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IPERS

EXPERIENCE STUDY
For the Period June 30, 2009 to June 30, 2013

Prepared:
JUNE 2014

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May 27, 2014

Investment Board
Iowa Public Employees' Retirement System
7401 Register Drive
Des Moines, IA 50321

Dear Trustees:

It is a pleasure to submit this report of our investigation of the experience of the Iowa Public Employees' Retirement System for the period of July 1, 2009 through June 30, 2013.

The set of assumptions proposed as a result of this study will be used in the June 30, 2014 actuarial valuation of IPERS to analyze the funding status of the system, calculate the actuarial and required contribution rates, and disclose employer liabilities for financial statements.

The purpose of this report is to communicate the results of our review of the actuarial methods and assumptions to be used in the completion of the upcoming valuation. Our recommendations represent changes from the prior methods or assumptions, which are intended to better anticipate the emerging experience of the System. Actual future experience, however, may differ from these assumptions.

In preparing this report, we relied without audit on information supplied by IPERS staff. In our examination, we have found the data to be reasonably consistent and comparable with data used for other purposes. It should be noted that if any data or other information is inaccurate or incomplete, our calculations might need to be revised. We would like to acknowledge the help given by IPERS staff in the preparation of this report.

We hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board (ASB) and the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries.

We further certify that the assumptions developed in this report satisfy ASB Standards of Practice, in particular, No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations* and No. 35, *Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations*.

We look forward to our discussions and the opportunity to respond to your questions and comments.

I, Patrice A. Beckham, am a member of the American Academy of Actuaries, an Enrolled Actuary and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

I, Brent A. Banister, am a member of the American Academy of Actuaries, an Enrolled Actuary and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Patrice Beckham

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Principal and Consulting Actuary

Brent A. Banister

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Chief Pension Actuary

The purpose of an actuarial valuation is to provide a timely best estimate of the ultimate costs of a retirement system. Actuarial valuations of the Iowa Public Employees' Retirement System (IPERS) are prepared annually to determine the actuarial contribution rate to fund the System on an actuarial basis, i.e. the current assets plus future contributions along with investment earnings will be sufficient to provide the benefits promised by the System to current members. The valuation requires the use of certain assumptions with respect to the occurrence of future events, such as rates of death, termination of employment, retirement age and salary changes, to estimate the obligations of the System.

The basic purpose of an experience study is to determine whether the actuarial assumptions currently in use are accurately predicting actual emerging experience. This information, along with the professional judgment of System personnel and advisors, is used to evaluate the appropriateness of continued use of the current actuarial assumptions. When analyzing experience and assumptions, it is important to realize that actual experience is reported short term while assumptions are intended to be long term estimates of experience.

IPERS conducts an experience study every four years. The current study covers the period June 30, 2009 through June 30, 2013. There are three distinct membership classes in IPERS with different applicable plan provisions and contribution rates:

1. Regular Members,
2. Sheriff and Deputy Sheriffs, and
3. Protection Occupation.

The benefit provisions for the Sheriffs and Deputies and Protection Occupation groups are very similar and the size of the groups is relatively small. Therefore, for purposes of analyzing experience, the data for these groups has been aggregated when reasonable to do so. Results are shown separately for Regular members (which includes State, School and Other public employers) and Special Services members (Sheriffs/Deputies and Protection Occupation) in the discussion of demographic assumptions.

Several changes in benefits provisions for regular members were passed in the 2010 legislative session and were effective July 1, 2012. Because these changes were prospective in nature, they had minimal impact on the amount of benefit or the eligibility for receiving a benefit for anyone during the study period. Consequently, we do not suspect any behavior changes have yet occurred as the result of the plan design changes. If any such changes do ultimately occur, they will be reflected in future experience studies as the changes unfold and experience is evaluated.

ACTUARIAL METHODS

Together the actuarial cost method, the asset valuation method and the amortization of the unfunded actuarial liability create the cornerstone of the System's funding policy. During calendar year 2013, a special study of the current funding policy for IPERS was performed and each key factor was thoroughly discussed and reviewed. The result was the revision of two documents by the Board in September, 2013: (1) Actuarial Amortization Policy and (2) Contribution Rate Funding Policy. Changes were made to meet the competing goals of stabilizing contribution rates and improving IPERS' long term funding as soon as possible. Because that study included a review of the actuarial cost method, asset smoothing method and amortization method, our discussion in this report is minimal in nature. Please see Appendix A for a copy of IPERS Contribution Rate Funding Policy.

There are three key actuarial methods that are required to complete the annual actuarial valuation. The current methods are shown below:

Actuarial Cost Method:	Entry Age Normal
Asset Valuation Method:	75% Expected Value/25% Actual Value with an 80% to 120% corridor around market value
Amortization Method:	Level Percent of Payroll with the June 30, 2014 UAL amortized over a closed 30 year period and subsequent changes in the UAL amortized over a closed 20 year period beginning on the date the base is established. The amortization period for changes in the UAL for plan amendments and assumption changes will be determined at the time they occur.

We are not recommending any changes to these methods from the current Actuarial Amortization Method and Contribution Rate Funding Policy adopted by the Board.

ACTUARIAL ASSUMPTIONS

The actuarial valuation process utilizes two different types of assumptions: economic and demographic. Economic assumptions are related to the general economy and its impact on IPERS. Demographic assumptions are based on the emergence of the specific experience of IPERS members.

Economic Assumptions

We are recommending the inflation assumption be lowered to 3.00% and the interest credited on employee contributions be lowered to 3.75%, but the other economic assumptions remain unchanged, as shown below:

Assumption	Current	Proposed
Inflation	3.25%	3.00%
Interest on Member Accounts	4.00%	3.75%
Investment Return	7.50%	7.50%
General Wage Growth	4.00%	4.00%

The lower price inflation assumption of 3.00% results in an increase in the productivity (real wage inflation) assumption from 0.75% to 1.00%. In addition, by lowering the inflation assumption and maintaining the investment return assumption, the real rate of return increases.

For this study, we have estimated the real rate of return net of investment expenses. This partially offsets the impact of reducing the price inflation assumption while keeping the nominal return at 7.5% as summarized below:

	Current	Proposed
Net Investment Return	7.50%	7.50%
Investment Expenses	0.20%	0.00%
Administrative Expenses	0.05%	0.05%
Gross Investment Return	7.75%	7.55%
Less Inflation Assumption	3.25%	3.00%
Real Rate of Return	4.50%	4.55%

While the investment return assumption of 7.50% remains within the reasonable range, as defined in the applicable Actuarial Standard of Practice No. 27, it falls just above the 50th percentile. This indicates there is only slightly more than a 50% chance that the rate of return over the long term will meet or exceed 7.50%. However, this evaluation is based on Wilshire's current capital market assumptions which are based on a ten year timeframe. These assumptions usually change at least annually, so small differences in the expected return using Wilshire's assumptions does not cause us concern. In addition, the timeframe for their assumptions is much shorter the than timeframe used by actuaries in setting this assumption.

Demographic Assumptions

The study period in this experience investigation (June 30, 2009 through June 30, 2013) follows the Great Recession (2008-09) and exhibited slow economic growth and recovery. We believe this has created a situation where individuals have adjusted their choices regarding employment, and thus, some of the experience of the study period may not be representative of future long-term experience. This is particularly true of the assumptions where the individual members have significant control over their situation, such as retirement and termination of employment. In addition, the State of Iowa offered an early retirement incentive program during the study period which impacted the retirement experience for State members and may have also impacted other demographic experience. As a result, the actual experience observed in the study period is not necessarily considered to be representative of future long term experience.

We analyzed experience for each of the four years individually as well as in aggregate. If any of the experience in certain years seemed out of line, the credibility of that experience was reduced in evaluating the current assumptions and proposing changes.

Changes to the demographic assumptions were also made to better reflect the trends observed:

- Retiree mortality continues to improve as anticipated by our use of generational mortality tables, but some adjustments were made to better fit the observed experience. In particular, adjustments were necessary for males in the Regular membership.
- Retirement rates for sheriffs and deputies were lowered between 55 and 64 to reflect the observed patterns of retirement.

In the analysis of demographic experience, we use a methodology for analyzing the experience, called a "liability weighted" approach (referred to in this report as "weighted"). A member's "liability" in the System is generally determined by the benefit amount and age of the member. Many assumptions already reflect differences by age directly. The other factor, benefit amount, is impacted by salary and service. We use these two factors to estimate the member's relative benefit level and then weight the experience (the exposure and actual occurrences are scaled by salary and service). This approach is particularly insightful when analyzing experience from a non-homogenous group. While we reviewed experience on both a count and liability weighted basis for most decrements, we generally gave the liability weighted experience more credibility in proposing changes. This is discussed in each section of the demographic assumptions in this report.

OPTIONAL FORM FACTORS

A retiring member has a choice of how the benefit will be paid; e.g. single life annuity, joint and 50% survivor annuity, life with 10 years guaranteed, etc. These different types of payments are called optional forms. Optional form factors are used to convert one form of benefit payment to another on an actuarial equivalent basis (i.e. no gain or loss to the System). These factors were last updated in 2006. We have not recommended any significant changes in the interest or mortality assumptions in this study. Therefore, we are not recommending a change to the optional form factors at this time. Their continued use should be reviewed based on any recommended changes in future experience studies.

SUMMARY

The estimated financial impact of the proposed changes, as based on June 30, 2013 valuation results, is summarized below. Assumption changes only impact the liabilities and the normal cost rate. Assets are unaffected. The impact on the June 30, 2014 valuation should be similar, as a percent of the liability, but the dollar amount of impact will vary with the change in the underlying liability amount.

In keeping with the recently adopted Actuarial Amortization Policy (Appendix B), the change in liability from adopting these assumption changes will be included in the initial base as of June 30, 2014 and, therefore, amortized over a closed 30-year period.

Estimated Change in Actuarial Liability as of June 30, 2013

	Regular	Sheriffs & Deputies	Protection Occupation
Actuarial Liability ($M)	$28,799	$533	$1,166
Inc/(Dec) Due to Assumption Change:			
Mortality	200	0	0
Retirement	0	(6)	0
Interest Credited to Member Accounts	(5)	0	0
Net Change	**195**	**(6)**	**0**
Estimated Actuarial Liability ($M)	$28,994	$527	$1,166
% of the 6/30/13 Actuarial Liability	0.7%	(1.1%)	0.0%
Change in the UAL Amortization Payment	0.17%	(0.33%)	0.00%

Estimated Change in Normal Cost Rate as of June 30, 2013

	Regular	Sheriffs & Deputies	Protection Occupation
Normal Cost	10.16%	16.59%	16.02%
Inc/(Dec) Due to Assumption Change:			
Mortality	0.07%	0.00%	0.00%
Retirement	0.00%	(0.21%)	0.00%
Interest Credited to Member Accounts	0.00%	0.00%	0.00%
Net Change	**0.07%**	**(0.21%)**	**0.00%**
Estimated Normal Cost	10.23%	16.38%	16.02%
Increase as % of the 6/30/13 Normal Cost Rate	0.7%	(1.3%)	0.0%

Estimated Change in Actuarial Contribution Rate as of June 30, 2013

	Regular	Sheriffs & Deputies	Protection Occupation
Normal Cost	10.23%	16.38%	16.02%
UAL Amortization Payment	4.61%	2.38%	0.59%
Total Actuarial Contribution Rate	14.84%	18.76%	16.61%
Net Change	**0.24%**	**(0.54%)**	**0.00%**

Note: The Required Contribution Rate is based on the Contribution Rate Funding Policy and may change by a different amount than the Actuarial Contribution Rate.

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Funding and Valuation Principles

Just as certain investment choices have an associated "investment risk," choices in actuarial assumptions have an associated "actuarial risk". Our responsibility is to consider the impact our work will have on members, employers, and taxpayers, both current and future.

The determination of the actuarial contribution rate is dependent on the assumptions used to project the future benefit payments and then discount them to obtain the present values. Thus, it is important that the Board understand the sensitivity of the actuarial calculations to the underlying assumptions.

- If actual experience shows that the assumptions overestimated the true cost of the plan, current taxpayers and public employees and employers may be required to bear a burden that rightfully belongs to future taxpayers.
- If actual experience shows that the assumptions underestimated the true costs, future taxpayers and future employees and employers may be required to bear a burden that rightfully belongs to the current taxpayers.

The actuarial assumptions do not impact the true cost of the plan benefits; they do impact how the financing and pre-funding of those retirement benefits takes place before the true costs can be determined. Therefore, a balanced approach that is neither conservative nor aggressive seems the most equitable to all impacted parties.

The actuarial assumptions are divided into two groups: economic and demographic. The economic assumptions must not only reflect IPERS's experience but also give even greater consideration to the long-term expectation of future economic growth for the nation, as well as the global economy. By long term, we are looking at time periods of 30 to 50 years - a much longer time frame than is usually addressed by investment managers or economists.

The non-economic, or demographic assumptions, are based on IPERS' actual experience, adjusted to reflect trends and historical experience. The demographic assumptions are much more dependent on the numerical results of the experience studies, but there is still subjectivity involved in evaluating the experience and proposing any changes. There is no "right" answer because the future is unknown. Differences of opinion among actuaries will occur based on each person's background, experience and outlook.

Overview

This report presents the results of an investigation of the recent actuarial experience of IPERS. We will refer to this investigation as an experience study. Throughout this report, we refer to "current" and "proposed" actuarial assumptions. The current assumptions are those that were used for the actuarial valuation of IPERS as of June 30, 2013. These assumptions and methods were adopted by the Board based on IPERS' 2005-2009 Experience Study. The proposed assumptions are those we recommend for use in the valuation as of June 30, 2014 and for subsequent valuations until further changes are made.

The choice of economic assumptions (inflation, interest credited on member contributions, investment return and wage growth) is discussed in Section 4 of this report. These assumptions are generally chosen on the basis of the actuary's expectations as to the effect of future economic conditions on the operation of IPERS.

Sections 5 through 11 of this report will show the results of our study of demographic assumptions. The exhibits are detailed comparisons between actual and expected events (death, retirement, termination, etc.) on both the current and, if applicable, the proposed assumptions. The graphs are included in the Appendices for your reference.

For each type of assumption, the graph shows the actual observed rates, the current assumed rates and the proposed assumed rates, usually based on a combination of gender, years of service and age. The exhibits also show the total numbers of actual and expected decrements based on the current assumption and the proposed, if any. Ratios larger than 100% on the current basis indicate that the current rates may need to be raised; ratios smaller than 100% indicate that current rates may need to be lowered. Note that raising (or lowering) current rates could increase or decreases plan costs, depending on the assumption.

