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South Dakota Department of Labor

COLA Policy Considerations

Summary

- The South Dakota DOL Retirement Plan Board is considering changing the Cost-of-Living Adjustment (COLA) policy
- This presentation is intended to provide participants an understanding of the options under consideration
- Slides 2-5 provide background on the current COLA policy and the two options under consideration
- Slides 6-15 provide projections under various scenarios of the annual COLA and expected benefit payments of a sample retiree over the next 18 years

Cost-of-Living Adjustment (COLA)

The current policy grants retirees and beneficiaries COLAs if the plan is fully funded on the determination date. The amount of COLA is the annual percentage change in CPI-W, not less than 3.1%, up to a maximum of 4.5%.

As illustrated on slide 3, the current COLA policy that has been in place since 1999 has provided higher increases than inflation, measured by annual changes in Consumer Price Index (CPI).

Due to increases in the plan's unfunded actuarial accrued liability, no COLAs are expected to be paid for the next four years under the current policy.

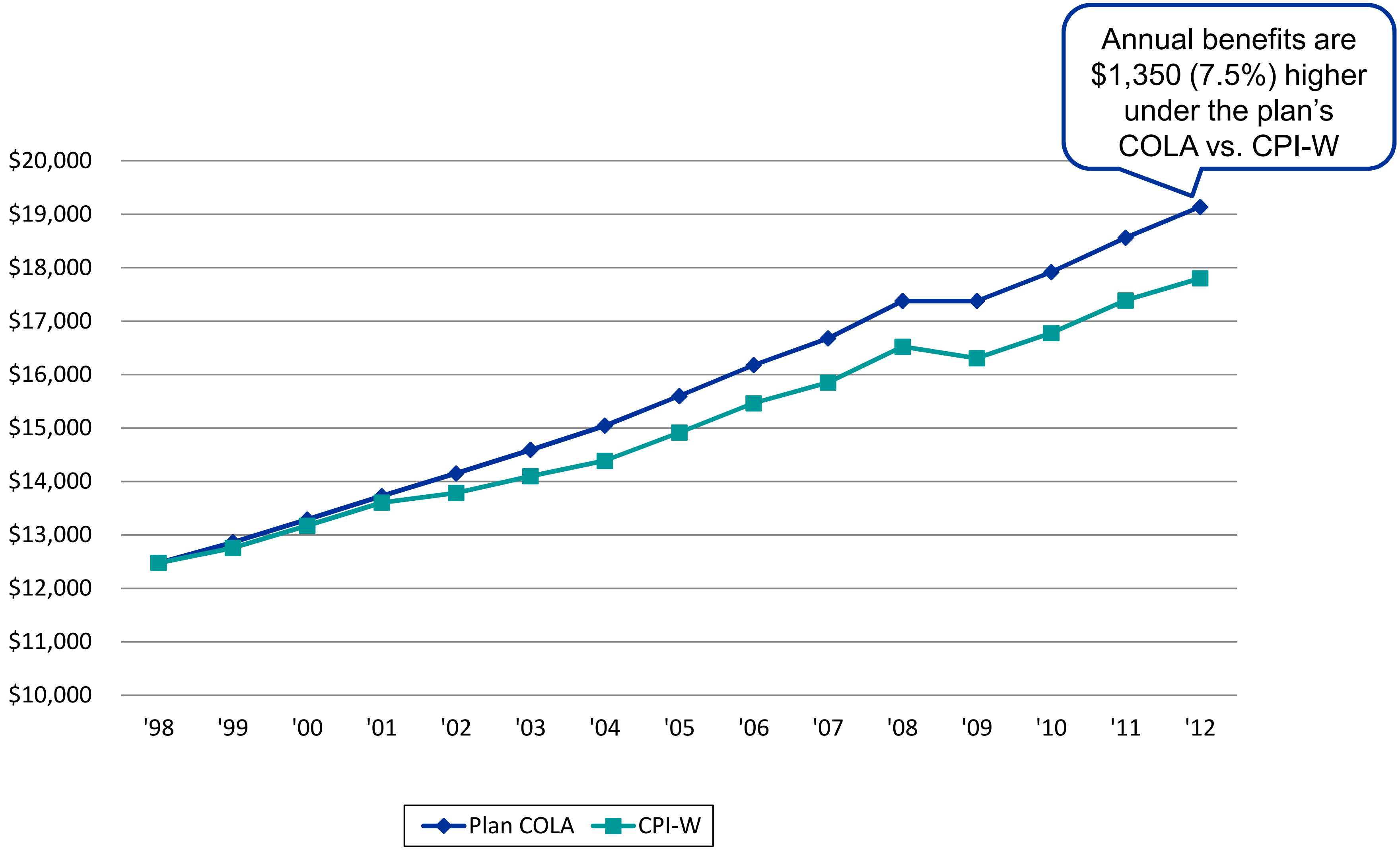
In order to meet the goals of maintaining sufficient assets to pay benefits and protecting annuity payments against inflation, South Dakota DOL is considering changes to the plan's COLA policy. The options being considered are:

1. CPI up to a maximum of 2.1%, 2.5%, or 3.0%

2. Asset based increases

COLA options are considered together with South Dakota DOL's ultimate intention of purchasing annuities to transfer all of the plan's liabilities to an insurance company when it is affordable.

Sample Annual Benefit for pre-1999 Retiree*
Comparing Actual COLA Paid to Inflation (CPI)



*Sample retiree based on $1,600 monthly benefit in 2012

Cost-of-Living Adjustments (COLA) Policy – Option 1

CPI up to a maximum of 2.1%, 2.5% or 3.0%

COLAs are granted to retirees and beneficiaries if the plan is fully funded on the determination date.

