State of Minnesota \ LEGISLATIVE COMMISSION ON PENSIONS AND RETIREMENT

TO: Members of the Legislative Commission on Pensions and Retirement

FROM: Ed Burek, Deputy Director

RE: Review of Prior Service Credit Purchase Provisions and Procedure for Estimating Full Actuarial Value: Second Consideration Memo

DATE: August 19, 2003

Introduction

For the Commission's second consideration of recently enacted full actuarial value prior service credit purchase provisions and review of the full actuarial value payment computation method, staff has prepared this memo for your review. The first part reviews the service credit purchase statement in the Commission's policy document, reviews the coded general law service credit purchase provisions enacted since 1998, and notes inconsistencies between the Commission's policy document and the applicable provisions of statute. These provisions were initially set for repeal a few years ago, but due to legislation supported by teacher unions and other groups, the sunset dates on these provisions have been extended to May or July of 2004. An issue for the 2004 Legislature is whether to permit these provisions to expire, to extend them again, or to make these provisions permanent. The second part of this memo reviews the full actuarial value estimation procedure used to compute the price that an individual must pay to receive service credit under these provisions. That revised method temporarily replaced the prior full actuarial value estimation method. That revised methodology is set to expire on July 1, 2004, at which time the previous full actuarial value method in statute would become effective.

Review of Service Credit Purchase Provisions

A. Statement of Commission Policy. Principle II.C.10 of the Commission's Principles of Pension Policy, last revised in 1996, covers purchases of service credit. It reads as follows:

> 10. Purchases of Prior Service Credit
>
> Purchases of public pension plan credit for periods of prior service should be permitted only if, on a case-by-case basis, it is determined that the period to be purchased is public employment or substantially akin to public employment, that the prior service period must have a significant connection to Minnesota, that the purchase payment from the member or from a combination of the member and the employer must equal the actuarial liability to be incurred by the pension plan for the benefit associated with the purchase, appropriately calculated, without the provision of a subsidy from the pension plan, and that the purchase must not violate notions of equity.

This principle has the following elements:

? Individual Review. The Commission considers each service credit purchase request separately, whether the request is proposed legislation for a single person or is proposed legislation relating to a group of similarly situated individuals.

? Public Employment. The period requested for purchase should be a period of public employment or service that is substantially akin to public employment.

? Minnesota Connection. The employment period to be purchased should have a significant Minnesota connection.

? Presumption of Active Member Status at the Time of Purchase. The principle states that contributions should be made by the member or in combination by the member and by the employer. It is presumed that the individual covered by the service purchase request is an active employee, because retirees generally are not considered to be "members" of a plan and these individuals no longer have a public employer.

? Presumption of Purchase in a Defined Benefit Plan. The prior service credit purchase contributions in total should match the associated actuarial liability. The specific procedures in Minnesota Statutes and law for computing service credit purchase amounts, Minnesota Statutes, Sections 356.55 and 356.551, presume that the purchase is in a defined benefit plan with a benefit based on the individual's high-five average salary.

? Full Actuarial Value Purchase. The pension fund should receive a payment from the employee, or from the employee and employer in combination, which equals the additional liability placed on the fund due to the purchase. This amount is referred to as the full actuarial value of the service credit purchase.

? No Violation of Equity Considerations. Purchases of service credit should not violate equity considerations. Equity is a resort to general principles of fairness and justice whenever the existing law is inadequate.

A general policy concern raised by the various general law full actuarial value service credit purchase provisions reviewed in this section is a lack of individual review. Other policy conflicts are noted after the summary of the provision.

B. 1999 Session Provisions

General Law Teacher Plan Service Credit Purchase Provisions

? Full Actuarial Value Military Service Credit Purchase. A vested TRA or first class city teacher plan member who performed service in the armed forces before becoming a Minnesota teacher plan member, or who did not make contributions to obtain service credit while on a teacher plan military leave of absence, is entitled to purchase service credit for the initial period of enlistment, induction, or call to active duty not including any voluntary extension. To receive the service credit, the member must pay the full actuarial value. The purchase is not permitted if the individual is eligible for a military pension or if the individual has service credit in another plan due to this military service. (Laws 1999, Chapter 222, Article 16, Sections 1 and 7. Coded as Minnesota Statutes, Section 354.533 for TRA and Section 354A.097 in first class city teacher plan statutes.)

Conflicts with Policy Statement: May lack any Minnesota connection. Raises several equity concerns, including failure by some to take advantage of a more generous treatment under military leave of absence provision, and lack of any requirement that the individual must honorably serve to be eligible. Other issue: The teacher plans have contended that the prohibition against purchases if the individual is entitled to a military pension may conflict with federal law.

? Out-of-State Teaching Service Credit Purchase. A vested member may purchase up to ten years of service credit in the applicable teacher plan for out-of-state teaching in an educational institution established and operated by another state, a governmental subdivision of another state, or the federal government, providing the individual is not eligible for service credit in another plan. To receive the service credit, the member must pay the full actuarial value. (Laws 1999, Chapter 222, Article 16, Sections 2 and 8. Coded for TRA as Minnesota Statutes, Section 354.534, and for the first class city teacher plans as Section 354.A.098.)

Conflicts with Policy Statement: Lacks any Minnesota connection; this provision provides service credit in Minnesota plan for service provided to residents of other states.

? Maternity Leave of Absence or Maternity Break in Service Purchase of Service Credit. A vested member may purchase up to five years of service credit in the applicable teacher plan for maternity leaves for which service credit was not received, or for a maternity break in teaching service, providing the individual is not eligible for service credit in another plan. To receive the service credit, the member must pay the full actuarial value. (Laws 1999, Chapter 222, Article 16, Sections 3 and 9. Coded for TRA as Minnesota Statutes, Section 354.535, and for the first class city teacher plans as Section 354A.099.)

Conflicts with Policy Statement. Provides service credit for period to time during which the individual was not providing service to a Minnesota employer.

? Parochial or Private School Teaching, Purchase of Service Credit. A vested member may purchase up to ten years of service credit in the applicable teacher plan for private or parochial school teaching service, providing the individual is not eligible for service credit in another plan. To receive the service credit, the member must pay the full actuarial value. (Laws 1999, Chapter 222, Article 16, Sections 4 and 10. Coded for TRA as Minnesota Statutes, Section 354.536, and for the first class city teacher plans as Section 354A.101.)

Conflicts with Policy Statement: May lack any Minnesota connection. Provides Minnesota public plan coverage for private sector or church-related employment. May offer coverage for periods where the individual willfully took employment lacking any retirement coverage.

? Peace Corps or VISTA (Volunteers in Service to America) Service Credit Purchase. A vested member may purchase up to ten years of service credit in the applicable teacher plan for Peace Corps or VISTA service providing the individual is not eligible for service credit in another plan. To receive the service credit, the member must pay the full actuarial value. (Laws 1999, Chapter 222, Article 16, Sections 5 and 11. Coded for TRA as Minnesota Statutes, Section 354.537, and for the first class city teacher plans as Section 354A.102.)

Conflicts with Policy Statement. May lack any Minnesota connection. Presumably offers coverage for periods where the individual willfully took employment lacking any retirement coverage.

? Charter School Teaching, Purchase of Service Credit. A vested member may purchase up to ten years of service credit in the applicable teacher plan for charter school teaching service providing the individual is not eligible for service credit in another plan. To receive the service credit, the member must pay the full actuarial value. (Laws 1999, Chapter 222, Article 16, Sections 6 and 12. Coded for TRA as Minnesota Statutes, Section 354.538, and for the first class city teacher plans as Section 354A.103.)

Conflicts with Policy Statement. May lack any Minnesota connection. May raise public/ private concerns in some circumstances. May offer coverage for periods where the individual willfully took employment lacking any retirement coverage.

The following provision applied only to first class city teacher plans:

? Previously Uncredited Part-Time Teacher Service, Purchase of Service Credit. A vested member with previously uncredited part-time teaching service may purchase service credit in the applicable first class city teacher plan for that teaching service providing the individual was not previously eligible for credit for that service. To receive the service credit, the member must pay the full actuarial value. (Laws 1999, Chapter 222, Article 16, Section 13. Coded as Minnesota Statutes, Section 354A.104.)

Conflicts with Policy Statement. May raise equity issue if these service was properly excluded from law at the time service was rendered.

