State of Wisconsin \ LEGISLATIVE AUDIT BUREAU

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August 29, 2001

Senator Gary R. George and
Representative Joseph K. Leibham, Co-Chairpersons
Joint Legislative Audit Committee
State Capitol
Madison, Wisconsin 53702

Dear Senator George and Representative Leibham:

The Legislative Audit Bureau is required by statute to contract for the performance of an actuarial audit of the Wisconsin Retirement System (WRS) at least once every five years. An actuarial audit requires a high level of expertise in a technical area in which Audit Bureau staff do not have specialized technical skills.

After a formal request-for-proposal process, the Audit Bureau awarded a contract to an actuarial firm, Milliman USA, to perform the audit. Milliman USA has had experience performing audits and other actuarial services for other public retirement systems, including the first actuarial audit of the WRS in 1991. The scope of audit services provided in the contract primarily focused on an independent verification and analysis of actuarial assumptions and valuations of the WRS. In addition, the actuarial audit analyzed trends in contribution rates. An analysis of changes to the WRS based on 1999 Wisconsin Act 11 was not included within the scope of this audit.

Enclosed is the actuary's audit report, much of which is quite technical, and a response from the Department of Employee Trust Funds and its consulting actuary, Gabriel, Roeder, Smith and Company (GRS). The findings, conclusions, and recommendations in the report are those of Milliman USA. Although we managed the audit contract, no Audit Bureau staff were involved in the fieldwork, analysis, or writing of the audit report.

Milliman USA found the statutorily required actuarial method used to determine WRS liabilities and funding requirements to be reasonable and appropriate for the WRS. Further, Milliman USA concluded that actuarial functions for the WRS are being adequately performed by GRS and that the WRS actuarial assumptions are reasonable. However, Milliman USA does offer GRS suggested improvements to consider, ranging from more fully reflecting experience data in assumptions to providing additional information in its actuarial reports.

Milliman USA also offered observations on trends in contribution rates, noting that contribution rates in the protective categories have declined more steeply than in other employment categories.

An effect of declines in contribution rates has been to provide reduced values for separation, death, and money purchase retirement benefits for participants. Suggested alternatives for addressing these trends would require legislative action.

We would like to acknowledge the professional manner in which Milliman USA staff carried out the audit, as well as the cooperation provided by the staff of the Department of Employee Trust funds and GRS to Milliman USA.

Respectfully submitted,

Janice Mueller
State Auditor

JM/DA/bm

Enclosures

cc:	Senator Judith Robson	Representative Samantha Starzyk
	Senator Brian Burke	Representative John Gard
	Senator Joanne Huelsman	Representative David Cullen
	Senator Mary Lazich	Representative Barbara Gronemus
	Senator Robert Wirch	Representative Daniel Vrakas

Eric Stanchfield, Secretary
Department of Employee Trust Funds

WISCONSIN RETIREMENT SYSTEM

Actuarial Review

July 5, 2001

Presented by

MILLIMAN USA

Thomas K. Custis, F.S.A.
William V. Hogan, F.S.A.

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July 5, 2001

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Ladies and Gentlemen:

The enclosed report presents the findings and comments resulting from a detailed review of the actuarial services being performed by Gabriel, Roeder, Smith & Co. (GRS), the actuary retained by Employee Trust Funds for the Wisconsin Retirement System. Milliman USA was requested to undertake this review project in November of 2000.

Our major findings are included in the Executive Summary section of the report. More detailed commentary on our review process and some suggested considerations for refinements in actuarial procedures or presentations are included in the latter sections.

We pursued this review with a constructive mindset. We looked to identify any possible suggestions that might improve understanding of or confidence in the actuarial services being provided. Naturally, some of the comments may be viewed as personal preference or nit-picky in nature. While we are not trying to impose our own preferences or biases on the Fund or the retained actuary, neither did we hesitate to make such comments if we believed that some change, however minor, would improve the actuarial functions.

