GO COMMITTEE #1
March 2, 2023
Worksession

M E M O R A N D U M

February 27, 2023

TO: Government Operations and Fiscal Policy Committee

FROM: Craig Howard, Deputy Director
Aron Trombka, Senior Legislative Analyst, OLO

SUBJECT: OPEB Funding Policy

PURPOSE: To discuss potential updates to OPEB funding policy

Expected Participants:

- Corey Orlosky, Office of Management and Budget
- Karen Hawkins, Office of Finance
- Jenna Shovlin, Office of Human Resources
- Karen Bass, Office of Human Resources
- Tom Vicente, Bolton Partners

A. OPEB Background

1. Definition

Other Post-Employment Benefits (OPEB) are non-pension benefits (primarily, retiree health, prescription, dental, and vision insurance) offered by an employer to retirees. OPEB includes two funding components:

- **Pay-as-you-go funding** refers to the annual cost of group insurance benefits for current retirees. Under this funding method, agencies annually budget resources to pay the current year's cost of health care claims for retired employees and their dependents. The total pay-as-you-go funding includes both the retiree's required contribution toward the annual premiums and the employer's portion (the County's portion of pay-as-you-go funding was $49 million in FY23).

- **Pre-funding** sets aside assets at the time employees earn a benefit to cover cost obligations that will be paid in the future. Annual pre-funding amounts are determined by actuarial valuation, and pre-funding payments are deposited into a designated Trust Fund. As with pension programs, different structural, market, or employee demographic factors can impact required pre-funding levels. In 2011, the Council established a Consolidated Retiree Health

Benefits Trust (CRHBT) for the County Government[1], MCPS, and Montgomery College. The Trust is consolidated for investment purposes only;, the assets, contributions, and investment returns for each agency are accounted for separately within the Trust. M-NCPPC manages its own OPEB trust.

An employer's OPEB funded ratio is the calculation expressed of total assets as a percentage of current liability.

Pre-funding OPEB benefits provides several long-term financial advantages compared to covering retiree health care costs solely on a pay-as-you-go basis. These include: lowering long-term costs by 25-40%; helping Montgomery County maintain its AAA bond rating; and protecting the benefit by ensuring long-term sustainability.[2]

2. Current OPEB Funding Policy

The current OPEB policy was developed jointly by the Council and Executive via Resolution 16-555 in 2008 when the County (as with many local governments) was just beginning to pre-fund OPEB liabilities in accordance with Government Accounting Standards Board (GASB) guidance. The policy calls for a build up to full pre-funding (which was achieved in FY15) and then continued annual funding at the Actuarily Determined Contribution (ADC). The ADC is the sum of the pre-funding and pay-as-you-go amounts. To date, the annual ADC has been determined using an open 30-year amortization method (meaning that each year, the unfunded liability is recalculated and amortized over a new 30-year period) and assumes a 7.5% annual rate of investment return.

In addition to funding the ADC, the County's Reserve and Select Fiscal Policies (Resolution 19-753) states that a priority use for any one-time revenue (after meeting reserve policy obligations) is to fund OPEB above the ADC level as long as unfunded liabilities still exist. Of note, the County's current fiscal policies are focused on increasing the assets of the OPEB Trust, and do not provide a mechanism to draw down on Trust assets.

In 2019, based on a review of OLO Report 2019-11, the GO Committee asked that Executive Branch and Council Staff begin exploring options to update the County's OPEB funding policy to establish funded ratio goals and milestones. The work to update the County's OPEB policy was delayed due to the pandemic.

3. Recent Developments Related to Funding Policy and use of OPEB Trust assets

Since the OPEB policy was initially adopted in 2008, Montgomery County's commitment to its funding policy led to steady growth in Trust assets. As detailed in OLO Report 2019-11 (page 22), between 2008 and March 2019 the Trust accrued assets of just over $1 billion for the County

[1] The County Government portion of the Trust also includes the following participating agencies: Montgomery County Revenue Authority, Strathmore Hall Foundation, Montgomery County Employee Credit Union, State Department of Assessment and Taxation, District Court of Maryland, Housing Opportunities Commission, Washington Suburban Transit Commission, and the Village of Friendship Heights.
[2] OLO Report 2019-11, pg. 11-12

Government, MCPS, and Montgomery College combined – $755.4 million from County contributions and $261.3 million from investment gains. For Montgomery County Government, this resulted in an OPEB funded ratio of 27% at the beginning of FY19.

During FY21, based on a strong financial markets and excellent investment management by the Board of Trustees, the OPEB Trust achieved a 26% investment return – adding $162.5 million to the Trust. This level of investment return was greater than the total investment income for the prior four years combined ($156.7 million). These significant investment returns substantially increased the Trust funded ratio (to 64% on a market valuation basis used for funding purposes, or 50% on an actuarial basis used for financial reporting purposes) and resulted in a negative ADC for the first time. Conversely, in FY22 the investment return was negative 8%, resulting in an investment loss of $79.8 million.

FY23 Budget. As a result of this first-time occurrence of the ADC being lower than the pay-as-you-go amount, the County Executive recommended a policy change to OPEB funding as part of his FY23 recommended budget to withdraw $20 million from the OPEB Trust to pay a portion of current year retiree pay-as-you-go costs. The County Executive's recommended budget document (page 8-4) included the Executive's rationale for the proposed change.

In response to follow-up questions from Council staff, the Executive Branch noted that the draw-down of $20 million from the Trust was assumed as a one-time action pending the development of a long-term OPEB utilization fiscal policy:

> *The full new fiscal policy as it relates to the OPEB Trust is in the early stages of development, and executive branch staff will be reaching out shortly to Council staff to ensure full participation in the development of the long-term OPEB utilization fiscal policy. The policy will explore the scenarios in which utilization is allowable and when it is not, addressing concerns such as differing actual investment returns. The FY23 budget and Fiscal Plan do NOT assume the use of $20 million on a go-forward basis; any future utilization is intended to be determined through agreement on a long-term OPEB utilization fiscal policy.*

The Council did not agree with the Executive's proposal for FY23, determining that it was premature to approve use of Trust assets prior to thoroughly reviewing and updating the County's long-term OPEB funding policy. In Resolution 19-1285 approving the FY23 operating budget for the County Government, the Council included the following provision: "The County Executive or Chief Administrative Officer is not authorized to withdraw any funds from the Consolidated Retiree Health Benefits Trust for the payment of Montgomery County Government retiree health insurance benefits, or for any other purpose, during FY 2023."

While this memorandum focuses on the County Government's OPEB funding policy, in FY23 the Executive recommended and the Council approved (as has occurred for the past eight years) $27.2 million to fund MCPS retiree health pay-as-you-go costs from its annual funding allocated to the OPEB Trust. Because MCPS' annual pre-funding contribution has been higher than the

$27.2 million, the net effect is continued increases in MCPS OPEB Trust balance but by smaller amounts that would occur otherwise.[3]

B. Updated OPEB Funding Policy Options

Council and Executive branch staff have been meeting since late summer to review and develop policy options in collaboration with County's actuarial consultant – Bolton Partners. The overall purpose of this effort was to develop a framework for the use of OPEB Trust assets to fund Montgomery County Government's portion of annual retiree health insurance costs. Some of the specific goals include to:

- Ensure that OPEB Trust assets are utilized for their intended purpose in a fiscally responsible manner.
- Ensure the long-term viability of the OPEB Trust, with sufficient assets to pay earned benefits.
- Provide consistency and reliability in the annual budgeting process to the maximum extent practicable.
- Control costs over the long-term by paying for retiree health obligations as they are earned rather than deferring payments to future years.
- Protect the County's bond ratings.
- Create a policy that will ultimately enable the OPEB trust to pay the County's portion of annual retiree health pay-as-you-go costs, freeing that amount ($49 million in FY23) for other operating budget costs.
- Recognize that both short- and long-term retiree health costs are impacted by variables outside of the County's control that can either increase or reduce OPEB liabilities.

1. Options Reviewed by Staff Working Group

As part of the review, the staff working group identified six key variables that needed to be addressed as part of an updated policy:

- Amortization method;
- Funded ratio target;
- Number of years to reach funded ratio goal;
- Assumed rate of investment returns;
- How and when withdrawals could occur from the Trust, and
- Variations to the policy that could apply during years of extreme fiscal distress.

[3] See pages 18-21 of OLO Report 2019-11 for more details

As a first step, the working group asked Bolton to model funding projections based on the variables listed in the table below.

Actuarial Assumption	Current Practice	Bolton Scenarios
Amortization Method	Open amortization	Closed amortization
Funded Ratio Target	100%	70%, 85%, and 100%
Years to Achieve Target	30 years, restarted annually	5, 15, and 25 years
Rate of Investment Returns	7.5%	6.5% and 7.5%

Bolton modelled each combination of actuarial assumptions, creating a total of 18 different funding scenarios.

The Working Group asked Bolton to model OPEB funding using closed amortization. The County currently calculates its annual OPEB pre-funding level using a 30-year open amortization method. Under the open amortization, the period for achieving the targeted funding level is restarted annually, thus perpetually deferring attainment of the funding target. Closed amortization does not annually restart the funding period and so allows for achievement of the funding target. The Government Finance Officers Association (GFOA) recommends employing a closed amortization method as a best practice for OPEB pre-funding.[4]
The Working Group requested that Bolton run scenarios assuming funding targets of 70%, 85%, and 100%. While current County practice is to determine the ADC based on a 100% funded target, the open amortization method effectively sets the target at below 100% over a finite time period. Bolton suggests that OPEB plan sponsors could consider a target funding level lower than 100%:

> *The costs for a traditional OPEB benefit are much less certain than the costs of a traditional pension plan. Currently, costs are lower than most actuaries would have predicted 10 years ago. Governments with traditional OPEB Plans should consider a contribution target of less than 100 percent of the accrued liability to reduce the possibility of overfunding the plan. Funding toward a significant percentage of the accrued liability (perhaps 80% or 90%) still promotes benefit security while reducing the risk of overfunding of OPEB benefits.*[5]

The Working Group requested that Bolton produce funding schedules based on three time periods for achieving the targeted funding level: five years, 15 years, and 25 years. The GFOA recommends a period never to exceed 25 years, but ideally in the 15- to 20-year range.[6]

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[4] Government Finance Officers Association, *Best Practices - Core Elements of a Funding Policy*https://www.gfoa.org/materials/core-elements-of-a-funding-policy.
[5] Bolton Partners, OPEB Contribution Policies for Public Sector Plans.
[6] Op. cit., Government Finance Officers Association.

The Working Group asked Bolton to model OPEB funding levels at the current assumed investment return rate of 7.5% annually as well as at a 6.5% annual return in recognition of the potential for an economic slowdown in upcoming years. For example, after the 26% investment returns in FY21, returns in FY22 totaled negative 8%.

2. Actuarial Analysis

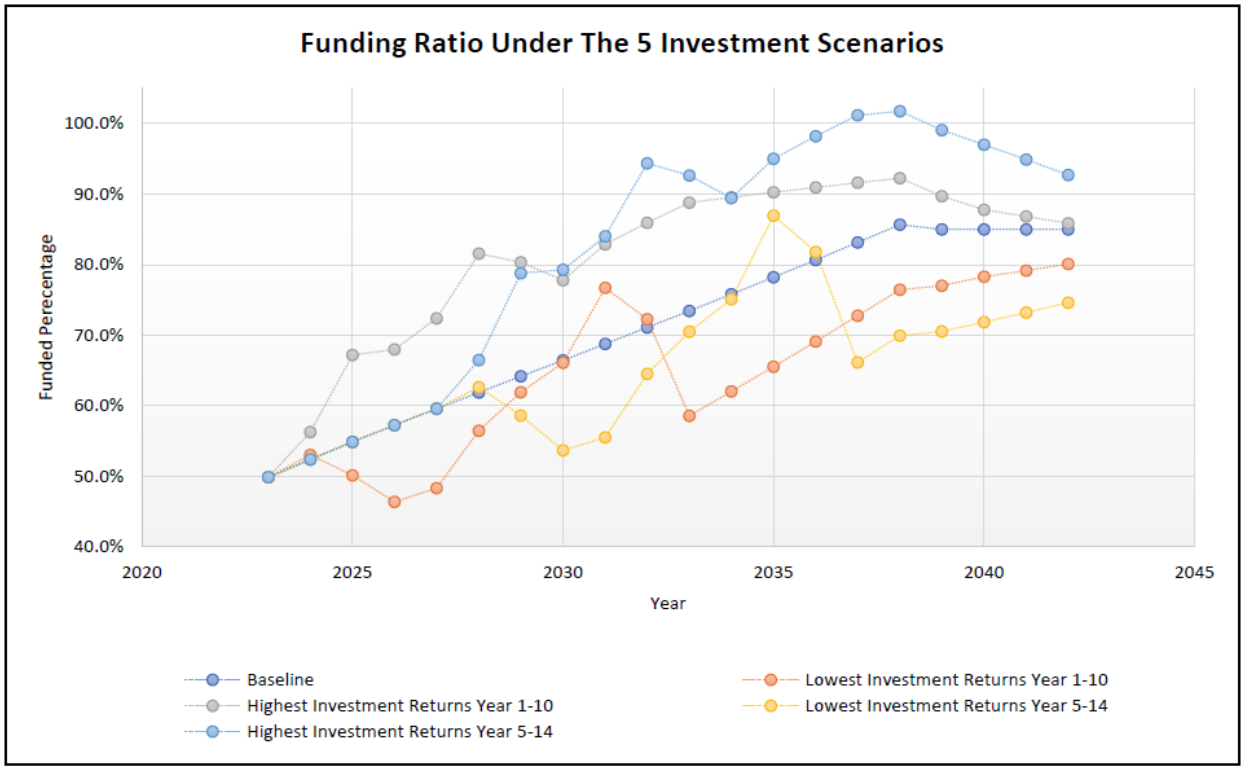
Analysis of Funding Alternative Scenarios. The results of Boltons December 13 analysis of the 18 scenarios are shown on ©1-13. In the chart on ©3, the column titled "FYE 2023 Contribution (excluding expected benefits paid)" represents that estimated amount of pre-funding contribution that would be required in year one of a new policy. This data shows that in 15 of the 18 funding alternative scenarios, additional pre-funding would be required in year one. However, the amounts vary based on the specific variables (i.e., a funding policy that seeks to reach a specific funded ratio in 5 years would require higher initial contributions than a policy that seeks to reach the same funding level in 25 years). These alternatives did not assume any additional payments from the Trust other than what would be determined by the ADC.

Stress-test scenario of specific policy (85% in 15 years, 6.5% assumed returns). As the next step, the staff working group asked Bolton to conduct a more detailed stress-test scenario on one specific option – achieving an 85% funded ratio in 15 years while assuming a 6.5% annual rate of investment return. The purpose of a stress test is to show how annual contributions and funding ratios would vary when actual investment returns differ from projections. To do this, Bolton selected both the highest and lowest ten-year pattern of investment returns from the actual performance of the Montgomery County retirement plan from 2000 to 2021. Additionally, the staff working group asked Bolton to look at three fixed dollar withdrawal policies: no annual withdrawals, $10 million withdrawn annually, and $20 million withdrawn annually. The full results of Bolton's February 2 analysis of the stress test scenarios are on ©14-33, with a summary presentation on ©34-51.

As part of the analysis, Bolton notes that using a fixed target can create significant contribution volatility as the target date draws near if investment returns differ from expectation. As a result, Bolton ran a scenario for a modified 15 year, 85% funding target as described below:

> *To reduce the contribution volatility we looked at a method that adds layers by amortizing gains and losses over 15 years (from the time incurred) instead of shortening the amortization period so that all of the payments ended by the funding target year. This method is commonly applied to pension and OPEB plan contribution policies. This results in some of the amortization payments extending beyond the funding target year. While this reduces contribution volatility, it also allows the funding ratio to be something other than 85 percent funded after 15 years. This is because some amortization payments will extend beyond the target year (©19).*

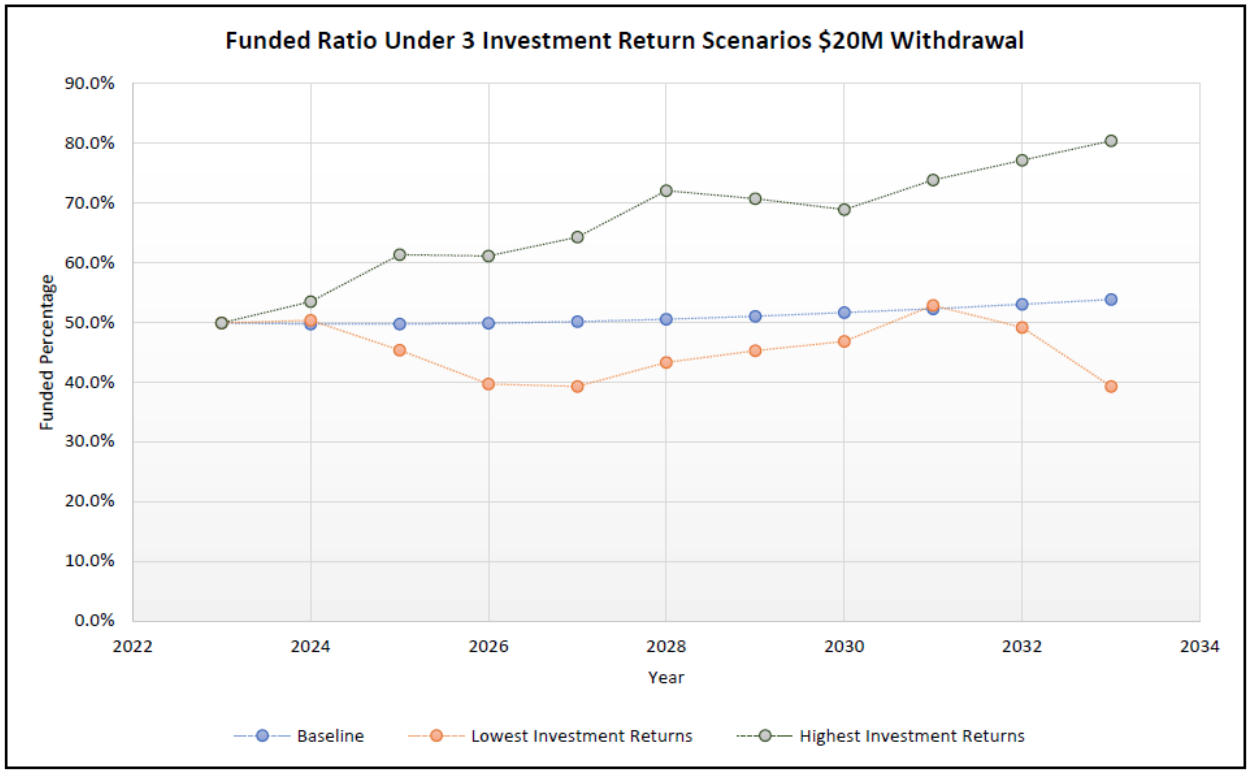
The graph below shows the results on modified funding target based on different investment returns. After 15 years, depending on investment returns, the funded ratio could be as high as 101% or as low as 70%. After 20 years, that range narrows to between 92% and 75%.



Trust withdrawal scenarios. Bolton also modeled a fixed withdrawal contribution policy of $0, $10 million, and $20 million per year, and explains the difference between these options and the other policies modeled below. While the funding target models described above are based on actuarial valuations, a withdrawal policy would create less budget volatility (though at the expense of funded ratio volatility).

> *The first two contribution policies are actuarial solutions to OPEB funding. The trust contribution (or withdrawal) is actuarially determined based on assets and liabilities as of the valuation date. The methodology is transparent and can be readily audited. Since the benefit payments increase with medical trend, which increases faster than payroll, over time the negative net trust contribution (or amount that is to be withdrawn from the trust) will increase. From a budgetary perspective though it is difficult to determine the long-term net contribution to the plan. Therefore, we were also asked to look at fixed dollar withdrawals from the trust. The initial amount could be set based on some criteria, for example the County could withdraw the fixed dollar amounts which is projected to result in the plan being 60 percent funded in 10 years. This contribution policy is easier to the County's long-term planning. However, the amount would need to be re-evaluated periodically. This contribution policy results in less contribution volatility at the expense of more funded percentage volatility (©20-21).*

The graph below shows Bolton's analysis of a $20 million per year withdrawal policy. After 10 years, the baseline scenario shows a 54% funded ratio – while the high and low scenarios vary from 80% and 39%.



