City of Fort Collins General Employees' Retirement Plan
January 1, 2021 Actuarial Valuation Assumption Review

Joel Stewart, FSA, EA, MAAA
Brian Nichols, EA, MAAA

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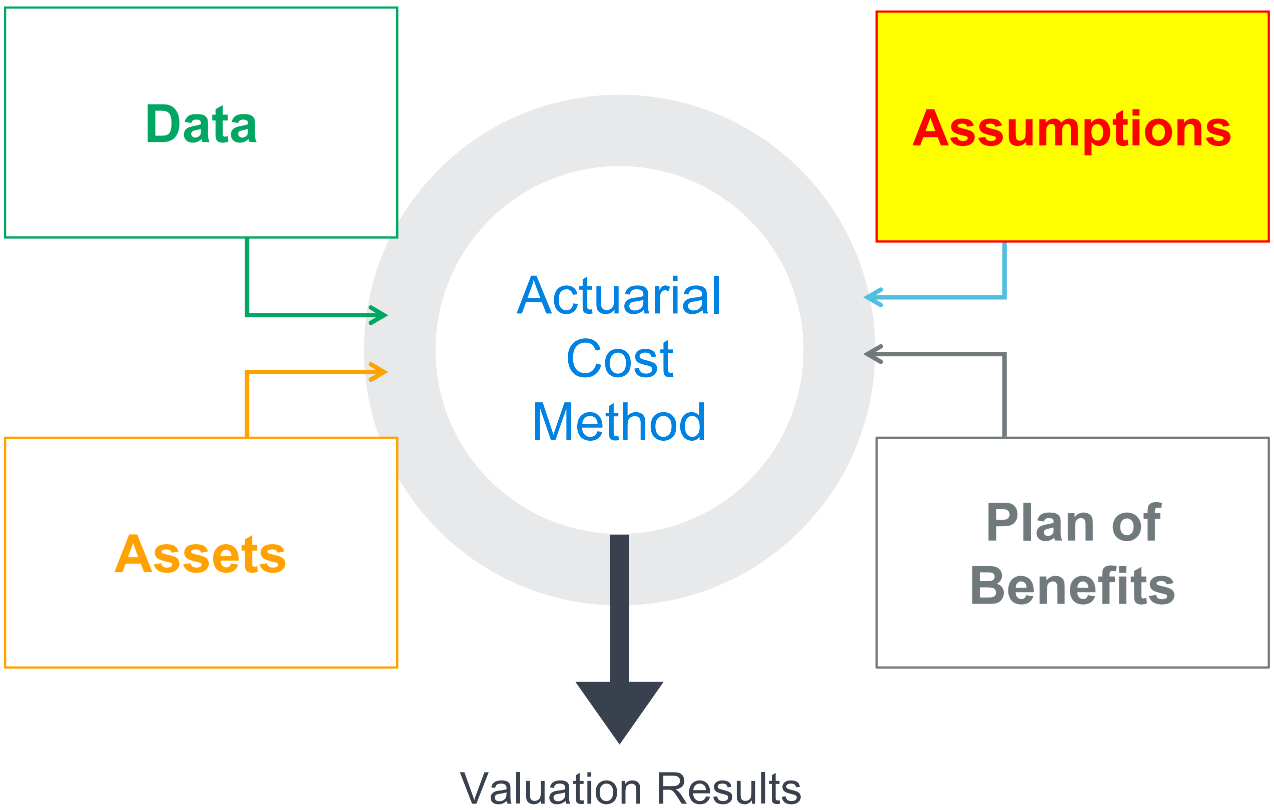
Meeting Agenda

- Economic Assumptions
  - Inflation
  - Investment Return
  - Salary Scale
  - Operating Expenses: 3-year average; used in solvency projection and contribution adequacy evaluation
- Demographic Assumptions
  - Mortality
  - Retirement (active employee and inactive vested)
  - Form of Payment
  - Other Terminations of Employment

Necessary Elements of a Valuation



Actuaries provide information based on:

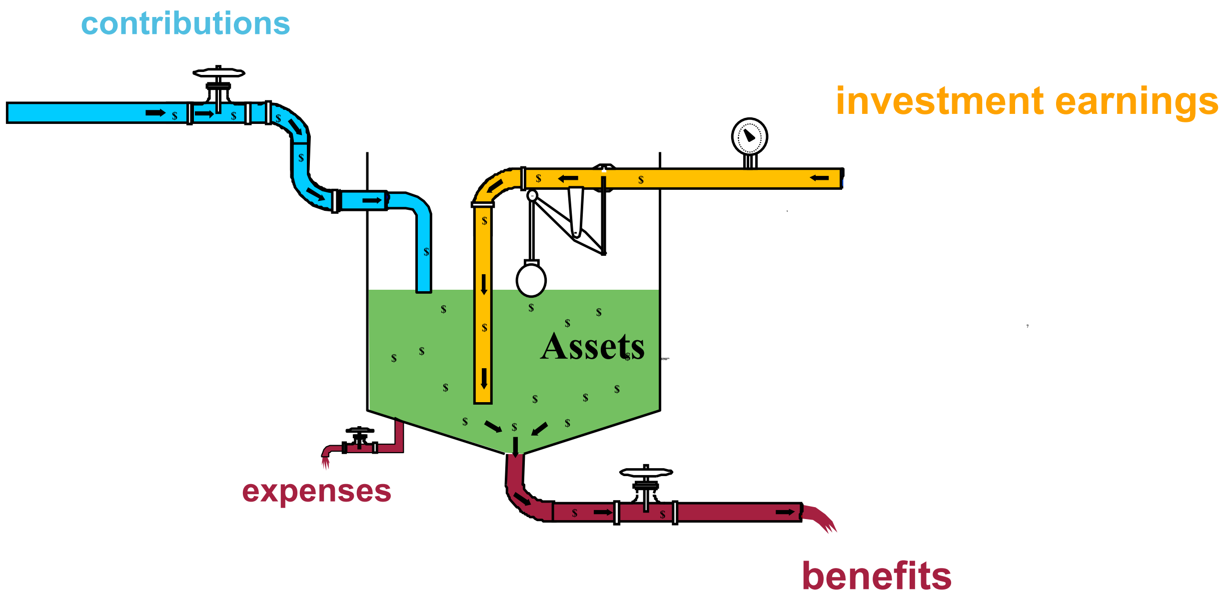
- Probability,
- Statistics,
- Financial mathematics