This report is prepared for use by the State of Wisconsin Legislative Audit Bureau in their appropriate oversight role with regard to the Wisconsin Retirement System. It has been prepared using multi-faceted review techniques. These techniques include specific validation of a sampling of calculations. A complete duplication of the December 31, 1999 Actuarial Valuations has not been performed.

We would like to thank Mr. Norman Jones and Mr. Brian Murphy and their staff at Gabriel, Roeder, Smith & Co. as well as Mr. Bob Willett of the Department of Employee Trust Funds and his staff for their cooperation. Their responses to our questions and requests for information made the completion of this project possible.

We look forward to making a personal presentation of our findings in briefings to the Employee Trust Funds Board, the Wisconsin Retirement Board, the Teachers Retirement Board and to the Legislative Joint Survey Committee on Retirement Systems.

Respectfully submitted,

Milliman USA

Thomas K. Custis

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Executive Summary

The primary purpose of an actuarial review is to provide assurance that the actuarial functions of its retirement program are being completed properly in accordance with all applicable statutes and actuarial standards of practice. Secondarily, this review is an opportunity to identify areas where current procedures could be improved in order to achieve greater value and understanding from the actuarial services performed.

Our conclusions with regard to the primary issues of this review are as follows:

- The results of the December 31, 1999 Actuarial Valuation for the Wisconsin Retirement System (WRS)

  ... have been prepared using reasonable actuarial assumptions;

  ... have been prepared using a reasonable actuarial funding method, properly applied;

  ... have been prepared by fully qualified actuaries and in accordance with all applicable Actuarial Standards of Practice; and, therefore,

  ... present a fair and reasonable representation of the actuarial accrued liabilities of the WRS; and

  ... develop contributions rates which, in general, are appropriate to satisfy the funding obligations of the WRS.

  ... based upon this report, we believe that the WRS is in sound financial condition.

Other highlights of our review process and minor "fine-tuning" suggestions are summarized below:

- We believe that the data maintenance and transmission procedures in place at the WRS provide a solid foundation for good actuarial services. It appears that sufficient review of the data after transmission is being made by GRS.

- We believe that the actuarial assumptions used in the December 31, 1999 Actuarial Valuation, while reasonable, could be modified to better reflect experience as pointed out in the 1997-99 three-year investigation of experience.

- We believe the Frozen Entry Age Actuarial Cost Method as modified by the Experience Amortization Account (EAR) is appropriate for the WRS in light of statutes and needs of the system and that the retained actuary is applying the method properly.

- The Actuarial Value of Assets is consistently applied. The smoothing mechanism has effectively delayed the recognition of $13.9 billion in asset gains. While the future recognition of these gains will stabilize any potential downswings in investment returns over the next four years, it may compound the issues related to reduced separation benefits due to a reduction in employee contribution rates as discussed later.

- We believe that GRS is performing the actuarial valuation function correctly. While our review involved the GRS system calculations to be used for the December 31, 2000 Actuarial Valuations, we are comfortable with these calculations as an implication that the December 31, 1999 Actuarial Valuation results are appropriate.

- In general, the GRS reports are complete and well-presented. We have made some relatively minor suggestions for improving or clarifying overall report content.

- We note the significant decline in required member contribution rates for all occupations but in particular, the protective service categories. One potential source of gain for the protective service categories (as already identified by the Department of Employee Trust Funds (DETF)) is the duty disability provisions. We believe that this provision is likely to be causing some of the gains. We also note the significant asset gains during the 1990's which are likely to be a contributing reason. For reasons discussed later in this report, we believe that the asset gains may have had a greater impact on the protective occupations. The result of this decline in rates is a reduced money purchase benefit (either at separation or retirement if the formula benefit is less). The retained actuary has recommended the decoupling of the employer and employee rates. We agree with this suggestion. Another possible remedy for this problem would involve a benefit change to the system to provide for automatically crediting the prescribed rate of member contributions regardless of the system funding. Clearly there are other issues with this suggestion that would need to be addressed by the legislature. Given the amount of asset gains that are yet to be realized due to the asset smoothing mechanism, it seems to be a good possibility that required funding is likely to continue its reduced pattern for the foreseeable future.