3. Council Staff Proposal for an Updated OPEB Funding Policy

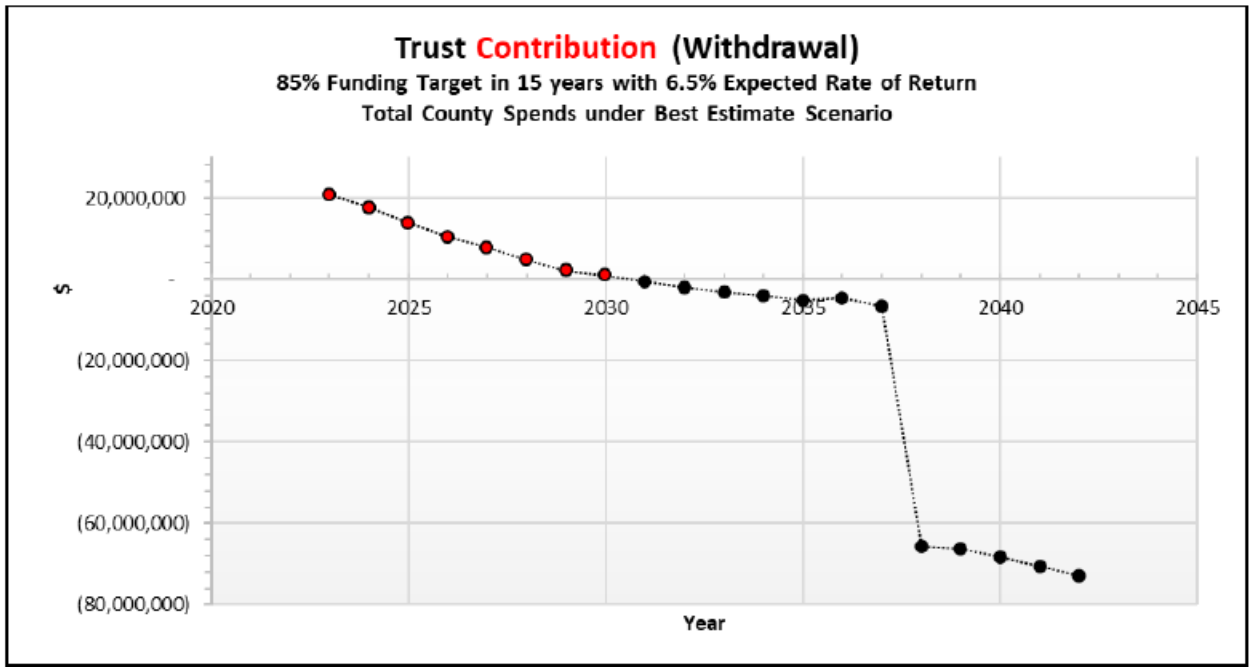
After reviewing the data and Bolton's analysis, Council staff's proposal is to adopt an updated funding policy to achieve an 85% funded ratio in 15 years via a closed amortization schedule while assuming a 6.5% investment rate of return. Council staff believes that this combination optimally ensures the long-term viability of the OPEB Trust and controls costs over the long-term without over-burdening the annual operating budget.

Based on Bolton's actuarial analysis, this would result in required contribution or withdrawals from the Trust as shown in the graph on the next page. Specifically:

- The County would need to increase pre-funding contributions by about $20 million in year 1, with this amount reducing each year to about $1 million in year 8 (indicated by the red dots on the graph).
- The County could begin withdrawing about $500,000 from the Trust to help pay current year pay-as-you-go costs in year 9, with that withdrawal amount increasing to $6.7 million in year 15.
- In year 16, when the 85% funding target has been reached, the Trust would pay the entire County portion of the annual pay-as-you-go cost (estimated to be $65 million by then) and the Trust would continue to pay the full pay-as-you-go costs each year going forward. **This would free up much of that amount to be used for other operating budget priorities.** Similar to a pension plan, depending on variables such as investment

returns, health care costs, etc. there will still likely be annual contributions to the Trust needed to maintain the 85% target funded ratio (even while the Trust pays the full County portion of annual pay-as-you-go costs).

- Based on Bolton's stress test data, if investment return exceed the assumed rate the County could reach the funding milestones before the target date. At the same time, overall investment performance below the target would extend the deadline. Other factors outside of the County's control, such as medical cost trends, could also play a role in impacting liabilities and therefore the timeframe in meeting the funded ratio target.



To address volatility in investment returns and maintain a higher degree of budgeting consistency, Council staff supports Bolton's suggestions to utilize the modified funding target that amortizes gains and losses over 15 years so that the County avoids funding spikes as well as to use asset smoothing.

Other policy components that Council staff suggests including:

- A provision to allow the Executive and Council to jointly agree to deviate from policy guidelines during a period of fiscal distress (like what the Executive and Council did during the Great Recession). For example, similar to when the Reserves and Fiscal Policies resolution allows the use of reserves, the trigger could be when the US enters a recession or in the occurrence of a national emergency.[7]

[7] An economic recession is defined when the United States Gross Domestic Product, as published by the U.S. Department of Commerce Bureau of Economic Analysis, has experienced negative growth for at least two quarters; and/or the National Bureau of Economic Research has determined that the United States economy is in a recession. A national emergency is defined as an event that is a federally declared natural or national disaster or emergency in all or part of the County.

- Continue to conduct updated funding valuations every 2 years, while a broader review of the policy should be conducted at least every 5 years. Additionally, when the County reaches the point where withdrawals are being made from the Trust (estimated to be year 9 in Council staff's proposed funding policy) the Council and Executive should re-examine the number and amount of planned withdrawals to ensure it meets the County's needs.

4. Executive Branch Comments related to an Updated OPEB Funding Policy

The comments in section B-4 were written and provided by the Executive Branch:

Executive Branch staff feel it is premature to pass a funding policy for the OPEB Trust. The proposal and options discussed within this packet constitute as being mid-way through a process, but not a completed process that has undergone thorough review and updating of assumptions, options, and outcomes. Some specific areas that require continued analysis include amortization, target ratio, use policies, and variations to policy during extreme periods of distress or success. Executive Branch staff strongly recommend framing the discussion with the Council as one that provides focus on a direction, and allows Executive Branch staff as well as Council staff adequate time to see the analysis to its intended conclusion – a fully formed and reviewed fiscal policy that both recognizes the high level of fiscal responsibility taken by the County in establishing the OPEB Trust as well as positions the County to best serve the residents and taxpayers going forward.

The OPEB Trust was established in 2008, with funding built up over time. Many of the individuals who were employees in 2008, with future retiree costs set aside as pre-funding to OPEB, now make up a portion of the retirees whose claims are charged to the County's Employee Group Health Self-Insurance fund. These retirees – again, for whom the future cost of retiree health insurance was contributed during the time they were employees – are now still having all of their current claims expenses covered by General Fund contributions rather than the pre-funded assets the County placed into the OPEB Trust.

Executive Branch staff recognize the need to update the current OPEB funding policy from a policy geared entirely towards accumulation of assets to one that serves its singular purpose – to fund all or a portion of benefits provided under the County retiree benefits plan. From Section 33-159(a) of the County Code:

"(b) Establishment of Trust. An Other Post Employment Benefits Trust, known as the Consolidated Retiree Health Benefits (RHB) Trust, is established to fund all or a portion of benefits provided under the County retiree benefit plans or a County-funded agency retiree benefit plan. The Trust is intended solely as a funding mechanism to pay for County or County-funded agency retiree benefits provided under the terms of any applicable retiree benefit plan, and does not create any obligation by the County to provide any benefit listed in any County or County-funded agency retiree benefit plan. Any participant in a retiree benefit plan, any current or former County or a County- funded agency employee, or any current or former participating agency employee, has no right to any asset in the Trust fund. The Trust Fund may be, but is not

required to be, the sole source of funding for any County or County-funded agency retiree benefit plan."

The County has, for the last 8 fiscal years, supported MCPS spending $27.2 million from its OPEB trust towards the payment of benefits for MCPS retiree health plans. The position of Executive Branch staff is that the current health of the Montgomery County OPEB Trust warrants both a long-term fiscal policy to ensure the sustainability of the Trust and a use policy to allow the Trust to fulfill its only purpose.

The current funding policy (requiring annual funding at the level of the Actuarially Determined Contribution, which is consistent with GFOA best practice principles) did not contemplate that the calculation for the ADC could result in a value lower than the annual pay-as-you-go cost. This scenario has been in play for the FY22 and FY23 ADC calculations. In these scenarios, adhering to the funding policy by funding at the level of ADC would inherently assume funding at a level below the total pay-as-you-go estimated cost. This would mean using OPEB Trust Fund assets to fund the remaining portion of the pay-as-you-go costs in an amount that is consistent with the actuarially calculated ADC, representing that difference between the ADC and pay-as-you-go cost, consistent with the results of the actuarial valuation.

The Bolton analysis served to provide the working group with information and context about the potential impacts of various assumptions. The scenarios presented were selected to provide the working group with information from which to develop a full policy, but not to be reflective of "completed analysis". For example, the assumption of the investment rate of return was presented as 7.5% and 6.5% to provide a ceiling and a floor for the potential impacts of that variable. The investment rate of return assumption is determined by a process that includes the Board of Trustees and is traditionally driven by historical investment analysis in the context of actuarial and financial reporting decisions, goes through a tremendous vetting process, and is subject to auditor review as part of the annual financial statement audit. If that analysis determines that the current rate can no longer be supported and an adjustment/reduction to the rate is necessary to more accurately reflect the recent experience and long-term actuarial projections of the County, then the Board would have the authority to adjust the rate. It would not be prudent to set the rate for a funding policy without a full analysis of its merit, and with a rate that is different than the fully vetted and Board-approved rate used for actuarial valuation and financial reporting purposes. This is important since use of a lower interest rate results in higher contribution requirements. So for a variety of reasons there needs to be sufficient and appropriate analysis and supporting reasons for adopting a rate for funding policy purposes different than the rate approved by the Board. This review is done during the biennial valuation process, and the 7.5% assumption has continued to be confirmed as appropriate for Montgomery County. The option for a reduced investment rate was used to demonstrate the potential impact on scenarios, not to be a variable for selection in the policy.

The working group also needs to spend additional time discussing the intentions once the funding target is reached. The Council staff proposal for the funding policy identifies that after 15 years and reaching the funding target, the trust would pay the entire pay-as-you-go cost. Analysis would need to be performed to demonstrate the impact on the Trust and specifically the funded status, of that significant increase in utilization. The analysis would determine projected

requirements to maintain target level funding, as well as options for dealing with unanticipated extremes, such as around low and high-end guardrails, once the target level has been reached. Executive Branch staff therefore recommend letting the working group continue and complete its efforts to develop the revised long-term funding policy, and requests that this committee session serve to allow Council to affirm the direction of the policy development rather than adoption of an underdeveloped policy.

C. Next Steps

If the Committee supports moving forward with an updated OPEB funding policy, Council staff will work with Executive staff and the County's actuarial consultant to prepare an updated policy resolution for review by the full Council based on the specific policy components supported by the Committee.

Bolton
Employee Benefits, Actuarial & Investment Consulting

December 13, 2022

Kay Russell Deering
Group Insurance Fund Manager
Office of Human Resources
101 Monroe Street, 12th Floor, Room 1209
Rockville, MD 20850

Re: Montgomery County Contribution Study

Dear Kay,

To assist the County in developing a contribution policy for the OPEB plan, Bolton has modeled funding projections that include several variables including:

- Funding targets of 70%, 85%, and 100%
- Target periods of 5, 15, and 25 years
- Expected Rate of Return of 6.50% and 7.50%

Each funding target was considered over each target period and return assumption totaling 18 funding scenarios. The projections include 5 additional years of contribution calculations after the funding target is achieved to illustrate the contribution required to maintain the funding target level.

These projections were completed using the Projected Unit Credit (PUC) funding method. While GASB rules require the entry age normal (EAN) funding method to be used to measure plan liabilities, there is no prescribed funding method required to determine funding objectives. The PUC method, spreads liability for participants based on their service throughout their career while the EAN method uses salary to attribute liabilities to participants throughout their career. Since OPEB benefits are not tied to salary, Bolton has used the PUC funding method to determine the contribution requirements under each scenario.

The County currently contributes the net of the Actuarial Determined Contribution (ADC) over Pay-go to the trust annually. The funding approach described in this letter would result in new method used to determine ADC determined as follows:

- The County deposits to the OPEB trust an annual base contribution (determined separately for each scenario) that is assumed to increase each year at 2.50%. This contribution represents the cost to be budgeted annually for OPEB benefits. This amount includes the County's share of retiree pay go medical costs.
- The base annual contribution is determined on a prospective basis. The contribution is determined based on the estimated OPEB benefits to be paid through the target date and the estimated liability at the end of the transition period (the target year). The expected unfunded liability at the target date is amortized over the target period to attain the funding target. This reduces contribution volatility as the amortization period decreases.
- Once the funding target is attained, the County is assumed to contribute the required contribution in order to maintain the funding target.

We are not addressing the issue of paying benefits from the trust. The County could either.

- Pay the entire ADC to the trust and use the trust to pay benefits or
- Pay OPEB benefits from general revenue and determine the net ADC (after benefit payments). This amount could be positive requiring a net trust contribution or negative (with the trust returning the excess of pay go costs over the ADC to general revenue to reimburse the County for the excess).

The second approach is close to the County's current approach except the trust has never returned excess payments to general revenue.

These results are based on the most current valuation report that provides the FYE 2022 and FYE 2023 Actuarially Determined Contribution except:

- They are based on the June 30, 2022 assets
- We looked at an analysis if the expected return on assets was reduced to 6.50%, in addition to the current expected return on assets of 7.50%.
- The contribution calculation is based on an open group population and determined by estimating the unfunded liability at the target funding date and amortizing it over the target period. The initial contribution is assumed to increase with payroll (2.50%) annually until the funding target is attained. The contribution after the funding target is attained is calculated to be the amount necessary to maintain the target percentage.

Considerations

Below are considerations that should be included in the selection of a funding approach:

- If the funding target is less than 100 percent, once the funding target is reached there are annual losses caused by benefit payments which reduce the assets and liabilities by the same amount and in turn also reduce the funded ratio. There are methods that can be used to address this issue, and the study can be expanded to include alternatives once the County has selected, the funding target, target date and the expected rate of return.
- There will be annual deviations from the expected, due to experience gains or losses and assumption changes, theses deviations could be financed over different time periods, that should be specified in the final funding policy.
- Investment returns can be volatile and are never constant year-over-year. There is a significant difference between the modeling of a constant investment return of 7.50% or 6.50% and returns that vary from year to year averaging 7.50% or 6.50%. Stochastic modeling based on the mean and standard deviations provided by the County's investment advisor could be used to observe how the variation in returns could impact the contribution policies differently.
- The selection of a contribution policy should include discussions on creating "bumpers" to keep the plan in line with the funding objectives selected. Making trust withdrawals only when certain objectives have been met can help ensure that the trust remains adequate to pay benefits when due for a long period.

The following charts illustrate the initial contribution for the 18 scenarios studied assuming both 6.50% and 7.50% investment return: Negative amounts indicate where the pay-go amount is larger than the budgeted contributions and can be looked at as trust withdrawals.

Contribution Summary
Contribution Increases 2.50%/Year Through Target Period, Open Group Projections

Investment Return	Target Funding Level at Duration	Duration (Years)	FYE 2023 Total Contribution	FYE 2023 Contribution (excluding expected benefits paid)	Actuarial Accrued Liability at Duration	Trust Assets at Duration
7.50%	70%	5	$93,059,338	$14,550,402	$1,590,740,796	$1,114,034,118
7.50%	70%	15	$71,766,549	($6,742,387)	$2,147,869,252	$1,505,482,691
7.50%	70%	25	$69,197,290	($9,311,646)	$2,950,923,095	$2,070,994,827
7.50%	85%	5	$130,916,553	$52,407,617	$1,590,740,796	$1,352,854,969
7.50%	85%	15	$82,060,995	$3,552,059	$2,147,869,252	$1,827,946,276
7.50%	85%	25	$74,230,912	($4,278,024)	$2,950,923,095	$2,514,022,225
7.50%	100%	5	$168,773,768	$90,264,832	$1,590,740,796	$1,591,675,817
7.50%	100%	15	$92,355,440	$13,846,504	$2,147,869,252	$2,150,409,850
7.50%	100%	25	$79,264,535	$755,599	$2,950,923,095	$2,957,049,878
6.50%	70%	5	$123,526,938	$45,018,002	$1,781,692,205	$1,251,395,654
6.50%	70%	15	$86,832,967	$8,324,031	$2,405,551,561	$1,697,820,735
6.50%	70%	25	$81,587,273	$3,078,337	$3,311,695,609	$2,352,840,602
6.50%	85%	5	$167,169,165	$88,660,229	$1,781,692,205	$1,520,137,275
6.50%	85%	15	$99,350,319	$20,841,383	$2,405,551,561	$2,060,662,214
6.50%	85%	25	$88,098,048	$9,589,112	$3,311,695,609	$2,852,360,293
6.50%	100%	5	$210,811,393	$132,302,457	$1,781,692,205	$1,788,878,898
6.50%	100%	15	$111,867,671	$33,358,735	$2,405,551,561	$2,423,503,670
6.50%	100%	25	$94,608,823	$16,099,887	$3,311,695,609	$3,351,880,188

The Appendix includes illustrations for each scenario over time and includes the expected contributions after the funding targets are attained. The contributions are compared to the expected pay go cost.

Methods and Assumptions

These results are based on the most current valuation report that provides the FYE 2022 and FYE 2023 Actuarially Determined Contribution. Results are based on an open group population.

In lieu of calculating an annual ADC, contributions were determined prospectively. Instead of focusing on the liability at the valuation date, the contribution was determined based on the estimated OPEB benefits paid until the target date and the estimated liability at the end of the transition period (the target year).

Actuarial Certification

Future actuarial measurements may differ significantly from the current measurements presented in this letter due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions, applicable law or accounting rules.

The actuarial methods and assumptions used in this letter comply with the actuarial standards of practice promulgated by the Actuarial Standards Board.

Bolton Partners is completely independent of Montgomery County Government, its programs, activities, and any of its officers or key personnel. Bolton Partners, and anyone closely associated with us, does not have any relationship which would impair our independence on this assignment. Kevin Binder and Tom Vicente are members of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this letter. Please let us know if you have any questions concerning this letter.

Sincerely,

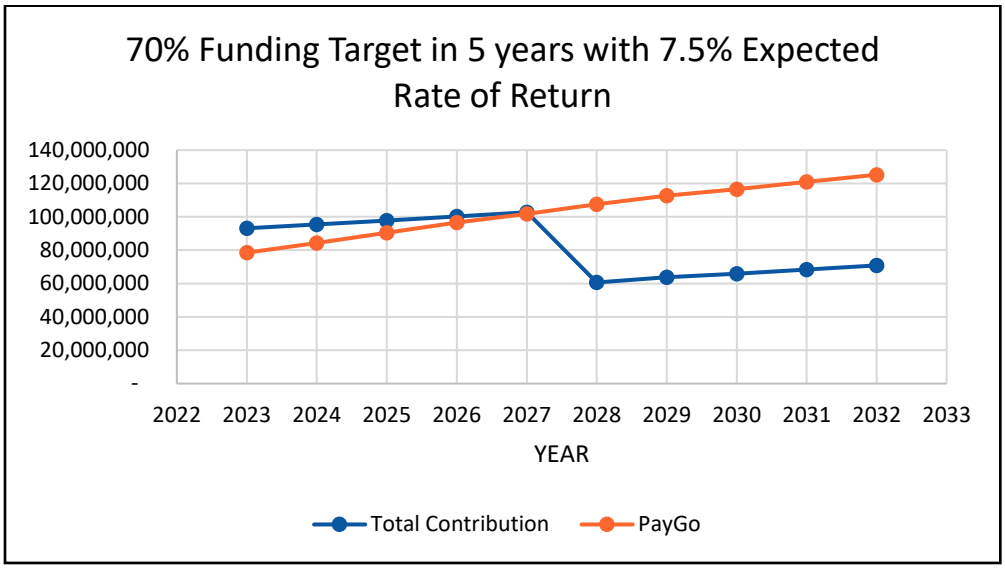
BOLTON PARTNERS, INC.

