



TO: Members of the Legislative Commission on Pensions and Retirement  
 FROM: Lawrence A. Martin, Executive Director *LAM*  
 RE: Minneapolis Police Relief Association; Proposed Mortality Assumption Change  
 DATE: March 3, 2008

Summary of the Proposed Change

The consulting actuarial firm retained by the Minneapolis Police Relief Association, Van Iwaarden Associates, and the board of trustees of the Minneapolis Police Relief Association are requesting approval by the Commission under Minnesota Statutes, Section 356.215, Subdivision 18, of a change in the mortality table used in preparing its annual actuarial valuation from the UP-1984 mortality table, set forward two years for males and set back three years for females, to the 1983 GAM mortality table, set forward one year for females and set back two years for males.

Background Information

- A. Minneapolis Police Relief Association. Background information on the Minneapolis Police Relief Association is presented in Attachment A.
- B. Actuarial Reporting Requirements. Background information on the actuarial reporting requirements generally applicable to Minnesota public pension plans is set forth in Attachment B.
- C. Demographic Actuarial Assumptions. Background information on the establishment and revision of demographic actuarial assumptions is set forth in Attachment C.
- D. Mortality Actuarial Assumptions for Closed Membership Defined Benefit Plans. Background information on revising mortality actuarial assumptions for closed membership defined benefit retirement plans is set forth in Attachment D.

Summary of the Minneapolis Police Relief Association Mortality Experience Studies

- a. 2003 Mortality Experience Study. In November 2003, Mark Meyer, FSA, and Paul D. Krueger, EA, consulting actuaries with the actuarial firm of Van Iwaarden Associates, prepared a joint mortality experience study of the Minneapolis Firefighters Relief Association and the Minneapolis Police Relief Association, dated November 2003, and received by the Legislative Commission on Pensions and Retirement office on January 15, 2004. The study covered participants of the two retirement plans for the four-year period from 1999 through 2002. The report ultimately included a recommendation that the 1983 GAM mortality table, set forward two years for females, be the mortality table for each relief association.

The 2003 joint mortality experience study found that actual mortality was 93 percent of the predicted female mortality overall and 78 percent of the predicted male mortality overall for the four-year period 1999-2002 for the combined population of the two plans, and 92 percent of the predicted female mortality and 83 percent of the predicted male mortality for the four-year period 1999-2002 for the Minneapolis Police Relief Association alone. The following compares this experience in more detail:

Joint Female Member Experience					MPRA Female Member Experience				
Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected	Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected
40-44	11	0	0.0	0%	40-44	8	0	0.0	0%
45-49	18	0	0.1	0%	45-49	11	0	0.0	0%
50-54	52	0	0.3	0%	50-54	31	0	0.2	0%
55-59	82	0	0.7	0%	55-59	54	0	0.5	0%
60-64	94	1	1.3	80%	60-64	51	0	0.7	0%
65-69	154	2	3.3	62%	65-69	84	2	1.8	113%
70-74	248	10	8.1	123%	70-74	168	8	5.5	146%
75-79	324	15	16.0	94%	75-79	213	11	10.6	104%
80-84	405	26	30.7	85%	80-84	207	8	15.6	51%
85-89	295	30	32.8	92%	85-89	137	15	15.2	99%
90-94	112	20	18.3	109%	90-94	51	12	8.4	142%
95+	47	11	11.9	93%	95+	29	5	7.6	66%
Total	1,842	115	123.3	93%	Total	1,044	61	66.0	92%

Joint Male Member Experience					MPRA Male Member Experience				
Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected	Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected
40-44	0	0	0.0	0%	40-44	0	0	0.0	0%
45-49	1	0	0.0	0%	45-49	1	0	0.0	0%
50-54	521	3	4.6	65%	50-54	372	1	3.3	30%
55-59	694	8	9.1	88%	55-59	489	4	6.3	63%
60-64	781	8	16.1	50%	60-64	559	5	11.5	43%
65-69	719	12	23.3	52%	65-69	391	9	12.4	72%
70-74	636	20	31.3	64%	70-74	305	11	15.1	73%
75-79	455	23	32.9	70%	75-79	249	15	18.1	83%
80-84	263	34	30.1	113%	80-84	169	22	19.2	114%
85-89	202	32	32.6	98%	85-89	90	15	14.4	104%
90-94	50	9	12.3	73%	90-94	15	2	3.6	56%
95+	7	3	2.5	119%	95+	3	3	1.1	284%
Total	4,329	152	194.8	78%	Total	2,643	87	105.0	83%

