Debt Affordability Committee

FY2020 Meeting #2

14 November 2018

Recognizing the value of the Debt Affordability process

- An annual debt affordability review acts as a primary tool for maintenance of a set of strong financial management practices
- Specifically, a periodic analysis of the affordability of debt levels provides key internal benefits to the Commonwealth
  - Ensures that the financing costs as a percentage of the operating budget are kept at manageable levels
  - Forces the setting of priorities due to the limited nature of available funds
- The reviews are also viewed as a responsible practice and credit positive by rating agencies and internal credit analysts
  - *"Strong financial, debt, and budget management policies, including annualized formal debt affordability statements, and multiyear capital investment planning…"*
    S&P Report, August 2018
  - *"The commonwealth's governance policies and practices are strong… The commonwealth also conducts a debt affordability analysis and reports its audited financial results on a timely basis."*
    Moody's Report, August 2018
  - *"Massachusetts' 'AA+' reflects considerable economic resources, strong budget controls and a record of careful financial management. The Commonwealth carries a long-term liability burden that is well above average for a U.S. state but remains a moderate burden on resources."*
    Fitch Report, August 2018

Debt Affordability Committee (DAC) Meeting #2 Agenda

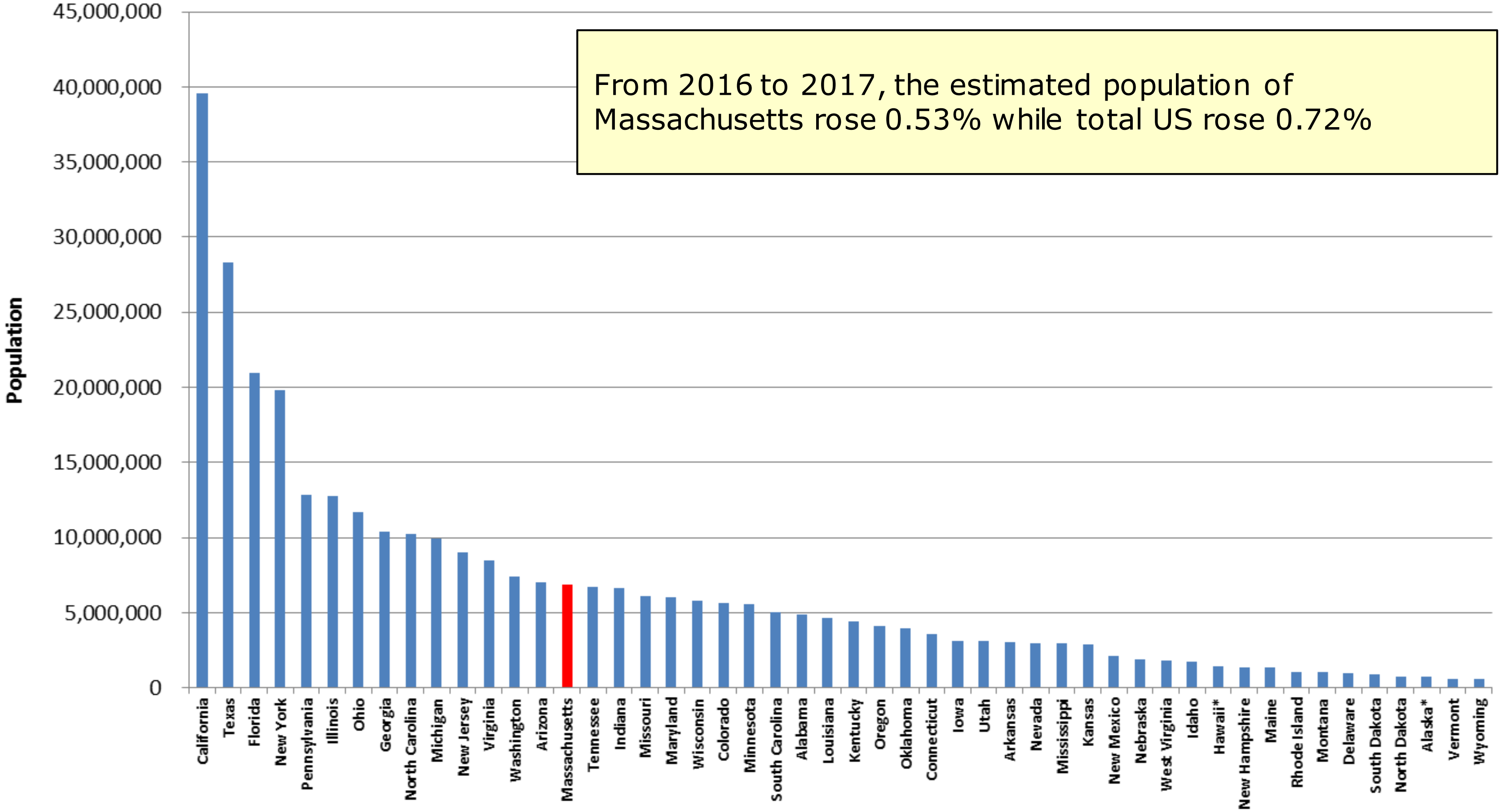
- **Discuss assumptions**
  - Economic updates
  - Revenue
  - Rates & issuance
- **Review affordability ratios**
  - Comparisons with other states
  - Projected Ratios
- **Model output: Debt Affordability projections**
  - Base case
  - Two sample stress tests
  - "Live test" opportunity in the meeting

Assumptions: Budget*

Measure	Assumption	Rationale	Stress Test
Underlying economic conditions: Massachusetts performance versus other states continues to be strong			
Revenue Growth	3.25% annual increase	See appendix. Based on annual experience and long-term CAGRS.	3.0% increase/year
Pension	8.95% annual increase in transfer from FY18 until final amortization FY36; normal cost thereafter	New funding schedule based on most recent valuation implemented in FY18	9.5%/year increase required in next funding schedule (FY21+)
MassHealth	5% growth through FY20, 4% thereafter	9% net growth, 6.5% gross growth since FY10, but slowed to 1.7% net/4.9% gross since FY15	5% growth indefinitely
Local Aid & Chapter 70	3.15%	Blended rate based on past 6 years	3.25% (equal to revenue growth)
Existing Debt Service	Paid down at current schedule	Best working assumption	same