The amount of COLA is the annual percentage change in CPI-W, not less than zero, up to a maximum of 2.1%, 2.5% or 3.0%.

Under the 2.1% option, COLAs are expected to be paid every year assuming average asset performance. If the current economic environment continues, COLAs are expected to be consistent with inflation. However, it is possible for COLAs to be below CPI-W if it is higher than 2.1%.

Under the 2.5% option, COLAs are expected to be paid for all but one of the next eight years assuming average asset performance as illustrated on slide 12. The higher maximum on the COLA will provide additional protection against high inflation.

Under the 3.0% option, COLAs are expected to be paid for all but two of the next eight years (the first being 2013) assuming average asset performance as illustrated on slide 12. The higher maximum on the COLA will provide additional protection against high inflation.

Cost-of-Living Adjustments (COLA) Policy – Option 2

<u>Asset based increases</u>

Increases are granted if the plan is fully funded on the determination date using annuity based assumptions.

The amount of increases granted to retirees and beneficiaries are determined based on the amount the plan can afford on the determination date, up to a maximum of 3.5%.

While this is a more conservative approach that will initially result in lower adjustments, increases are expected to be paid every year instead of none in the case of below average asset performance.

This option is consistent with how COLAs will be determined when the plan purchases annuities in the future.

The increases are not related to inflation. They are only related to what the plan can afford to pay.

Projected COLA and Sample Annual Benefit Assuming Annuity Purchase in 2022

The graphs on the next few slides illustrate the projected COLA under two scenarios:

- Expected: average rate of return on investments
- 25th Percentile: below average rate of return on investments

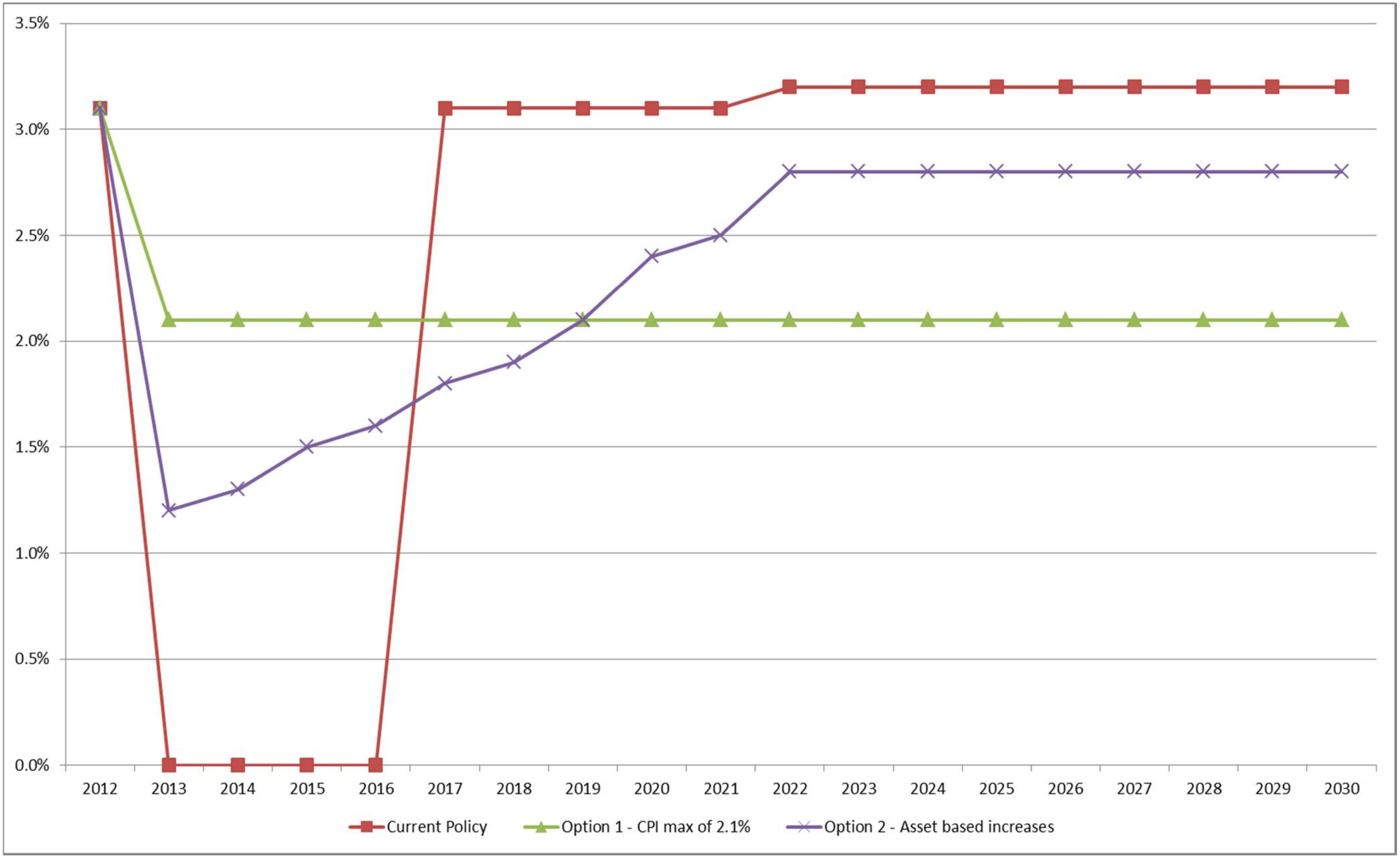
The graphs are shown two ways:

