
State of Rhode Island



Debt Affordability Study Phase One

February 2, 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
 - Net Pension Liability
 - Annual Required Contribution
- OPEB Liabilities
 - Unfunded Liabilities
 - Annual Required Contribution

Outstanding Tax-Supported Debt



Outstanding General Obligation Bonds	Outstanding Lease Participation Certificates	Convention Center Authority + Commerce Corporation + Other Tax-Supported Debt	Outstanding Tax-Supported Debt Service
--------------------------------------	--	---	--

Fiscal Year	Principal	Interest	Debt Service	Principal	Interest	Debt Service	Principal	Interest	Debt Service	Principal	Interest	Debt Service
2017	47,930,000	47,746,734	95,676,734	27,035,000	9,263,056	36,298,056	57,020,034	27,061,670	84,081,704	131,985,034	84,071,460	216,056,494
2018	79,995,000	45,916,491	125,911,491	22,975,000	8,145,125	31,120,125	59,325,675	23,910,060	83,235,735	162,295,675	77,971,676	240,267,351
2019	81,155,000	42,285,620	123,440,620	24,055,000	7,177,206	31,232,206	42,495,806	20,489,765	62,985,571	147,705,806	69,952,591	217,658,397
2020	85,865,000	38,411,227	124,276,227	25,250,000	6,102,594	31,352,594	44,855,838	18,077,604	62,933,442	155,970,838	62,591,425	218,562,263
2021	82,470,000	34,586,994	117,056,994	24,165,000	4,939,375	29,104,375	47,619,658	15,513,989	63,133,647	154,254,658	55,040,358	209,295,016
2022	81,520,000	30,724,126	112,244,126	19,795,000	3,813,413	23,608,413	35,003,928	13,304,100	48,308,028	136,318,928	47,841,639	184,160,567
2023	77,880,000	26,836,108	104,716,108	20,885,000	2,820,225	23,705,225	60,940,655	11,724,688	72,665,343	159,705,655	41,381,021	201,086,676
2024	78,185,000	23,116,083	101,301,083	17,865,000	1,814,913	19,679,913	32,260,827	18,085,932	50,346,759	128,310,827	43,016,928	171,327,755
2025	73,785,000	19,544,813	93,329,813	14,085,000	1,050,463	15,135,463	23,764,697	7,371,225	31,135,922	111,634,697	27,966,500	139,601,197
2026	76,740,000	15,887,573	92,627,573	3,395,000	621,819	4,016,819	25,047,537	6,137,214	31,184,751	105,182,537	22,646,605	127,829,142
2027	64,790,000	12,406,865	77,196,865	2,815,000	454,000	3,269,000	23,154,641	4,798,464	27,953,105	90,759,641	17,659,329	108,418,970
2028	50,890,000	9,532,571	60,422,571	2,980,000	315,925	3,295,925	4,315,000	2,591,477	6,906,477	58,185,000	12,439,973	70,624,973
2029	36,060,000	7,414,218	43,474,218	3,150,000	172,313	3,322,313	4,575,000	2,331,282	6,906,282	43,785,000	9,917,812	53,702,812
2030	37,685,000	5,523,162	43,208,162	850,000	13,813	863,813	4,850,000	2,054,037	6,904,037	43,385,000	7,591,012	50,976,012
2031	26,840,000	3,561,981	30,401,981				5,145,000	1,760,127	6,905,127	31,985,000	5,322,108	37,307,108
2032	28,105,000	2,302,037	30,407,037				5,460,000	1,448,340	6,908,340	33,565,000	3,750,377	37,315,377
2033	17,230,000	1,332,761	18,562,761				5,790,000	1,117,464	6,907,464	23,020,000	2,450,225	25,470,225
2034	11,770,000	753,466	12,523,466				6,140,000	766,590	6,906,590	17,910,000	1,520,056	19,430,056
2035	8,110,000	366,678	8,476,678				6,510,000	394,506	6,904,506	14,620,000	761,184	15,381,184
2036	4,805,000	144,150	4,949,150							4,805,000	144,150	4,949,150
	1,051,810,000	368,393,657	1,420,203,657	209,300,000	46,704,238	256,004,238	494,274,296	178,938,532	673,212,828	1,755,384,296	594,036,427	2,349,420,723

Pension and OPEB Liabilities



- At June 30, 2015 the net pension liability was approximately \$2.9 billion.
- The actuarially determined Pension Annual Required Contribution totaled \$253.3 million.
 - State has made its full Pension ARC for the last 19 years.

Fiscal Year	Pension ARC (\$ millions)
2016	\$286.64
2017	290.75
2018	298.68
2019	302.18
2020	309.60
2021	318.47
2022	328.60
2023	338.91
2024	347.96
2025	356.97

- OPEB Liabilities
 - As of June 30, 2015, unfunded liability was \$593 million.
 - OPEB ARC for fiscal year beginning July 1, 2017 was determined to be \$60.7 million.
 - Rhode Island has consistently funded 100% of the OPEB ARC.

