

# Howard County Retirement Plan

## Howard County Police & Fire Employees' Retirement Plan

### Experience Study Reviews

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**Bolton**



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# EXPERIENCE STUDY OVERVIEW

- Goal
  - Ensure assumptions reflect best estimate of future experience
  - Funding methods fit long term strategy
- Content
  - Demographic and economic assumptions
  - Cost allocation, asset valuation, and amortization methods
- Studies are typically performed every three to five years
- Blend historical patterns and future expected trends
  - Assumptions determine budget patterns not underlying cost

# Economic Assumptions

Assumption	Current	Recommendation
Inflation / COLA for post-retirement benefits	2.50%	No changes
Investment Return / Discount Rate	7.25%	No change; review annually
Pay Increases	<p>Separate service-based rates for General Employees and Corrections Employees</p> <p>Separate service-based rates for Police and Fire</p>	<p><b>Corrections:</b> Decrease rates for all years of service</p> <p><b>All Others:</b> No changes</p> <p><b>Police:</b> Decrease rates for all years of service</p> <p><b>Fire:</b> Increase rates for the first two years of service and decrease rates for all years thereafter</p>
Payroll Growth	2.75%	No change
Administrative Expenses	Average of prior two years increased with assumed payroll growth and rounded to the nearest \$1,000	No change

# INFLATION / COLA

- Historical

	Averaging Period			
	10 years	20 years	30 years	40 years
CPI-U Annual Average	2.17%	2.66%	2.45%	2.81%

- Expectations

- NEPC – 2.4% (10-year) and 2.5% (30-year)
- Horizon Survey – 2.46% (10-year) and 2.44% (20-year)
- Federal Reserve Bank – 2.1%
- Social Security – 2.4%

- Recommendation – Maintain 2.50% assumption

# INVESTMENT RETURN

- Multiple factors go into reviewing this assumption
- Obtain and review the current asset allocation strategy
- Reviewed data provided by NEPC
  - Expected returns
- Used the Horizon Survey of capital market assumptions to establish initial range of results
  - 20-year expected returns
  - Correlation coefficients between asset classes
  - For Howard County asset allocation: 35<sup>th</sup> percentile returns (5.88%) to 65<sup>th</sup> percentile (7.98%)
- Current assumption of 7.25% is supported
- Recommend continuing the annual review of this assumption

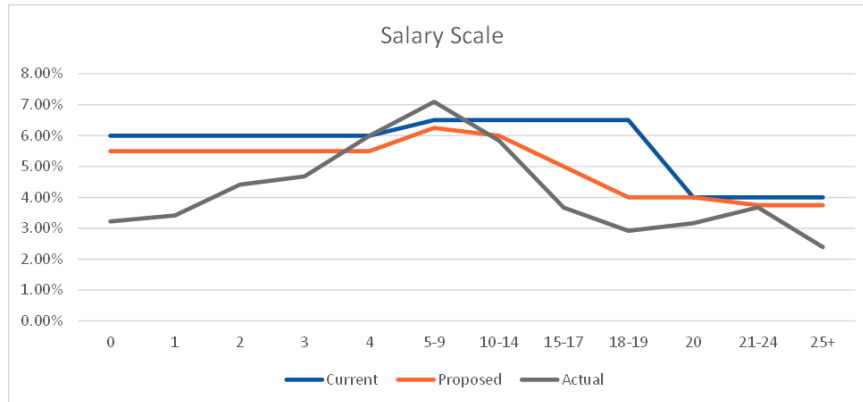
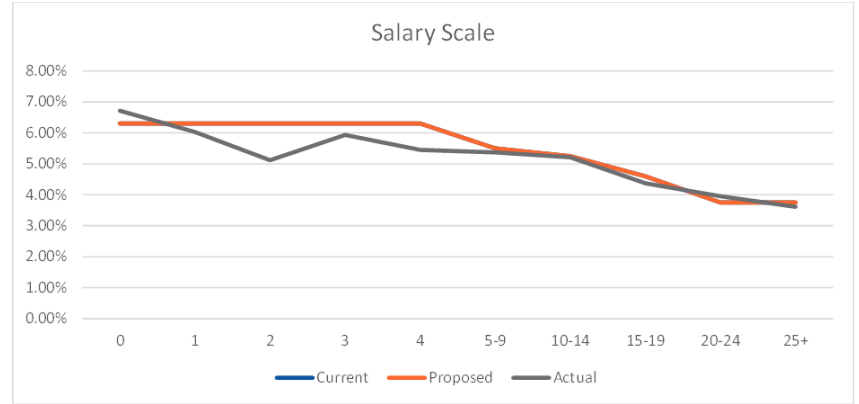
# Discount Rate Analysis using Horizon Survey



