Background Information on the Amortization of Defined Benefit Retirement Plan Unfunded Actuarial Accrued Liabilities

1. Determination of Defined Benefit Retirement Plan Actuarial Accrued Liability. Defined benefit retirement plans, which base retirement annuities and benefits on a formula or some determinant other than account accumulations, will have an accrued actuarial liability that will frequently be a different amount than the value of plan assets. In a defined benefit retirement plan, the actuarial accrued liability is determined by a periodic actuarial valuation, generally prepared by an actuary who is credentialed by the Society of Actuaries, a professional organization of life (pension plan and insurance company) actuaries and casualty actuaries. Defined benefit retirement plan actuarial accrued liabilities are determined utilizing one of several developed actuarial valuation methods and utilizing various actuarial assumptions.

2. Defined Benefit Retirement Plan Unfunded Actuarial Accrued Liabilities. When pension plan actuarial accrued liabilities exceed pension plan assets, the plan has an unfunded actuarial accrued liability, which represents the cumulative total of past departures from sound full funding practices, such as past actuarial experience losses, past insufficient contributions, past benefit increases, or a combination of the three.

3. Unfunded Actuarial Accrued Liability Amortization Contributions. If a retirement plan has an unfunded actuarial accrued liability, sound pension funding practices require that the unfunded actuarial accrued liability be paid or amortized over a reasonable period of time.

   The amortization of pension plan unfunded actuarial accrued liabilities depend on the amortization period, measured by the amortization target date, and on whether the amortization contribution is calculated as a level dollar amount or as a level percentage of covered pay.

   In Minnesota, amortization contribution requirements are calculated as part of the actuarial valuation process under Minnesota Statutes, Section 356.215, Subdivision 11, but only MERF and local police and fire relief association future contribution amounts are required to change in the following year as a consequence of that actuarial work. For all other Minnesota defined benefit retirement plans, the amortization contribution requirement is advisory, used by the Legislative Commission on Pensions and Retirement and the Legislature to set member and employer contribution rates.

4. Amortization Procedures. The amortization of a defined benefit retirement plan unfunded actuarial accrued liability, akin to the pay down of any debts, can be structured in many ways, which are:

   a. Level Dollar Amortization. The retirement plan unfunded actuarial accrued liability can be eliminated by making equal dollar amount payments periodically over the amortization period. The level dollar amortization requirement will always be an amount equal to the interest rate actuarial assumption applied to the unfunded actuarial accrued liability amount, the interest payment amount, and a portion of the principal amount of the unfunded actuarial accrued liability, the principal payment amount. The level dollar amortization procedure is the most common amortization procedure in consumer debt and residential loans.

   b. Balloon Payment Amortization. The retirement plan unfunded actuarial accrued liability can be eliminated by paying the interest at the interest rate actuarial assumption rate over the period and by paying the principal amount of the unfunded actuarial accrued liability at the end of the period in a lump sum. Balloon payment amortization is infrequently used in public pension plan amortization requirements, although shifts from current disbursements/pay-as-you-go obligations to actuarially based retirement plan funding may include the use of an interest on the unfunded actuarial accrued liability contribution only as an interim step on the road to full actuarial funding.

   c. Level Percentage of Increasing Payroll Amortization. The retirement plan unfunded actuarial accrued liability can be eliminated by paying an identical percentage of the increasing covered payroll of the retirement plan over the amortization period. The level percentage of payroll amortization procedure attempts to keep retirement plan funding constant and consistent over time as a percentage of covered payroll rather than a dollar amount. Unless the amortization period is set as a very short period of years, the level percentage of increasing payroll amortization will not pay full interest on the unfunded actuarial accrued liability during the initial portion of the amortization period, will produce an increasing unfunded actuarial accrued liability during that portion of the amortization period even if all actuarial assumptions are met precisely, and will produce, comparatively, a set of balloon payments during the final portion of the amortization period.