Kevin Binder, FSA, MAAA, EA

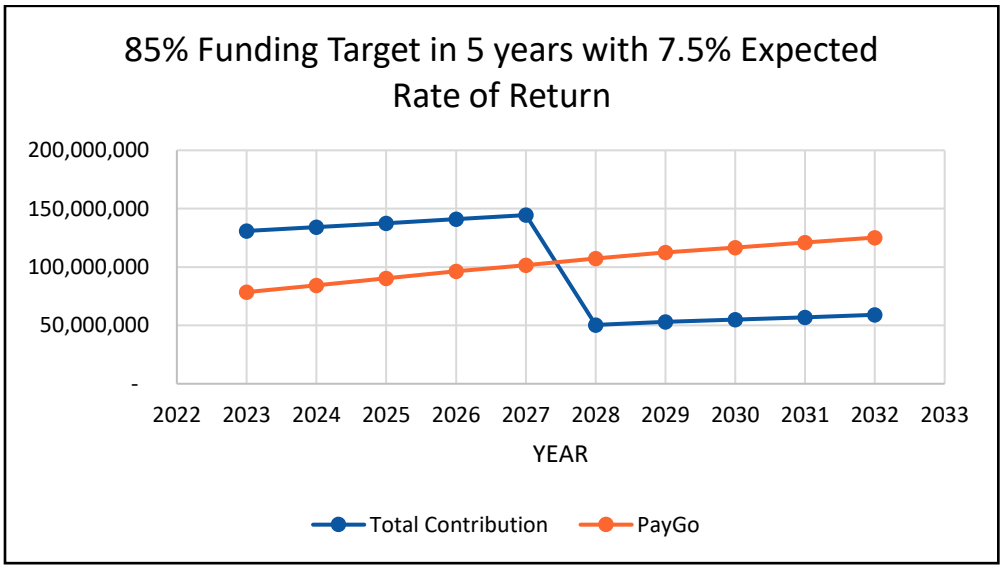
Thomas Vicente, FSA, MAAA, EA

Appendix – 5 Year Duration, 7.50% Expected Rate of Return

Scenario 1

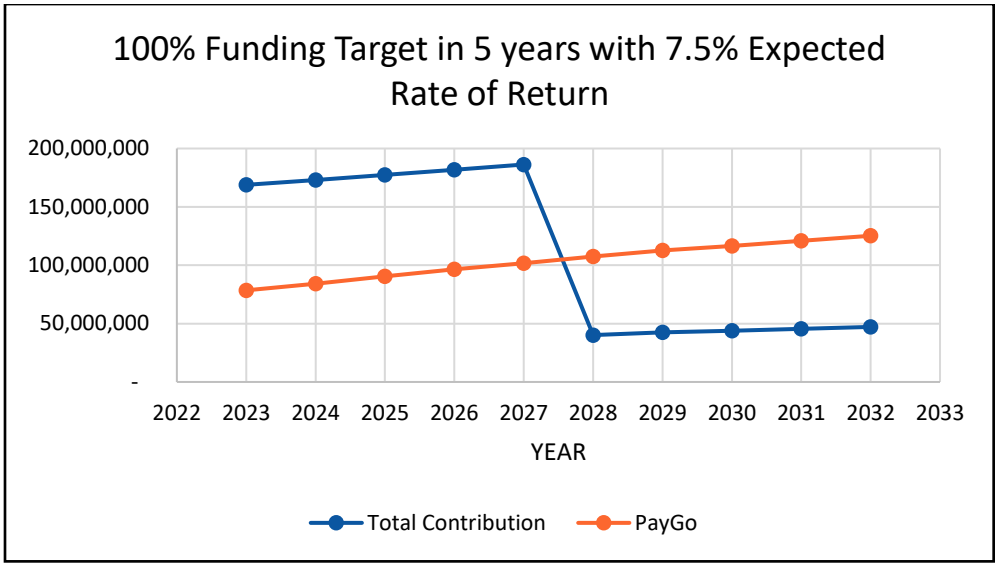


Scenario 2



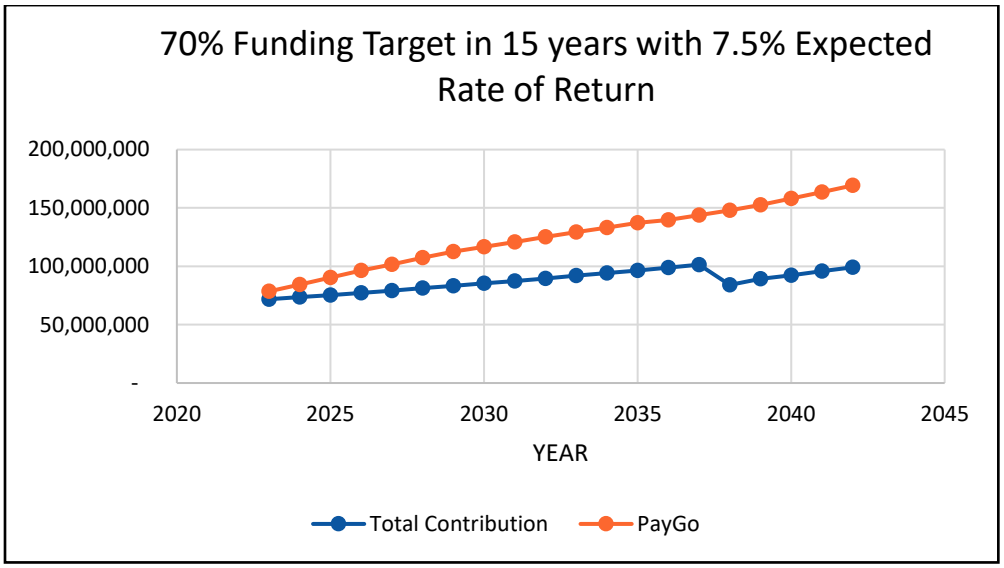
Appendix – 5 Year Duration, 7.50% Expected Rate of Return (cont'd)

Scenario 3



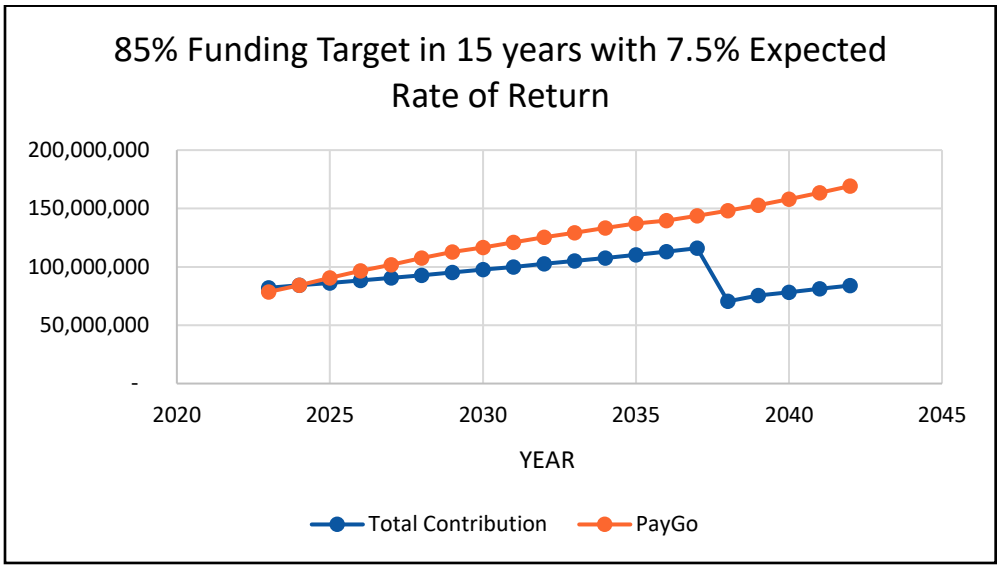
Appendix – 15 Year Duration, 7.50% Expected Rate of Return

Scenario 4

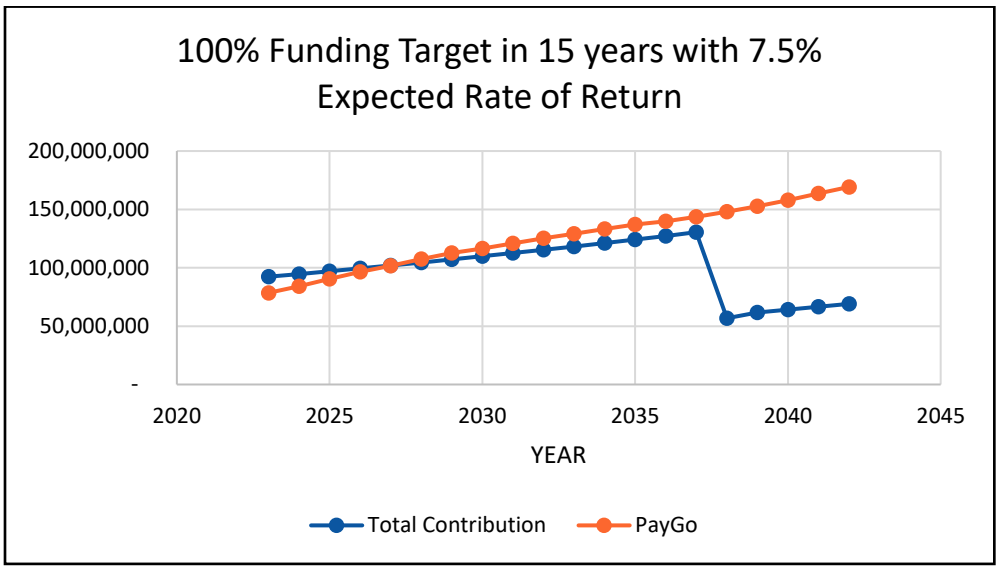


Appendix – 15 Year Duration, 7.50% Expected Rate of Return (cont'd)

Scenario 5

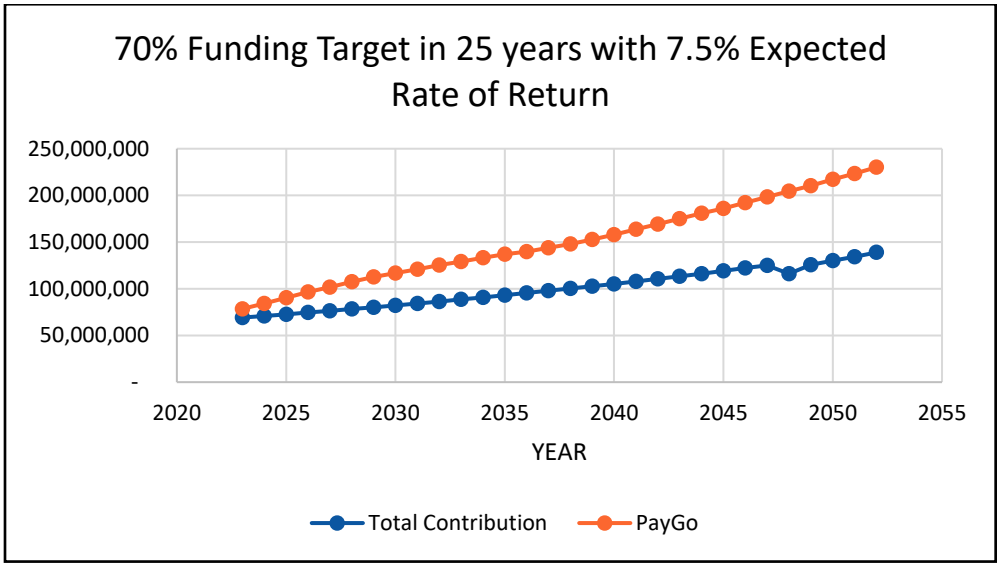


Scenario 6

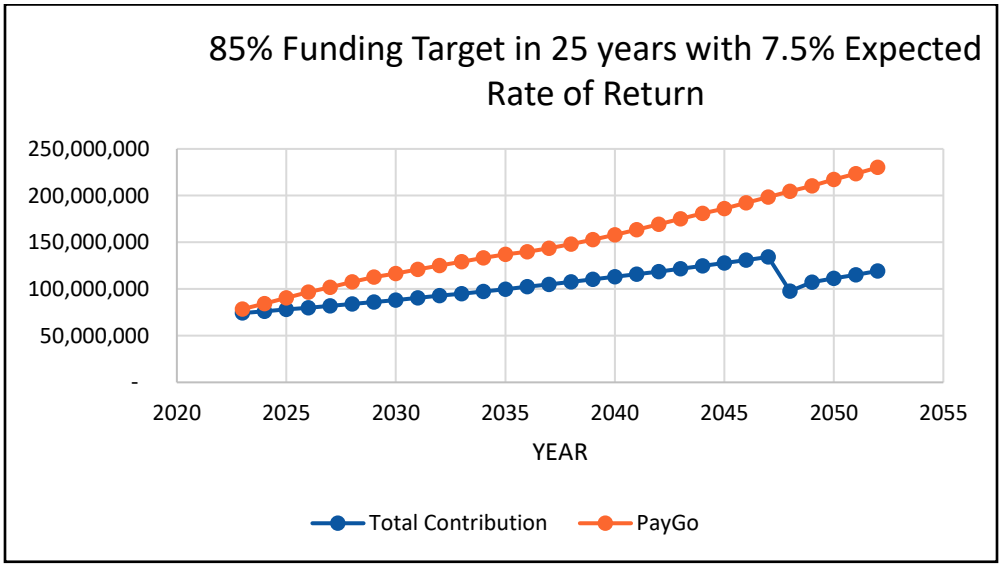


Appendix – 25 Year Duration, 7.50% Expected Rate of Return

Scenario 7

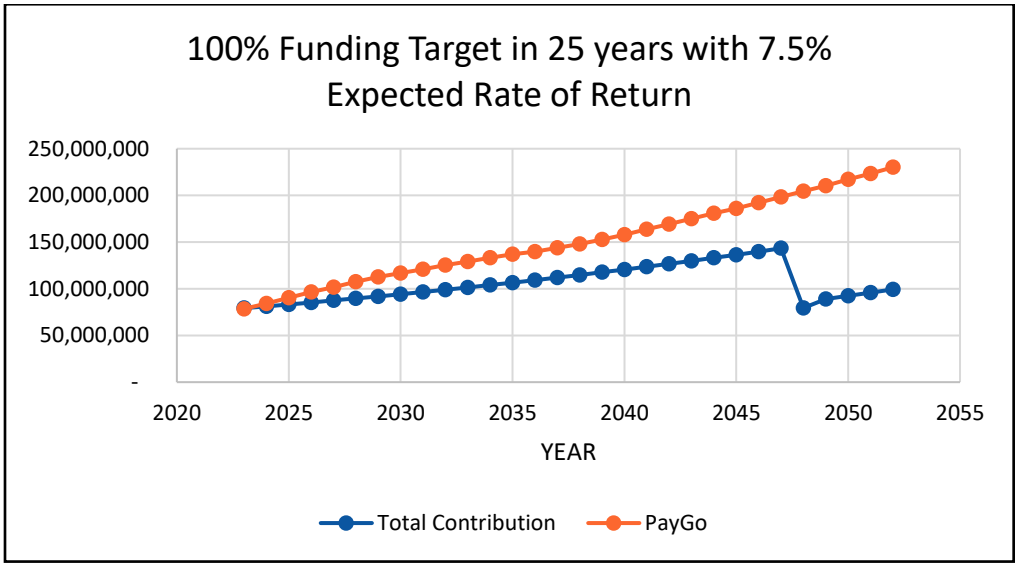


Scenario 8



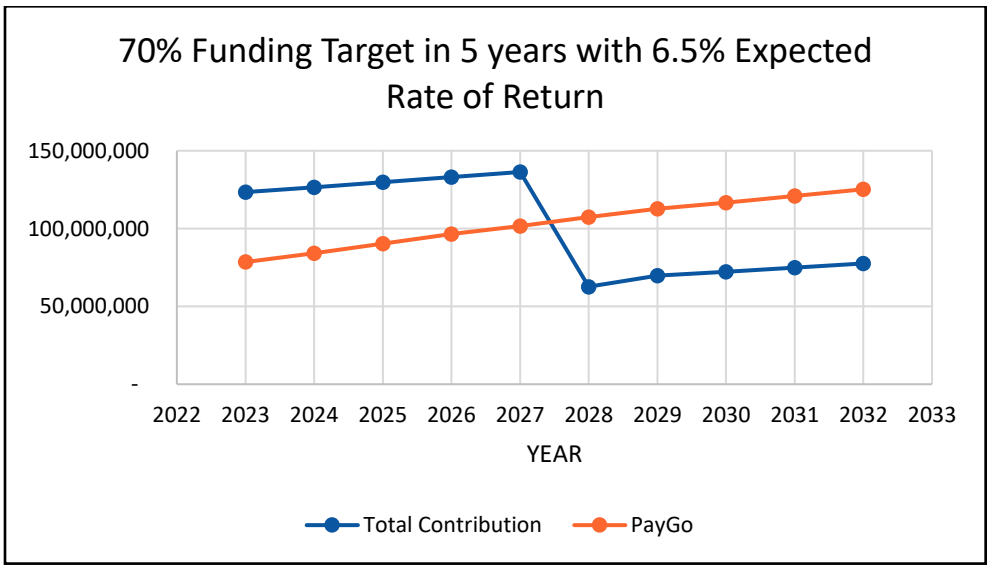
Appendix – 25 Year Duration, 7.50% Expected Rate of Return (cont'd)

Scenario 9



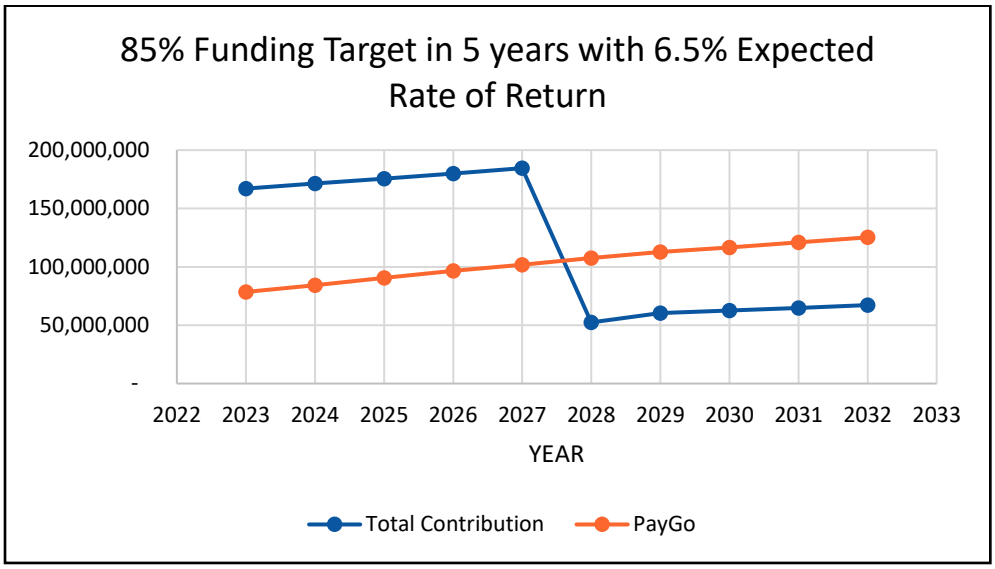
Appendix – 5 Year Duration, 6.50% Expected Rate of Return