	20-Year	10-Year
95th	11.40%	12.59%
65th	7.98%	7.74%
50th	6.93%	6.26%
35th	5.88%	4.77%
5th	2.45%	-0.07%

# PAY INCREASES

**GENERAL EMPLOYEES** →  
No changes recommended

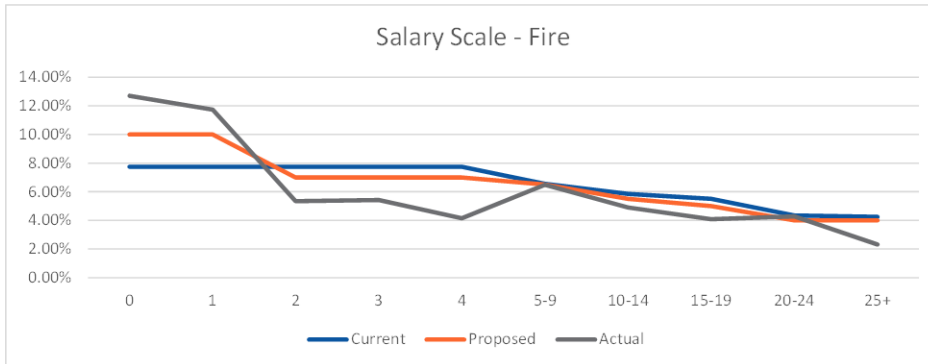
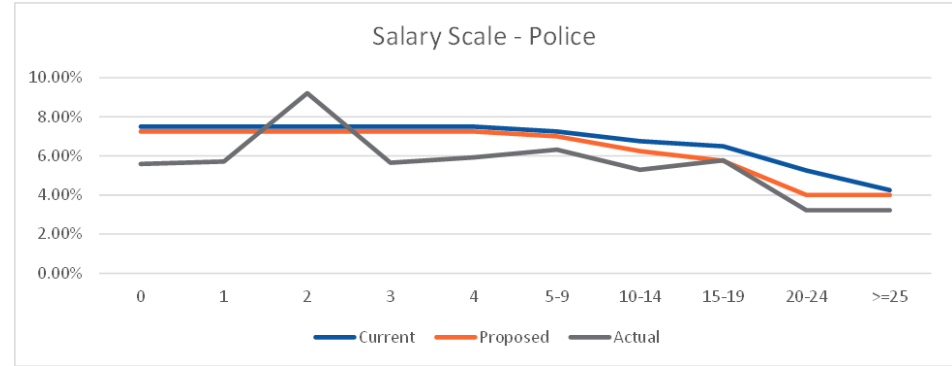


← **CORRECTIONS**  
Reductions in rates recommended  
based on experience



# PAY INCREASES

**POLICE** →  
Slight reduction recommended



← **FIRE**  
Modification of rates  
recommended

# PAYROLL GROWTH

- Current assumption is that payroll will grow by 2.75% per year
- Actual payroll growth has been higher than assumption

<b>General/Corrections Employees</b>	<b>7/1/2017</b>	<b>7/1/2018</b>	<b>7/1/2019</b>	<b>7/1/2020</b>	<b>7/1/2021</b>	<b>4-year average</b>
Total Payroll	117,741,696	121,237,999	124,898,835	131,560,407	135,730,498	
Increase in total payroll		3.0%	3.0%	5.3%	3.2%	3.6%

<b>Police/Fire Employees</b>	<b>7/1/2017</b>	<b>7/1/2018</b>	<b>7/1/2019</b>	<b>7/1/2020</b>	<b>7/1/2021</b>	<b>4-year average</b>
Total Payroll	80,071,119	81,864,069	85,180,155	87,691,543	91,591,651	
Increase in total payroll		2.2%	4.1%	2.9%	4.4%	3.4%

# PAYROLL GROWTH

- Lower payroll growth assumption is more conservative
  - Calculations result in higher County contribution as a percentage of payroll
- If actual payroll increases more than 2.75%, the higher County contribution percentage will be applied to the larger payroll
- Larger contributions will be deposited in the trust to better fund the plan
- **Recommendation:** Maintain 2.75% payroll growth assumption

