



TO: Members of the Legislative Commission on Pensions and Retirement

FROM: Lawrence A. Martin, Executive Director

RE: Review of Current Minnesota Defined Benefit Public Employee Retirement Plan Interest Rate Actuarial Assumptions; Second Consideration

DATE: September 9, 2013

Introduction

As one of the topics designated by Commission Chair Senator Sandra Pappas for consideration during the 2013-2014 Interim, the Commission has scheduled a review of the interest rate actuarial assumption to be used by the various Minnesota defined benefit public employee retirement plans.

The Commission staff has estimated that the topic will require Commission consideration over two Commission meetings. The initial Commission staff issue memorandum with respect to this topic attempted to set the stage for Commission consideration of testimony and information requested to be provided by the Minnesota State Economist, the Minnesota State Board of Investment, the investment advisor of the Duluth Teachers Retirement Fund Association (DTRFA), and the investment advisor of the St. Paul Teachers Retirement Fund Association (SPTRFA) by summarizing the role and function of interest actuarial assumptions, the interrelationship with other economic actuarial assumptions, the identification of the current interest rate actuarial assumptions in Minnesota defined benefit public employee retirement plans, the identification of current economic actuarial assumptions in Minnesota defined benefit public employee retirement plans, and the presentation of the recent investment performance of the statewide Minnesota retirement plans by the Minnesota State Board of Investment and the recent investment performance of other large asset size Minnesota public employee defined benefit retirement plans.

For the second consideration of the topic, this Commission staff issue memorandum attempts to capture the essence of the various competing perspectives on the most appropriate interest rate actuarial assumption or assumptions for Minnesota defined benefit public employee retirement plans by providing:

- A summary and critique of the arguments for:
 - select and ultimate interest rate actuarial assumptions;
 - an 8.5% interest rate actuarial assumption;
 - an 8.0% interest rate actuarial assumption;
 - a 7.5% interest rate actuarial assumption;
 - a 7.0% interest rate actuarial assumption;
 - a "credit risk free" or "fair value approach" interest rate interest assumption;
 - a high grade long-term taxable bond index interest rate actuarial assumption;
 - the status quo assumption and the self-correction mechanism for investment experience losses inherent in adhering to full actuarial funding requirements; and
- An explanation of potential action items: the interest rate actuarial assumption and related issues.

The Argument for Select and Ultimate Interest Rate Actuarial Assumptions

Although rare in the public sector, the use of select and ultimate actuarial assumption rates for the pension plan investment performance/interest apparently is more common in the private sector.

Select and ultimate actuarial assumptions were developed when the pattern of an actuarial assumption does not adequately match the recent experience for some period of time because of some factor pertinent to that period that has no influence or little influence for the balance of time after that period. A select and ultimate actuarial assumption would be appropriate for salary increases in a defined benefit plan when the rates generally appear to vary based on age, but depart from that pattern during the initial period of service, when a service-related assumption would be the select assumption and the age-related assumption would be the ultimate assumption.

In the public sector, the Vermont statewide retirement plans administered by the State Treasurer's Office, the various statewide and major local retirement plans in Minnesota, and the federal Pension Benefit Guarantee Corporation (PBGC) which underwrites private sector pensions of bankrupt or terminated private sector plans under the Employee Retirement Income Security Act of 1974 (ERISA) have instituted what has been termed "select and ultimate" interest rate actuarial assumptions. In reality, the three instances of change were the replacement of a single rate interest actuarial assumption with a set of two or

more assumptions applicable to different time periods. For the Vermont statewide retirement plans, nine different interest rates are applicable, restarted every year, of:

<u>Year</u>	<u>Interest Rate Assumption</u>
Valuation year	6.25%
Year 2	6.75%
Year 3	7.00%
Year 4	7.50%
Year 5	7.75%
Years 6-8	8.25%
Years 9-15	8.50%
Year 16	8.75%
Year 17 and subsequent years	9.00%

The Vermont select and ultimate assumption set is equivalent to an 8.1% single rate interest rate actuarial assumption for the Vermont State Employees Retirement System and to a 7.9% single rate interest rate actuarial assumption for the Vermont State Teachers Retirement System.

In Minnesota, the select and ultimate interest rate actuarial assumptions for the statewide and major local retirement plans other than the Legislators-Constitutional Officers Retirement Plan are 8.0% for the years 2012-2013, 2013-2014, 2014-2015, 2015-2016, and 2016-2017, and 8.5% for years after 2016-2017.

For the PBGC, for valuations in each year, a different percentage rate is specified for each calendar year quarter, applicable for 20 years, then a different (lower or higher) percentage rate for each calendar year quarter, applicable beyond 20 years.

The Vermont State Treasurer argued in 2012 that the Vermont select and ultimate interest rate actuarial assumptions were adopted because they were more accurate, permitting the reflection of unusually strong or weak expected investment returns in near-term years and then a subsequent trend to a long-term equilibrium, and represented a significant innovation. In setting its select and ultimate actuarial assumption set, the Vermont statewide pension plan consulting actuary, Buck Consultants, indicated in its 2006-2010 experience study that it used a capital market investment performance expectation model, the General Economy and Market Simulator (GEMS) model produced by Conning, an asset management, risk and capital management, and insurance research company located in Hartford, Connecticut, but did not set out any detailed indication of the capital market investment performance expectation numbers underlying its recommended interest rate assumptions. The select and ultimate interest rate actuarial assumption set assumes a continuous short-term pessimistic view of investment market performance that improves and stabilizes over time, since the assumption rolls, or is reset to the start of the 17-year pattern each year.

In Minnesota, prior to the Commission recommending the 8.0% near-term and 8.5% middle- and long-term select and ultimate actuarial assumption, the Commission requested that the administrators of the Minnesota Teachers Retirement Association (TRA) and the Duluth Teachers Retirement Fund Association (DTRFA) research and report on an alternative select and ultimate approach. The TRA-DTRFA report on the topic consisted of a two-page undated document that indicated the Minnesota State Board of Investment pessimistic short-term view of projected investment returns, contrary to the historic long-term pattern of investment returns of 8.8% average returns for the past 20 years, 8.9% average returns for the past 25 years, and 10.1% average returns since 1980, suggested that the select and ultimate interest rate actuarial assumption could capture this near-term pessimistic investment performance and middle-term and long-term more optimistic investment performance pattern, provides time to evaluate actuarial assumptions with additional experience and evidence of potential economic market structural changes, and represents an incremental approach to any interest rate assumption change. Initially, the TRA-DTRFA alternative select and ultimate interest rate actuarial assumption for which an actuarial cost estimate was prepared was an 8.25% interest rate actuarial assumption for ten years and an 8.5% interest rate actuarial assumption thereafter. When considered by the Commission as an amendment to the pending 2011 Omnibus Retirement bill, the select and ultimate interest rate actuarial assumption offered was 8.0% for five years and 8.5% thereafter. No specific authority or specific third-party investment expectation underlying either version of the select and ultimate interest rate actuarial assumption was presented to the Commission prior to the Commission formulation of the 2011 Omnibus Retirement Bill.

The information available on the PBGC select and ultimate rates that the Commission staff has found is sketchy, but the PBGC select and ultimate discount/interest actuarial assumption rates structure was established by federal law and appears to operate based on some legislated formula, rather than the agency having independent power to establish its rates. For the period 1998-2013, the monthly rates generally were higher for the first 20-year (25-year before 2003) period and lower for the long-term, except for the first nine months of 2013, April-September 2012, April-December 2011, October-December 2010, 2005, 2004, February-December 2003, and October-December 2001.

The Argument for an 8.5% Interest Rate Actuarial Assumption

In 2012 (Laws 2012, Ch. 286, Art. 1, Sec. 1-3), the Legislature acted on a Commission recommendation to reduce the long-term (since 1989) interest rate actuarial assumption from 8.5% to 8.0% for five years (2012-2017), reverting to an 8.5% interest rate actuarial assumption after 2017.

In June 2010, Callan Investments Institute, associated with Callan Associates, a San Francisco, California, investment consulting firm, issued a research report addressing the issue of whether or not the major public employee pension plans covered by the National Association of Retirement Administrators 2010 public pension plan survey on investment return assumptions are overly optimistic based on historic economic trends over 10- and 30-year time horizons, including Minnesota's 8.5% interest rate actuarial assumptions.

In 2010, an 8.0% interest rate actuarial assumption was the most common (and the average) assumption of the 116 retirement plans that were surveyed, which had a range of 6.0% on the low end and 8.75% on the high end.

In conducting its analysis, the Callan Investments Institute used a building block analysis generally replicating the applicable actuarial practice standard for setting economic assumptions, including the interest rate actuarial assumption. Using 10-year and 30-year rolling period analyses from 1926 to 2010, the Callan Investments Institute determined that the average rate of inflation was 3.5% per year (rolling ten) or 3.9% per year (rolling 30), that the historical average real rate of investment returns for U.S. stocks and U.S. bonds was 7.4% per year for equities and 2.0% per year for debts (rolling ten) or 7.4% per year for equities and 1.4% per year for debt (rolling 30), that the blended average real investment return for a 70% stock/30% bond (broadly comparable to the statewide Minnesota retirement plans) was 5.78% per year (rolling ten) and 5.57% per year (rolling 30). Combining the inflation rate averages with the blended average real investment return for the portfolio mix most comparable to that applicable to the Minnesota statewide retirement plans would generate a combined figure of 9.28% per year (rolling ten) or 9.47% per year (rolling 30), figures that exceeded Minnesota's pre-2012 8.5% interest rate actuarial assumption. The Callan Investments Institute conclusion was that the NASRA survey retirement plan interest rate actuarial assumptions were not overly optimistic and were in line with historical experience.

The Callan Investments Institute study did not assess the reasonableness of the NASRA Survey interest rate actuarial assumptions in comparison with forward-looking investment performance expectations.

The Argument for an 8.0% Interest Rate Actuarial Assumption

The case for an ongoing 8.0% interest/investment performance rate actuarial assumption was made by nine of the 11 most recent experience studies (all defined benefit plans except the Legislators Retirement Plan and the Elected State Officers Retirement Plan, for which no experience study was produced, and the Duluth Teachers Retirement Fund Association (DTRFA) and the St. Paul Teachers Retirement Fund Association (SPTRFA), which recommended a lower assumption rate).

The recent PERA experience study by the Mercer actuarial consulting firm, replicated in the MSRS-General and TRA experience studies, and included by reference in the MSRS-Correctional, State Patrol, Judges, PERA-P&F, and PERA-Correctional experiences studies, included a review of the 8.5% investment return assumption and recommended an 8.0% investment return assumption. Generally, experience studies review the actual experience of the pension plan, comparing the plan's actual experience with that predicted by the applicable assumption, as required by the Commission's Standards for Actuarial Work. For example, the assumptions regarding the turnover of employees leaving the plan are compared to the actual turnover that occurred, and the actuary reviews the deviations to decide if there is a need to revise the turnover assumptions to more closely reflect the experience that is occurring. Mortality assumptions and actual mortality is another comparison that is almost always included in an experience study.

Nothing in the Mercer experience study indicates that Mercer looked at the State Board of Investment's actual experience, its returns to date and how it has performed in the various asset classes. Rather, the analysis claims to be entirely forward looking. Mercer used long-term return assumptions developed by Mercer Investment Consulting, and attempted to apply these to the asset mix which the State Board of Investment uses. The approach appears to be based on what actuaries refer to as the "building-block method" (Actuarial Standards Board, Actuarial Standard of Practice, No. 27, page 5). In general, Mercer developed a rate of return assumption for each type of asset the State Board of Investment holds and applied these to the State Board of Investment asset mix. This enables Mercer to compute an expected total portfolio return. The applicable table from the experience study is shown below. The gross return which Mercer computed is 8.2%. After adjusting this upward by 0.1% based on a change in inflation which Mercer expected due federal fiscal policy actions occurring in 2009, and subtracting 0.2% for assumed investment expenses, the net return was 8.1%. Mercer then rounded this to the nearest quarter percent and advised that the investment return assumption be revised from the current 8.5% to 8.0%.

The Mercer analysis raises several questions. First, the Mercer study claims to be entirely forward looking, not relying on past returns, at least not in any specific way, but provides almost no information about how these expected future return estimates for each asset type were developed. Further information to permit the reader to assess the reliability of these estimates would have been helpful. Second, Mercer did not have expected rates of return for all the asset types in the State Board of Investment portfolio. Mercer therefore had to rely on proxies which may or may not be a good fit. Mercer Investment Consulting had no rate of return assumption for mezzanine debt. It therefore assumed that the returns for those assets would be the same as mezzanine private equity. Similarly, lacking estimates for resource investment returns, Mercer assumed those assets would have the same return as the predicted return which Mercer has developed for commodities. Third, Mercer's adjustment for inflation not captured elsewhere, 0.1%, may be too high or too low. Fourth, the reduction for assumed investment expenses, 0.2%, may be too high. This may be a generic reduction which Mercer uses in performing rate of return studies, rather than one based on actual State Board of Investment expenses. Fifth, the analysis is specific to the State Board of Investment's asset mix at the time the study was performed. Any plan's asset mix will evolve over time as new investment forms become practical and new opportunities arise. The approach Mercer took is specific to the then current State Board of Investment portfolio, and does not allow for these inevitable changes which will alter the return expected from the State Board of Investment's portfolio.

Finally, Mercer appears to be using estimates of future average market returns for each asset type and assumes the State Board of Investment will match but not beat that return. Perhaps assuming returns in excess of average is not permitted under standards that apply to actuaries. However, this approach fails to recognize areas where the State Board of Investment and many other pension funds consistently outperform the market. This is an area where an examination of SBI's actual past returns relative to market can provide insight. Areas worthy of mention are domestic fixed income and foreign stock (the developed international equity markets and the emerging markets). While SBI uses as its bond benchmark the Barclays Aggregate Bond Index, the same benchmark upon which Mercer developed its assumption of future bond returns, the State Board of Investment bond returns typically beat that index for multi-year periods. The Barclays index is an investment-grade bond index, but the State Board of Investment has beaten that return through modest use of junk bonds, and far more significantly, by making moves between government bonds and investment-grade corporate bonds. The State Board of Investment quarterly report which provides calendar year 2010 results indicates that the State Board of Investment bond portfolio exceeded the Barclay bond index for one-, three-, and ten-year periods, and the five-year return matched the index. Similarly, the State Board of Investment and many other pension funds outperform the average foreign market returns through managers able to spot countries where economic or political problems may harm the local market, and using other techniques. The State Board of Investment's international stock returns (developed and emerging markets) beat the applicable index for one, three, five, and ten-year periods. Thus, for some markets where Mercer is assuming the State Board of Investment will match an index, the State Board of Investment has consistently beat that applicable index, but these additional increments are not included in Mercer's development of its long-term rate of return estimate.