Scenario 10

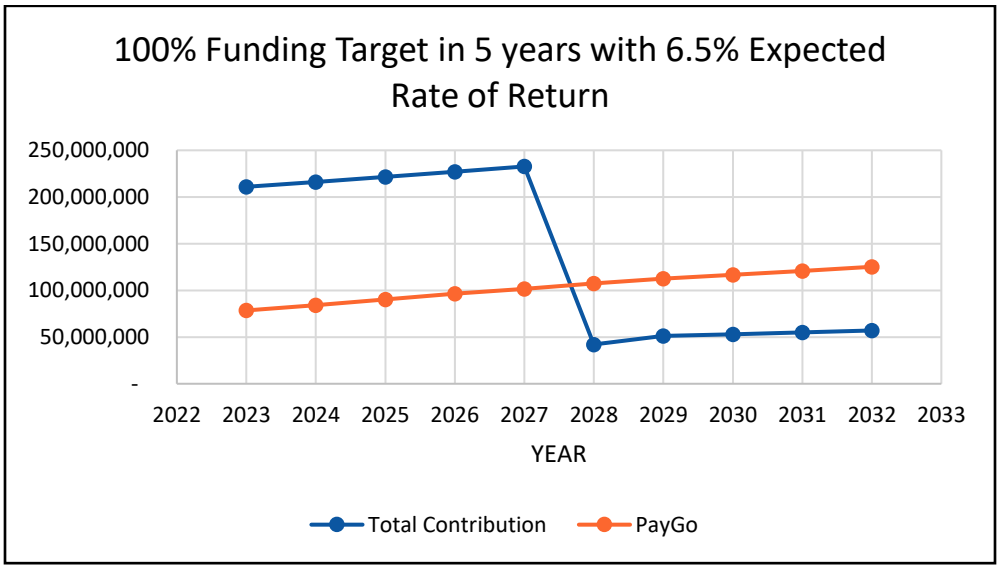


Appendix – 5 Year Duration, 6.50% Expected Rate of Return (cont'd)

Scenario 11

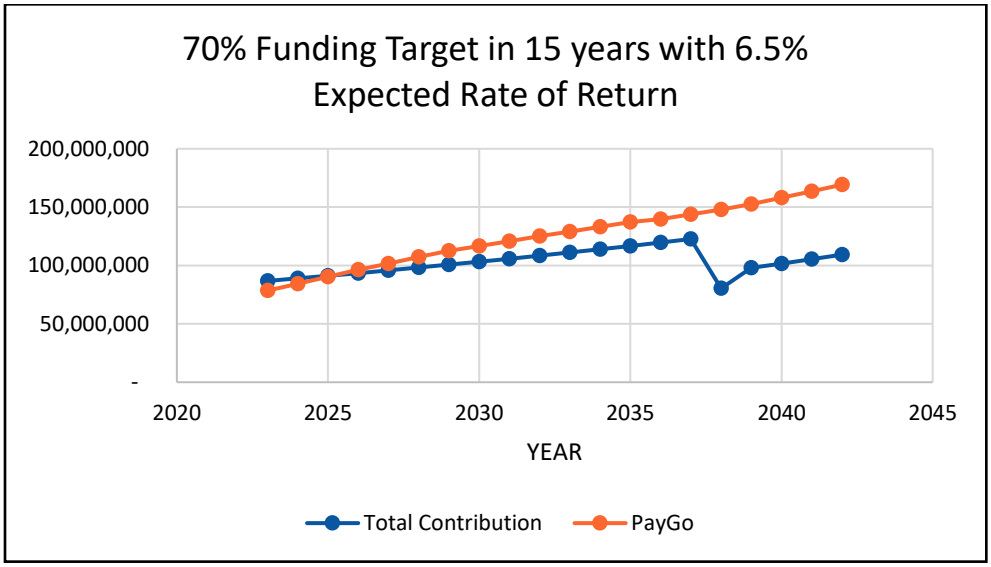


Scenario 12

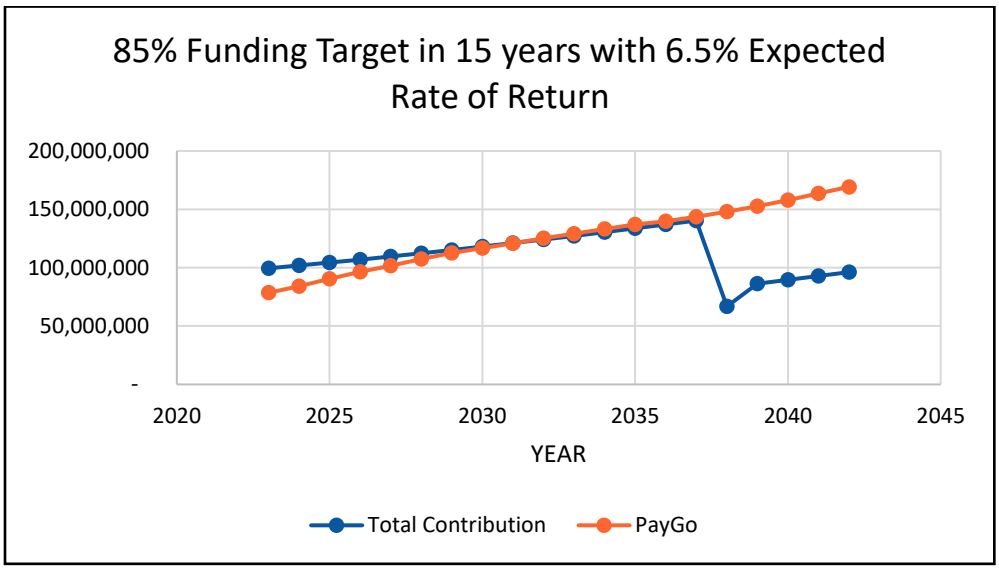


Appendix – 15 Year Duration, 6.50% Expected Rate of Return

Scenario 13

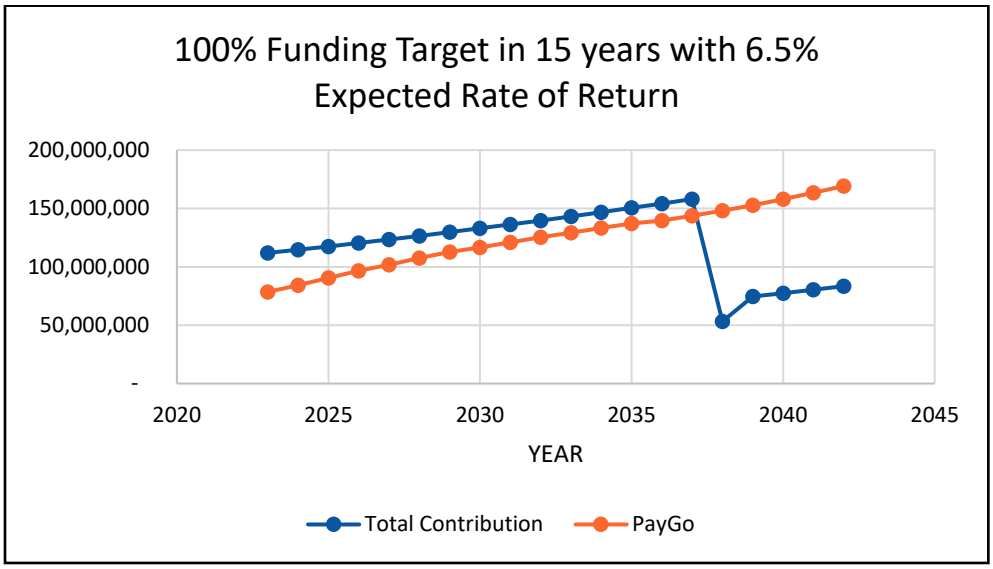


Scenario 14



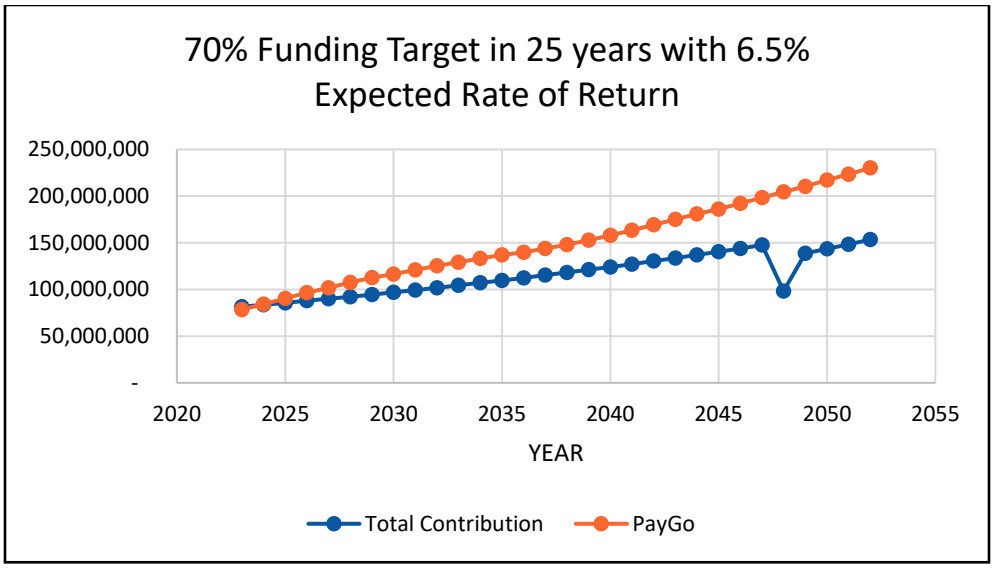
Appendix – 15 Year Duration, 6.50% Expected Rate of Return (con'd)

Scenario 15



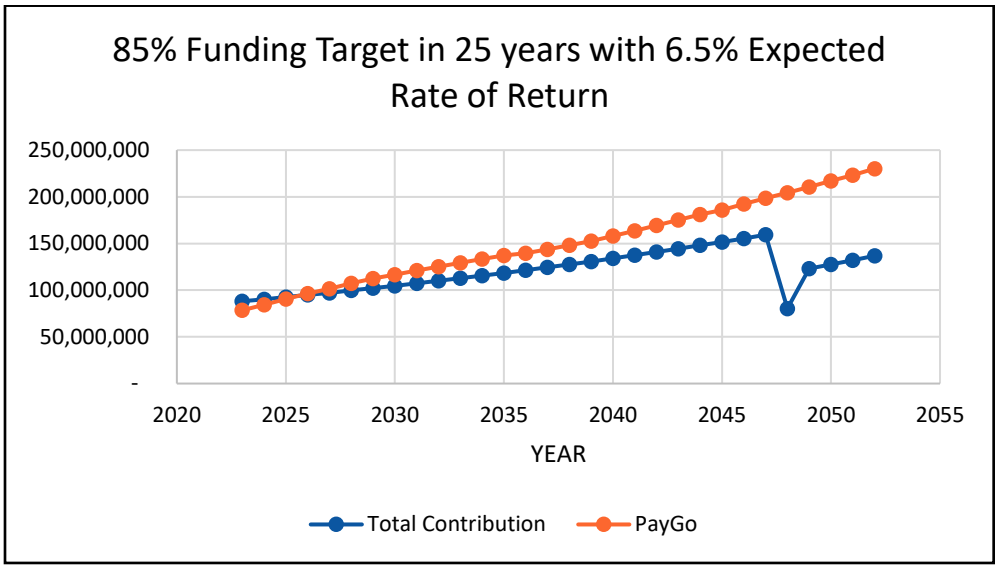
Appendix – 25 Year Duration, 6.50% Expected Rate of Return

Scenario 16

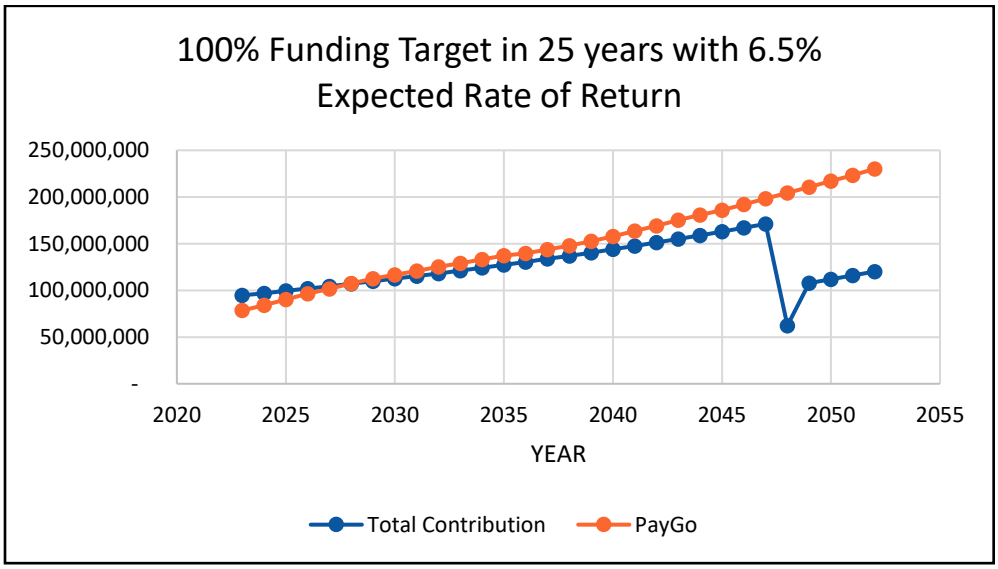


Appendix – 25 Year Duration, 6.50% Expected Rate of Return (cont'd)

Scenario 17



Scenario 18



Montgomery County Contribution Study
Stress Testing for Investment Return Volatility

In our letter of December 13, 2022 we presented estimated *county spend* for 5, 15 and 25 year funding periods, with 70, 85 and 100 percent funding targets, under both 6.5 and 7.5 percent projected annual investment returns (a total of 18 alternatives). The County requested that we focus on a 15 year, 85 percent funded target assuming 6.5 percent return contribution policy.

The County also requested we look at three potential fixed dollar trust withdrawal policies.

- No trust withdrawals or contributions
- $10 million withdrawn from the trust annually.
- $20 million withdrawn from the trust annually.

The December 13, 2022 study only looked at total county spend and funding percentage progression under level assumed return investment scenarios with no market gains or losses. While we presented the total cost spend under the assumed estimates scenario, one thing we know is that investment returns will vary over time. In this letter we look at how annual total county spend and funding ratios would vary when the actual experience varies from the actual.

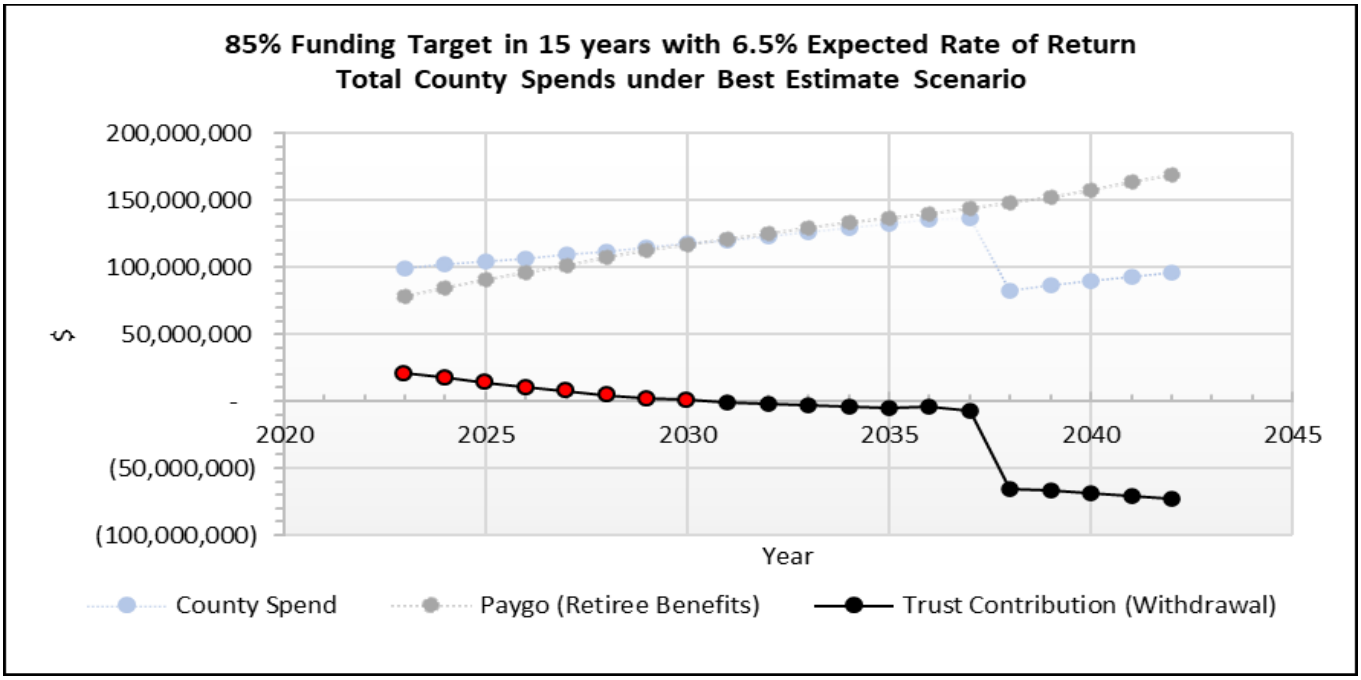
Total County Spend vs. Trust Contribution (Withdrawal)

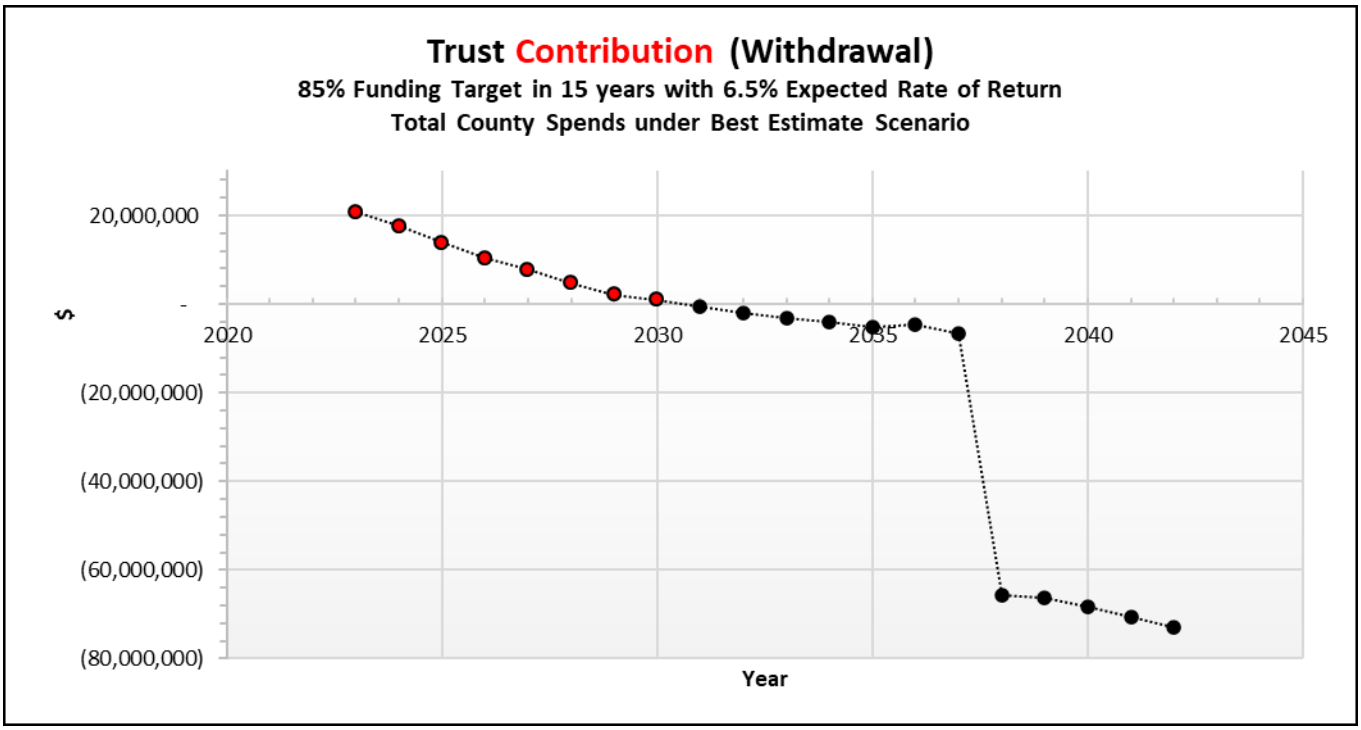
Actuarial Valuations and the GASB Accounting requirements focus on the total *county spend*. The total *county spend* includes retiree benefits (i.e. paygo cost) plus trust contributions minus trust withdrawals.

We understand the Montgomery County healthcare cost budget process combines retiree health benefits with employee health benefits. The County's OPEB budget is separate from that and focuses on the trust contribution, not the total county spend.