So the Plan Sponsor is informed about…

- Projected annual level of plan benefits
- Funding of those benefits

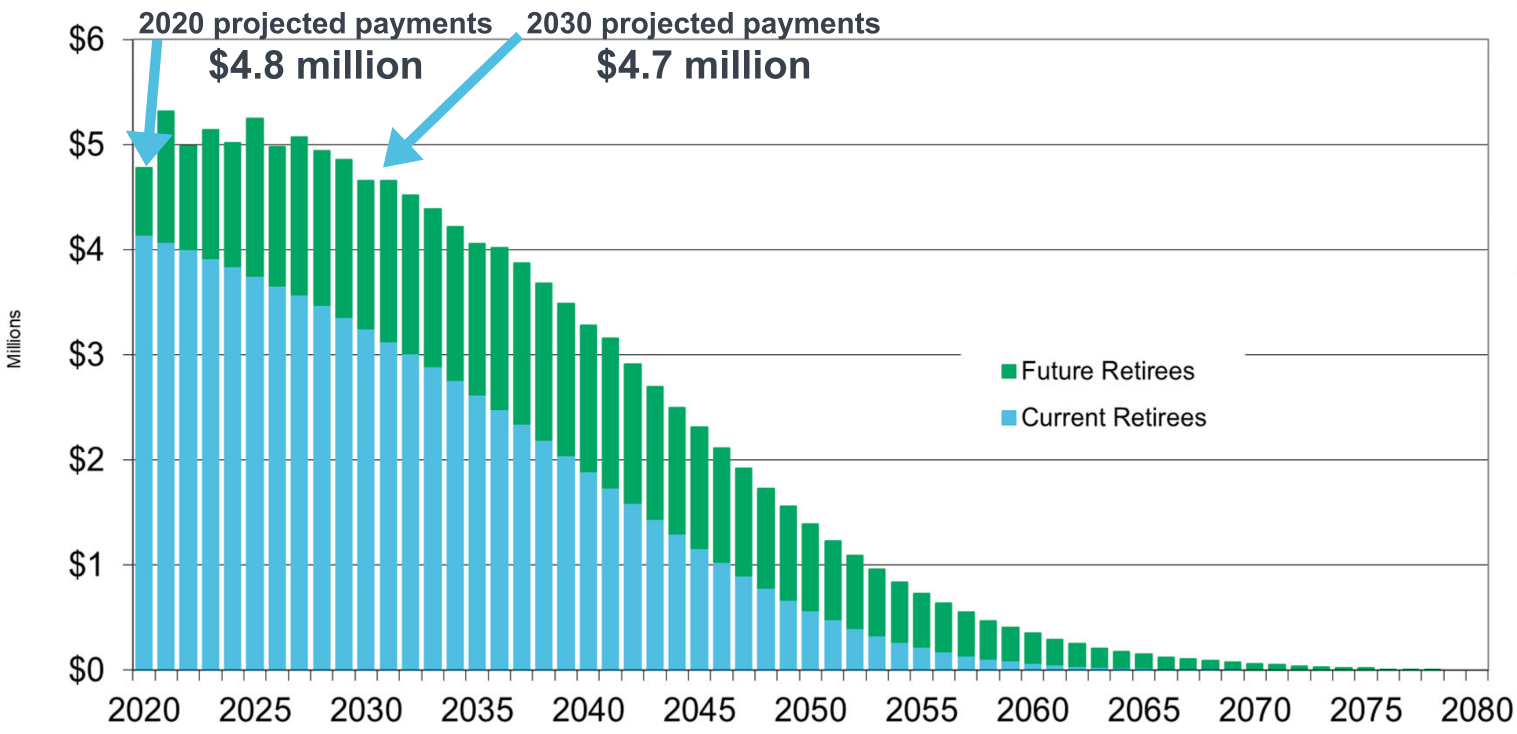
Pension Plan Equation

- Assumptions do affect calculated rates and liabilities
- Assumptions do not affect the plan's long-term contribution cost



Development of projected benefit payments

1/1/2020 valuation's projected benefit payments



Actual benefit payments (including lump sums):

- 2019 = $5.2 million
- 2018 = $4.8 million

Economic – ASOP 27

- Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*
- Provides guidance to actuaries on selecting economic assumptions for measuring obligations under defined benefit plans (or when providing guidance on assumptions)
- Instructs actuary to use professional judgment to estimate possible future economic outcomes
  - Estimates are based on a mixture of past experience, future expectations, and professional judgment
  - Consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data
  - Standard explicitly advises the actuary not to give undue weight to recent experience
- Standard lays out a general selection process, and then calls for the actuary to select a reasonable assumption
  - Each economic assumption should individually satisfy this standard
  - Each economic assumption should be consistent with every other economic assumption over the measurement period
- Assumptions selected by others
  - Disclose
  - Identify if that assumption "significantly conflicts with what the actuary would consider a reasonable assumption"

Economic - Inflation Assumption

- Building block for all other economic assumptions (investment return, wage growth, etc.)
- The current assumption is 2.5% per year (adopted pre-2001)
- Current outlooks:
  - December 2020 Blue Chip Financial Forecasts project 1.95% for 2021, an average of 2.1% for 2022-2026 and an average of 2.2% for 2027-2031.
  - Congressional Budget Office's September 2020 report The Long-Term Budget Outlook uses an annualized growth in CPI from 2020-2049 of 2.2%.
  - In its July 2020 Trustees Report, the Social Security Administration's (SSA) ultimate CPI under its intermediate cost assumptions was 2.4%.
  - Milliman Capital Market Outlook at December 2020 uses a long-term inflation assumption of 2.2%.
- **Recommendation:** Consider reduction to 2.25%

Economic - Investment Return / Discount Rate Assumption

- Current assumption: 6.25% (adopted in 2018)
  - Incorporates underlying inflation assumption of 2.5%, and is net of investment-related expenses
- Best practice: 50%+ chance actual experience beats assumption
- Using Milliman's capital market outlook model, 2.2% inflation and a 20-year time horizon
  - Median expectation, target allocation (40% fixed income): 4.8%
  - Median expectation, current allocation (30% fixed income): 5.0%
    - 6.25% is the 68th percentile based on current allocation
- 2020 Horizon Survey 10-year (39 respondents) return estimate is 6.0% based on current allocation
- **Recommendation:** An assumption in the 5.5% - 6.0% range, net of investment-related expenses. Incorporates reduction to inflation assumption. The current assumption does not significantly conflict with our professional judgement of a reasonable assumption as defined by ASOP27.