IPERS' members are differentiated by class, i.e. the employment status of a member. There are three different membership groups (classes) in IPERS:

1. Regular Members,
2. Sheriffs and Deputy Sheriffs, and
3. Protection Occupation.

The benefit provisions for both the Sheriffs and Deputies and Protection Occupation groups are very similar, in general, and the size of the groups is relatively small. Therefore, for purposes of analyzing experience, the data for these groups has been aggregated for several assumptions.

As in the last experience study, we observed differences in experience by the various groups covered in the regular membership (State, School, Other) so we continue to recommend assumptions that vary by group. We believe the result is a better estimate of the System's liabilities.

Our Philosophy

Similar to an actuarial valuation, the numerical calculation of actual and expected experience is a fairly mechanical process. From one actuary to another, you would expect to see very little difference. However, the setting of assumptions is a different story, as it is more art than science. In this report, we at times propose revisions to the current assumptions. To better understand our thought process, here is a brief summary of our philosophy:

- **Don't overreact:** When we see significant changes in experience, we generally do not adjust our rates to reflect the entire difference. We will generally propose rates somewhere between the old rates and the new experience depending on the level of credibility assigned to the more recent data. If the experience during the next study shows the same result, we will probably recognize this trend at that point. On the other hand, if the experience returns closer to its prior level, we will not have overreacted, minimizing volatility in the actuarial contribution rates.
- **Anticipate Trends:** If there is an identified trend that is expected to continue, we believe that this should be recognized. An example of this is the retiree mortality assumption. It is an established trend that people are continuing to live longer; therefore, we prefer to reflect future decreases in mortality rates thereby recognizing the longer expected payment period.
- **Simplify:** In this report we describe what factor affects each assumption. In general, we attempt to identify which factors are significant and eliminate the ones that do not significantly improve accuracy.

Actuarial Standard of Practice No. 27: Selection of Economic Assumptions

The Actuarial Standards Board has adopted Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*. This standard provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans, such as IPERS.

Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Recognizing that there is not one "right answer", the standard calls for the actuary to develop a best estimate range for each economic assumption, and then recommend a specific point within that range. Each economic assumption should individually satisfy this standard.

After completing the selection process, the actuary should review the set of economic assumptions for consistency. This may require the actuary to use the same inflation component in each of the economic assumptions selected. However, if a change occurs in one assumption, the actuary needs to consider if the change would modify other economic assumptions as well.

An actuary's best-estimate range with respect to a particular measurement of pension obligations may change from time to time due to changing conditions or emerging plan experience. The actuary may change assumptions frequently in certain situations, even if the best-estimate range has not changed materially, and less frequently in other situations. Even if assumptions are not changed, the actuary needs to be satisfied that each of the economic assumptions selected for a particular measurement complies with Actuarial Standard of Practice No. 27.

The Actuarial Standards Board adopted a revised edition of ASOP 27. This revised edition will first be effective for the June 30, 2015 actuarial valuation of the System. The revised ASOP 27 no longer includes the concept of a "best estimate range". Instead, the revised edition of the standard calls for the actuary to select a "reasonable" assumption which is defined in the standard as one with no significant bias (i.e. it is neither significantly optimistic nor pessimistic). The revised standard goes on to discuss a "range of reasonable assumptions" which in part states "the actuary should also recognize that different actuaries will apply professional judgment and may choose different reasonable assumptions." As a result, a range of reasonable assumptions may develop both for an individual actuary and across actuarial practice.

In our opinion, the proposed economic assumptions in this report have been developed in accordance with the current version of ASOP No. 27, but they will also meet the requirements of the revised edition of ASOP No 27 when it becomes effective.

Actuarial Standard of Practice No. 35: Selection of Demographic Assumptions

Actuarial Standard of Practice No. 35 (ASOP 35) governs the selection of demographic and other non-economic assumptions for measuring pension obligations. *ASOP 35* states that the actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment. The actuary should select reasonable demographic assumptions in light of the particular characteristics of the defined benefit plan that is the subject of the measurement. A reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

ASOP No. 35 Steps

The actuary should follow the following steps in selecting the demographic assumptions:

1. Identify the Types of Assumptions. Types of demographic assumptions include but are not limited to retirement, mortality, termination of employment, disability, election of optional forms of payment, administrative expenses, family composition, and treatment of missing or incomplete data. The actuary should consider the purpose and nature of the measurement, the materiality of each assumption, and the characteristics of the covered group in determining which types of assumptions should be incorporated into the actuarial model.
2. Consider the Relevant Assumption Universe. The relevant assumption universe includes experience studies or published tables based on the experience of other representative populations, the experience of the plan sponsor, the effects of plan design, and general trends.
3. Consider the Assumption Format. The assumption format includes whether assumptions are based on parameters such as gender, age, service or calendar year. The actuary should consider the impact the format may have on the results, the availability of relevant information, the potential to model anticipated plan experience, and the size of the covered population.

4. Select the Specific Assumption. In selecting an assumption the actuary should consider the potential impact of future plan design changes as well as the factors listed above.
5. Evaluate the Reasonableness of the Selected Assumption. The assumption should be expected to appropriately model the contingency being measured. The assumption should not be anticipated to produce significant actuarial gains or losses.

ASOP No. 35 General Considerations and Application

Each individual demographic assumption should satisfy the criteria of *ASOP 35*. In selecting demographic assumptions the actuary should also consider the internal consistency between the assumptions, materiality, cost effectiveness, and the combined effect of all assumptions. At each measurement date the actuary should consider whether the selected assumptions continue to be reasonable, but the actuary is not required to do a complete assumption study at each measurement date. In our opinion, the demographic assumptions proposed in this report have been developed in accordance with *ASOP 35*.

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Actuarial valuations utilize methods to determine the liabilities, assets and contribution rates for the System. While these are not like actuarial assumptions that may change over time depending on experience, an experience study is still a good opportunity to review these methods to see if they are still appropriate for systematically funding the promised benefits.

Together the actuarial cost method, the asset valuation method and the amortization of the unfunded actuarial liability create the cornerstone of the System's funding policy. A significant amount of time and effort was spent during 2013 reviewing the current funding policy for IPERS and considering modifications that would improve the policy and better address concerns about IPERS' long term funding. Our discussion here will be minimal in nature since the Board recently reviewed these methods and procedures. Please see Appendix A for a copy of IPERS' Contribution Rate Funding Policy.

ACTUARIAL COST METHOD

The systematic financing of a pension plan requires that contributions be made in an orderly fashion while a member is actively employed, so that the accumulation of these contributions, together with investment earnings should be sufficient to provide promised benefits and cover administration expenses. The actuarial valuation is the process used to determine when money should be contributed; i.e., as part of the budgeting process.

The actuarial valuation will not impact the amount of benefits paid or the actual cost of those benefits. In the long run, actuaries cannot change the costs of the pension plan, regardless of the funding method used or the assumptions selected. However, actuaries **will** influence the incidence of costs by their choice of methods and assumptions.

The actuarial cost method is used to allocate the present value of future benefits between past service (actuarial liability) and future service (normal costs). Currently the valuation uses the entry age normal cost method. This is the most widely used cost method of large public sector plans and has demonstrated the highest degree of stability as compare to alternative methods. It also will be the required actuarial cost method under calculations required by the new Governmental Accounting Standards Board Statement Number 67 and 68. **We recommend the Entry Age Normal actuarial cost method be retained.**

ACTUARIAL VALUE OF ASSETS

In preparing an actuarial valuation, the actuary must assign a value to the assets of the fund. The purpose of an asset smoothing method is to dampen the impact that market volatility has on valuation results by spreading the expected market gains and losses over several years. The actuary does not have complete freedom in assigning this value. The American Academy of Actuaries (AAA) has basic principles regarding the calculation of a smoothed asset value which are set out in *Actuarial Standard of Practice No. 44 (ASOP 44), Selection and Use of Asset Valuation Methods for Pension Valuations.*

IPERS currently values assets, for actuarial valuation purposes, based on the principle that the difference between actual and expected investment returns should be subject to partial recognition to smooth out fluctuations in the total return achieved by the fund from year to year. This philosophy is consistent with the long-term nature of a retirement system. Under this method, the actuarial value of the assets is the expected value of assets plus 25% of the difference between market value and expected value, where the expected value is last year's actuarial value and subsequent cash flows into and out of the fund

accumulated with interest at the valuation rate (7.5%). This is mathematically equivalent to using a weighted average of 75% of the expected value and 25% of actual market value.

IPERS' current asset valuation method also includes what is known as a "corridor", which provides that once the initial determination of the actuarial value of assets is made it is compared to a corridor around market value (80% of market value to 120% of market value). If the initial actuarial value lies outside the corridor, the final actuarial value of assets is set equal to the corresponding corridor value. For example, if the initial actuarial value of assets is 132% of market value, the actuarial value is instead set equal to 120% of market value. We believe the corridor is necessary to ensure actuarial standards (ASOP 44) are met. We believe the current method, with the corridor, is reasonable and meets actuarial standards. **We recommend the current asset valuation method be retained.**

AMORTIZATION OF UAL

As described earlier, actuarial liabilities are the portion of the actuarial present value of future benefits that are not included in future normal costs. Thus it represents the liability that, in theory, should have been funded through normal costs for past service. Unfunded actuarial liabilities (UAL) exist when actuarial liabilities exceed plan assets. These deficiencies can result from (i) plan improvements that have not been completely paid for, (ii) experience that is less favorable than expected, (iii) assumption changes that increase liabilities or (iv) contributions that are less than the actuarial contribution rate.

There are a variety of different methods that can be used to amortize the UAL. Each method results in a different payment stream and, therefore, has cost implications. For each methodology, there are three characteristics:

- The period over which the UAL is amortized,
- The rate at which the amortization payment increases, and
- The number of components of UAL (separate amortization bases).

Amortization Period: The amortization period can be either closed or open. If it is a closed amortization period, the number of years remaining in the amortization period declines by one in each future year. Alternatively, if the amortization period is an open or rolling period, the amortization period does not decline but is reset to the same number each year. This approach essentially "refinances" the System's debt (UAL) every year.

Amortization Payment: The level dollar amortization method is similar to the method in which a home owner pays off a mortgage. The liability, once calculated, is financed by a constant fixed dollar amount, based on the amortization period until the liability is extinguished. This results in the liability steadily decreasing while the payments, though remaining level in dollar terms, in all probability decrease as a percentage of payroll. (Even if a plan sponsor's population is not growing or even slightly diminishing, inflationary increases will usually be sufficient to increase the aggregate covered payroll).

The rationale behind the level percentage of payroll amortization method is that since normal costs are calculated to be a constant percentage of pay, unfunded actuarial liabilities should be paid off in the same manner. When this method of amortizing the unfunded actuarial liability is adopted, the initial amortization payments are lower than they would be under a level dollar amortization payment method, but the payments increase at a fixed rate each year so that ultimately the annual payment far exceeds the level dollar payment. The expectation is that total payroll will increase as rapidly so that the amortization payments will remain constant, as a percentage of payroll. In the initial years, the level percentage of

payroll amortization payment is often less than the interest accruing on the unfunded actuarial liability meaning that even if there are no experience losses, the dollar amount of the unfunded actuarial liability will grow (called negative amortization). This is particularly true if the plan sponsor is paying off the unfunded actuarial liability over a long period, such as 30 years.

Amortization Bases:

The UAL can either be amortized as one single amount or as components or "layers", each with a separate amortization base, payment and period. If the UAL is amortized as one amount, the UAL is recalculated each year in the valuation and the amortization payment is the total UAL divided by an amortization factor for the applicable amortization period.

If separate amortization bases are maintained, the UAL is composed of multiple amortization bases, each with their own payment and remaining period. In each valuation, the unexpected change in the UAL is established as a new amortization base over the appropriate amortization period beginning on the valuation date. The UAL is then the sum of all of the outstanding amortization bases on the valuation date and the UAL payment is the sum of all of the amortization payments on the existing amortization bases. This approach provides transparency in that the current UAL is paid off over a fixed period of time and the remaining components of the UAL are clearly identified. Adjustments to the UAL in future years are also separately identified in each future year. One downside of this approach is that it can create some discontinuities in contribution rates when UAL layers/components are fully paid off. This may not occur, and if it does, it would be far in the future, with adequate time to make adjustments.

IPERS Actuarial Amortization Method:

While updating the Contribution Rate Funding Policy, the Board also reviewed the Actuarial Amortization Method and certain changes were made. One key change was to move from one UAL base to the separate, layered base approach. For each valuation subsequent to June 30, 2014, annual net experience gains/losses for each membership group will be amortized, as a level percentage of payroll, over a new, closed 20 year period. The existing UAL on June 30, 2014 will be amortized over a 30 year closed period. Please see Appendix B for a copy of the Actuarial Amortization Method document. **We recommend the current amortization method be retained.**

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Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations* provides guidance to actuaries giving advice on the selection of economic assumptions for measuring obligations under defined benefit plans, such as IPERS.

Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Recognizing that there is not one "right answer", the standard calls for the actuary to develop a best estimate range for each economic assumption, and then recommend a specific point within that range. Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with all other economic assumptions over the measurement period.

An actuary's best-estimate range with respect to a particular measurement of pension obligations may change from time to time due to changing conditions or emerging plan experiences. The actuary may change assumptions frequently in certain situations, even if the best-estimate range has not changed materially, and less frequently in other situations. Even if assumptions are not changed, the actuary needs to be satisfied that each of the economic assumptions selected for a particular measurement complies with the Actuarial Standard of Practice No. 27.

The Actuarial Standards Board adopted a revised edition of ASOP 27. This revised edition will first be effective for the June 30, 2015 actuarial valuation of the System. The revised ASOP 27 no longer includes the concept of a "best estimate range". Instead, the revised edition of the standard calls for the actuary to select a "reasonable" assumption. For this purpose, an assumption is reasonable if it has the following characteristics:

a. it is appropriate for the purpose of the measurement;

b. it reflects the actuary's professional judgment

c. it takes into account historical and current economic data that is relevant as of the measurement date;

d. it reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof; and

e. it has no significant bias (ie - it is neither significantly optimistic nor pessimistic) except when provisions for adverse deviation or plan provisions that are difficult to measure are included.

The revised standard goes on to discuss a "range of reasonable assumptions" which in part states "the actuary should also recognize that different actuaries will apply professional judgment and may choose different reasonable assumptions." As a result, a range of reasonable assumptions may develop both for an individual actuary and across actuarial practice. In our opinion, the proposed economic assumptions have been developed in accordance with the current version of ASOP No. 27, but will also meet the requirements of the revised edition of ASOP No 27 when it becomes effective.