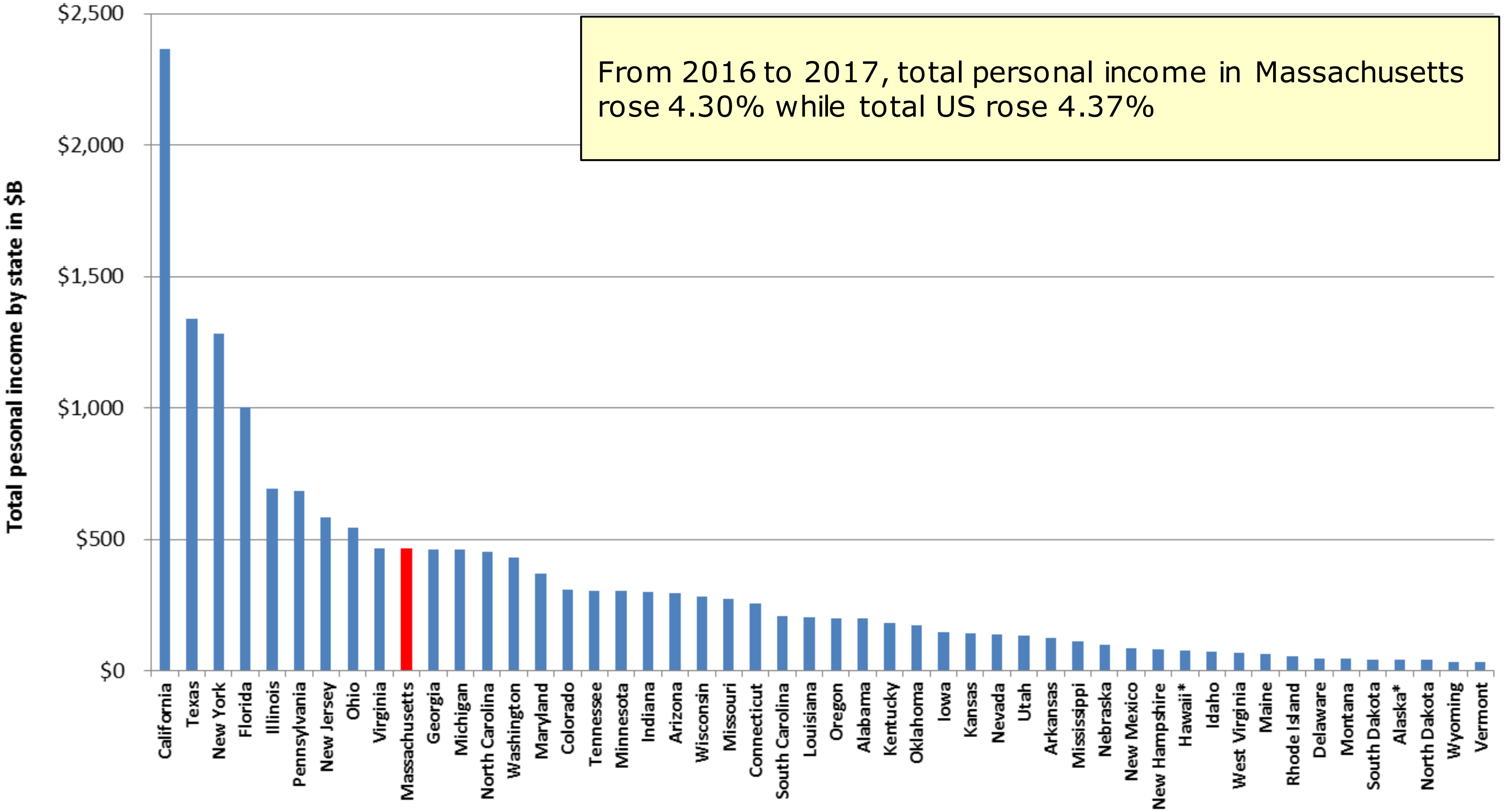
**** Note that the budget assumptions shown are conservative outlooks for later periods, developed for the DAC process only. They do not represent targets or projections. A&F is currently engaged in budget modeling that will be reflected in subsequent presentations.***