It is quite possible that if the Mercer analysis could be fine tuned the results would support continued use of the existing 8.5% rate of return assumption rather than the modest reduction which Mercer proposed. During the 2011 Legislative Session MSRS, PERA, and TRA backed away from any recommendation to revise the rate of return assumption. Similarly, during that Session, the State Board of Investment, through testimony by its executive director before various legislative committees, has stated its belief that the State Board of Investment can continue to meet or beat an 8.5% return. The first decade of this century provided the worst investment markets since the Great Depression. Despite that decade, over long historical periods the State Board of Investment has exceeded that return.

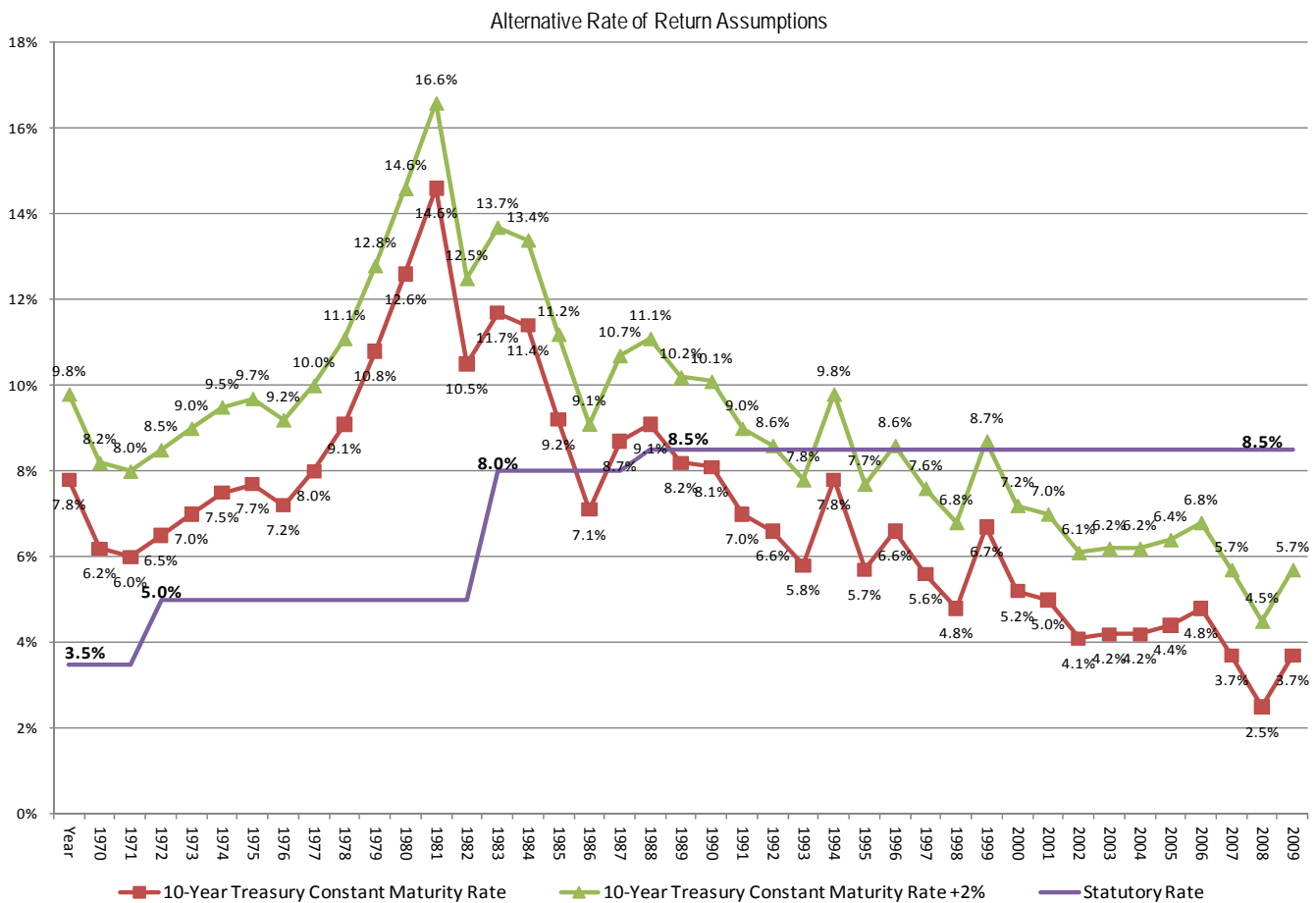
Mercer Best Estimate Rate of Return Development

Asset Class	Target Allocation	Annual Geometric Return	Standard Deviation
U.S. Equity – Large Cap	42.6%	8.2%	17.9%
U.S. Equity – Small Cap	2.4	8.5	24.0
Private Equity	10.6	9.6	28.4
Mezzanine Debt	4.1	8.5	19.4
International Equity	12.0	8.4	18.4
Emerging Markets Equity	3.0	8.4	26.0
U.S. Fixed Income	18.0	4.7	5.5
Real Estate	3.8	7.4	13.7
Resource	1.5	4.6	18.0
Cash	2.0	3.5	1.3
Portfolio – Gross	100.0%	8.2%	13.3%
Gross Geometric Expected Return		8.2%	
Increase in Expected Return from Net Inflation/ Capital Supply Adjustment Described Above		0.1%	
Assumed Investment Expenses		(0.2%)	
Net Geometric Expected Return – Best Estimate		8.1%	

Source: 2004-2008 PERA-P&F Experience Study, pp. 13-16, Mercer, August 13, 2009

The Commission staff was aware of another legislative proposal in 2011 to revise the 8.5% interest assumption to a variable rate, the ten-year Treasury rate plus 2%. That proposal to revise the investment return assumption is significant in two regards. First, it would replace a constant assumption with a variable rate. The investment return assumption is a long-term assumption and has been very infrequently changed (interest rate assumptions of 3% before 1971, 3.5% from 1971-1973, 5.0% from 1973-1984, 8.0% from 1984-1989, 8.5% from 1989-2011, 8.0% from 2012-2017 and 8.5% after 2017). It is understood that actual experience will provide variation around that assumed rate, but over time, if the established rate is a good approximation of long-term tendencies, the financing of the pension plans will proceed in a reasonable fashion. Second, the proposed rate at the present time is considerably below the current assumption. The actuarial calculations would indicate that member and employer contribution rates need to be substantially increased to bear a much higher portion of the pension costs.

The graph below provides historical information back to 1970 on the statutory investment return assumption for the major plans, and also the ten-year Treasury constant maturity rate, and the ten-year Treasury constant maturity rate plus 2%. The first observation is that neither the ten-year Treasury constant maturity rate nor that rate plus 2% are sufficiently stable to serve as a useful assumption for actuarial work. Our pension plans have very long time horizons, causing a need to project decades into the future. No assumption based on the current ten-year Treasury constant maturity rate provides sufficient stability. Rather than being consistent for long periods, these rates can change considerably from one year to the next. A change of a few tenths of one percent in the assumed investment return rate from one year to the next would have a very large impact on the computed liabilities and contribution requirements, but the yearly variations in these rates often exceed a few tenths. The largest changes were in the early 1980s. In 1980, the ten-year constant maturity rate was 10.8%, an increase of 1.7 percentage points from the prior year. The 1981 rate rose nearly two full percentage points to 12.6%. In 1982, it again rose by two full percentage points to 14.6%. The following year, it fell by 4.1 percentage points to 10.5%. Based on the graph, only once in the entire 40-year period under review was the rate unchanged from one year to the next. That is the period 2004-2005. But even in that period change did occur, although it is not evident in the graph. The actual 2004 value of the ten-year Treasury constant maturity rate was 4.15. In the following year, it was 4.22. Both round to 4.2, which is the value shown in the graph in those years.



In contrast, the statutory investment return assumption rate has been consistent for long periods of time, a necessary condition to provide stable actuarial valuations. In general, the statutory rate has been changed when necessary to reflect changes in investment practices and in the investment authority provided under law to our pension plans. Many decades ago, the statewide Minnesota public pension plans were not authorized to invest in stocks, and the low rate of return assumptions that applied during those periods reflected that regulation. Over time, investment practices and the investment authority for our plans have changed to permit extensive investments in domestic and foreign stocks and other equity investments. The 8.5% investment return assumption reflected the pre-2011 opinion of the State Board of Investment that an 8.5% long-term return (annualized return) is achievable.

A second observation is that for much of the period reviewed in the graph; the ten-year Treasury constant maturity rate plus 2.0% would have produced a higher assumption than the 8.5% assumption then in statute. Since some have contended that the 8.5% assumption is too optimistic, this may not be desirable. From 1970 through the early 1990s, the proposed 8.0% assumption is higher than the assumption then in law, and often much higher.

A third observation is that the proposed 8.0% investment return assumption procedure can produce results which are beyond the limits of reasonableness given the expected returns to the stock market. Several sources in 2010-2011 provided estimates of the long-term (annualized) returns to the stock market, going back decades and in some cases a century or more. These estimates vary a bit due to the differing period under review, but generally suggest a long-term return (annualized) ranging from 8.5% to 11.0% annually. This implies, if we can rely on history for guidance, that a pension fund fully invested in stocks could expect long-term annualized returns in this range. However, under current investment law, Minnesota public pension funds must hold at least 15% of their assets in debt investments, which will lower the portfolio's long-term return below the expected investment return. Perhaps foreign stocks or private equity holdings might boost returns a bit, offsetting the impact of the bonds, but expecting a long-term total portfolio return above 10.0% does not seem possible.

An 8.0% assumed rate will be compared to investment experience that will vary over the business cycle, and that variation may be opposite the direction of the returns actually expected in the market. Economic theory suggests that the value of a stock is equal to the discounted value of the profit stream expected from that ownership share. A given stream of profits will have a higher discounted value when the discount rate (interest rate) is low. Both currently and in the recent past, the federal government and the Federal Reserve have taken actions to lower interest rates in an effort to stimulate the economy. Thus, the discount rate is low, which should provide a boost to stocks. However, because interest rates are low, the ten-year Treasury constant maturity rate is low, currently about 3.7%. Adding 2.0% to that would produce a rate of return assumption of 5.7%. This is likely to be a very low long-term estimate of portfolio returns. On the other hand, when the federal government boosts interest rates to reign in an overheated economy, the interest rate on Treasuries will be high, producing a high investment return assumption at a time which may not be at all favorable to equities.

The Argument for a 7.5% Interest Rate Actuarial Assumption

The case for an ongoing 7.5% interest rate actuarial assumption was made by the consulting actuaries retained by the Duluth Teachers Retirement Fund Association (DTRFA) and the St. Paul Teachers Retirement Fund Association (SPTRFA), The Segal Company and the Denver, Colorado, office of Gabriel, Roeder, Smith & Company, respectively.

The Segal Company, in its June 11, 2012, DTRFA experience study, recommended lowering the then current 8.5% interest rate actuarial assumption to an assumption in the 7.5% interest rate actuarial assumption to 8.0% interest rate actuarial assumption range. In its experience study, Segal relied on four lines of argument. First, Segal cited the comparison of the pre-2012 Minnesota public pension plan interest rate actuarial assumption to the NASRA Public Fund Survey, although the DTRFA investment portfolio mix of 66% in equities in 2010 and 75% in equities after 2010 was higher than the 71 systems in the NASRA Public Fund Survey, which was 61% in equities. Second, Segal cited the historical drop in the investment markets and the uncertain short-to-midterm outlook for performance by stocks and bonds, without specifying any authorities for that view. Third, Segal cited the average net investment return for the five-year period June 30, 2006, to June 30, 2011, which was negative for two of the five years sampled and averaged 1.32% annually based on the market value of assets. Fourth, using the building block approach under actuarial standards, Segal used an inflation assumption of 3.25%, down from the prior inflation assumption of 4.5%, and the real rate of return expectation of the DTRFA investment consultant, Slocum, weighted for the DTRFA portfolio mix, of 4.42%, or a 7.65% prior to investment expenses, or between 7.5% to 8.0% as a range.

Gabriel, Roeder, Smith & Company (Denver, Colorado office), in its June 15, 2012, SPTRFA experience study, recommended lowering the then current 8.5% interest rate actuarial assumption to a 7.5% interest rate actuarial assumption. In its experience study, GRS relied on the building block approach of the actuarial standards established by non-governmental industry standard-setting authority. GRS relied on the expectations for inflation and investment performance provided by eight undisclosed investment consulting firms and expectations for inflation of the Social Security Administration and the Philadelphia Federal Reserve Bank Survey of Professional Forecasters. For inflation, the investment consulting firm generated a five- to ten-year average outlook of 2.65%, with a range of 2.40% to 3.01%, while the Social Security Administration generated a long-term average inflation rate of 2.8% with a range of projections from 1.8% to 3.8% and the Philadelphia Federal Reserve survey of the Society of Professional Forecasters produced a ten-year outlook average of 2.3% to 2.5%. GRS recommended a 3.0% inflation assumption. For investment performance, the eight investment consulting firms produced a nominal investment rate of

return average of 8.12%, with a range from 7.78% to 8.43%, and an expected real rate of return of an average of 5.48%, with a range from 5.04% to 5.90%. After deducting expected investment expenses of 0.5% and additionally adjusting for volatility, GRS determined that the investment return rate actuarial assumption range would be 7.04% to 7.98% and a 7.5% rate as the optimal, with a probability of meeting that rate or exceeding it at 44.1%.

As with an 8.0% permanent interest rate actuarial assumption, a 7.5% interest rate actuarial assumption would produce significantly larger normal cost and actuarial accrued liability figures and does not fully encompass the investment portfolio mix of the State Board of Investment, which is the investment authority for the largest amount of public pension assets in Minnesota.

The Argument for a 7.0% Interest Rate Actuarial Assumption

In 2007, Warren Buffett commented in his chairman's letter in the Berkshire Hathaway Annual Report on the investment return assumptions used by pension funds and made the argument for a very moderate investment rate assumption, perhaps as low as 5%.

Buffett noted that of the 363 companies represented in the Standard & Poor's 500 Index that have a pension plan, the 2006 average interest rate actuarial assumption was 8.00%. Buffet noted that the average bonds and cash portion of all pension fund portfolios is about 28%, with an expected return on that portion of the overall portfolio at 5%, leaving the remaining 72% of the average pension fund portfolio obligated to earn a 9.2% rate of return, after investment expenses, in order to produce a total portfolio average investment return of 8.0%.

The Dow over the course of the 20th Century, according to Buffett, started at 66 and ended at 11,497, but that impressive change translates to a 5.3% annual compounded rate of return. Once generous dividends payable on stocks in the Dow have diminished greatly, to produce only about a 2% rate of return during the close of the 20th Century. To match the same growth for the Dow in the 21st Century, the Dow would need to close at 2,000,000 in 2099, according to Buffett, in order to achieve a 5.3% rate of return. Adding the 5.3% potential rate of return and 2.0% in dividends and subtracting 0.5% in investment expenses produced under a 7.0% rate of return on about three-quarters of the portfolio.