Common Debt Affordability Measures

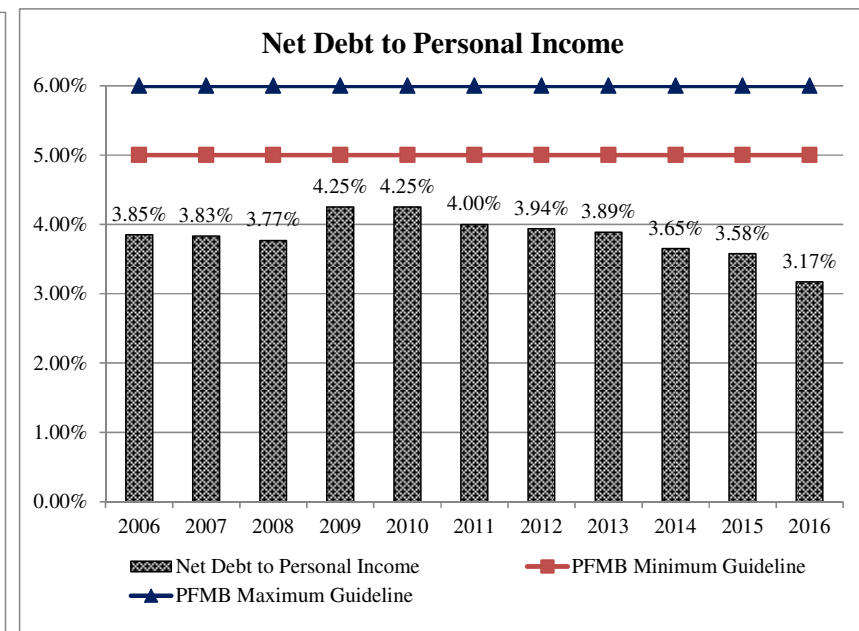
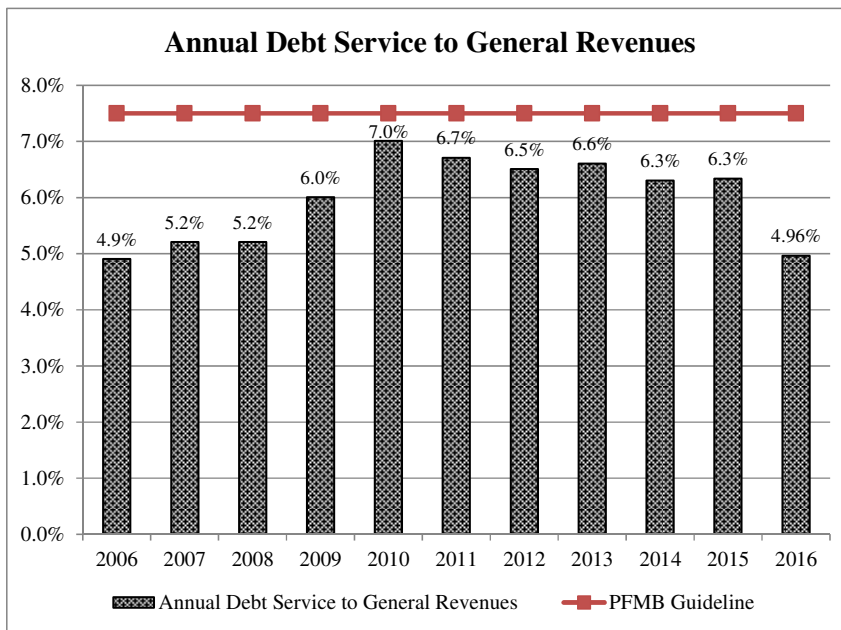


Debt Service as Percent of State Revenues =	$\frac{\text{Annual Debt Service Requirement}}{\text{General Revenues of the State}}$
Debt per Capita =	$\frac{\text{Net Tax-Supported Debt}}{\text{State's Population}}$
Debt as Percent of Personal Income =	$\frac{\text{Net Tax Supported Debt}}{\text{Total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



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.



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	

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.
- The following ratios have been used to measure the burden of pension and OPEB liabilities, but with the pension liability or OPEB liability used in the numerator rather than debt and these ratios can also be calculated with just the pension or OPEB liability or added together with debt:
 - Unfunded Liability per Capita
 - Unfunded Liability as Percent of Personal Income
 - Unfunded Liability as Percent of State Revenues
 - Unfunded Liability as Percent of Gross State Product
 - Pension/OPEB ARC as Percent of State Revenues

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			
Pension Funded Ratio			✓
Pension Funding Levels	✓		✓
Unfunded Pension Liabilities Per Capita			✓
Pension Liabilities to Personal Income			✓
3-Yr Avg Pension Liability to Revenues		✓	
Debt + Unfunded Pension Liability to Personal Income	✓		

Fitch Debt Ratio



Direct Debt + Fitch's Adjusted Direct Unfunded Pension Liability Personal Income

Liability Burden	Low	Moderate	Elevated but Still in Moderate Range	High	Very High
Rating Assessment	AAA	AA	A	BBB	BB
Ratio Level	Liabilities Less than 10% of Personal Income	Liabilities Less than 20% of Personal Income (RI = 10.6%)	Liabilities Less than 40% of Personal Income	Liabilities Less than 60% of Personal Income	Liabilities 60% or More of Personal Income

Rhode Island ratio as calculated by Fitch.

Fitch – Net Pension Liability



- Considers defined benefit pension plans only
- Evaluates pension plans for which the government has responsibility
- To improve comparability among plans, Fitch uses the reported unfunded liability and makes an 11% adjustment in actuarial liability for every 1% variance between 7% and the plan's investment return assumption

Moody's Debt Ratios



Measurement	Aaa	Aa1	Aa2	Aa3	A	Baa and below
NTSD/Total Governmental Fund Revenues	Less than 15%	15% - 30%	30% - 50% (RI = 31.7%)	50% - 90%	90% - 130%	Greater than 130%
3-Yr Average ANPL/ Total Governmental Fund Revenues	Less than 25%	25% - 40%	40% - 80%	80% - 120% (RI = 84%)	120% - 180%	Greater than 180%

Rhode Island ratio as calculated by Moody's. NTSD = Net Tax-Supported Debt. ANPL = Adjusted Net Pension Liability.

Moody's – Net Pension Liability



- Assigns liabilities to other participating governments in cases where state's reported liabilities are inclusive of all the sponsoring entities of multiple-employer cost-sharing plans.
- Uses a market-determined discount rate.
- Resulting adjusted net pension liability is averaged over a three year period
- Average adjusted net pension liability divided by state's most recent total governmental fund revenues.

Moody's – Adjusted Net Pension Liability



Applying Moody's Adjustments to a Government's Pension Liability Indicative Calculation Example

Indicative Calculation Example
(\$000)

Reported AAL	\$50,000,000
Asset Market or Fair Value	\$40,000,000
Assumed investment rate of return	8.00%
Valuation date	6/30/2010
Citibank Pension Liability Index at valuation date	5.47%
Government A contributions to plan / Total employer contributions to plan (i.e. Government A's proportional share)	17.0%
AAL projected forward 13 years at 8.00%	\$135,981,186
Discounted at 5.47%	\$68,045,989
Adjusted net pension liability (ANPL)	\$28,045,989
Government A's 17% share of ANPL	\$4,767,818
Government A's amortization of ANPL	\$397,975