# Demographic Assumptions

Assumption	Current	Recommendation
Mortality and Longevity	Society of Actuaries <b>RP-2014 Total Dataset</b> Mortality Tables projected from the 2006 base year with Improvement Scale <b>MP-2017</b>	Society of Actuaries <b>Pub-2010 General or Safety Amount-Weighted</b> Mortality Tables (based on employee group) projected from the 2010 base year with Improvement Scale <b>MP-2021</b> (update all tables to most recent MP scale as of each valuation date)

# KEY FINDINGS – MORTALITY

- Insufficient population size to be fully credible
  - Use standard tables
- Recommendations – Howard County Retirement Plan
  - Update to Society of Actuaries (SOA) Pub-2010 tables
  - Use Public Safety tables for Corrections and Deputy Sheriff Employees
  - Use General tables for all other Employees
  - Apply most recent SOA mortality improvement scale
- Recommendations – Howard County Police & Fire Retirement Plan
  - Update to Society of Actuaries (SOA) Pub-2010 tables
  - Use Public Safety tables for Police and Fire
  - Apply most recent SOA mortality improvement scale

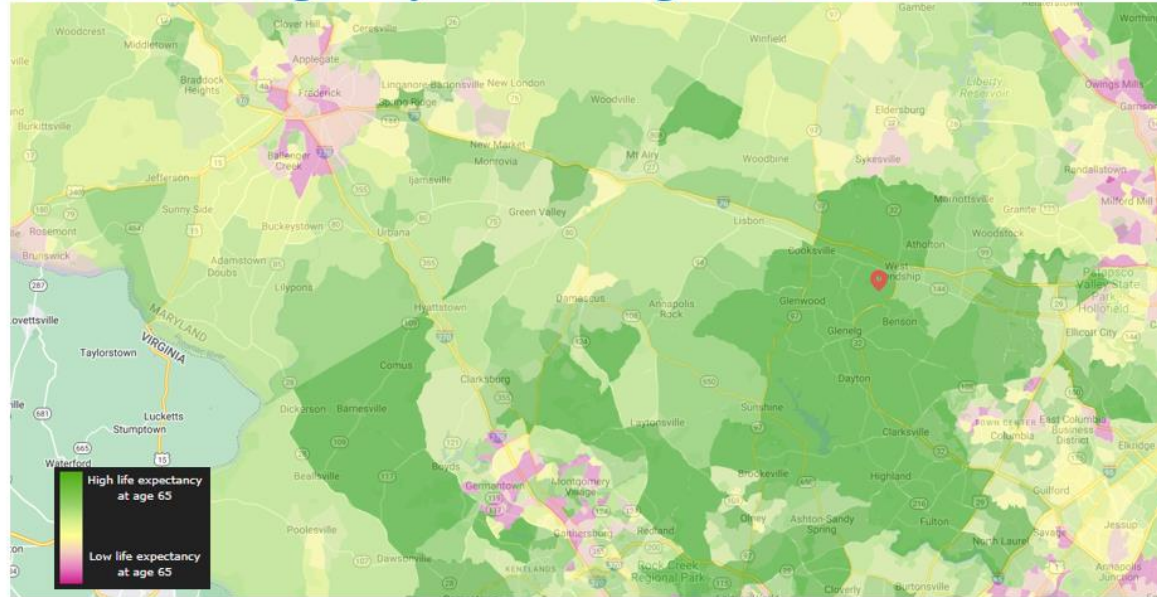
# FUTURE CONSIDERATIONS – MORTALITY

- Current practice is to use SOA standard tables
  - One-size-fits-all approach
  - Updated every 5+ years
- Future practice could use a factor-based model
  - Tailored to current population characteristics (e.g., lifestyle, occupation, gender, affluence, health, marital status)
  - Use pension data such as ZIP+4, pension amount, gender, pension form, current/former occupation to segment population
- Bolton is collaborating with Club Vita, an international firm dedicated to the study of longevity analytics, to provide access to their proprietary analytics
  - Club Vita website: <https://www.clubvita.net/us/>
  - Club Vita/Bolton collaboration announcement: <https://www.clubvita.net/us/news-and-insights/bolton-to-offer-club-vitas-longevity-service-to-plan-sponsors-2>