Economic - Salary Scale

- Three components:

Inflation	+	Productivity	+	Merit Scale

- Current Inflation (2.5%) + Productivity (1.0%) component is 3.5% (adopted pre-2001); Merit is age-based
  - In its 2020 Trustees Report, the Social Security Administration's (SSA) ultimate Productivity assumption under its intermediate cost assumptions was 1.1%.
  - 51-year historical average through 2019 was 0.8%.
- Current Merit scale (adopted in 2009) has increases ≤ 1.0%; ≤ 0.5% beginning at age 55
- **Recommendation:** Reduce underlying wage inflation to 3.25% (2.25% + 1.0%) to reflect reduction in inflation assumption; no change to Productivity or Merit

Demographic - Mortality

- Current: Pub-2010 for General Employees (healthy lives); Disabled Retiree for Non-Safety (disabled lives); both projected generationally using MP-2018 (adopted in 2019)
- Discussion
  - Pub-2010 (published in January 2019) is most recent base table study of public pension plan mortality produced by Society of Actuaries (SOA)
  - SOA publishes updated projection scale annually (MP-2020)
  - Generational projection reflects understanding that a 65 year old today will have a different life expectancy than a 65 year old 20 years from now
- **Recommendation:** No change to base tables. Could consider update to current projection scale. Would likely result in slight decrease in liability.

Retirement (Active Employees)

- Current: Table of rates based on age (adopted in 2017)

Age	Probability	Age	Probability
55-60	5%	66-68	40%
61-64	10%	69+	100%
65	65%		

- Experience (actual adjusted to include retirement eligible terminations)

	2016	2017	2018	2019	2020	Total
Actual	16	8	13	14	6	57
Expected	17	12	11	10	5	55
A/E						104%

- **Recommendation:** no change

Form of Payment upon Retirement (Active Employees)

- Current: 15% will elect a lump sum upon retirement (adopted in 2017)
- Experience:

	2016	2017	2018	2019	2020	Total
Lump sums	1	0	3	2	1	7
Total exits	16	8	13	14	6	57
%						12%

- **Recommendation:** no change

Retirement Age and Form of Payment (Deferred Vested)

- Current: Retire at age 65 (adopted pre-2001); 30% will elect a lump sum (adopted in 2019)
- Discussion:
  - Age 65 is Plan's Normal Retirement Age; most deferred vested participants commence at this age
  - Form of payment election experience:

	2016	2017	2018	2019	2020	Total
Lump sums	1	4	2	4	4	15
Total exits	10	5	11	11	9	46
%						33%

- **Recommendation:** no change

Other Terminations of Employment

- Current: Withdrawal and Disability table of rates based on age. Withdrawal rates stop upon attainment of early retirement eligibility
- Discussion:
  - Plan experiences significantly fewer terminations and disablements compared to retirement
- **Recommendation:** Retain current assumptions due to lack of statistically significant data

Estimated Impact of Discount Rate Assumption

	12/31/2019	12/31/2020 (Estimated)		
1. Discount Rate for Liabilities	6.25%	6.25%	6.00%	5.50%
2. Actuarial Liability (AL)	$ 61,300,247	$ 59,703,050	$ 60,985,744	$ 63,699,261
3. Market Value of Assets (MVA)	$ 48,058,021	$ 51,394,383	$ 51,394,383	$ 51,394,383
4. Unfunded Actuarial Liability AL - MV	$ 13,242,226	$ 8,308,667	$ 9,591,361	$ 12,304,878
5. Funded Ratio (MV / AL)	78.4%	86.1%	84.3%	80.7%

- Estimated liabilities reflect impact of change in discount rate only. Liabilities would likely be reduced somewhat if recommendations of salary scale and mortality assumptions are adopted.

Certification

Except as otherwise indicated in this presentation, the explanatory notes contained in our January 1, 2020 actuarial valuation report, including statements of reliance and limitations on use, continue to apply.

The results in this report were developed using models intended for valuations that use standard actuarial techniques. The intent of the models is to estimate future plan costs. We have reviewed the models, including their inputs, calculations and outputs for consistency, reasonableness and appropriateness to the intended purpose and in compliance with generally recognized and accepted actuarial practice and relevant actuarial standards of practice.

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The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. I am a member of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Joel E. Stewart

Joel E. Stewart, FSA, EA, MAAA
Principal and Consulting Actuary