The following may provide a sense of the built-in ballooning of the late-stage amortization process under the level percentage of an increasing covered payroll amortization procedure by comparing the most recent amortization contribution with interest on the unfunded actuarial accrued liability only:

Retirement Plan	Amortization Target Date	7/1/2010 Unfunded Actuarial Accrued Liability	8.5% Interest on Unfunded Actuarial Accrued Liability	$ Calculated Amortization Requirement	Difference
MSRS-General	2040	$1,303,680,000	$110,813,000	$72,200,000	$36,613,000
MSRS-Correctional	2038	247,223,000	21,014,000	14,637,000	6,377,000
Judges Plan	2038	95,851,000	8,147,000	5,982,000	2,165,000
State Patrol Plan	2036	116,149,000	14,378,000	7,176,000	7,201,000
PERA-General	2031	4,053,963,000	344,587,000	298,280,000	46,307,000
PERA-Correctional	2023	6,848,000	582,000	685,000	(103,000)
PERA-P&F	2038	775,333,000	65,903,000	45,881,000	20,022,000
TRA	2037	4,758,488,000	404,471,000	287,781,000	116,690,000
DTRFA	2035	57,341,000	4,874,000	3,627,000	1,247,000
SPTRFA	2035	470,185,000	39,966,000	28,325,000	11,641,000
MERF*	2031	442118,000	37,580,000	45,846,000	(8,266,000)

**Plan amortization contribution is calculated as a level dollar amount.*

The choice of amortization procedures logically will be a function of the policymakers' pension funding philosophy and the likely budget capacity of the retirement plan's contributors. If policymakers desire to have retirement plans funded as early as possible and functioning with the least unfunded actuarial accrued liability, a level dollar amount amortization requirement procedure is likely to be the most consistent option. If policymakers are aware of considerable fluctuations in pension funding resources, especially if predictable future resources are in the offing, a balloon payment amortization procedure is likely to be the optimal option. If policymakers favor consistent retirement plan funding obligations in proportion to employing unit covered payroll in their choice of the underlying actuarial cost method, using a level percentage of an increasing covered payroll amortization procedure is the most consistent option.

5. Utilization of Different Amortization Periods for Different Unfunded Actuarial Accrued Liability Sources. Unfunded actuarial accrued liabilities can be attributed to a variety of sources and different amortization periods can be employed for different portions of an unfunded actuarial accrued liability based on its determined source. The use of different amortization periods has an analogy in financing a house, where the longest mortgage period would be for the initial house purchase, a shorter second mortgage period would be for a house addition, and shorter debt service periods would be purchases of appliances, furnishings, and building repairs. The sources for portions of the unfunded actuarial accrued liability would be the initial unfunded actuarial accrued liability upon plan establishment if the retirement plan recognized prior (pre-plan establishment) service or upon the initial actuarial valuation of an existing retirement plan, unfunded actuarial accrued liabilities resulting from benefit increases, unfunded actuarial accrued liabilities resulting from actuarial assumption changes or actuarial method changes, unfunded actuarial accrued liabilities resulting from contribution shortfalls or deficiencies, and unfunded actuarial accrued liabilities resulting from net experience losses (departures between experience and actuarial assumptions).

   Generally accepted accounting principles in the public sector (Government Accounting Standards Board Statement 27) allows amortization periods up to 30 years (40 years for the first ten years after 1997, then 30 years, as a transitional requirement). The federal pension law, the Employee Retirement Income Security Act of 1974 (ERISA), largely applicable only to private sector retirement plans, but largely defining practices for all retirement plans, provides amortization periods of 40 years for the initial (1974) unfunded actuarial accrued liability of existing plans, 30 years for the unfunded actuarial accrued liability of plans created after 1973 (40 years for multiple employer plans), 15 years for the unfunded actuarial accrued liability as a result of net experience losses (20 years for multiple employer plans), 15 years for the unfunded actuarial accrued liability resulting from funding deficiencies, and 30 years for the unfunded actuarial accrued liability resulting from actuarial assumption changes.

6. Appropriate Amortization Period or Periods. There are several potential ways that the appropriate amortization period or periods, as follows:

   a. Fixed Date Single Amortization Target Date. The amortization contribution could be calculated utilizing a single fixed date to define the amortization period. Before the prevalence of data processing in performing actuarial work, to simplify the actuarial valuation process, the use of a single amortization period for the entire unfunded actuarial accrued liability makes the determination of the amortization contribution relatively easy. It also addresses a policymaker's desire to have a comparative tool by simplifying the amortization target date, when the entire unfunded actuarial accrued liability will be retired.