# EXAMPLE – ZIP CODE MODELING

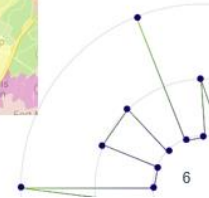
VITACURVES

## ZIP code longevity modeling – Howard



CLUB VITA

<http://maps.clubvita.us>



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# Demographic Assumptions

Assumption	Current	Recommendation
Retirement	<p><b>General and Corrections:</b> Rates based on age and service</p> <p><b>Police and Fire:</b> Rates based on age and service</p>	<p><b>General:</b> Slightly reduce rates at some ages/service combinations</p> <p><b>Corrections:</b> Reduce most rates; increase some rates between 21 and 24 years of service</p> <p><b>Police:</b> Extend the years of service threshold at which a 100% rate is first assumed from 30 to 32 years of service</p> <p><b>Fire:</b> Increase rates at 20, 25, 26, 29 - 34 years of service, decrease rates at 21, 22, and 24 years of service</p>
Termination of Employment	<p><b>All Employees:</b> Rates based on service</p>	<p><b>General:</b> Increase rates for years of service between 2- 7; decrease rates for 0 and greater than 11 years of service</p> <p><b>Corrections:</b> Increase rates for years of service between 2 – 6; decrease rates for 8 – 9 years of service</p> <p><b>Police:</b> Increase rates at 0 and 10 – 14 years of service</p> <p><b>Fire:</b> No changes</p>



# KEY FINDINGS – RETIREMENT

- General Employees
  - Current: overstates retirement incidence
  - Recommended: slight reduction of rates at some age/service combinations
- Corrections
  - Current: overstates retirement incidence in total
  - Recommended: revise rates to decrease expected retirements and account for expected future DROP retirements

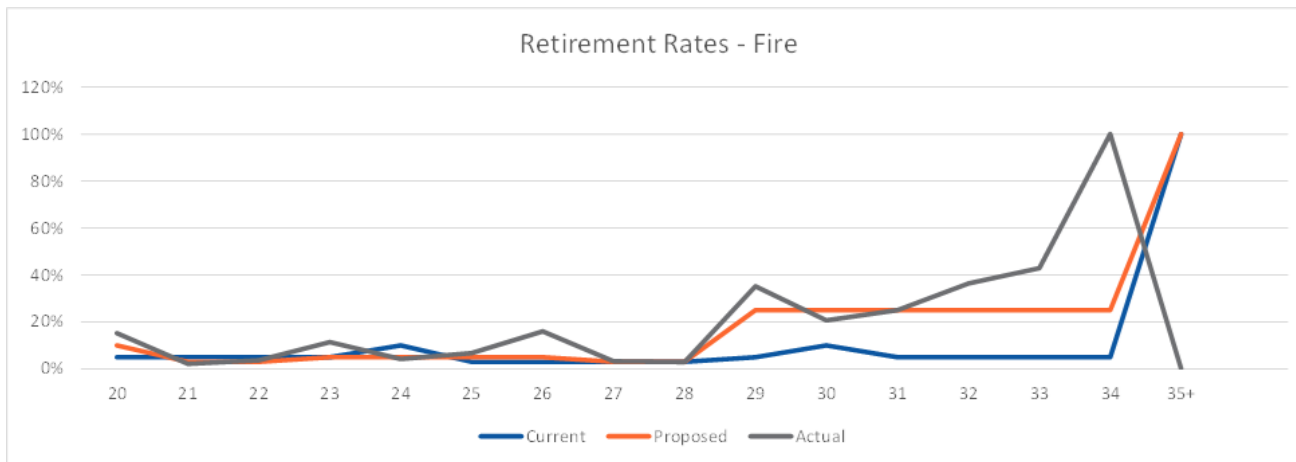
# KEY FINDINGS – RETIREMENT

- Police
  - Current: overstates retirement incidence
  - Retirement means exit from DROP for members who participate in DROP
  - Recommended: extend 100% retirement from 30 years of service to 32 years of service to better reflect experience