Standard & Poor's Debt Ratios



Indicator	Score:1	Score: 2	Score: 3	Score: 4
Debt per Capita	Below \$500	\$500 - \$2,000 (RI = \$1,672)	\$2,000 - \$3,500	Above \$3,500
Debt to Personal Income	Below 2%	2% - 4% (RI - 3.3%)	4% - 7%	Above 7%
Debt Service to General Government Spending	Below 2%	2% - 6%	6% - 10% (RI = 7.2%)	Above 10%
Debt to Gross State Product	Below 2%	2% - 4% (RI = 3.2%)	4% - 7%	Above 7%
Debt Amortization (10 Years)	80% - 100%	60% - 80% (RI = 79%)	40% - 60%	Less than 40%
Pension Funded Ratio	90% or above	80% - 90%	60% - 80%	60% or below (RI = 59.3%)
Pension Funding Discipline	Pension contribution is actuarially based and full funding of ARC. Total plan contributions > service cost + interest cost + amortization component (RI funding for last 19 years)	Pension contribution is NOT actuarially based and ARC is not fully funded. Total plan contributions > service cost + interest cost + amortization component	Pension contribution is actuarially based and full funding of ARC. Total plan contributions <= service cost + interest cost + amortization component	Pension contribution is NOT actuarially based and ARC is not fully funded. Total plan contributions <= service cost + interest cost + amortization component
Unfunded Pension Liabilities per Capita	Positive Adjustment: At or Below \$500 Negative Adjustment: At or above \$3500			
Unfunded Pension Liabilities to Personal Income	Positive Adjustment: At or Below 2% Negative Adjustment: At or above 7%			
OPEB Risk Assessment	Limited benefits, high level of discretion to change benefits, pay-go costs not significantly different from ARC	Average liability relative to other states, proactive management of liability, some flexibility to change benefit levels, contributions in excess of annual pay-go amount (RI = Moderate)	Above average liability relative to other states, options to address liability are being considered but plans not well-developed, limited flexibility to change benefits	High liability relative to other states, high level of benefits and inflexible to change, lack of action to address liability leading to accelerating pay-go amount

S&P Global – Net Pension Liability

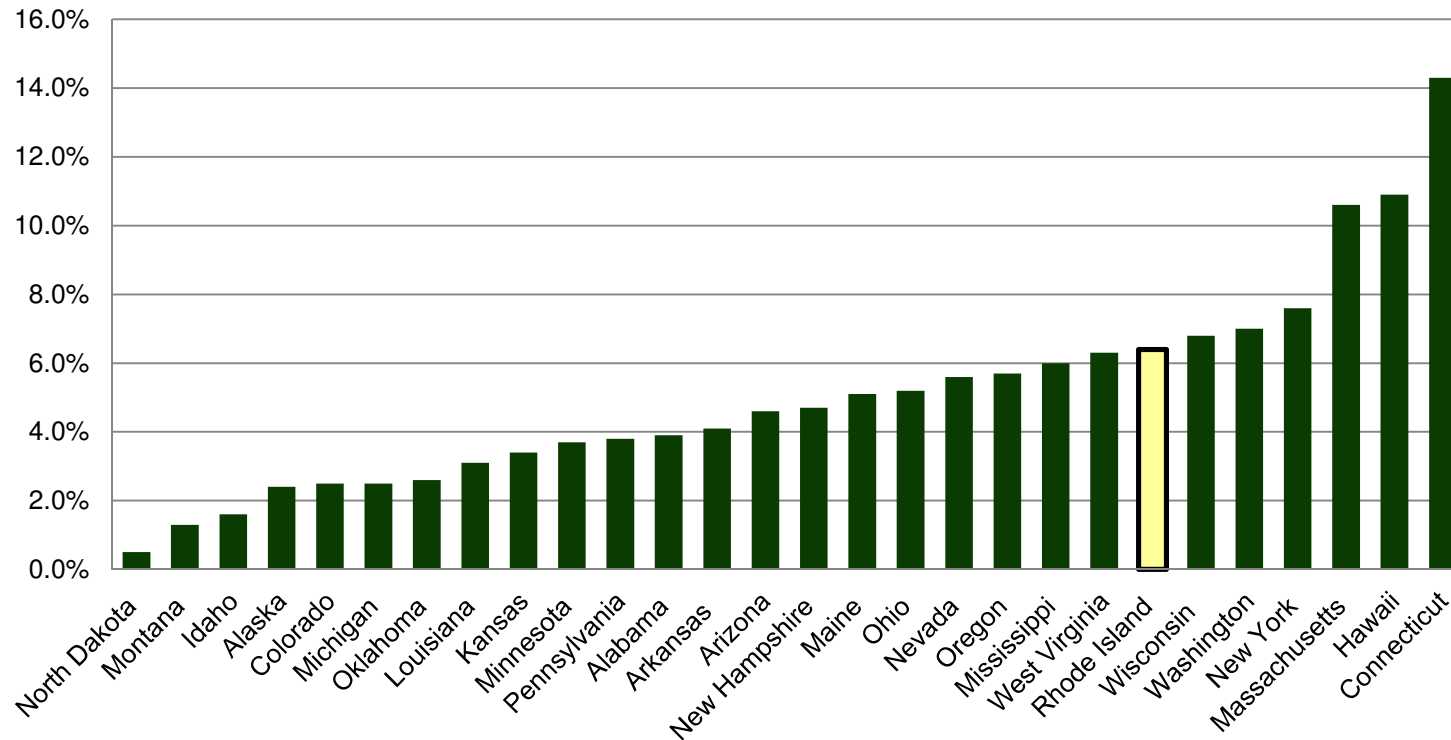


- Uses pension liabilities derived from pension plan and state CAFRs reporting under GASB 67/68 standards, GASB 67 consultant reports and available GASB 68 allocation reports.
- Combines information across multiple pension plans to calculate the state's aggregated plan to the total pension liability (pension funded ratio) and funding progress.
- Uses cost-sharing multiple employer plan CAFRs or GASB 67 reports and uses the state's proportionate share of plan liabilities to calculate the state's net pension liabilities.