The proposed mortality table, the 1983 GAM mortality table, set forward two years for females, would have resulted in actual mortality equaling 107 percent of the predicted female mortality overall for both plans and equaling 111 percent of the predicted male mortality for both plans overall and equaling 107 percent of the predicted female mortality for the Minneapolis Police Relief Association and equaling 119 percent of the predicted male mortality for the Minneapolis Police Relief Association for the four-year period 1999-2002. The following compares the actual deaths with the proposed mortality table results in more detail:

Joint Female Member Experience					MPRA Female Member Experience				
Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected	Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected
40-44	11	0	0.0	0%	40-44	8	0	0.0	0%
45-49	18	0	0.0	0%	45-49	11	0	0.0	0%
50-54	52	0	0.1	0%	50-54	31	0	0.1	0%
55-59	82	0	0.3	0%	55-59	54	0	0.2	0%
60-64	94	1	0.6	161%	60-64	51	0	0.3	0%
65-69	154	2	1.8	114%	65-69	84	2	1.0	208%
70-74	248	10	5.4	184%	70-74	168	8	3.7	219%
75-79	324	15	12.7	118%	75-79	213	11	8.4	130%
80-84	405	26	26.2	99%	80-84	207	8	13.3	60%
85-89	295	30	29.5	102%	85-89	137	15	13.6	110%
90-94	112	20	17.9	112%	90-94	51	12	8.3	145%
95+	47	11	12.6	87%	95+	29	5	8.2	61%
Total	1,842	115	107.3	107%	Total	1,044	61	57.0	107%

  

Joint Male Member Experience					MPRA Male Member Experience				
Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected	Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected
40-44	0	0	0.0	0%	40-44	0	0	0.0	0%
45-49	1	0	0.0	0%	45-49	1	0	0.0	0%
50-54	521	3	2.6	114%	50-54	372	1	1.9	53%
55-59	694	8	5.0	160%	55-59	489	4	3.5	114%
60-64	781	8	8.8	91%	60-64	559	5	6.3	80%
65-69	719	12	14.5	83%	65-69	391	9	7.7	117%
70-74	636	20	21.5	93%	70-74	305	11	10.4	106%
75-79	455	23	24.0	96%	75-79	249	15	13.2	114%
80-84	263	34	23.8	143%	80-84	169	22	15.2	145%
85-89	202	32	26.0	123%	85-89	90	15	11.4	131%
90-94	50	9	9.3	97%	90-94	15	2	2.7	73%
95+	7	3	1.8	169%	95+	3	3	0.8	401%
Total	4,329	152	137.3	111%	Total	2,643	87	73.1	119%

- b. 2007 Mortality Experience Study. In 2007, Mark Meyer, FSA, and Paul D. Krueger, EA, of Van Iwaarden Associates, prepared another mortality experience study of the Minneapolis Police Relief Association, which was filed with the Legislative Commission on Pensions and Retirement on March 2, 2007. The study covered participants of the Minneapolis Police Relief Association for the five-year period from 2002 to 2006. The report also included a recommendation that the 1983 GAM mortality table, set forward one year for females and set back two years for males, replace the UP-1984 mortality table, set forward two years for males and set back three years for females, as the mortality table for the Minneapolis Police Relief Association.

The 2007 mortality experience study found that actual mortality was 87 percent of the predicted female mortality and 63 percent of the predicted male mortality for the five-year period 2002-2006. The following compares this experience in more detail:

Female Member Experience					Male Member Experience				
Age	Exposure (5 years)	Actual Deaths	Expected Deaths	Actual/Expected	Age	Exposure (5 years)	Actual Deaths	Expected Deaths	Actual/Expected
40-44	4	0	0.0	0%	40-44	0	0	0.0	0%
45-49	9	0	0.0	0%	45-49	3	0	0.0	0%
50-54	34	0	0.2	0%	50-54	241	0	2.2	0%
55-59	70	1	0.6	169%	55-59	724	7	9.5	74%
60-64	84	0	1.1	0%	60-64	689	7	14.4	49%
65-69	97	2	2.0	98%	65-69	613	11	19.6	56%
70-74	156	7	5.2	135%	70-74	382	10	18.4	55%
75-79	225	7	11.1	63%	75-79	342	15	25.6	59%
80-84	290	16	21.7	74%	80-84	182	18	20.0	90%
85-89	195	20	21.7	92%	85-89	120	13	20.0	65%
90-94	80	12	12.8	94%	90-94	31	4	7.3	55%
95+	36	10	9.6	104%	95+	2	2	0.7	310%
Total	1,280	75	86.0	87%	Total	3,329	87	137.6	63%