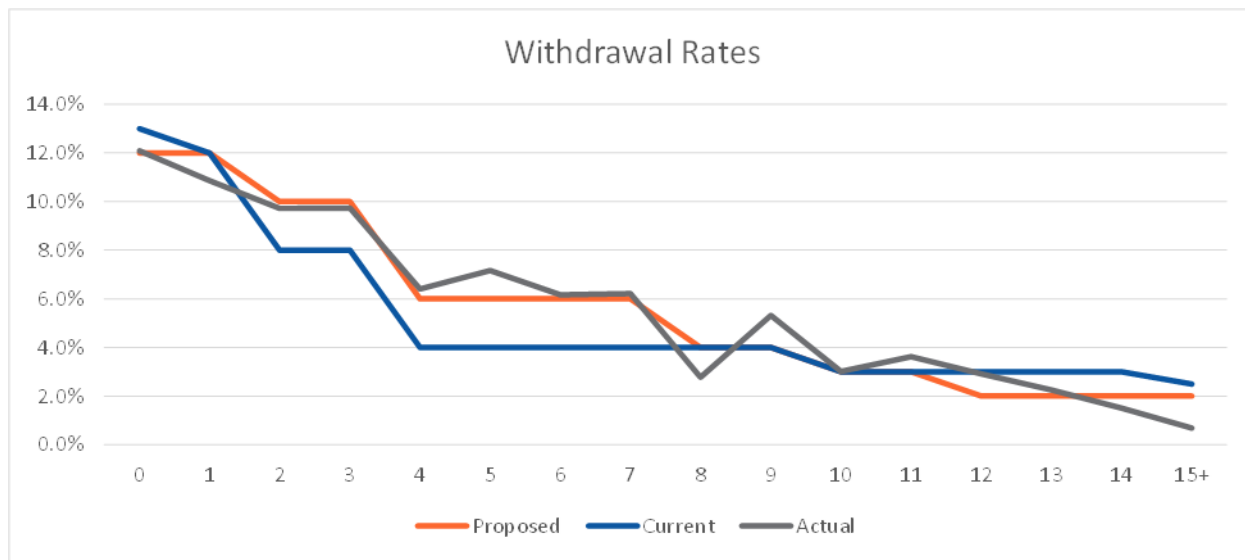
# KEY FINDINGS – RETIREMENT

- Fire
  - Current: understates retirement incidence
  - Current experience period includes DROP
  - Recommended: revise rates to increase expected retirements and realign to better reflect exit from DROP



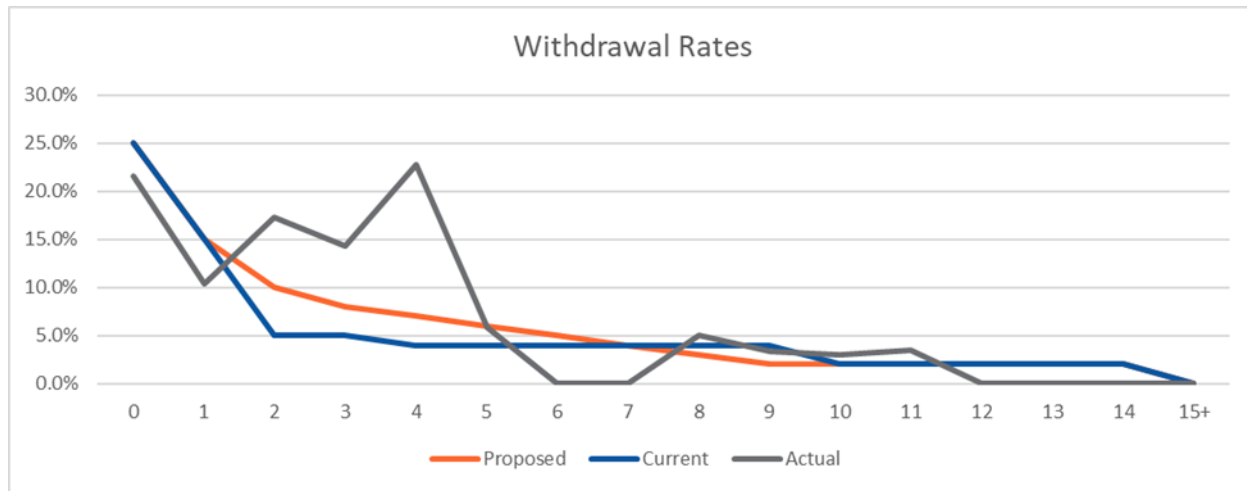
# KEY FINDINGS – TERMINATION

- General Employees
  - Current: understates termination incidence
  - Recommended: modify rates to account for experience