The remaining section of this report will address the relevant types of economic assumptions used in the actuarial valuation to determine the obligations of the System. In our opinion, the economic assumptions proposed in this report have been developed in accordance with ASOP No. 27. The following table summarizes the current and proposed economic assumptions:

	Current Assumptions	Proposed Assumptions
Inflation	3.25%	3.00%
Interest on Member Accounts	4.00%	3.75%
Investment Return	7.50%	7.50%
General Wage Growth	4.00%	4.00%

INFLATION

Use in the Valuation: Future price inflation has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return, wage growth, and payroll increases.

Inflation also has a direct impact on the valuation results. The Iowa Code provides for a potential increase in the annual dividend for members who retired before July 1990. The maximum annual increase in the dividend is the lesser of 3.0% or the increase in the CPI-U, subject to certain certifications by the actuary. Therefore, the inflation assumption is used directly to develop the assumed increase in the annual dividend payments for this group of retirees. The law also provides that the interest rate credited on member contribution balances will be 1% above the rate credited on a one year Certificate of Deposit (CD). Because the interest rate on a one year CD is dependent on inflation, the inflation assumption also impacts the assumed rate of interest on contribution balances.

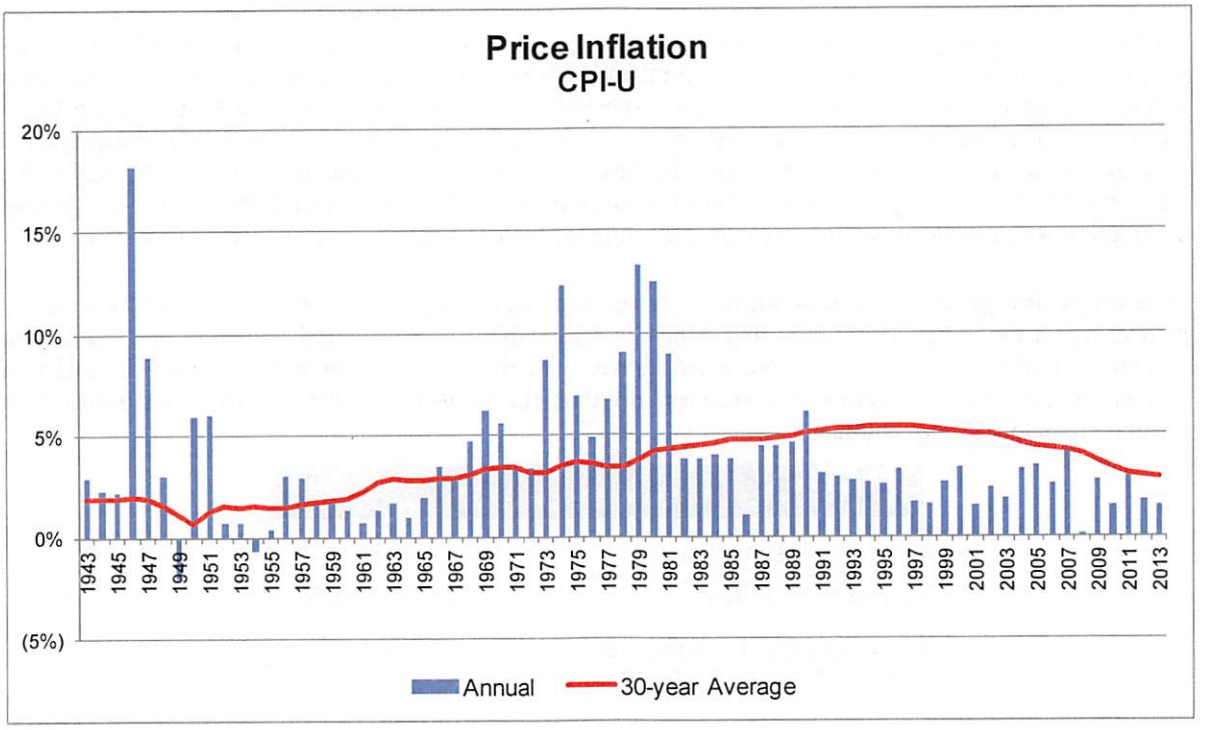
The long-term relationship between price inflation and investment return has long been recognized by economists. The basic principle is that the investor demands a more or less level "real return" – the excess of actual investment return over price inflation. If inflation rates are expected to be high, investment return rates are also expected to be high, while low inflation rates are expected to result in lower expected investment returns, at least in the long run.

The current assumption for price inflation is 3.25% per year.

Past Experience: Although economic activities, in general, and inflation in particular, do not lend themselves to prediction solely on the basis of historical analysis, historical patterns and long term trends are factors to be considered in developing the inflation assumption. The Consumer Price Index, US City Average, All Urban Consumers, CPI (U), has been used as the basis for reviewing historical levels of price inflation. The following table provides historical annualized rates and annual standard deviations of the CPI-U over periods ending December 31st. In order to capture additional data our analysis covers various historical periods ending December 31, 2013.

Period	Number of Years	Annualized Rate of Inflation	Annual Standard Deviation
1926 – 2013	87	3.02%	3.91%
1953 – 2013	60	3.68	2.80
1963 – 2013	50	4.14	2.81
1973 – 2013	40	4.23	3.04
1983 – 2013	30	2.87	1.15
1993 - 2013	20	2.42	0.94
2003 - 2013	10	2.39	1.24

The following graph illustrates the historical annual change in price inflation, measured as of December 31 for each of the last 70 years, as well as the thirty year rolling average.



Over more recent periods, measured from December 31, 2013, the average annual rate of increase in the CPI-U has been 3.00% or lower. The period of high inflation from 1973 to 1982 has a significant impact on the averages over periods which include these rates. Further, the average rate of 3.02% over the entire 87 year period is close to the average rate of 2.87% for the prior 30 years (1983 to 2013). However, the

volatility of the annual rates in more recent years has been markedly lower as indicated by the significantly lower annual standard deviations (see earlier table). Many experts attribute the lower average annual rates and lower volatility to the increased efforts of the Federal Reserve since the early 1980's to stabilize price inflation.

Forecasts of Inflation

Additional information to consider in formulating this assumption is obtained from measuring the spread on Treasury Inflation Protected Securities (TIPS) and from the prevailing economic forecasts. The spread between the nominal yield on treasury securities (bonds) and the inflation indexed yield on TIPS of the same maturity is referred to as the "breakeven rate of inflation" and represents the bond market's expectation of inflation over the period to maturity. The table below provides the calculation of the breakeven rate of inflation as of December 31, 2013.

Years to Maturity	Nominal Bond Yield	TIPS Yield	Breakeven Rate of Inflation
10	3.04%	0.80%	2.24%
20	3.72	1.36	2.36
30	3.96	1.64	2.32

Although many economists forecast lower inflation than the assumption used by retirement plans, they are generally looking at a shorter time horizon than is appropriate for a pension valuation. To consider a longer, similar time frame, we looked at the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the most recent report (May 2013), the projected average annual increase in the CPI over the next 75 years was estimated to be 2.80%, under the intermediate cost assumptions. The lower cost assumption used a forecast of 1.80% and the high cost assumption was 3.80%, indicating a reasonable range for their projections of 1.80% to 3.80%.

Reasonable Range and Recommendation: Given the longer term perspective for pension funding, we believe that a range between 2.50% and 4.00% is reasonable for an actuarial valuation of a retirement system. Based on the information presented above, we believe it is reasonable to reduce the inflation assumption slightly. **Therefore, we recommend that the long-term price inflation assumption be lowered from 3.25% to 3.00%.**

Consumer Price Inflation	
Current Assumption	3.25%
Reasonable Range	2.50% - 4.00%
Recommended Assumption	3.00%

RATE OF CREDITING INTEREST ON MEMBER CONTRIBUTION BALANCES

Use in the Valuation: The law provides that the interest rate credited on member contribution balances will be 1% above the rate credited on a one year Certificate of Deposit (CD). Because this rate impacts the dollar amount available for refund and the number of guaranteed payments at retirement under Option 2, an assumption is needed to project future member contribution balances.

The current assumption is 4.00% (3.25% inflation plus 0.75%). The interest rate credited on Certificates of Deposit is directly impacted by inflation. Rates on short-term CDs tend to be somewhat lower than the long term inflation rate.

Reasonable Range and Recommendation: Based on the reasonable range developed for the inflation assumption, we believe a reasonable range for the interest rate credited on contribution balances is 3.25% to 4.75%. **We recommend the assumption be lowered to 3.75%, reflecting the same 0.25% decrease that occurred in the inflation assumption.**

Interest on Contribution Balances	
Current Assumption	4.00%
Reasonable Range	3.25% - 4.75%
Recommended Assumption	3.75%

INVESTMENT RETURN

Use in the Valuation: The investment return assumption reflects the anticipated returns on the current and future assets. It is one of the primary determinants in the allocation of the expected cost of the System's benefits, providing a discount of the estimated future benefit payments to reflect the time value of money. Generally, the investment return assumption should be set with consideration of the asset allocation policy, expected long term real rates of return on the specific asset classes, the underlying inflation rate, and any investment expenses.

The current investment return assumption is 7.50% per year, net of all investment-related and administrative expenses. The 7.50% rate of return is referred to as the nominal rate of return and is composed of two components. The first component is price inflation (previously discussed). Any excess return over price inflation is referred to as the real rate of return. The real rate of return, based on the current set of assumptions, is 4.25% (7.50% nominal return less 3.25% inflation).

The Actuarial Standards Board Statement Number 27 (ASOP 27) provides guidance to actuaries on the selection of economic assumptions used for measuring pension obligations. As noted earlier, a new edition of this Standard applies for valuation dates after September 30, 2014. However, the guidance with respect to the investment return assumption included in the current version of this standard (which applies to the 2014 valuation) calls for the actuary to construct a "best estimate range" and then recommend a specific point within this range. The standard very specifically defines the best estimate range as "…the narrowest range within which the actuary reasonably anticipates that the actual results, compounded over the measurement period, are more likely than not to fall". This range is represented by the results that fall between the 25th and 75th percentiles.

Forward Looking Analysis

A dynamic forward looking analysis of expected investment return is an appropriate analysis to perform in setting this assumption. In assessing the future expectation of investment returns, we prefer to utilize the capital market assumptions of the investment professionals assisting the Board in determining its investment policies and asset allocations.

The current asset allocation of the fund, which is shown on the following page along with Wilshire's capital market assumptions, was used in our forward looking analysis of expected returns.

Asset Category	Asset Allocation	Expected Rate of Return (Arithmetic)	Standard Deviation
US Equity	23%	8.56%	17.00%
International Equity	15%	9.01%	18.65%
Private Equity	13%	13.59%	27.50%
Real Estate	8%	5.77%	11.50%
Fixed Income	28%	4.31%	4.90%
Credit Opportunities	5%	5.92%	8.20%
TIPS	5%	4.17%	6.00%
Other Real Assets	2%	8.52%	11.15%
Cash	1%	1.56%	1.25%
Total	**100%**		

Using the target asset allocation as shown in the table above and statistical distribution properties, an expected range of rates of return over various time horizons can be developed. Looking at one year results produces an expected return with a high standard deviation, which means there is high volatility. Over longer time horizons, the median return does not change much but the volatility declines significantly. The results below provide an expected range of returns over a 50 year time horizon using Wilshire's long term capital market assumptions which incorporate a 2.25% price inflation assumption.

Time Span In Years	Mean Return	Standard Deviation	Compound Returns by Percentile				
			5th	25th	50th	75th	95th
1	7.36%	10.74%	-9.35%	-0.13%	6.83%	14.26%	25.88%
5	6.93	4.78	-0.74	3.66	6.83	10.09	14.96
10	6.88	3.37	1.42	4.58	6.83	9.12	12.52
20	6.85	2.38	2.98	5.23	6.83	8.49	10.82
30	6.84	1.95	3.67	5.52	6.83	8.15	10.08
50	6.84	1.51	4.37	5.81	6.83	7.85	9.33

As the time span increases, the expected results narrow. Based on this analysis which reflects Wilshire's inflation assumption of 2.25%, there is 50% likelihood that the average rate of return over a 50-year period will be 6.83%. The results further indicate there is a 25% chance that returns will be below 5.81% and a 25% chance they will be above 7.85%. In other words, there is a 50% chance the returns will be between 5.81% and 7.85%.

The nominal rate of return is composed of the real rate of return and the price inflation assumption. Our recommendation for the long term price inflation assumption is 3.00% which is 0.75% higher than the assumption used to generate the numbers in the table above. In general, the higher price inflation assumption would be expected to result in a higher investment return assumption. If the expected return of 6.83% is adjusted for the higher inflation assumption of 3.00%, the resulting expected return is 7.58% and the reasonable range is 6.56% to 8.60%.

Investment-Related and Administrative Expenses

The analysis in the preceding section utilized Wilshire's capital market assumptions which were developed to be net of fees, but assumed passive investment in equities and bonds. IPERS pursues an active investment approach in some cases, but it is reasonable to assume that this strategy will produce sufficient additional returns to offset the expense of active management. Consequently, there is no need to adjust the results of the prior section for investment-related expenses.

IPERS does incur certain administrative expenses that are paid from the trust. The table below shows the ratio of administrative expenses to assets over the last 6 fiscal years.