C. 2000 Session Provisions

A full actuarial value military service credit purchase provision, similar to that passed in 1999 for TRA and first class city teacher plan members, was enacted for MSRS-General, MSRS-Correctional, the State Patrol Plan, PERA, and PERA-P&F.

? Military Service Credit Purchase. A vested member of MSRS-General, MSRS-Correctional, the State Patrol Plan, PERA, or PERA-P&F who performed service in the armed forces before becoming a member of the applicable plan or who failed to make contributions to obtain service credit while on a military leave of absence is entitled to purchase service credit for the initial period of enlistment, induction, or call to active duty not including any voluntary extension. To receive the service credit, the member must pay the full actuarial value. The purchase is not permitted if the individual is eligible for a military pension or if the individual has service credit in another plan due to this military service. (Laws 2000, Chapter 461, Article 4, Sections 1 to 4. Coded as Minnesota Statutes, Section 352.275 for MSRS-General and MSRS-Correctional, Section 352B.01, Subdivision 3a, for the State Patrol Plan, and Section 353.01, Subdivision 16a, for PERA and PERA-P&F.)

Conflicts with Policy Statement: May lack any Minnesota connection. Raises several equity concerns, including failure by some to take advantage of a more generous treatment under military leave of absence provision, and lack of any requirement that the individual service honorably to be eligible.

In 2000, the full actuarial value service credit purchase provisions in TRA and first class city teacher plan law permitting service credit purchases for private and parochial school teaching were revised to also include nonprofit community-based corporation teaching service:

? TRA Service Credit Purchase for Nonprofit Community-Based Corporation Service. The TRA and first class city teacher plan provisions authorizing service credit purchases at full actuarial value for private or parochial school teaching service are revised to also authorize purchases of nonprofit community-based corporation teaching service. (Laws 2000, Chapter 461, Article 11, Sections 3 and 5.)

Conflicts with Policy Statement: May lack any Minnesota connection. The full section as revised provides Minnesota public plan coverage for private sector or church-related employment, and raises the issue of whether nonprofit community-based corporation is sufficiently akin to public employment. May offer coverage for periods where the individual willfully took employment lacking any retirement coverage.

D. 2001 Session Provisions

In 2001, existing TRA and first class city teacher plan service credit purchase provisions were expanded as follows:

? Out-of-Country Teaching Service and Tribal Teaching Service Credit Purchase. The TRA and first class city teacher plan out-of-state teaching service credit purchase provisions were expanded to include teaching service provided in another country or teaching service where the employing unit is a federally recognized American Indian tribe. (Laws 2001, First Special Session, Chapter 10, Article 6, Sections 5 and 11.)

Conflicts with Policy Statement: Can lack any Minnesota connection. May offer coverage for periods where the individual willfully took employment lacking any retirement coverage.

? Developmental Achievement Center Service Credit Purchase. The TRA and first class city teacher plan service credit purchase provisions permitting service credit purchase for teaching in a nonprofit community-based corporation, private school, or parochial school, were expanded to include teaching at a developmental achievement center. (Laws 2001, First Special Session, Chapter 10, Article 6, Sections 6 and 12.)

Conflicts with Policy Statement: May lack any Minnesota connection. Raises issue of whether this is proper coverage to add to a public plan. May offer coverage for periods where the individual willfully took employment lacking any retirement coverage.

Also in 2001, the Legislature enacted a full actuarial value service credit purchase provision in TRA and first class city teacher plan law to enable members who taught at the University of Minnesota but who were not covered by a pension plan for that service to purchase service credit in TRA or the applicable first class city teacher plan. The TRA and first class city teacher plan provisions are:

? Purchase of Service Credit for Uncovered Prior Teaching at the University of Minnesota. TRA or first class city teacher plan members who are vested and who provided University of Minnesota teaching service but who are not entitled to a current or deferred age and service retirement annuity or disability benefit related to that service may purchase service credit in TRA or a first class city teacher plan, as applicable, at full actuarial value reflecting that university service, not to exceed ten years. (Laws 2001, First Special Session, Chapter 10, Article 6, Sections 8 and 14. The TRA provision is coded as Minnesota Statutes, Section 354.541, and the first class city teacher plan provision is coded as 354A.109.)

Conflicts with Policy Statement: May offer coverage for periods where the individual willfully took employment lacking any retirement coverage.

During the 2001 First Special Session, a full actuarial value parental/family leave provision was enacted. The provision applies to MSRS-General MSRS-Correctional, PERA-General, PERA-P&F, TRA, the first class city teacher plans, MERF, Minneapolis Firefighters Relief Association (MFRA) and Minneapolis Police Relief Association (MPRA).

? Parental/Family Leave or Break-in-Service Service Credit Purchase Provision. A member of an applicable plan, as described above, who had or has a family leave of absence, a parental leave, or a break in service from the same employer due to parental or family-related matters (due to birth of a child, adoption, or care of a near relative or in-laws), may purchase service credit for the period of the leave or break in service, not to exceed five years, by paying the full actuarial

value of the service credit purchase. (Laws 2001, First Special Session, Chapter 10, Article 6, Sections 1 to 4, 10, 12, 16 to 20. The provision is coded as Minnesota Statutes, Section 356.555.)

Conflicts with Policy Statement: Provides coverage for a break in service, rather than for some period of uncovered service provided to a Minnesota public employer.

Review of Service Credit Purchase Full Actuarial Value Estimation Methodology

In 1998, the Legislature passed a revised full actuarial value methodology that is coded as Minnesota Statutes Section 356.55. The methodology applies to all purchases of service credit in Minnesota public pension plans unless another approach was specified in the applicable special or general law. The provision temporarily replaced another method for computing full actuarial value service credit purchases, which is coded in statutes as Section 356.551. The new provision was requested by various pension funds, particularly the Teachers Retirement Association (TRA) and various other teacher funds, who contended that the prior approach produced price estimates that were too high, unjustly discouraging service credit purchases. Milliman USA, the actuary retained by the Legislative Commission on Pensions and Retirement (LCPR), played a key role in developing the revised methodology, but under contract with the pension fund administrations rather than at the direction of the Commission.

The revised full actuarial value methodology in Section 356.55 includes a requirement (Subdivision 7) that the Commission-retained actuary must include in a report to the Commission indicating the purchase payment made in each case and the resulting increase in the pension plan's liability due to the purchase as reflected in the next actuarial valuation. The actuary provides this information in a table in the Summary of Valuations, provided annually to the Commission. The applicable tables from the 2000, 2001, and 2002 actuarial valuation summaries are attached (Attachments A, B, and C). There will be no comparable table in 2003 and later actuarial valuation summaries. The Commission recently recommended that the table be eliminated as part of a package to cut costs, due to the condition of the current Commission budget.

The information in the attached tables permits the Commission to determine whether the revised full actuarial method is producing reasonably accurate results. If the Commission is satisfied with the results, it could recommend a repeal of the expiration date, making the provision permanent. If the Commission is not convinced that the Section 356.55 full actuarial value estimation approach is sufficiently accurate, the Commission could permit Section 356.55 to be repealed, which has the effect of reinstating the prior methodology for estimating full actuarial value. The Commission could also recommend some other alternative. When Section 356.55 was enacted in 1998 it included a July 1, 2001, expiration date. The expiration date was later extended, first to July 1, 2002, then to July 1, 2003, and during the 2003 Session was extended again to July 1, 2004.

The Commission may wish to conduct a thorough review of the procedure's results using the information in this memo. Before beginning that data review, let us first consider the concept of a full actuarial value service credit purchase. This provides some standards by which to evaluate the results of the purchase of service credit prices produced using Section 356.55.

A. The Concept of Full Actuarial Value

Under a full actuarial value service credit purchase, the price should be set to match the pension plan's additional liability created by the additional service credit the individual will receive. The intent is to avoid any windfall to any individual or plan. If the purchase price accurately reflects the full actuarial value of the service credit purchase, no liability in excess of the purchase price will be shifted to the plan (which would occur if the purchase price is too low), and no windfall should be created for the plan (which would occur if the purchase price is too high, exceeding the additional liability that is created). Any windfall to the individual would harm the plan. Any harm to the individual would create a windfall to the plan.