Data Validity

In order for the retained actuaries to prepare meaningful and credible actuarial work, it is imperative that they receive clean and consistent data from WRS. The first step in our review process was to examine the valuation data used by GRS to prepare the actuarial valuation. We verified that all necessary information was included in the valuation data files, and we checked to assure that the retained actuary was using the proper data fields in their work.

As part of our review, we received complete retiree and active data files and their layouts from DETF. We performed a reconciliation of total counts from these files and were able to match the counts reported by GRS in the actuarial valuation reports for the WRS. For retired lives the specific items reviewed included totals by form of benefit and by amount of benefit between the Fixed and Variable funds. With respect to active members, the specific items reviewed included totals by valuation service group, by annual earnings, by age and by years of service. We also verified money purchase account balances. All totals matched within a reasonable range of tolerance to stated report values (exactly in most cases). We believe that this provides a reasonable degree of assurance that the GRS data is accurate and consistent with the records of the DETF.

As part of the valuation process, GRS cleanses the data file for data discrepancies based upon status codes, salaries, age and combination of age and hire date. This cleansing process appears reasonable and appropriate.

A review of the data file layouts for both active and retired participants indicates that all necessary information to perform the actuarial valuation calculations is present. Data fields appear to be used correctly in the benefit trace calculations and match reasonably well with the benefit calculations for those individuals who were reviewed. We note that GRS is required to manipulate the data file substantially to derive the proper status of a participant in some cases. Given the complexity of the WRS, this is not surprising. For example, active members may be distinguished using data fields for dates of birth and hire, end of year status code, employer codes, salary fields and gender codes.

In performing this review, we relied on data and other information provided by the DETF. We have not audited or verified this data. If this data is inaccurate or incomplete, the results of our analysis may need to be modified.

Overall, our review has given us a high confidence level that the data used by the retained actuary is adequate, appropriate, and complete for the valuation work being completed.

ACTUARIAL ASSUMPTIONS

As part of this report, we have received and reviewed the 1997-99 Three-year Experience Study report. In general, we found the Experience Study report provided recommended assumptions which were reasonable, however they did not fully reflect the experience data (where evaluated) due to reasons mentioned in the next paragraph. With respect to the economic assumptions, the report provides significant national data to support its conclusions in addition to the experience of the fund. We will comment on individual assumptions by category below.

Data for the 1997-99 Three-year Experience Study was prepared annually in conjunction with the gain and loss analysis during the valuation. The methodology employed by GRS involved a number of steps. First, crude rates were developed from the experience data. These crude rates were then weighted by a credibility rating. Trial rates were developed as the average of these weighted crude rates and the current rates. Smoothing of these trial rates was done where it was deemed appropriate resulting in the proposed rates. We find this methodology to be logical and appropriate. It has the advantage of not over-reacting to the experience data of a particular study. A possible disadvantage is that it may tend to lag a continuing trend in the data where such a trend exists.

ECONOMIC ASSUMPTIONS

The economic assumptions proposed for the December 31, 2000 actuarial valuation is summarized below:

Investment Return – *Current*	
Total Rate (Net of Investment Expense)	8.0%
Wage Inflation Component	4.5
Real Return Component	3.5

We agree that the current Real Return Component should fall within the typical 2%-4.0% range. Experience over the last 15 years has been considerably better than this with net asset returns well in excess of the 8.0% assumed rate. Based upon the national data presented by GRS for the asset mix of WRS and the experience study wage data, we agree that a real rate of return of 3.5% is an appropriate recommendation in light of current and long term economic factors. The total rate net of investment expense proposed for the December 31, 2000 Actuarial Valuation did not change from the net rate of return used in prior valuations.