Fiscal Year	Administrative Expenses ($M)	Actuarial Value Assets ($M)	Expense Ratio
2012-13	$12.1	$23,530	0.05%
2011-12	13.0	22,575	0.06%
2010-11	9.7	21,537	0.05%
2009-10	9.0	21,124	0.04%
2008-09	10.9	21,857	0.05%
2007-08	9.9	20,760	0.05%

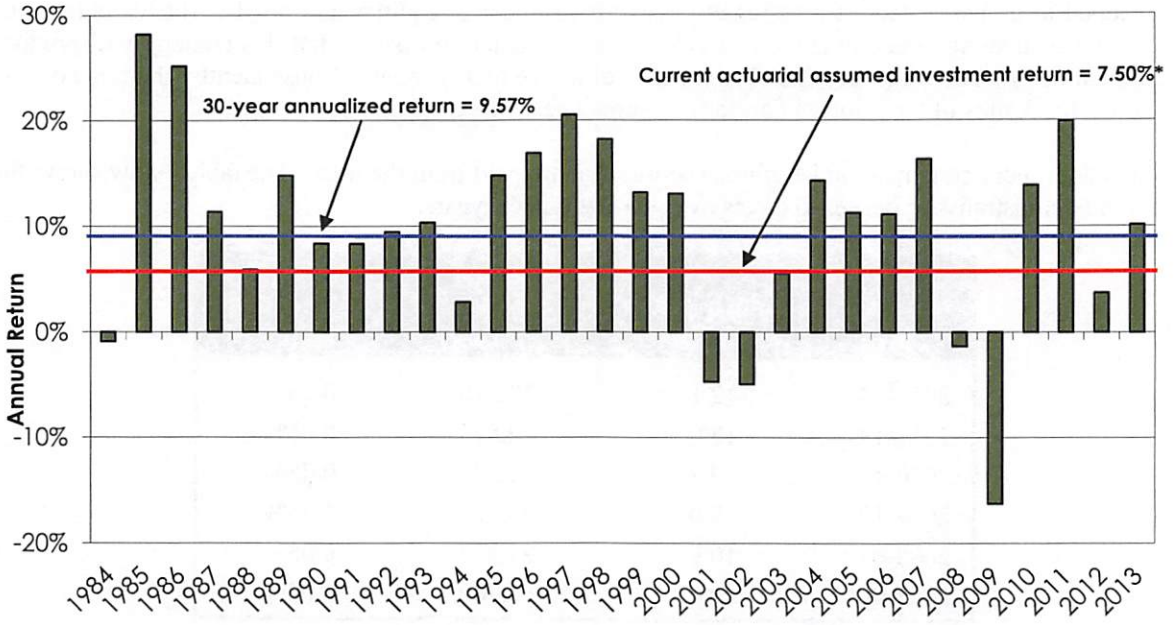
This information was taken from IPERS' Comprehensive Annual Financial Reports (CAFR). The administrative expenses have averaged around 0.05%. We believe it is reasonable to assume that administrative expenses represent about 0.05% of the System's assets.

Reasonable Range and Recommendation: The reasonable range for the investment return net of investment expenses is 6.56% to 8.60%. This range needs to be lowered to reflect the administrative expenses assumed to be paid from the investment return. Given an assumed administrative expense ratio of 5 basis points, we believe that a range between 6.51% and 8.55% is reasonable for an actuarial valuation of a retirement system with IPERS' asset allocation policy.

	Percentile Results		
Components of Return	25th	50th	75th
Real Investment Return	3.56%	4.58%	5.60%
Assumed Inflation	3.00%	3.00%	3.00%
Administrative Expenses	(0.05%)	(0.05%)	(0.05%)
Net Investment Return	6.51%	7.53%	8.55%

Based on this analysis we believe the 7.50% investment return assumption is still reasonable. The focus of this assumption is the long term expectation and it should not be unduly affected by short term expectations.

Historical Perspective: One of the inherent problems with analyzing historical data is that the results can look significantly different depending on the time frame used if the year-to-year results vary widely. Even though history provides a valuable perspective for setting this assumption, the economy of the past is not necessarily the economy of the future. In addition, asset allocations may have changed over the period so returns may not be directly comparable. However, it is still relevant information to consider.



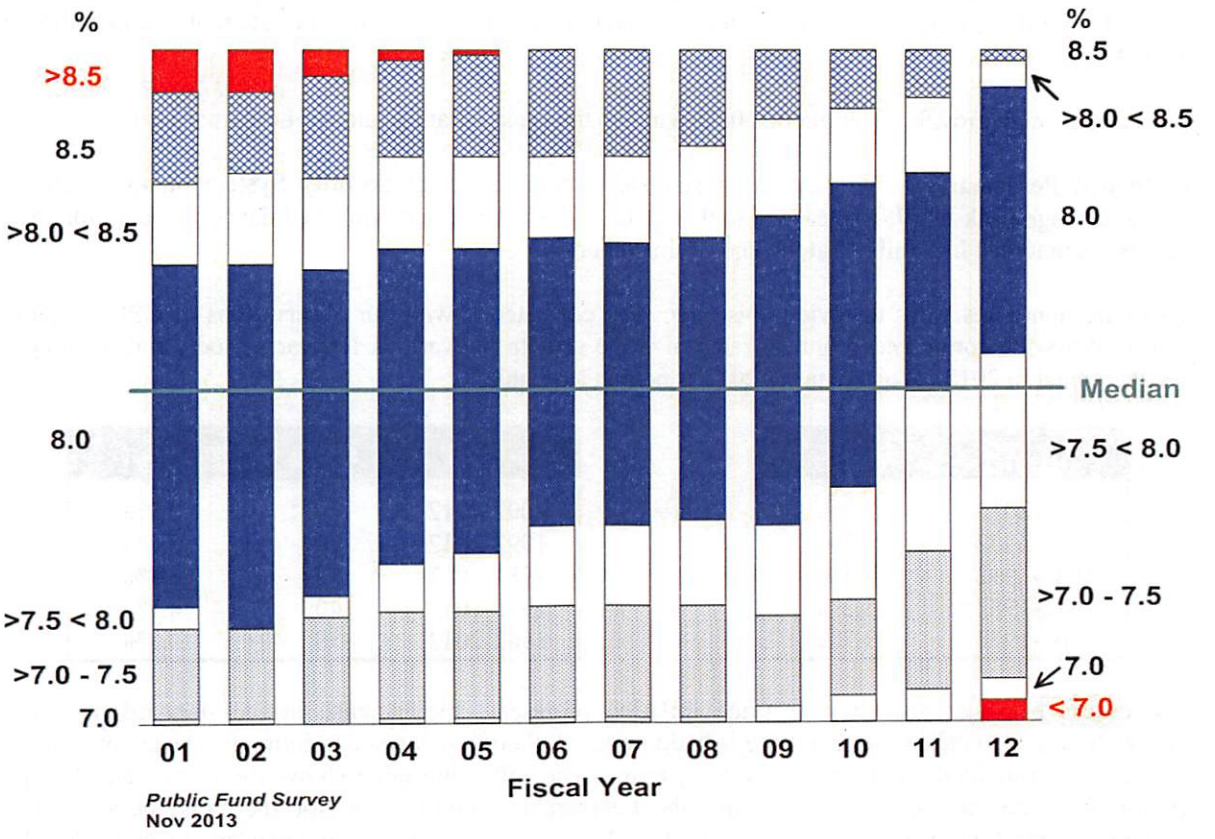
*Actuarial assumed investment return:
1953–1993: 6.50%
1994–1995: 6.75%
1996–present: 7.50%

ANNUALIZED RETURNS through 6/30/13 (net of investment expenses)			
1-Year Return:	10.12%	10-Year Return:	7.78%
3-Year Return:	11.06%	20-Year Return:	8.47%
5-Year Return:	5.48%	30-Year Return:	9.57%

The actual rates of return for past years as determined by IPERS are shown above. While the annualized return for the last 5 years is below the 7.50% assumed rate of return, the 10-year, 20-year, and 30-year returns are all greater than the assumed rate of return of 7.50%.

Although the assumption should not be set based on what other systems are doing, it does provide some context to see how IPERS' assumption relates to other large, public systems. Based on the NASRA Public Fund Survey, an assumption of 8.00% is still the most common for other statewide systems (used

by 50 of the 126 systems). However, as the following graph illustrates the median return is now 7.75% and the distribution of assumptions has changed significantly over the last ten years.



Only 16 of the 126 systems are using an investment return assumption that is less than 7.50%. Another 30 systems use a 7.50% assumption.

Based on our analysis, the current assumption of 7.50% remains a reasonable assumption. The reasonable range and the proposed assumption are summarized below:

Investment Return	
Current Assumption	7.50%
Reasonable Range	6.51% - 8.55%
Recommended Assumption	7.50%

WAGE GROWTH

Use in the Valuation: Estimates of future salaries are based on two types of assumptions. Rates of increase in the general wage level of the membership are directly related to inflation while individual salary increases due to promotion and longevity (referred to as the merit scale) occur even in the absence of inflation. The merit scale will be reviewed with the other demographic assumptions.

As part of determining the System's funding, the amortization payment of the unfunded actuarial liability (UAL) is developed as a level percent of payroll. The general wage increase assumption is used to project covered payroll in future years which in turn is used to calculate the contribution rate required to amortize the UAL.

The current wage growth assumption is 0.75% above the price inflation rate, or 4.00% per year.

Historical Perspective: We have used statistics from the Social Security System on the National Average Wage back to 1951 (please note that 2012 is the most recent published data). The data for each year is documented in Exhibit 2 at the end of this report.

There are numerous ways to review this data. For consistency with our observations of CPI, the table below shows the compounded annual rates of wage growth for various 10-year periods, and for longer periods ended in 2012. Wage data for 2013 is not yet available.

Decade	Wages
2002-2012	2.9%
1992-2002	4.7%
1982-1992	7.4%
1972-1982	5.2%
1962-1972	3.7%

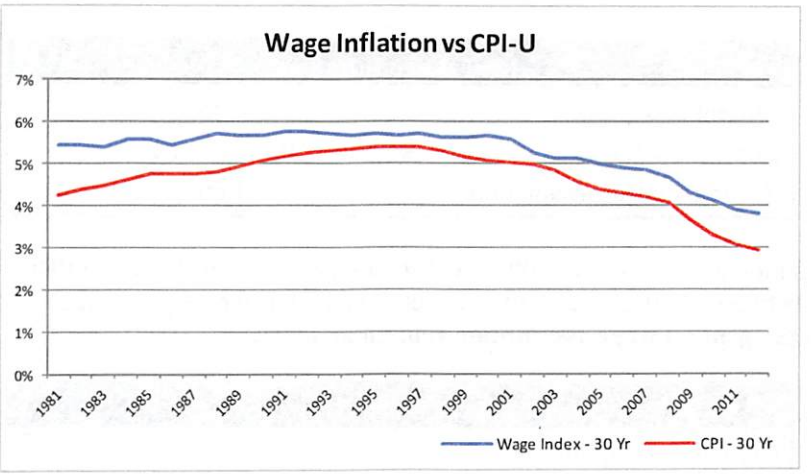
Period	Years	Wages
2002-2012	10	2.9%
1992-2012	20	3.4%
1982-2012	30	3.8%
1972-2012	40	4.7%
1962-2012	50	4.8%

The excess of wage growth over price inflation represents the increase in the standard of living (productivity), also called the real wage inflation rate. Although real wage inflation has been very low in recent years, our focus remains on the long term. The following table shows the compounded wage growth over various periods, along with the comparable inflation rate for the same period. The differences represent the real wage inflation rate. The data for each year is documented in Exhibit 3 at the end of this report.

Decade	General Wage Growth	CPI Incr.	Real Wage Inflation
2002-2012	2.9%	2.5%	0.4%
1992-2002	4.7%	2.5%	2.2%
1982-1992	7.4%	3.8%	3.6%
1972-1982	5.2%	8.8%	(3.6)%
1962-1972	3.7%	3.3%	0.4%

Period	General Wage Growth	CPI Incr.	Real Wage Inflation
2002-2012	2.9%	2.5%	0.4%
1992-2012	3.4%	2.5%	0.9%
1982-2012	3.8%	2.9%	0.9%
1972-2012	4.7%	4.4%	0.3%
1962-2012	4.8%	4.1%	0.7%

Similar information over rolling thirty year periods is shown below:



There has been debate on the issue of whether public sector employees will receive, over the long term, the same rewards for productivity as employees in the private sector, where productivity is more readily measurable. To our knowledge, no definitive research has been completed on this topic. Nevertheless, it is our opinion that public sector employees must be rewarded, even if there is a time lag, with the same productivity increases as those participating in the remainder of the economy.

Forecasts of Future Wages: The wage index we used for the historical analysis has been projected forward by the Office of the Chief Actuary of the Social Security Administration. In a report in May of 2013 the annual increase in the National Average Wage Index over the next 30 years under the intermediate cost assumption was 3.9%, 1.1% higher than the Social Security intermediate inflation assumption of 2.8% per year. The range of the assumed real wage inflation in the 2013 Trustees report was 0.5 to 1.7% per year.

Reasonable Range and Recommendation: Based on our professional judgment, we believe that a range between 0.50% and 1.50% is reasonable for the actuarial valuation. **We recommend that the long-term assumed real wage inflation be increased from 0.75% to 1.00% per year.**

Real Wage Inflation	
Current Assumption	0.75%
Reasonable Range	0.50% - 1.50%
Recommended Assumption	1.00%

Based on our inflation assumption of 3.00%, and the range for the real wage inflation rate of 0.50% to 1.50% a range between 3.50% and 4.50% is reasonable for the general wage growth assumption. **We recommend the general wage assumption remain at 4.00%.**

General Wage Growth	
Current Assumption	4.00%
Reasonable Range	3.50% - 4.50%
Recommended Assumption	4.00%

Payroll Increase Assumption: In addition to setting salary assumptions for individual members, the aggregate payroll of IPERS is expected to increase, without assuming an increase in the active membership. See comments on "Growth in Active Membership" below.

The UAL is amortized as a percentage of payroll in determining future contribution rates. For these calculations, the payroll increase assumption is set equal to the wage growth assumption.

Payroll growth increases lower than expected have a negative effect on determining the UAL contribution rate, as a greater percentage of pay will be required to fund the UAL with smaller expected payroll in future years. Likewise, payroll growth increases greater than expected have a positive effect on determining the UAL contribution rate, as a lower percentage of pay will be required to fund the UAL. **We recommend the payroll increase assumption remain at 4.00%.**

Growth in Active Membership: We propose continuing the assumption that no future growth in active membership will occur. This assumption affects the amortization payment rate, which is the portion of the total contributions used to liquidate the unfunded actuarial liability. With no assumed growth in active membership, future salary growth due only to general wage increases is being anticipated. If increases should occur not only because of wage increases but also because of additional active members, there will be a larger pool of salaries over which contributions would be paid which would result in a shorter amortization period.

SECTION 5 – INTRODUCTION TO DEMOGRAPHIC ASSUMPTIONS

Actuarial Standard of Practice (ASOP) No. 35, ***Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations,*** provides guidance to actuaries giving advice on the selection of demographic assumptions for defined benefit plans, such as IPERS.

The purpose of a study of demographic experience is to compare what actually happened to the individual members of the System during the study period (July 1, 2009, through June 30, 2013) with what was expected to happen based on the actuarial assumptions. Four years is a relatively short observation period, so we have considered experience in the previous observation period (2005 – 2009) when practical to do so. Where A/E ratios from prior experience studies are shown, the expected decrements are based on the current assumptions so the results are directly comparable to those found in the current study.

Studies of demographic experience generally involve three steps:

- First, the number of members changing membership status, called decrements, during the study is tabulated by age, duration, sex, group, and membership class (active, retired, etc.).
- Next, the number of members expected to change status is calculated by multiplying certain membership statistics, called exposure, by the expected rates of decrement.
- Finally, the number of actual decrements is compared with the number of expected decrements. The comparison is called the actual to expected ratio (A/E Ratio), and is expressed as a percentage.

