	178,305,918	487,025,000	79,389,608	6.50%	2.46%	65%	15.76%	5.81%
2028	62,460,000	16,190,823	78,650,823	34,250,160	27,613,313	61,863,473	140,514,296		118,469,755	6.50%	2.80%		15.98%	5.79%
2029	48,255,000	13,471,412	61,726,412	35,987,037	25,876,436	61,863,473	123,589,886		118,469,755	6.05%	2.54%		15.74%	5.16%
2030	48,085,000	10,915,362	59,000,362	37,812,037	24,051,436	61,863,473	120,863,835		118,469,755	5.95%	2.30%		15.72%	4.63%
2031	36,925,000	8,405,458	45,330,458	39,729,633	22,133,840	61,863,473	107,193,932		118,469,755	5.58%	2.08%		15.44%	4.01%
2032	38,710,000	6,633,052	45,343,052	41,744,527	20,118,947	61,863,473	107,206,525		118,469,755	5.55%	1.87%		15.65%	3.41%
2033	28,375,000	5,121,850	33,496,850	43,861,657	18,001,817	61,863,473	95,360,324		118,469,755	5.23%	1.66%		15.39%	2.84%
2034	23,540,000	3,917,056	27,457,056	46,086,213	15,777,261	61,863,473	89,320,529		118,469,755	5.06%	1.47%		15.34%	2.31%
2035	20,505,000	2,899,734	23,404,734	48,423,649	13,439,824	61,863,473	85,268,207		118,469,755	4.94%	1.29%		15.40%	1.78%
2036	10,965,000	2,011,000	12,976,000	50,879,696	10,983,777	61,863,473	74,839,473		118,469,755	4.66%	1.12%		7.90%	1.30%
2037	6,440,000	1,584,050	8,024,050	53,460,376	8,403,097	61,863,473	69,887,523	1,476,395,000	1,342,685,169					
2038	6,740,000	1,286,750	8,026,750	43,799,322	5,691,456	49,490,779	57,517,529							
2039	7,085,000	941,125	8,026,125	33,648,261	3,469,823	37,118,084	45,144,209							
2040	7,450,000	577,750	8,027,750	22,982,326	1,763,063	24,745,389	32,773,139							
2041	7,830,000	195,750	8,025,750	11,775,391	597,304	12,372,695	20,398,445							
	1,872,974,296	677,081,628	2,550,055,924	766,285,000	470,984,468	1,237,269,468	3,787,325,392							

Total through 2022	237,310,000
Total through 2023-2027	1,239,085,000

Debt Capacity

- Available capacity of approximately $221.8 million in 2019, the first year in which any authorization from the 2018 referendum could be issued.
- Remaining capacity of approximately $1.25 billion over the ten year period.
- Debt Service to General Revenues ratio is the most constraining target. If the 7.0% target is to be strictly enforced right away, the State would not have the capacity to add new debt in the 2018 referendum; therefore, the 7.5% target for the next five years is recommended.
- Any State Net Tax Supported Debt issued in addition to the assumed issuance of authorized but unissued debt prior to the 2018 referendum would reduce the amount of capacity for the 2018 referendum.

Ratios Using Proposed Capacity Limit

Debt and Pension Affordability Ratios with Additional Capacity Constrained to Proposed PMFB Recommended Targets

Ratio	Ratio Level (Year of Occurrence)
Debt Service on Tax-Supported Debt to General Revenues	7.46% Maximum (FY2023)
Net Tax-Supported Debt as Percentage of Personal Income	3.40% Maximum (FY2017) 2.46% (FY2027)
Rapidity of Repayment over 10 Years	76% (FY2017) 65% (FY2027)
Net Tax-Supported Debt Service + Pension ARC as a Percentage of General Revenues	15.91%% (FY2023) 15.76% (FY2027)
Net Tax-Supported Debt + Pension Liability (UAAL) as a Percentage of Personal Income	8.52% Maximum (FY2017) 5.81% (FY2027)

Summary

- The proposed new PFMB recommended affordability measures:
  - Retain both annual Debt Service as a Percentage of General Revenue and Net Tax Supported as a Percentage of State Personal Income with new targets,
  - Add long-term (pension) liabilities to the existing measures
  - Include two best practices for debt issuance and long-term liability management.
- Pensions, which have been contractually or statutorily promised to public employees, represent long-term liabilities and are increasingly being used by the Rating Agencies to measure a state's overall liability burden.
- The proposed affordability measures maintain the State's debt capacity to pay for restoration of aging infrastructure and make new capital investments, balanced by the goal of maintaining adequate control on long-term liabilities to ensure high credit ratings, which helps to lower the cost of borrowing.

Appendix: Assumptions for Determining Debt Capacity

1. All debt will be issued as 20-year debt.
2. Interest rate is assumed to be 5.00%.
3. There are no refunding savings during the period.
4. Authorized but unissued debt ($319.575 million of GO debt, $219.21 million of appropriation debt and $227.5 million from the November 2016 referendum) is issued from FY2017 through FY2021 in equal amounts.
5. General revenue projections through 2021 are from the enacted 2017 budget and growth after 2021 is assumed to be 0.50%.
6. Personal income projections through 2022 are from the November 2016 Revenue Estimating Conference and growth after 2023 is assumed to be 3.00%.