B. Full Actuarial Value Pricing in Practice

It is important to recognize that no full actuarial value estimation method, however refined, will be consistently accurate. Therefore, permitting full actuarial value purchases will always place risk on the pension fund. While the general concept of full actuarial value pricing is straightforward, it is difficult if not impossible to precisely estimate those prices. Any flaw or bias in the procedure used to compute the full actuarial prices will create error. While it may be possible to further refine a flawed procedure, another source of error will never be overcome:

? To produce a full actuarial value estimate that proves to be accurate over time, it would be necessary to know the future with certainty. Since no one has that knowledge, the calculations must be based on assumptions about the future, assumptions which inevitably will prove to be incorrect.

Computing a full actuarial service credit purchase price requires estimating what the full required reserves will be for an individual's pension at the time of retirement with and without the additional service credit. The present value of the difference, with some possible refinements, is the price of the service credit purchase. To produce an estimate which harms neither the individual nor the pension fund, the future events listed below must be known with certainty. Each is followed by the problems that will occur in practice.

(a) The Date the Individual Will Retire. If the individual decides to retire later or sooner than anticipated in the full actuarial value calculation, the purchase price will be incorrect, either higher or lower than the true amount. The error may not be significant if the individual at the time of purchase is very close to normal retirement age or unreduced retirement age, but the error could be considerable when the purchase is made by an individual in early or mid-career.

(b) The High-Five Average Salary That the Individual Will Have on the Retirement Date. The high-five average salary is a key determinant of the pension amounts. To predict the high-five average salary, it is necessary to precisely predict future salary increases between the purchase date and the retirement date. Considerable error could occur whenever the purchase is several years or decades before retirement. The first consideration memo noted that the salary increase assumption used in the calculation is five percent per year. This differs from the salary increase that is applicable in actuarial work for the plan providing coverage. The current law salary increase procedure for purposes of the actuarial report combines two assumptions, the select assumption and the ultimate assumption, which combined rarely total to five percent. Also, in the years following the purchase of service credit, the Commission and the Legislature may revise salary assumptions in law. The need to revise these assumptions may further undermine the credibility of the five percent salary assumption that was used in the purchase price calculation. In any event, what will ultimately matter is the actual salary increases of the specific individual. Those increases may bear little resemblance to any assumption made for plan members in general.

(c) The Value of the Benefit Package in Effect on the Termination Date. The value of the benefit package on the retirement date will influence the true cost of the service credit purchase. Whenever benefits are enhanced in a plan after the purchase is made, the purchase is subsidized if the benefit improvement will apply to the years that were purchased.

(d) Investment Returns from the Current Date (Purchase Date) to the Time of Retirement. Built into the service credit purchase price calculation is an assumption that the pension fund earns an 8.5 percent annual return from the purchase date until retirement. Future investment returns are unknown. If the pension fund earns more than 8.5 percent per year, the pension fund may receive a windfall from the purchase; if it earns less, the pension fund is subsidizing the purchase.

(e) The Date the Individual Will Die, and the Date That Any Joint-and-Survivor Annuitant That the Individual May Name Will Die. The dates of death would need to be known to ensure that no subsidy or windfall will occur. If the covered individual or individuals live longer than expected, the plan suffers a mortality loss and the purchase price is too low. If death occurs before predicted, the purchase price is too high.

While recognizing the inherent problems with any method to compute full actuarial values for service credit purchases, we must deal with the situation at hand. Service credit purchases are currently permitted under numerous full actuarial value service credit purchase provisions. The Commission needs to decide if it has sufficient faith in the procedure that is being used. To assist the Commission with this task, in the sections that follow we concentrate on what can be concluded from the current data found in the actuary's summary reports. The reports include tables indicating the purchase price paid by the individual (the full actuarial value service credit purchase price computed under Section 356.55) and the added liability as determined in the next actuarial valuation due to these purchases. This permits these two amounts to be compared.

These comparisons are the best indicators we have, admittedly fairly soon after the events occurred, to indicate whether the methodology in Section 356.55 is working with a level of accuracy acceptable to the Commission. If the results suggest reasonable consistency between the purchase price data and the actuarial valuation data, that might seem comforting, but the Commission might wish to recognize that both are efforts to predict future events. The estimates might be similar, but both could be poor predictors of future liabilities. If the data sets are not similar, that might add to concerns about continuing the current full actuarial value estimation method and the numerous general law purchase provisions that have been added to statute since 1998.

Overview of Data

Attachments A through C provide a detailed list of the purchases of service credit using the revised full actuarial value method found in Section 356.55 that occurred during fiscal years 2000, 2001, and 2002, respectively, for each of the following plans:

TRA	Teachers Retirement Association
DTRFA	Duluth Teachers Retirement Fund Association
MTRFA	Minneapolis Teachers Retirement Fund Association
SPTRFA	St. Paul Teachers Retirement Fund Association
MSRS	Minnesota State Retirement System
MSRS-Correctional	MSRS Correctional State Employees Retirement Plan
PERA	Public Employees Retirement Association
PERA-P&F	Public Employees Police and Fire Retirement Plan
MERF	Minneapolis Employees Retirement Fund

The information is grouped under two categories – "active member" and "retired member," although active members of the applicable funds made all the purchases. These terms refer to the status of the individual on the actuarial valuation date. The "active member" category includes all purchases during the year made by active members where the member remained active on the actuarial valuation date. The "retired member" category includes all purchases made during the year by an active member who had retired by the actuarial valuation date. The actuary's tables also include a "deferred member" group, applicable in cases were the individual was active when the service credit was purchased but was in deferred status by the actuarial valuation date. There were few of these cases, and some plans had no individuals in that category during the three years under study. The "deferred member" category is not included in this analysis.

An example of results for a service credit purchase follow. The example is a PERA active member service credit purchase made during the period ending June 30, 2000. (This is the first purchase listed in Attachment A):

	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
Active Member #1	3.417	$19,582	$0	$26,747	($7,165)

In the above example, the individual purchased 3.417 years of service. Like most of the service credit purchases, the individual did not purchase service credit in even full year increments. The purchase payment amount determined under Section 356.55 was $19,582, which is the amount the individual paid for the service credit as shown in the "employee payment" column (there was no employer payment). The next column indicates the change in accrued liability recognized in the pension fund due to that purchase. To compute that figure, the actuary determined the liability recognized in the plan on the actuarial valuation date for that individual including the service credit just purchased. The actuary also computed the liability that would have been recognized in the actuarial valuation related to that individual if the purchase of service credit had not occurred. The difference between these two amounts is the change in plan liability due to the service credit purchase as recognized in the subsequent actuarial valuation. This amount appears in the "change in liability" column. It would be reassuring if the change in accrued liability equaled the service credit purchase amount determined under Section 356.55. In this case, the change in liability was $26,747, but the purchase of service price was $19,582, resulting in a loss to the plan (indicated in the gain/loss column) of $7,165. If the reader scans Attachments A through C and reviews the gain/loss column, it is apparent that results derived through the actuarial report approach do not track at all well the service credit purchase prices computed under Section 356.55. The indicated gain/loss is almost never zero, and the deviation, whether positive or negative, is often large.

Attachments A to C provide a considerable amount of data. Table 1 summarizes the information from the attachments for each pension plan in which full actuarial value service credit purchases occurred.