Buffett observes that a shift from passive investing to active investing to gain a greater rate of investment return will increase investment expenses, which could offset or more than offset any investment performance enhancement from active investment management.

Additionally, Buffett compares corporate pension plan interest rate actuarial assumptions in Europe and in America, finding that almost all of U.S. corporate pension plans assumed a higher interest rate assumption than their European counterparts, and the difference did not appear to be based on any demonstrated difference in the capabilities of investment managers in each continent.

While Buffett strongly suggests that pension plan investments have greater limitations than corporate or public pension plan managers are willing to recognize, he remains a corporate investor and the primary force behind a diversified investment company, Berkshire Hathaway. Berkshire Hathaway's reported investment performance and its comparison with the Standard & Poor's 500 Index for the period 1965-2012 indicates a more optimistic view of investment performance potential, as follows:

Year	Berkshire's Corporate Performance vs. the S&P 500 ¹			Compound Average Annual Gain Period Results		
	Year-by-Year			Period	Berkshire Hathaway	S&P 500 (Dividends incl.)
	in Per-Share Book Value of Berkshire	in S&P 500 with Dividends Included	Relative Results			
(1)	(2)	(1)-(2)	<i>Annual Percentage Change</i>			
1965	23.8%	10.0%	13.8%	1965-2000	23.6%	11.8%
1966	20.3	(11.7)	32.0	1965-2001	22.6	11.0
1967	11.0	30.9	(19.9)	1965-2002	22.2	10.0
1968	19.0	11.0	8.0	1965-2003	22.2	10.4
1969	16.2	(8.4)	24.6	1965-2004	21.9	10.4
1970	12.0	3.9	8.1	1965-2005	21.5	10.3
1971	16.4	14.6	1.8	1965-2006	21.4	10.4
1972	21.7	18.9	2.8	1965-2007	21.1	10.3
1973	4.7	(14.8)	19.5	1965-2008	20.3	8.9
1974	5.5	(26.4)	31.9	1965-2009	20.3	9.3
1975	21.9	37.2	(15.3)	1965-2010	20.2	9.4
1976	59.3	23.6	35.7	1965-2011	19.8	9.2
1977	31.9	(7.4)	39.3	1965-2012	19.7	9.4
1978	24.0	6.4	17.6			

¹ <http://www.berkshirehathaway.com/letters/2012ltr.pdf>

Berkshire's Corporate Performance vs. the S&P 500 ¹				Compound Average		
Year-by-Year				Annual Gain Period Results		
Year	in Per-Share Book Value of Berkshire (1)	in S&P 500 with Dividends Included (2)	Relative Results (1)-(2)	Period	Berkshire Hathaway	S&P 500 (Dividends incl.)
1979	35.7	18.2	17.5			
1980	19.3	32.3	(13.0)			
1981	31.4	(5.0)	36.4			
1982	40.0	21.4	18.6			
1983	32.3	22.4	9.9			
1984	13.6	6.1	7.5			
1985	48.2	31.6	16.6			
1986	26.1	18.6	7.5			
1987	19.5	5.1	14.4			
1988	20.1	16.6	3.5			
1989	44.4	31.7	12.7			
1990	7.4	(3.1)	10.5			
1991	39.6	30.5	9.1			
1992	20.3	7.6	12.7			
1993	14.3	10.1	4.2			
1994	13.9	1.3	12.6			
1995	43.1	37.6	5.5			
1996	31.8	23.0	8.8			
1997	34.1	33.4	0.7			
1998	48.3	28.6	19.7			
1999	0.5	21.0	(20.5)			
2000	6.5	(9.1)	15.6			
2001	(6.2)	(11.9)	5.7			
2002	10.0	(22.1)	32.1			
2003	21.0	28.7	(7.7)			
2004	10.5	10.9	(0.4)			
2005	6.4	4.9	1.5			
2006	18.4	15.8	2.6			
2007	11.0	5.5	5.5			
2008	(9.6)	(37.0)	27.4			
2009	19.8	26.5	(6.7)			
2010	13.0	15.1	(2.1)			
2011	4.6	2.1	2.5			
2012	14.4	16.0	(1.6)			

The results of the Standard & Poor's 500 as an index equity investment, for the 48-year period cited by Buffett in his 2012 Berkshire Hathaway letter, indicate the following distribution of annual investment performance:

Investment Return	Number of Years	Years
Loss	11	1966, 1969, 1973, 1974, 1977, 1981, 1990, 2000, 2001, 2002, 2008
Under 5%	4	1970, 1994, 2005, 2011
5-6%	2	1987, 2007
6-7%	2	1978, 1984
7-8%	1	1992
8-9%	0	--
9-10%	1	1965
10-15%	4	1968, 1971, 1993, 2004
Over 15%	23	1967, 1972, 1975, 1976, 1979, 1980, 1982, 1983, 1985, 1986, 1988, 1989, 1991, 1995, 1996, 1997, 1998, 1999, 2003, 2006, 2009, 2010, 2012

There are broader U.S. equity indexes available, such as the Wilshire 5000, which could provide greater access to potentially growing parts of the national economy than provided by the Standard & Poor's 500. There are also international equity indexes available and there are also private equity investment securities that could expose a pension fund to potential improved investment performance that are not captured in the Standard & Poor's 500 numbers above.

The Argument for a "Credit Risk Free" or "Fair Value Approach" Interest Rate Actuarial Assumption

Some critics of the current manner in which public employee defined benefit plans and funds are valued and funded believe that the investment return rate expected to be achieved by the retirement fund associated with a defined benefit retirement plan should not be the discount rate used to determine pension plan present values and actuarial accrued liabilities. The "Fair Value Approach" to valuing the liabilities and assets of public employee pension plans is derived from accounting requirements for private sector retirement plans promulgated by the Financial Accounting Standards Board and the academic work of Jeffrey R. Brown, David W. Wilcox, Robert Novy-Marx, and Joshua D. Rauh. The approach is an unmodified market valuation for public sector pension plan assets and uses a figure representing what a private insurance company in a competitive market would charge to underwrite the public sector pension

plan liabilities. The separation of the investment portfolio rate of return expectation and the retirement plan liability discount rate is based on the economic theory that the discount rate used to determine a pension plan liability should be based on the risk of the liability coming due, and, if the pension benefit liability is essentially or actually guaranteed, the market interest rate on a guaranteed investment such as a U.S. Treasury security should be the discount rate interest actuarial assumption. Because the taxpayers supporting a public pension plan will be liable in whole or in part to pay for any pension benefit outlays in excess of the amassed pension plan assets if the invested assets underperform expectations, the pension plan actually has a greater liability than the actuarial accrued liability determined using an investment performance expectation-based interest rate assumption. These critics favor quantifying that "extra risk" of investment underperformance through the use of a U.S. Treasury security interest rate as the discount rate.

As of August 21, 2013, 30-year U.S. Treasury bonds yielded 3.87%. Using 3.87% as the discount rate rather than Minnesota's current 8.0%/8.5% select and ultimate interest rate actuarial assumption will almost double the actuarial accrued liabilities of the Minnesota public employee retirement plans, using the board estimation rule that each percentage point of reduction in the interest rate actuarial assumption would produce an additional 20% of actuarial accrued liabilities, increasing the total actuarial accrued liability from \$86.3 billion to \$164.0 billion, increasing the total unfunded actuarial accrued liability almost seven-fold, from \$16.7 billion to \$114.3 billion, and lowering the overall funded ratio from 74.86% to 30.27%. Additionally, the change in the investment rate actuarial assumption would substantially increase the normal costs of the retirement plans and the amortization contribution requirements of the retirement plans.

The thrust of the "credit risk free" interest rate actuarial assumption, in order to eliminate any potential for a public pension plan default and any potential for an investment performance loss and increased pension plan funding burdens on taxpayers, would be to immediately recognize the entire value of future investment performance risks. That recognition would either necessitate significant increases in contribution rates by both members and employers, necessitating significant additional demands on governmental revenues and potentially or probably causing governmental tax increases. Alternatively, the significant decline in the interest rate actuarial assumption could prompt significant downsizings in current benefit plans or an actual dismantling of the current defined benefit retirement plans.

The proponents of a shift to a "credit risk free" interest rate actuarial assumption do not address the issue of handling gains and losses, which are inevitable even if pension plans shifted to only U.S. Treasury bond investments, since the bond rates change over time and the investment of new net contributions will need to be invested payroll period-to-payroll period. Akin to any actuarial assumption, but unaddressed by the proponents of a "riskless" interest rate actuarial assumption, deviations between the assumption and experience is expected and is self-correcting through the process of including losses in the calculation of the amortization requirement.

The shift to a "riskless" interest rate actuarial assumption over one valuation cycle or a short number of years in pursuit of economic theory purity would also do some violence with taxpayer generation fairness, with the actuarial cost of future investment default risk to be borne by a relatively narrow set of taxpayers.

As pointed out by Philip Martin McCaulay, FSA, the credit risk free or fair value approach to pension plan asset and liability valuation, in addition to utilizing greatly reduced interest rate assumptions, utilizes the unit credit actuarial cost method without any assumption or pay increases, which produces an actuarial cost incidence pattern of a normal cost of benefits that increases significantly as a percentage of pay over time.

Argument for a High Grade Long-Term Taxable Bond Index Interest Rate Actuarial Assumption

Moody's Investors Service, one of the major corporate and public sector debt issue ratings agencies, has changed its view of factoring into its bond ratings U.S. state and local government pension data, including among other changes, the use of a single high-grade long-term taxable bond index rate as the interest rate actuarial assumption and discount rate. Moody's will use the rate of Citibank's Pension Liability Index (previously the Salomon Brothers Pension Liability Index) for a duration period of 13 years as of the retirement plan's financial statement date. The Citibank Pension Liability Index is the benchmark rate for corporate defined benefit retirement plans in discounting their liabilities.

Moody's indicates that it chose this interest rate actuarial assumption/discount rate because it is the standard in the private sector, because it is a uniform measuring tool that will allow comparisons between different pension plans, and because it factors in the element of market risk in the investment portfolio of the pension plan. Moody's estimates that the use of the Citibank Pension Liability Index would increase the retirement plan's actuarial accrued liability between 13% and 14% for each percentage point difference between the index and the retirement plan's interest rate actuarial assumption.

The following chart and graph indicates the history of the Citibank Pension Liability Index for the period 2009-2013 as assembled by Harper Danesh²:

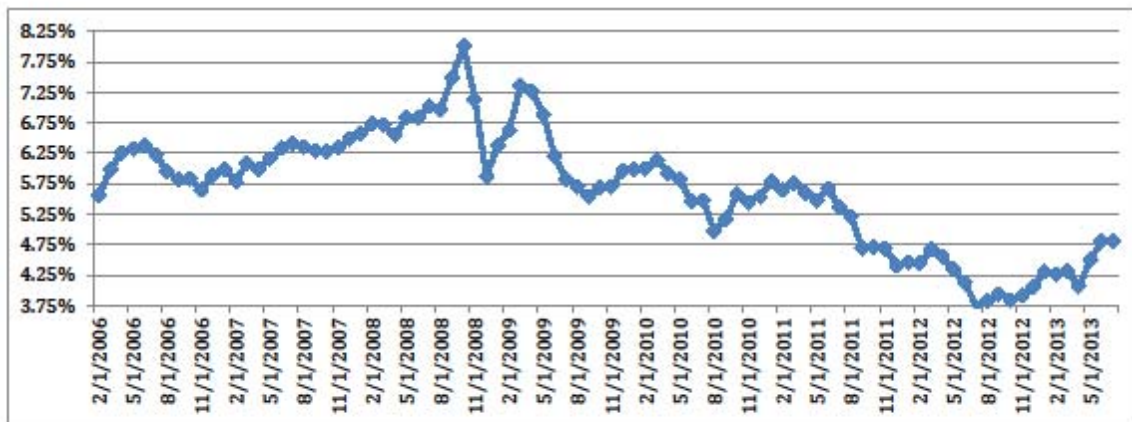


Citigroup Pension Liability Index

The Citigroup Pension Liability Index (formerly called the Salomon Brothers Pension Liability Index) is the single rate equivalent to discounting a set of hypothetical pension plan cash flows at the Citigroup Pension Discount Curve rate applicable to each cash flow. This is a benchmark that can be used in evaluating discount rates for pension and retiree medical plan accounting liabilities. A plan's projected cash flows would be applied to the Citigroup Pension Discount Curve to determine the appropriate discount rate.

Note that Citigroup has refined their methodology for this purpose effective December 31, 2010. The old methodology would have resulted in a December 31, 2010 rate of 5.61%. Over 2010, the refined methodology resulted in a rate that was 3.8 basis points lower on average than the old methodology.

Date	2013	2012	2011	2010	2009
December 31		4.05%	4.40%	5.54%	5.96%
November 30		3.91%	4.69%	5.44%	5.70%
October 31		3.83%	4.70%	5.59%	5.69%
September 30		3.94%	4.69%	5.16%	5.54%
August 31		3.83%	5.21%	4.97%	5.70%
July 31	4.81%	3.73%	5.36%	5.47%	5.82%
June 30	4.81%	4.13%	5.67%	5.45%	6.20%
May 31	4.50%	4.34%	5.47%	5.83%	6.87%
April 30	4.07%	4.55%	5.60%	5.92%	7.27%
March 31	4.32%	4.67%	5.75%	6.14%	7.36%
February 28	4.26%	4.44%	5.65%	6.00%	6.63%
January 31	4.30%	4.46%	5.78%	5.98%	6.38%



In addition to a discount rate change, Moody's also made four other changes in their adjustment of reported pension plan liabilities, which were allocating liabilities of cost-sharing pension plans (such as MSRS-General, PERA-General, or TRA) to separate participating governmental units, using only fair market value as of the valuation date instead of any actuarial value of assets that smoothed asset values, calculating the unfunded actuarial accrued liability and funding ratio based on the adjusted liability figure using the Citibank Pension Liability Index discount rate and the fair market value of assets figure, and using a 20-year level dollar basis amortization period for calculating the total actuarial requirements. It does not appear that the pension plan normal cost requirement would be adjusted under Moody's new procedure.

The Moody's approach, in its discount rate choice, largely parallels or replicates the "credit risk free" or "fair value approach" interest rate actuarial assumption setting approach in attempting to remove the risk to future pension plan costs of the volatility of the investment portfolio mix and implementation, with the additional considerations of conformity with the private sector and the introduction of a uniform measure. The Moody's approach, as a mathematical adjustment to the published actuarial valuation results of the pension plan, is an approximation of a measure of reality that is less consistent and less potentially accurate than the published actuarial work, especially since the normal cost requirement of the pension plan, from which the actuarial accrued liability is derived using the entry age normal cost actuarial method.