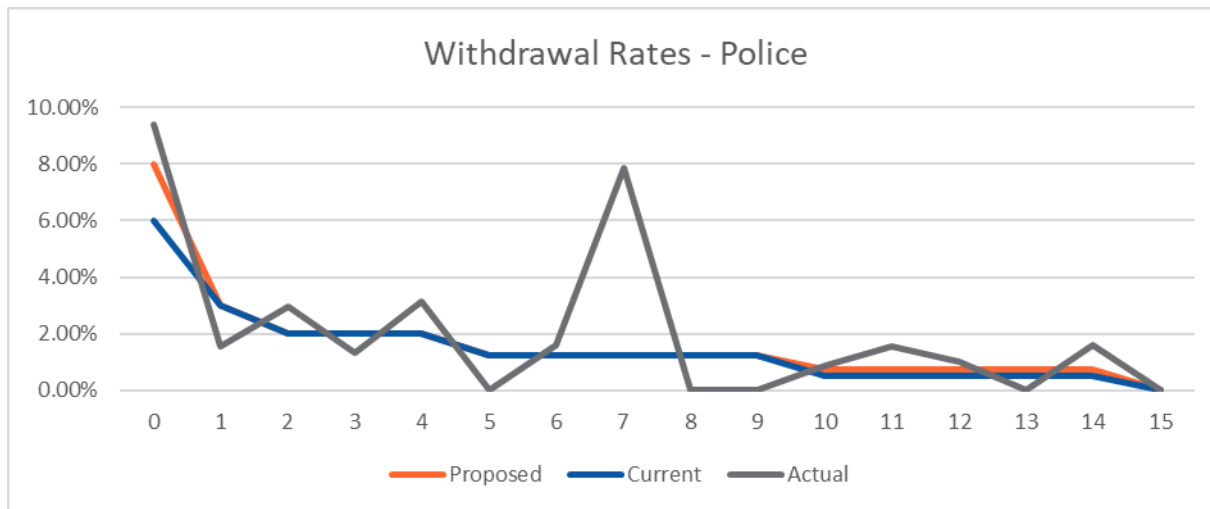
# KEY FINDINGS – TERMINATION

- Corrections
  - Current: understates termination incidence
  - Recommended: modify rates to account for experience



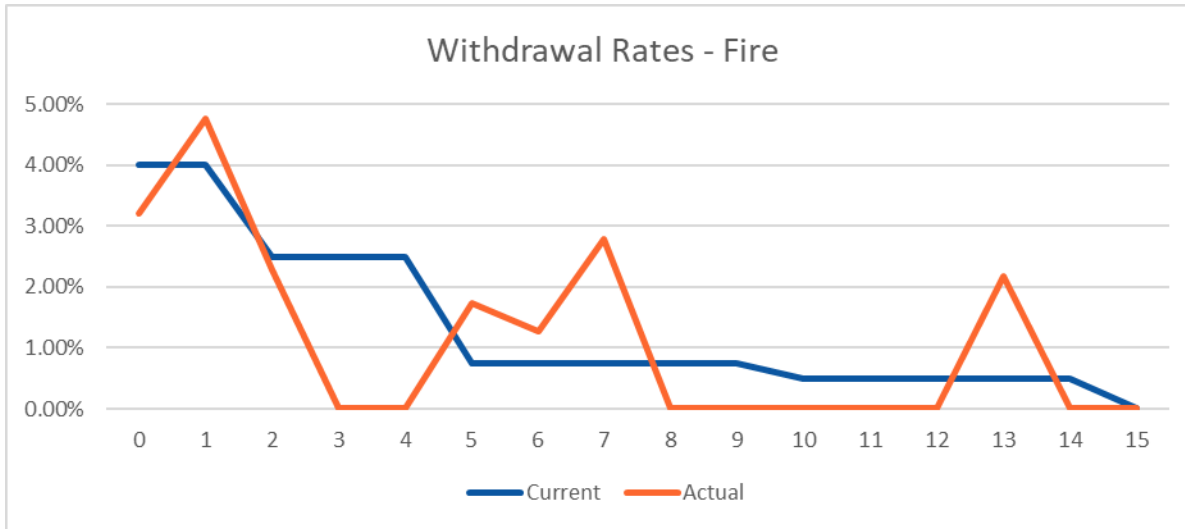
# KEY FINDINGS – TERMINATION

- Police
  - Current: understates termination incidence
  - Recommended: increase rates at select service years



# KEY FINDINGS – TERMINATION

- Fire
  - Current: minimally overstates termination incidence
  - Recommended: no changes in rates