So while Bolton focuses on the total county spend, the County focuses on the trust contribution.

To illustrate the relationship between these three amounts the chart below graphs the projected county spend, retiree benefits, and trust contribution (withdrawal) from 2023 to 2043 under the 15 year 85 percent contribution policy baseline scenario investment return scenario. Note that the sum of the retiree benefits and the trust contribution equals the total county spend. Under this scenario, until 2030 the County will contribute to the trust. (these amounts are in red). Starting in 2030 the trust fund would be returning some of the funds to County general revenue (and the amounts are in black). After 2038, when the Plan reaches the 85 percent funding target, the total county spend reduces considerably and the amount that the trust returns to general revenue increases considerably. The second chart shows just the Trust contribution over the same period.


85% Funding Target in 15 years with 6.5% Expected Rate of Return
Total County Spends under Best Estimate Scenario
200,000,000
150,000,000
100,000,000
50,000,000
-
(50,000,000)
(100,000,000)
$
2020
2025
2030
2035
2040
2045
Year
County Spend
Paygo (Retiree Benefits)
Trust Contribution (Withdrawal)


Trust Contribution (Withdrawal)
85% Funding Target in 15 years with 6.5% Expected Rate of Return
Total County Spends under Best Estimate Scenario
20,000,000
-
(20,000,000)
(40,000,000)
(60,000,000)
(80,000,000)
$
2020
2025
2030
2035
2040
2045
Year

Stress Testing Investment Return Scenarios

To stress test the contribution and withdrawal policies under consideration we looked at four investment return alternatives projected over fifteen years. Table 1 shows investment return scenarios that were used.

Table 1 - Investment Return Scenarios

Year	Baseline	Lowest 10	Highest 10	Lowest Ten Year 5 to 14	Highest Ten Year 5 to 14
1	6.50%	7.81%	14.45%	6.50%	6.50%
2	6.50%	-3.94%	21.77%	6.50%	6.50%
3	6.50%	-6.67%	5.30%	6.50%	6.50%
4	6.50%	5.46%	10.89%	6.50%	6.50%
5	6.50%	17.16%	17.71%	7.81%	14.45%
6	6.50%	10.54%	2.86%	-3.94%	21.77%
7	6.50%	9.18%	1.90%	-6.67%	5.30%
8	6.50%	18.79%	12.12%	5.46%	10.89%
9	6.50%	-2.26%	9.07%	17.16%	17.71%
10	6.50%	-15.81%	8.71%	10.54%	2.86%
11	6.50%	6.50%	6.50%	9.18%	1.90%
12	6.50%	6.50%	6.50%	18.79%	12.12%
13	6.50%	6.50%	6.50%	-2.26%	9.07%
14	6.50%	6.50%	6.50%	-15.81%	8.71%

These scenarios are all based on actual Montgomery County retirement plan historic annual investment returns from 2000 to 2021. We selected the ten consecutive years with the lowest and highest investment return. For each of these two ten-year historical returns. we looked at how the contribution policies would behave

1. Lowest historical ten-year pattern from years one to ten followed by the expected return
2. Highest historical ten- year pattern from years one to ten followed by the expected return
3. Expected return for the first four years followed by the lowest ten-year historic return from year five to year fourteen
4. Expected return for the first four years followed by the highest ten-year historic return from year five to year fourteen

We also show the performance of the contribution polices under the baseline experience assuming no gains or losses.

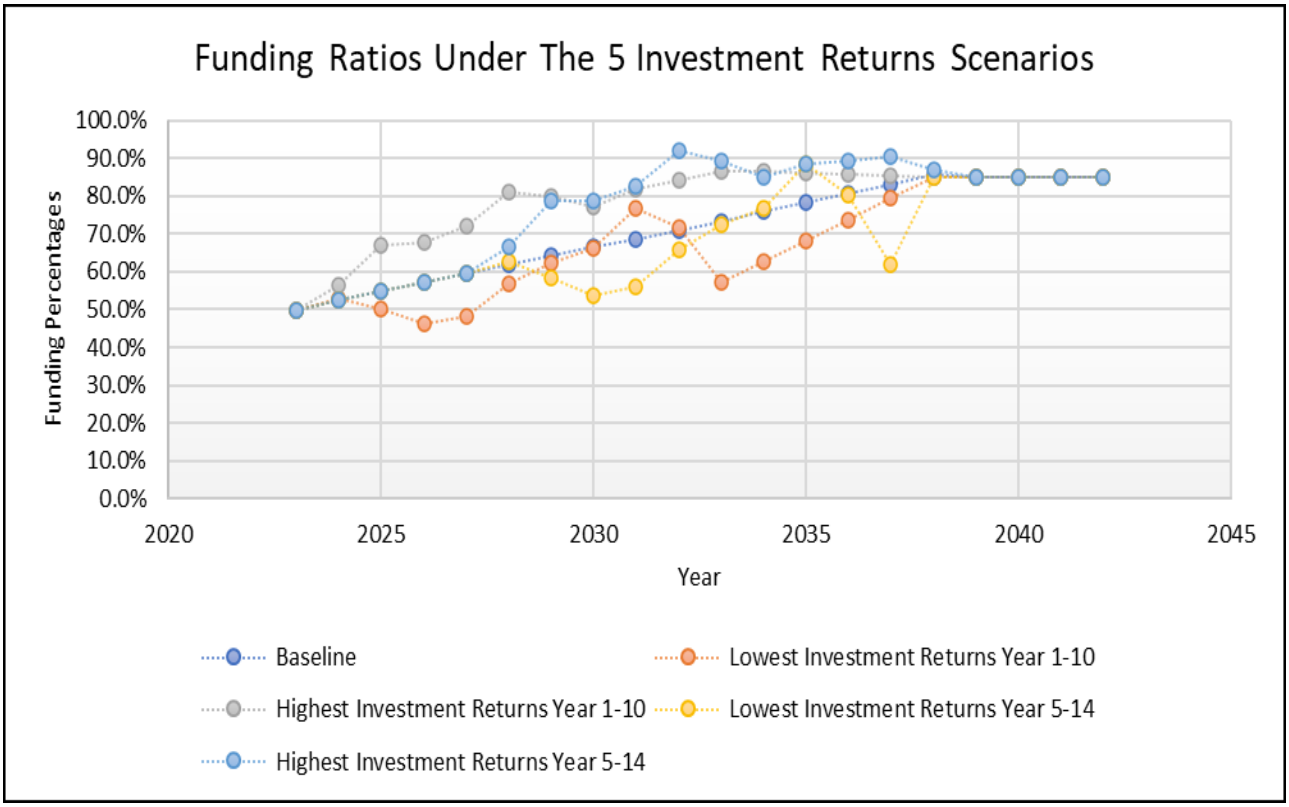
In addition to the variance due to variation in investment returns, there will also be variance in liabilities due to medical costs increasing differently than anticipated and changes in turnover, retirement and mortality. **We are not modeling liability gains and losses at this time.** This is partially to simplify the analysis, in addition liability experience can be controlled by the County to some extent by plan changes and managing medical costs. The investment market is beyond the County's control. However, the actual combined asset and liability volatility could potentially be greater than the investment return volatility modeled in this analysis.

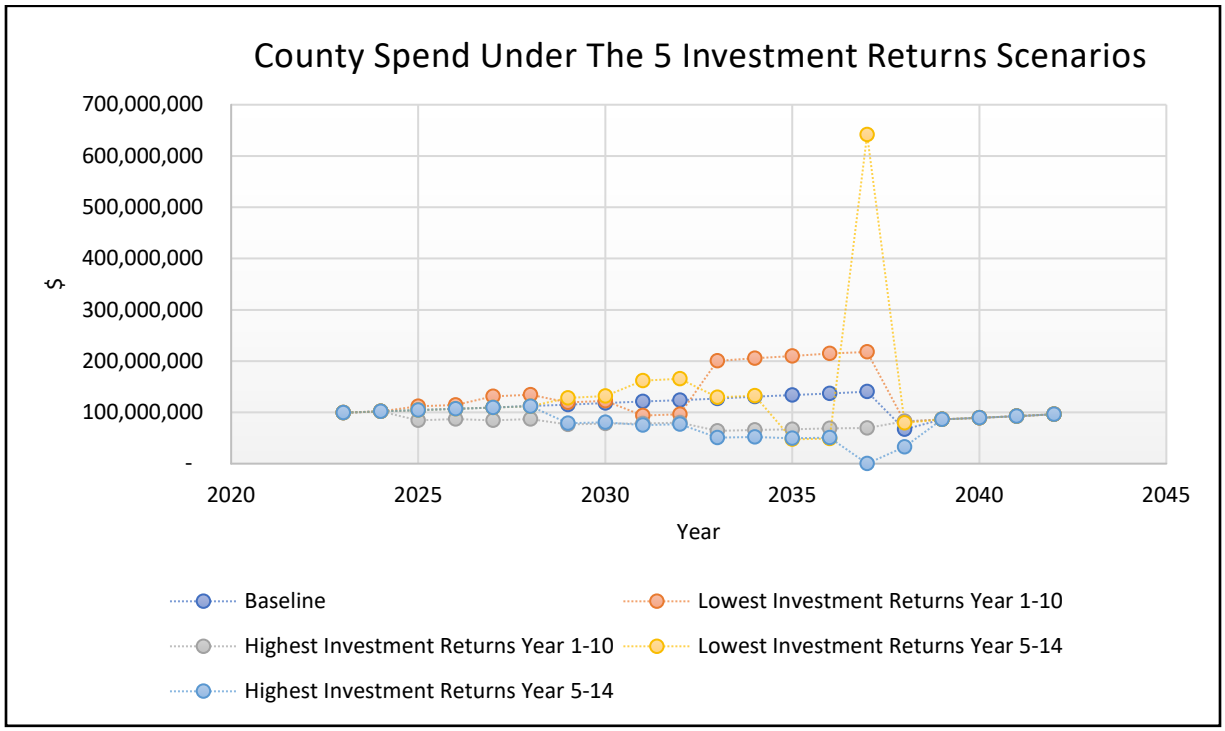
The appendixes provide the assets, liabilities, unfunded liability, funded ratio and total county spend for each contribution policy and investment return scenario over the projection period.

15 Year 85 Percent Funding Target

We looked at the funding ratios and total county spend under the five investment returns scenarios. One approach we looked at was locking in the funding target year. Under this methodology, if the 15 year funding target ended in 2038, for the 2025 valuation the funding target is 13 years away, for the 2027 valuation the funding target is 11 years away and so on. Under each investment scenarios the plan would be 85 percent funded by year 15. For years 15 to 20, we determined the total county spend necessary to maintain 85 percent funding.

The following graph compares the total county spend under the 5 investment returns scenarios, the total county spend volatility increases over time as the valuations draw closer to the target year. When the lowest 10 years of investment return are from year five to year fourteen, there is a very great risk of contribution volatility with the total county spend decreasing from $128.7 million in year 10, to $46.9 million in year 12 and ballooning to $641.3 million in year 14. The volatility stems from the short time period to make up for investment return liability (only one year in year 14).

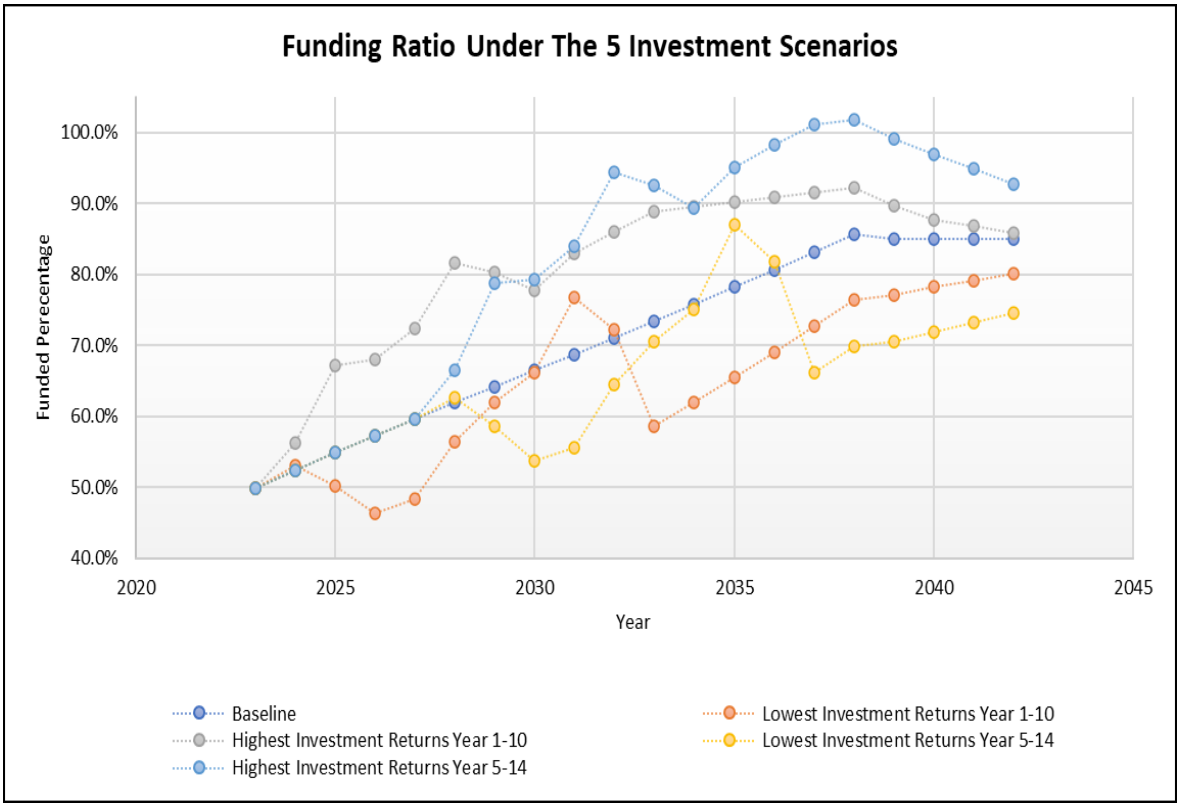

Funding Ratios Under The 5 Investment Returns Scenarios
Funding Percentages
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
2020
2025
2030
2035
2040
2045
Year
Baseline
Lowest Investment Returns Year 1-10
Highest Investment Returns Year 1-10
Lowest Investment Returns Year 5-14
Highest Investment Returns Year 5-14


County Spend Under The 5 Investment Returns Scenarios
$
700,000,000
600,000,000
500,000,000
400,000,000
300,000,000
200,000,000
100,000,000
-
2020
2025
2030
2035
2040
2045
Year
Baseline
Lowest Investment Returns Year 1-10
Highest Investment Returns Year 1-10
Lowest Investment Returns Year 5-14
Highest Investment Returns Year 5-14

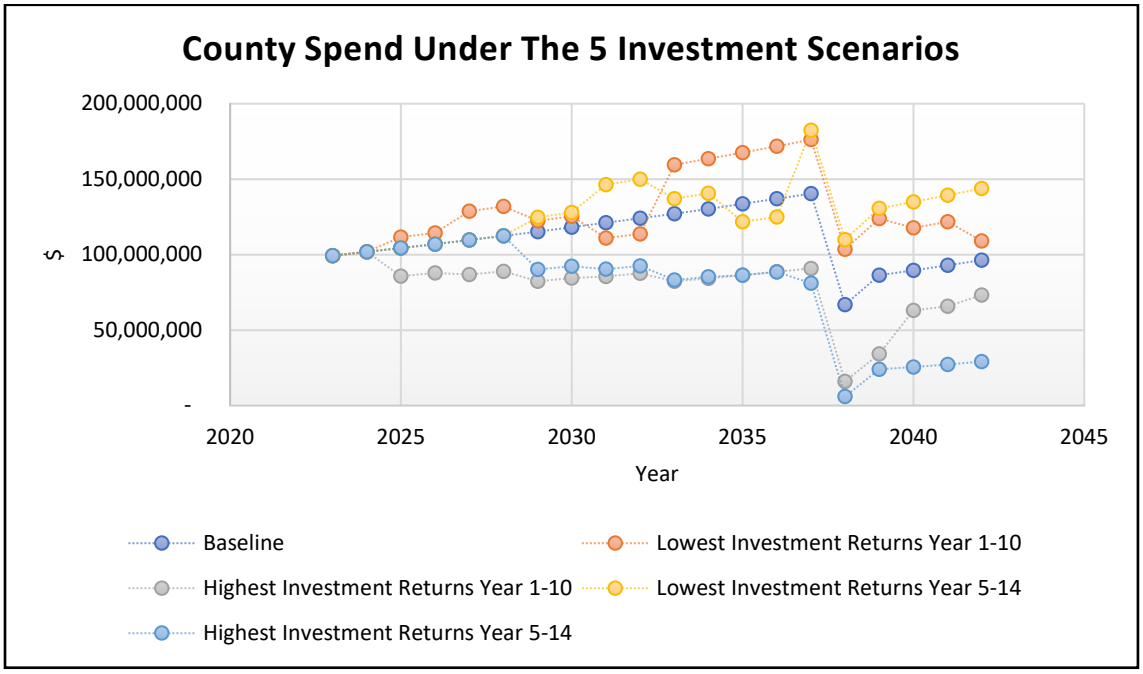
Modified 15 Year 85 Percent Funding Target

The graph illustrates that using a fixed point in time as the target creates very high contribution volatility as the end point is approached. To reduce the contribution volatility we looked at a method that adds layers by amortizing gains and losses over 15 years (from the time incurred) instead of shortening the amortization period so that all of the payments ended by the funding target year. This method is commonly applied to pension and OPEB plan contribution policies. This results in some of the amortization payments extending beyond the funding target year. While this reduces contribution volatility, it also allows the funding ratio to be something other than 85 percent funded after 15 years. This is because some amortization payments will extend beyond the target year. For example, for a 2023 valuation with a 15 year target period ending in 2038, the gains or losses that occur between the 2023 and 2025 valuation would be paid over 15 years ending in 2040, two years after the original target year.

The following graph compares the funding ratio and total county spend under the 5 investment scenarios under this contribution policy.



At the end of the 15-year period, the funded ratios are between 69.9 and 101.7 percent funded (roughly within a 15 percent corridor of the funding target). At the end of the 20-year period, the funded ratios narrow to between 74.6 percent and 92.7 percent funded. The narrowing of the range is to be expected as there is no investment return volatility after year 15 in five investment return scenarios. While there will be investment return volatility in all years, the last five years are included to demonstrate how substantial contribution volatility will remain several years after the investment return volatility occurs.



In the final year of the fifteen-year transition period, the total county spend are between $81 million and $182 million while the baseline county spend is $140 million. In year 16 the county spend ranges between $6 and $110 million, with the baseline county spend is $67 million.