² http://www.harperdanesh.com/system/resources/0000/0116/Citigroup_Index_Rates_with_revised_methodology_Final.pdf

The Moody's approach, which may be appropriate in its intended use of informing potential investors about the relative risks of various governmental debt issuers, is problematic as an interest rate actuarial assumption setting basis for public pension plan funding since the index is a proprietary construct of one company, with an unclear composition of underlying debt issues and with potential changes in the formula (which occurred in 2010), the rate changes at least monthly, and the rate is not likely to be representative of the same time horizon as the pension plan liability horizon.

Using an estimated interest rate actuarial assumption of 8.42% as a representation of Minnesota's current select and ultimate interest rate assumptions (8.00% for five years and 8.5% for 25 years) and a 3.61% differential based on the Citibank Pension Liability Index as of July 31, 2013, would produce a 48.74% increase in Minnesota public pension plan actuarial accrued liabilities, as follows:

Plan	Official Funded Ratio	Approximation of Moody's Procedure Result			
		Adjusted Actuarial Accrued Liability	Assets	Adjusted Unfunded Actuarial Accr. Liability	Adjusted Funded Ratio
MSRS-General	82.67%	\$16,485,191,000	\$9,098,097,000	\$7,387,094,000	55.19%
PERA-General	73.45	27,663,999,000	13,577,653,000	14,086,346,000	49.08
TRA	72.99	34,246,648,000	16,686,105,000	17,560,543,000	48.72%
State Patrol	72.84	1,131,844,000	549,956,000	581,888,000	48.59
PERA-P&F	78.31	11,011,660,000	5,772,047,000	5,239,613,000	52.42
MSRS-Correctional	68.55	1,411,005,000	659,523,000	751,482,000	76.74
PERA-Correctional	89.89	510,459,000	305,408,000	205,051,000	59.83
DTRFA	63.40	485,255,000	194,553,000	290,702,000	40.09
SPTRFA	61.98	2,188,287,000	881,926,000	1,306,631,000	40.30

Argument for the Status Quo Assumption and the Self-Correction Mechanism for Investment Experience Losses Inherent in Adhering to Full Actuarial Funding Requirements

As a forecast or projection of future events, actuarial valuations for defined benefit retirement plans rely on a number of assumptions and experience can deviate from those assumptions.

The actuarial funding method historically employed by the State of Minnesota for its defined benefit public employee retirement plans, if adhered to faithfully, self corrects for deviations in experience compared to the assumption, including experience losses arising from underperforming investments.

The interest rate actuarial assumption, as the discount rate for assessing the present value of future liabilities, whatever rate it is set at, under the closed group entry age normal actuarial cost method with designated target amortization date, can automatically correct for any experience loss. The entry age normal actuarial cost method produces:

- a normal cost, which is the percentage of covered pay cost of the current benefit plan for the current membership group needed to pay the present value of the additional benefits expected to be earned by the various active members of the plan during the upcoming plan year,
- an actuarial accrued liability, which is the present value of future benefits for all active, retired, deferred, and inactive members reduced by the present value of future normal cost contributions after the valuation date for all current active members,
- an unfunded actuarial accrued liability, which is the portion of the actuarial accrued liability remaining after subtracting the value of retirement plan assets (either actuarial value or fair market value, whichever applies),
- the administrative expense, which is the prior year's actual administrative expenses expressed as a percentage of covered pay, and
- the supplemental (amortization) contribution, which is the debt service on the unfunded actuarial accrued liability over the remaining period before the statutory amortization target date, expressed as a percentage of covered pay.

If the statutory contribution rates are less than the total actuarial requirements (sum of normal cost, administrative expenses, and supplemental contribution rates), the contribution deficiency should be resolved by modifying the member, employer, or both contribution rates or by creating or augmenting a dedicated state aid program.

Investment underperformance will increase the retirement plan's unfunded actuarial accrued liability, increasing the amortization contribution, which will also be increasing by the simple diminishment of the remaining amortization period, and creating or increasing a contribution deficiency that ought to be addressed by increasing retirement plan contributions or related funding. The amortization factor used to calculate the retirement plan unfunded actuarial accrued liability amortization contribution is greater or smaller depending on the interest rate actuarial assumption in force. If accompanied by a contribution or funding change, any investment underperformance will be rapidly addressed by increased new assets and

any investment performance in excess of the interest rate actuarial assumption figure will allow for a contribution or funding reduction or an acceleration in the amortization of the retirement plan unfunded actuarial accrued liability.

If retirement plan contributions or related funding are adjusted based on actuarial valuation results annually or periodically, any pension plan default risk will be eliminated and fund disasters with recourse primarily or wholly on taxpayers will be avoided by maintaining a stable amount of pension plan funding from which investment performance can be obtained.

Potential Action Items: Interest Rate Actuarial Assumption and Related Issues.

- a. In General. There are several potential issues related to the topic that the Commission may wish to address, including the need for specifying in statute an accurate interest/investment performance actuarial assumption, the need to replace the current implicit post-retirement adjustment actuarial assumptions with explicit statutory assumptions, the need to avoid the recent practice of regularly extending amortization target dates, the need to shift from a level percentage of covered pay amortization procedure to a level dollar amortization procedure, the need to eliminate the automatic reverse amortization for funding surpluses, the need for adding amortization procedures for interest experience losses and other significant experience losses, and the need to make the periodic experience study requirement generally applicable to all defined benefit retirement plans not closed to new members.
- b. Need for Specifying an Accurate Interest Rate Actuarial Assumption. As with any other actuarial assumption, the assumption as to future investment performance strengthens the actuarial valuation and actuarial funding process if it is as accurate an estimation of the future experience as possible. Additionally, since the interest rate actuarial assumption plays a role in setting the full actuarial equivalent reduction/modification factors for early retirement and for optional annuity forms, the assumption functions best when it is accurate.

Testimony from the Minnesota State Economist, from the State Board of Investment summarizing the expectations of its investment market advisors, from the St. Paul Teachers Retirement Fund Association (SPTRFA) investment advisor, and from the Duluth Teachers Retirement Fund Association (DTRFA) investment advisor should provide some guidance about the likely short- to medium-term investment returns available in the investment markets. Information about interest rate actuarial assumptions from the Public Pension Survey compiled by the National Association of Retirement Administrators (NASRA) and information about interest rate actuarial assumptions compiled by the Commission staff for a large number of public pension plans should indicate the group thinking of public pension plan managements about the range of acceptable interest rate actuarial assumptions. Recent historical investment performance information in **Attachment A** provides some sense of the past performance and the potential current trends.

When the Commission recommended the current 8.0% select and 8.5% ultimate interest rate actuarial assumptions in 2012, part of the enacting legislation delayed the next experience studies of the three largest retirement plans to the end of a six-year period (July 1, 2008, to June 30, 2014), with a June 30, 2015, filing deadline date, and testimony from or on behalf of the Minnesota State Retirement System (MSRS), Public Employees Retirement Association (PERA), and Teachers Retirement Association (TRA) fund administrators that the delay would allow for enough information to be amassed and analyzed to permit a sound review by the Commission about actuarial assumptions, including the interest rate actuarial assumption. Since the MSRS-General, PERA-General, and TRA experience studies for the period July 1, 2004 to June 30, 2008, relied entirely on non-public projections of future investment performance by various asset classes and investment security types in their analysis of the interest rate actuarial assumption and presented no historical investment performance data as required by the Commission's Standards For Actuarial Work, to have full information for an actuarial assumption decision for the 2016 Legislative Session, the Commission should consider directing the fund administrators to have future experience studies include an analysis of past investment performance data in addition to any other method for analysis.

- c. Need for Explicit Post-Retirement Adjustment Actuarial Assumptions. In Minnesota defined benefit public pension plans, implicit actuarial assumptions have been rare, limited to an inflation assumption and a post-retirement adjustment assumption.

The implicit post-retirement adjustment assumption in Minnesota for most statewide and major local retirement plans is a function of the difference between the pre-retirement interest rate and post-retirement interest rate assumptions and further adjusted, under Minnesota Statutes, Section 356.415, Subdivision 3, based on the post-retirement adjustment downsizing under the 2010 financial sustainability legislation (Laws 2010, Ch. 359, Art. 1, Sec. 76-82).

All of the statewide and major local Minnesota public employee defined benefit retirement plans have downsized their post-retirement adjustment rates until their funding ratios, generally on a market value of assets basis, improve to a designated level, meaning that the actuaries preparing the annual actuarial valuation must project future funding ratios in order to determine how long the adjusted margin

between the pre-retirement interest rate actuarial assumption and the post-retirement interest rate actuarial assumption would continue.

If transparency in the actuarial work for Minnesota public employee defined benefit retirement plans is a valuable attribute, the implicit post-retirement adjustment actuarial assumption underlying the differential interest rate actuarial assumptions used in those actuarial valuations and the additional interest rate differential adjustment introduced in 2010 mask any transparency and are beyond the likely understanding of many plan members and all but the most actuarially sophisticated outside readers of Minnesota actuarial work.

Draft proposed legislation LCPR13-042 (attached) shifts from implicit post-retirement adjustment assumptions to explicit post-retirement adjustment assumptions, based on the current reduced and future full post-retirement adjustment rates and the statutory target amortization date for all retirement plans other than the Local Government Correctional Service Retirement Plan (PERA-Correctional), where the plan is expected to resume paying the full post-retirement adjustment rate within two years.

- d. Need to Avoid Regularly Recurring Ad Hoc Extensions of Amortization Target Dates. Minnesota Statutes, Section 356.215, Subdivision 11, specifies an amortization method for retirement plan unfunded actuarial accrued liabilities and specifies a target date for that amortization. Since 1984, when legislation sponsored by the Finance Department, the predecessor of the Minnesota Management and Budget, discontinued the use of a level dollar amortization method, Minnesota statewide and major local public pension plans have utilized a level percentage of a projected increasing payroll amortization method.

Minnesota Statutes, Section 356.215, Subdivision 11, also specifies a target date (for ten retirement plans) and a target period (for the St. Paul Teachers Retirement Fund Association) for use in calculating the supplemental or amortization contribution requirement necessary to eliminate the unfunded actuarial accrued liability of the retirement plan. Originally, a single amortization target date (1997, set in 1957) governed, but currently specifies a default amortization date of 2020 (Minn. Stat. Sec. 356.215, Subd. 11, Para. (b)), although by recent statutory change or administrative practice, the amortization target dates range as specific dates from 2031 to 2040 or as a rolling 25-year period.

The combination of successive legislative and administrative shifts in amortization procedures has created a situation where the Minnesota public employee defined benefit retirement plan unfunded actuarial accrued liabilities grow over time by design, without any experience losses, and persistently rolls the increasing unfunded actuarial accrued liabilities into the future.

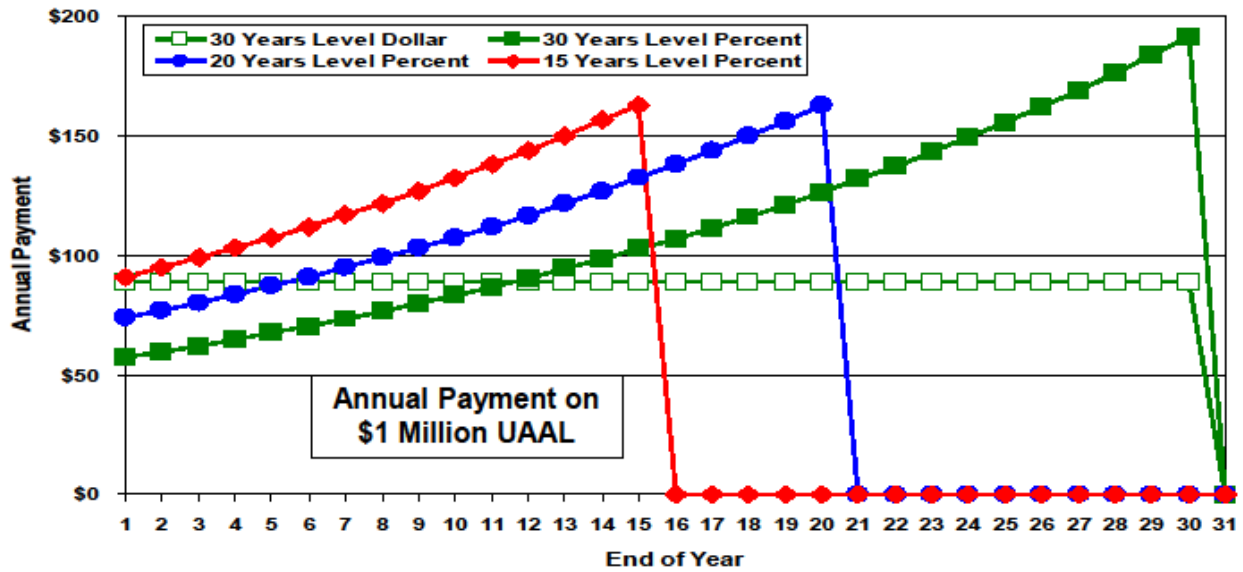
A chart and graph³ produced by The Segal Company, the consulting actuarial firm retained by the Duluth Teachers Retirement Fund Association (DTRFA), indicates the amortization contribution stream for a level dollar amortization method compared to three level dollar percentage of an increasing payroll amortization method (30 years, 20 years, and 15 years) for a hypothetical pension plan using an 8.00% interest rate actuarial assumption and a 4.25% annual covered payroll growth:

* SEGAL Amortization Examples					
Illustration of Amortization Methods					
8.00% interest 4.25% salary incr.	30 years Flat dollar	30 years % of pay	20 years % of pay	15 years % of pay	
Increase in AAL (payroll)	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Amortization factor (first year)	11.2578 0.088827	17.4295 0.057374	13.5140 0.073998	10.9720 0.091141	
Amortization amount					
Year 1	\$ 88,827	\$ 57,374	\$ 73,998	\$ 91,141	
Year 15	\$ 88,827	\$ 102,749	\$ 132,520	\$ 163,223	
Year 20	\$ 88,827	\$ 126,520	\$ 163,178	\$ 0	
Year 30	\$ 88,827	\$ 191,832	\$ 0	\$ 0	
Total amount paid					
Principal	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	
Interest	1,664,823	2,355,545	1,261,549	859,255	
Total	\$ 2,664,823	\$ 3,355,545	\$ 2,261,549	\$ 1,859,255	

Slide 1

³ http://www.sco.ca.gov/Files-ARD/BudLeg/CAAP_Agenda_Item_7c_Amortization_Examples.pdf

Illustration of Amortization Periods – Annual Payment (\$ in 000s)



Slide 2

To indicate this phenomenon for the Minnesota defined benefit public employee retirement plans using a level percentage of covered pay method of calculating the amortization contribution requirement, the following indicates the July 1, 2012, unfunded actuarial accrued liability amount to be amortized, the 8.0% interest rate actuarial assumption amount related to that unfunded actuarial accrued liability, the July 1, 2012, amortization contribution requirement expressed as a dollar amount, the difference between the two factors, and the last year in which the amortization target date was reset:

Retirement Plan	Unfunded Actuarial Accrued Liability	8.0% Interest	7/1/12 Valuation Amortization Contribution	Difference	Last Year of Amortization Date Extension
(1)	(2)	(3)	(4)	(3)-(4)	
MSRS-General	\$1,920,926,000	\$153,674,000	\$120,475,000	\$33,199,000	2010
PERA-General	4,937,215,000	394,977,000	386,473,000	8,504,000	2001
TRA	6,219,428,000	497,554,000	413,803,000	83,751,000	2006
MSRS-Correctional	304,453,000	24,356,000	19,827,000	4,529,000	2008
PERA-Correctional	36,745,000	2,940,000	2,874,000	66,000	2012
State Patrol	206,711,000	16,537,000	13,751,000	2,786,000	2012
PERA-P&F	1,605,427,000	128,434,000	102,512,000	25,922,000	2008
Judges	136,678,000	10,934,000	9,397,000	1,537,000	2008
DTRFA	119,410,000	9,553,000	7,829,000	1,724,000	2012
SPTRFA	559,286,000	44,743,000	36,347,000	8,396,000	2012

The pattern of payment less than the interest rate actuarial assumption for the first half of the amortization period using a 30-year amortization period and delaying the bulk of the amortization contribution to the second half of the 30-year period is aggravated when the amortization target date is reset with a several-year period extension, since that significant extension largely or wholly reverts to the portion of the amortization method with the greatest difference between the full interest amount and the amortization contribution amount.