# Demographic Assumptions

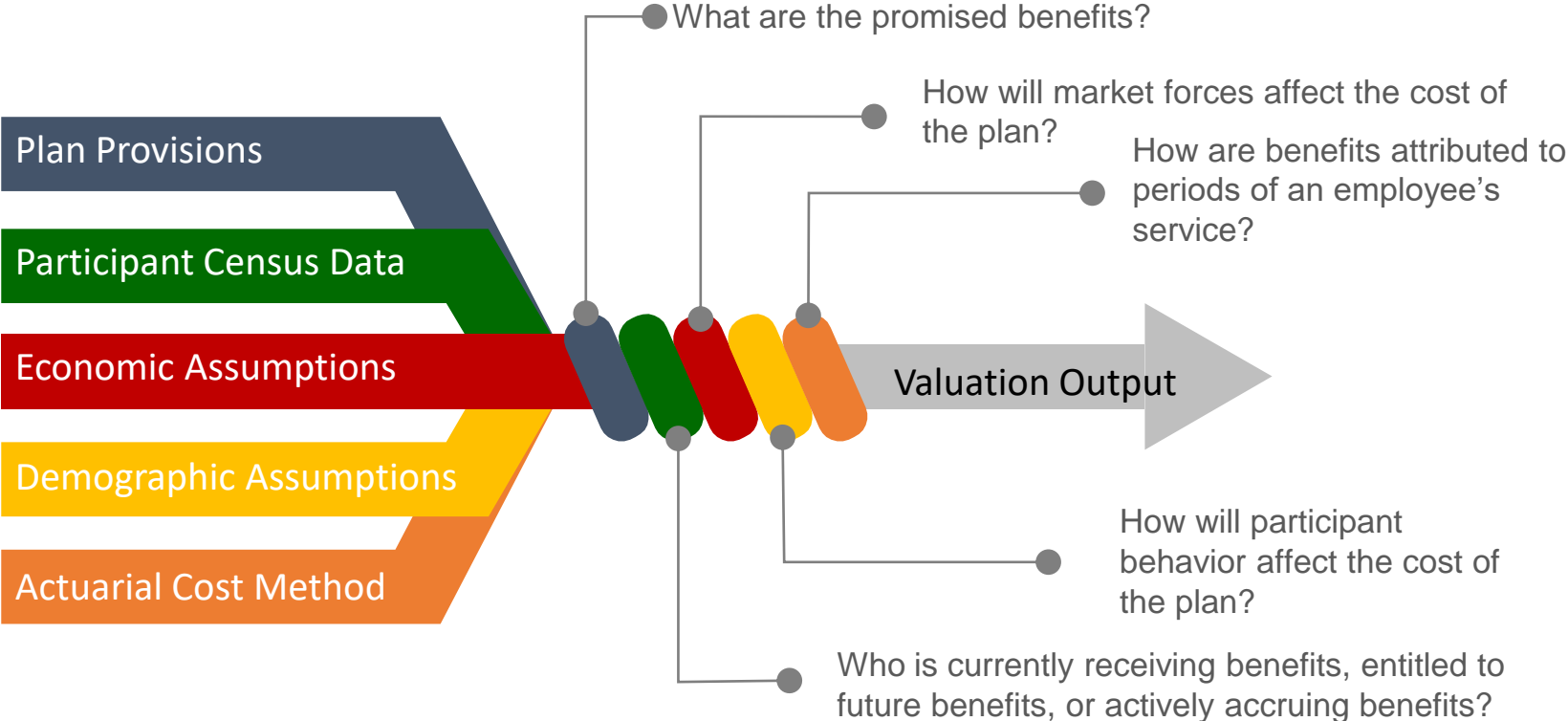
Assumption	Current	Recommendation
Disability Incidence	<b>All Employees:</b> Rates based on age	<b>General:</b> Decrease rates by 15%  <b>Corrections:</b> No change  <b>Police &amp; Fire:</b> No changes
Unused sick leave	<b>General and Corrections:</b> Service credit is 1.5% of creditable service  <b>Police:</b> Service credit is 2.4% of creditable service  <b>Fire:</b> Service credit is 2.2% of creditable service	No change
Beneficiary demographics (for preretirement death benefit)	70% with beneficiary  Female beneficiary 3 years younger than male participant and male beneficiary 3 years older than female participant	65% with beneficiary  Female beneficiary 2 years younger than male participant and male beneficiary 2 years older than female participant