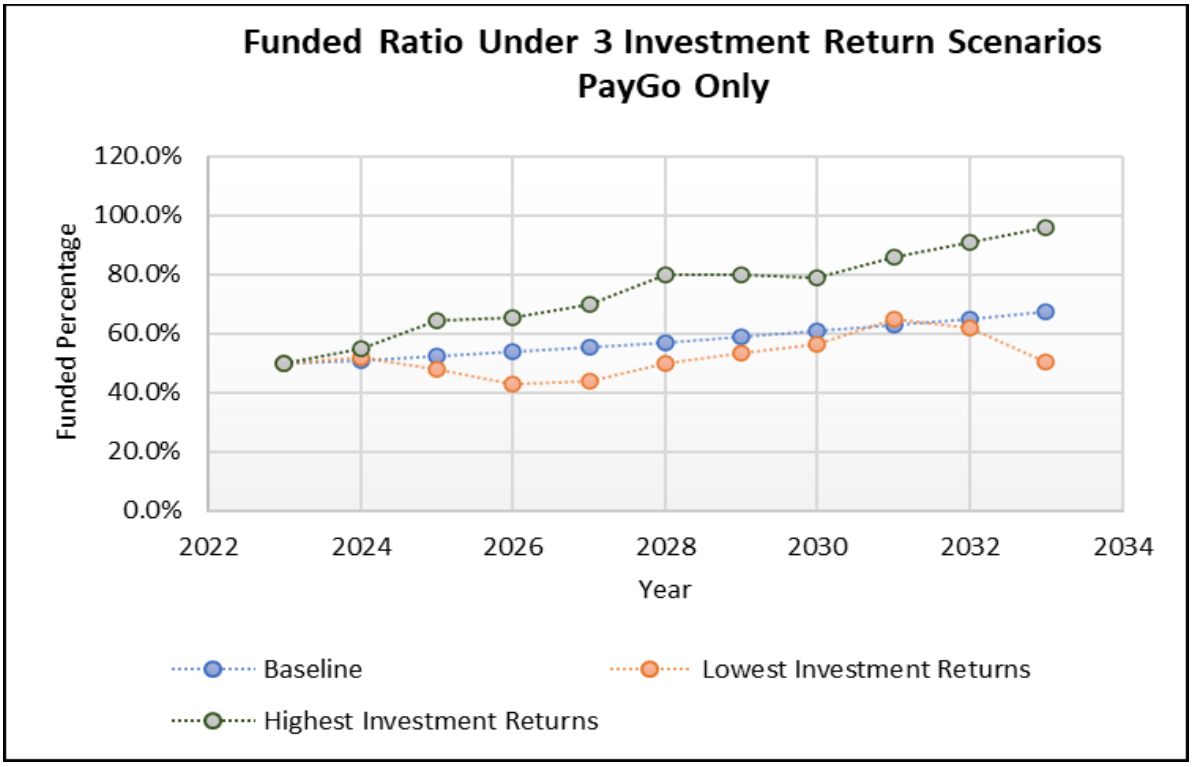
Fixed Trust Contribution Withdrawal Contribution Policy

The first two contribution policies are *actuarial* solutions to OPEB funding. The trust contribution (or withdrawal) is actuarially determined based on assets and liabilities as of the valuation date. The methodology is transparent and can be readily audited. Since the benefit payments increase with medical trend, which increases faster than payroll, over time the negative net trust contribution (or amount that is to be withdrawn from the trust) will increase.

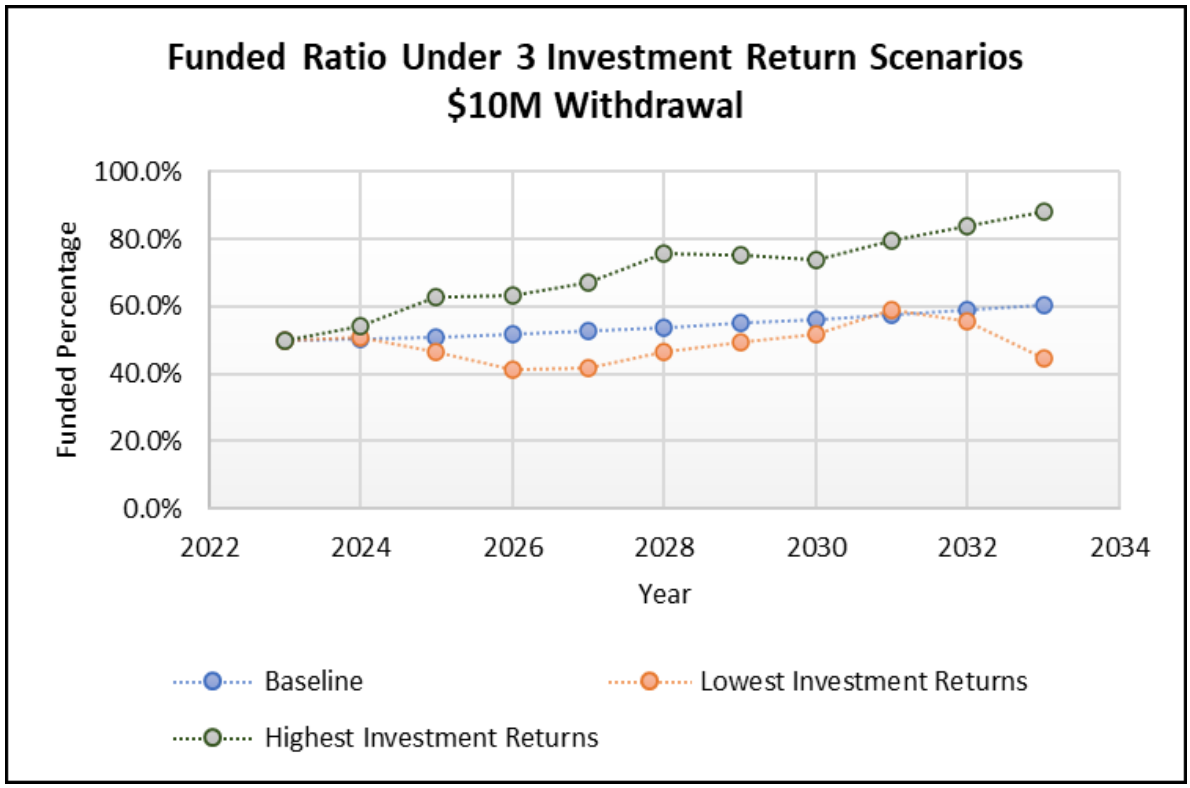
From a budgetary perspective though it is difficult to determine the long-term net contribution to the plan. Therefore, we were also asked to look at fixed dollar withdrawals from the trust. The initial amount could be set based on some criteria, for example the County could withdraw the fixed dollar amounts which is projected to result in the plan being 60 percent funded in 10 years. This contribution policy is easier to the County's long-term planning. However, the amount would need to be re-evaluated periodically. This contribution policy results in less contribution volatility at the expense of more funded percentage volatility.

Because this contribution policy would need to be updated more frequently than actuarial solutions, we only looked at 10-year periods. Once we limit the projection period to 10 years, there is no need to look at deferring the least and highest investment return four years, so there are only 3 investment return scenarios for the three contribution polices.

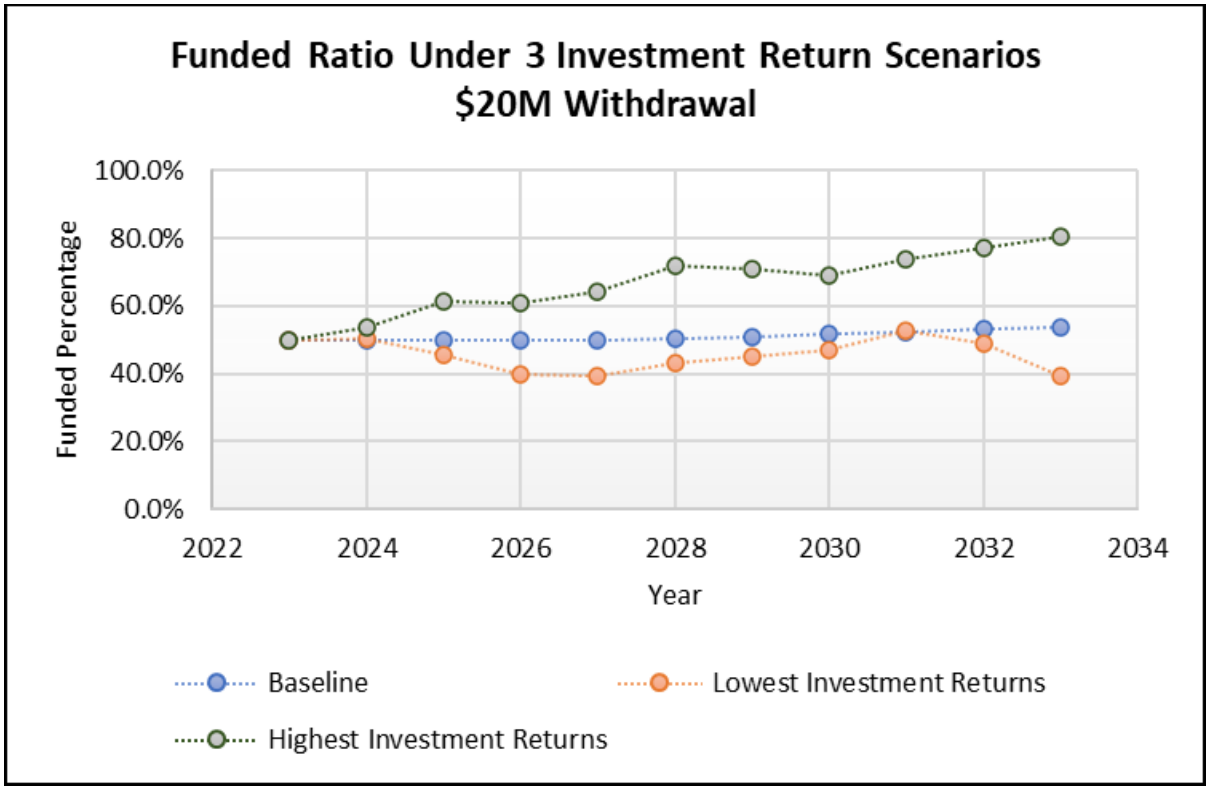
The following graph compares the funded percentage if the County makes no contributions to or withdraws funds from the trust (the current trust balance just grows with investment returns). Under the accounting rules, the benefit payments that are paid by general revenue are treated as employer contributions, and the county spend is equal to Paygo costs. After 10 years the funded ratio is 95.7 percent under the highest 10 year investment return scenario, 67.2 percent under the baseline investment return scenario, and 50.4 percent under the lowest 10 year investment return scenario. Under the lowest ten-year investment return scenario the funded ratio gets as low as 43.0 percent.


Funded Ratio Under 3 Investment Return Scenarios
PayGo Only
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
Funded Percentage
2022
2024
2026
2028
2030
2032
2034
Year
Baseline
Lowest Investment Returns
Highest Investment Returns

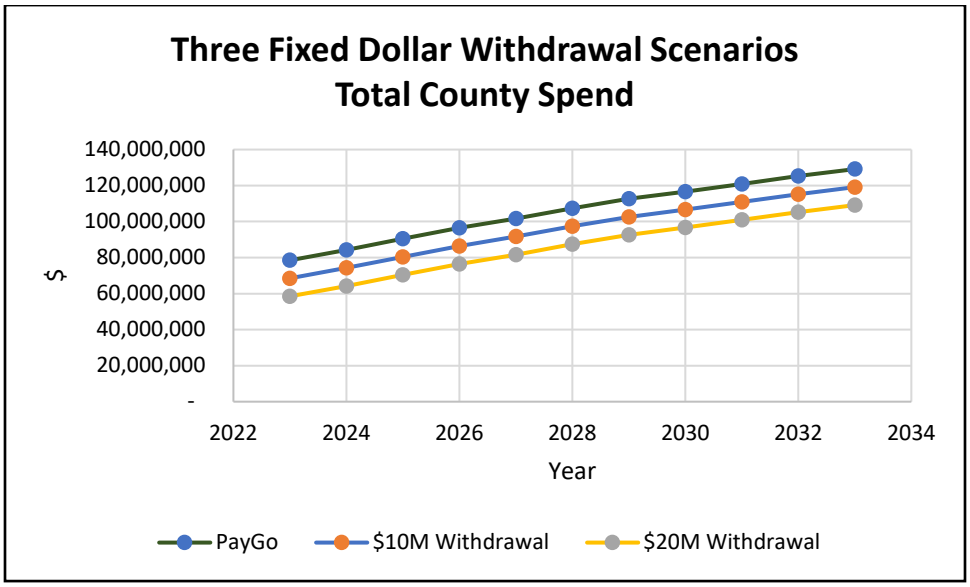
The following graph compares the funded percentage if the County withdraws $10 million from the trust annually. After 10 years the funded ratio is 88.0 percent under the highest 10 year investment return scenario, 60.5 percent under the baseline investment return scenario, and 44.8 percent under the lowest 10 year investment return scenario. Under the lowest ten-year investment return scenario the funded ratio gets as low as 41.3 percent.



The following graph compares the funded percentage if the County withdraws $20 million from the trust annually. After 10 years the funded ratio is 80.4 percent under the highest ten-year investment return scenario, 53.8 percent under the baseline investment return scenario, and 39.2 percent under the lowest investment return scenario. Under the lowest investment return scenario the funded ratio gets as low as 39.2 percent.



The final graph compares the County Spend under the three fixed dollar withdrawal scenarios. Note that the investment return has no impact on the contributions.



Conclusions

Actuarial contribution policies, try and strike a balance between predictability (minimizing contribution volatility) and accountability (keeping the funding ratio reasonably close to the contribution policy goals). These two goals are naturally in conflict, and improving one, will cause the other to not be as optimal as before.

While the 15 year modified funding target does keep the funded ratio within 15 percent of the funding target after 15 years, in comes at the expense of considerable contribution volatility with year 15 county spend of between $81million and $182 million . There are several reasons that even greater asset and liability volatility could occur.

- We only modeled 10 years of actual volatility. The other 5 years investment returns were the expected return of 6.5 percent.
- We did not model liability volatility.
- There was only a 21 year sample of investment returns to use. So while we did select the 10 year extremes, a stochastic model might well find that these return scenarios do not have an unusual amount of volatility.

Furthermore we compare the county spend, the net cash contributions or withdrawals will appear to be even more volatile.

The County could consider other methods to reduce volatility, these could include.

- Asset Smoothing
- Building a “rainy day fund” that would set aside within the Trust, excess investment return over a certain threshold (e.g. 10, 12 or 15 percent). That could be used when investment return is below a certain threshold (e.g. 3, -1 or -6 percent).
- A more conservative investment policy.
- Plan Changes to minimize liability volatility.

Methods and Assumptions

These results are based on the most current valuation report that provides the FYE 2022 and FYE 2023 Actuarially Determined Contribution. Results are based on an open group population.

For the 15 year funding target contribution policies, In lieu of calculating an annual ADC, contributions were determined prospectively. Instead of focusing on the liability at the valuation date, the contribution was determined based on the estimated OPEB benefits paid until the target date and the estimated liability at the end of the transition period (the target year).

Actuarial Certification

Future actuarial measurements may differ significantly from the current measurements presented in this letter due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions, applicable law or accounting rules.

The actuarial methods and assumptions used in this letter comply with the actuarial standards of practice promulgated by the Actuarial Standards Board.

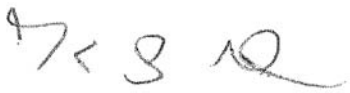
Future medical care cost increase rates are unpredictable and could be volatile. They will depend upon the economy, future health care delivery systems, and emerging technologies. The trend rate selected is based on an economic model developed by a health care economist for the Society of Actuaries. Future medical trend increases could vary significantly from the model. Model inputs will be updated periodically based on the best estimate of the economy at that time. Small changes in the model inputs can result in actuarial losses or gains of 5 to 15 percent of liabilities. Recent inflation, if it were to continue adds to this risk.

The analysis was completed using both proprietary and third-party models (including software and tools). We have tested these models to ensure they are used for their intended purposes, within their known limitations, and without any known material inconsistencies unless otherwise stated.

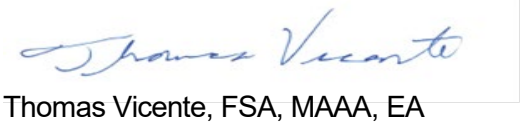
Bolton Partners is completely independent of Montgomery County Government, its programs, activities, and any of its officers or key personnel. Bolton Partners, and anyone closely associated with us, does not have any relationship which would impair our independence on this assignment. Kevin Binder and Tom Vicente are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this letter. Please let us know if you have any questions concerning this letter.

Sincerely,

BOLTON PARTNERS, INC.



Kevin Binder, FSA, MAAA, EA



Thomas Vicente, FSA, MAAA, EA

Appendices

Montgomery County Contribution Study
County Contributes ADC to the Trust Annually
85% Funding Target in 15 years with 6.5% Expected Rate of Return

FYE	Assets					Liability	Funded Percentage				
	Baseline	Lowest Investment Returns Year 1-10	Highest Investment Returns Year 1-10	Lowest Investment Returns Year 5-14	Highest Investment Returns Year 5-14		Baseline	Lowest Investment Returns Year 1-10	Highest Investment Returns Year 1-10	Lowest Investment Returns Year 5-14	Highest Investment Returns Year 5-14
2023	743,793,000	743,793,000	743,793,000	743,793,000	743,793,000	1,491,525,000	49.9%	49.9%	49.9%	49.9%	49.9%
2024	813,266,000	823,139,000	873,171,000	813,266,000	813,266,000	1,551,904,000	52.4%	53.0%	56.3%	52.4%	52.4%
2025	883,898,000	807,584,000	1,082,263,000	883,898,000	883,898,000	1,611,124,000	54.9%	50.1%	67.2%	54.9%	54.9%
2026	955,369,000	774,056,000	1,133,204,000	955,248,000	955,248,000	1,668,888,000	57.2%	46.4%	67.9%	57.2%	57.2%
2027	1,027,892,000	834,554,000	1,245,834,000	1,027,638,000	1,027,638,000	1,725,364,000	59.6%	48.4%	72.2%	59.6%	59.6%
2028	1,102,520,000	1,009,375,000	1,447,552,000	1,115,484,000	1,183,949,000	1,781,692,000	61.9%	56.7%	81.2%	62.6%	66.5%
2029	1,178,884,000	1,143,864,000	1,467,571,000	1,075,731,000	1,446,421,000	1,837,304,000	64.2%	62.3%	79.9%	58.5%	78.7%
2030	1,257,729,000	1,255,415,000	1,458,079,000	1,018,833,000	1,487,989,000	1,892,906,000	66.4%	66.3%	77.0%	53.8%	78.6%
2031	1,340,550,000	1,497,034,000	1,593,378,000	1,089,447,000	1,611,892,000	1,949,864,000	68.8%	76.8%	81.7%	55.9%	82.7%
2032	1,427,368,000	1,436,231,000	1,692,724,000	1,320,016,000	1,847,099,000	2,008,058,000	71.1%	71.5%	84.3%	65.7%	92.0%
2033	1,518,460,000	1,182,295,000	1,792,558,000	1,501,187,000	1,850,431,000	2,067,735,000	73.4%	57.2%	86.7%	72.6%	89.5%
2034	1,614,639,000	1,332,284,000	1,841,310,000	1,638,501,000	1,806,234,000	2,129,666,000	75.8%	62.6%	86.5%	76.9%	84.8%
2035	1,716,124,000	1,492,968,000	1,890,655,000	1,944,913,000	1,938,924,000	2,193,832,000	78.2%	68.1%	86.2%	88.7%	88.4%
2036	1,823,527,000	1,664,471,000	1,940,574,000	1,811,781,000	2,022,827,000	2,260,597,000	80.7%	73.6%	85.8%	80.1%	89.5%
2037	1,938,659,000	1,849,833,000	1,992,765,000	1,441,260,000	2,105,774,000	2,331,521,000	83.1%	79.3%	85.5%	61.8%	90.3%
2038	2,060,662,000	2,045,963,000	2,045,116,000	2,048,386,000	2,093,769,000	2,405,552,000	85.7%	85.1%	85.0%	85.2%	87.0%
2039	2,110,238,000	2,110,238,000	2,110,238,000	2,110,238,000	2,110,238,000	2,482,633,000	85.0%	85.0%	85.0%	85.0%	85.0%
2040	2,178,410,000	2,178,410,000	2,178,410,000	2,178,410,000	2,178,410,000	2,562,835,000	85.0%	85.0%	85.0%	85.0%	85.0%
2041	2,248,828,000	2,248,828,000	2,248,828,000	2,248,828,000	2,248,828,000	2,645,680,000	85.0%	85.0%	85.0%	85.0%	85.0%
2042	2,321,443,000	2,321,443,000	2,321,443,000	2,321,443,000	2,321,443,000	2,731,109,000	85.0%	85.0%	85.0%	85.0%	85.0%

B

Montgomery County Contribution Study
County Contributes ADC to the Trust Annually
85% Funding Target in 15 years with 6.5% Expected Rate of Return