Draft proposed legislation LCPR13-043 (attached) is a shift from the level percentage of an increasing covered payroll amortization method to a level dollar amount amortization method.

Draft proposed legislation LCPR13-044 (attached) returns to a generally uniform amortization target date (2040, except for the MERF Division of PERA, where the date change would delay municipal contributions, and SPTRFA, which has a rolling 25-year amortization target date), returns for all other retirement plans to the automatic target date extension mechanism developed by the Commission in 1975 and enacted in 1975 based proportionally on the unfunded actuarial accrued liability generated by assumption changes, actuarial method changes, or benefit plan changes, and eliminates the practice of a reverse amortization-based credit for asset amounts in excess of actuarial accrued liabilities.

Draft proposed legislation LCPR13-045 (attached) resets the target amortization date of all the retirement plans other than the MERF Division of PERA, where municipal contributions are based, in part, on a 2031 amortization date, and SPTRFA, where a rolling 25-year amortization period rather than a closed amortization period and date is used, to 2040, revitalizes the automatic use of new 30-year amortization periods for most retirement plans for the increment of unfunded actuarial accrued liability upon the change in actuarial method, in benefits, or in actuarial assumptions, newly implements for most retirement plans a new 15-year amortization period for the increment of unfunded actuarial accrued liability associated with a net experience loss that exceeds 15% of the most recent prior unfunded actuarial accrued liability, provides for the mathematical determination of the effective amortization target date resulting from the addition of new amortization periods for various unfunded actuarial accrued liability increments, and eliminates the revenue amortization crediting for retirement plans which become funded in excess of 100%.

Historical Debt and Equity Investment Performance as of July 31, 2013 ¹

Benchmark	Returns as of 08/31/2013		Month End	Average Annual Total			
	1 Month	3 Month	YTD as of 08/31/2013	Returns as of 08/31/2013			
				1 Year	3 Year	5 Year	10 Year
Balanced Composite Index	-1.89%	0.01%	8.82%	10.87%	12.66%	7.31%	7.01%
Barclays 1 Year Municipal Index	0.06%	0.11%	0.47%	0.67%	0.93%	1.76%	2.27%
Barclays 1-5 Year Municipal Index	-0.23%	-0.70%	-0.09%	0.13%	1.65%	3.11%	3.23%
Barclays CA Municipal Index	-1.26%	-5.01%	-4.83%	-3.03%	3.05%	4.79%	4.74%
Barclays GA ex-USD FIAj RIC CplxHgd	-0.31%	-1.05%	—	—	—	—	—
Barclays Municipal Bond Index	-1.43%	-5.06%	-4.92%	-3.70%	2.45%	4.52%	4.48%
Barclays Municipal CA Intermed Idx	-0.83%	-2.64%	-2.47%	-1.11%	3.15%	5.11%	4.79%
Barclays NY Municipal Index	-1.11%	-4.47%	-4.65%	-3.41%	2.22%	4.33%	4.40%
Barclays OH Municipal Index	-1.17%	-4.63%	-4.72%	-3.45%	2.34%	4.10%	3.94%
Barclays PA Municipal Index	-1.32%	-4.52%	-4.52%	-3.21%	2.70%	4.66%	4.54%
Barclays US 0-5 Year TIPS Index	-0.42%	-0.68%	-1.78%	-1.29%	2.13%	—	—
Barclays US 1-5 Year Credit Index	-0.25%	-0.61%	-0.09%	0.99%	2.83%	4.79%	4.25%
Barclays US 1-5 Year Treasury Index	-0.26%	-0.41%	-0.53%	-0.49%	1.09%	2.56%	3.21%
Barclays US 1-5 Yr Government Index	-0.27%	-0.43%	-0.54%	-0.47%	1.08%	2.63%	3.26%
Barclays US 5-10 Year Credit Index	-1.07%	-3.52%	-4.03%	-1.76%	4.64%	7.84%	5.97%
Barclays US 5-10 Yr Treasury Index	-0.99%	-3.24%	-4.61%	-4.80%	2.60%	5.19%	5.30%
Barclays US Corp High Yield Index	-0.61%	-1.38%	2.71%	7.56%	9.91%	11.44%	9.05%
Barclays US GNMA Index	-0.26%	-1.58%	-3.14%	-3.30%	2.26%	4.71%	4.83%
Barclays US Long Credit A/Better Ix	-1.21%	-5.35%	-8.02%	-7.86%	4.88%	8.34%	6.39%
Barclays US Long Treasury Index	-0.75%	-5.68%	-10.22%	-12.65%	2.98%	6.51%	6.65%
Barclays US Trsy Inflat Pricd Index	-1.45%	-4.29%	-8.07%	-6.97%	3.73%	4.19%	5.42%
Barclays USD EmergMkt GovRIC Cap Ix	-2.31%	-5.83%	—	—	—	—	—
CA Tax-Exempt Money Mkt Funds Avg	0.00%	0.00%	0.00%	0.00%	0.00%	0.14%	1.02%
Citigroup 3-Month US T-Bill Index	0.00%	0.01%	0.04%	0.07%	0.08%	0.17%	1.62%
Conservative Growth Composite Index	-1.22%	-0.83%	3.38%	5.61%	7.73%	5.52%	5.84%
Convertibles Composite Index	-1.05%	0.80%	11.55%	16.79%	10.70%	7.67%	6.50%
Dividend Growth Spliced Index	-3.44%	0.25%	14.18%	17.09%	16.86%	6.71%	7.06%
FTSE All-World ex US Index	-1.37%	-1.51%	2.92%	13.32%	7.19%	1.94%	8.99%
FTSE Emerging Index	-2.83%	-8.33%	-11.27%	-0.63%	0.17%	—	—
FTSE Global Sm-Cap ex US Index	-1.07%	-1.57%	4.52%	15.03%	8.01%	4.19%	—
FTSE High Dividend Yield Index	-3.86%	0.18%	16.42%	18.11%	19.43%	8.45%	—
Growth Composite Index	-1.98%	0.03%	9.58%	13.98%	13.14%	6.08%	7.14%
iMoneyNet MFR Treasury Funds Avg	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	1.20%
Income Composite Index	-0.85%	-1.28%	0.36%	1.63%	5.16%	5.23%	5.20%
Inst Money Market Funds Average	0.00%	0.00%	0.00%	0.01%	0.04%	0.22%	1.66%
Moderate Growth Composite Index	-1.60%	-0.40%	6.45%	9.78%	10.67%	6.12%	6.71%
Money Market Funds Average	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	1.38%
MP Distribution Focus Composite Idx	-1.43%	-1.03%	3.37%	5.15%	8.43%	4.41%	—
MP Growth & Distribution Comp Idx	-1.60%	-0.83%	5.25%	7.43%	9.21%	4.20%	—
MP Growth Focus Composite Index	-1.91%	-0.60%	7.42%	10.38%	11.09%	4.37%	—
MSCI US Broad Market Index	-2.82%	1.21%	16.94%	20.19%	18.96%	7.81%	7.85%
MSCI US Prime Market 750 Index	-2.78%	0.98%	16.45%	19.30%	18.62%	7.55%	7.57%
MSCI US Small Cap 1750 Index	-3.09%	2.92%	20.37%	27.11%	21.44%	9.83%	10.13%
NASDAQ US Dividend Achievers Select	-3.44%	0.25%	14.18%	17.09%	16.86%	8.03%	—
NJ Tax-Exempt Money Mkt Funds Avg	0.00%	0.00%	0.00%	0.00%	0.00%	0.16%	1.03%
NY Tax-Exempt Money Mkt Funds Avg	0.00%	0.00%	0.00%	0.00%	0.01%	0.16%	1.04%
OH Tax-Exempt Money Mkt Funds Avg	0.00%	0.00%	0.00%	0.00%	0.00%	0.18%	1.07%
PA Tax-Exempt Money Mkt Funds Avg	0.00%	0.00%	0.00%	0.00%	0.00%	0.16%	1.05%
REIT Spliced Index	-6.85%	-7.93%	-0.11%	0.51%	12.76%	5.51%	9.58%
Russell 1000 Growth Index	-1.71%	1.55%	15.71%	16.43%	19.20%	8.40%	7.24%
Russell 1000 Index	-2.76%	1.05%	16.69%	19.84%	18.74%	7.59%	7.50%
Russell 1000 Value Index	-3.79%	0.51%	17.53%	23.10%	18.20%	6.69%	7.61%
Russell 2000 Growth Index	-1.95%	4.81%	23.85%	28.14%	22.59%	9.01%	8.84%
Russell 2000 Index	-3.18%	3.07%	20.03%	26.27%	20.50%	7.98%	8.76%
Russell 2000 Value Index	-4.42%	1.31%	16.36%	24.38%	18.36%	6.88%	8.55%
Russell 2500 Growth Index	-2.06%	3.94%	21.84%	26.89%	22.30%	9.76%	9.54%
Russell 2500 Value Index	-4.20%	0.26%	16.59%	24.86%	18.88%	8.46%	9.40%
Russell 3000 Growth Index	-1.73%	1.81%	16.33%	17.29%	19.47%	8.45%	7.37%
Russell 3000 Index	-2.79%	1.21%	16.95%	20.32%	18.87%	7.63%	7.60%
Russell 3000 Value Index	-3.84%	0.57%	17.44%	23.20%	18.21%	6.70%	7.68%
Russell Midcap Growth Index	-1.90%	2.93%	19.52%	23.97%	20.27%	9.14%	9.42%
Russell Midcap Value Index	-3.50%	0.43%	18.01%	25.37%	19.14%	8.87%	10.37%
S&P 500 Growth Index	-2.23%	0.94%	15.10%	15.16%	19.06%	8.41%	7.23%
S&P 500 Index	-2.90%	0.67%	16.15%	18.70%	18.40%	7.32%	7.12%
S&P 500 Value Index	-3.59%	0.40%	17.28%	22.94%	17.82%	6.19%	7.20%
S&P Completion Index	-2.81%	2.92%	20.20%	26.99%	20.77%	9.32%	—
S&P EPAC SmallCap Index	-0.49%	1.89%	11.25%	22.93%	11.75%	4.33%	10.24%
S&P Global ex U.S. Property Index	-2.10%	-5.66%	-2.18%	12.78%	—	—	—
S&P MidCap 400 Growth Index	-3.61%	-0.26%	15.80%	21.03%	20.09%	9.81%	10.18%
S&P MidCap 400 Index	-3.75%	0.33%	17.13%	23.71%	19.68%	9.43%	10.11%
S&P MidCap 400 Value Index	-3.88%	0.92%	18.50%	26.55%	19.29%	9.03%	10.45%
S&P SmallCap 600 Growth Index	-1.50%	5.31%	22.31%	25.77%	23.66%	10.10%	10.88%
S&P SmallCap 600 Index	-2.44%	4.09%	21.12%	26.69%	22.61%	9.51%	10.14%
S&P SmallCap 600 Value Index	-3.34%	2.91%	19.97%	27.72%	21.66%	8.90%	9.97%

A bill for an act

relating to retirement; interest rate and postretirement adjustment rate actuarial assumptions; replacing an implicit postretirement adjustment rate actuarial assumption with an explicit actuarial assumption; amending Minnesota Statutes 2012, section 356.215, subdivision 8, as amended.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. Minnesota Statutes 2012, section 356.215, subdivision 8, as amended by Laws 2013, chapter 111, article 2, section 27, is amended to read:

Subd. 8. **Interest and salary assumptions.** (a) The actuarial valuation must use the applicable following ~~preretirement~~ interest assumption ~~and the applicable following postretirement interest assumption:~~

(1) select and ultimate interest rate assumption

plan	ultimate preretirement interest rate assumption	ultimate postretirement interest rate assumption
general state employees retirement plan	8.5%	6.0%
correctional state employees retirement plan	8.5	6.0
State Patrol retirement plan	8.5	6.0
legislators retirement plan, and for the constitutional officers calculation of total plan liabilities	0.0	0.0
judges retirement plan	8.5	6.0
general public employees retirement plan	8.5	6.0
public employees police and fire retirement plan	8.5	6.0
local government correctional service retirement plan	8.5	6.0
teachers retirement plan	8.5	6.0

2.1	Duluth teachers retirement plan	8.5	8.5
2.2	St. Paul teachers retirement plan	8.5	8.5

2.3 Except for the legislators retirement plan and the constitutional officers calculation
 2.4 of total plan liabilities, the select preretirement interest rate assumption for the period
 2.5 after June 30, 2012, through June 30, 2017, is 8.0 percent. ~~Except for the legislators
 2.6 retirement plan and the constitutional officers calculation of total plan liabilities, the select
 2.7 postretirement interest rate assumption for the period after June 30, 2012, through June
 2.8 30, 2017, is 5.5 percent, except for the Duluth teachers retirement plan and the St. Paul
 2.9 teachers retirement plan, each with a select postretirement interest rate assumption for the
 2.10 period after June 30, 2012, through June 30, 2017, of 8.0 percent.~~

2.11 (2) single rate preretirement and postretirement interest rate assumption

2.12	plan	interest rate
2.13		assumption
2.14	Bloomington Fire Department Relief Association	6.0
2.15	local monthly benefit volunteer firefighters relief	5.0
2.16	associations	