Population 2017



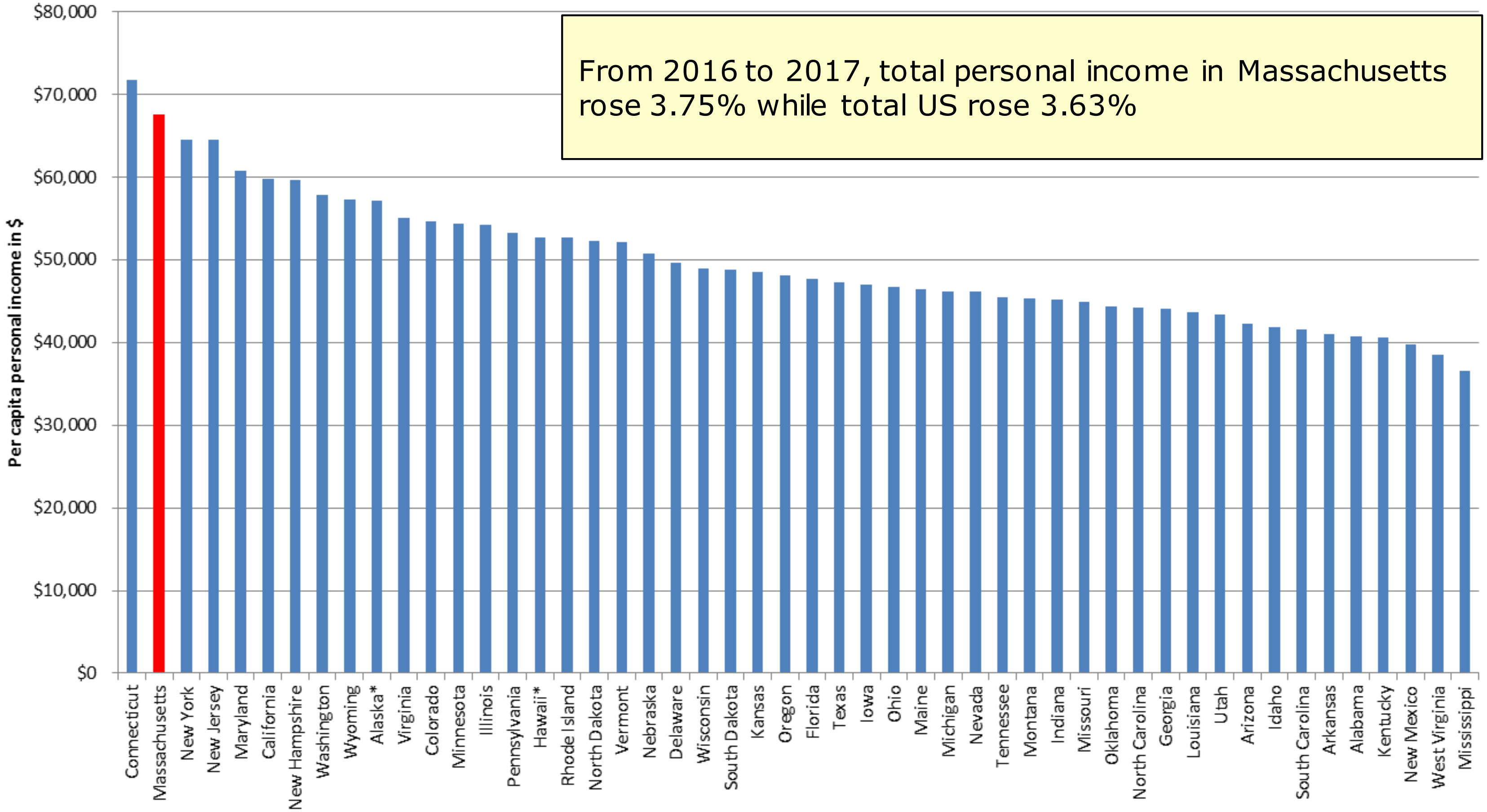
Source: BEA data, A&F charting

Personal Income 2017



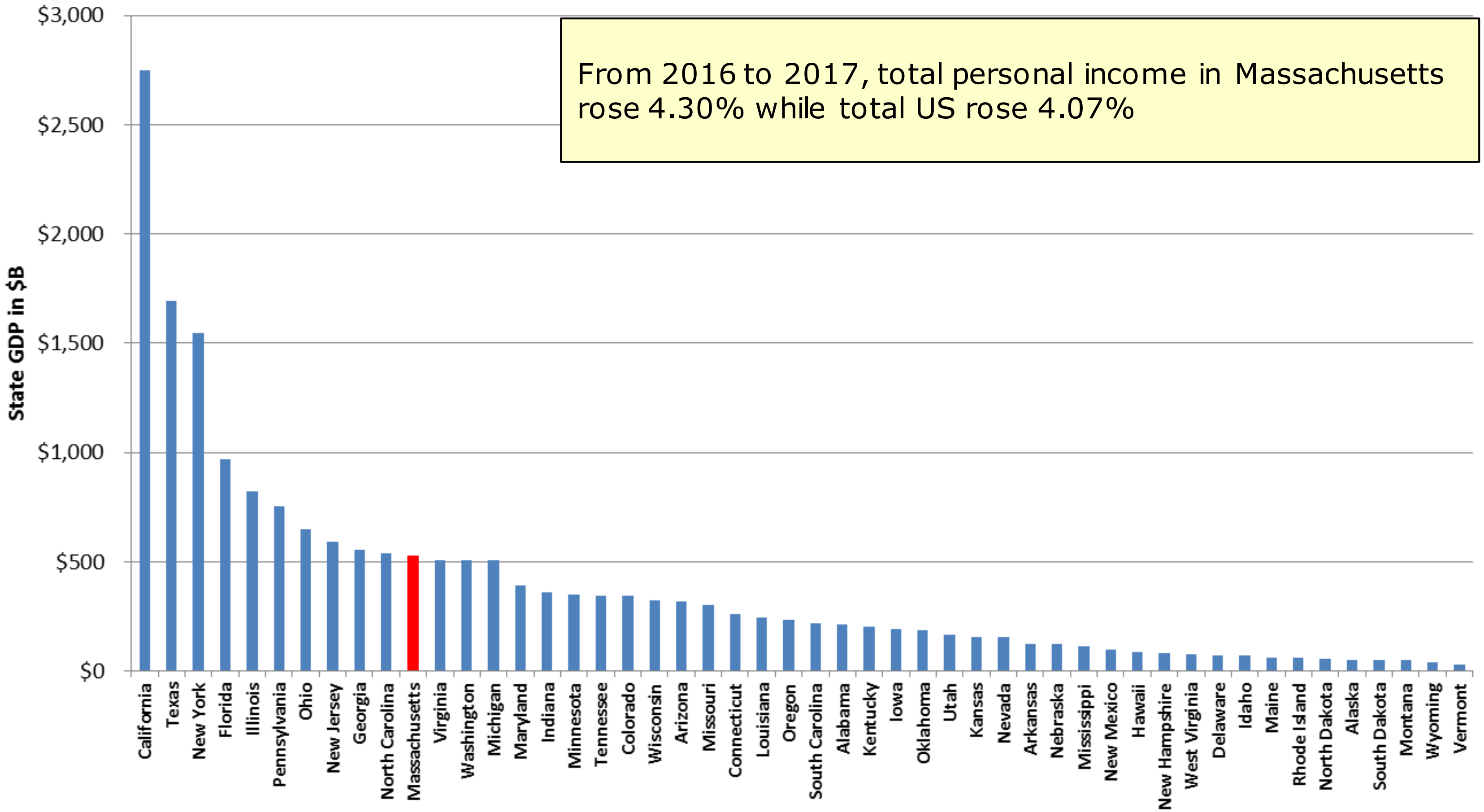
Source: BEA data, A&F charting

Per Capital Personal Income 2017



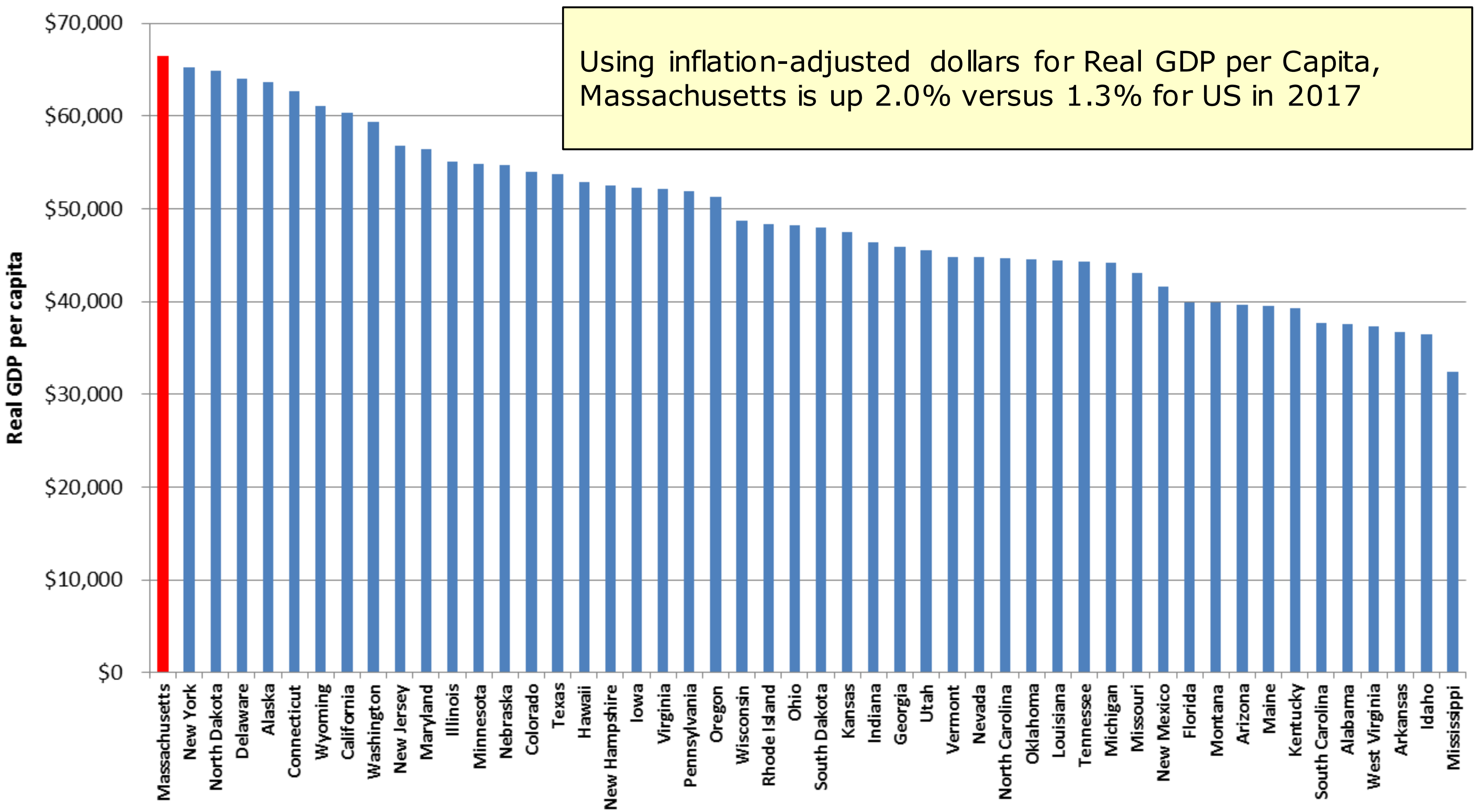
Source: BEA data, A&F charting

Gross Domestic Product 2017



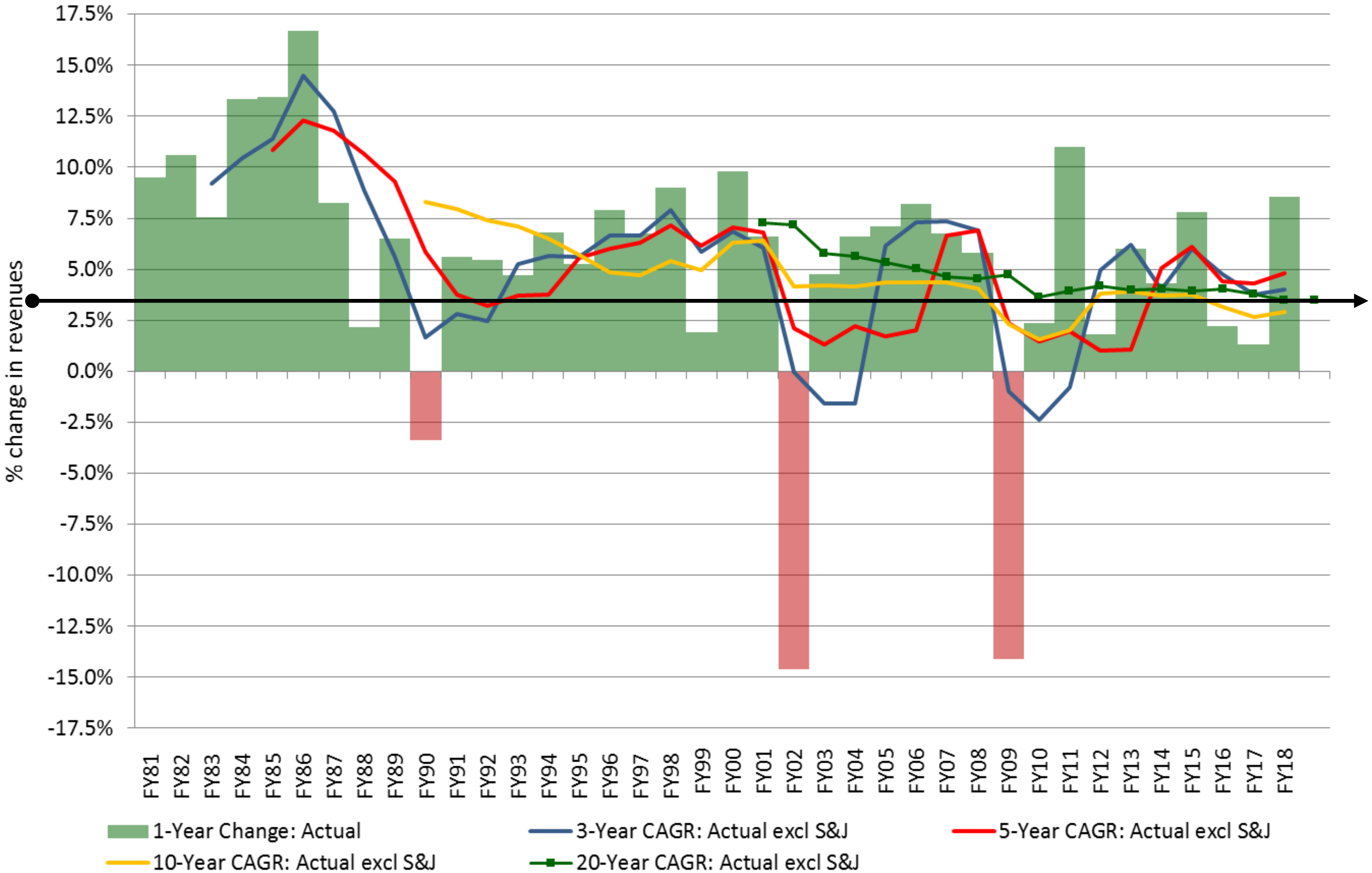
Source: BEA data, A&F charting

Per Capital Real Gross Domestic Product 2017



Source: BEA data, A&F charting

Revenue trends over time



Growth is 3.25% or more in most years and most CAGR observations, but not all. In addition to recessions (2001, 2008) that impact CAGR for long periods, there are weaker years such as FY16 and FY17.