- The COLA % for each year
- Annual benefit payments for a sample retiree

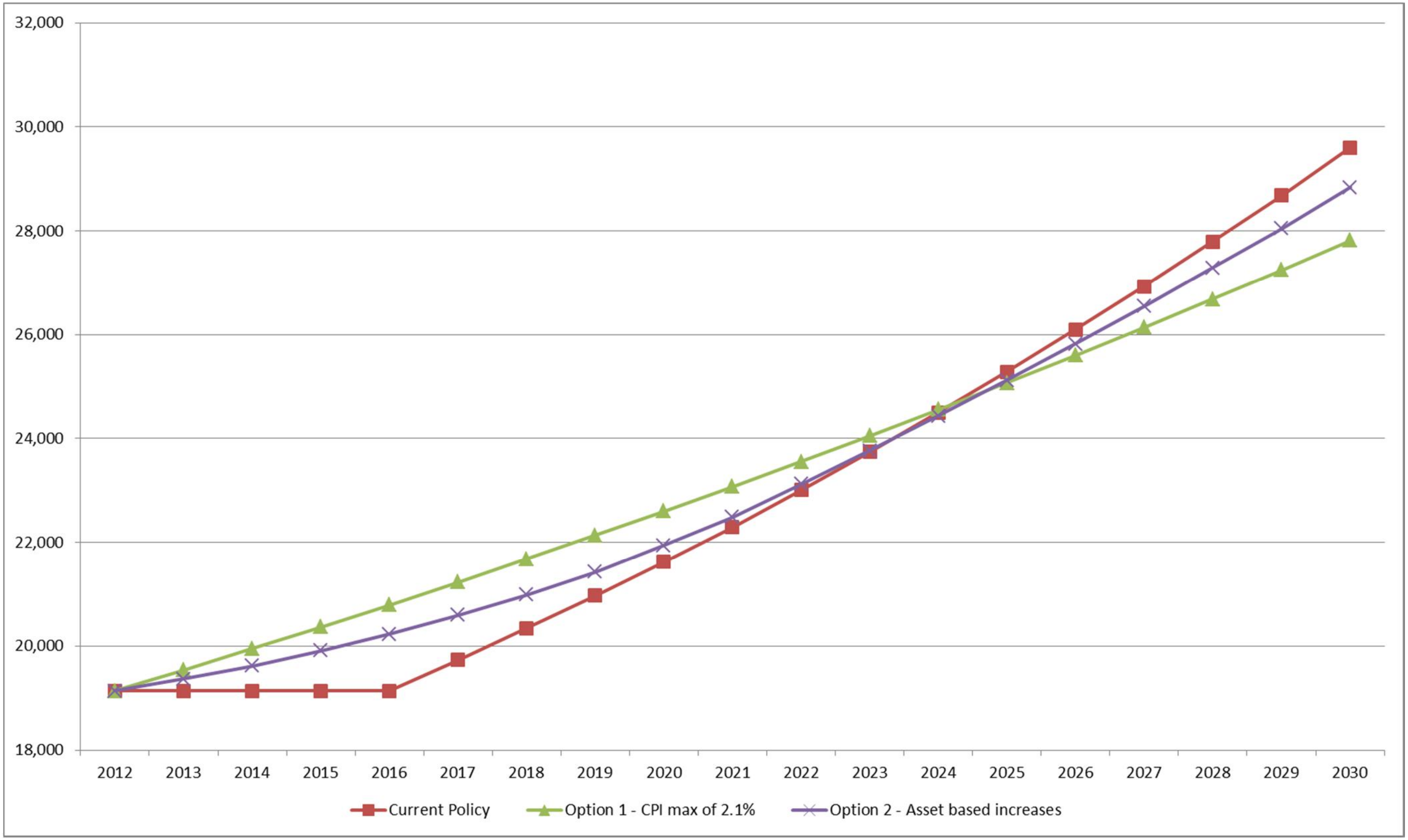
The graphs assume the Board will purchase annuities in 2022. The plan assets would first be used to pay for the cost of all future benefit payments based on the monthly annuities in force at that time. The remaining plan assets, if any, would then be used to purchase a fixed annual COLA for the remaining lifetime of each retiree and beneficiary. Therefore, the COLAs would not change after 2022, as illustrated in the graphs.

The first set of graphs compare the current policy with Option 1 using a 2.1% maximum and Option 2. The comparisons with Option 1 using a 2.5% and 3.0% maximum can be found starting on slide 12.

Projected COLA Assuming Annuity Purchase in 2022
Asset Returns – Expected (~6.5% annually over 20 Years)