Moody's Double A State Debt Service to Revenues



Moody's Debt Service to Revenues



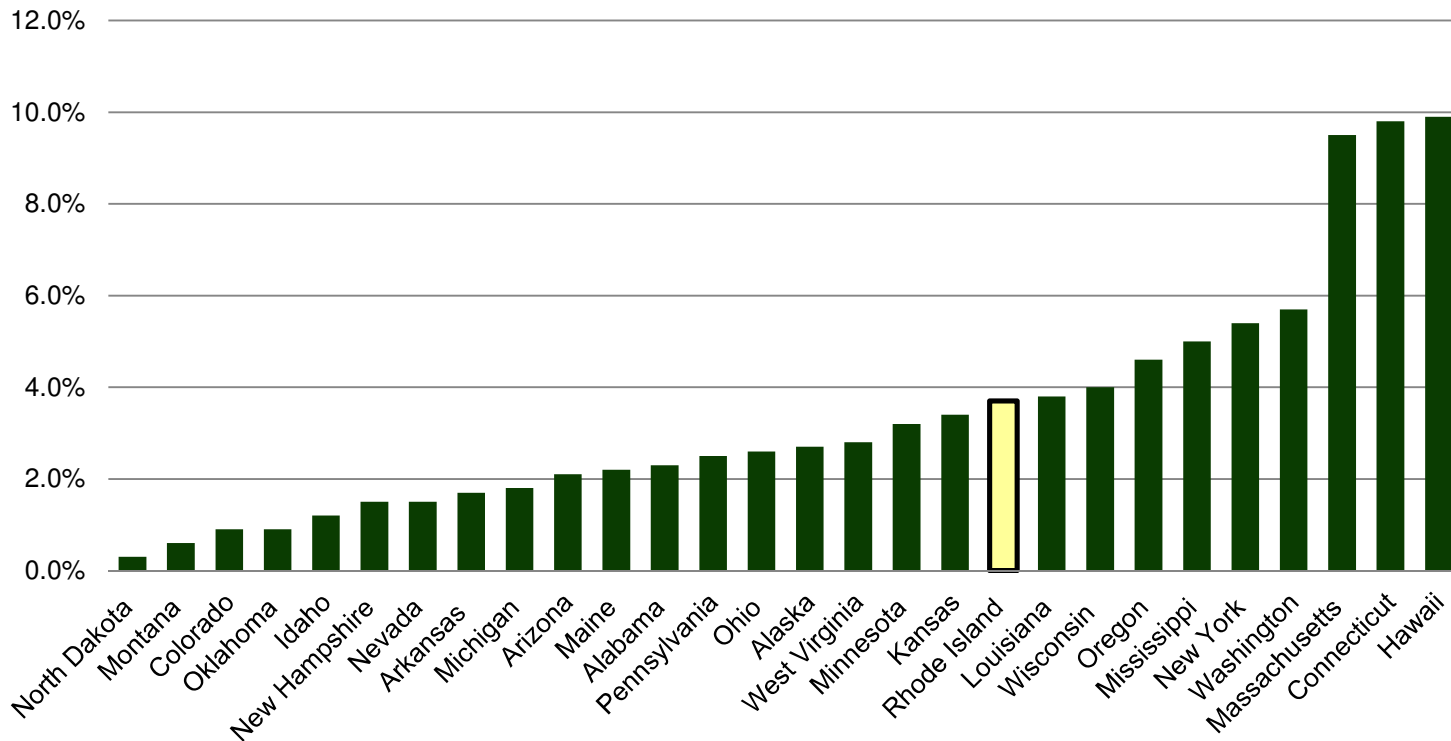
- Note Alabama, Arizona & West Virginia Data based on fiscal 2014 revenues; fiscal 2015 audited financial statements not available at time of publication

Source: Moody's State Debt Medians 2016, May 6, 2016.

Moody's Double A State Debt to Personal Income



Moody's Debt to Personal Income



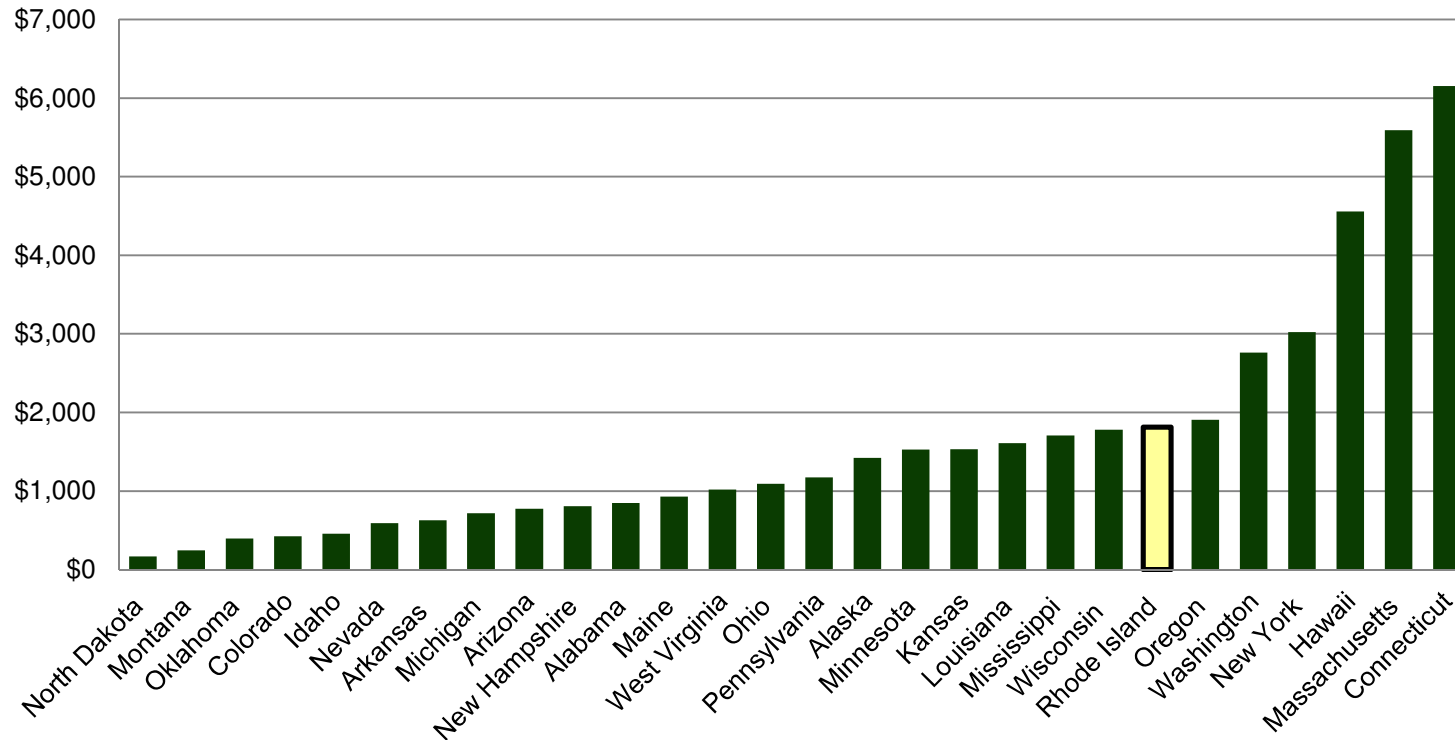
- Note Alabama, Arizona & West Virginia Data based on fiscal 2014 revenues; fiscal 2015 audited financial statements not available at time of publication

Source: Moody's State Debt Medians 2016, May 6, 2016.