Table 1

Summary of Service Credit Purchase Data

	TRA								DTRFA							
	2000		2001		2002		Total		2000		2001		2002		Total	
Active																
Total	143		166		303		612		3		2		7		12	
w/Gain	124	87%	126	76%	253	83%	503	82%	1	33%	1	50%	5	71%	7	58%
w/Loss	19	13%	40	24%	50	17%	109	18%	2	67%	1	50%	2	29%	5	42%
Avg. Payment	$17,062		$19,079		$23,461		$20,777		$9,238		$30,719		$26,186		$22,704	
Avg. Liability Change	$12,713		$15,399		$18,890		$16,500		$9,001		$36,677		$22,217		$21,323	
Avg. Gain/Loss	$4,349		$3,680		$4,571		$4,277		$237		($5,958)		$3,969		$1,381	
Retired																
Total	41		34		28		103		4		1		1		6	
w/Gain	16	39%	14	41%	9	32%	39	38%	1	25%	0	0%	1	100%	2	33%
w/Loss	25	61%	20	59%	19	68%	64	62%	3	75%	1	100%	0	0%	4	67%
Avg. Payment	$13,199		$16,928		$18,756		$15,941		$19,550		$37,694		$60,004		$29,316	
Avg. Liability Change	$31,903		$17,234		$22,628		$24,540		$26,187		$66,017		$58,154		$38,153	
Avg. Gain/Loss	($16,698)		($306)		($3,872)		($7,800)		($6,637)		($28,323)		$1,850		($8,837)	

	MTRFA								SPTRFA							
	2000		2001		2002		Total		2000		2001		2002		Total	
Active																
Total	4		1		37		42		20		7		30		57	
w/Gain	2	50%	1	100%	28	76%	31	74%	19	95%	3	43%	12	40%	34	60%
w/Loss	2	50%	0	0%	9	24%	11	26%	1	5%	4	57%	18	60%	23	40%
Avg. Payment	$30,917		$45,815		$30,734		$31,111		$24,842		$5,544		$20,190		$20,024	
Avg. Liability Change	$25,256		$29,462		$25,814		$25,848		$17,186		$7,070		$22,429		$18,703	
Avg. Gain/Loss	$5,661		$16,353		$4,920		$5,263		$7,656		($1,526)		($2,239)		$1,320	
Retired																
Total	2		0		1		3		5		1		4		10	
w/Gain	1	50%	0		0	0%	1	33%	2	40%	0		0	0%	2	20%
w/Loss	1	50%	0		1	100%	2	67%	3	60%	1		4	100%	8	80%
Avg. Payment	$52,998				$10,030		$38,675		$18,720		$22,197		$19,625		$19,430	
Avg. Liability Change	$78,989				$18,615		$58,864		$23,335		$63,402		$53,584		$39,441	
Avg. Gain/Loss	($25,991)				($8,585)		($20,189)		($4,615)		($41,205)		($33,960)		($20,012)	

	MSRS								MSRS-Correctional							
	2000		2001		2002		Total		2000		2001		2002		Total	
Active																
Total	2		8		11		21		0		1		1		2	
w/Gain	1	50%	5	63%	7	64%	13	62%	0		1	100%	1	100%	2	100%
w/Loss	1	50%	3	38%	4	36%	8	38%	0		0	0%	0	0%	0	0%
Avg. Payment	$17,489		$15,947		$21,878		$19,201				$14,113		$15,286		$14,700	
Avg. Liability Change	$13,126		$13,536		$18,897		$16,305				$11,471		$10,629		$11,050	
Avg. Gain/Loss	$4,363		$2,411		$2,981		$2,895				$2,642		$4,657		$3,650	
Retired																
Total	0		3		0		3		0		1		0		1	
w/Gain	0		0	0%	0		0	0%	0		1	100%	0		1	100%
w/Loss	0		3	100%	0		3	100%	0		0	0%	0		0	0%
Avg. Payment			$46,364				$46,364				$12,208				$12,208	
Avg. Liability Change			$90,313				$90,313				$11,402				$11,402	
Avg. Gain/Loss			($43,949)				($43,949)				$806				$806	

	PERA								PERA-P&F							
	2000		2001		2002		Total		2000		2001		2002		Total	
Active																
Total	4		18		27		49		0		3		12		15	
w/Gain	1	25%	8	44%	19	70%	28	57%	0		3	100%	7	58%	10	67%
w/Loss	3	75%	10	56%	8	30%	21	43%	0		0	0%	5	42%	5	33%
Avg. Payment	$18,418		$15,769		$23,909		$20,471				$34,721		$48,880		$46,048	
Avg. Liability Change	$20,879		$16,004		$21,673		$19,526				$28,586		$46,524		$42,937	
Avg. Gain/Loss	($2,461)		($235)		$2,236		$945				$6,135		$2,356		$3,112	
Retired																
Total	1		4		2		7		0		1		0		1	
w/Gain	0	0%	2	50%	0	0%	2	29%	0		0	0%	0		0	0%
w/Loss	1	100%	2	50%	2	100%	5	71%	0		1	100%	0		1	100%
Avg. Payment	$4,918		$25,846		$8,538		$17,911				$18,656				$18,656	
Avg. Liability Change	$20,962		$30,492		$10,304		$23,362				$49,910				$49,910	
Avg. Gain/Loss	($16,044)		($4,646)		($1,767)		($5,452)				($31,254)				($31,254)	

	MERF					
	2000	2001	2002		Total	
Active						
Total	0	0	1		1	
w/Gain	0	0	1	100%	1	100%
w/Loss	0	0	0	0%	0	0%
Avg. Payment			$67,184		$67,184	
Avg. Liability Change			$27,327		$27,327	
Avg. Gain/Loss			$39,857		$39,857	
Retired						
Total	0	0	0		0	
w/Gain	0	0	0		0	
w/Loss	0	0	0		0	
Avg. Payment						
Avg. Liability Change						
Avg. Gain/Loss						

Number of Purchases (Table 1)

TRA has far more service credit purchases than any other plan. In fact, TRA members made more than three times the number of service credit purchases than occurred in all of the other plans combined. For the three-year period, there were 612 TRA service credit purchases by individuals who remained active at the next actuarial valuation date, and 103 purchases by individuals who retired by the next actuarial valuation date, for a total of 725 purchases. The total number of purchases in all other plans combined was 230.

Pattern of Gains and Losses (Table 1)

In no case did the service credit purchase amount exactly match the additional liability due to the purchase noted in the next actuarial report, and the amounts are rarely even close. The pattern we observe is that most active purchases (purchases by individuals who remained active members at the next actuarial valuation) resulted in a gain to the plan (the added liability due to the purchase as recognized in the next actuarial valuation was less than the purchase price). The opposite result is seen for those individuals who purchase service credit and then retired by the next actuarial valuation (the "retired purchases"). When the purchase price is compared to the change in liability reflected in the next actuarial valuation due to the purchase, most retired purchases resulted in losses to the fund.

For the three-year period as a whole, this pattern of active purchase gains and retired purchase losses held for all funds. For TRA, for the period as a whole, 82 percent of the active purchases resulted in a gain to the fund compared to the additional liability due to the purchase recognized in the next actuarial valuation, while for the retired purchases most cases (62 percent) resulted in a loss to the fund. The typical active purchase caused a gain of $4,277 for the fund, while the typical retired purchase resulted in a $7,800 loss. For DTRFA, 58 percent of the active purchase were gains, while 67 percent of the retired purchases recorded losses. In the MTRFA, 74 percent of active purchases were gains for the fund, while 67 percent (two out of three) retired purchases were losses, creating an average loss for the retired group in that fund of $20,189 per case. For the SPTRFA, 60 percent of the active purchases were gains, while 80 percent of the retired purchases were losses, creating an average loss per retired purchase of $20,012. For MSRS, 62 percent of the active purchases were gains, and all retired purchases (there were only three) were losses. In that plan, the average loss per retiree purchase was $43,949. In MSRS-Correctional, where very few purchases occurred, both active purchases were gains and the one retired purchase was a loss. In PERA-General, 57 percent of active purchases were gains and 71 percent of retire purchases were losses, with an average loss per retiree purchase of $5,452. In PERA-P&F, 67 percent of the active purchases were gains and the one retired purchase was a $31,254 loss. In MERF, one active purchase occurred, which was recorded as a sizable gain to the fund ($39,857) and no retired purchases occurred.

Viewing each year separately rather than as a three-year total, there were a few cases where the "active gain/retired loss" pattern did not hold, but that is, in part, a consequence of a small sample size. A few purchases could significantly shift the averages. In PERA, there were more active losses than gains in 2000 and 2001, but most purchases occurred in 2002 and a strong percentage of the 2002 active purchases were gains (70 percent). In DTRFA, two-thirds of the active purchases during 2000 were losses, but there were only 3 active purchases in total. In SPTRFA, most active purchases in 2001 and 2002 were recorded as fund losses, but in 2000, 95 percent (19 out of 20) of purchases were gains, resulting in more active gains than losses for the three-year period as a whole.

Size of Reported Gains (Table 2)

In Table 2, TRA active and retired purchase gains are examined in more detail (Table 3 will examine TRA losses in detail). While this information covers only TRA, based on our review of Attachments A

through C, it appears that the results for TRA are generally indicative of the results for other funds. Also, in examining TRA we are examining the vast majority of all the service credit purchases that have occurred. In some of the other funds the sample size is too small to support any general conclusions.