2.17 (b) The actuarial valuation must use the applicable postretirement adjustment rate
 2.18 actuarial assumption for the applicable period or periods:

2.19	<u>plan</u>	<u>rate and duration</u>
2.20	<u>general state employees retirement plan</u>	<u>2.0% until December 31,</u>
2.21		<u>2040, 2.5% thereafter</u>
2.22	<u>correctional state employees retirement plan</u>	<u>2.0% until December 31,</u>
2.23		<u>2038, 2.5% thereafter</u>
2.24	<u>State Patrol retirement plan</u>	<u>1.0% until December 31,</u>
2.25		<u>2037, 2.5% thereafter</u>
2.26	<u>legislators retirement plan, including constitutional officers</u>	<u>2.0% until December 31,</u>
2.27		<u>2040, 2.5% thereafter</u>
2.28	<u>judges retirement plan</u>	<u>1.75% until December 31,</u>
2.29		<u>2039, 2.5% thereafter</u>
2.30	<u>general public employees retirement plan</u>	<u>1.0% until December 31,</u>
2.31		<u>2031, 2.5% thereafter</u>
2.32	<u>public employees police and fire retirement plan</u>	<u>1.0% until December 31,</u>
2.33		<u>2039, 2.5% thereafter</u>
2.34	<u>local government correctional service retirement plan</u>	<u>1.0% until December 31,</u>
2.35		<u>2015, 2.5% thereafter</u>
2.36	<u>MERF division of the Public Employees Retirement</u>	<u>1.0% until December 31,</u>
2.37	<u>Association</u>	<u>2031, 2.5% thereafter</u>
2.38	<u>teachers retirement plan</u>	<u>2.0% until December 31,</u>
2.39		<u>37, 2.5% thereafter</u>
2.40	<u>Duluth teachers retirement plan</u>	<u>1.0% until December 31,</u>
2.41		<u>2039, 2.5% thereafter</u>
2.42	<u>St. Paul teachers retirement plan</u>	<u>1.0% until December 31,</u>
2.43		<u>2038, 2.5% thereafter</u>

3.1 ~~(b)~~ (c) The actuarial valuation must use the applicable following single rate future
 3.2 salary increase assumption, the applicable following modified single rate future salary
 3.3 increase assumption, or the applicable following graded rate future salary increase
 3.4 assumption:

3.5 (1) single rate future salary increase assumption

3.6	plan	future salary increase assumption
3.7	legislators retirement plan	5.0%
3.8	judges retirement plan	3.0
3.9	Bloomington Fire Department Relief	4.0
3.10	Association	

3.11 (2) age-related future salary increase age-related select and ultimate future salary
 3.12 increase assumption or graded rate future salary increase assumption

3.13	plan	future salary increase assumption
3.14	local government correctional service retirement plan	assumption C
3.15	Duluth teachers retirement plan	assumption A
3.16	St. Paul teachers retirement plan	assumption B

3.17 For plans other than the Duluth teachers
 3.18 retirement plan, the select calculation
 3.19 is: during the designated select period, a
 3.20 designated percentage rate is multiplied by
 3.21 the result of the designated integer minus T,
 3.22 where T is the number of completed years
 3.23 of service, and is added to the applicable
 3.24 future salary increase assumption. The
 3.25 designated select period is ten years and the
 3.26 designated integer is ten for all retirement
 3.27 plans covered by this clause. The designated
 3.28 percentage rate is 0.3 percent for the St. Paul
 3.29 Teachers Retirement Fund Association. The
 3.30 select calculation for the Duluth Teachers
 3.31 Retirement Fund Association is 8.00 percent
 3.32 per year for service years one through seven,
 3.33 7.25 percent per year for service years seven
 3.34 and eight, and 6.50 percent per year for
 3.35 service years eight and nine.

3.36 The ultimate future salary increase assumption is:

4.1	age	A	B	C
4.2	16	8.00%	6.90%	9.00%
4.3	17	8.00	6.90	9.00
4.4	18	8.00	6.90	9.00
4.5	19	8.00	6.90	9.00
4.6	20	6.90	6.90	9.00
4.7	21	6.90	6.90	8.75
4.8	22	6.90	6.90	8.50
4.9	23	6.85	6.85	8.25
4.10	24	6.80	6.80	8.00
4.11	25	6.75	6.75	7.75
4.12	26	6.70	6.70	7.50
4.13	27	6.65	6.65	7.25
4.14	28	6.60	6.60	7.00
4.15	29	6.55	6.55	6.75
4.16	30	6.50	6.50	6.75
4.17	31	6.45	6.45	6.50
4.18	32	6.40	6.40	6.50
4.19	33	6.35	6.35	6.50
4.20	34	6.30	6.30	6.25
4.21	35	6.25	6.25	6.25
4.22	36	6.20	6.20	6.00
4.23	37	6.15	6.15	6.00
4.24	38	6.10	6.10	6.00
4.25	39	6.05	6.05	5.75
4.26	40	6.00	6.00	5.75
4.27	41	5.90	5.95	5.75
4.28	42	5.80	5.90	5.50
4.29	43	5.70	5.85	5.25
4.30	44	5.60	5.80	5.25
4.31	45	5.50	5.75	5.00
4.32	46	5.40	5.70	5.00
4.33	47	5.30	5.65	5.00
4.34	48	5.20	5.60	5.00
4.35	49	5.10	5.55	5.00
4.36	50	5.00	5.50	5.00
4.37	51	4.90	5.45	5.00
4.38	52	4.80	5.40	5.00
4.39	53	4.70	5.35	5.00
4.40	54	4.60	5.30	5.00
4.41	55	4.50	5.25	4.75
4.42	56	4.40	5.20	4.75
4.43	57	4.30	5.15	4.50

5.1	58	4.20	5.10	4.25
5.2	59	4.10	5.05	4.25
5.3	60	4.00	5.00	4.25
5.4	61	3.90	5.00	4.25
5.5	62	3.80	5.00	4.25
5.6	63	3.70	5.00	4.25
5.7	64	3.60	5.00	4.25
5.8	65	3.50	5.00	4.00
5.9	66	3.50	5.00	4.00
5.10	67	3.50	5.00	4.00
5.11	68	3.50	5.00	4.00
5.12	69	3.50	5.00	4.00
5.13	70	3.50	5.00	4.00

5.14 (3) service-related ultimate future salary increase assumption

5.15	general state employees retirement plan of the	assumption A
5.16	Minnesota State Retirement System	
5.17	general employees retirement plan of the Public	assumption B
5.18	Employees Retirement Association	
5.19	Teachers Retirement Association	assumption C
5.20	public employees police and fire retirement plan	assumption D
5.21	State Patrol retirement plan	assumption E
5.22	correctional state employees retirement plan of the	assumption F
5.23	Minnesota State Retirement System	

5.24	service						
5.25	length	A	B	C	D	E	F
5.26	1	10.50%	12.03%	12.00%	13.00%	8.00%	6.00%
5.27	2	8.10	8.90	9.00	11.00	7.50	5.85
5.28	3	6.90	7.46	8.00	9.00	7.00	5.70
5.29	4	6.20	6.58	7.50	8.00	6.75	5.55
5.30	5	5.70	5.97	7.25	6.50	6.50	5.40
5.31	6	5.30	5.52	7.00	6.10	6.25	5.25
5.32	7	5.00	5.16	6.85	5.80	6.00	5.10
5.33	8	4.70	4.87	6.70	5.60	5.85	4.95
5.34	9	4.50	4.63	6.55	5.40	5.70	4.80
5.35	10	4.40	4.42	6.40	5.30	5.55	4.65
5.36	11	4.20	4.24	6.25	5.20	5.40	4.55
5.37	12	4.10	4.08	6.00	5.10	5.25	4.45
5.38	13	4.00	3.94	5.75	5.00	5.10	4.35
5.39	14	3.80	3.82	5.50	4.90	4.95	4.25
5.40	15	3.70	3.70	5.25	4.80	4.80	4.15
5.41	16	3.60	3.60	5.00	4.80	4.65	4.05
5.42	17	3.50	3.51	4.75	4.80	4.50	3.95
5.43	18	3.50	3.50	4.50	4.80	4.35	3.85

6.1	19	3.50	3.50	4.25	4.80	4.20	3.75
6.2	20	3.50	3.50	4.00	4.80	4.05	3.75
6.3	21	3.50	3.50	3.90	4.70	4.00	3.75
6.4	22	3.50	3.50	3.80	4.60	4.00	3.75
6.5	23	3.50	3.50	3.70	4.50	4.00	3.75
6.6	24	3.50	3.50	3.60	4.50	4.00	3.75
6.7	25	3.50	3.50	3.50	4.50	4.00	3.75
6.8	26	3.50	3.50	3.50	4.50	4.00	3.75
6.9	27	3.50	3.50	3.50	4.50	4.00	3.75
6.10	28	3.50	3.50	3.50	4.50	4.00	3.75
6.11	29	3.50	3.50	3.50	4.50	4.00	3.75
6.12	30 or more	3.50	3.50	3.50	4.50	4.00	3.75

6.13 (e) (d) The actuarial valuation must use the applicable following payroll growth
6.14 assumption for calculating the amortization requirement for the unfunded actuarial
6.15 accrued liability where the amortization retirement is calculated as a level percentage
6.16 of an increasing payroll:

6.17	plan	payroll growth assumption
6.18	general state employees retirement plan of the	3.75%
6.19	Minnesota State Retirement System	
6.20	correctional state employees retirement plan	3.75
6.21	State Patrol retirement plan	3.75
6.22	judges retirement plan	3.00
6.23	general employees retirement plan of the Public	3.75
6.24	Employees Retirement Association	
6.25	public employees police and fire retirement plan	3.75
6.26	local government correctional service retirement plan	3.75
6.27	teachers retirement plan	3.75
6.28	Duluth teachers retirement plan	4.50
6.29	St. Paul teachers retirement plan	5.00

6.30 (d) (e) The assumptions set forth in paragraphs (b) and (c) continue to apply, unless a
6.31 different salary assumption or a different payroll increase assumption:

- 6.32 (1) has been proposed by the governing board of the applicable retirement plan;
6.33 (2) is accompanied by the concurring recommendation of the actuary retained under
6.34 section 356.214, subdivision 1, if applicable, or by the approved actuary preparing the
6.35 most recent actuarial valuation report if section 356.214 does not apply; and
6.36 (3) has been approved or deemed approved under subdivision 18.

6.37 **EFFECTIVE DATE.** This section is effective June 30, 2014, and applies to
6.38 actuarial valuation reports prepared on or after that date.

1.1 A bill for an act

1.2 relating to retirement; statewide and major local retirement plan actuarial
1.3 reporting; implementing a level dollar amortization requirement; amending
1.4 Minnesota Statutes 2012, section 356.215, subdivisions 8, as amended, 11.

1.5 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

1.6 Section 1. Minnesota Statutes 2012, section 356.215, subdivision 8, as amended by
1.7 Laws 2013, chapter 111, article 2, section 27, is amended to read:

1.8 Subd. 8. **Interest and salary assumptions.** (a) The actuarial valuation must use
1.9 the applicable following preretirement interest assumption and the applicable following
1.10 postretirement interest assumption:

1.11 (1) select and ultimate interest rate assumption

	ultimate preretirement interest rate assumption	ultimate postretirement interest rate assumption
1.12 plan		
1.13 general state employees retirement plan	8.5%	6.0%
1.14 correctional state employees retirement plan	8.5	6.0
1.15 State Patrol retirement plan	8.5	6.0
1.16 legislators retirement plan, and for the 1.17 constitutional officers calculation of total plan 1.18 liabilities	0.0	0.0
1.19 judges retirement plan	8.5	6.0
1.20 general public employees retirement plan	8.5	6.0
1.21 public employees police and fire retirement plan	8.5	6.0
1.22 local government correctional service 1.23 retirement plan	8.5	6.0
1.24 teachers retirement plan	8.5	6.0

2.1	Duluth teachers retirement plan	8.5	8.5
2.2	St. Paul teachers retirement plan	8.5	8.5

2.3 Except for the legislators retirement plan and the constitutional officers calculation
 2.4 of total plan liabilities, the select preretirement interest rate assumption for the period
 2.5 after June 30, 2012, through June 30, 2017, is 8.0 percent. Except for the legislators
 2.6 retirement plan and the constitutional officers calculation of total plan liabilities, the select
 2.7 postretirement interest rate assumption for the period after June 30, 2012, through June
 2.8 30, 2017, is 5.5 percent, except for the Duluth teachers retirement plan and the St. Paul
 2.9 teachers retirement plan, each with a select postretirement interest rate assumption for the
 2.10 period after June 30, 2012, through June 30, 2017, of 8.0 percent.

2.11 (2) single rate preretirement and postretirement interest rate assumption

2.12	plan	interest rate
2.13		assumption
2.14	Bloomington Fire Department Relief Association	6.0
2.15	local monthly benefit volunteer firefighters relief	5.0
2.16	associations	

2.17 (b) The actuarial valuation must use the applicable following single rate future salary
 2.18 increase assumption, the applicable following modified single rate future salary increase
 2.19 assumption, or the applicable following graded rate future salary increase assumption:

2.20 (1) single rate future salary increase assumption

2.21	plan	future salary increase assumption
2.22	legislators retirement plan	5.0%
2.23	judges retirement plan	3.0
2.24	Bloomington Fire Department Relief	4.0
2.25	Association	

2.26 (2) age-related future salary increase age-related select and ultimate future salary
 2.27 increase assumption or graded rate future salary increase assumption

2.28	plan	future salary increase assumption
2.29	local government correctional service retirement plan	assumption C
2.30	Duluth teachers retirement plan	assumption A
2.31	St. Paul teachers retirement plan	assumption B

2.32 For plans other than the Duluth teachers
 2.33 retirement plan, the select calculation
 2.34 is: during the designated select period, a
 2.35 designated percentage rate is multiplied by
 2.36 the result of the designated integer minus T,
 2.37 where T is the number of completed years

3.1 of service, and is added to the applicable
 3.2 future salary increase assumption. The
 3.3 designated select period is ten years and the
 3.4 designated integer is ten for all retirement
 3.5 plans covered by this clause. The designated
 3.6 percentage rate is 0.3 percent for the St. Paul
 3.7 Teachers Retirement Fund Association. The
 3.8 select calculation for the Duluth Teachers
 3.9 Retirement Fund Association is 8.00 percent
 3.10 per year for service years one through seven,
 3.11 7.25 percent per year for service years seven
 3.12 and eight, and 6.50 percent per year for
 3.13 service years eight and nine.