In general, if the actual experience differs significantly from the overall expected results, or if the pattern of actual decrements, or rates of decrement, by age, sex, or duration deviates significantly from the expected pattern, new assumptions are considered. Recommended revisions are normally not an exact representation of the experience during the observation period. Professional judgment is required to set assumptions for future experience from past trends and current evidence, including a determination of the amount of weight to assign to the most recent experience.

In addition to the traditional "count" basis, we also analyzed the experience using a "liability weighted" approach. The member's "liability" in the System is generally determined by the benefit amount and age of the member. Some assumptions already reflect differences by age directly. The other factor, benefit amount, is impacted by a member's salary and service. These two factors are used to estimate the member's relative benefit level and to weight experience (the exposure and actual occurrences are scaled by salary and service). This approach is particularly insightful when analyzing experience from a non-homogenous group. With separate assumptions for each subgroup in the regular membership this is less of an issue. However, for a large group like the School group where differences between certificated and non-certificated members may be significant, this approach provides additional insight. While we reviewed experience on both a count and liability basis for most assumptions, when there was a significant difference between the two, we generally assigned more credibility to the liability weighted experience and made recommendations on that basis.

Prior experience studies have included analysis of experience by subgroup for the regular membership (State, School, Other). In general, that analysis has indicated differences in behavior by members employed by different types of public employers. We believe the use of separate assumptions

for each subgroup provides a better estimate of the System liability. The Board adopted this approach in the last study and we recommend it be retained.

When changes in assumptions are proposed, revised rates of decrement are tested by using them to recalculate the expected number of decrements during the study period, and the results are shown as revised A/E Ratios.

Salary adjustments, other than the economic assumption for wage inflation, are treated as a demographic assumption. However, the method of investigation needed for salaries is different from that used for the decrements. A description of the procedure followed is included in that section of this report.

It takes a fair amount of data to perform a credible study of demographic assumptions. Because the benefit provisions are similar and membership of the Special Services groups is relatively small, experience for the two Special Services groups has been aggregated when appropriate. In addition, some assumptions have been selected based more on our professional judgement of reasonable future outcomes than actual experience.

The demographic assumptions studied for both Regular and Special Services groups include:

- Mortality
- Retirement
- Disability
- Termination of Employment
- Probability of Electing a Vested Benefit
- Merit Salary Scale

Background: One of the most important demographic assumptions is mortality because this assumption predicts when retirement payments will stop (the duration of benefit payments). It also predicts when pre-retirement death benefits will be paid. The life expectancies of current and future retirees are predicated on the assumed rates of mortality at each age. It is commonly known that rates of mortality declined throughout the 20th century and continue to decline, which means people, in general, are living longer. Furthermore, the experience of large, public retirement systems that cover School employees indicate that the School group continues to exhibit better mortality than the average working population.

Because of potential differences in mortality, we studied healthy retirees, disabled retirees and active members separately. Because different assumptions apply to members in each of the three subgroups (State, School and Other), separate analysis was needed for each group.

Regular Membership

Healthy Retirees: The valuation currently uses separate mortality assumptions for male and female members in each group, i.e. State, School, and Other. The current mortality assumptions for healthy retirees are based on the RP-2000 Generational Table for Healthy Annuitants (RP-2000 Table), with some adjustments:

State - Male	1 Year Set Forward
State - Female	1 Year Set Back with 5% increase above age 75
School - Male	No age adjustment, but rates reduced 5% below age 75
School - Female	3 Year Set Back with 10% decrease before age 75 and 10% increase above age 74
Other – Male	1 Year Set Forward
Other - Female	2 Year Set Back with 5% increase above age 75

The terms set forward and set back are used to indicate that mortality rates are adjusted by using rates for an older age (set forward) or a younger age (set back). Thus, a one year set forward indicates that a 65 year old is assumed to have the mortality rate associated with a 66 year old in the mortality table.

If the A/E Ratio is greater than 100% the assumptions have predicted fewer deaths than actually occurred, and with an A/E Ratio less than 100% the assumptions have predicted more deaths than have occurred. Because future improvements in mortality are explicitly reflected in the mortality rates applied in future years, there is no need for a "margin" (A/E well above 100%). Instead we are looking for an A/E ratio around 100%.

Mortality changes evolve gradually over time. In addition, larger data sets provide more reliable results; particularly given the data is split into the various subgroups for the regular membership and then broken down by each age. Therefore, the data in the current study period (June 30, 2009 through June 30, 2013) was aggregated with the data in the prior study (July 1, 2005 through June 30, 2009) to evaluate the overall mortality experience of the System.

The basic RP-2000 Table has been used in IPERS valuations since 2002, although various adjustments have applied over the years. The table projects anticipated future mortality improvements on a "generational" basis, i.e. mortality rates are set by the year in which a member reaches a particular age, which is a more sophisticated approach to incorporating expected mortality improvements in the future. The RP-2000 Table uses a projection scale (Scale AA) to model improvements in mortality in each future year. Since the actual experience in our analysis included deaths in the period July 1, 2005 to June 30, 2013, we projected mortality rates to the central year (2009) for purposes of developing the expected number of deaths at each age. The results of the study for the key ages of 55 to 90 are summarized in the following chart:

Postretirement Mortality for Healthy Lives	2005-2013 Observations		Current Assumption	
	Exposure	Actual Deaths	Expected Deaths	A/E Ratio
Males				
State	38,966	1,380	1,579	87%
School	110,474	2,989	3,556	84%
Other	78,551	2,956	3,257	91%
Total	**227,991**	**7,325**	**8,392**	**87%**
Females				
State	45,374	1,231	1,204	102%
School	233,451	4,548	4,978	91%
Other	116,157	2,745	2,891	95%
Total	**394,982**	**8,524**	**9,073**	**94%**

The A/E ratios for females in all of the regular membership groups were close to 100% and, therefore, we recommend the current assumptions for those groups be retained. The A/E ratio for female School members in this study was 91% which is starting to require attention. When the prior experience study was consulted, the A/E ratio was 98%. Therefore, we believe we can retain the current assumption.

The A/E ratios for males in all three of the regular membership groups were below 100%. An A/E ratio below 100% creates concern because it indicates that the life expectancy of members may be understated and, therefore, the actuarial liability for these members may also be understated. The A/E ratios indicate that mortality experience for males during the study period reflected better mortality than expected based on the current assumption with projected improvements using Scale AA. Therefore, we believe an adjustment to the mortality assumption is needed for males in the regular membership.

We recommend changing the mortality assumptions for males in the regular membership as follows:

State - Male	RP2000 Healthy Annuitant, Generational with no adjustments
School Male	RP2000 Healthy Annuitant, Generational with one year age setback and 5% reduction in rates before age 75
Other - Male	RP2000 Healthy Annuitant, Generational with no adjustments

The resulting A/E ratios for male members using the proposed assumptions are 97% for the State, 94% for the School group, and 101% for the Other group.

Beneficiaries: The mortality of beneficiaries applies to the survivors of members who have elected a joint and survivor option. There is never complete data on the mortality experience of beneficiaries prior to the death of the member because there is no requirement that the death be reported to the System (unless they elected Option 6, Joint & Survivor with pop-up). Therefore, we recommend we continue to follow standard convention and set the mortality of beneficiaries equal to the mortality of retired members of the same gender.

Disabled Members: The valuation assumes that disabled members, in general, will not live as long as retired members who met the regular service retirement eligibility. There tends to be more fluctuation in disabled mortality than healthy mortality because of differences in the types of disabilities and the relatively small number of disabled members. In addition, the smaller number of exposure results in more volatility. The current assumption is the RP2000 Disabled Mortality Table, Generational with a one-year setback for males and a three-year set forward for females. Based on this assumption, the A/E Ratios for males and females in the current study were 77% and 72%, respectively. In the prior study the A/E ratios using this assumption were 102% and 105%, respectively. Given the smaller dataset, greater volatility in the observed experience is to be expected. Therefore, we recommend the current assumption be retained until the next experience study when additional data will be available.

Active Members: This assumption predicts eligibility for death benefits for active members prior to retirement, rather than the expected lifetime for pension payments. For active member mortality, it is more conservative to have an A/E Ratio less than 100% because active member death benefits are generally less costly than retirement benefits.

The current assumption, which was adopted in the last experience study, is the RP-2000 Employee Table with a three year setback for males in the State and School groups, no age adjustment for males in the Other group and an eight year setback for females in all three groups (State, School, and Other). Rates of mortality among active members may be impacted by active members first terminating or moving to disabled status before death. In addition, the number of deaths from active membership may be understated because the criteria for reporting for purposes of this study requires that a members' date of death and payment date occur before June 30. For these reasons, it is likely active death rates are higher than the experience data might indicate.

The observed A/E Ratios for active members ages 25 to 64 are shown in the following chart.

Active Members	2009-2013 Observations Exposure	Actual	Expected	A/E Ratio Count
Male				
State	30,952	48	40	120%
School	72,394	70	84	83
Other	79,204	121	134	90
Total	**182,550**	**239**	**258**	**93%**
Female				
State	45,180	38	47	81%
School	232,531	138	231	60
Other	120,465	93	123	76
Total	**398,176**	**269**	**401**	**67%**

Given the small probability of death while members are active and the smaller exposure that results from segmenting the regular membership into six groups, some volatility in results is to be expected. Based on the observed data, we recommend the current assumptions be retained.

Special Service Classes

For members who are in the Special Service classes, we studied healthy retired and active mortality experience. There were an insufficient number of female members to produce statistically reliable information so our analysis was performed for male members only. While there is more data for males, the number of members is still much smaller than the regular membership and, therefore, less credibility is assigned to the results.

The current assumption for this group for healthy retirees is the RP-2000 Healthy Annuitant Table with no adjustment. For actives, the RP-2000 Employee Table without adjustment is used. It is assumed that 5% of pre-retirement deaths are service related.

The results of this study are shown below.

Deaths	2009-2013 Observations Actual	Expected	A/E Ratio
Current Assumption			
Healthy Retirees	181	183	99%
Actives	18	28	64%

There is considerably less data to rely on for the Special Services groups. The resulting A/E ratio for retired members who are ages 55 to 90 is 100%. For active members, the A/E ratio is 64%, still acceptable given the small size of the group and the corresponding volatility expected to occur.

We recommend the current mortality assumptions for Special Services groups be retained.

New Mortality Table

The Board should be aware that the Society of Actuaries is expected to publish an updated mortality table later this year, called the RP 2014 Mortality Table. It will replace the RP 2000 Table as the primary mortality table to be used in valuations of pension plans and will be based on the most recent mortality experience. A projection scale, MP 2014, will also be published with the Table for use in projecting future mortality improvements. The Society of Actuaries found that actual mortality improvements since the RP 2000 Table was published were greater than anticipated by Scale AA, which was published with the RP 2000 Table for the purpose of projecting future mortality improvements. We will evaluate the appropriateness of the new mortality table in the next experience study. If adoption of the new RP 2014 Table is a good fit, it may increase the liabilities of the System because it projects longer payment periods due to continually improving mortality experience throughout the country.

We recommend that the mortality assumptions described here and detailed in Appendix D be adopted.

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Service retirement measures the change in status from active membership directly to retirement. This assumption does not include the retirement patterns of the retirees who terminated from active membership and then commence benefits at a later date. That experience is studied separately and is discussed in the inactive vested member topic later in this section.

Regular Membership

The requirement for early retirement with a reduced benefit is age 55. The requirements for retirement with a full (unreduced) benefit are age 65 or age 62 with 20 years of service (referred to as "normal retirement"). Full, unreduced benefits are also available at or after age 55 if age plus service is at least equal to 88 (referred to as Rule of 88).

Among the members at any age who are eligible to retire with unreduced benefits (Rule of 88 or normal retirement), those who are in their first year of meeting the eligibility requirements are generally more likely to retire than those who met that requirement more than a year ago. We refer to retirement rates for those in their first year of such eligibility as "select" and those beyond that first year as "ultimate." This select/ultimate approach is the basis for our evaluation of the retirement experience.

The summary results of our experience study, on both a count basis and liability weighted basis, are shown below:

Retirements	Exposure	Actual Retirements	Expected Retirements	A/E Ratio Count	A/E Ratio Weighted
State					
Early	15,528	1,201	1,078	111%	141%
Select	2,116	598	504	119%	125%
Ultimate	5,562	1,699	1,368	124%	129%
Total	**23,206**	**3,498**	**2,950**	**119%**	**132%**
School					
Early	58,337	3,896	6,219	63%	97%
Select	7,088	1,784	2,260	79%	93%
Ultimate	20,181	5,639	6,551	86%	112%
Total	**85,606**	**11,319**	**15,030**	**75%**	**101%**
Other					
Early	45,143	2,319	3,556	65%	88%
Select	4,889	1,040	1,357	77%	90%
Ultimate	14,158	2,963	4,083	73%	90%
Total	**64,190**	**6,322**	**8,996**	**70%**	**89%**

Traditional actuarial analysis measures the number of actual retirements compared to the expected number of retirements (A/E ratio on count). However, experience gains on retirements may not appear despite the fact that a smaller than expected number of members retired if the demographic composition of the group retiring was significantly different from that of the total eligible group. In general, if the average salary and service for those retiring was higher than the average salary and service for the total group eligible to retire the expected gains will not materialize. The liability-weighted analysis (far right column in the table above) captures these differences in the experience results and enables us to develop assumptions that are based on the liability experience rather than experience using the counts. As is

evident in the table above, the A/E ratios on a liability weighted basis for School and Other are much closer to 100% than those on a count basis indicating the current assumptions are fairly accurately representing actual liability experience as it unfolds. Because the current assumptions were developed using the liability weighted approach we would expect the fit on a liability basis to be better than the fit on a count basis.