b. Automatically Revised Amortization Target Date. The amortization contributions could be calculated utilizing a single date that would be reset periodically based on events that create significant additional unfunded actuarial accrued liabilities, such as irregular occurrences (changes in benefits, changes in actuarial assumptions, or changes in actuarial methods) or unusual experiences (investment losses akin to those that occurred during the Great Depression or the Great Recession). Automatic revisions in amortization target dates allow policymakers to identify abstractly those occurrences or experiences that are sufficiently out of the ordinary that they merit long term financing rather than more immediate financing and to have amortization target date revisions selected without any possibility of cherry-picking the magnitude of the amortization target date extension.

c. Rolling Amortization Target Date. The amortization contribution could be newly calculated annually utilizing a reset amortization target date of the same duration as the amortization target utilized in the prior year. Rolling amortization target dates are appealing to policymakers when a retirement fund is sufficiently underfunded that its full funding in the foreseeable future is not possible budgetarily or politically, where policymakers have concluded that retirement fund unfunded actuarial accrued liabilities are inevitable occurrences, where policymakers believe that having retirement fund unfunded actuarial accrued liabilities is a useful circumstance to dissuade additional benefit increase demands that could accompany full funding, or where policymakers do not believe that full funding of a retirement fund is a practical necessity because governmental taxing power is a sufficient guarantee of future retirement benefit payments or do not believe that full funding of a retirement plan is a desirable policy goal.

A portion of the Principles of Pension Policy formulated by the Legislative Commission on Pensions and Retirement since the late 1950s, Principle II.D.2.f., addresses the length of amortization periods, indicating that:

> II.D.2.f. Unfunded actuarial accrued liabilities of a defined benefit pension plan, determined by subtracting the actuarial value of assets from the calculated actuarial accrued liability, should be amortized over an extended period of time, but should not exceed thirty years.

Although not wholly in concert with the Commission's amortization period principle, the theory underlying good actuarial funding suggests that an unfunded actuarial accrued liability should be amortized over a period that does not greatly exceed the average remaining working lifetime of the active membership. The unfunded actuarial accrued liability basically represents past normal cost contributions that were either not recognized, as would occur if actuarial assumptions are incorrect, or were not made in a timely fashion, as would occur if there is a contribution deficiency. Since normal costs should be funded over the working lifetimes of active members under good actuarial funding practices, the amortization of the unfunded actuarial accrued liability derived from unpaid normal costs should similarly be funded over essentially the remaining active working lifetime. The following sets forth the current average age of the active membership of the various statewide and major local retirement plans and compares that age with the normal retirement age of the plan, providing some sense of the remaining average active working lifetimes:

Retirement Plan	2010 Average Age (Actives)	Normal Retirement Age	Remaining Period
MSRS-General	47.0	65	18 years
PERA-General	47.2	65	17.8
TRA	43.5	65	21.5
MERF	60.1	60	-0.1
DTRFA	47.6	65	17.4
SPTRFA	45.5	65	19.5
Judges	57.1	65	7.9
PERA-P&F	40.0	55	15
State Patrol	41.8	55	13.2
PERA-Correctional	40.3	55	14.7
MSRS-Correctional	41.7	55	13.3

7. Appropriate Amortization Period Extension Triggering Event. There is a policy issue as to the appropriate event that should trigger an extension of the amortization period for a public retirement plan. Currently, a change in actuarial assumptions, a change in actuarial methods, or a change in active member benefits triggers an automatic extension of the amortization date in proportion to the magnitude of the added unfunded actuarial accrued liability under Minnesota Statutes, Section 356.215, Subdivision 11. Pension plan consolidations, such as the consolidation of the Minneapolis Teachers Retirement Fund Association (MTRFA) into the Teachers Retirement Association (TRA), also have been the basis for an amortization period extension. Once an amortization period is set, time has passed, and events causing net increases in the unfunded actuarial accrued liability have occurred, it may be desirable or appropriate to revise the amortization period. Ad hoc extensions

have been approved by the legislation in the past, with the amortization period for the General Employee Retirement Plan of the Public Employees Retirement Association (PERA-General) set at 2031 (and PERA-General was excluded from the automatic extension provision) and with the amortization period for the TRA set at 2037 (but TRA was not excluded from the automatic extension provision. A large contribution deficiency (contributions compared to the total required actuarial funding) frequently prompts interest in extending the amortization target date to moderate the perceived or actual pressure for increasing member and employer contribution rates, but changing the target rather than actually making progress toward the target is not an adequate policy basis for resetting an amortization date.