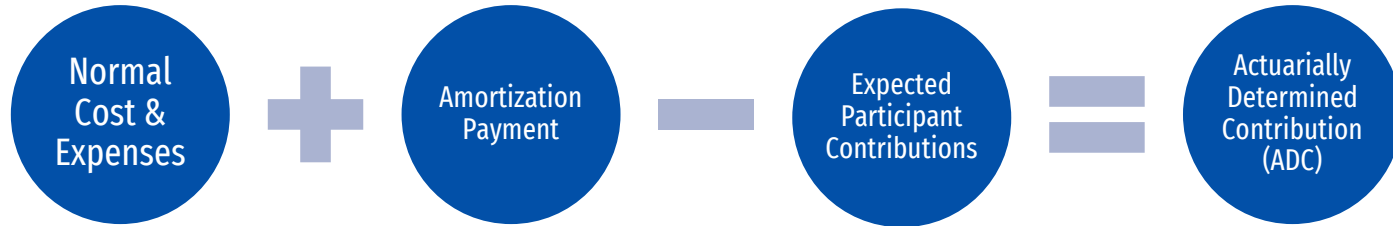
# Actuarial Methods

Method	Current	Recommendation
Cost Method	Projected unit credit	No change, but consider studying entry age normal cost method
Asset Smoothing	Five-year smoothing of investment gains and losses with a 50%-150% corridor around the market value of assets	No change
Amortization of Unfunded Liabilities / (Surplus)	<p>UAAL amortization period based on source and amount developed as a level percentage of payroll:</p> <ul style="list-style-type: none"> <li>- Gains/ losses: 15 years</li> <li>- Assumption/Method Changes: 15 years</li> <li>- Active plan amendments: Average future service</li> <li>- Inactive plan amendments: Not defined</li> <li>- Early retirement incentives: <math>\leq 5</math> years</li> <li>- Surplus: 30 years</li> </ul>	<p>Modify plan amendment amortizations</p> <ul style="list-style-type: none"> <li>- Active plan amendments: lesser of average future service and 15 years</li> <li>- Inactive plan amendments: lesser of average life expectancy and 10 years</li> </ul>

# ACTUARIAL REFRESHER - LIABILITIES



# ACTUARIAL REFRESHER - CONTRIBUTIONS



- Normal cost and expected expense payment
  - Cost of benefits in upcoming year
  - Expected incurred expenses in upcoming year
- Amortization payment
  - Payment towards the unfunded liability or credit due to surplus
- Expected Participant Contributions
  - Reduction in total contribution due to expected participant contributions
- County's Actuarially Determined Contribution (ADC)
  - County contribution amount for fiscal year that begins one year after the actuarial valuation date
  - For example, July 1, 2022 actuarial valuation will provide the FY2024 ADC

# Impact on Liabilities and Contributions

- Illustrative impact on liabilities, funded ratio and actuarially determined contribution (ADC) if assumption and method changes had been implemented in the 7/1/2021 valuation

Howard County Retirement Plan	Current Assumptions	Proposed Assumptions	Change	Change (% of Current)
Actuarial Accrued Liability	\$557,115,711	\$557,997,390	\$881,679	0.2%
Actuarial Value of Assets	\$560,095,647	\$560,095,647	\$0	0.0%
Unfunded Liability	\$(2,979,936)	\$(2,098,257)	\$881,679	-29.6%
AVA Funded Ratio	100.5%	100.4%	-0.1%	-0.1%
ADC	\$13,851,158	\$13,706,459	\$(144,699)	-1.0%
ADC as Percent of Payroll	9.7%	9.6%	-0.1%	-1.0%

- Any approved changes will be implemented in the 7/1/2022 valuation, which will provide the FY2024 ADC

# Impact on Liabilities and Contributions

- Illustrative impact on liabilities, funded ratio and actuarially determined contribution (ADC) if assumption and method changes had been implemented in the 7/1/2021 valuation

Howard County Police & Fire Retirement Plan	Current Assumptions	Proposed Assumptions	Change	Change (% of Current)
Actuarial Accrued Liability	\$821,136,660	\$822,297,116	\$1,160,456	0.1%
Actuarial Value of Assets	\$739,199,104	\$739,199,104	\$0	0.0%
Unfunded Liability	\$81,937,556	\$83,098,012	\$1,160,456	1.4%
AVA Funded Ratio	90.0%	89.9%	-0.1%	0.0%
ADC	\$33,060,808	\$32,752,559	\$(308,249)	-0.9%
ADC as Percent of Payroll	34.2%	33.9%	-0.3%	-0.9%

- Any approved changes will be implemented in the 7/1/2022 valuation, which will provide the FY2024 ADC

# STUDY AND ACTUARIAL VALUATION