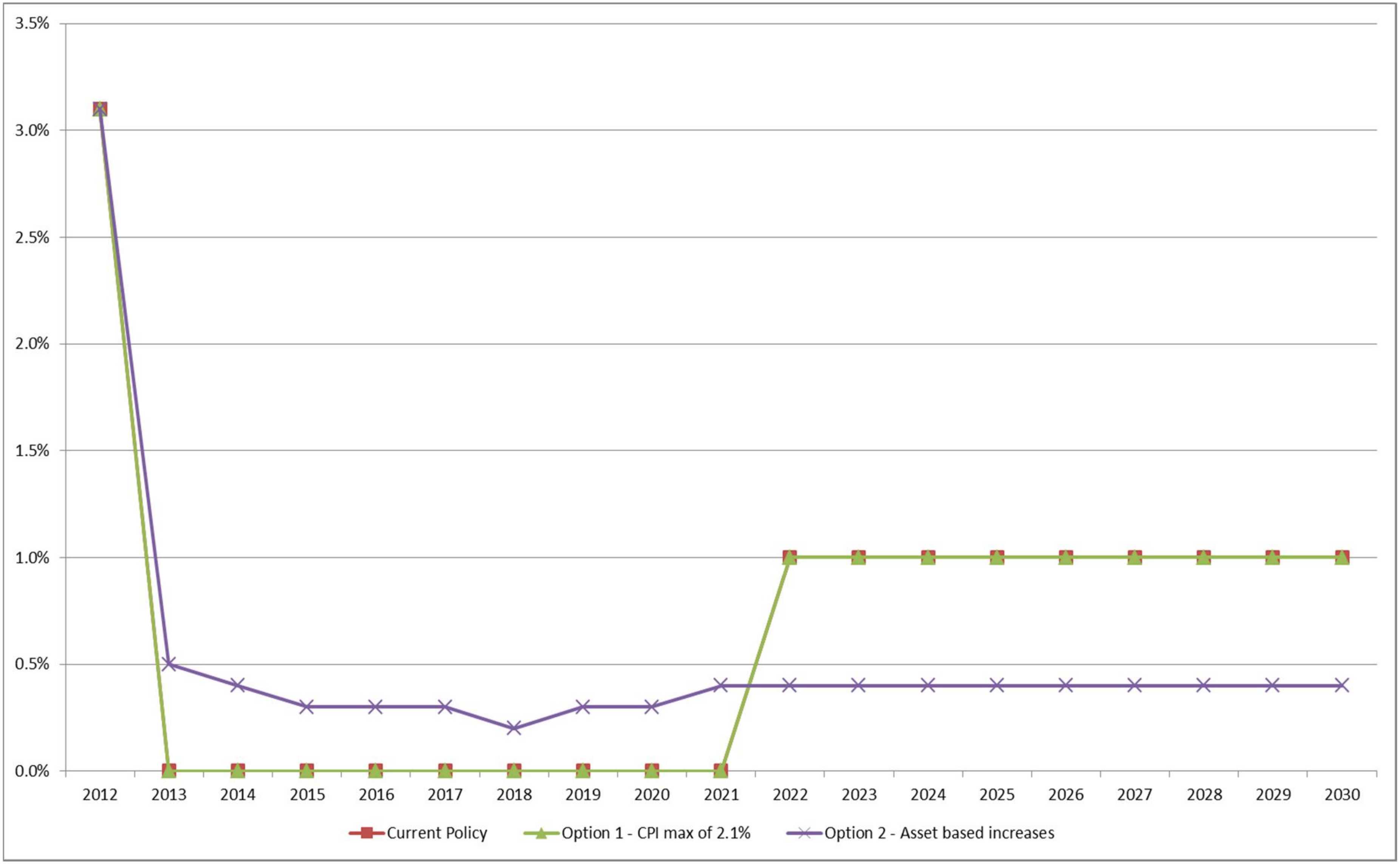


Sample Annual Benefit* Assuming Annuity Purchase in 2022 Asset Returns – Expected (~6.5% annually over 20 Years)