8. Reverse Amortization of Funding Surpluses. If a defined benefit retirement plan has assets that are greater than its actuarial accrued liabilities, that funding surplus could be allowed to continue, earning additional investment performance to offset future accruing liabilities, could be offset by adding actuarial accrued liabilities through a benefit increase or an assumption change, or could be converted in part to a credit that reduces the annual total financial requirements by calculating the amortization contribution equivalent on the surplus amount. While the reverse amortization credit does not itself cause many policy issues, the eventual shift from a surplus funding situation to an unfunded actuarial accrued liability situation appears to have caused policy and funding problems for MSRS-Correctional, PERA-P&F, and DTRFA. The shift from a credit reducing the total annual financial requirements for the retirement plan to an amortization contribution based on the pre-full-funded date amortization target date can represent a very large increase in the total financial requirement amount. Using a new post-full-funded amortization target date that is based on a rough approximation of the average remaining working lifetime of the covered active membership rather than the pre-full-funding amortization target date would moderate the size of the immediate increase in the total annual funding requirement.

9. Current Minnesota Statewide and Major Local Defined Benefit Public Retirement Plan Amortization Provisions

   a. Current Amortization Target Date Provisions

Legislators Plan	MSRS-General	MSRS-Correctional
July 1, 2020, plus an automatic extension in the period blended with 30-year amortization period for post-1990 benefit increases, actuarial method changes, or actuarial assumption changes. *[356.215, Subd. 11, Para. (b) & (c)]*	July 1, 2040, plus an automatic extension in the period blended with 30-year amortization period for post-2010 benefit increases, actuarial method changes, or actuarial assumption changes. [*356.215, Subd. 11, Para. (c) & (k)]*	July 1, 2038, plus an automatic extension in the period blended with 30-year amortization period for post-1998 benefit increases, actuarial method changes, or actuarial assumption changes. [*356.215, Subd. 11, Para. (c) & (g)]*
State Patrol Plan	**Elective State Officers Plan**	**PERA-General**
July 1, 2020, plus an automatic extension in the period blended with 30-year amortization period for post-1990 benefit increases, actuarial method changes, or actuarial assumption changes. [*356.215, Subd. 11, Para. (b) & (c)]*	July 1, 2020, plus an automatic extension in the period blended with 30-year amortization period for post-1990 benefit increase, actuarial method change, or actuarial assumption change. [*356.215, Subd. 11, Para. (b) & (c)]*	July 1, 2031. [*356.215, Subd. 11, Para. (e)]*
PERA-P&F	**PERA-Correctional**	**TRA**
July 1, 2038, plus an automatic extension in the period blended with 30-year amortization period for post-2008 benefit increases, actuarial method changes, or actuarial assumption changes. [*356.215, Subd. 11, Para. (c) & (i)]*	July 1, 2020, plus an automatic extension in the period blended with 30-year amortization period for post-1999 benefit increases, actuarial method changes, or actuarial assumption changes. [*356.215, Subd. 11, Para. (b) & (c)]*	July 1, 2037, plus an automatic extension in the period blended with 30-year amortization period for post-2007 benefit increases, actuarial method changes, or actuarial assumption changes. [*356.215, Subd. 11, Para. (c) & (f)]*
DTRFA	**SPTRFA**	**Judges Plan**
July 1, 2020, plus an automatic extension in the period blended with 30-year amortization period for post-1990 benefit increases, actuarial method changes, or actuarial assumption changes. [*356.215, Subd. 11, Para. (b) & (c)]*	June 30 of the year 25 years from the current year. [*356.215, Subd. 11, Para. (j)]*	July 1, 2038, plus an automatic extension in the period blended with 30-year amortization period for post-2008 benefit increases, actuarial method changes, or actuarial assumption changes. [*356.215, Subd. 11, Para. (c) & (h)]*

   b. Summary of the Development of the Current Amortization Target Date Provisions

      – In 1957 (Extra Sess. Laws 1957, Ch. 11, Sec. 2, Para. (5), Cl. (b)), as part of the initial uncoded public employee retirement plan actuarial reporting law, the amortization target date used for calculating the required contribution to eliminate the unfunded actuarial accrued liability of the retirement plan was specified as 1997.

      – In 1965 (Laws 1965, Ch. 359, Sec. 2, Subd. 5, Cl. (6), and Ch. 751, Sec. 3, Para. (5), Cl. (b)), two actuarial reporting laws were enacted, with the statewide and general employee retirement plan actuarial reporting law specifying a June 30, 1997, unfunded actuarial accrued liability amortization target date and with the local police and paid firefighter relief

association actuarial reporting law specifying a December 31, 1997, unfunded actuarial accrued liability amortization target date.