The proposed mortality table, the 1983 GAM mortality table, set forward one year for females and set back two years for males, would have resulted in actual mortality equaling 110 percent of the predicted female mortality and equaling 110 percent of the predicted male mortality for the five-year period 2002-2006. The following compares the actual deaths with the proposed mortality table results in more detail:

Female Member Experience					Male Member Experience				
Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected	Age	Exposure	Actual Deaths	Expected Deaths	Actual/Expected
40-44	4	0	0.0	0%	40-44	0	0	0.0	0%
45-49	9	0	0.0	0%	45-49	3	0	0.0	0%
50-54	34	0	0.1	0%	50-54	241	0	1.0	0%
55-59	70	1	0.3	403%	55-59	724	7	4.5	157%
60-64	84	0	0.5	0%	60-64	689	7	6.5	109%
65-69	97	2	1.0	205%	65-69	613	11	93.6	115%
70-74	156	7	3.1	229%	70-74	382	10	10.3	97%
75-79	225	7	7.9	89%	75-79	342	15	15.4	98%
80-84	290	16	16.9	95%	80-84	182	18	13.1	138%
85-89	195	20	17.8	113%	85-89	120	13	13.6	95%
90-94	80	12	11.3	107%	90-94	31	4	4.8	83%
95+	36	10	9.4	106%	95+	2	2	0.4	493%
Total	1,280	75	68.1	110%	Total	3,329	87	79.1	110%

## Discussion and Analysis

The Minneapolis Police Relief Association and its consulting actuaries, Mark Meyer and Paul D. Krueger of Van Iwaarden Associates, are requesting approval by the Legislative Commission on Pensions and Retirement of a change in the relief association's mortality table from the UP-1984 mortality table, set forward two years for males and set back three years for females, to the 1983 GAM mortality table with a one-year set forward for females and a two-year set back for males. Resolution 08-1, attached, would approve the mortality table change for the Minneapolis Police Relief Association.

The requested mortality table change approval raises several pensions and related policy issues that may merit consideration and discussion by the Commission, as follows:

1. Sufficiency of the Evidence of a Need for a Mortality Table Change. The policy issue is the sufficiency of the evidence presented by the Minneapolis Police Relief Association and its actuarial consulting firm, Van Iwaarden Associates, that a need exists for a change of mortality tables for the Minneapolis Police Relief Association. The Minneapolis Police Relief Association has filed two mortality experience studies with the Commission, one done jointly with the Minneapolis Firefighters Relief Association based on four-year (1999-2002) data as of November 2003, and one for the Minneapolis Police Relief Association solely based on five-year (2002-2006) data as of July 2007. The reports make implicit and explicit arguments that the current mortality table is no longer appropriate for the Minneapolis Police Relief Association, arguing that:
  - a. The UP-1984 Table is Dated. The UP-1984 mortality table was completed in the early 1970s.

- b. The UP-1984 Table Over-Predicted Female Deaths. The two experience studies found that the actual deaths of female Minneapolis Police Relief Association members were less than 100 percent of those expected, with the actual-to-expected number at 92 percent in the 2003 study and at 87 percent in the 2007 study.
- c. The UP-1984 Table Greatly Over-Predicted Male Deaths. The two experience studies found that the actual deaths of male Minneapolis Police Relief Association members were less than 100 percent of those expected, with the actual-to-expected number at 83 percent in the 2003 study and at 63 percent in the 2007 study.