The number of retirements in all groups, other than the State, was lower than expected. A/E ratios on a liability weighted basis were consistent with findings in the prior experience study for the School and Other groups. For the State, actual experience on both a count and liability basis was well above 100%. The State offered the State Early Retirement Incentive Program (SERIP) to state employees in 2010. Employees electing the SERIP were required to separate from state employment by June 24, 2010 and submit an application to IPERS for benefits. Such members had to be at least 55 years of age by July 31, 2010. The SERIP was structured to incent members with higher years of service to leave covered employment. Given the timing of the SERIP we believe that it impacted the actual retirements in both FYE 2010 and 2011. Since there were financial incentives offered to impact employees' behavior under the SERIP, the retirement experience for those two years is not of value in determining the long term trends expected to occur. It is also possible that the spike in retirements in those two years impacted the retirement experience in subsequent years. Additional detail on the experience of the State group, by year, is shown below:

State	Exposure	Actual Retirements	Expected Retirements	A/E Ratio Count	A/E Ratio Weighted
Early					
7/1/09 to 6/30/10	4,036	365	281	130%	153%
7/1/10 to 6/30/11	3,826	453	265	171%	233%
7/1/11 to 6/3012	3,758	182	257	71%	91%
7/1/12 to 6/30/13	3,908	201	275	73%	92%
Total	**15,528**	**1,201**	**1,078**	**111%**	**141%**
Select					
7/1/09 to 6/30/10	599	170	143	119%	147%
7/1/10 to 6/30/11	555	241	135	179%	213%
7/1/11 to 6/30/12	447	74	105	70%	48%
7/1/12 to 6/30/13	515	113	121	93%	83%
Total	**2,116**	**598**	**504**	**119%**	**125%**
Ultimate					
7/1/09 to 6/30/10	1,674	577	420	137%	147%
7/1/10 to 6/30/11	1,495	744	364	205%	213%
7/1/11 to 6/30/12	1,058	126	254	50%	48%
7/1/12 to 6/30/13	1,335	252	330	76%	83%
Total	**5,562**	**1,699**	**1,368**	**124%**	**129%**

Inactive Vested Members

Currently, inactive vested members who leave their contributions with the System are assumed to retire at age 62. We reviewed the experience during the last three years of observation period and found that age the average retirement age was 60.5. We also note that the average retirement age for inactive vested members has increased over the past two years. We recommend the current assumption of age 62 be retained for inactive vested members.

Special Service Groups

The eligibility requirement for retirement benefits is different for the two special service classes. Sheriffs and Deputies (SD) may retire at age 50 with 22 years of service, effective July 1, 2008. Members in the Protection Occupation group (PO) are eligible to retire at age 55. Therefore, a different retirement assumption is used in valuing the liabilities for these two groups and their experience must be analyzed separately as well.

When the age 50 retirement provision for Sheriffs and Deputies was added in 2004, the assumption was set without the benefit of actual experience. Given that fact, the rates were intentionally set to provide some conservatism while waiting for actual experience to unfold. The first time actual experience could be measured was in the last experience study, but little credibility could be assigned to the experience since provisions were being phased in during the study period. Therefore, the data in this study period is the first credible experience on which to evaluate the current assumption.

The results of our investigation of retirement experience for ages 50 (SD) or 55 (PO) to 65 during this study period are shown below.

	Exposure	Actual Retirements	Expected Retirements	A/E Ratio Count	A/E Ratio Weighted
Sheriffs and Deputies					
7/1/09 to 6/30/10	283	48	66	73%	77%
7/1/10 to 6/30/11	277	26	62	42%	46%
7/1/11 to 6/30/12	287	40	65	62%	63%
7/1/12 to 6/30/13	280	42	61	69%	72%
Total	**1,127**	**156**	**254**	**61%**	**65%**
Protection Occupation					
7/1/09 to 6/30/10	999	119	173	69%	98%
7/1/10 to 6/30/11	970	103	167	62%	96%
7/1/11 to 6/30/12	1,012	188	176	107%	163%
7/1/12 to 6/30/13	1,066	216	176	123%	201%
Total	**4,047**	**626**	**692**	**90%**	**139%**

The retirement assumption for the Sheriffs and Deputies group was modified in the last experience study by decreasing retirement rates, but still keeping some conservatism (rates were still higher than actual experience). The resulting A/E ratio on the revised assumption in the last study was 73% for all ages and 85% for ages 55 to 65. In the current study, over 45% of the retirements occurred prior to age 55 so utilization of the provision to retire before age 55 is fairly high. The A/E ratio for ages 50 to 54 is 76% on a count basis compared to 53% for ages 55 to 65. The current assumption still anticipated slightly higher utilization than occurred, which we believe is prudent since actual experience at this point in time is still very limited. As a result, we prefer to keep the current rates for ages 50 to 54. However, we recommend the retirement rates at ages greater than 54 be lowered so the rate is 17% at ages 55 to 61 and 30% at ages 62 to 64. The resulting A/E ratio using the proposed assumption is 70%.

Experience for the Protection Occupation group varied dramatically by year in the four-year study period with A/E ratios above 100% in two of the four years and below 100% in the other two years. There is also a significant difference between the A/E ratios on a count basis compared to a liability weighted basis. We are uncertain as to why this dramatic variation in experience occurred, but it was observed in the last experience study as well. Given that the assumption was changed in the prior study with a resulting A/E ratio of 95%, we recommend retaining the assumption.

We recommend that the retirement assumptions described here and detailed in Appendix D be adopted.

Regular Membership

The current disability assumption for the regular membership, which was adopted in the last experience study, utilizes separate disability rates for males and females in each subgroup (State, School and Other). The table below indicates the number of actual and expected disabilities during the study period and the resulting A/E Ratios. In general, ratios below 100% indicate fewer disabilities than expected which would generally result in lower actuarial liability than expected.

	Male			Female		
Disabilities	Actual	Expected	A/E Ratio	Actual	Expected	A/E Ratio
State	30	50	60%	40	76	53%
School	49	83	59%	129	247	52%
Other	106	211	50%	93	165	56%
Total	**185**	**344**	**54%**	**262**	**488**	**54%**

Overall, there were fewer disabilities in all three groups than expected as demonstrated by A/E ratios below 100%. Separate assumptions for each group were adopted in the last experience study. Those disability rates produced A/E ratios in the 90-100% range except for the School – Female group which was 68%. The dramatic change in the A/E ratio creates some concern on our part. Recognizing that volatility in the results is to be expected given the very small probabilities that are applied at each age and the A/E ratios in the last study were relatively close to 100%, we recommend the current set of disability assumptions be retained.

Special Services Membership

There are two disability assumptions used in the valuation: (1) ordinary disability and (2) accidental disability. For purposes of the experience study all disability experience was combined and the expected number of disabilities was the sum of the accidental plus ordinary disability rates times the exposure at each age.

During the current study period, there were 47 disabilities compared to 60 expected, resulting in an A/E ratio of 78%. Due to the small number of exposure for female members in these groups, one set of rates is used for all members. Furthermore due to the small size of the group (as compared to the regular membership) actual experience, although considered, cannot be given full credibility. The disability rates were reduced significantly in the last experience study. The current study indicates the A/E ratio is still well below 100% (78%), but given the small probabilities of disability some volatility in the results is to be expected. We prefer to maintain some conservatism in this assumption because adverse experience with respect to this assumption can be significant. Therefore, we recommend the current assumption be retained.

We recommend that the disability assumptions described here and detailed in Appendix D be adopted.

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This section of the report summarizes the results of our study of terminations of employment for reasons other than death, retirement, or disability. Rates of termination can vary by age, years of service and gender. In general, rates of termination are highest at younger ages and in the early years of employment.

Regular Membership

Generally speaking, about 45% of all terminations occur within the first two years of membership and over 80% occur in the first six years of membership.

	Withdrawal by Membership Year			
Membership Class	Less Than 2 Years	2nd – 6th Year	7th & Higher Year	All Years
Male	5,424	3,847	1,680	10,951
Female	11,809	10,805	5,022	27,636
Total	**17,233**	**14,652**	**6,702**	**38,587**

The number of terminations includes all members reported to have terminated employment whether voluntary or involuntary. Some of these members subsequently receive refunds of contributions; some return to active membership and some leave their contributions with the System until retirement. This is addressed by the use of explicit assumptions about what happens to the members after they terminate employment. (See Section 10 of this report.)

The following chart shows the actual and expected number of terminations for causes other than death, retirement, or disablement, and the corresponding A/E Ratios. In general, terminations lower than expected increase the liabilities, but in terms of the impact on the valuation, which members terminate can be more important than the number of terminations. The specific results are summarized in the tables below:

	State-Male				State- Female			
Fiscal Year End	Actual	Expected	A/E Ratio Count	A/E Ratio Weighted	Actual	Expected	A/E Ratio Count	A/E Ratio Weighted
2010	221	282	78%	75%	538	505	107%	93%
2011	254	267	95%	108%	395	415	95%	95%
2012	263	287	92%	85%	480	414	116%	106%
2013	234	263	89%	81%	432	393	110%	100%
Total	**972**	**1,099**	**88%**	**87%**	**1,845**	**1,727**	**107%**	**99%**

Fiscal Year End	School-Male				School- Female			
			A/E Ratio				A/E Ratio	
	Actual	Expected	Count	Weighted	Actual	Expected	Count	Weighted
2010	931	843	110%	60%	3,212	2,901	111%	66%
2011	1,047	816	128%	82%	3,464	2,764	125%	79%
2012	1,008	802	126%	61%	3.537	2,730	130%	82%
2013	942	806	117%	76%	3,444	2,756	125%	76%
Total	**3,928**	**3,267**	**120%**	**70%**	**13,657**	**11,151**	**122%**	**76%**

Fiscal Year End	Other-Male				Other- Female			
			A/E Ratio				A/E Ratio	
	Actual	Expected	Count	Weighted	Actual	Expected	Count	Weighted
2010	1,344	1,454	92%	57%	2,827	2,798	101%	63%
2011	1,489	1,454	102%	64%	2,992	2,701	111%	75%
2012	1,640	1489	110%	67%	3,115	2,783	112%	75%
2013	1,578	1,467	108%	77%	3,200	2,804	114%	79%
Total	**6,051**	**5,864**	**103%**	**66%**	**12,134**	**11,086**	**109%**	**73%**

While in general the number of terminations was close to or exceeded the expected count (A/E ratios were close to or above 100%), very different results occurred on a liability weighted basis. The actual experience was significantly below the expected for all except the State-Female group whose A/E ratio was 99%. The proposal for the current assumption was the result of analysis in the last experience study using the liability weighted results and data from July 1, 2005 through June 30, 2009.

As shown in the table below, the termination experience for all groups (except State-Females) was lower than that in the prior study period:

	A/E Ratio			
	2005-2009		2009-2013	
	Male	Female	Male	Female
State	92%	89%	87%	99%
School	87%	88%	70%	76%
Other	87%	85%	66%	73%

Due to the economic conditions and general uncertainty during the current study period, the observed termination rates are not fully credible. Our expectation is that current termination rates observed in the data are lower than termination rates will be over the longer term. Therefore, we recommend that the current assumption be retained even though the assumed termination rates are somewhat higher than the actual, observed experience. We expect the trend to change in the long term as the economy recovers and job opportunities increase.

Special Services Membership

Due to the small number of female members in the two Special Services classifications there is insufficient data upon which to develop separate assumptions by gender. An age based assumption is used for the termination assumption for all Special Services members – both Sheriffs and Deputies and Protection Occupation. The results of our study for ages 25 to 54 are shown below:

Fiscal Year End	Exposure	Actual	Expected	A/E Ratio Count	A/E Ratio Weighted
2010	6,933	408	210	194%	98%
2011	6,846	451	207	218%	98%
2012	6,801	398	205	194%	114%
2013	6,733	415	202	205%	94%
Total		**1,672**	**824**	**203%**	**98%**

Although the observed A/E Ratio of 203% on a count basis indicates the current assumption is not anticipating enough terminations compared to actual experience, the liability weighted experience indicates the current assumption is a good fit. We assign more credibility to the liability weighted results and, therefore, we recommend the current assumption be retained.

We recommend that the termination of employment assumptions described here and detailed in Appendix D be adopted.

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Some members who terminate active employment elect to receive a distribution of their member account balance and the appropriate share of their employer balance. We assume that all non-vested members receive a refund of their account balance at the time of termination. In addition, we assume that a certain percentage of active vested members who terminate also elect a refund, thus forfeiting a vested right to their employer-provided benefit. The remaining members are thus assumed to elect to receive a deferred vested benefit at retirement.

Regular Membership

The current assumption is a service-based assumption which varies by subgroup. The following table shows the number of vested members who terminated and elected to leave their funds with the System and receive a deferred vested benefit, along with the expected count.

Electing a Vested Benefit	2009-13 Observations			A/E Ratio	
	Exposure	Actual	Expected	Count	Weighted
Male					
State	370	244	266	92%	93%
School	1,331	1,040	1,060	98%	93%
Other	1,384	995	897	111%	105%
Total	**3,085**	**2,279**	**2,223**	**103%**	**98%**
Female					
State	750	455	510	89%	88%
School	5,229	4,161	4,251	98%	98%
Other	3,411	2,425	2,475	98%	94%
Total	**9,390**	**7,041**	**7,236**	**97%**	**95%**

The experience in this study period was consistent with that in the prior experience study. The A/E ratios for all groups are reasonable and we recommend the assumptions be retained.

Special Services

Because the group is small and termination rates are low, there is little credible data upon which to base this assumption. The A/E Ratio based on the current assumption was 94% on a count basis and 75% on a liability basis. These A/E ratios are slightly higher than those observed in the last study. Given the small amount of data, we believe the current assumption remains reasonable and we recommend it be retained.

We recommend that the assumptions regarding the probability of electing a deferred vested benefit described here and detailed in Appendix D be adopted.

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Background

The assumed rates of salary increase provide the expected growth in future salaries both for approximating the future benefits to be provided and the future amounts expected to be contributed to the System through contributions of members and employers. Therefore, this assumption is very material to the valuation results. The actuarial standards of practice recommend a "building block" approach to developing this assumption. Under this approach, the assumption is composed of an assumption for wage inflation (the "across the board" increases granted to active members) and an assumed salary increase scale (merit scale) based on years of service.

Estimates of future salaries are based on assumptions for two types of increases:

1. Increases in each individual's salary due to promotion or longevity (often called merit scale), and

2. Increases in the general wage level of the membership, which are directly related to price and wage inflation.

Earlier in this report, we recommended that the second of these rates, general wage inflation remain at 4.00% (3.00% price inflation and 1.00% real wage inflation).

Although future salary increases are the result of two components, it is difficult to isolate the true salary adjustment due to inflation and productivity given the number of different employers in IPERS and potential varying conditions for each employer. Therefore, the experience study reviewed total salary increases for the period. We then eliminated the apparent percentage attributable to general wage growth to try and isolate the merit scale. The general wage growth for the period was determined by reviewing actual salary increases by duration (years of service) and considering price and wage inflation during the period. For those members with more than 25 years of service, we anticipate little, if any, merit scale and attribute the salary increase to increases in the general wage level. For all three regular membership groups the general wage increase during this period was about 2.0%, which is about equal to the price inflation during the period.