Source: DOR data, A&F charting

Revenue detail with actual and baseline growth

CAGR periods with growth <3.25% are highlighted

	1-Year Change: Actual	1-Year Change: Baseline	3-Year CAGR: Actual excl S&J	3-Year CAGR: Baseline excl S&J	5-Year CAGR: Actual excl S&J	5-Year CAGR: Baseline excl S&J	10-Year CAGR: Actual excl S&J	10-Year CAGR: Baseline excl S&J	20-Year CAGR: Actual excl S&J	20-Year CAGR: Baseline excl S&J
FY81	9.5%	9.0%								
FY82	10.6%	10.1%								
FY83	7.5%	7.5%	9.2%	8.9%						
FY84	13.3%	10.1%	10.5%	9.3%						
FY85	13.4%	13.4%	11.4%	10.3%	10.9%	10.0%				
FY86	16.7%	16.7%	14.5%	13.4%	12.3%	11.5%				
FY87	8.3%	10.3%	12.7%	13.4%	11.8%	11.6%				
FY88	2.1%	4.0%	8.9%	10.2%	10.7%	10.8%				
FY89	6.5%	5.0%	5.6%	6.4%	9.3%	9.8%				
FY90	-3.4%	-3.4%	1.7%	1.8%	5.8%	6.3%	8.3%	8.1%		
FY91	5.6%	-4.4%	2.8%	-1.0%	3.7%	2.2%	7.9%	6.7%		
FY92	5.4%	4.4%	2.5%	-1.2%	3.2%	1.0%	7.4%	6.2%		
FY93	4.7%	5.7%	5.2%	1.8%	3.7%	1.4%	7.1%	6.0%		
FY94	6.8%	6.6%	5.6%	5.6%	3.8%	1.7%	6.5%	5.6%		
FY95	5.3%	6.0%	5.6%	6.1%	5.6%	3.6%	5.7%	4.9%		
FY96	7.9%	9.1%	6.7%	7.2%	6.0%	6.3%	4.9%	4.2%		
FY97	6.8%	8.9%	6.6%	8.0%	6.3%	7.2%	4.7%	4.1%		
FY98	9.0%	12.3%	7.9%	10.1%	7.2%	8.6%	5.4%	4.9%		
FY99	1.9%	9.0%	5.9%	10.1%	6.1%	9.0%	4.9%	5.3%		
FY00	9.8%	10.1%	6.8%	10.5%	7.0%	9.9%	6.3%	6.7%	7.3%	7.4%
FY01	6.6%	10.9%	6.1%	10.0%	6.8%	10.2%	6.4%	8.3%	7.2%	7.5%
FY02	-14.6%	-12.1%	0.0%	2.4%	2.1%	5.6%	4.2%	6.4%	5.8%	6.3%
FY03	4.7%	-1.4%	-1.6%	-1.3%	1.3%	2.9%	4.2%	5.7%	5.6%	5.8%
FY04	6.6%	7.3%	-1.6%	-2.4%	2.2%	2.6%	4.2%	5.8%	5.3%	5.7%
FY05	7.1%	6.9%	6.1%	4.2%	1.7%	2.0%	4.3%	5.9%	5.0%	5.4%
FY06	8.2%	9.1%	7.3%	7.8%	2.0%	1.7%	4.4%	5.9%	4.6%	5.0%
FY07	6.8%	7.2%	7.4%	7.8%	6.7%	5.8%	4.4%	5.7%	4.6%	4.9%
FY08	5.8%	6.4%	6.9%	7.6%	6.9%	7.4%	4.1%	5.1%	4.7%	5.0%
FY09	-14.1%	-14.8%	-1.0%	-0.9%	2.4%	2.6%	2.3%	2.6%	3.6%	3.9%
FY10	2.4%	-2.6%	-2.4%	-4.1%	1.4%	0.7%	1.6%	1.3%	3.9%	4.0%
FY11	11.0%	9.6%	-0.8%	-3.1%	2.0%	0.8%	2.0%	1.2%	4.2%	4.7%
FY12	1.8%	2.9%	5.0%	3.2%	1.0%	-0.1%	3.8%	2.8%	4.0%	4.6%
FY13	6.0%	6.8%	6.2%	6.4%	1.0%	0.0%	3.9%	3.6%	4.1%	4.7%
FY14	4.3%	3.6%	4.0%	4.4%	5.0%	4.0%	3.7%	3.3%	3.9%	4.5%
FY15	7.8%	7.5%	6.0%	6.0%	6.1%	6.1%	3.8%	3.3%	4.1%	4.6%
FY16	2.2%	2.8%	4.7%	4.6%	4.4%	4.7%	3.2%	2.7%	3.8%	4.3%
FY17	1.3%	2.4%	3.7%	4.2%	4.3%	4.6%	2.6%	2.2%	3.5%	4.0%
FY18	8.6%	8.6%	4.0%	4.6%	4.8%	5.0%	2.9%	2.5%	3.5%	3.8%