The suggestion that the UP-1984 mortality table is dated and hence obsolete is not completely accurate, since the 1983 GAM mortality table is also based on group annuitant experience from 1964-1968 and is projected to 1983, while the UP-1984 mortality table uses data of a similar vintage, projected to 1984. If more recent tables were the true criterion, these are the 1994 Uninsured Pensioner Mortality Table (UP-1984) and the 1994 Group Annuity Mortality Table (1994 GAM). The actual deaths to expected death percentages, however, indicate that the Minneapolis Police Relief Association mortality experience is somewhat variable over a short period of time. The two experience studies suggest some disparity in female death expectations for the largest component groups and much greater disparities in male death expectations for the largest component groups.

- 2. Appropriate Fit of the Recommended Actuarial Assumption. The policy issue is whether or not the new mortality table recommended by the relief association and its consulting actuaries is a good fit for the recent mortality experience and for the likely future mortality experience. The two experience studies filed by the Minneapolis Police Relief Association with the Legislative Commission on Pensions and Retirement in 2003 and 2007 make the following arguments for the recommended mortality table as the appropriate mortality for the Minneapolis Firefighters Relief Association:
  - a. Recommended Table is Standard Table and is More Recent. The consulting actuaries indicate that the 1983 GAM mortality table is a standard mortality table and is more recent than the UP 1984 table currently used.
  - b. Recommended Table is the PERA-P&F Mortality Table. The consulting actuaries argue that the 1983 GAM mortality table is the mortality table utilized by the Public Employees Police and Fire Retirement Plan (PERA-P&F), although with one-year set backs for both females and males.
  - c. Recommended Table Produces a Desirable Prediction Margin. The consulting actuaries indicate that the recommended table produces a mortality margin (fewer expected deaths than actual deaths) that is appropriate and that the recommended table will give a greater allowance for mortality improvement, will have a longer shelf life consequently, and is desirable because of the small population covered by the retirement plan.

A national survey of defined benefit retirement plans does indicate that the 1983 GAM mortality table is widely used and is more common than the UP-1984 mortality table. The argument that the 1983 GAM mortality table is considerably less obsolete than the UP-1984 mortality table is probably overstated, since both tables use data from the same vintage and are not the most recent tables available. The contention that PERA-P&F uses the 1983 GAM mortality table is correct, but the Minneapolis Police Relief Association generally does not premise its practices on PERA-P&F features. The mortality table margin contention deserves more analysis. As the bounce in the actual versus expected results under the current mortality table between the 2003 study and the 2007 study indicates, a small population is subject to considerable variability in demographic occurrences over time. While the current mortality table does not appear to be the best fit for males for the periods covered, the recommended table is not necessarily a good predictor of future mortality because the Minneapolis Police Relief Association membership is not large enough in number to average out the results and replicate more general experience. Since the relief association is a closed group, with a small number of active members and an aging retired population, it also is not clear that "shelf life" considerations should be a major consideration.

- 3. Appropriateness of the Lack of Experience Study Results for Other Actuarial Assumptions. The policy issue is the appropriateness of handling this one actuarial assumption change request when the relief association has not also pursued a review of the other relevant actuarial assumptions. While not binding on the Legislative Commission on Pensions and Retirement or the Minneapolis Police Relief Association Board, Actuarial Standard of Practice 35, governing the selection of demographic and other non-economic assumptions for measuring pension obligations for pension actuaries, requires that

demographic assumptions be selected from the appropriate assumption universe and indicates that assumptions should be evaluated for reasonableness, must be individually reasonable, and, for mortality assumptions, should differentiate between different subgroups or factors where appropriate. Evaluating only one assumption when there are other important actuarial assumptions can leave the assumptions as a totality potentially unreasonable. While the Actuarial Standards of Practice potentially require less scrutiny and review when economic actuarial assumptions are specified in law or in some comparable fashion, the interest and salary actuarial assumptions in Minnesota Statutes, Sections 356.215, Subdivision 8, and 356.216, Paragraph (b) for the Minneapolis Firefighters Relief Association and the Minneapolis Police Relief Association are essentially unique to those plans, replicated only for the Minneapolis Employees Retirement Fund in 1993 and for the Bloomington Fire Department Relief Association in 2005. The statutory assumptions for the Minneapolis Police Relief Association were established separately for the plan when the 13<sup>th</sup> check post-retirement adjustment was enacted in 1989 (see Laws 1989, Chapter 319, Article 19). It may be better practice for the Commission to require the Minneapolis Police Relief Association to conduct a full experience study, including interest and salary increases, of the Minneapolis Police Relief Association and to consider any additional assumption changes for all three assumptions that may be appropriate.