- ***Withdrawals***
  The valuation assumptions use a "select & ultimate" basis for expected withdrawals. This basis assumes higher withdrawals for employees within the select period from their date of hire. After that, an ultimate table is used which is based upon age. We believe this methodology to be appropriate for the WRS. The proposed rates appear to be reasonable based upon the experience data of this study. We note that the protective group rates show a little bit of the lag pattern that we described above over the course of the last three experience studies. We concur that this proposed assumption is reasonable however consideration should be given to more closely reflecting the protective group experience rates from the next study if this trend continues.

- ***Disability Retirements***
  The 1997-99 Three-year Experience Study generally shows lower than assumed rates of disability. One notable exception is the age 55-59 group for protective service members. This is notable since disabilities from protective service participants who elect the duty disability benefit create gains for the WRS since actuarial reserves are not transferred to LTDI. If this group constitutes mostly duty disability recipients then this data would support the theory that recent protective service group contribution rate declines may in part be due to this reason. We assume that the experience data represents both LTDI benefit recipients and WRS benefit recipients since we would expect the incidence of disability to reflect both. Based upon that assumption, we concur with the rates proposed for the December 31, 2000 Actuarial Valuation.

- ***Service Retirements***
  The 1997-99 Three-year Experience Study results demonstrate a significant trend toward earlier retirement than assumed for all groups. We note that the 1994-96 and 1991-93 Three-year Experience Studies also show this same trend for all groups except the Protective Group. The protective group data from the earlier studies resulted in either no change in rates or lower rates of retirement at earlier ages overall. We note this fact since this may also be a factor in the drop in contribution rates for this group as discussed later. We also noted a change in the presentation format of the split between normal and early retirement data presented by GRS from the 1991-93 to the 1994-96 study. We questioned GRS concerning this split in rates to determine if there may have been an impact on the valuation calculations. Our conclusion is there was no impact. The proposed rates appear to be reasonable based upon the experience data of this study. We note that the general and teacher group rates show a little bit of the lag pattern that we described above over the course of the last two experience studies (not the 1991-93 study). We concur that this proposed assumption is reasonable however consideration should be given to more closely reflecting the general and teacher group experience rates from the next study if this trend continues.

- ***Merit & Seniority Salary Component***
The 1997-99 Three-year Experience Study shows significantly higher rates for earlier ages. We believe that the GRS proposed assumptions reflect this data very closely and are reasonable for the December 31, 2000 Actuarial Valuation. We would recommend that this component also be reviewed based upon service as well. We have seen a strong correlation to service with other systems, particularly teacher groups.

- ***Mortality***

Post-retirement mortality experience in the 1997-99 Three-year Experience Study is just slightly higher than current rates in the aggregate. In light of this data, GRS has recommended that the same post-retirement mortality rates continue to be used for the actuarial valuations. Since the post-retirement dividend can be affected by mortality experience that varies significantly from the assumed rates, recommended rates have tended to be very close to experience. Based upon the results from both the 1997-99 and the 1994-96 Three-year Experience Studies, we believe that the goal of keeping the recommended rates close to experience has been reasonably successful.

Pre-retirement mortality experience in the 1997-99 Three-year Experience Study is moderately lower than the rates adopted for the December 31, 2000 Actuarial Valuation. The earlier studies also show somewhat lower rates as well. Given that mortality trends are for continued improvement in the future, this would seem to call for lower rates in the future. While we do not believe that the proposed assumption is unreasonable, it does seem to be lagging both the experience and national trends. We would suggest pre-retirement mortality rates somewhat lower than observed experience should be considered in order to reflect future mortality improvements. With current Actual to Expected Ratios (A/E) near 80%, we would like to see lower rates which would produce an A/E at 100% or slightly higher. Using a very rough approximation based upon the December 31, 1999 Actuarial Valuation results, we suspect that lower pre-retirement mortality rates in this range would increase the present value of future benefits of the WRS by less than .5%, in total. Since these lower mortality rates would also increase the present value of future salaries, we believe that contribution rates would most likely not change significantly.