Source: DOR data, A&F analysis

Assumptions: Issuance

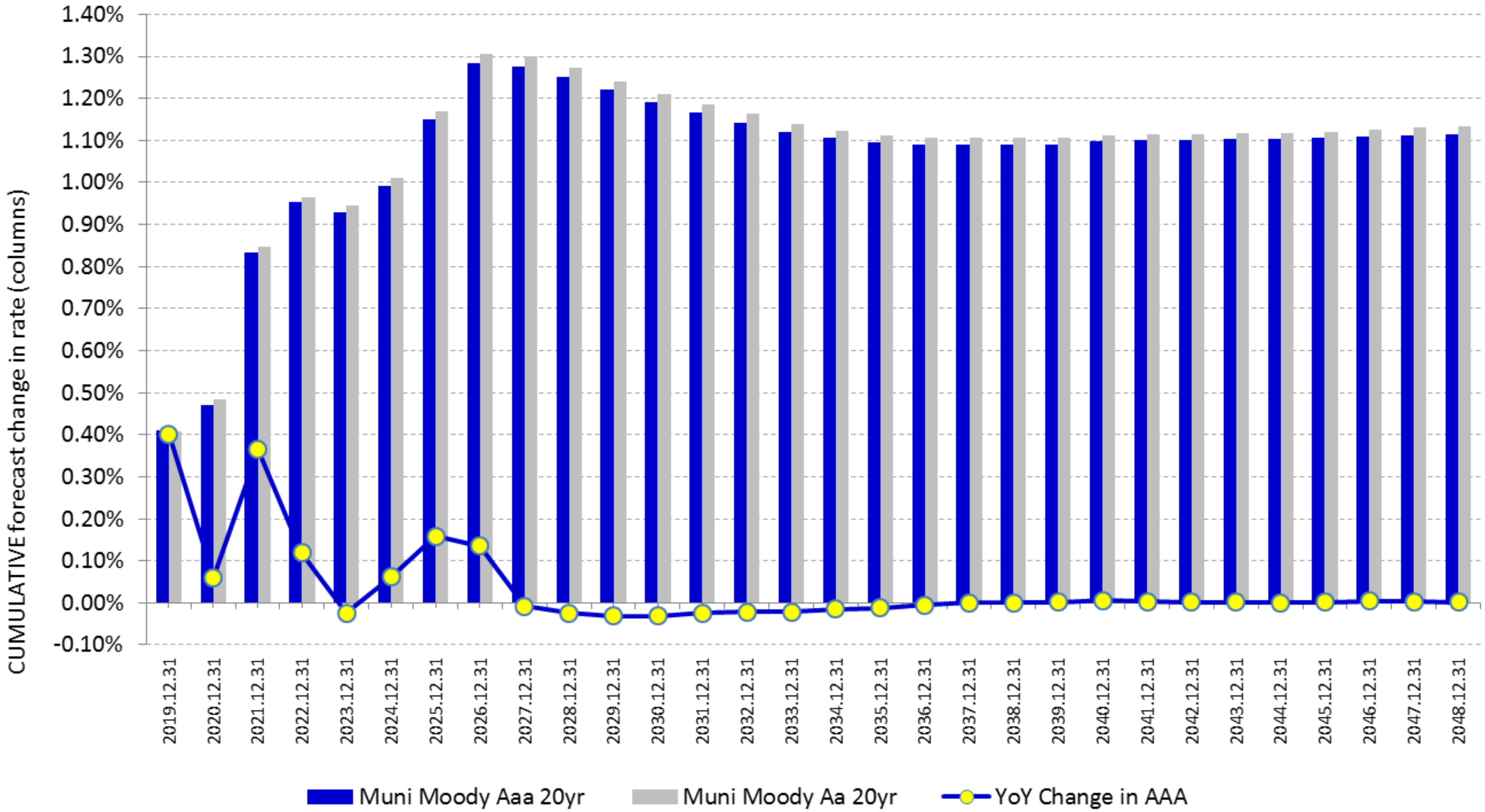
Measure	Base Assumption	Rationale	"Stress Test" Assumptions
Interest rate assumptions	40bp increase/year for 4 years Flat thereafter	Expect meaningful rise in rates in the short term	+50 bps/year

We are testing different rate assumptions for 10, 20, and 30 maturities

Debt Service	Level debt service +Contract Assistance	Abstracts past serial issuance, proceeds vs. par, doesn't push off estimated impact	Same
Bond cap issuance	$2.340 /year through 2024, 3% thereafter	Current capital plan	Bond cap +$125M/year FY19-23, 3% thereafter
Schedule Obligation issuance	Follow CTF schedule	Remainder of authorization for CTF bonds, including $100M FY18	Same
Self-Supporting Issuance	$70 M/year, falling to $50 M after FY20	Based on recent spending levels	Same

Interest rate outlook from Moody's (draft)

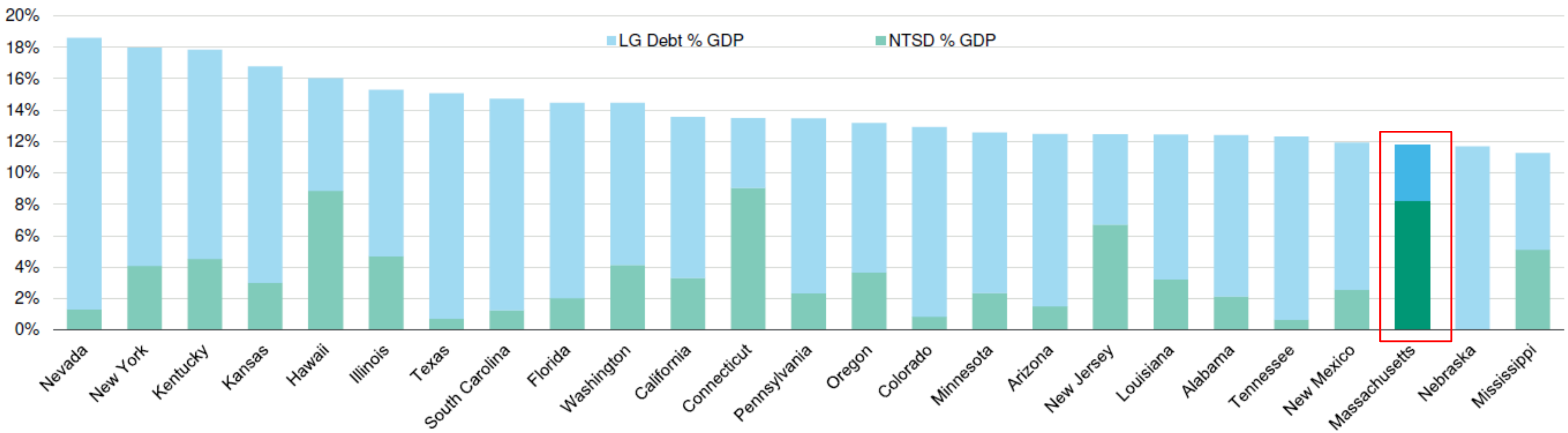
- Draft: analysis and interpretation is a work in process
- This outlook is that rates will move upward relatively quickly for a few years, reaching the historical range after years of low rates, is in alignment with many market observers.
- We are seeking to understand why the projections are not smoother in the 2022-2025 period



Source: DOR provided Moody's data; A&F analysis

Total State and Local Government Debt Burden

State Net Tax Supported Debt (NTSD) plus local government debt as a % of GDP



1. Net tax-supported debt reached $41.7 billion as of Moody's 2018 state debt medians report, comprised primarily of general obligation bonds (54%) but also includes sales tax backed debt for other underlying entities (25%). The state's debt levels ranked second highest among the 50 states on a per-capita basis (Approximately $6,085, as estimated by Moody's), exceeded only by Connecticut.

2. Debt is elevated in part due to the Commonwealth's practice of financing projects for local governments, including a robust school district capital bonding program ($6.0 billion) and debt for the Massachusetts Bay Transportation Authority ($4.2 billion)

Source: Moody's Investors Services "Massachusetts (Commonwealth of) Update to credit analysis", August 10, 2018 (State NTSD debt data as of fiscal 2017 as reported by Moody's; Local Government debt data as of fiscal 2016 as reported by US Census; GDP data as of 2016. State NTSD data from Moody's Investors Service; Local Government debt data from US Census; GDP from US Bureau of Economic Analysis.