3.14 The ultimate future salary increase assumption is:

3.15 age	A	B	C
3.16 16	8.00%	6.90%	9.00%
3.17 17	8.00	6.90	9.00
3.18 18	8.00	6.90	9.00
3.19 19	8.00	6.90	9.00
3.20 20	6.90	6.90	9.00
3.21 21	6.90	6.90	8.75
3.22 22	6.90	6.90	8.50
3.23 23	6.85	6.85	8.25
3.24 24	6.80	6.80	8.00
3.25 25	6.75	6.75	7.75
3.26 26	6.70	6.70	7.50
3.27 27	6.65	6.65	7.25
3.28 28	6.60	6.60	7.00
3.29 29	6.55	6.55	6.75
3.30 30	6.50	6.50	6.75
3.31 31	6.45	6.45	6.50
3.32 32	6.40	6.40	6.50
3.33 33	6.35	6.35	6.50
3.34 34	6.30	6.30	6.25
3.35 35	6.25	6.25	6.25
3.36 36	6.20	6.20	6.00
3.37 37	6.15	6.15	6.00
3.38 38	6.10	6.10	6.00
3.39 39	6.05	6.05	5.75
3.40 40	6.00	6.00	5.75

4.1	41	5.90	5.95	5.75
4.2	42	5.80	5.90	5.50
4.3	43	5.70	5.85	5.25
4.4	44	5.60	5.80	5.25
4.5	45	5.50	5.75	5.00
4.6	46	5.40	5.70	5.00
4.7	47	5.30	5.65	5.00
4.8	48	5.20	5.60	5.00
4.9	49	5.10	5.55	5.00
4.10	50	5.00	5.50	5.00
4.11	51	4.90	5.45	5.00
4.12	52	4.80	5.40	5.00
4.13	53	4.70	5.35	5.00
4.14	54	4.60	5.30	5.00
4.15	55	4.50	5.25	4.75
4.16	56	4.40	5.20	4.75
4.17	57	4.30	5.15	4.50
4.18	58	4.20	5.10	4.25
4.19	59	4.10	5.05	4.25
4.20	60	4.00	5.00	4.25
4.21	61	3.90	5.00	4.25
4.22	62	3.80	5.00	4.25
4.23	63	3.70	5.00	4.25
4.24	64	3.60	5.00	4.25
4.25	65	3.50	5.00	4.00
4.26	66	3.50	5.00	4.00
4.27	67	3.50	5.00	4.00
4.28	68	3.50	5.00	4.00
4.29	69	3.50	5.00	4.00
4.30	70	3.50	5.00	4.00

4.31 (3) service-related ultimate future salary increase assumption

4.32	general state employees retirement plan of the						assumption A
4.33	Minnesota State Retirement System						
4.34	general employees retirement plan of the Public						assumption B
4.35	Employees Retirement Association						
4.36	Teachers Retirement Association						assumption C
4.37	public employees police and fire retirement plan						assumption D
4.38	State Patrol retirement plan						assumption E
4.39	correctional state employees retirement plan of the						assumption F
4.40	Minnesota State Retirement System						

4.41	service						
4.42	length	A	B	C	D	E	F
4.43	1	10.50%	12.03%	12.00%	13.00%	8.00%	6.00%

5.1	2	8.10	8.90	9.00	11.00	7.50	5.85
5.2	3	6.90	7.46	8.00	9.00	7.00	5.70
5.3	4	6.20	6.58	7.50	8.00	6.75	5.55
5.4	5	5.70	5.97	7.25	6.50	6.50	5.40
5.5	6	5.30	5.52	7.00	6.10	6.25	5.25
5.6	7	5.00	5.16	6.85	5.80	6.00	5.10
5.7	8	4.70	4.87	6.70	5.60	5.85	4.95
5.8	9	4.50	4.63	6.55	5.40	5.70	4.80
5.9	10	4.40	4.42	6.40	5.30	5.55	4.65
5.10	11	4.20	4.24	6.25	5.20	5.40	4.55
5.11	12	4.10	4.08	6.00	5.10	5.25	4.45
5.12	13	4.00	3.94	5.75	5.00	5.10	4.35
5.13	14	3.80	3.82	5.50	4.90	4.95	4.25
5.14	15	3.70	3.70	5.25	4.80	4.80	4.15
5.15	16	3.60	3.60	5.00	4.80	4.65	4.05
5.16	17	3.50	3.51	4.75	4.80	4.50	3.95
5.17	18	3.50	3.50	4.50	4.80	4.35	3.85
5.18	19	3.50	3.50	4.25	4.80	4.20	3.75
5.19	20	3.50	3.50	4.00	4.80	4.05	3.75
5.20	21	3.50	3.50	3.90	4.70	4.00	3.75
5.21	22	3.50	3.50	3.80	4.60	4.00	3.75
5.22	23	3.50	3.50	3.70	4.50	4.00	3.75
5.23	24	3.50	3.50	3.60	4.50	4.00	3.75
5.24	25	3.50	3.50	3.50	4.50	4.00	3.75
5.25	26	3.50	3.50	3.50	4.50	4.00	3.75
5.26	27	3.50	3.50	3.50	4.50	4.00	3.75
5.27	28	3.50	3.50	3.50	4.50	4.00	3.75
5.28	29	3.50	3.50	3.50	4.50	4.00	3.75
5.29	30 or more	3.50	3.50	3.50	4.50	4.00	3.75

5.30 (e) The actuarial valuation must use the applicable following payroll growth
5.31 assumption for calculating the amortization requirement for the unfunded actuarial
5.32 accrued liability where the amortization retirement is calculated as a level percentage
5.33 of an increasing payroll:

5.34	plan	payroll growth assumption
5.35	general state employees retirement plan of the	3.75%
5.36	Minnesota State Retirement System	
5.37	correctional state employees retirement plan	3.75
5.38	State Patrol retirement plan	3.75
5.39	judges retirement plan	3.00
5.40	general employees retirement plan of the Public	3.75
5.41	Employees Retirement Association	
5.42	public employees police and fire retirement plan	3.75

6.1	local government correctional service retirement plan	3.75
6.2	teachers retirement plan	3.75
6.3	Duluth teachers retirement plan	4.50
6.4	St. Paul teachers retirement plan	5.00

6.5 ~~(d)~~ (c) The assumptions set forth in ~~paragraphs~~ paragraph (b) and ~~(e)~~ continue
6.6 continues to apply, unless a different salary assumption or a different payroll increase
6.7 assumption:

6.8 (1) has been proposed by the governing board of the applicable retirement plan;

6.9 (2) is accompanied by the concurring recommendation of the actuary retained under
6.10 section 356.214, subdivision 1, if applicable, or by the approved actuary preparing the
6.11 most recent actuarial valuation report if section 356.214 does not apply; and

6.12 (3) has been approved or deemed approved under subdivision 18.

6.13 **EFFECTIVE DATE.** This section is effective June 30, 2014, and applies to
6.14 actuarial valuation reports prepared on or after that date.

6.15 Sec. 2. Minnesota Statutes 2012, section 356.215, subdivision 11, is amended to read:

6.16 Subd. 11. **Amortization contributions.** (a) In addition to the exhibit indicating
6.17 the level normal cost, the actuarial valuation of the retirement plan must contain an
6.18 exhibit for financial reporting purposes indicating the additional annual contribution
6.19 sufficient to amortize the unfunded actuarial accrued liability and must contain an exhibit
6.20 for contribution determination purposes indicating the additional contribution sufficient
6.21 to amortize the unfunded actuarial accrued liability. ~~For the retirement plans listed in~~
6.22 ~~subdivision 8, paragraph (e), but excluding the MERF division of the Public Employees~~
6.23 ~~Retirement Association and the legislators retirement plan, the additional contribution~~
6.24 ~~must be calculated on a level percentage of covered payroll basis by the established~~
6.25 ~~date for full funding in effect when the valuation is prepared, assuming annual payroll~~
6.26 ~~growth at the applicable percentage rate set forth in subdivision 8, paragraph (e). For all~~
6.27 ~~other retirement plans and for the MERF division of the Public Employees Retirement~~
6.28 ~~Association and the legislators retirement plan, the additional annual contribution must be~~
6.29 ~~calculated on a level annual dollar amount basis.~~

6.30 (b) For any retirement plan other than the general state employees retirement plan
6.31 of the Minnesota State Retirement System or a retirement plan governed by paragraph
6.32 (d), (e), (f), (g), (h), (i), or (j), if there has not been a change in the actuarial assumptions
6.33 used for calculating the actuarial accrued liability of the fund, a change in the benefit
6.34 plan governing annuities and benefits payable from the fund, a change in the actuarial
6.35 cost method used in calculating the actuarial accrued liability of all or a portion of the

7.1 fund, or a combination of the three, which change or changes by itself or by themselves
7.2 without inclusion of any other items of increase or decrease produce a net increase in the
7.3 unfunded actuarial accrued liability of the fund, the established date for full funding is the
7.4 first actuarial valuation date occurring after June 1, 2020.

7.5 (c) For any retirement plan other than the general employees retirement plan of the
7.6 Public Employees Retirement Association, if there has been a change in any or all of the
7.7 actuarial assumptions used for calculating the actuarial accrued liability of the fund, a
7.8 change in the benefit plan governing annuities and benefits payable from the fund, a
7.9 change in the actuarial cost method used in calculating the actuarial accrued liability of all
7.10 or a portion of the fund, or a combination of the three, and the change or changes, by itself
7.11 or by themselves and without inclusion of any other items of increase or decrease, produce
7.12 a net increase in the unfunded actuarial accrued liability in the fund, the established date
7.13 for full funding must be determined using the following procedure:

7.14 (i) the unfunded actuarial accrued liability of the fund must be determined in
7.15 accordance with the plan provisions governing annuities and retirement benefits and the
7.16 actuarial assumptions in effect before an applicable change;

7.17 (ii) the level annual dollar contribution or level percentage, whichever is applicable,
7.18 needed to amortize the unfunded actuarial accrued liability amount determined under item
7.19 (i) by the established date for full funding in effect before the change must be calculated
7.20 using the interest assumption specified in subdivision 8 in effect before the change;

7.21 (iii) the unfunded actuarial accrued liability of the fund must be determined in
7.22 accordance with any new plan provisions governing annuities and benefits payable from
7.23 the fund and any new actuarial assumptions and the remaining plan provisions governing
7.24 annuities and benefits payable from the fund and actuarial assumptions in effect before
7.25 the change;

7.26 (iv) the level annual dollar contribution or level percentage, whichever is applicable,
7.27 needed to amortize the difference between the unfunded actuarial accrued liability amount
7.28 calculated under item (i) and the unfunded actuarial accrued liability amount calculated
7.29 under item (iii) over a period of 30 years from the end of the plan year in which the
7.30 applicable change is effective must be calculated using the applicable interest assumption
7.31 specified in subdivision 8 in effect after any applicable change;

7.32 (v) the level annual dollar or level percentage amortization contribution under item
7.33 (iv) must be added to the level annual dollar amortization contribution or level percentage
7.34 calculated under item (ii);

7.35 (vi) the period in which the unfunded actuarial accrued liability amount determined
7.36 in item (iii) is amortized by the total level annual dollar or level percentage amortization

8.1 contribution computed under item (v) must be calculated using the interest assumption
8.2 specified in subdivision 8 in effect after any applicable change, rounded to the nearest
8.3 integral number of years, but not to exceed 30 years from the end of the plan year in which
8.4 the determination of the established date for full funding using the procedure set forth in this
8.5 clause is made and not to be less than the period of years beginning in the plan year in which
8.6 the determination of the established date for full funding using the procedure set forth in
8.7 this clause is made and ending by the date for full funding in effect before the change; and

8.8 (vii) the period determined under item (vi) must be added to the date as of which
8.9 the actuarial valuation was prepared and the date obtained is the new established date
8.10 for full funding.

8.11 (d) For the MERF division of the Public Employees Retirement Association, the
8.12 established date for full funding is June 30, 2031.

8.13 (e) For the general employees retirement plan of the Public Employees Retirement
8.14 Association, the established date for full funding is June 30, 2031.

8.15 (f) For the Teachers Retirement Association, the established date for full funding is
8.16 June 30, 2037.

8.17 (g) For the correctional state employees retirement plan of the Minnesota State
8.18 Retirement System, the established date for full funding is June 30, 2038.

8.19 (h) For the judges retirement plan, the established date for full funding is June
8.20 30, 2038.

8.21 (i) For the public employees police and fire retirement plan, the established date
8.22 for full funding is June 30, 2038.

8.23 (j) For the St. Paul Teachers Retirement Fund Association, the established date for
8.24 full funding is June 30 of the 25th year from the valuation date. In addition to other
8.25 requirements of this chapter, the annual actuarial valuation must contain an exhibit
8.26 indicating the funded ratio and the deficiency or sufficiency in annual contributions when
8.27 comparing liabilities to the market value of the assets of the fund as of the close of the
8.28 most recent fiscal year.

8.29 (k) For the general state employees retirement plan of the Minnesota State
8.30 Retirement System, the established date for full funding is June 30, 2040.

8.31 (l) For the retirement plans for which the annual actuarial valuation indicates an
8.32 excess of valuation assets over the actuarial accrued liability, the valuation assets in
8.33 excess of the actuarial accrued liability must be recognized as a reduction in the current
8.34 contribution requirements by an amount equal to the amortization of the excess expressed
8.35 as a level percentage of pay over a 30-year period beginning anew with each annual
8.36 actuarial valuation of the plan.

- 9.1 **EFFECTIVE DATE.** This section is effective June 30, 2014, and applies to
- 9.2 actuarial valuation reports prepared on or after that date.

1.1 A bill for an act

1.2 relating to retirement; statewide and major local retirement plan actuarial
1.3 reporting; revising amortization target dates; amending Minnesota Statutes 2012,
1.4 section 356.215, subdivision 11.

1.5 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

1.6 Section 1. Minnesota Statutes 2012, section 356.215, subdivision 11, is amended to read:

1.7 Subd. 11. **Amortization contributions.** (a) In addition to the exhibit indicating
1.8 the level normal cost, the actuarial valuation of the retirement plan must contain an
1.9 exhibit for financial reporting purposes indicating the additional annual contribution
1.10 sufficient to amortize the unfunded actuarial accrued liability and must contain an exhibit
1.11 for contribution determination purposes indicating the additional contribution sufficient
1.12 to amortize the unfunded actuarial accrued liability. For the retirement plans listed in
1.13 subdivision 8, paragraph (c), but excluding the MERF division of the Public Employees
1.14 Retirement Association and the legislators retirement plan, the additional contribution
1.15 must be calculated on a level percentage of covered payroll basis by the established
1.16 date for full funding in effect when the valuation is prepared, assuming annual payroll
1.17 growth at the applicable percentage rate set forth in subdivision 8, paragraph (c). For all
1.18 other retirement plans and for the MERF division of the Public Employees Retirement
1.19 Association and the legislators retirement plan, the additional annual contribution must be
1.20 calculated on a level annual dollar amount basis.