Moody's Double A State Debt Per Capita



Moody's Debt Per Capita



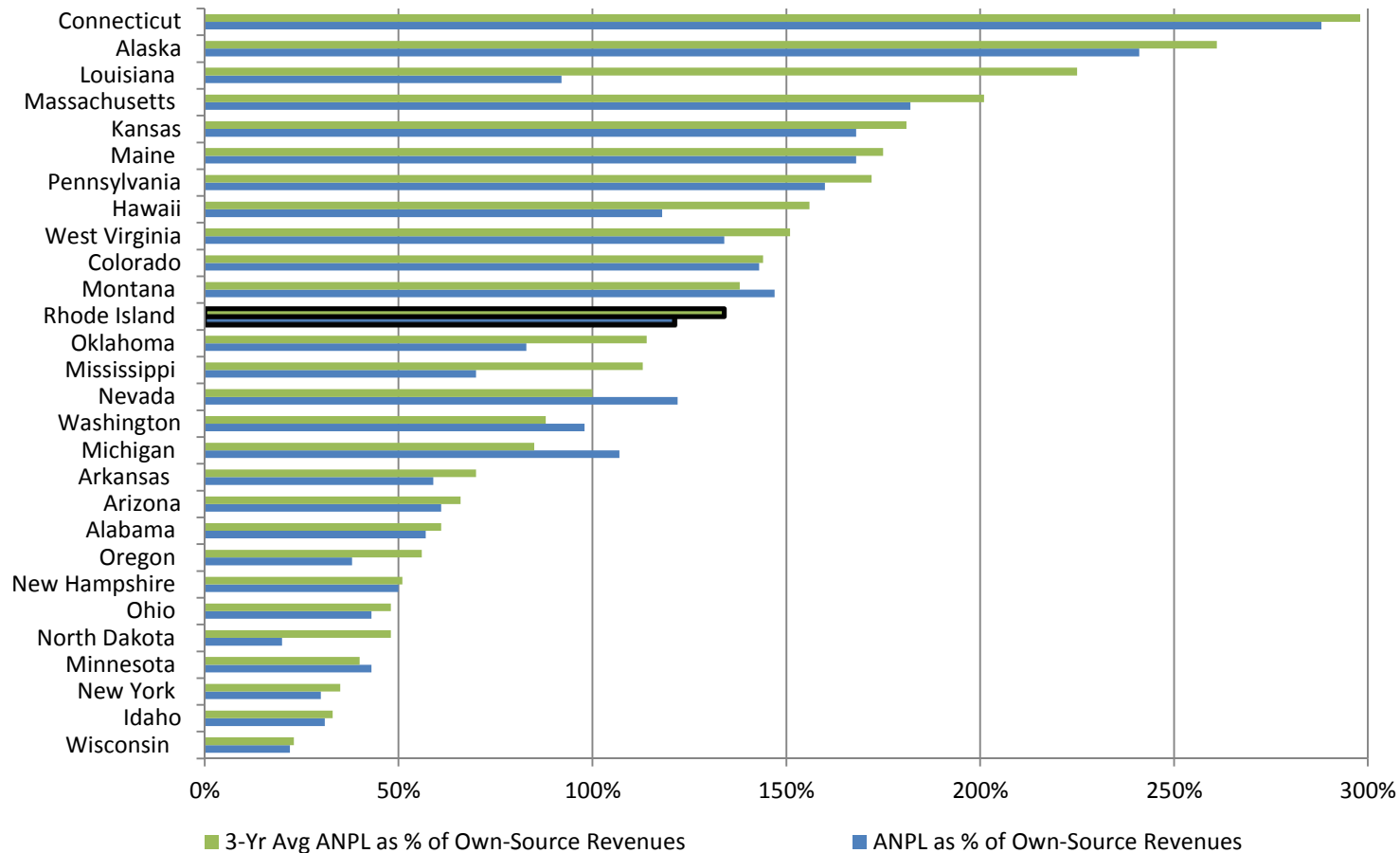
- Note Alabama, Arizona & West Virginia Data based on fiscal 2014 revenues; fiscal 2015 audited financial statements not available at time of publication

Source: Moody's State Debt Medians 2016, May 6, 2016.