- In 1967 (Laws 1967, Ch. 729, Sec. 3, Para. (5), Cl. (b)), the local police and paid firefighter relief association actuarial reporting law specifying a December 31, 2007, unfunded actuarial accrued liability amortization target date.
- In 1975 (Laws 1975, Ch. 192, Sec. 3), the actuarial reporting law was recodified, but retained the June 30, 1997, unfunded actuarial accrued liability amortization target date.
- In 1978 (Laws 1978, Ch. 563, Sec. 10-11, 31), the former local police and paid firefighter relief association actuarial reporting law was repealed in favor of requiring that relief associations file actuarial reports under the general actuarial reporting law and by specifying certain requirement adaptations, including the substitution of the calculation of the interest on the unfunded actuarial accrued liability funding requirement for an amortization funding requirement.
- In 1979 (Laws 1979, Ch. 184, Sec. 1), the unfunded actuarial accrued liability amortization target date was reset from July 1, 1997, to the first actuarial valuation date occurring after June 1, 2009, and a process was established for extending the target date if benefit increases, actuarial method changes, and/or actuarial assumption changes occur after June 1, 1979, with the extension based on blending on a weighted average basis the pre-benefit increase, actuarial method change, or assumption change unfunded actuarial accrued liability amortization requirement and the benefit increase, actuarial method change, or assumption change unfunded actuarial accrued liability amortization requirement.
- In 1987 (Laws 1987, Ch. 259, Sec. 55), the unfunded actuarial accrued liability amortization requirement for the Minneapolis Employees Retirement Fund (MERF) was extended from 2009 until 2017 and MERF was excluded from the automatic amortization target date extension process.
- In 1989 (Laws 1989, Ch. 319, Art. 13, Sec. 91), for any fund or plan other than MERF, the unfunded actuarial accrued liability amortization target date was reset from 2009 until 2020, with the automatic target date extension procedure reset to apply if there are benefit increases, actuarial method changes, or actuarial assumption changes after 1989 rather than 1979.
- In 1991 (Laws 1991, Ch. 345, Art. 4, Sec. 4), the unfunded actuarial accrued liability amortization target date for MERF was reset from 2017 to 2020.
- In 1993 (Laws 1993, Ch. 352, Sec. 7), for the Public Employees Police and Fire Retirement Plan (PERA-P&F), if its asset value exceeds its actuarial accrued liability, the total actuarial requirements of the retirement plan were to be reduced by the amount of the amortization requirement if the funding surplus was an unfunded actuarial accrued liability.
- In 1997 (Laws 1997, Ch. 233, Art. 1, Sec. 59), the funding surplus credit enacted for PERA-P&F in 1993 was extended to the MSRS Correctional State Employees Retirement Plan (MSRS-Correctional) and the State Patrol Retirement Plan.
- In 1999 (Laws 1999, Ch. 222, Art. 4, Sec. 14), the funding requirement credit for retirement plans with asset values greater than actuarial accrued liabilities was modified by shifting from the remaining amortization period applicable to the retirement plan to a rolling 30-year period each valuation.
- In 2001 (1st SS Laws 2001, Ch. 10, Art. 11, Sec. 18), the PERA General Employees Retirement Plan (PERA-General) was exempted from the automatic amortization period in the event of benefit increases, actuarial method changes, or actuarial assumption changes and had a June 30, 2031, unfunded actuarial accrued liability amortization target date specified.
- In 2008 (Laws 2008, Ch. 349, Art. 10, Sec. 14), the St. Paul Teachers Retirement Fund Association (SPTRFA) was exempted from the automatic amortization period in the event of benefit increases, actuarial method changes, or actuarial assumption changes and new amortization target dates were set for MSRS-Correctional, the Judges Retirement Plan, and PERA-P&F at June 30, 2038, and for SPTRFA at the valuation date occurring 25 years later than the valuation year.
- In 2010 (Laws 2010, Ch. 359, Art. 1, Sec. 69; Art. 11, Sec. 20), the amortization target date was reset for the MSRS General State Employees Retirement Plan (MSRS-General) as June 30, 2040, and was set as June 30, 2031, for the MERF Division of the Public Employees Retirement Association (PERA) following the consolidation of MERF with PERA.