FYE	Contribution				
	Baseline	Lowest Investment Returns Year 1-10	Highest Investment Returns Year 1-10	Lowest Investment Returns Year 5-14	Highest Investment Returns Year 5-14
2023	99,350,000	99,350,000	99,350,000	99,350,000	99,350,000
2024	101,834,000	101,834,000	101,834,000	101,834,000	101,834,000
2025	104,380,000	111,849,000	84,542,000	104,262,000	104,262,000
2026	106,989,000	114,645,000	86,655,000	106,869,000	106,869,000
2027	109,664,000	131,296,000	84,654,000	109,399,000	109,399,000
2028	112,406,000	134,579,000	86,770,000	112,134,000	112,134,000
2029	115,216,000	119,331,000	76,042,000	128,442,000	78,870,000
2030	118,096,000	122,314,000	77,943,000	131,653,000	80,842,000
2031	121,049,000	94,076,000	78,102,000	161,655,000	75,032,000
2032	124,075,000	96,428,000	80,054,000	165,696,000	76,908,000
2033	127,177,000	200,493,000	63,956,000	129,146,000	51,008,000
2034	130,356,000	205,505,000	65,555,000	132,374,000	52,283,000
2035	133,615,000	209,783,000	66,920,000	47,428,000	49,580,000
2036	136,956,000	215,027,000	68,593,000	48,614,000	50,819,000
2037	140,379,000	217,803,000	69,478,000	641,794,000	-
2038	66,811,000	81,980,000	82,855,000	79,481,000	32,645,000
2039	86,374,000	86,374,000	86,374,000	86,374,000	86,374,000
2040	89,547,000	89,547,000	89,547,000	89,547,000	89,547,000
2041	92,868,000	92,868,000	92,868,000	92,868,000	92,868,000
2042	96,284,000	96,284,000	96,284,000	96,284,000	96,284,000

Montgomery County Contribution Study
County Contributes ADC to the Trust Annually
Modified 85% Funding Target in 15 years with 6.5% Expected Rate of Return

	Assets						Funded Percentage				
FYE	Baseline	Lowest Investment Returns Year 1-10	Highest Investment Returns Year 1-10	Lowest Investment Returns Year 5-14	Highest Investment Returns Year 5-14	Liability	Baseline	Lowest Investment Returnss Year 1-10	Highest Investment Returnss Year 1-10	Lowest Investment Returnss Year 5-14	Highest Investment Returnss Year 5-14
2023	743,793,000	743,793,000	743,793,000	743,793,000	743,793,000	1,491,525,000	49.9%	49.9%	49.9%	49.9%	49.9%
2024	813,266,000	823,139,000	823,139,000	813,266,000	813,266,000	1,551,904,000	52.4%	53.0%	56.3%	52.4%	52.4%
2025	883,898,000	807,584,000	807,584,000	883,898,000	883,898,000	1,611,124,000	54.9%	50.1%	67.2%	54.9%	54.9%
2026	955,369,000	773,751,000	773,751,000	955,369,000	955,369,000	1,668,888,000	57.2%	46.4%	68.0%	57.2%	57.2%
2027	1,027,892,000	833,901,000	833,901,000	1,027,892,000	1,027,892,000	1,725,364,000	59.6%	48.3%	72.4%	59.6%	59.6%
2028	1,102,520,000	1,005,859,000	1,005,859,000	1,116,033,000	1,184,524,000	1,781,692,000	61.9%	56.5%	81.6%	62.6%	66.5%
2029	1,178,884,000	1,137,238,000	1,137,238,000	1,076,525,000	1,447,421,000	1,837,304,000	64.2%	61.9%	80.3%	58.6%	78.8%
2030	1,257,729,000	1,251,295,000	1,251,295,000	1,016,043,000	1,500,601,000	1,892,906,000	66.4%	66.1%	77.8%	53.7%	79.3%
2031	1,340,550,000	1,495,468,000	1,495,468,000	1,082,657,000	1,638,034,000	1,949,864,000	68.8%	76.7%	82.9%	55.5%	84.0%
2032	1,427,368,000	1,451,475,000	1,451,475,000	1,295,504,000	1,894,480,000	2,008,058,000	71.1%	72.3%	85.9%	64.5%	94.3%
2033	1,518,460,000	1,211,087,000	1,211,087,000	1,457,606,000	1,915,081,000	2,067,735,000	73.4%	58.6%	88.8%	70.5%	92.6%
2034	1,614,639,000	1,320,746,000	1,320,746,000	1,599,252,000	1,904,699,000	2,129,666,000	75.8%	62.0%	89.5%	75.1%	89.4%
2035	1,716,124,000	1,437,423,000	1,437,423,000	1,907,198,000	2,084,357,000	2,193,832,000	78.2%	65.5%	90.2%	86.9%	95.0%
2036	1,823,527,000	1,561,864,000	1,561,864,000	1,848,514,000	2,219,793,000	2,260,597,000	80.7%	69.1%	90.9%	81.8%	98.2%
2037	1,938,659,000	1,696,019,000	1,696,019,000	1,542,197,000	2,359,131,000	2,331,521,000	83.1%	72.7%	91.6%	66.1%	101.2%
2038	2,060,662,000	1,839,183,000	1,839,183,000	1,681,855,000	2,447,188,000	2,405,552,000	85.7%	76.5%	92.3%	69.9%	101.7%
2039	2,110,238,000	1,912,218,000	1,912,218,000	1,751,319,000	2,459,080,000	2,482,633,000	85.0%	77.0%	89.7%	70.5%	99.1%
2040	2,178,410,000	2,006,321,000	2,006,321,000	1,841,784,000	2,485,548,000	2,562,835,000	85.0%	78.3%	87.8%	71.9%	97.0%
2041	2,248,828,000	2,094,633,000	2,094,633,000	1,937,085,000	2,509,942,000	2,645,680,000	85.0%	79.2%	86.8%	73.2%	94.9%
2042	2,321,443,000	2,187,032,000	2,187,032,000	2,037,369,000	2,531,891,000	2,731,109,000	85.0%	80.1%	85.8%	74.6%	92.7%

Montgomery County Contribution Study
County Contributes ADC to the Trust Annually
Modified 85% Funding Target in 15 years with 6.5% Expected Rate of Return

	Contribution				
FYE	Baseline	Lowest Investment Returnss Year 1-10	Highest Investment Returnss Year 1-10	Lowest Investment Returnss Year 5-14	Highest Investment Returnss Year 5-14
2023	99,350,000	99,350,000	99,350,000	99,350,000	99,350,000
2024	101,834,000	101,834,000	101,834,000	101,834,000	101,834,000
2025	104,380,000	111,534,000	85,797,000	104,380,000	104,380,000
2026	106,989,000	114,322,000	87,942,000	106,989,000	106,989,000
2027	109,664,000	128,755,000	86,808,000	109,664,000	109,664,000
2028	112,406,000	131,973,000	88,978,000	112,406,000	112,406,000
2029	115,216,000	122,311,000	82,304,000	124,787,000	90,134,000
2030	118,096,000	125,369,000	84,362,000	127,906,000	92,387,000
2031	121,049,000	111,044,000	85,505,000	146,358,000	90,341,000
2032	124,075,000	113,820,000	87,643,000	150,017,000	92,599,000
2033	127,177,000	159,599,000	82,293,000	137,121,000	83,288,000
2034	130,356,000	163,589,000	84,351,000	140,549,000	85,371,000
2035	133,615,000	167,678,000	86,460,000	121,870,000	86,293,000
2036	136,956,000	171,870,000	88,621,000	124,917,000	88,450,000
2037	140,379,000	176,167,000	90,837,000	182,458,000	81,002,000
2038	66,811,000	103,493,000	16,030,000	109,942,000	5,950,000
2039	86,374,000	123,974,000	34,323,000	130,583,000	23,991,000
2040	89,547,000	117,726,000	63,108,000	134,861,000	25,604,000
2041	92,868,000	121,751,000	65,768,000	139,315,000	27,327,000
2042	96,284,000	109,126,000	73,334,000	143,893,000	29,105,000

Montgomery County Contribution Study
Contribution was set to the pay go cost (no trust withdrawals or contributions)

FYE	Assets			Liability	Funded Percentage			Contribution
	Baseline	Worst 10 Years Year 1-10	Best 10 Years Year 1-10		Baseline	Worst 10 Years Year 1-10	Best 10 Years Year 1-10	
2023	743,793,000	743,793,000	743,793,000	1,491,525,000	49.9%	49.9%	49.9%	78,509,000
2024	791,757,000	801,499,000	850,875,000	1,551,904,000	51.0%	51.6%	54.8%	84,235,000
2025	842,830,000	769,548,000	1,035,692,000	1,611,124,000	52.3%	47.8%	64.3%	90,408,000
2026	897,213,000	717,844,000	1,090,185,000	1,668,888,000	53.8%	43.0%	65.3%	96,490,000
2027	955,121,000	756,629,000	1,208,487,000	1,725,364,000	55.4%	43.9%	70.0%	101,684,000
2028	1,016,783,000	886,025,000	1,422,067,000	1,781,692,000	57.1%	49.7%	79.8%	107,433,000
2029	1,082,442,000	978,972,000	1,462,313,000	1,837,304,000	58.9%	53.3%	79.6%	112,638,000
2030	1,152,358,000	1,068,393,000	1,489,664,000	1,892,906,000	60.9%	56.4%	78.7%	116,621,000
2031	1,226,807,000	1,268,665,000	1,669,746,000	1,949,864,000	62.9%	65.1%	85.6%	120,906,000
2032	1,306,084,000	1,239,547,000	1,820,721,000	2,008,058,000	65.0%	61.7%	90.7%	125,248,000
2033	1,390,503,000	1,043,151,000	1,978,824,000	2,067,735,000	67.2%	50.4%	95.7%	129,146,000

Montgomery County Contribution Study
$10 million was withdrawn from the trust annually

FYE	Assets			Liability	Funded Percentage			Contribution
	Baseline	Worst 10 Years Year 1-10	Best 10 Years Year 1-10		Baseline	Worst 10 Years Year 1-10	Best 10 Years Year 1-10	
2023	743,793,000	743,793,000	743,793,000	1,491,525,000	49.9%	49.9%	49.9%	68,509,000
2024	781,438,000	791,116,000	840,177,000	1,551,904,000	50.4%	51.0%	54.1%	74,235,000
2025	821,520,000	749,773,000	1,011,630,000	1,611,124,000	51.0%	46.5%	62.8%	80,408,000
2026	864,198,000	689,727,000	1,054,586,000	1,668,888,000	51.8%	41.3%	63.2%	86,490,000
2027	909,640,000	716,708,000	1,158,481,000	1,725,364,000	52.7%	41.5%	67.1%	91,684,000
2028	958,025,000	828,429,000	1,352,355,000	1,781,692,000	53.8%	46.5%	75.9%	97,433,000
2029	1,009,545,000	904,791,000	1,380,466,000	1,837,304,000	54.9%	49.2%	75.1%	102,638,000
2030	1,064,403,000	976,954,000	1,396,167,000	1,892,906,000	56.2%	51.6%	73.8%	106,621,000
2031	1,122,815,000	1,149,145,000	1,554,328,000	1,949,864,000	57.6%	58.9%	79.7%	110,906,000
2032	1,185,013,000	1,112,843,000	1,684,392,000	2,008,058,000	59.0%	55.4%	83.9%	115,248,000
2033	1,251,242,000	927,303,000	1,820,194,000	2,067,735,000	60.5%	44.8%	88.0%	119,146,000

Montgomery County Contribution Study
$20 million was withdrawn from the trust annually

FYE	Assets			Liability	Funded Percentage			Contribution
	Baseline	Worst 10 Years Year 1-10	Best 10 Years Year 1-10		Baseline	Worst 10 Years Year 1-10	Best 10 Years Year 1-10	
2023	743,793,000	743,793,000	743,793,000	1,491,525,000	49.9%	49.9%	49.9%	58,509,000
2024	771,118,000	780,733,000	829,479,000	1,551,904,000	49.7%	50.3%	53.4%	64,235,000
2025	800,209,000	729,998,000	987,568,000	1,611,124,000	49.7%	45.3%	61.3%	70,408,000
2026	831,182,000	661,610,000	1,018,987,000	1,668,888,000	49.8%	39.6%	61.1%	76,490,000
2027	864,158,000	676,786,000	1,108,474,000	1,725,364,000	50.1%	39.2%	64.2%	81,684,000
2028	899,267,000	770,833,000	1,282,643,000	1,781,692,000	50.5%	43.3%	72.0%	87,433,000
2029	936,648,000	830,611,000	1,298,619,000	1,837,304,000	51.0%	45.2%	70.7%	92,638,000
2030	976,448,000	885,515,000	1,302,670,000	1,892,906,000	51.6%	46.8%	68.8%	96,621,000
2031	1,018,823,000	1,029,626,000	1,438,911,000	1,949,864,000	52.3%	52.8%	73.8%	100,906,000
2032	1,063,942,000	986,138,000	1,548,062,000	2,008,058,000	53.0%	49.1%	77.1%	105,248,000
2033	1,111,981,000	811,455,000	1,661,564,000	2,067,735,000	53.8%	39.2%	80.4%	109,146,000

Montgomery County Government

OPEB Funding – Impact of Investment Return Volatility – Revised February 2

Kevin Binder, FSA, MAAA

Tom Vicente, FSA, MAAA, EA

Kari Szabo CEBS

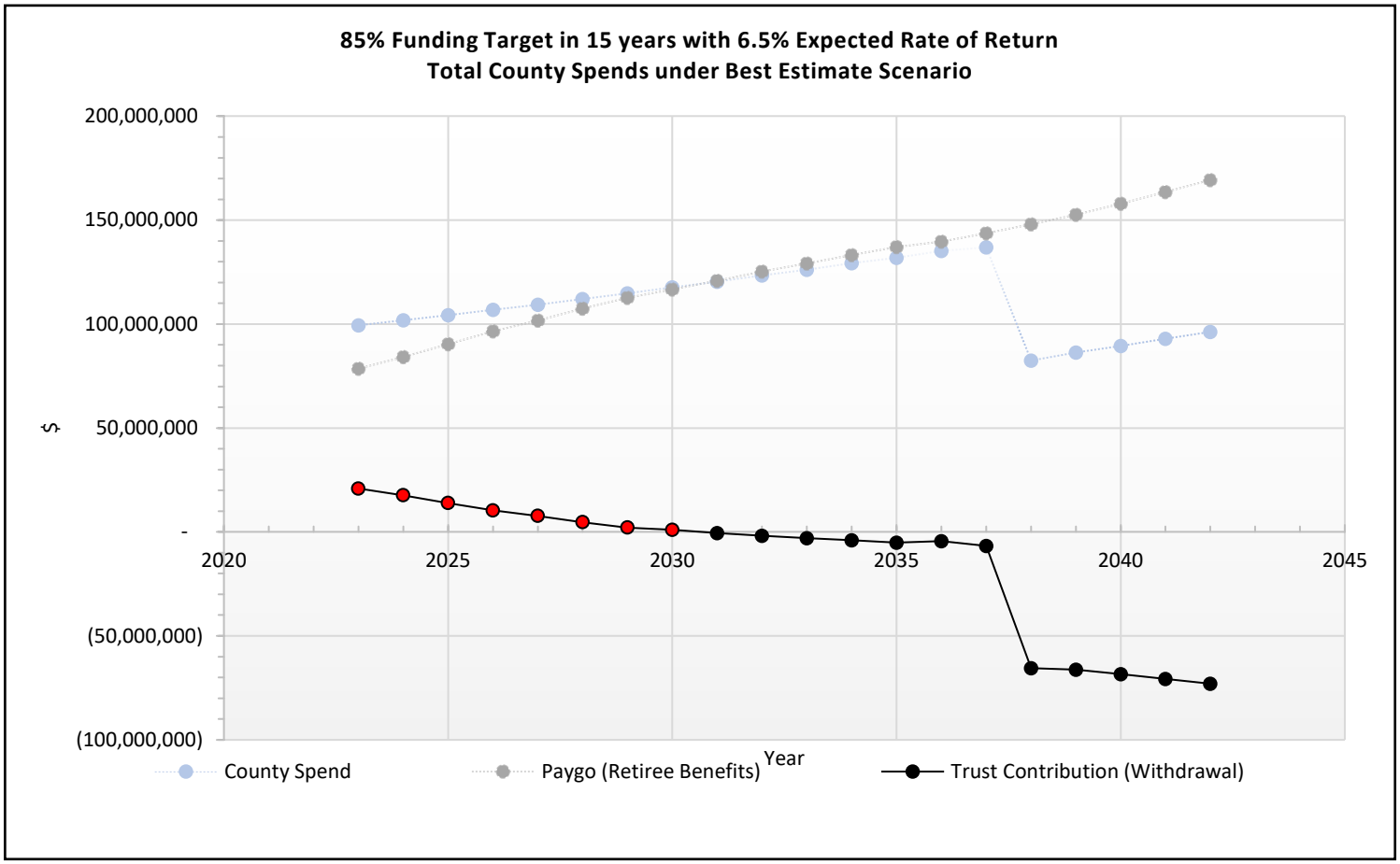
Agenda

- Difference Between County Spend and Contribution (Withdrawal)
- Contribution Policies Studied
- Investment Return Scenarios Used
- Impact of Changes in Liability
- Results for 15 Year, 85 Percent Target
- Results for Fixed Dollar Withdrawals
- Conclusions
- Other Ways to Reduce Contribution Volatility

County Spend Vs. Contribution

- County Spend Equals
  - **Retiree Benefits (paygo cost) plus**
  - **Trust Contributions**
- Actuaries and GASB Focus on County Spend
- County budget Retiree Health and Employee Health Benefits together
- County Budget focus is on Trust Contributions

County Spend Vs. Contribution



Contribution Policies Studied

- Actuarial Solution
  - **85% Funding Target**
  - **15 Year Target Period**
  - **6.5% rate of return**
  - **Contributions increasing 2.5 percent per year**
  - **Contributions adjust as investment return changes**
- Fixed Dollar Withdrawals
  - **None**
  - **$10 Million**
  - **$20 Million**
  - **Investment returns do not impact contributions**
  - **Lower funded ratio**
  - **Greater variation in funded ratio**

Investment Return Scenarios

- Baseline (6.5 percent for all years)
- Looked at Montgomery County Retirement Plans investment return experience from 2000 to 2021
  - **Lowest 10 consecutive returns (year 1 to 10)**
  - **Highest 10 consecutive returns (year 1 to 10)**
  - **Lowest 10 consecutive returns (year 5 to 14)**
  - **Highest 10 consecutive returns (year 5 to 14)**
  - **6.5% other years**
- Realistic scenarios with historical volatility
- Only 21 years to work with – greater volatility possible

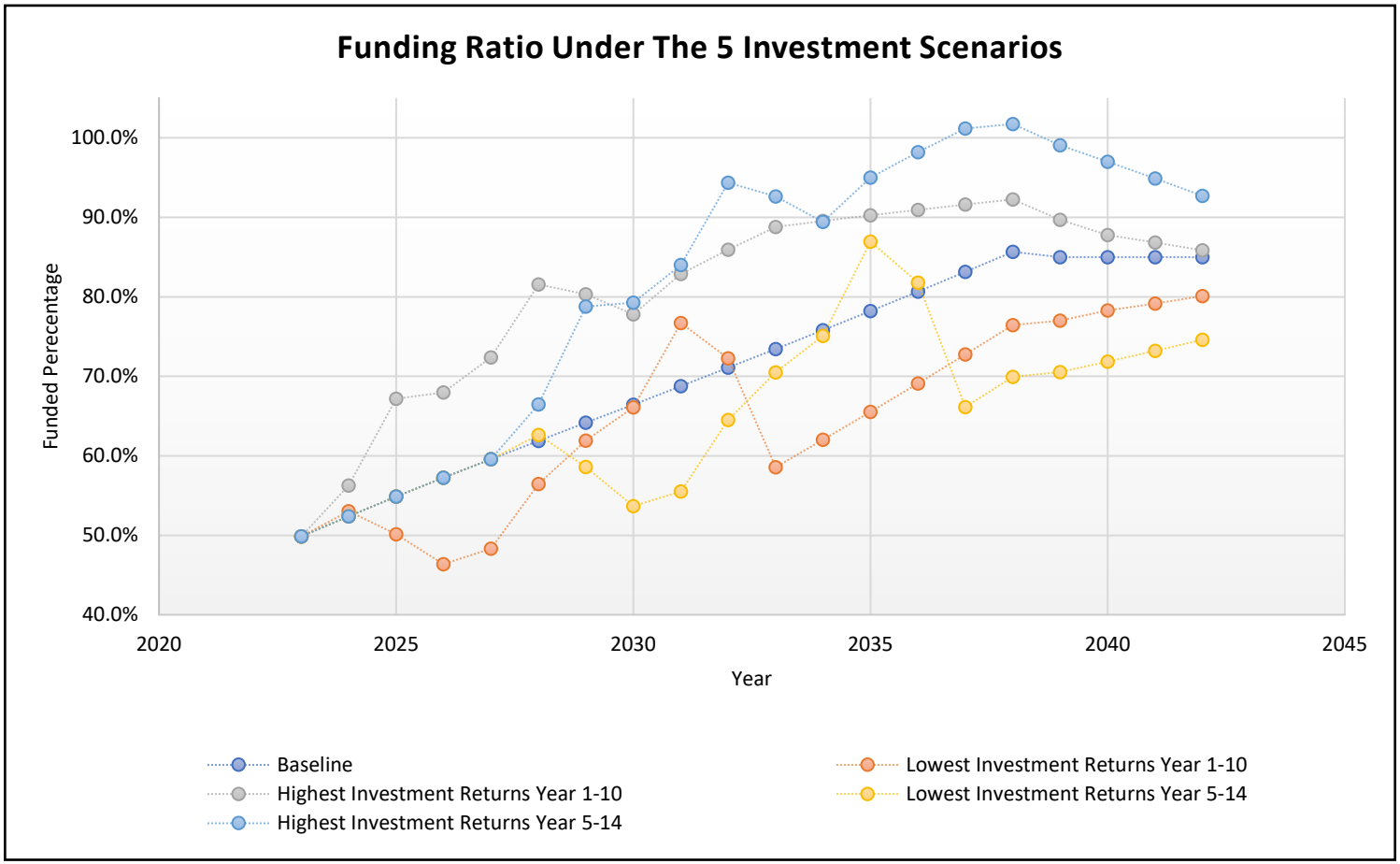
Liability Volatility

- Will occur
- Changes due to
  - **Plan population growth**
  - **Turnover**
  - **Mortality**
  - **Medical Trend**
  - **Changes to Medicare**
- Not modeled at this time
  - **Changes can be offset to some extent by plan design changes**
  - **Harder to select alternatives with objective basis**