Rating View – Moody's

Moody's maintains a current rating of Aa1 (stable) and provides the following commentary (August 2018):

Credit Strengths

- Long term economic growth, with stronger job, wage and income gains relative to the nation as a whole
- Strong financial management practices, particularly willingness to close budget gaps quickly through spending cuts, revenue increases and use of reserves
- Adequate reserves and commitment to maintain at a healthy level

Credit Challenges

- Combined debt and pension liabilities, relative to GDP, are sixth highest in the nation
- Aging demographic profile with overall population growth that lags the nation

Rating View – S&P

S&P maintains a current rating of AA (stable) and provides the following commentary (August 2018):

Credit Strengths

- Deep and diverse economy, which continues to outperform the nation on several economic indicators;
- High income levels, with per capita income at 131% of the nation in 2017;
- Timely monitoring of revenues and expenditures and swift action when needed to make adjustments;
- Strong financial, debt, and budget management policies, including annualized formal debt affordability statements, and multiyear capital investment planning

Credit Challenges

- High debt, pension, and other postemployment benefit (OPEB) liabilities

Rating View – Fitch

Fitch maintains a current rating of AA+ (stable) and provides the following commentary (August 2018):

Credit Strengths

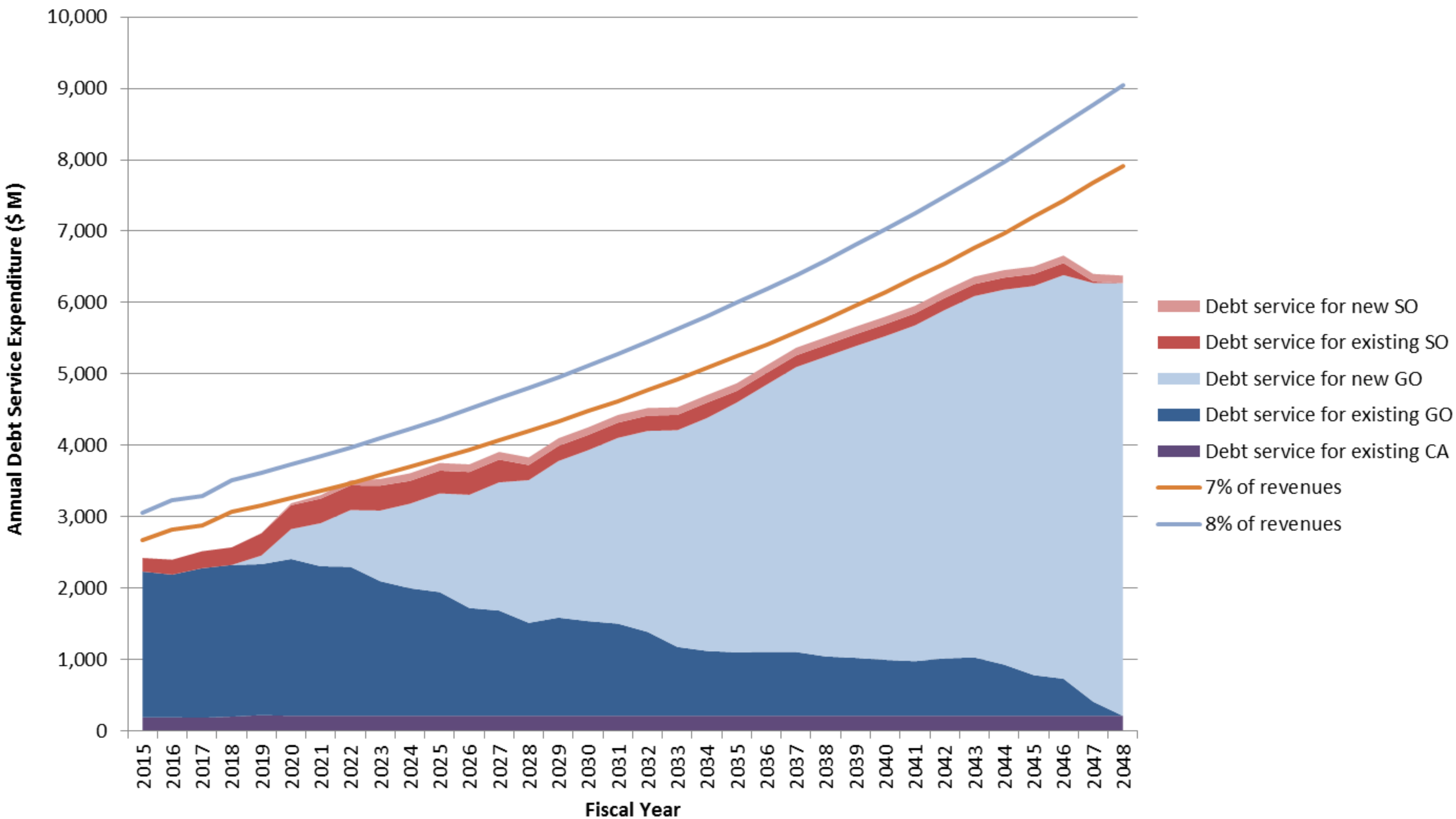
- Considerable economic resources, strong budget controls and a record of careful financial management.
- The Commonwealth has a broad and diverse economy. Employment growth is solid, education levels are high, and population growth has approximated that of the U.S. this decade.

Credit Challenges

- Economic performance has been highly sensitive to national trends.
- The Commonwealth carries a long-term liability burden that is well above average for a U.S. state but remains a moderate burden on resources.