Regular Membership

We compared individual salary increases for all members who were active in any two consecutive years (e.g. 2009 and 2010, 2010 and 2011, etc.). There were 27 pay periods for State payroll in FY 2011 so that data was adjusted to reflect the effective payroll for a typical 26 pay periods in a twelve month period. The results for each of the membership groups over the four years studied are shown in the following table:

Fiscal Year End	Average Increase in Salary 2009-2013 State	School	Other
2010	0.84%	4.66%	4.04%
2011	5.79%	4.25%	4.10%
2012	4.62%	4.48%	4.35%
2013	5.54%	4.52%	3.48%
Total Actual	**4.16%**	**4.48%**	**3.99%**
Expected	6.31%	5.70%	6.22%
A/E Ratio	66%	79%	64%
Actual - Expected	2.15%	1.22%	2.23%

The biggest driver of the difference between the actual and expected salary increases is the general wage increase. When the current salary increase assumptions were adjusted by using a 2.0% general wage increase assumption rather than the 4.0%, the resulting A/E ratios were much closer and, in general, the current merit scale was a relatively good fit for the observed experience. Consequently, we do not recommend any adjustments to the merit scale.

Special Services Classes

Separate analysis was done for the two Special Services classes. Actual salary increases were lower than expected (4.3% vs. 6.2% for the entire period) as shown in the following table:

Fiscal Year	Salary Increases Actual	Expected
2010	3.2%	6.4%
2011	5.8%	6.2%
2012	5.3%	6.1%
2013	2.8%	6.0%
2010-13	4.3%	6.2%

The general wage increase for these groups was also around 2.0%. When the salary increase assumption was adjusted to reflect a general wage increase of 2% instead of 4%, the fit of the current merit scale was good.

We have come through a period where salary increases for public employees are very low. This is unlikely to be the long term trend so we prefer to keep the current assumption. The general shape of the assumption is consistent with actual salary increases. The actual salary increases are lower at all durations due to lower price inflation and corresponding general wage increases in this period.

We recommend that the salary increase assumptions described here and detailed in Appendix D be adopted.

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EXHIBITS

Exhibit 1

U.S. Consumer Price Index

December of:	Index	Increase	December of:	Index	Increase
1928	17.1				
1929	17.2	0.6 %	**1972**	42.5	3.4%
1930	16.1	-6.4	**1973**	46.2	8.7
1931	14.6	-9.3	**1974**	51.9	12.3
1932	13.1	-10.3	**1975**	55.5	6.9
1933	13.2	0.8	**1976**	58.2	4.9
1934	13.4	1.5	**1977**	62.1	6.7
1935	13.8	3.0	**1978**	67.7	9.0
1936	14.0	1.4	**1979**	76.7	13.3
1937	14.4	2.9	**1980**	86.3	12.5
1938	14.0	-2.8	**1981**	94.0	8.9
1939	14.0	0.0	**1982**	97.6	3.8
1940	14.1	0.7	**1983**	101.3	3.8
1941	15.5	9.9	**1984**	105.3	3.9
1942	16.9	9.0	**1985**	109.3	3.8
1943	17.4	3.0	**1986**	110.5	1.1
1944	17.8	2.3	**1987**	115.4	4.4
1945	18.2	2.2	**1988**	120.5	4.4
1946	21.5	18.1	**1989**	126.1	4.6
1947	23.4	8.8	**1990**	133.8	6.1
1948	24.1	3.0	**1991**	137.9	3.1
1949	23.6	-2.1	**1992**	141.9	2.9
1950	25.0	5.9	**1993**	145.8	2.7
1951	26.5	6.0	**1994**	149.7	2.7
1952	26.7	0.8	**1995**	153.5	2.5
1953	26.9	0.7	**1996**	158.6	3.3
1954	26.7	-0.7	**1997**	161.3	1.7
1955	26.8	0.4	**1998**	163.9	1.6
1956	27.6	3.0	**1999**	168.3	2.7
1957	28.4	2.9	**2000**	174.0	3.4
1958	28.9	1.8	**2001**	176.7	1.6
1959	29.4	1.7	**2002**	180.9	2.4
1960	29.8	1.4	**2003**	184.3	1.9
1961	30.0	0.7	**2004**	190.3	3.3
1962	30.4	1.3	**2005**	196.8	3.4
1963	30.9	1.6	**2006**	201.8	2.5
1964	31.2	1.0	**2007**	210.0	4.1
1965	31.8	1.9	**2008**	210.2	0.1
1966	32.9	3.5	**2009**	215.9	2.7
1967	33.9	3.0	**2010**	219.2	1.5
1968	35.5	4.7	**2011**	225.7	3.0
1969	37.7	6.2	**2012**	229.6	1.7
1970	39.8	5.6	**2013**	233.0	1.5
1971	41.1	3.3			

Exhibit 2

National Average Wage Index

	Index	Increase		Index	Increase
1927	$1,159.14				
1928	1,162.53	0.3%	**1971**	$6,497.08	5.0%
1929	1,196.88	3.0	**1972**	7,133.80	9.8
1930	1,164.95	(2.7)	**1973**	7,580.16	6.3
1931	1,086.09	(6.8)	**1974**	8,030.76	5.9
1932	954.02	(12.2)	**1975**	8,630.92	7.5
1933	892.58	(6.4)	**1976**	9,226.48	6.9
1934	929.34	4.1	**1977**	9,779.44	6.0
1935	968.53	4.2	**1978**	10,556.03	7.9
1936	1,008.20	4.1	**1979**	11,479.46	8.7
1937	1,071.58	6.3	**1980**	12,513.46	9.0
1938	1,047.39	(2.3)	**1981**	13,773.10	10.1
1939	1,076.41	2.8	**1982**	14,531.34	5.5
1940	1,106.41	2.8	**1983**	15,239.24	4.9
1941	1,228.81	11.1	**1984**	16,135.07	5.9
1942	1,455.70	18.5	**1985**	16,822.51	4.3
1943	1,661.79	14.2	**1986**	17,321.82	3.0
1944	1,796.28	8.1	**1987**	18,426.51	6.4
1945	1,865.46	3.9	**1988**	19,334.04	4.9
1946	2,009.14	7.7	**1989**	20,099.55	4.0
1947	2,205.08	9.8	**1990**	21,027.98	4.6
1948	2,370.53	7.5	**1991**	21,811.60	3.7
1949	2,430.52	2.5	**1992**	22,935.42	5.2
1950	2,570.33	5.8	**1993**	23,132.67	0.9
1951	2,799.16	8.9	**1994**	23,753.53	2.7
1952	2,973.32	6.2	**1995**	24,705.66	4.0
1953	3,139.44	5.6	**1996**	25,913.90	4.9
1954	3,155.64	0.5	**1997**	27,426.00	5.8
1955	3,301.44	4.6	**1998**	28,861.44	5.2
1956	3,532.36	7.0	**1999**	30,469.84	5.6
1957	3,641.72	3.1	**2000**	32,154.82	5.5
1958	3,673.80	0.9	**2001**	32,921.92	2.4
1959	3,855.80	5.0	**2002**	33,252.09	1.0
1960	4,007.12	3.9	**2003**	34,064.95	2.4
1961	4,086.76	2.0	**2004**	35,648.55	4.6
1962	4,291.40	5.0	**2005**	36,952.94	3.7
1963	4,396.64	2.5	**2006**	38,651.41	4.6
1964	4,576.32	4.1	**2007**	40,405.48	4.5
1965	4,658.72	1.8	**2008**	41,334.97	2.3
1966	4,938.36	6.0	**2009**	40,711.61	-1.5
1967	5,213.44	5.6	**2010**	41,673.83	2.4
1968	5,571.76	6.9	**2011**	42,979.61	3.1
1969	5,893.76	5.8	**2012**	44,321.67	3.1
1970	6,186.24	5.0			

Exhibit 3

Annual Rates of Price and Wage Inflation

Calendar Year Ends	National Wage Index	National Price CPI Index	National Implied Productivity Increase
1985	4.3%	3.8%	0.5%
1986	3.0%	1.1%	1.8%
1987	6.4%	4.4%	2.0%
1988	4.9%	4.4%	0.5%
1989	4.0%	4.6%	-0.7%
1990	4.6%	6.1%	-1.5%
1991	3.7%	3.1%	0.7%
1992	5.2%	2.9%	2.3%
1993	0.9%	2.7%	-1.9%
1994	2.7%	2.7%	0.0%
1995	4.0%	2.5%	1.5%
1996	4.0%	3.3%	1.6%
1997	5.8%	1.7%	4.1%
1998	5.2%	1.6%	3.6%
1999	5.6%	2.7%	2.9%
2000	5.5%	3.4%	2.1%
2001	2.4%	1.5%	0.8%
2002	1.0%	2.4%	-1.4%
2003	2.4%	1.9%	0.6%
2004	4.6%	3.3%	1.4%
2005	3.7%	3.4%	0.3%
2006	4.6%	2.5%	2.1%
2007	4.5%	4.1%	0.4%
2008	2.3%	0.1%	2.2%
2009	-1.5%	2.7%	-4.2%
2010	2.4%	1.5%	0.9%
2011	3.1%	3.0%	0.1%
2012	3.1%	1.7%	1.4%
	Geometric Averages		
5-year period			
1992 – 1997	3.6%	2.7%	0.9%
1997 – 2002	3.9%	2.3%	1.6%
2002 – 2007	4.0%	2.9%	1.1%
2007 – 2012	1.9%	2.1%	-0.2%
10-year period			
1992 – 2002	3.8%	2.5%	1.3%
2002 – 2012	2.9%	2.5%	0.4%
15-year period			
1997 – 2012	3.3%	2.4%	0.9%

APPENDICES

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APPENDIX A

IPERS CONTRIBUTION RATE FUNDING POLICY

APPENDIX A
IPERS Contribution Rate Funding Policy

Background:

IPERS is charged with setting a "Required Contribution Rate" for each membership category within IPERS that will discharge its liabilities. Iowa Code §97B.11(3)(d) provides the basic framework for implementing this charge by stating:

> The Required Contribution Rate that is set by the system for a membership category shall be the contribution rate the system actuarially determines, based upon the most recent actuarial valuation of the system and using the actuarial methods, assumptions, and funding policy approved by the investment board, is the rate required by the system to discharge its liabilities as a percentage of the covered wages of members in that membership category. However, the Required Contribution Rate set by the system for members in regular service for a fiscal year shall not vary by more than one percentage point from the Required Contribution Rate for the prior fiscal year.

Goal:

To establish policy and procedures in setting contribution rates that combined with investment income will fund the benefits specified in Chapter 97B of the Iowa Code.

To move towards fully funding the benefits (100% or greater funded ratio) in as expeditious manner as is reasonable within the guidelines acknowledged herein.

Procedure:

The Investment Board shall retain a consulting actuary to conduct an annual actuarial valuation of assets and liabilities. The consulting actuary shall use the entry age normal cost method and all other actuarial assumptions and methods approved by the Investment Board.

In the annual valuation process, the consulting actuary shall calculate an Actuarial Contribution Rate and a Required Contribution Rate pursuant to this policy. Each shall be calculated as a level percent of pay.

There is a one year lag between the completion of an annual actuarial valuation report and the fiscal year to which the contribution rates calculated therein are applied. Therefore, the Actuarial Contribution Rate and the Required Contribution Rate declared in the annual valuation process are applicable to the fiscal year immediately following the completion of the valuation report (for example the rates declared in the report presented to the Investment Board in December, 2013 are applicable to the rates for the fiscal year beginning July 1, 2014).

Actuarial Contribution Rate (ACR):

1. ACR is the combined employer and employee contribution rate that is the minimum rate necessary to fund the benefits using the actuarial assumptions and methods approved by the Investment Board.

2. A separate ACR shall be determined for each membership group within IPERS according to this policy.

3. The ACR shall consist of:

a. Normal cost and an amortization payment (not less than zero) of any unfunded actuarial liability.
b. Normal cost may only be offset by a negative amortization payment after a membership group has attained a funded ratio of 110 percent or greater for 3 consecutive years.

Required Contribution Rate:

1. The Required Contribution Rate is the combined employer and employee rate payable pursuant to this policy and Iowa Code §97B.11(3)(d).

2. The Required Contribution Rate shall be determined by comparing the ACR determined in the annual valuation process to the Required Contribution Rate of the previous year.
    a. If the ACR is less than the previous Required Contribution Rate by fewer than 50 basis points, then the Required Contribution Rate shall remain unchanged from the previous year.
    b. If the ACR is less than the previous Required Contribution Rate by 50 basis points or more, then the Required Contribution Rate shall be lowered by 50 basis points provided the funded ratio of the membership group is 95% or higher.
    c. If the ACR is greater than the Required Contribution Rate of the previous year, then the Required Contribution Rate shall be:
        i. Increased to be equal to ACR for Sheriffs and Deputies.
        ii. Increased to be equal to ACR for Protection Occupation.
        iii. Increased to be equal to ACR for Regular membership, or one percentage point greater than the prior year's Required Contribution Rate, whichever is smaller.

Policy Guidelines:

In adopting actuarial assumptions and methods to be used in setting contributions, the Investment Board shall strive to provide a balance among the following:

1. Stability in contributions (such as use of smoothing and amortization schedules that do not produce dramatic swings in the required contributions from year to year).

2. Disciplined funding approach (such as requiring full payment of normal cost and an amortization payment towards the unfunded actuarial liability and deferring decreases in contribution rates until strong funded ratios are attained).

3. Interperiod equity (such as shortening the amortization schedule when reasonable and amortization of retroactive benefit enhancements over a reasonable time period such as the average working lifetime for active members and the average life expectancy of retired members).

4. Support an affordable, sustainable plan (in consultation with the BAC review affordability of required contribution rates and/or the benefit provisions).

5. At a minimum, this policy will be reviewed in conjunction with the quadrennial experience study.

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APPENDIX B

ACTUARIAL AMORTIZATION METHOD

APPENDIX B
Actuarial Amortization Method

The portion of the actuarial present value of benefits allocated to the valuation year is called the normal cost. The portion of the actuarial present value of benefits not provided for by the actuarial present value of future normal costs is called the actuarial liability. Deducting the actuarial value of assets from the actuarial liability determines the unfunded actuarial liability (UAL). The one-year lag between the valuation date and the date the contribution rate is effective is reflected in calculating the corresponding amortization payment. The UAL is amortized according to the Actuarial Amortization Method adopted by the Investment Board and summarized below:

1. Amortization payments will be calculated as a level percentage of payroll.

2. For the actuarial valuation prepared as of June 30, 2013, the amortization period of the UAL shall be 30 year open for all membership groups.