ACTUARIAL FUNDING METHOD

APPROPRIATENESS OF FUNDING METHOD

Frozen Entry Age Method (modified)

The Frozen Entry Age Actuarial Cost Method (also called the Frozen Initial Liability Method) is being employed in the liability calculations for WRS. This method has been modified to adjust the Normal Cost by the amortization of the Experience Account Reserve (EAR).

Under the Frozen Entry Age Actuarial Cost Method as modified, Normal Costs are determined in the aggregate. The first component of Normal Cost is equal to a level percentage which is determined in the aggregate as the ratio of the present value of future entry age normal costs for all participants divided by the present value of expected future pay for all participants. The second component of Normal Cost is equal to an amortization of the EAR over a period of years. A final component of the Normal Cost is the Benefit Adjustment Contribution (if any).

Each employer group that enters the WRS has an initial unfunded Actuarial Accrued Liability which is frozen. This frozen unfunded liability is amortized as a level percentage of pay over a fixed period of years. This amortization of unfunded is unaffected by gains or losses since those are reflected in the EAR.

We believe that the Frozen Entry Age Actuarial Cost Method (as modified) is appropriate for use by the WRS. While many systems currently use the Entry Age Normal method, the Frozen Entry Age method is a reasonable variation of that method. Use of the level percent of pay approach to amortize the Unfunded Actuarial Accrued Liability is both common and appropriate. Absent future changes in benefits and/or assumptions, this approach should provide the most stable and most predictable pattern of costs as a percentage of payroll.

Asset Valuation Method

GRS uses an adjusted asset method to develop market-related value of assets as required by statute. This statutory methodology is designed to produce asset values for purposes of the valuation which will track towards market value over the long term but that will avoid the volatility associated with just using market value. The purposes of this methodology is to avoid unnecessary swings in plan costs. Such an approach is commonly used in public pension systems and we agree that such a method is prudent and appropriate for use by the Fund.

Overall, we believe the statutory methodology is being applied by GRS correctly.* We note that there has been a significant asset build-up in the Transaction Amortization Account (TAA) due to the high asset returns during the 1990's.

**As instructed in the RFP, our review does not consider the impact of Wisconsin Act 11.*

Valuation Results

The largest portion of our time and effort in this review process was spent on verifying the detailed valuation results being produced by GRS. The reader needs to appreciate that an actuarial valuation of a pension plan entails hundreds of separate calculations performed for each individual plan participant. Given the thousands of plan participants in the WRS, this means that the liability amounts and contribution rates developed in the overall annual valuation represent the culmination of thousands of calculations. While computers give us the ability to make these large numbers of calculations on a timely basis, they also complicate the checking process. We have attempted to address this issue by looking at a sampling of valuation results from two different perspectives.

Review Of Detailed Benefit Trace

For a sampling of active and inactive plan participants, which we selected, GRS produced year-by-year, decrement-by-decrement computer print-outs that allowed us to trace and check individual calculations of projected benefits and liabilities. As discussed with DETF, GRS and the Audit Bureau, we reviewed benefit trace information prepared using programming and assumptions for the December 31, 2000 Actuarial Valuation which is currently in progress. It is believed by all parties that this will provide more useful information due to revisions made to GRS programming for the December 31, 2000 valuation. One of those revisions in programming involved the recognition of service by members in multiple employer categories. We applaud the effort to identify and quantify these costs as we have found this area of public pension plans to be a contributing factor to unexpected increased liabilities. Our review of the detailed benefit traces confirmed the following important findings:

(1) GRS valuation procedures are consistent with plan provisions. We verified that they are valuing the proper benefits in all categories.

(2) GRS is correctly applying all actuarial assumptions, as proposed in the 1997-1999 Three-year Experience Study. As mentioned later, there are a number of minor assumptions which are not specified.

(3) All attained age and entry age values seem to be appropriate and reasonable. Since different computer systems handle some minor details differently (such as decrement timing and other so-called "half-year" issues), it is not always possible to exactly reproduce all present value calculations, but none that we checked fell outside of a reasonable tolerance.