Table 2

Examination of TRA Gains

	TRA: Examination of Fund Gains								TRA: Examination of Fund Gains - Full Year Purchase Only							
	2000		2001		2002		Total		2000		2001		2002		Total	
Active																
Total # of Purchases	143		166		303		612		39		34		103		176	
With Gain	124	87%	126	76%	253	83%	503	82%	30	77%	20	59%	84	82%	134	76%
Average Gain	$5,465		$6,199		$6,498		$6,169		$6,214		$8,903		$8,250		$7,892	
Gain $40,000 or more	3	2%	3	2%	3	1%	9	2%	1	3%	1	5%	2	2%	4	3%
Gain $20,000-$39,999	4	3%	3	2%	10	4%	17	3%	1	3%	0	0%	3	4%	4	3%
Gain $10,000-$19,999	10	8%	12	10%	31	12%	53	11%	2	7%	3	15%	16	19%	21	16%
Gain $5,000-$9,999	21	17%	24	19%	74	29%	119	24%	9	30%	5	25%	32	38%	46	34%
Gain $1,000-$4,999	59	48%	68	54%	106	42%	233	46%	10	33%	9	45%	21	25%	40	30%
Gain $1-$999	27	22%	16	13%	29	11%	72	14%	7	23%	2	10%	10	12%	19	14%
Retired																
Total # of Purchases	41		34		28		103		4		5		6		15	
With Gain	16	39%	14	41%	9	32%	39	38%	2	50%	3	60%	2	33%	7	47%
Average Gain	$8,671		$43,094		$47,202		$29,920		$11,650		$44,988		$8,250		$30,895	
Gain $40,000 or more	0	0%	4	29%	3	33%	7	18%	0	0%	1	33%	1	50%	2	29%
Gain $20,000-$39,999	2	13%	2	14%	1	11%	5	13%	0	0%	1	33%	0	0%	1	14%
Gain $10,000-$19,999	5	31%	3	21%	1	11%	9	23%	1	50%	1	33%	0	0%	2	29%
Gain $5,000-$9,999	3	19%	0	0%	0	0%	3	8%	1	50%	0	0%	0	0%	1	14%
Gain $1,000-$4,999	5	31%	3	21%	3	33%	11	28%	0	0%	0	0%	1	50%	1	14%
Gain $1-$999	1	6%	2	14%	1	11%	4	10%	0	0%	0	0%	0	0%	0	0%

The first four columns of data in Table 2 provide information on all gains by year and for the three years combined. There were 612 TRA active purchases in total, and 503 of those (82 percent) were noted as creating gains to the fund. If most of those gains were small, suggesting a close tracking between the purchase price and the liability that results from the purchase as indicated in the next actuarial valuation, it would seem to provide some assurance that the members purchasing the service credit are not being harmed. The table indicates that only 14 percent of the active purchases that were gains had purchase prices within $1,000 of the change in liability indicated in the next actuarial valuation due to that purchase. In 46 percent of the cases, the difference between the purchase price and the added liability recognized due to that purchase was between $1,000 and $5,000. In 24 percent of the cases, the difference was between $5,000 and $10,000. Eleven percent of the cases had differences between $10,000 and $20,000. In three percent of the cases, the difference was between $20,000 and $40,000. In two percent of the cases, the difference was more than $40,000.

Although losses occurred far more frequently than gains for the retired group, there were 39 cases where gains occurred over the three-year period. For some unknown reason, a smaller percentage of these retiree gains were comparatively small, under $5,000. For the active group for the three years as a whole, 60 percent of the gains were $5,000 or less (this results from combining the first two active groups noted above, the 14 percent of the cases with gain under $1,000 and the 46 percent of cases where the gain was $1,000 to $5,000). For the retired group, only 38 percent of the gains were less than $5,000. When recorded gains occurred they tended to be large. Twenty–three percent were between $10,000 and $20,000, 13 percent were between $20,000 and $40,000, and 18 percent were $40,000 or more.

The system Milliman USA uses to compute the actuarial valuations deals in full-year increments only. The actuary has raised concern that estimates of gains or losses may be distorted (overstated) whenever individuals purchase service credit that is not in full-year increments. In examining the detailed data in Attachments A through C, it is evident that most purchases are not for exact full years. Therefore, the last four columns of Table 2 examine TRA cases representing only full-year purchases.

When we examine the gain situations, we find that using the full-year-only purchase data tends to increase variability rather than reducing it. Using full-year-only data, the sample size decreases considerably, from 612 active purchases to 176, and from 103 retired purchases to 15. For the active group, 14 percent of full-year-only purchases resulted in gains less than $1,000, the same percentage as occurred when all records were used, and 30 percent created recorded gains of $1,000 to $5,000, compared to 46 percent of total purchases. The percent of the gains in the $5,000 to $10,000 range actually increases to 34 percent for full-year-only purchases from 24 percent previously, and there continues to be a large percentage of even higher value gains, including six percent (six cases) in excess of $20,000.

For the retired group the full-year-only sample size is very small; only15 purchases occurred and only seven of these were gains. There is a high percentage increase in high value gains in the $10,000 to $20,000 range, the $20,000 to $40,000 range, and above, although those percentages are based on very few cases.

Size of Reported Losses (Table 3)

Table 3 provides the same type of comparisons as Table 2, except that it deals with cases where losses occurred. For the active group using all data, most losses were clustered in the lower value ranges. Most of the losses were less than $10,000, and 61 percent of the losses were in the $1,000 to $5,000 range. For the full-year-only data, we again see a very high percentage of losses (69 percent) clustered at the $1,000 to $5,000 range.

In contrast, retired group losses are clustered in the highest value ranges. When all data are used, only 13 percent of the losses were less than $10,000, while 87 percent were losses of $10,000 or greater. For the full-year purchase data, all losses are at least $5,000 or more. The highest percentage of losses (38 percent) occurs in the $20,000 to $40,000 range, but the sample size is very small.

Table 3

Examination of TRA Losses

	TRA: Examination of Fund Losses								TRA: Examination of Fund Losses - Full Year Purchase Only							
	2000		2001		2002		Total		2000		2001		2002		Total	
Active																
Total # of Purchases	143		166		303		612		39		34		103		176	
w/Loss	19	13%	40	24%	50	17%	109	18%	9	23%	14	41%	19	18%	42	24%
Average Loss	($2,933)		($4,255)		($5,182)		($4,450)		($3,542)		($3,286)		($3,891)		($3,615)	
Loss $40,000 or more	0	0%	0	0%	1	2%	1	1%	0	0%	0	0%	0	0%	0	0%
Loss $20,000-$39,999	0	0%	0	0%	1	2%	1	1%	0	0%	0	0%	0	0%	0	0%
Loss $10,000-$19,999	1	5%	3	8%	5	10%	9	8%	1	11%	0	0%	2	11%	3	7%
Loss $5,000-$9,999	0	0%	8	20%	7	14%	15	14%	0	0%	2	14%	2	11%	4	10%
Loss $1,000-$4,999	15	79%	24	60%	27	54%	66	61%	6	67%	11	79%	12	63%	29	69%
Loss $1-$999	3	16%	5	13%	9	18%	17	16%	2	22%	1	7%	3	16%	6	14%
Retired																
Total # of Purchases	41		34		28		103		4		5		6		15	
w/Loss	25	61%	20	59%	19	68%	64	62%	2	50%	2	40%	4	67%	8	53%
Average Loss	($32,934)		($30,686)		($28,064)		($30,786)		($28,025)		($17,477)				($22,347)	
Loss $40,000 or more	9	36%	5	25%	3	16%	17	27%	1	50%	0	0%	0	0%	1	13%
Loss $20,000-$39,999	11	44%	10	50%	10	53%	31	48%	0	0%	1	50%	2	50%	3	38%
Loss $10,000-$19,999	2	8%	2	10%	4	21%	8	13%	0	0%	0	0%	2	50%	2	25%
Loss $5,000-$9,999	2	8%	3	15%	1	5%	6	9%	1	50%	1	50%	0	0%	2	25%
Loss $1,000-$4,999	0	0%	0	0%	1	5%	1	2%	0	0%	0	0%	0	0%	0	0%
Loss $1-$999	1	4%	0	0%	0	0%	1	2%	0	0%	0	0%	0	0%	0	0%