Moody's Double A State Pension Medians



Moody's State Pension Medians



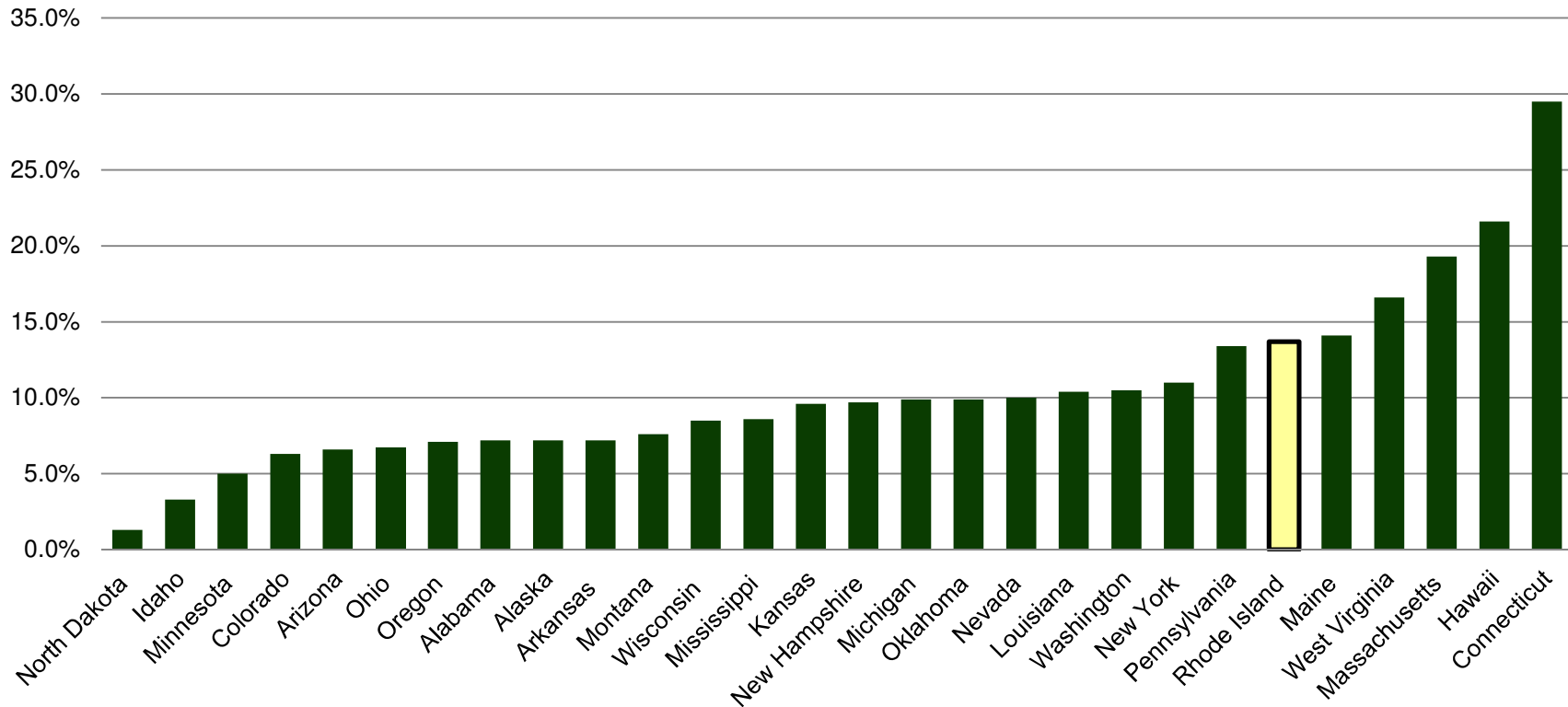
- Fiscal 2015 pension data is not directly comparable with previous years because of new accounting standards. For most states, the data are a restatement of 2014 liabilities and set a new baseline for the trend going forward. ANPL is adjusted net pension liability.

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

Moody's Double A Fixed Costs



Moody's FY 2015 Fixed Costs as % of Own-Source Revenue

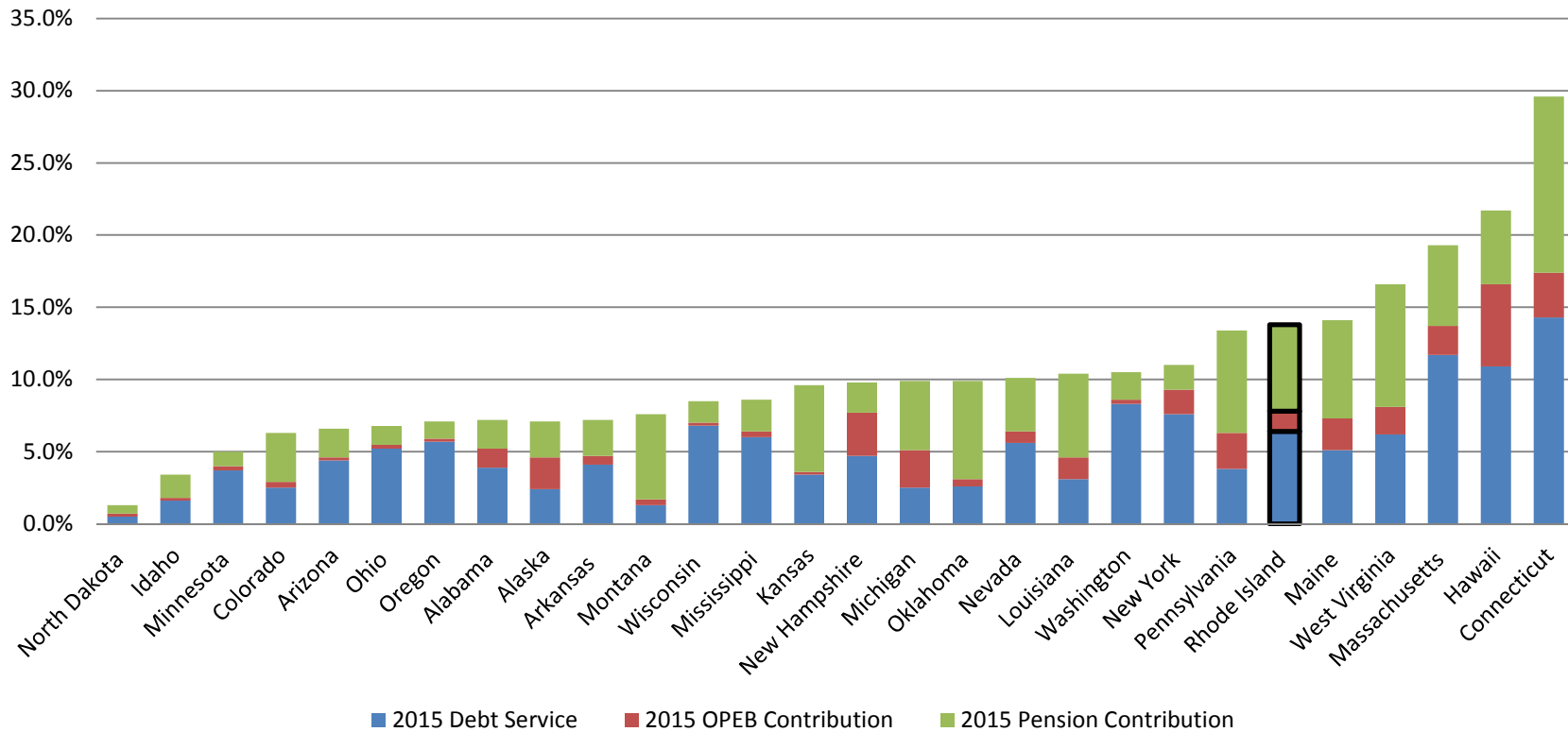


Source: Moody's US: Medians - Low Returns, Weak Contributions Drive Growth of State Pension Liabilities, October 6, 2016.

