Fiscal TOPICS

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Glossary of Actuarial Terms

This document is intended as reference material to better understand the terminology associated with Iowa's public pension systems and the valuation reports submitted each year. This glossary is adapted from materials by Cavanaugh McDonald Consulting, LLC, the Actuarial Standards Board, and the State of Washington's Office of State Actuary.

Accrued Benefit – The amount of a participant's benefit (whether or not vested) as of a specific date that is determined in accordance with the terms of the retirement plan and based on compensation (if applicable) and years of service to that date.

Actuarial Accrued Liability – The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. This is also referred to as accrued liability, or actuarial accrued liability.

Actuarial Assumptions – Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income, and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method – A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefits between future normal cost and actuarial accrued liability. This is sometimes referred to as the actuarial funding method. There are six allowable actuarial cost methods under GASB 45.[1] Each method results in a different balance between current year and future year costs. The six actuarial methods used in determining postretirement benefits liability are: entry age, frozen entry age, attained age, frozen attained age, projected unit credit, and aggregate. *(Aggregate was deemed not a reasonable funding method in federal Internal Revenue Service Ruling 2008-83 issued June 27, 2003.)*

Actuarial Equivalent – A single amount or series of amounts of equal value to another single amount or series of amounts computed on the basis of a given set of actuarial assumptions.

Actuarial Gain (Loss) or Experience Gain (Loss) – A measure of the difference between actual experience and that expected based on a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

More Information

Iowa Public Retirement Legal Brief: https://www.legis.iowa.gov/DOCS/LSA/Legis_Guide/2012/LGEGC000.PDF

Iowa General Assembly: https://www.legis.iowa.gov/index.aspx

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[1] GASB = Governmental Accounting Standards Board.

Actuarial Present Value – The amount of funds currently required to provide a payment or series of payments in the future. This is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.

Actuarial Value – The value of pension plan investments and other property used by the actuary for the purpose of an actuarial valuation. Actuaries often select an asset valuation method that will smooth, over a period of years, the effects of short-term volatility in the market value of assets.

Amortization – Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.

Annual Required Contribution (ARC) – The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under GASB 25. The ARC consists of the Employer Normal Cost and the Amortization Payment.

Annuity – A series of periodic payments, usually for life, payable monthly or in other specified intervals. The term is often used to describe the part of a retirement allowance derived from a participant's contributions. A deferred annuity is one in which payments do not commence until a designated time in the future.

Amortization Period (Closed or Open) – **Closed** – A specific number of years beginning on one date and, therefore, declines to zero after the specified period. This method is commonly used in residential lending. **Open** – A period of time that begins again, or is recalculated with each actuarial valuation. This method is commonly used in consumer lending such as credit cards.

Average Final Compensation (AFC) – One of the variables on which pensions are calculated for most defined benefit plans. For most Iowa pension systems, the AFC is comprised of the average high three years. However, the IPERS general membership benefits formula is based on the high five years of earnings.

Asset Smoothing – An actuarial method used to de-emphasize the short-term fluctuations in market returns and thereby add some stability to required contribution rates.

Cash Balance Plan – A defined benefit pension plan that looks like and expresses its benefits like a defined contribution plan (i.e., accounts and account balances, contributions, and interest credits). However, the investment risk is borne by the plan sponsor, not the participant. Nebraska has such a plan structure.

Covered Wage – Those wages, as defined by law, that are included in the calculation of the average final compensation. Covered wages may include extra pay, such as overtime and other allowances as is the case with IPERS. Or covered wages may be limited to the regular rate of pay, plus a few other special allowances, as is the case for PORS and MFPRSI.[2] In many instances covered wages do not include severance pay, or payment for accumulated vacation or sick leave.

Defined Benefit Plan – An employer-sponsored retirement plan in which an employer/sponsor promises a specified monthly benefit on retirement that is predetermined by a formula based on the employee's earnings history, length of service, and age rather than depending directly on individual investment returns. It is 'defined' in the sense that the benefit formula is defined and known in advance. The investment risk is borne by the plan sponsor.

Defined Contribution Plan – A retirement plan in which the amount of the employer's annual contribution is specified. Individual accounts are set up for participants and benefits are based on the amounts credited to these accounts (through employer contributions and, if applicable, employee contributions) plus any investment earnings on the money in the account. Only employer contributions to the account are

[2] PORS = Peace Officer's Accident, Disability, and Retirement System
MFPRSI = Municipal Fire and Police Retirement System of Iowa

guaranteed, not the future benefits. In defined contribution plans, future benefits fluctuate on the basis of investment earnings. The investment risk is borne by the employee.

Employee Retirement Income Security Act (ERISA) – This federal legislation sets minimum standards for pension design to increase the security of private sector employee benefits.

Entry Age Normal Cost Method – A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to a valuation year is called the *normal cost*. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is called the *Actuarial accrued liability*.

Experience Gain (Loss) – The difference between actual experience and actuarial assumptions anticipated experienced during the period between two actuarial valuation dates.

Funded Ratio **–** A comparison of a particular measure of plan assets to a particular measure of plan obligations or plan liabilities. Usually a comparison of the actuarial value of assets to actuarial accrued liability. However, the measure could be market value of plan assets to actuarial accrued liability.