Unusual Result: Cases where Recorded Fund Liability Decreased Following the Service Credit Purchase

An unexpected result occurs occasionally in the service credit purchases presented in Attachments A through C. All of the plans included in these tables are defined benefit plans, where the benefit is determined by the individual's total service credit, the fund accrual rate or rates, and the high-five average salary at the time of retirement. The more service credit an individual has the higher the individual's benefit will be. Thus, a service credit purchase should increase the plan's liability and the purpose of the full actuarial value service credit purchase price is to cover that added liability. However, in 16 cases the recorded liability reflected in the actuarial report was *lower* with the service credit purchase than it would have been without it. All of the cases were from TRA and are noted in Table 4, which follows. The table indicates for each case the fund, the year in which the result occurred, the amount of service credit the individual purchased, the status (active or retired) on the actuarial valuation date, and the amount of the liability decrease. Most cases involved fractional years of service credit, but not all. Most involved a person who purchased service credit very soon before retiring, but a few involved individuals who remained active on the next actuarial valuation date. The liability decreases were modest in the three cases where the status is active, but those for retirees tended to be large. In three cases, those decreases were in excess of $100,000.

Table 4

Cases Where Liability Decreases
as a Result of the Service Credit Purchase

Fund	Year	Service Credit Purchased	Status	Liability Decrease
TRA	2000	0.14	Active	$60
TRA	2000	0.42	Retired	$3,982
TRA	2000	0.30	Retired	$5,395
TRA	2000	0.01	Retired	$4,497
TRA	2000	0.16	Retired	$8,251
TRA	2001	0.56	Active	$31
TRA	2001	0.14	Active	$185
TRA	2001	2.90	Retired	$62,745
TRA	2001	0.32	Retired	$33,653
TRA	2001	0.05	Retired	$172,181
TRA	2001	1.00	Retired	$76,676
TRA	2001	0.46	Retired	$120,229
TRA	2002	1.00	Retired	$40,249
TRA	2002	0.91	Retired	$81,753
TRA	2002	0.19	Retired	$36,680
TRA	2002	1.95	Retired	$166,628

Commission staff has no independent explanation for these entries. In discussing these cases with Mr. Thomas K. Custis, the actuary retained by the Commission, Mr. Custis suggested that, at least in the retired cases, the results stem from individuals who purchased service credit but then retired just before they would have been eligible for the Rule of 90. Questions about how that situation would cause the recorded liability decrease, whether that explanation can cover all of the retiree cases in Table 4, and why there is a liability decrease in a few active member cases, may best be addressed by the actuary.

Interpretation of Results

Little consistency is observed between the full actuarial value payments computed under Section 356.55 and the results reflected in the actuarial valuation – the difference between the liability in the valuation for the individual with and without the service credit purchase. This may be due to flaws in the full actuarial value methodology or due to inconsistencies between the two approaches. It is difficult to determine the relative impact of these two factors. Earlier we commented on inconsistent salary increase assumptions and, for some funds, inconsistent investment return assumptions. But there are other sources of difference.

The nature of the calculations differs. The full actuarial value methodology recognizes that we are dealing with a self-selected group. While for the plan's covered membership as a whole, turnover assumptions (probabilities of terminating employment at each given age) are relevant, individuals who purchase service credit are expecting to remain with the fund for the long term and to draw an annuity upon retirement. Therefore, the full actuarial value calculation does not discount computed amounts by probabilities of turnover, and the procedure further specifies that no mortality decrements will be used (Section 356.55, Subdivision 2, paragraph (b), clause (6)). Computed amounts are discounted only by the assumed long-term investment rate of return, 8.5 percent annually, to obtain a present value. The actuarial valuation, in contrast, is based on the hypothetical average employee, with various probabilities of withdrawing from service at each age, and probabilities of death. The actuarial valuation liabilities with and without the service credit purchase presumably would be discounted by expected turnover, by mortality, and by the expected rate of return. The difference between the two calculations derived from the actuarial valuation (the computed present value of the liability with the service credit purchase, and the expected present value of the liability without that purchase, both heavily discounted) might tend to be less than the amount computed under the full actuarial value methodology.

If the results seen in the tables were largely due to the turnover and mortality decrement assumptions reflected in the actuarial value methodology but not in the full actuarial value methodology, then one would expect a greater difference the longer the period of years in which those decrement assumptions were used in a calculation. In other words, the younger the age of the purchasing employee (the longer the period prior to retirement), the more likely it is that the full actuarial purchase price would exceed the change in liability reflected in the actuarial valuation approach, resulting in a computed gain. Unfortunately, information in the actuary's tables does not include information on age or length of service at the purchase date. What we do have is information based on the status of the individual on the actuarial valuation date. The active group members remained as active employees on the actuarial valuation date.

The retired group members were retired on that date, indicating that they retired within a year of purchasing the service credit.

If this decrement issue is impacting results, we would expect to see gains for the active group, and in earlier tables we did note a tendency for active purchases to produce reported gains. However, if the decrement argument is valid, it is far from a complete explanation of the results. Flaws in the full actuarial value methodology and various other factors, whatever they may be, are also important. While gains were more likely on active member purchases, there are many individual cases where that did not occur, and for some funds in some years the active member purchases as a group produced a net loss rather than a net gain. Earlier in this memo we noted years where this occurred in DTRFA, PERA, and SPTRFA.

The retired member results are troubling. Differences between the actuarial valuation derived results and the full actuarial value purchase method, assuming decrements are an issue, should be disappearing near retirement, as probabilities of turnover approach zero and mortality, even near retirement, remains a negligible factor. One would expect similar results without any bias (neither a tendency to produce gains nor a tendency to produce losses). One would also expect less dispersion (smaller gains or losses when they do occur) than occurred in the active member results. That is, however, not what is observed. We find that when purchases occur within a year of retiring, the full actuarial value method tends to produce a loss compared to the results derived from the actuarial valuation. This raises a concern that the full actuarial value method in use is producing a purchase price that is too low. While that is the tendency noted in prior tables, there are also numerous cases of gains. The dispersion is unexpected and troubling. Gains and losses when they occur tend to be far larger than the typical active member gain or loss. For TRA retired cases, which were examined in detail in Table 3, 62 percent of retired group purchases for the three-year period as a whole resulted in losses. The average loss per case where losses occurred was $30,786. Of those losses, only 13 percent were less than $10,000. Forty-eight percent of those losses were in the $20,000 to $40,000 range, and 27 percent of the losses were greater than $40,000. Examining full-year purchases only did not significantly change any general tendencies, although sample size is quite small. For the three-year period, 53 percent of those purchases (eight cases) were losses, and none of those losses were less than $5,000. Three losses were in the range of $20,000 to $40,000, and one was in excess of $40,000.

Observations

The material covered in this memo suggests observations in a number of areas:

A. Lack of Consistency Between Actuarial Valuation and Full Actuarial Value Method. The most obvious conclusion is that results derived from the actuarial valuation and the results derived from the full actuarial purchase price method do not agree.

   No cases were found where there was exact agreement. Differences tended to be large rather than small. For all funds, active purchases tended to produce a gain and retired purchases tend to produce a loss. For TRA, which had three times more service credit purchases than the rest of the funds combined, Table 1 indicated that active purchases, on average, produced a gain of $4,277 per purchase while retired purchases produced a loss of $7,800 per purchase. Separate examination of the cases with gain and the cases with loss indicated wide dispersion. Viewing only cases where gains occurred, Table 2 indicated the average gain was $6,169 for active members. For retired purchases where gains occurred, the average gain was $29,920. Viewing only cases where losses occurred, Table 3 indicated an average loss for active members of $4,450. For retired purchases where losses occurred, the average loss was $30,786.

   The actuarial model used by the actuary, Milliman USA, has a shortcoming in that it can not handle fractional years of service credit, only full years. When we examined only full-year service credit purchases, we were hampered by sample size because most purchases are for fractional years, but the results do not significantly change except that in a few cases the dispersion appears to worsen rather than improve.