Moody's Double A Fixed Costs Breakdown



Moody's Fixed Costs Breakdown by Pensions, OPEBs, & Debt Service for Double-A Rated States

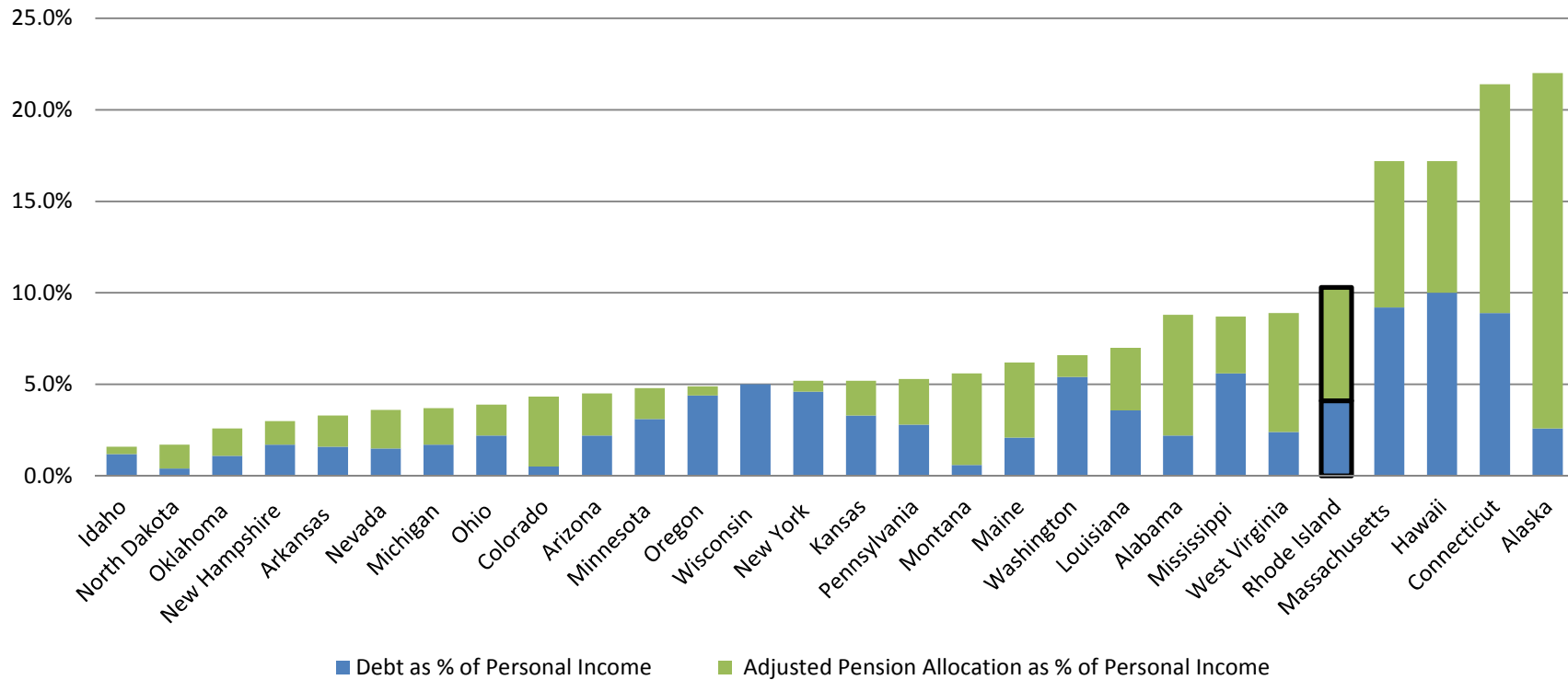


Source: Moody's US: Medians - Low Returns, Weak Contributions Drive Growth of State Pension Liabilities, October 6, 2016.