Level Dollar Amortization – The unfunded actuarial liability may be eliminated by making equal dollar amount payments over the amortization period. The amount is equal to the assumed investment return applied to the unfunded actuarial liability. Level dollar amortization is the more conservative method and will reduce unfunded liability more quickly. This method is the most commonly used amortization method in residential lending.

Level Percent of Pay – The unfunded actuarial liability may be eliminated by paying an identical percentage of payroll over the amortization period. This method is intended to result in a contribution rate that is constant assuming assumptions are met. The method does not fully fund interest during the initial years of the amortization period, but will initially result in increased unfunded actuarial liability. The payments amounts increase as a function of increasing payroll and results in increasing annual payments over time.

Market Value – The current value of plan assets at a specific point in time. For the Iowa public pension fund valuation reports, the “snapshot” is as of June 30 of the year of the report.

Mortality Assumption **–** The annual probability of death at each age and duration. This may reflect an assumption of future mortality improvement, or deterioration, or modification factors. Most commonly used tables in use are:

1971 Group Annuity Mortality (GAM) Table	The GAM-71 was based on mortality experience from 1964 to 1968.
1983 Group Annuity Mortality (GAM) Table	The GAM-83 table was constructed using the same annuitant mortality experience on which GAM-71 was based, updated for projected additional mortality improvements to 1983 based on 1966 – 1975 trends and added a 10.0% margin for conservatism.
1994 Group Annuity Mortality (GAM) Table	The GAM-94 table is based on group annuitant experience projected to 1994. This table was developed to replace GAM-83 after a study of 1986–1990 annuitant experience showed steady declines in the ratio of actual to expected (GAM-83) mortality, particularly for males.
1994 Uninsured Pensioner (UP) Mortality Table	The UP-94 table is based on uninsured pensioner experience projected to 1994. It was developed by the Society of Actuaries (SOA) to replace UP-84 after a study of 1985–1989 mortality experience of 29 retirement systems.
RP-2000 Mortality Table	In the construction of the RP-2000 table, data was collected from private employers for plan years ending in 1990 through 1994. The table was developed by the Society of Actuaries and is the only table based solely on retirement plan mortality.

Normal Cost – The actuarial present value of retirement system benefits allocated to the current year.

Normal Retirement Age – The age at which an early retirement reduction no longer applies. For IPERS general membership the normal retirement age is 65, age 62 with 20 or more years of service, or years of service and age equal to or exceeding 88.

Plan Sponsor – The entity that establishes and maintains a pension plan. Plan sponsors in Iowa are the General Assembly and the Governor. They determine, by statute, the plan design, contribution rates, and membership.

Portability – An employee's right to retain certain benefits after transferring from employment covered by one retirement system to another. Or an employee's right to transfer years of service from one retirement system to another with a change in employment. Members of PORS and MFPRSI have year-for-year portability if an employee transfers from covered employment of one system to the other.

Postretirement Benefit Increase **–** Often referred to as cost of living adjustments (COLAs), these are increases to the initial benefit received upon retirement and can be a percentage based on an index such as inflation or a fixed dollar amount.

Present Value – The value on a given date of a future payment or series of future payments, discounted to reflect the time value of money.

Qualified Plan – A plan that meets the requirements of the Internal Revenue Service to be eligible for certain tax benefits under 401(a) of the Internal Revenue Code. Eligible plans must be for the exclusive benefit of employees or their beneficiaries. Examples include, but are not limited to, other retirement systems (if permissible under the plan), a 401(k), a 403(b), profit sharing, and IRA accounts.

Rate of Return – The assumed or actual return on investment of system assets stated as a percentage. The market rate of return is based on the market value at a specified point in time. The actuarial rate of return often removes the volatility expressed in market returns by smoothing the gains and losses over a period of years, generally four or five.

Statutory Contribution Rate – The contribution rate(s) for the employer and employee as established by statute, or the rate as determined by a formula established by statute. For IPERS, the statutory rate is determined by a formula and may vary by no more than one percentage point each year. For PORS, the employer and employee contribution rates are specifically set in statute and the employer contribution may net be less than 17.0%, even if the annual required contribution rate would result in an employer contribution that is lower than 17.0%.

Unfunded Actuarial Accrued Liability (UAAL) – The difference between the *actuarial accrued liability* and the a*ctuarial value of assets*.

Vesting Period – The period of time that a member must serve in covered employment to receive a pension from the retirement system. The vesting period for most Iowa public pension employee groups is four years. For IPERS general membership, the vesting period is seven years.

Wage Spiking – Occurs when the member receives wages in excess of a predetermined level due to greater overtime earnings, wages increases due to promotion, or other reasons. For IPERS, general membership the control year salary is 134.0% of the highest year's earnings outside of the highest five-year average.

401(k), 403(b), and 457 Plans – These are defined contribution plans that permit employees to save for retirement on a tax-deferred basis. The 401(k) plans are found in the private sector and the public sector in some states. The 403(b) plans are for employees of public educational institutions and certain nonprofit tax-exempt organization. The 457 plans (also known as deferred compensation plans) are for governmental employees and nonchurch-controlled tax-exempt organizations.