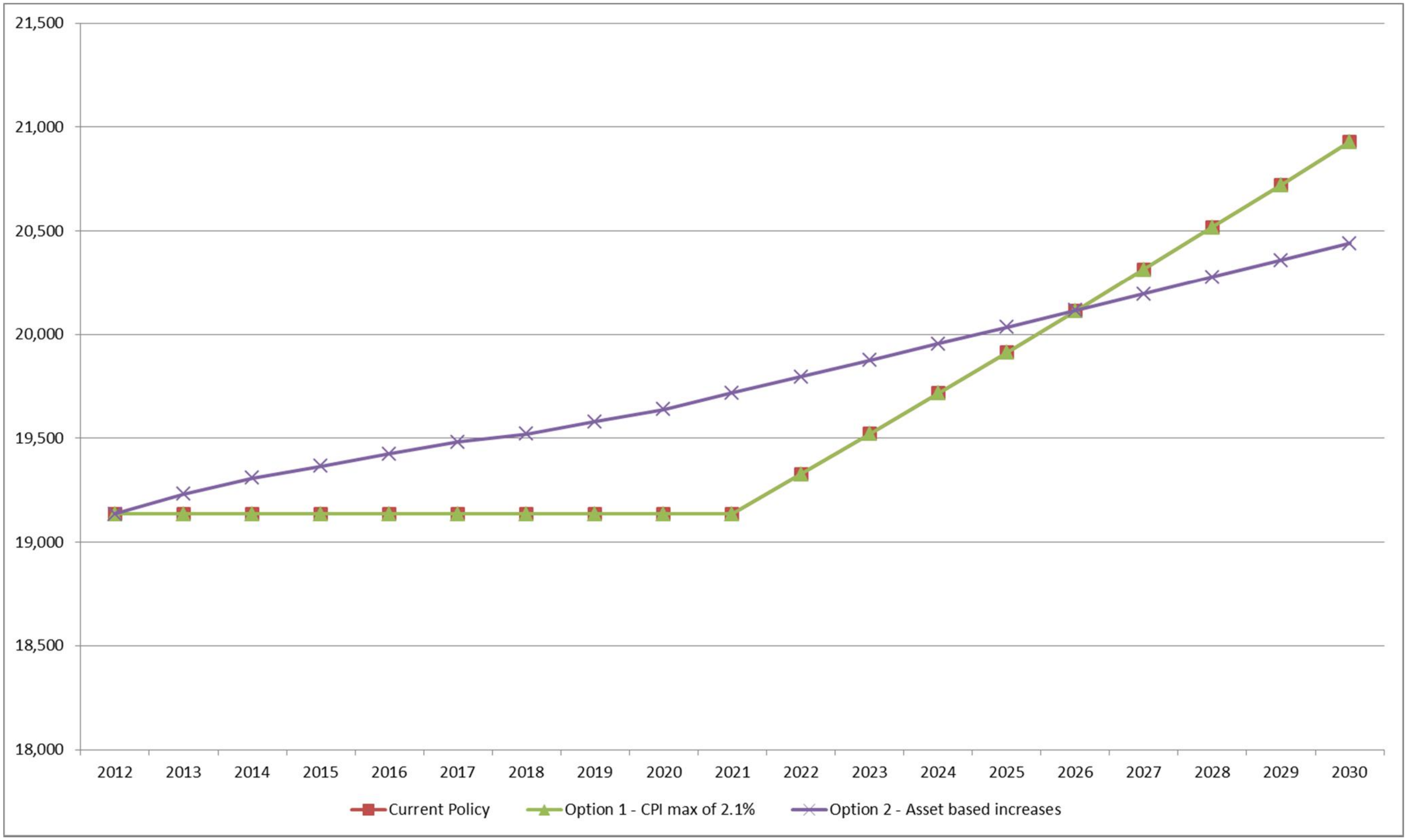


*Sample retiree based on $1,600 monthly benefit in 2012

Projected COLA Assuming Annuity Purchase in 2022
Asset Returns – 25th Percentile (~5.0% annually over 20 Years)



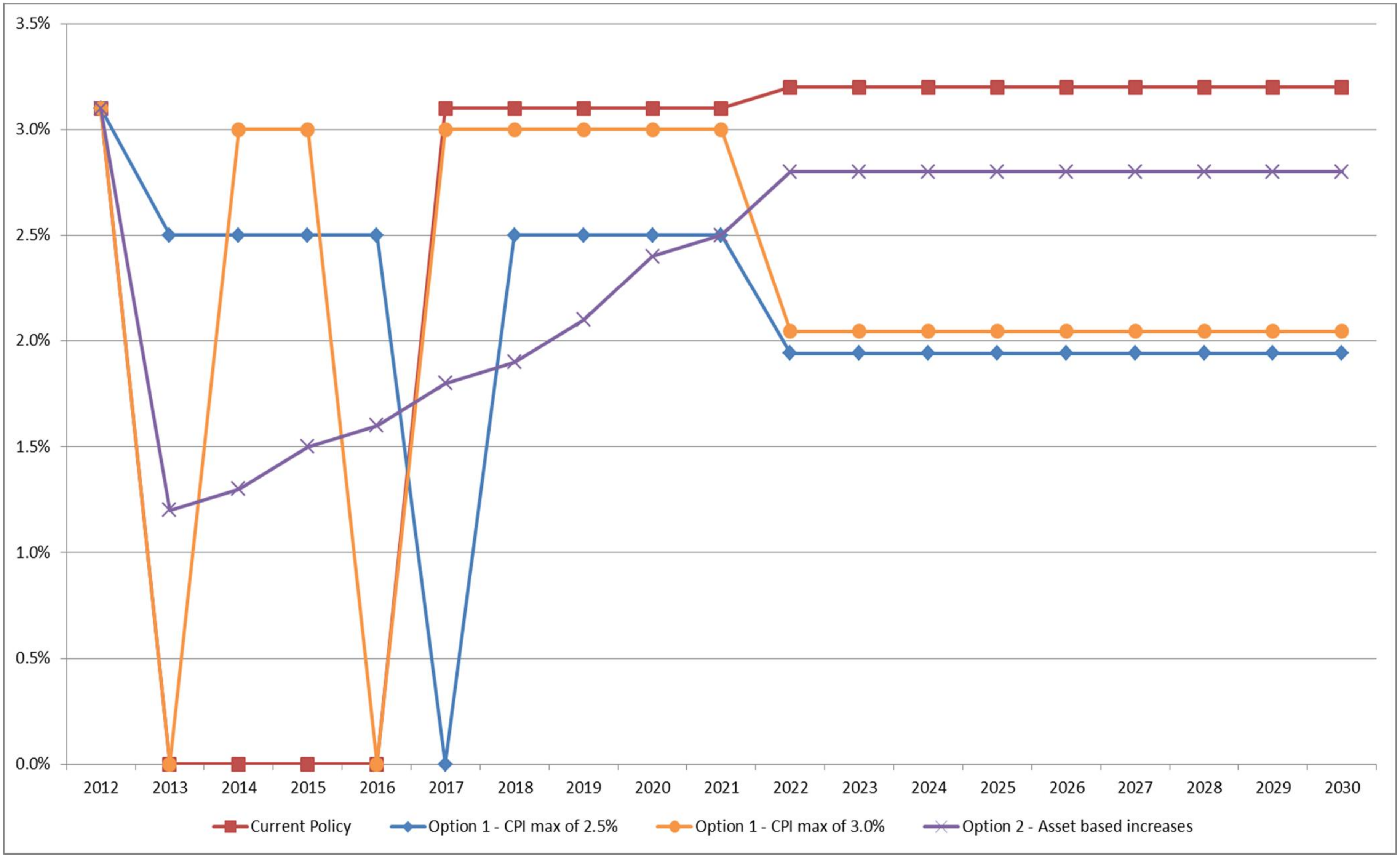
Sample Annual Benefit* Assuming Annuity Purchase in 2022
Asset Returns – 25th Percentile (~5.0% annually over 20 Years)