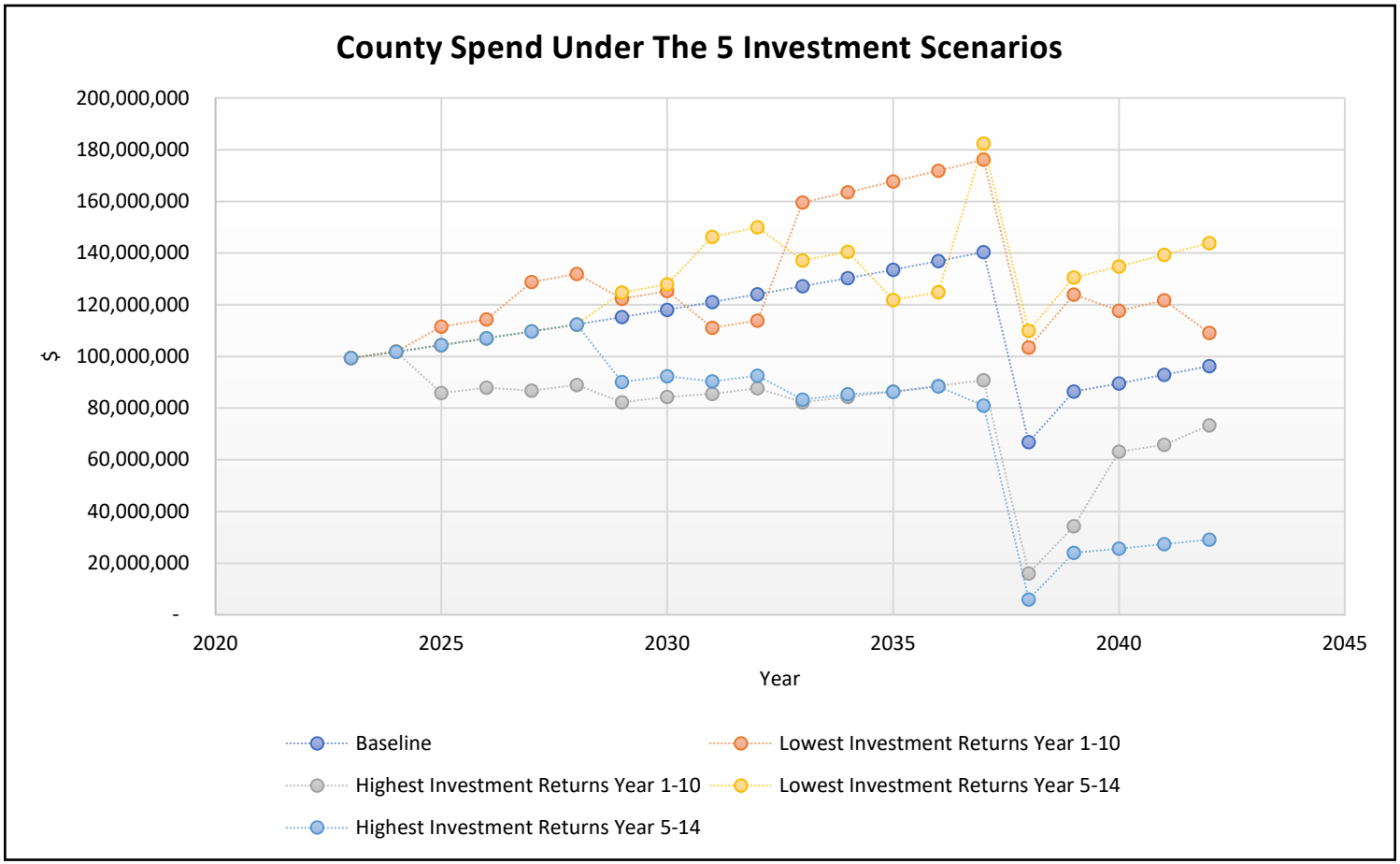
Funding Target Stress Testing

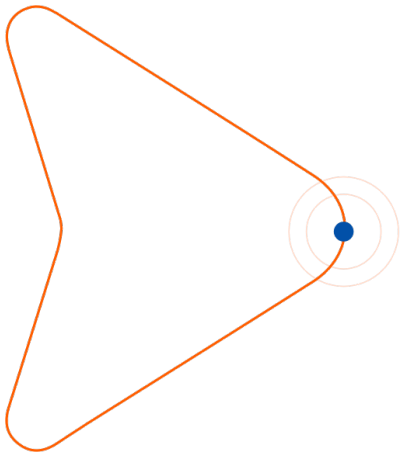
- Initial Analysis
  - **No change to funding target**
  - **Investment return deviation funded over shorter and shorter periods**
  - **In Year 15 – investment return deviation from expected in prior two year must be paid in one year**
  - **Downside scenario - Year 15 Contribution in excess of $600 million**
  - **From years 16 to 20 contributions are set to remain at 85 percent funded**
- Updated Analysis
  - **Each investment gain or loss amortized over 15 years**
  - **After Year 15, these amortization payments were added to amount needed to remain 85 percent funded assumed under the baseline scenario**
  - **Plan potentially not funded at 85 percent in 15 years**
  - **Manages contribution volatility experienced by County**

Funded Ratio Analysis (Updated Policy)



Contribution Analysis (Updated Policy)



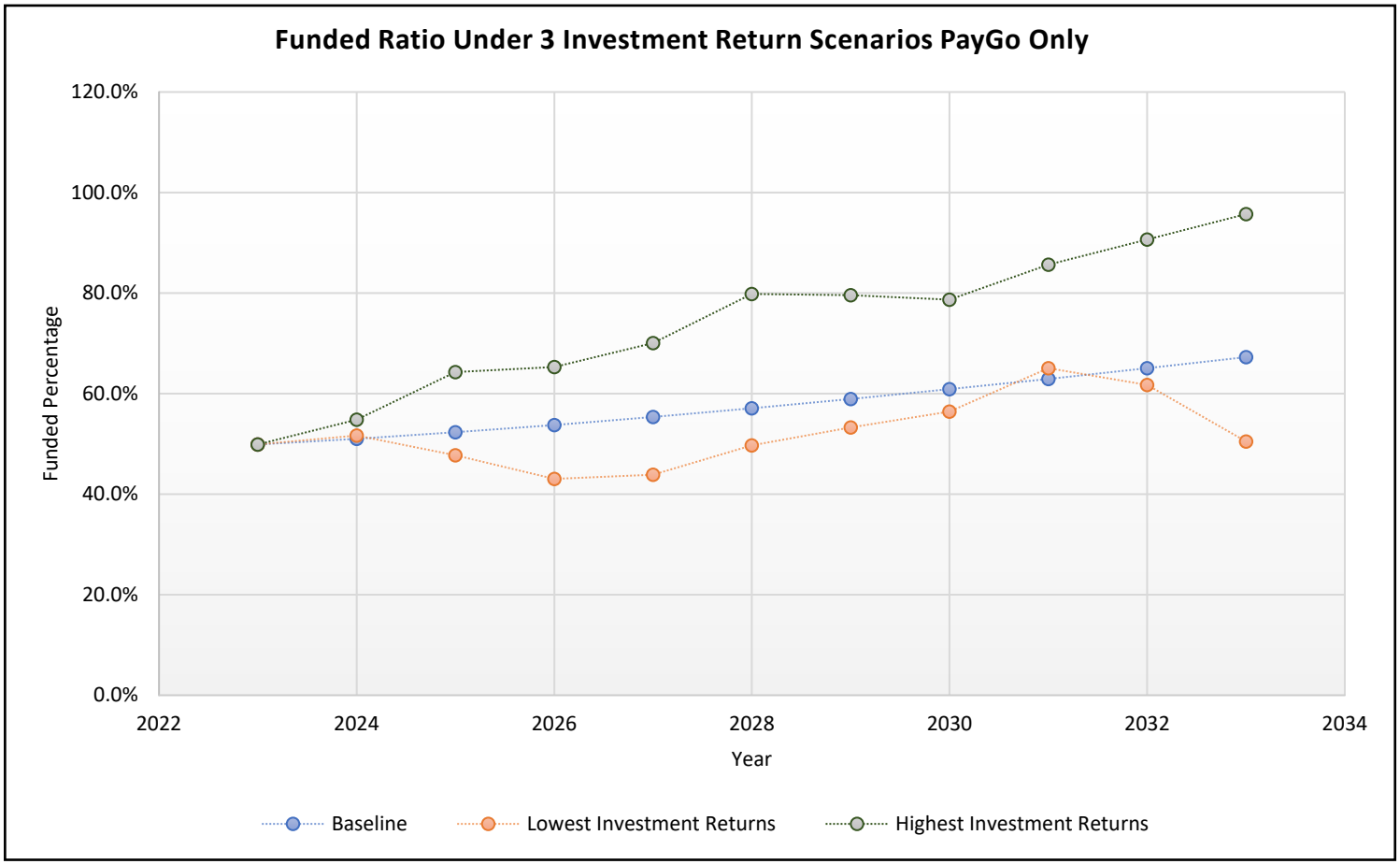


Fixed Dollar Withdrawals

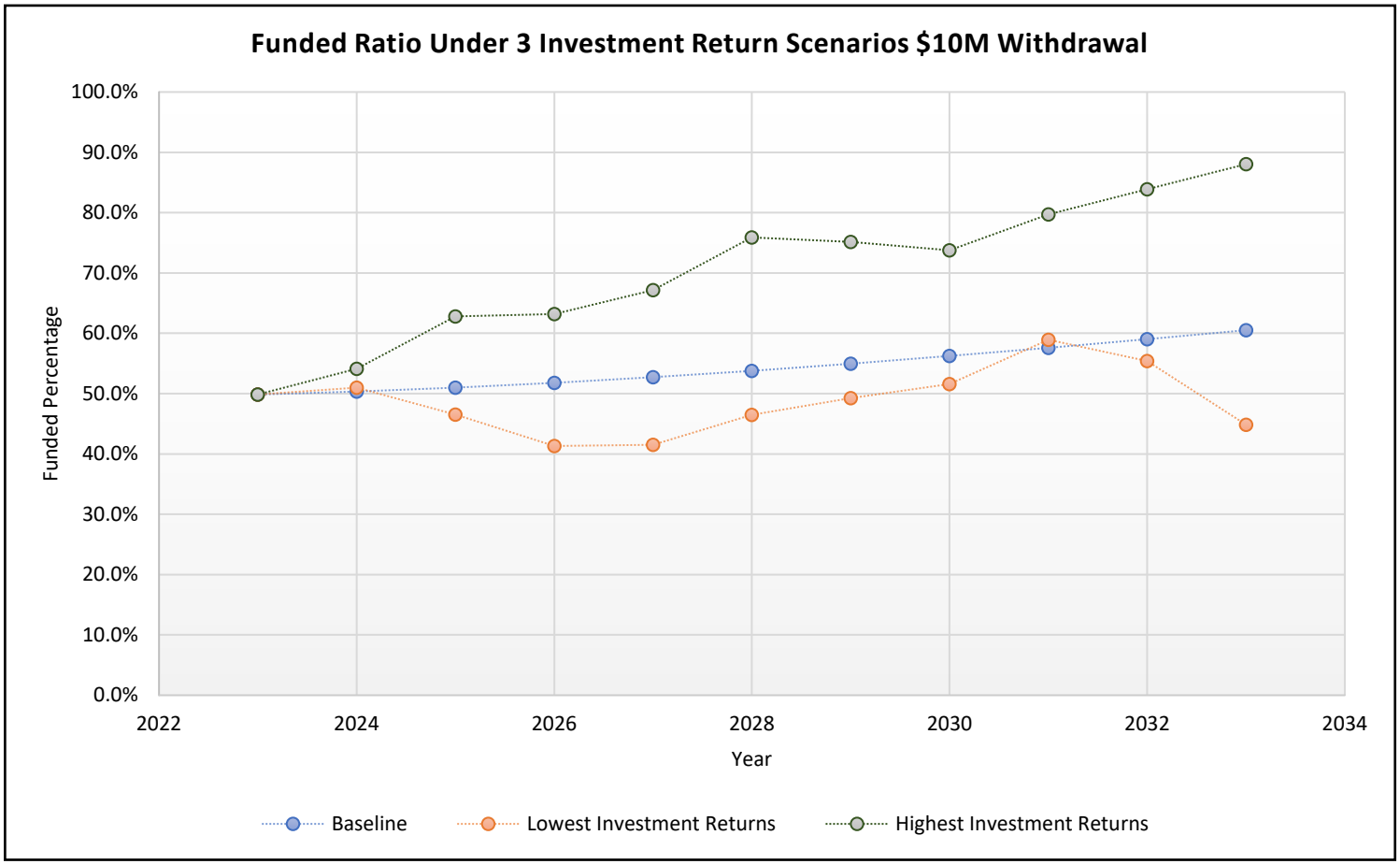
Fixed Dollar Withdrawal Scenarios

- Not an Actuarial Solution
- Actuary could fix an estimated withdrawal to get to x percent funded in 5 or 10 years
- Outlays or revenue is known
- Easier budgeting
- More Funded Percent liability risk (especially over the long term)

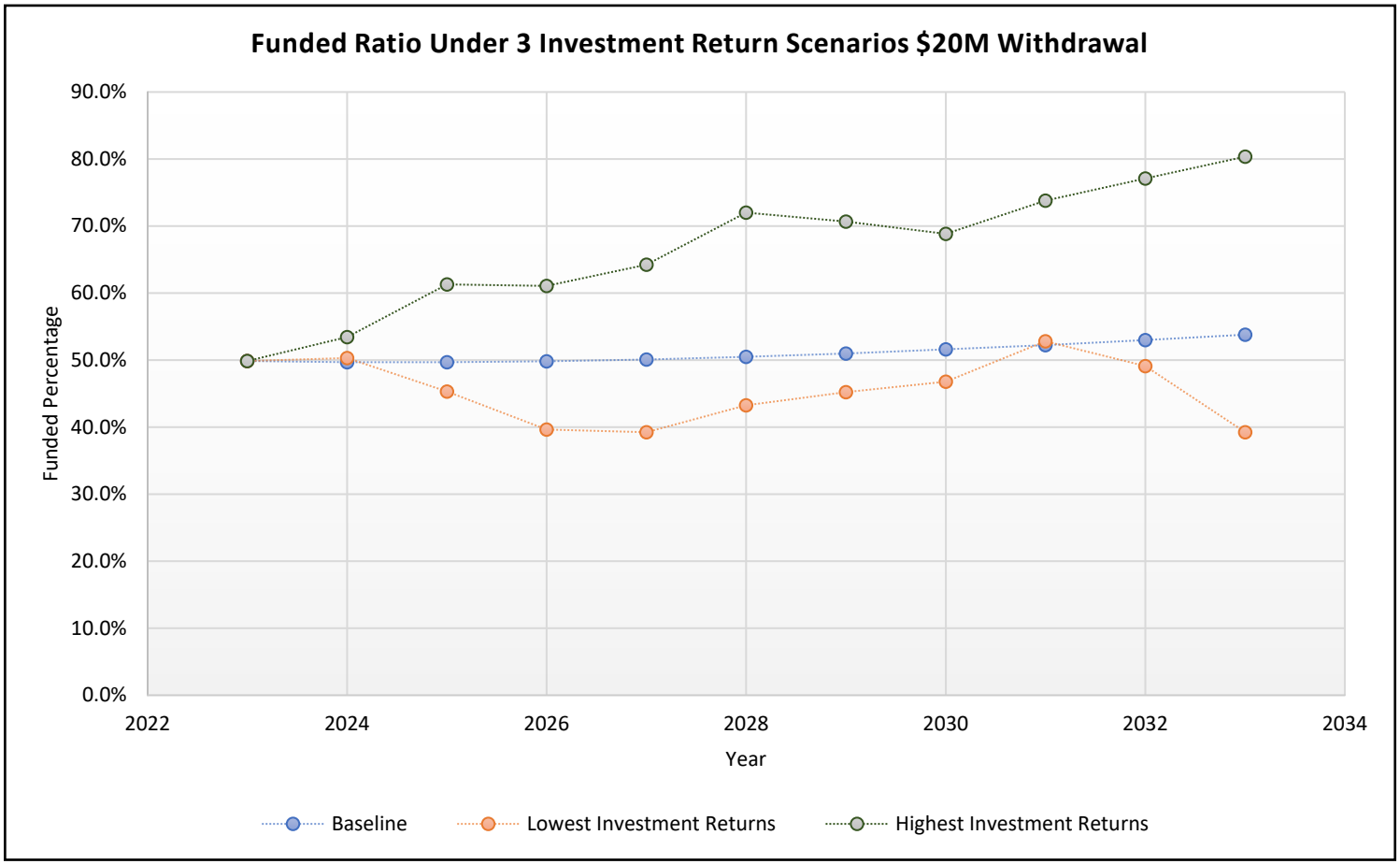
Paygo Analysis (No withdrawals)



$10 million Withdrawal Analysis



$20 million Withdrawal Analysis



Conclusions

- Natural conflict between contribution predictability and accountability
- Under the Modified 15 Year Funding Target Policy after 15 years the Funded Ratio is within about 15 percent of the 85 percent funding target (all tested scenarios)
- County Spend in year 15 are between $81 million and $182 million (inclusive of paygo)
- Actual volatility cay be greater or smaller
  - **Only included 10 years of investment return volatility (not 15)**
  - **No liability volatility added**
  - **Investment scenarios from a 21 year sample**
- County spend include pay go costs. The net County contribution or withdrawal will appear to be even more volatile

Other Ways to Reduce Volatility

- Asset Smoothing
- Stability account
- More conservative investment policy
- Plan changes to minimize liability volatility

Required ASOP 41 Disclosure

- This presentation has been prepared for Montgomery County Government for the purposes of assisting the County in developing a contribution policy. It is neither intended nor necessarily suitable for other purposes. Bolton Partners is not responsible for the consequences of any other use. The January 27, 2023 letter discloses the data we relied upon, the actuarial methods and assumptions, and include other required disclosures under Actuarial Standard of Practice (ASOP) #41.
- Future medical care cost increase rates are unpredictable and could be volatile. They will depend upon the economy, future health care delivery systems and emerging technologies. The trend rate selected is based on an economic model developed by a health care economist for the Society of Actuaries. Future medical trend increases could vary significantly from the model. Model inputs will be updated periodically based on the best estimate of the economy at that time. Small changes in the model inputs can result in actuarial losses or gains of 5-15% of the liabilities.