(4) We looked at the calculation of projected average salary and projected average benefit service. Timing issues were properly and consistently applied; all results appeared to be correct and appropriate.

(5) The benefit trace data on General, Protective with Social Security and Protective without Social Security confirmed that the correct benefit formulas were generally being applied in the valuation routines. We did find one incidence where the death benefit limit was not applied in the proper order compared to the optional form factors for a protective without social security member. We note that this has very marginal impact on the results and that GRS is aware of the issue.

NEW RETIREE COMPARISON

One of the questions which is of some concern in assessing the accuracy of the actuarial work being performed is, "Is the actuary's understanding of how the plan provisions work consistent with actual plan administration practices?" The method that we use to attempt to address this concern involves detailed analysis of a sampling of participants who change status from one valuation to the next. In particular we like to focus on new retirees to see if the benefit liability after actual benefit calculations have been made is consistent with the benefit liability predicted based on the active member valuation data from the preceding valuation. This approach can often identify discrepancies that would not be found through normal checking nor even through parallel valuations.

What we looked for, what we found, and the possible implications are discussed below:

(1) ***Salary Discrepancies***. Final average salary for benefit purposes can deviate from projected final average based on valuation data for three common reasons: (a) bad data; (b) salary spiking (a phenomenon where a worker approaching retirement works extra hours and/or receives a late career promotion in order to increase the salary in the final year or two by amounts more than expected); or (c) some participants may have had an earlier period of high earnings such that the salary in the last year or two is not part of the salary averaging period used for benefits. In the sampling of new retirees we checked, we noticed that actual Final Average Salary was consistent with the valuation.

(2) ***Service Discrepancy***. When someone actually retires, there may be adjustments made to an individual's service credits. These can arise from purchased credits (e.g. military service or other "buy-backs"), added credits (sick leave, vacation, etc.), or corrections in credited service (due to rehires, transfers, or simply corrected errors). In the sample of retiree calculations we reviewed in detail, we did not find any examples of service discrepancy.

(3) ***Accrued Liability***. In most of the cases which we reviewed, we noticed that the present value of the retirement benefit exceeded the active participant accrued liability for that individual from the prior year. This is to be expected in this comparison because the

retirement age assumption was not 100% for those cases which we reviewed. Overall, we did not observe anything out of the ordinary.

COMMENTS ON BENEFIT CALCULATION PROCESS

An added benefit to reviewing a sample of new retirees is that we can look at the benefit processing procedures in place at the System. We received two sample benefit calculations from DETF for this purpose. Our review of both of these calculations provided assurance that the actuarial liability calculations prepared by GRS are reasonably consistent with actual costs at retirement

Reports: Content and Presentation

While the "*correctness*" of the actuarial work product is, of course, the primary focus of an actuarial review, we believe that the communication of those results to both the lay reader and other professionals is also an important consideration in evaluating the quality of actuarial service provided. Below we share some reflections and comments on the actuarial work product and the Experience Study that were the subject of this review:

December 31, 1999 Actuarial Valuation Report

Due to the unique nature of the Wisconsin Retirement System, GRS prepares separate reports with respect to the active members versus the retired members. With respect to the active member valuation report, we find the style and content of the GRS report to be generally readable and adequate. Considerable general background information is included for the education of the lay reader. The graphical presentations are good. Both historical data and future projections help to place the current valuation in the context of the long-range funding tool that it represents. The contribution charts are very informative and present a good picture of benefit cost levels. The development of the contribution rates in the valuation results section is easy to follow and appears to provide sufficient detail about the calculation process.

There are a few additional pieces of information that could easily have been included that we believe would add to the reader's understanding:

- As technical readers, we would appreciate inclusion of all actuarial assumptions made (even by default). Here we are talking about such things as the assumed form of annuity, percentage of active participants assumed married, assumptions relating to added service credits for sick leave or military service, loads used, etc.
- In the financial section, we would like to see a summary of current assets (market value basis) by asset class.