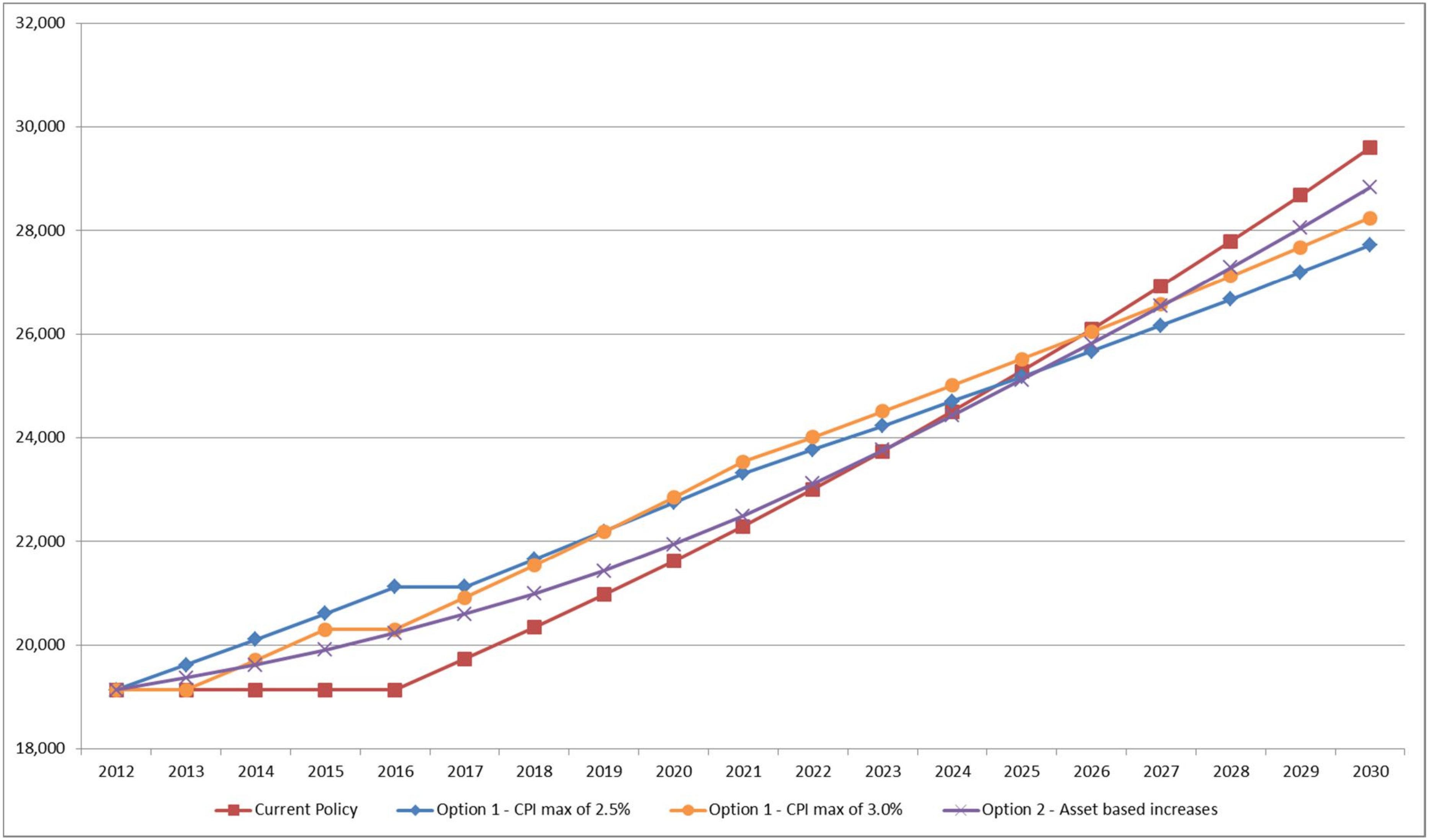
*Sample retiree based on $1,600 monthly benefit in 2012

Option 1 – CPI up to a maximum of 2.5% and 3.0% COLA

Projected COLA Assuming Annuity Purchase in 2022
Asset Returns – Expected (~6.5% annually over 20 Years)