1.21 (b) For any retirement plan other than the ~~general state employees retirement plan of~~
1.22 ~~the Minnesota State Retirement System or a retirement plan governed by paragraph (d),~~
1.23 ~~(e), (f), (g), (h), (i), or (j) MERF division of the Public Employees Retirement Association~~
1.24 or the St. Paul Teachers Retirement Fund Association, if there has not been a change in

2.1 the actuarial assumptions used for calculating the actuarial accrued liability of the fund, a
2.2 change in the benefit plan governing annuities and benefits payable from the fund, a
2.3 change in the actuarial cost method used in calculating the actuarial accrued liability of all
2.4 or a portion of the fund, or a combination of the three, which change or changes by itself
2.5 or by themselves without inclusion of any other items of increase or decrease produce a
2.6 net increase in the unfunded actuarial accrued liability of the fund, the established date for
2.7 full funding is the first actuarial valuation date occurring after June 1, ~~2020~~ 2040.

2.8 (c) For any retirement plan other than the general employees retirement plan of the
2.9 Public Employees Retirement Association, if there has been a change in any or all of the
2.10 actuarial assumptions used for calculating the actuarial accrued liability of the fund, a
2.11 change in the benefit plan governing annuities and benefits payable from the fund, a
2.12 change in the actuarial cost method used in calculating the actuarial accrued liability of all
2.13 or a portion of the fund, or a combination of the three, and the change or changes, by itself
2.14 or by themselves and without inclusion of any other items of increase or decrease, produce
2.15 a net increase in the unfunded actuarial accrued liability in the fund, the established date
2.16 for full funding must be determined using the following procedure:

2.17 (i) the unfunded actuarial accrued liability of the fund must be determined in
2.18 accordance with the plan provisions governing annuities and retirement benefits and the
2.19 actuarial assumptions in effect before an applicable change;

2.20 (ii) the level annual dollar contribution or level percentage, whichever is applicable,
2.21 needed to amortize the unfunded actuarial accrued liability amount determined under item
2.22 (i) by the established date for full funding in effect before the change must be calculated
2.23 using the interest assumption specified in subdivision 8 in effect before the change;

2.24 (iii) the unfunded actuarial accrued liability of the fund must be determined in
2.25 accordance with any new plan provisions governing annuities and benefits payable from
2.26 the fund and any new actuarial assumptions and the remaining plan provisions governing
2.27 annuities and benefits payable from the fund and actuarial assumptions in effect before
2.28 the change;

2.29 (iv) the level annual dollar contribution or level percentage, whichever is applicable,
2.30 needed to amortize the difference between the unfunded actuarial accrued liability amount
2.31 calculated under item (i) and the unfunded actuarial accrued liability amount calculated
2.32 under item (iii) over a period of 30 years from the end of the plan year in which the
2.33 applicable change is effective must be calculated using the applicable interest assumption
2.34 specified in subdivision 8 in effect after any applicable change;

3.1 (v) the level annual dollar or level percentage amortization contribution under item
3.2 (iv) must be added to the level annual dollar amortization contribution or level percentage
3.3 calculated under item (ii);

3.4 (vi) the period in which the unfunded actuarial accrued liability amount determined
3.5 in item (iii) is amortized by the total level annual dollar or level percentage amortization
3.6 contribution computed under item (v) must be calculated using the interest assumption
3.7 specified in subdivision 8 in effect after any applicable change, rounded to the nearest
3.8 integral number of years, but not to exceed 30 years from the end of the plan year in which
3.9 the determination of the established date for full funding using the procedure set forth in this
3.10 clause is made and not to be less than the period of years beginning in the plan year in which
3.11 the determination of the established date for full funding using the procedure set forth in
3.12 this clause is made and ending by the date for full funding in effect before the change; and

3.13 (vii) the period determined under item (vi) must be added to the date as of which
3.14 the actuarial valuation was prepared and the date obtained is the new established date
3.15 for full funding.

3.16 (d) For the MERF division of the Public Employees Retirement Association, the
3.17 established date for full funding is June 30, 2031.

3.18 ~~(e) For the general employees retirement plan of the Public Employees Retirement~~
3.19 ~~Association, the established date for full funding is June 30, 2031.~~

3.20 ~~(f) For the Teachers Retirement Association, the established date for full funding is~~
3.21 ~~June 30, 2037.~~

3.22 ~~(g) For the correctional state employees retirement plan of the Minnesota State~~
3.23 ~~Retirement System, the established date for full funding is June 30, 2038.~~

3.24 ~~(h) For the judges retirement plan, the established date for full funding is June~~
3.25 ~~30, 2038.~~

3.26 ~~(i) For the public employees police and fire retirement plan, the established date~~
3.27 ~~for full funding is June 30, 2038.~~

3.28 (j) (e) For the St. Paul Teachers Retirement Fund Association, the established
3.29 date for full funding is June 30 of the 25th year from the valuation date. In addition to
3.30 other requirements of this chapter, the annual actuarial valuation must contain an exhibit
3.31 indicating the funded ratio and the deficiency or sufficiency in annual contributions when
3.32 comparing liabilities to the market value of the assets of the fund as of the close of the
3.33 most recent fiscal year.

3.34 ~~(k) For the general state employees retirement plan of the Minnesota State~~
3.35 ~~Retirement System, the established date for full funding is June 30, 2040.~~

4.1 ~~(1) For the retirement plans for which the annual actuarial valuation indicates an~~
4.2 ~~excess of valuation assets over the actuarial accrued liability, the valuation assets in~~
4.3 ~~excess of the actuarial accrued liability must be recognized as a reduction in the current~~
4.4 ~~contribution requirements by an amount equal to the amortization of the excess expressed~~
4.5 ~~as a level percentage of pay over a 30-year period beginning anew with each annual~~
4.6 ~~actuarial valuation of the plan.~~

4.7 **EFFECTIVE DATE.** This section is effective June 30, 2014, and applies to
4.8 actuarial valuation reports prepared on or after that date.

1.1 A bill for an act

1.2 relating to retirement; statewide and major local retirement plan actuarial
1.3 reporting; providing for a specific amortization procedure and target for interest
1.4 and other significant experience losses; amending Minnesota Statutes 2012,
1.5 section 356.215, subdivision 11.

1.6 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

1.7 Section 1. Minnesota Statutes 2012, section 356.215, subdivision 11, is amended to read:

1.8 Subd. 11. **Amortization contributions.** (a) In addition to the exhibit indicating
1.9 the level normal cost, the actuarial valuation of the retirement plan must contain an
1.10 exhibit for financial reporting purposes indicating the additional annual contribution
1.11 sufficient to amortize the unfunded actuarial accrued liability and must contain an exhibit
1.12 for contribution determination purposes indicating the additional contribution sufficient
1.13 to amortize the unfunded actuarial accrued liability. For the retirement plans listed in
1.14 subdivision 8, paragraph (c), but excluding the MERF division of the Public Employees
1.15 Retirement Association and the legislators retirement plan, the additional contribution
1.16 must be calculated on a level percentage of covered payroll basis by the established
1.17 date for full funding in effect when the valuation is prepared, assuming annual payroll
1.18 growth at the applicable percentage rate set forth in subdivision 8, paragraph (c). For all
1.19 other retirement plans and for the MERF division of the Public Employees Retirement
1.20 Association and the legislators retirement plan, the additional annual contribution must be
1.21 calculated on a level annual dollar amount basis.

1.22 (b) For any retirement plan other than the general state employees retirement plan
1.23 of the Minnesota State Retirement System or a retirement plan governed by paragraph
1.24 (d), (e), (f), (g), (h), (i), or (j), if there has not been a change in the actuarial assumptions
1.25 used for calculating the actuarial accrued liability of the fund, a change in the benefit plan

2.1 governing annuities and benefits payable from the fund, a change in the actuarial cost
2.2 method used in calculating the actuarial accrued liability of all or a portion of the fund, or
2.3 a combination of the three, which change or changes by itself or by themselves without
2.4 inclusion of any other items of increase or decrease produce a net increase in the unfunded
2.5 actuarial accrued liability of the fund, the established date for full funding is the first
2.6 actuarial valuation date occurring after June 1, ~~2020~~ 2040.

2.7 (c) For any retirement plan other than the ~~general employees retirement plan~~ MERF
2.8 division of the Public Employees Retirement Association or the St. Paul Teachers
2.9 Retirement Fund Association, if there has been a change in any or all of the actuarial
2.10 assumptions used for calculating the actuarial accrued liability of the ~~fund~~ plan, a change
2.11 in the benefit plan governing annuities and benefits payable from the ~~fund~~ plan, a change
2.12 in the actuarial cost method used in calculating the actuarial accrued liability of all or a
2.13 portion of the fund, or a combination of the three, and the change or changes, by itself or
2.14 by themselves and without inclusion of any other items of increase or decrease, produce a
2.15 net increase in the unfunded actuarial accrued liability in the ~~fund~~ plan, the established
2.16 date for full funding ~~must be determined using the following procedure:~~ for that net
2.17 increase in the unfunded actuarial accrued liability of the plan is the end of the plan year
2.18 occurring 30 years after the plan year in which the change or changes occurred.

2.19 (i) ~~the unfunded actuarial accrued liability of the fund must be determined in~~
2.20 ~~accordance with the plan provisions governing annuities and retirement benefits and the~~
2.21 ~~actuarial assumptions in effect before an applicable change;~~

2.22 (ii) ~~the level annual dollar contribution or level percentage, whichever is applicable,~~
2.23 ~~needed to amortize the unfunded actuarial accrued liability amount determined under item~~
2.24 ~~(i) by the established date for full funding in effect before the change must be calculated~~
2.25 ~~using the interest assumption specified in subdivision 8 in effect before the change;~~

2.26 (iii) ~~the unfunded actuarial accrued liability of the fund must be determined in~~
2.27 ~~accordance with any new plan provisions governing annuities and benefits payable from~~
2.28 ~~the fund and any new actuarial assumptions and the remaining plan provisions governing~~
2.29 ~~annuities and benefits payable from the fund and actuarial assumptions in effect before~~
2.30 ~~the change;~~

2.31 (iv) ~~the level annual dollar contribution or level percentage, whichever is applicable,~~
2.32 ~~needed to amortize the difference between the unfunded actuarial accrued liability amount~~
2.33 ~~calculated under item (i) and the unfunded actuarial accrued liability amount calculated~~
2.34 ~~under item (iii) over a period of 30 years from the end of the plan year in which the~~
2.35 ~~applicable change is effective must be calculated using the applicable interest assumption~~
2.36 ~~specified in subdivision 8 in effect after any applicable change;~~

3.1 ~~(v) the level annual dollar or level percentage amortization contribution under item~~
3.2 ~~(iv) must be added to the level annual dollar amortization contribution or level percentage~~
3.3 ~~calculated under item (ii);~~

3.4 ~~(vi) the period in which the unfunded actuarial accrued liability amount determined~~
3.5 ~~in item (iii) is amortized by the total level annual dollar or level percentage amortization~~
3.6 ~~contribution computed under item (v) must be calculated using the interest assumption~~
3.7 ~~specified in subdivision 8 in effect after any applicable change, rounded to the nearest~~
3.8 ~~integral number of years, but not to exceed 30 years from the end of the plan year in which~~
3.9 ~~the determination of the established date for full funding using the procedure set forth in this~~
3.10 ~~clause is made and not to be less than the period of years beginning in the plan year in which~~
3.11 ~~the determination of the established date for full funding using the procedure set forth in~~
3.12 ~~this clause is made and ending by the date for full funding in effect before the change; and~~

3.13 ~~(vii) the period determined under item (vi) must be added to the date as of which~~
3.14 ~~the actuarial valuation was prepared and the date obtained is the new established date~~
3.15 ~~for full funding.~~

3.16 (d) For any retirement plan other than the MERF division of the Public Employees
3.17 Retirement Association or the St. Paul Teachers Retirement Fund Association, if there
3.18 has been a net experience loss in an amount greater than 15 percent of the total unfunded
3.19 actuarial accrued liability as of the end of the preceding plan year, without inclusion of
3.20 any increment of unfunded actuarial accrued liability under paragraph (c), the established
3.21 date for full funding for that net experience loss increase in the unfunded actuarial accrued
3.22 liability of the plan is the end of the plan year occurring 15 years after the plan year in
3.23 which the experience loss occurred.

3.24 (e) For any retirement plan other than the MERF division of the Public Employees
3.25 Retirement Association or the St. Paul Teachers Retirement Fund Association, the
3.26 amortization contribution exhibit must include a totaling of the amortization contribution
3.27 amounts for the plan year covered by the actuarial valuation under paragraphs (b), (c),
3.28 and (d) and a mathematical calculation of the plan year in which that total amortization
3.29 contribution, if made, would retire the total unfunded actuarial accrued liability under the
3.30 applicable amortization procedure specified in paragraph (a).

3.31 ~~(d) (f) For the MERF division of the Public Employees Retirement Association, the~~
3.32 ~~established date for full funding is June 30, 2031.~~

3.33 ~~(e) For the general employees retirement plan of the Public Employees Retirement~~
3.34 ~~Association, the established date for full funding is June 30, 2031.~~

3.35 ~~(f) For the Teachers Retirement Association, the established date for full funding is~~
3.36 ~~June 30, 2037.~~

4.1 ~~(g) For the correctional state employees retirement plan of the Minnesota State~~
4.2 ~~Retirement System, the established date for full funding is June 30, 2038.~~

4.3 ~~(h) For the judges retirement plan, the established date for full funding is June~~
4.4 ~~30, 2038.~~

4.5 ~~(i) For the public employees police and fire retirement plan, the established date~~
4.6 ~~for full funding is June 30, 2038.~~

4.7 ~~(j) (g) For the St. Paul Teachers Retirement Fund Association, the established~~
4.8 ~~date for full funding is June 30 of the 25th year from the valuation date. In addition to~~
4.9 ~~other requirements of this chapter, the annual actuarial valuation must contain an exhibit~~
4.10 ~~indicating the funded ratio and the deficiency or sufficiency in annual contributions when~~
4.11 ~~comparing liabilities to the market value of the assets of the fund as of the close of the~~
4.12 ~~most recent fiscal year.~~

4.13 ~~(k) For the general state employees retirement plan of the Minnesota State~~
4.14 ~~Retirement System, the established date for full funding is June 30, 2040.~~

4.15 ~~(l) For the retirement plans for which the annual actuarial valuation indicates an~~
4.16 ~~excess of valuation assets over the actuarial accrued liability, the valuation assets in~~
4.17 ~~excess of the actuarial accrued liability must be recognized as a reduction in the current~~
4.18 ~~contribution requirements by an amount equal to the amortization of the excess expressed~~
4.19 ~~as a level percentage of pay over a 30-year period beginning anew with each annual~~
4.20 ~~actuarial valuation of the plan.~~

4.21 **EFFECTIVE DATE.** This section is effective June 30, 2014, and applies to
4.22 actuarial valuation reports prepared on or after that date.