B. Implications about the Accuracy of the Purchase Price. This memo reviews data provided by the actuary in the annual Summary of Valuations for 2000, 2001, and 2002. This information was intended to permit the Commission to determine whether the revised full actuarial method in current use is producing reasonably accurate results. That approach (Section 356.55 of statute) is set to expire this year. While at least some of the biases that were observed may be explainable, the review raises several strong reservations and falls far short of demonstrating the accuracy of the approach.

   Given results presented here, the Commission may wish to consider whether it has sufficient confidence in the approach to continue its use. The Commission may also wish to consider whether

to continue the numerous general law service credit purchase provisions in TRA, first class city teacher plan law, and laws involving other plans. These provisions are also generally set to expire in 2004. Fund members considering a purchase of service credit may also wish to make a similar assessment. Perhaps this system is treating them with reasonable fairness, but the data suggest that they might be undercharged or overcharged by large amounts, and the outcome may not be predictable in all cases by the member purchasing the service.

The full actuarial value estimation method in current use was developed by Mr. Custis, the principle actuary under the Commission's contract with Milliman USA, but the procedure was developed by him while working at the direction of the teacher pension funds. There is value in having the Commission hear from Mr. Custis regarding this procedure, but two problems arise. The first is cost. Given the Commission budget situation, having Mr. Custis address the Commission at a meeting would require an expenditure from the Commission budget, a budget that is currently severely strained. The second concern is objectivity. Mr. Custis and Milliman USA developed the approach. They can not objectively assess the procedure's flaws.

To advise the Commission, the Commission may wish to retain an actuary or actuarial firm with no ties to the current procedure. This would eliminate or lessen the objectivity concern, but the other problem would remain – how to pay for the review given the condition of the Commission budget.

C. Implications for Employers and Employees Covered by the Fund. When service credit is purchased, the annuity the individual will receive at retirement is increased due to the additional amount of covered service. Assets in the fund must cover these additional liabilities. Hopefully, the necessary additional assets are provided through the service credit purchase price. This review, however, has raised reservations that that may not be happening, at least not with any consistency. The fund and its contributors may receive a windfall or may be harmed.

The actuary, in discussing the service credit purchase tables in the Summary of Valuations, has not directly addressed the issue of accuracy. Rather, the actuary has commented indirectly on this issue by focusing on the impact purchases had on the funding status of the plans as indicated in the actuarial valuations. The 2000 Summary of Valuations included a statement that service credit purchases reviewed in the 2000 actuarial valuations harmed the funding status of the plans because service credit purchases in total were less than the resulting liability recorded in the actuarial valuations for the plans. In the last two years the situation reversed, and the total amounts received through service credit purchases were greater than the added liability recognized in the actuarial valuations. Thus, in the last two years, these purchases moved the plans marginally ahead in their reported funding condition, given the methodology used in actuarial valuations.

While these funding ratio effects may be occurring, it was never the intention of the Legislature to influence plan funding ratios through service credit purchases. The intention was to charge each individual purchasing service credit the amount necessary to hold harmless the employers who contribute to the plan and all of the other plan members. The data raise a concern that any given individual is not being charged the necessary amount (windfalls to some purchasers and excessive payments by others may be occurring), and even on average the payments may not be correct, as suggested by the tendency to have reported gains on active member purchases but reported losses on purchases just prior to retirement. In any given year, depending upon the mix of active and retired purchases and many other factors not as evident, the employers and broad membership may be providing subsidies or may be receiving a windfall.

D. Public Pension Policy Issues Raised by the Review

1. Benefit for a Minority of Membership. A very small percentage of plan members purchase service credit, while the employers and the other members bear the risks. In TRA, which had by far the most service credit purchases, an average of 200 purchases occurred per year from 2000 through 2002. TRA has 71,700 active members. Thus, in any given year, considerably less than one percent of the active membership (0.27 percent of active members) purchased service credit. Those that did purchase service credit had the financial resources, often many tens of thousands of dollars, to make those purchases. Given the considerable amount of Commission time spent on full actuarial value issues and the harm that may be occurring to various groups, the Commission may wish to consider discouraging full actuarial value purchases. One reason is the minute fraction of plan members who utilize these provisions and the harm or windfall that may be occurring to those purchasers under existing methods. Another is the risk to the employers and other employees covered by the plan, employees who do not have the resources to consider a purchase of service credit. Allowing Section 356.55 to expire would discourage purchases.

The Commission may also wish to permit the numerous full actuarial value purchase provisions added to general law in the last few years to also expire.

2. Early Retirement Tool. Service credit purchases are being used by those nearing retirement to retire earlier than they otherwise would. The purchase permits the individual to qualify under the Rule-of-90 or other early retirement provision. Therefore, these service credit purchase provisions are an early retirement tool, but without any specific targeting to the employer's workforce needs. The Commission may wish to be concerned about permitting early retirement provisions to become permanent provisions of law. There are times when it may be appropriate to encourage early retirements and times when it may not. If these provisions are made permanent, the Legislature gives up some of its flexibility. The Commission may also wish to be concerned that when service credit is purchased just before retiring, a loss to the fund (a gain to the individual) is likely to occur. The best information available to the Commission indicates that the pension fund is harmed. The Commission may also be concerned that the group who are using the service credit purchase provisions are those with considerable financial resources to finance the service credit purchases; while those without the resources are effectively excluded from the purchase provisions.

3. Implications of Purchases by Younger Employees. Presumably, at least some of the individuals purchasing service credit under the various provisions enacted in TRA and first class city teacher law are relatively young and are not close to retirement. Despite some data in this report that suggests possible gains on those purchases, the Commission may choose to be concerned about eventual fund losses stemming from those purchases. The longer before retirement that a purchase of service credit occurs, the more error is likely to be involved in estimating the purchase price. The reason is that any estimate must be based on assumptions about salary increases and investment returns that will prove incorrect over time. The longer those must be projected, the more likely an error, possibly of substantial proportions, will occur. If salary increases are greater than the assumed five percent annual salary increase rate, the price is too low. If the pension fund can not earn an 8.5 percent return after it receives the purchase price, the price will be too low. The final reason is that the purchase price is estimated based on the plan at the time of the purchase. If benefit improvements occur after the purchase (and that is increasingly likely the longer before retirement a purchase occurs), the purchase price is too low and the individual receives a windfall, although it is impossible to detect that viewing data soon after the purchase occurs.

4. Conflict with Commission's Policy Statement. The policy statement indicates that the period being purchased should have a Minnesota connection, and should be a period of public employment or quasi-public employment. The Commission may wish to consider that in nearly all cases covered under the TRA and first class city teacher plan service credit purchase provisions, the service being purchased is for a period of time in which the individual was not providing service to a Minnesota public employer. The provisions cover breaks in service, or service provided to other states, to the national government, or to private employers. Given the current review and the discussion of risks, the Commission may wish to consider whether Minnesota public employers and other public employees should be burdened with the short-term and long-term risks related to these service credit purchase periods.

5. Benefit Windfall Problem. If the Commission and the Legislature continue to support the use of service credit purchases, they may wish to consider a requirement that the individual who purchased service credit must make an additional payment to cover at least the obvious sources of a windfall, like a benefit improvement that occurs after the initial purchase and prior to retirement.

Concluding Comments

The memo for the Commission's next and presumably final consideration of the full actuarial value service credit purchase provisions and methodology will summarize findings, review policy issues, and suggest courses of action for the Commission.

356.55 Prior service credit purchase payment amount determination procedure.

Subdivision 1. **Application**. (a) Unless the prior service credit purchase authorization special law or general statute provision explicitly specifies a different purchase payment amount determination procedure, this section governs the determination of the prior service credit purchase payment amount of any prior service credit purchase.

(b) The purchase payment amount determination procedure must recognize any service credit accrued to the purchaser in a pension plan enumerated in section 356.30, subdivision 3.

(c) Any service credit in a Minnesota defined benefit public employee pension plan available to be reinstated by the purchaser through the repayment of a refund of member or employee contributions previously received must be repaid in full before any purchase of prior service credit payment is made under this section.

Subd. 2. **Determination**. (a) Unless the prior service credit purchase minimum purchase payment amount determined under paragraph (d) is greater, the prior service credit purchase amount is the result obtained by subtracting the amount determined under paragraph (c) from the amount determined under paragraph (b).