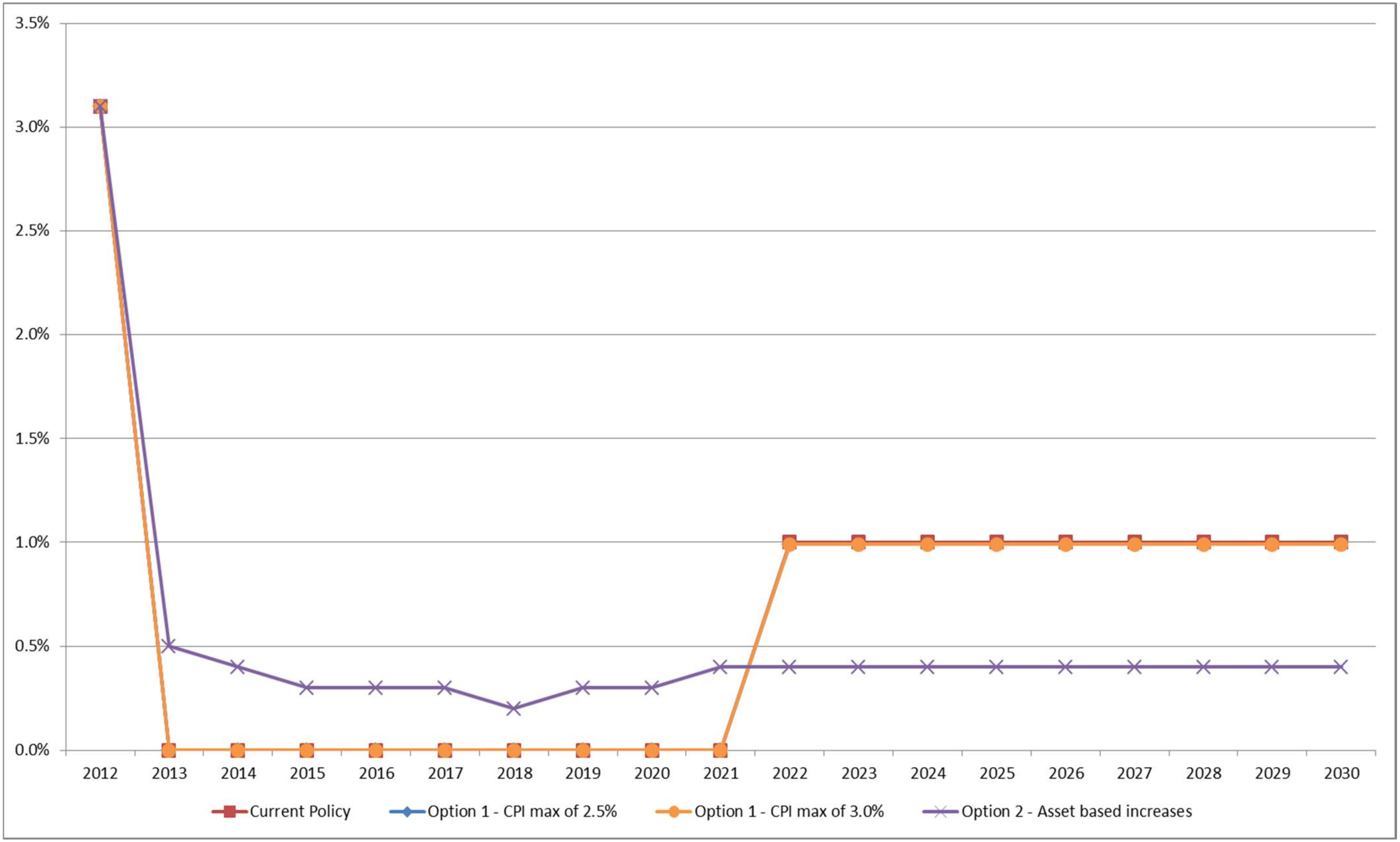


Sample Annual Benefit* Assuming Annuity Purchase in 2022 Asset Returns – Expected (~6.5% annually over 20 Years)