4. Opposition to the Recommended Change by the City of Minneapolis. The policy issue is the appropriateness of Commission acting on an actuarial assumption change request from the Minneapolis Police Relief Association in light of likely opposition to the recommended change by the City of Minneapolis. In 2005, the City of Minneapolis opposed a similar mortality actuarial assumption change for the Minneapolis Firefighters Relief Association and can be expected to oppose this proposed change. Representatives of the City of Minneapolis should be accorded an opportunity to present to the Commission their views and concerns along with the representatives of the Minneapolis Police Relief Association and its consulting actuaries.

## Attachment A

### Background Information on the Minneapolis Police Relief Association

- a. Minneapolis Police Relief Association Establishment and Operation. The Minneapolis Police Relief Association was established as an organization in 1890, initially to provide relief to disabled police officers and to the families of deceased police officers. The relief association was incorporated under Minnesota law in 1905. Membership in the Minneapolis Police Relief Association was closed to newly employed police officers as of June 15, 1980, when pension coverage for new hires shifted to the statewide Public Employees Police and Fire Plan (PERA-P&F).

The Minneapolis Police Relief Association is managed by a governing board of nine members, of which seven are elected by the relief association membership and two are representatives of the City of Minneapolis. In addition to maintaining records and determining benefit amounts, the Minneapolis Police Relief Association governing board is the investment authority for the assets of the special (pension) funds of the relief association.

In calendar year 2005, the Minneapolis Police Relief Association received total contributions of \$31.6 million (79.2 percent from the city and 20.8 percent from the State), received net investment income of \$20.1 million, paid total retirement benefits of \$33.8 million, and paid administrative expenses of \$590,000 (for which the relief association provided no itemization in its annual financial report).

- b. Nature of the Benefit Plan; Benefit Coverage. The Minneapolis Police Relief Association provides from its special fund a salary-related service pension to police officers retiring at age 50 or older with at least five years of service, a disability benefit to temporarily or permanently disabled police officers, a survivor benefit to the surviving family of a deceased active, retired, or disabled police officer, and a return of contributions to the estate of deceased active, retired, or disabled police officers on whose behalf no survivor benefit is payable. Pensions and benefits are based on the salary of a top-grade police officer, irrespective of the actual rank of the police officer, and these pensions and benefits increase after retirement as the salary of a top-grade police officer increases (the "escalator" post-retirement adjustment mechanism) and also increase based on the investment performance of the special fund (the "thirteenth check" post retirement adjustment). Under Laws 1997, Chapter 233, Article 4, a joint-and-survivor optional annuity form can be elected in lieu of the automatic survivorship coverage otherwise provided by the fund.

Since 1992 (Laws 1992, Chapter 471, Article 1, Section 14), the contributions by any member (eight percent of the pay of a top-grade police officer) who has 25 or more years of service are not deposited in the special fund; but rather, the contribution is deposited in a health insurance account set up for the member. After retirement, in addition to the pension benefit paid from the association's special fund, the retiree receives distributions from the health insurance account, which the retiree can use toward health care costs or other expenses of the retiree.

When a Minneapolis police officer retires and begins drawing a service pension from the association's special fund, those benefits are eligible for increases annually through three different post-retirement increase mechanisms. Individually and as a package, these adjustment provisions are poorly designed and can produce increases which bear no relationship to inflation, and can produce erratic changes in the benefits over time. The mechanisms are:

1. Active Salary-Related Escalator. The first post-retirement adjustment is a standard escalator tied to increases in the salary of a top-grade police officer. This escalator increases retirement benefits by the same percentage increase as the percentage increase in top-grade police officer pay negotiated between the city and the Minneapolis Police Federation.
2. Thirteenth Check Adjustment. A second increase provision is based on the investment performance of the special fund of the relief association, and is referred to as the thirteenth check post-retirement adjustment. The thirteenth check post-retirement adjustment was enacted in 1989.
3. Additional Post-Retirement Adjustment. A third post-retirement increase mechanism was added to law in 2000 (Laws 2000, Chapter 461, Article 17). If the funding ratio (percentage of plan pension liabilities covered by plan assets) of the relief association exceeds 110 percent, the association is authorized to distribute a portion of the funding in excess of 110 percent of its liabilities to its benefit recipients.