(b) The present value of the unreduced single life retirement annuity, with the purchase of the additional service credit included, must be calculated as follows:

(1) the age at first eligibility for an unreduced single life retirement annuity, including the purchase of the additional service credit, must be determined;

(2) the length of total service credit, including the period of the purchase of the additional service credit, at the age determined under clause (1) must be determined;

(3) the highest five successive years average salary at the age determined under clause (1), assuming five percent annual compounding salary increases from the most current annual salary amount at the age determined under clause (1), must be determined;

(4) using the benefit accrual rate or rates applicable to the prospective purchaser of the service credit based on the prospective purchaser's actual date of entry into covered service, the length of service determined under clause (2), and the final average salary determined under clause (3), the annual unreduced single life retirement annuity amount must be determined;

(5) the actuarial present value of the projected annual unreduced single life retirement annuity amount determined under clause (4) at the age determined under clause (1), using the same actuarial factor that the plan would use to determine actuarial equivalence for optional annuity forms and related purposes, must be determined; and

(6) the discounted value of the amount determined under clause (5) to the date of the prospective purchase, using an interest rate of 8.5 percent and no mortality probability decrement, must be determined.

(c) The present value of the unreduced single life retirement annuity, without the purchase of the additional service credit included, must be calculated as follows:

(1) the age at first eligibility for an unreduced single life retirement annuity, not including the purchase of additional service credit, must be determined;

(2) the length of accrued service credit, without the period of the purchase of the additional service credit, at the age determined under clause (1), must be determined;

(3) the highest five successive years average salary at the age determined under clause (1), assuming five percent annual compounding salary increases from the most current annual salary amount to the age determined under clause (1), must be determined;

(4) using the benefit accrual rate or rates applicable to the prospective purchaser of the service credit based on the prospective purchaser's actual date of entry into covered service the length of service credit determined under clause (2), and the final average salary determined under clause (3), the annual unreduced single life retirement annuity amount must be determined;

(5) the actuarial present value of the projected annual unreduced single life retirement annuity amount determined under clause (4) at the age determined under clause (1), using the same actuarial factor that the plan would use to determine actuarial equivalence for optional annuity forms and related purposes, must be determined;

(6) the discounted value of the amount determined under clause (5) to the date of the prospective purchase, using an interest rate of 8.5 percent and no mortality probability decrement, must be determined; and

(7) the net value of the discounted value determined under clause (6), must be determined by applying a service ratio, where the numerator is the total length of credited service determined under paragraph (b), clause (2), reduced by the period of the additional service credit proposed to be purchased, and where the denominator is the total length of service credit determined under clause (2).

(d) The minimum prior service credit purchase payment amount is the amount determined by multiplying the most current annual salary of the prospective purchaser by the combined current employee, employer, and any additional employer contribution rates for the applicable pension plan and by multiplying that result by the number of years of service or fractions of years of service of the potential service credit purchase.

Subd. 3. **Source of determination**. The prior service credit purchase payment amounts under subdivision 2 must be calculated by the chief administrative officer of the public pension plan using a prior service credit purchase payment amount determination process that has been verified for accuracy and consistency under this section by the commission-retained actuary. That verification must be in writing and must occur before the first prior service credit purchase for the plan under this section is accepted and every five years thereafter or whenever the preretirement interest rate, postretirement interest rate, payroll growth, or mortality actuarial assumption for the applicable pension plan is modified under section 356.215, whichever occurs first.

Subd. 4. **Prior service credit purchase processing fee**. A public pension plan may establish a fee to be charged to the prospective purchaser for processing a prior service credit purchase application and the prior service credit purchase payment amount calculation. The fee must be established by the governing board of the pension plan and must be uniform for comparable service credit purchase situations or actuarial calculation requests. The prior service credit purchase processing fee structure must be published by the chief administrative officer of the applicable retirement plan in the State Register.

Subd. 5. **Payment responsibility; employer option**. Unless the prior service credit purchase authorization special law or general statute provision explicitly specifies otherwise, the prior service credit purchase payment amount determined under subdivision 2 is payable by the purchaser. However, the former employer of the purchaser or the current employer of the purchaser may, at its discretion, pay all or a portion of the purchase payment amount in excess of an amount equal to the employee contribution rate or rates in effect during the prior service period applied to the actual salary rates in effect during the prior service period, plus annual compound interest at the rate of 8.5 percent from the date on which the contributions would have been made if made contemporaneous with the service period to the date on which the payment is actually made.

Subd. 6. **Report on prior service credit purchases**. (a) As part of the regular data reporting provided to the consulting actuary retained by the legislative commission on pensions and retirement annually, the chief administrative officer of each public pension plan that has accepted a prior service credit purchase payment under this section shall report for any purchase, the purchaser, the purchaser's employer, the age of the purchaser, the period of the purchase, the purchaser's prepurchase accrued service credit, the purchaser's postpurchase accrued service credit, the purchaser's prior service credit payment, the prior service credit payment made by the purchaser's employer, and the amount of the additional benefit or annuity purchased.

(b) As a supplemental report to the regular annual actuarial valuation for the applicable public pension plan prepared by the consulting actuary retained by the legislative commission on pensions and retirement, the actuary shall provide a comparison for each purchase showing the total prior service credit payment received from all sources and the increased public pension plan actuarial accrued liability resulting from each purchase.

Subd. 7. **Expiration of purchase payment determination procedure**. (a) This section expires and is repealed on July 1, 2003.

(b) Authority for any public pension plan to accept a prior service credit payment that is calculated in a timely fashion under this section expires on October 1, 2003.

HIST: 1998 c 390 art 4 s 1; 1999 c 222 art 16 s 14,15; 1Sp2001 c 10 art 6 s 16; 2002 c 392 art 11 s 40

* NOTE: The amendment to subdivision 7 by Laws 2001, First Special Session
* chapter 10, article 6, section 16, expires May 16, 2003. Laws 2001, First
* Special Session chapter 10, article 6, section 21.

356.551 Post July 1, 2003, prior service credit purchase payment amount determination procedure.

Subdivision 1. **Application**. Unless the prior service credit purchase authorization special law or general statute provision explicitly specifies a different purchase payment amount determination procedure, and if section 356.55 has expired, this section governs the determination of the prior service credit purchase payment amount of any prior service credit purchase.

Subd. 2. **Determination**. The prior service credit purchase amount is an amount equal to the actuarial present value, on the date of payment, as calculated by the chief administrative officer of the pension plan and reviewed by the actuary retained by the legislative commission on pensions and retirement, of the amount of the additional retirement annuity obtained by the acquisition of the additional service credit in this section. Calculation of this amount must be made using the preretirement interest rate applicable to the public pension plan specified in section 356.215, subdivision 4d, and the mortality table adopted for the public pension plan. The calculation must assume continuous future service in the public pension plan until, and retirement at, the age at which the minimum requirements of the fund for normal retirement or retirement with an annuity unreduced for retirement at an early age, including section 356.30, are met with the additional service credit purchased. The calculation must also assume a full-time equivalent salary, or actual salary, whichever is greater, and a future salary history that includes annual salary increases at the applicable salary increase rate for the plan specified in section 356.215, subdivision 4d. Payment must be made in one lump sum within one year of the prior service credit authorization. Payment of the amount calculated under this section must be made by the applicable eligible person. However, the current employer or the prior employer may, at its discretion, pay all or any portion of the payment amount that exceeds an amount equal to the employee contribution rates in effect during the period or periods of prior service applied to the actual salary rates in effect during the period or periods of prior service, plus interest at the rate of 8.5 percent a year compounded annually from the date on which the contributions would otherwise have been made to the date on which the payment is made. If the employer agrees to payments under this subdivision, the purchaser must make the employee payments required under this subdivision within 290 days of the prior service credit authorization. If that employee payment is made, the employer payment under this subdivision must be remitted to the chief administrative officer of the public pension plan within 60 days of receipt by the chief administrative officer of the employee payments specified under this subdivision.

Subd. 3. **Documentation**. The prospective purchaser must provide any relevant documentation required by the chief administrative officer of the public pension plan to determine eligibility for the prior service credit under this section.

Subd. 4. **Payment precondition for credit grant**. Service credit for the purchase period must be granted by the public pension plan to the purchaser upon receipt of the purchase payment amount specified in subdivision 2.

HIST: 1998 c 390 art 4 s 2; 2002 c 392 art 11 s 41