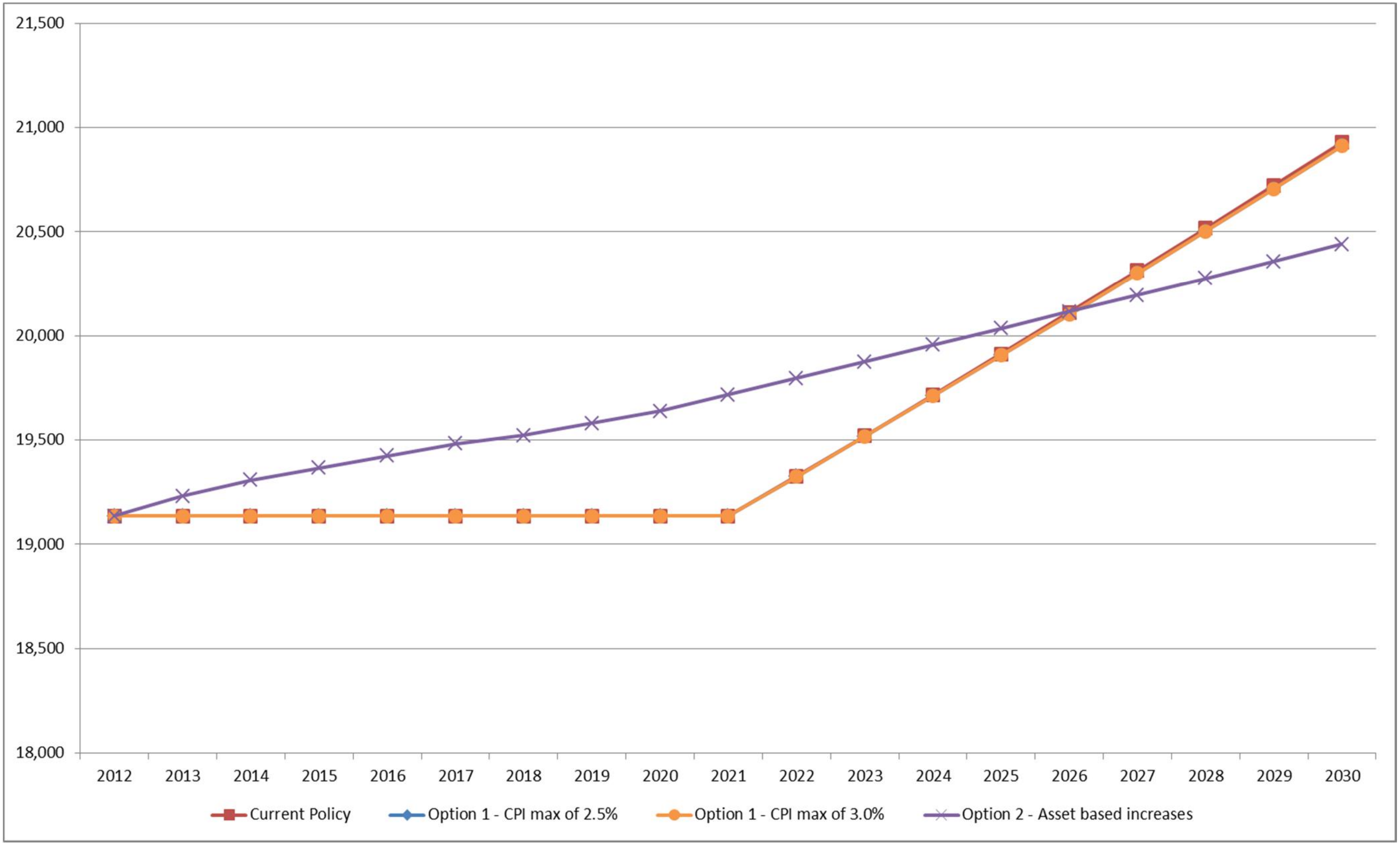


*Sample retiree based on $1,600 monthly benefit in 2012

Projected COLA Assuming Annuity Purchase in 2022
Asset Returns – 25th Percentile (~5.0% annually over 20 Years)



Sample Annual Benefit* Assuming Annuity Purchase in 2022 Asset Returns – 25th Percentile (~5.0% annually over 20 Years)



*Sample retiree based on $1,600 monthly benefit in 2012

Appendix

Assumptions approved at June 25th Board Meeting

Investment Rate

July 1, 2011 assumption: 7.5%

July 1, 2012 assumption:

1. **6.5% for the first 15 years** – based on the average expected arithmetic rate of return for the plan's current investment allocation (as provided by Principal)
2. **5.0% for all remaining years** – expected long-term settlement rate (annuity purchase or cash flow matching); determined using a building block approach with a 3.0% long-term inflation assumption and a 2.0% risk premium (mid-term government bonds)

Retirement Rate

July 1, 2011 assumption: 2.5% probability of retiring in each year prior to full eligibility

July 1, 2012 assumption: Retirement age by individual as provided by SDDOL

($ in millions)	Liability	$ Change	% Change
Liability disclosed as of July 1, 2011	$55.5	-	-
Revised retirement rate	$53.9	($1.6)	(2.9%)
Revised investment rate	$60.8	$6.9	12.8%

COLA Strategy – Assumptions

Data Underlying Projections

- All projections throughout our analysis are based on assumptions, data, plan provisions, and methods used in the July 1, 2011 actuarial valuation except:
  - Assumptions noted in the prior slide
  - Assets are based on May 18, 2012 value of $55,382,900
  - Benefit were adjusted with COLA of 3.1% effective July 1, 2012
  - Assumed COLA for determining whether assets exceed liability:
    - 2.1% Max = 2.0% assumed COLA
    - 2.5% Max = 2.25% assumed COLA
    - 3.0% Max = 2.5% assumed COLA
  - Actual CPI-W inflation is assumed to be 3.0% each year
  - Assets and liabilities are projected as of July 1 of each year
  - Any other differences noted for specific scenarios

"Stochastic" Funded Ratio Projections

- Our analysis is based on projected plan assets
- The expected assets (mean) are shown along with the 25^{th} percentile
- The 25^{th} percentile means that out of 100 scenarios, the 25 worst cases are at or below the projected funded ratio shown by the 25^{th} percentile line

Investment Policy

Asset Class	Current: 40% Fixed Income
U.S. Core Fixed Income	36.00%
High Yield Bonds	4.00%
U.S. Equity	37.50%
International Equity	6.25%
Emerging Markets Equity	6.25%
Real Assets & Property	10.00%
Total Asset Mix (FI / EQ / Real Estate)	**40 / 50 / 10**
Expected Annual Return	**6.53%**
Expected Risk (Std. Dev.)	**9.58%**

Expected annual returns and risk along with current asset allocation was provided by the plan's investment advisor – Principal. Asset allocation for alternative portfolios assumed to maintain a consistent split among asset classes for fixed income and equities.

Assumptions – Capital Market Expectations

Asset Class	Geometric Return	Expected Risk	Arithmetic Return*
U.S. Core Fixed Income	2.85%	5%	3.0%
High Yield Bonds	5.45%	10%	6.0%
U.S. Equity	7.50%	17%	9.0%
International Equity	7.50%	18%	9.1%
Emerging Markets Equity	7.50%	26%	10.9%
Real Assets & Property	5.85%	7.75%	6.15%

*Arithmetic return was derived from the geometric returns and expected risk provided by SD DOL's investment advisor (Principal) for all asset classes using the following formula: Arithmetic Return = [Geometric Return + (.5*SD^2)]

Methodology for Stochastic Forecasting

- Principal provided the following information for each asset class:
  - Mean geometric returns and standard deviations
  - Correlation coefficients
- Determined mean arithmetic return for each asset class and expected mean return and standard deviation for each asset portfolio
  - Calculated Mean Arithmetic Return = [Mean Geometric Return + (0.5 * Standard Deviation^2)]
- Analyzed 20 projection years (2012 – 2031)
- Ran 5,000 simulations of projections per asset portfolio per projection year based on the calculated arithmetic expected return and standard deviation for each asset portfolio assuming a normal distribution
- The expected long-term rate of return for any simulation regresses to the mean
- Determined 5th through 95th percentiles of Market Value of Assets, Actuarial Accrued Liability, and Funded Ratio for 2012 – 2031 based on the results of 5,000 simulations per year

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