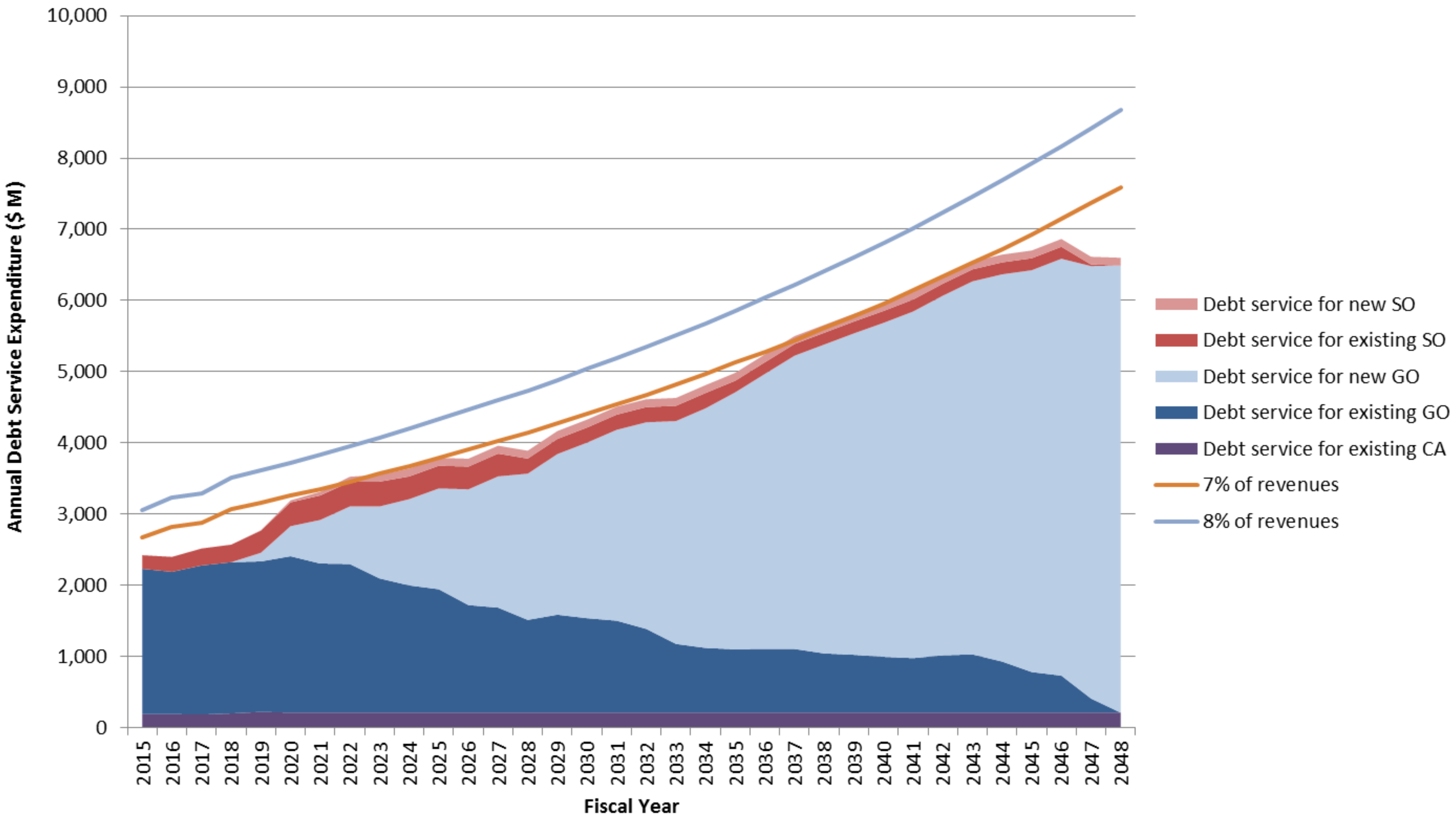
Initial projection: base case

40 bps annual rate increase and 3.25% revenue growth



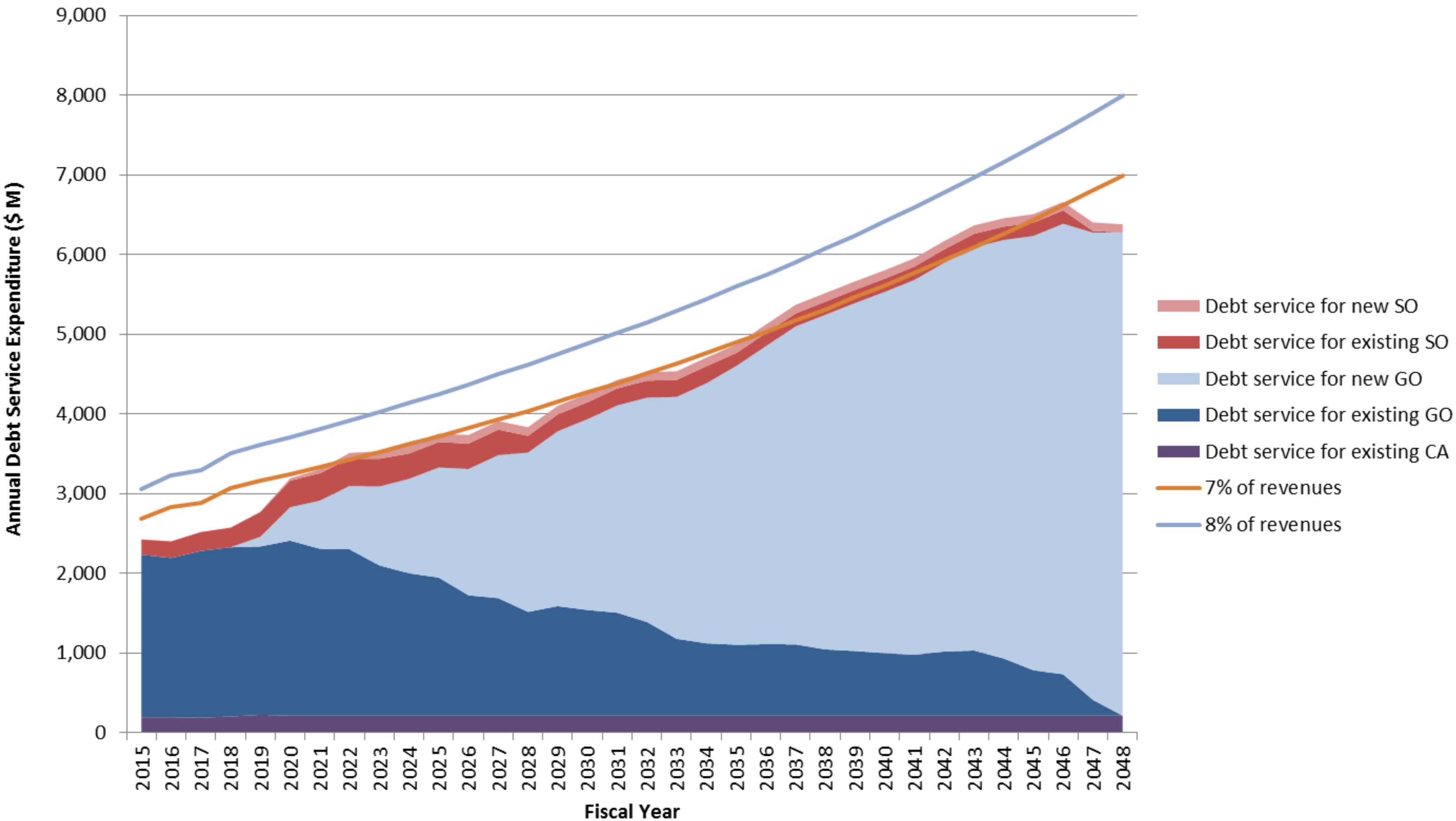
Initial projection: stress test 1

50 bps annual rate increase and 3.0% revenue growth



Initial projection: stress test 2

40 bps annual rate increase and 2.5% revenue growth



Opportunity for live testing