Fitch Double A Debt & Adjusted Pension Allocation



Fitch Debt & Adjusted Pension Allocation
as a % of Personal Income

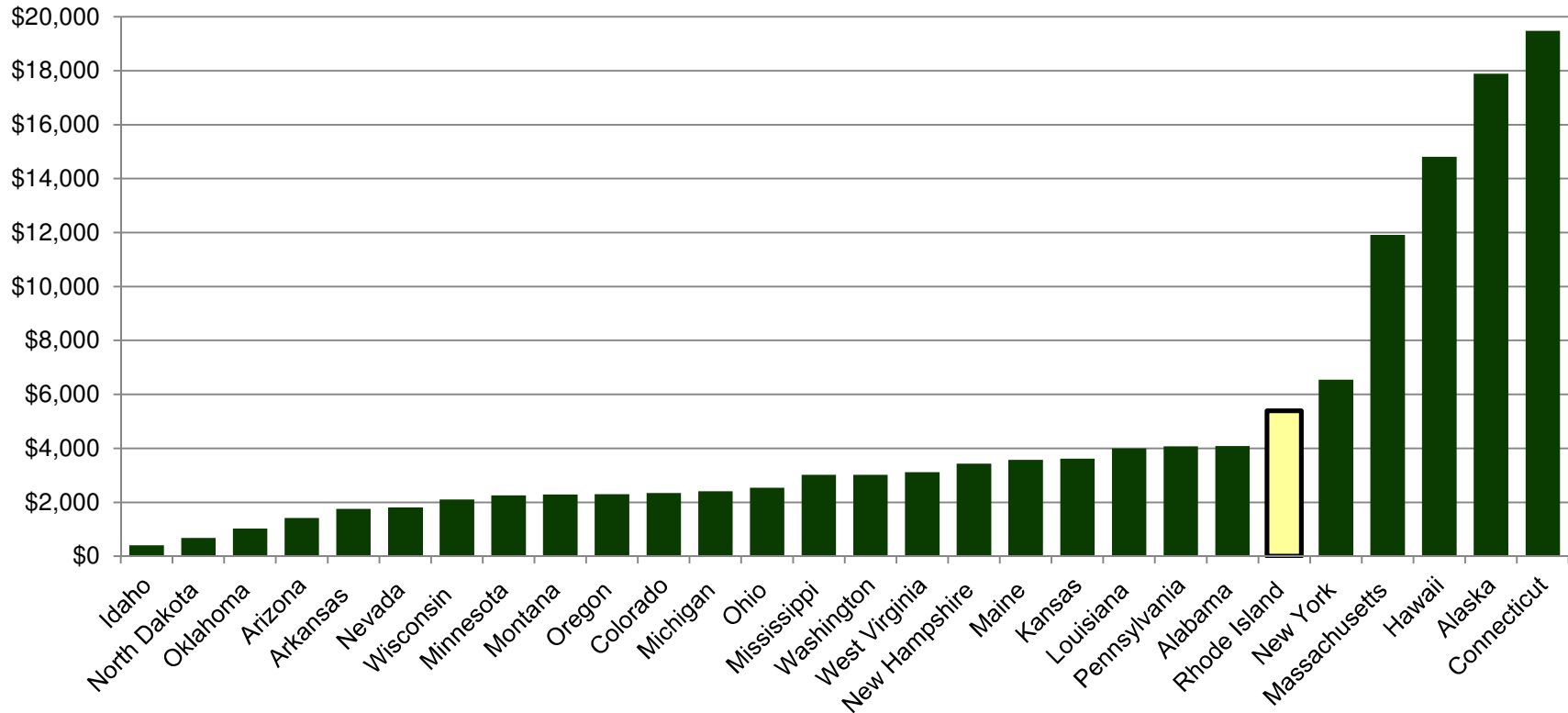


Source: Fitch 2016 State Pension Update, November 15, 2016.

S&P's Double A Total State Debt and Liabilities



Standard & Poor's Total State Debt and Liabilities Per Capita



Source: Standard & Poor's U.S. State Pensions: Weak Market Returns Will Contribute to Rise in Expense, September 12, 2016.

Recommended Debt Affordability Measures



- Debt Service on Net Tax-Supported Debt to 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
- Net Tax-Supported Debt Service + Pension ARC as a percentage of General Revenues
- Net Tax-Supported Debt + Net Pension Liability as a percentage of Personal Income
- Pension ARC and OPEB ARC should be funded at 100%

Outstanding Tax-Supported Debt and Pension Liabilities



**Outstanding Tax-Supported Debt Service
(as of June 30, 2016)**

**PFMB Guidelines:
Debt Service to General Revenues Less Than 7.5%
Tax-Supported Debt to Personal Income: 5.0% to 6.0%**

Debt + Pension Ratios

Fiscal Year	Principal	Interest	Debt Service	General Revenues	Outstanding Tax-Supported DS to Revenues	Personal Income	Tax-Supported Debt to Personal Income	Pension ARC	Tax-Supported DS + Pension ARC to Revenues	Net Pension Liability	Tax-Supported Debt + Net Pension Liability to Personal Income
2017	131,985,034	84,071,460	216,056,494	3,674,742,668	5.88%	56,094,000,000	3.13%	290,750,000	13.79%	2,907,298,000	8.31%
2018	162,295,675	77,971,676	240,267,351	3,737,237,978	6.43%	58,565,000,000	2.77%	298,680,000	14.42%	2,907,298,000	7.74%
2019	147,705,806	69,952,591	217,658,397	3,745,894,748	5.81%	60,874,000,000	2.40%	302,180,000	13.88%	2,907,298,000	7.18%
2020	155,970,838	62,591,425	218,562,263	3,794,833,717	5.76%	62,726,000,000	2.09%	309,600,000	13.92%	2,907,298,000	6.73%
2021	154,254,658	55,040,358	209,295,016	3,847,663,594	5.44%	64,566,000,000	1.79%	318,470,000	13.72%	2,907,298,000	6.30%
2022	136,318,928	47,841,639	184,160,567	3,866,901,912	4.76%	66,610,000,000	1.51%	328,600,000	13.26%	2,907,298,000	5.87%
2023	159,705,655	41,381,021	201,086,676	3,886,236,422	5.17%	68,755,000,000	1.26%	338,910,000	13.90%	2,907,298,000	5.49%
2024	128,310,827	43,016,928	171,327,755	3,905,667,604	4.39%	70,817,000,000	1.00%	347,960,000	13.30%	2,907,298,000	5.10%
2025	111,634,697	27,966,500	139,601,197	3,925,195,942	3.56%	72,941,000,000	0.79%	356,970,000	12.65%	2,907,298,000	4.78%
2026	105,182,537	22,646,605	127,829,142	3,944,821,921	3.24%	75,129,000,000	0.62%	366,213,303	12.52%	2,907,298,000	4.49%
2027	90,759,641	17,659,329	108,418,970	3,964,546,031	2.73%	77,382,000,000	0.47%	375,695,950	12.21%	2,907,298,000	4.22%
2028	58,185,000	12,439,973	70,624,973	3,984,368,761	1.77%	79,703,000,000	0.34%	385,424,139	11.45%	2,907,298,000	3.99%
2029	43,785,000	9,917,812	53,702,812	4,004,290,605	1.34%	82,094,000,000	0.26%	395,404,227	11.22%	2,907,298,000	3.80%
2030	43,385,000	7,591,012	50,976,012	4,024,312,058	1.27%	84,556,000,000	0.20%	405,642,737	11.35%	2,907,298,000	3.64%
2031	31,985,000	5,322,108	37,307,108	4,044,433,618	0.92%	87,092,000,000	0.14%	416,146,361	11.21%	2,907,298,000	3.48%
2032	33,565,000	3,750,377	37,315,377	4,064,655,786	0.92%	89,704,000,000	0.10%	426,921,964	11.42%	2,907,298,000	3.35%
2033	23,020,000	2,450,225	25,470,225	4,084,979,065	0.62%	92,395,000,000	0.07%	437,976,588	11.35%	2,907,298,000	3.21%
2034	17,910,000	1,520,056	19,430,056	4,105,403,961	0.47%	95,166,000,000	0.04%	449,317,458	11.42%	2,907,298,000	3.09%
2035	14,620,000	761,184	15,381,184	4,125,930,980	0.37%	98,020,000,000	0.02%	460,951,985	11.54%	2,907,298,000	2.99%
2036	4,805,000	144,150	4,949,150	4,146,560,635	0.12%	100,960,000,000	0.005%	472,887,775	11.52%	2,907,298,000	2.88%
	1,755,384,296	594,036,427	2,349,420,723								

Revenue Growth After 2021	0.50%
Personal Income Growth After 2023	3.00%
Population (2015)	1,056,298
Gross State Product (2016- 1st Quarter) (000s)	58,295,000

Rapidity of Repayment	
5 Years	42.85%
10 Years	79.38%
20 Years	100.00%