The fact that the current report does not include these items does not suggest that they are incorrect or deficient. We do believe that their inclusion would enhance the work product.

With respect to the retired member valuation report, we find that sufficient information is contained in this report concerning the required reserves for the fixed and variable annuities. Significant data is provided by annuity type. It appears that the actuary has properly analyzed the post-retirement adjustments for the fixed and variable annuities in accordance with chapter sections 40.27(2) and 40.28(2) as described in the actuarial valuation report. One fine tuning comment that might be made with respect to this report would be the addition of a description of the fixed and variable annuity characteristics with respect to guarantee of benefits, etc.

1997-99 THREE-YEAR EXPERIENCE STUDY

In general, we found these reports complete and easy to read. The presentation of results was clear as were the recommendations. We especially like the graphical summaries. We note the recommended realignment of reserves found in the report. After discussion with GRS, we believe that this is appropriate due to the new valuation methodology for multiple employer service situations. Appropriately, the retained actuary has made some recommendations with respect to the decoupling of the employee rate compared to the employer rate. At this time, we are in agreement with this recommendation.

INITIAL VALUATIONS

When a new employer enters WRS, an "initial valuation" is prepared by GRS. This initial valuation is communicated to the WRS in an abbreviated Actuarial Report. In our opinion, this Actuarial Report contains enough detail to provide information about the annual cost requirements of entering the WRS. It also contains a good summary of the cost items that an employer will encounter. One possible suggestion would be to include the value of the total initial liability that may be paid in a lump sum by an employer instead of being amortized.

COMMENTARY ON CONTRIBUTION RATES

One area of review that was included in the request for proposal related to the decline in protective occupation contribution rates over the years. This decline becomes noticeable at about the 1992 or 1993 valuation year and continues up through the current year. We note that the other occupational classes have also benefited from a decline in contribution rates but not to the extent of the protective group. Some issues have arisen which are the result of this decline in the protective contribution rates. The first is that the member contribution rate has dropped below 5.0%. This results in a lower money purchase accumulation for these participants and lower benefits in many cases. In addition, as a result of 1989 Wis. Act 13, the reduction in contribution rates must be shared equally between the employer and the employee contribution rates. While protective service member rates have dropped below 5.0%, the general service member rates remain at 5.0% creating an anomaly between the benefit formulas for the different service groups relative to the required contribution rates for members.

One of the possible reasons submitted by DETF for this decline is the application of the duty disability program for protective members. It is our understanding that upon duty disability, protective members can elect disability benefits which are higher in many cases over the WRS pension at the time of duty disability. Since this is a separate program, there is a gain to the WRS since the accrued liability for this member would be retained (except for the separation benefit if elected). We agree that this is probably a contributing factor to the decline in the protective contribution rates.

Another likely cause for the declines would be the significant asset return achieved by the WRS over the last ten years. While it is true that these returns would benefit all of the occupational groups, we believe that the protective group may have gotten more leverage than the other groups. For instance, it is evident that the protective group started the 1990's with a better funded status as evidenced by their lower Benefit Adjustment Contribution and UAAL percentage at the start of that period. This better "starting point" may have provided better leverage for contribution rate reductions. GRS has also suggested the possibility that the general occupations may have benefited less from the asset gains because more of their benefits may come from the money purchase calculation rather than the formula calculation. We believe that this suggestion may have merit in explaining the different experience of the general and protective groups. We note that these asset gains are likely to continue in the near future given the significant unrecognized asset gains yet to be included in the valuation assets.

We also noticed a trend toward earlier retirement among the general and teacher groups. We speculate that these trends may be signs of combined service issues that produced higher retirement liabilities during this period (for instance, more normal retirements versus early retirements expected by the valuation data) which would reduce the impact of the asset gains during that same period.

GRS in the 1997-1999 Three-Year Experience Study has recommended that the employer/employee rates be "decoupled". This would provide one possible solution to the decline in the money purchase benefits and the anomaly with the lower contribution rates for protective service members. If the employer contribution rate were decoupled from the member contribution rate, the member contribution rate could then remain fixed at the appropriate level.

As another suggestion with respect to protecting this separation benefit, we offer the following idea. It seems that one possible alternative would be to give the participant accounts a 5% contribution credit regardless of whether the contribution is actually paid in. This would become part of their defined benefit which could easily be valued by the retained actuary. Since this is a benefit change, it would need to be considered by the legislature for its relevant merits.

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STATE OF WISCONSIN
Department of Employee Trust Funds

Eric O. Stanchfield
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Madison, WI 53707-7931

August 14, 2001

Ms. Diann Allsen
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Madison, WI 53703

Dear Diann:

Thank you for the opportunity to review and respond to the report on the actuarial audit of the Wisconsin Retirement System (WRS) conducted by Milliman USA. We were pleased that Milliman determined that the actuarial funding method and actuarial assumptions being used were appropriate for the WRS. Milliman also found that the actuarial valuations had been conducted in accordance with all applicable Actuarial Standards of Practice and fairly presented the actuarial accrued liabilities of the WRS. Most importantly, Milliman concluded that the WRS is in sound financial condition.

Milliman also made some recommendations for "fine-tuning" the valuation and reporting process. Gabriel, Roeder, Smith and Company (GRS), consulting actuaries to the WRS, have reviewed the report and responded to the specific findings and recommendations. Their response is attached. We will be working with GRS to assure that the recommendations are implemented, as appropriate for the WRS.

We appreciate the Audit Bureau's role in facilitating this audit. All participants in the WRS should be reassured by this confirmation of the actuarial soundness of the WRS and it's funding methodology.

Sincerely,

Eric O. Stanchfield

Eric O. Stanchfield
Secretary

GABRIEL, ROEDER, SMITH & COMPANY
Consultants & Actuaries

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August 17, 2001

Mr. Robert Willett
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Madison, Wisconsin 53707

Dear Bob,

Milliman USA reviewed our work for the WRS as of 12/31/1999 using the assumptions and methods developed in connection with the 1999 experience study. Their report was dated July 27, 2001. We are very pleased that the reviewers have found substantial agreement with our results. We also appreciate the constructive suggestions that they made for future improvements. There follows below a brief commentary on the suggestions that the reviewers made in their report.

1. Assumptions
   a. Withdrawals. On page 5, the reviewers recommend moving the assumed rates for protectives closer to actual at the time of the next experience study. The proposed rates are actually very close to the actual experience, in fact much closer than they have been in the past. We will pay attention to the matter at the time of the next study, however, we see no need to change the method at this time.
   b. Service Retirements. On page 5, the reviewers suggest that in the next study the retirement rates should more closely approximate the observed rates. We concur with this finding, provided that the rates observed in this study persist into the next study.
   c. Merit and Seniority based salary scale. On page 6, the reviewers suggest that the data be investigated in the next study to see if the correlation by service is stronger than the correlation by age. If data is sufficient at the time of the next study, we think that this would be worthwhile. The effect on the end results may be very small, however.
   d. Pre-retirement mortality. The reviewers have suggested a reduction in the assumed rates of pre retirement mortality. This is a reasonable change; it has no material impact on the end result. We suggest deferring this change until the next study simply to avoid the confusion associated with changing assumptions in between experience study dates.
2. Active Lives Report (See Milliman Report Page 12)
   a. More disclosure of assumptions. Most of the requested information was included in the 2000 report on page III-8. This report was not available to Milliman in time for the review.
   b. Current Assets by Class. This information was also included in the 2000 report on page II-2.

August 17, 2001

Thank you, Bob, for the opportunity to respond to these matters.

Sincerely

Brian B. Murphy

BBM:lr

Cc: Dianne Allsen
Norm Jones
Dave Stella