3. For the actuarial valuation prepared as of June 30, 2014:

    a. The UAL for each membership group shall be amortized over a 30-year closed period.
    b. This will be designated as the initial UAL base for subsequent valuations and it will be amortized over the remaining years of the 30-year closed period set on June 30, 2014.

4. For each valuation subsequent to the June 30, 2014, annual net experience gains/losses for each membership group will be amortized over a new, closed 20 year period.
5. Subsequent plan amendments or changes in actuarial assumptions or method that create a change in the UAL will be amortized over a demographically appropriate period selected by the Investment Board at the time that the change is incurred.
6. The dollar amount of the UAL payment for purposes of computing the UAL component of the actuarial and required contribution rate will be the sum of the amortization payments for each amortization schedule divided by the total projected payroll. Unless the plan has been 110 percent funded for the current and prior two years, a negative amortization payment shall be ignored.
7. If the valuation shows that the membership group has surplus, the prior amortization bases will be eliminated and one base equal to the amount of surplus shall be established. The amortization period of a surplus shall be a 30 year open period for all membership groups.

APPENDIX C

CURRENT ACTUARIAL ASSUMPTIONS

APPENDIX C
CURRENT ACTUARIAL ASSUMPTIONS

ECONOMIC ASSUMPTIONS:

Rate of Inflation (effective June 30, 2006)

3.25% per annum

Rate of Interest on Member Accounts (effective June 30, 2006)

4.00% per annum, compounded annually

Rate of Investment Return (effective June 30, 1996)

7.50% per annum, compounded annually, net of expenses.

Wage Growth (effective June 30, 1999)*

4.00% per annum based on 3.25% inflation assumption and 0.75% real wage inflation.

*Total of 4.0% did not change but the components changed June 30, 2006

Payroll Increase (effective June 30, 1999)

4.00% per year

DEMOGRAPHIC ASSUMPTIONS:

Rates of Mortality

To reflect anticipated future mortality improvements, generational mortality is used with projected mortality improvements based on Projection Scale AA.

Pre-Retirement (effective June 30, 2010)

State	
Male	RP2000 Employee Table, Generational, set back 3 years
Female	RP2000 Employee Table, Generational, set back 8 years
School	
Male	RP2000 Employee Table, Generational, set back 3 years
Female	RP2000 Employee Table, Generational, set back 8 years
Other	
Male	RP2000 Employee Table, Generational, no set back
Female	RP2000 Employee Table, Generational, set back 8 years
Sheriffs/Deputies and Protection Occupation	
Male	RP2000 Employee Table, Generational
Female	RP2000 Employee Table, Generational

5% of active deaths are assumed to be service related for non-regular members.

Post-Retirement (effective June 30, 2011 for Regular Members and June 30, 2010 for Sheriffs and Deputies and Protection Occupation Members)

State	RP2000 Healthy Annuitant Table, Generational
Male	1 Year set forward
Female	1 Year set back with 5% increase above age 75
School	RP2000 Healthy Annuitant Table, Generational
Male	No age adjustment but rates decreased by 5% below age 75
Female	3 Year set back with 10% decrease before age 75 and 10% increase above age 75
Other	RP2000 Healthy Annuitant Table, Generational
Male	1 Year set forward
Female	2 Year set back with 5% increase above age 75
Sheriffs/Deputies and Protection Occupation	RP2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	No age adjustment

Beneficiaries:	Same as members
Disabled Members (all groups):	RP2000 Disabled Mortality, Generational Set back 1 year for males and set forward 3 years for females

Rates of Retirement (effective June 30, 2010)

Upon meeting the requirements for early retirement, the following rates apply to Regular Members:

	Assumed Retirement Rates – Early		
Age	State	School	Other
55	5.0%	8.0%	5.0%
56	5.0%	8.0%	5.0%
57	5.0%	8.0%	5.0%
58	5.0%	8.0%	5.0%
59	5.0%	9.0%	5.0%
60	5.0%	10.0%	5.0%
61	15.0%	15.0%	10.0%
62	15.0%	20.0%	20.0%
63	15.0%	20.0%	20.0%
64	15.0%	20.0%	20.0%

Upon reaching the requirements for normal retirement (unreduced benefits), the following rates apply:

Assumed Retirement Rates – Select Unreduced

Age	State	School	Other
55	20.0%	30.0%	20.0%
56	15.0%	30.0%	20.0%
57	15.0%	30.0%	20.0%
58	15.0%	30.0%	20.0%
59	15.0%	30.0%	20.0%
60	15.0%	30.0%	20.0%
61	20.0%	30.0%	20.0%
62	40.0%	40.0%	40.0%
63	35.0%	30.0%	35.0%
64	30.0%	30.0%	35.0%
65	30.0%	30.0%	30.0%

Assumed Retirement Rates – Ultimate Unreduced

Age	State	School	Other
55	15.0%	23.0%	15.0%
56	15.0%	23.0%	15.0%
57	15.0%	23.0%	15.0%
58	15.0%	23.0%	15.0%
59	15.0%	23.0%	15.0%
60	15.0%	23.0%	15.0%
61	20.0%	30.0%	20.0%
62	40.0%	35.0%	35.0%
63	30.0%	30.0%	25.0%
64	30.0%	30.0%	25.0%
65	30.0%	45.0%	40.0%
66	30.0%	35.0%	30.0%
67	20.0%	25.0%	20.0%
68	20.0%	25.0%	20.0%
69	35.0%	40.0%	40.0%
70	100.0%	100.0%	100.0%

	Assumed Retirement Rates	
Age	Sheriffs and Deputies	Protection Occupation
50	20.0%	
51	20.0%	
52	20.0%	
53	20.0%	
54	20.0%	
55	25.0%	20.0%
56	20.0%	10.0%
57	20.0%	10.0%
58	20.0%	10.0%
59	20.0%	10.0%
60	20.0%	10.0%
61	20.0%	10.0%
62	35.0%	35.0%
63	50.0%	30.0%
64	50.0%	30.0%
65	100.0%	100.0%

Terminated vested members are assumed to retire at age 62 (55 for Sheriffs/Deputies and Protection Occupation groups).
For Regular Membership, retired reemployed members are assumed to retire at a rate of 25% per year until age 80 when all are assumed to retire.

Rates of Disablement (effective June 30, 2010)

	Assumed Rates					
	Males			Females		
Age	State	School	Other	State	School	Other
27	0.020%	0.020%	0.020%	0.020%	0.030%	0.020%
32	0.020%	0.020%	0.020%	0.020%	0.030%	0.020%
37	0.040%	0.040%	0.040%	0.032%	0.040%	0.032%
42	0.065%	0.065%	0.065%	0.051%	0.050%	0.051%
47	0.120%	0.110%	0.140%	0.087%	0.090%	0.087%
52	0.220%	0.160%	0.326%	0.220%	0.165%	0.200%
57	0.320%	0.260%	0.630%	0.390%	0.240%	0.350%
62	0.420%	0.360%	0.900%	0.620%	0.320%	0.500%

Assumed Rates
Sheriffs/Deputies
Protection Occupation

Age	Rate
27	0.150%
32	0.150%
37	0.150%
42	0.180%
47	0.230%
52	0.280%
57	0.380%
62	0.510%

Rates of Termination of Employment (effective June 30, 2010)

Regular Membership

	Male			Female		
Years of Service	State	School	Other	State	School	Other
1	15.4%	15.0%	21.0%	15.4%	15.0%	21.0%
5	5.5%	6.9%	8.4%	5.5%	6.9%	9.2%
10	2.2%	2.9%	4.3%	2.2%	2.9%	5.8%
15	1.7%	1.8%	2.6%	1.7%	1.8%	4.1%
20	1.1%	1.3%	2.4%	1.1%	1.3%	3.2%
25	1.1%	1.3%	2.0%	1.1%	1.2%	2.4%
30	1.1%	1.2%	1.2%	1.1%	1.2%	1.5%

Sheriffs/Deputies and Protection Occupation

Age	Rate of Termination
22	5.8%
27	5.8%
32	3.5%
37	3.0%
42	2.6%
47	2.0%
52	2.0%

Probability of Electing a Deferred Vested Benefit (effective June 30, 2010)

	Regular Membership					
	Male			Female		
Years of Service	State	School	Other	State	School	Other
5	66.0%	76.0%	61.0%	61.0%	80.0%	70.0%
10	73.0%	81.0%	66.0%	66.0%	80.0%	73.0%
15	78.0%	86.0%	71.0%	76.0%	85.0%	80.0%
20	83.0%	91.0%	76.0%	86.0%	90.0%	85.0%
25	88.0%	95.0%	80.0%	96.0%	95.0%	90.0%
30	90.0%	95.0%	80.0%	100.0%	100.0%	90.0%

	Sheriffs/Deputies and Protection Occupation
Years of Service	Rate
5	53%
10	65%
15	85%
20	95%
25	100%
30	100%

Rates of Salary Increase* (effective June 30, 2010)

	Annual Increase			
Years of Service	State	School	Other	Sheriffs/Deputies and Protection Occupation
1	15.0%	17.0%	15.0%	17.0%
5	7.6%	6.5%	6.1%	6.5%
10	6.3%	5.3%	5.3%	5.3%
15	5.2%	4.5%	4.8%	4.8%
20	4.8%	4.2%	4.5%	4.5%
25	4.6%	4.0%	4.4%	4.5%
30+	4.3%	4.0%	4.4%	4.0%

* Includes 4.0% wage growth

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APPENDIX D

PROPOSED ACTUARIAL ASSUMPTIONS

APPENDIX D
PROPOSED ACTUARIAL ASSUMPTIONS

ECONOMIC ASSUMPTIONS:

Rate of Inflation (effective June 30, 2014)

3.00% per annum

Rate of Interest on Member Accounts (effective June 30, 2014)

3.75% per annum, compounded annually

Investment Return (effective June 30, 1996)

7.50% per annum, compounded annually, net of expenses.

Wage Growth (effective June 30, 1999)*

4.00% per annum based on 3.00% inflation assumption and 1.00% real wage inflation.

*Total of 4.0% did not change but the components changed June 30, 2014

Payroll Increase (effective June 30, 1999)

4.00% per year

DEMOGRAPHIC ASSUMPTIONS:

Rates of Mortality

To reflect anticipated future mortality improvements, generational mortality is used with projected mortality improvements based on Projection Scale AA.

Pre-Retirement (effective June 30, 2010)

State	
Male	RP2000 Employee Table, Generational, set back 3 years
Female	RP2000 Employee Table, Generational, set back 8 years
School	
Male	RP2000 Employee Table, Generational, set back 3 years
Female	RP2000 Employee Table, Generational, set back 8 years
Other	
Male	RP2000 Employee Table, Generational, no set back
Female	RP2000 Employee Table, Generational, set back 8 years
Sheriffs/Deputies and Protection Occupation	
Male	RP2000 Employee Table, Generational
Female	RP2000 Employee Table, Generational

5% of active deaths are assumed to be service related for non-regular members.

Post-Retirement (effective June 30, 2014)

State	RP2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	1 Year set back with 5% increase above age 75
School	RP2000 Healthy Annuitant Table, Generational
Male	1 Year set back with rates decreased by 5% below age 75
Female	3 Year set back with 10% decrease before age 75 and 10% increase above age 75
Other	RP2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	2 Year set back with 5% increase above age 75
Sheriffs/Deputies and Protection Occupation	RP2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	No age adjustment

Beneficiaries:	Same as members
Disabled Members (all groups):	RP2000 Disabled Mortality, Generational Set back 1 year for males and set forward 3 years for females

Rates of Retirement (effective June 30, 2014)

Upon meeting the requirements for early retirement, the following rates apply to Regular Members:

	Assumed Retirement Rates – Early		
Age	State	School	Other
55	5.0%	8.0%	5.0%
56	5.0%	8.0%	5.0%
57	5.0%	8.0%	5.0%
58	5.0%	8.0%	5.0%
59	5.0%	9.0%	5.0%
60	5.0%	10.0%	5.0%
61	15.0%	15.0%	10.0%
62	15.0%	20.0%	20.0%
63	15.0%	20.0%	20.0%
64	15.0%	20.0%	20.0%

Upon reaching the requirements for normal retirement (unreduced benefits), the following rates apply:

Assumed Retirement Rates – Select Unreduced

Age	State	School	Other
55	20.0%	30.0%	20.0%
56	15.0%	30.0%	20.0%
57	15.0%	30.0%	20.0%
58	15.0%	30.0%	20.0%
59	15.0%	30.0%	20.0%
60	15.0%	30.0%	20.0%
61	20.0%	30.0%	20.0%
62	40.0%	40.0%	40.0%
63	35.0%	30.0%	35.0%
64	30.0%	30.0%	35.0%
65	30.0%	30.0%	30.0%

Assumed Retirement Rates – Ultimate Unreduced

Age	State	School	Other
55	15.0%	23.0%	15.0%
56	15.0%	23.0%	15.0%
57	15.0%	23.0%	15.0%
58	15.0%	23.0%	15.0%
59	15.0%	23.0%	15.0%
60	15.0%	23.0%	15.0%
61	20.0%	30.0%	20.0%
62	40.0%	35.0%	35.0%
63	30.0%	30.0%	25.0%
64	30.0%	30.0%	25.0%
65	30.0%	45.0%	40.0%
66	30.0%	35.0%	30.0%
67	20.0%	25.0%	20.0%
68	20.0%	25.0%	20.0%
69	35.0%	40.0%	40.0%
70	100.0%	100.0%	100.0%

	Assumed Retirement Rates	
Age	Sheriffs and Deputies	Protection Occupation
50	20.0%	
51	20.0%	
52	20.0%	
53	20.0%	
54	20.0%	
55	17.0%	20.0%
56	17.0%	10.0%
57	17.0%	10.0%
58	17.0%	10.0%
59	17.0%	10.0%
60	17.0%	10.0%
61	17.0%	10.0%
62	30.0%	35.0%
63	30.0%	30.0%
64	30.0%	30.0%
65	100.0%	100.0%

Terminated vested members are assumed to retire at age 62 (55 for Sheriffs/Deputies and Protection Occupation groups).
For Regular Membership, retired reemployed members are assumed to retire at a rate of 25% per year until age 80 when all are assumed to retire.

Rates of Disablement (effective June 30, 2010)

	Assumed Rates					
	Males			Females		
Age	State	School	Other	State	School	Other
27	0.020%	0.020%	0.020%	0.020%	0.030%	0.020%
32	0.020%	0.020%	0.020%	0.020%	0.030%	0.020%
37	0.040%	0.040%	0.040%	0.032%	0.040%	0.032%
42	0.065%	0.065%	0.065%	0.051%	0.050%	0.051%
47	0.120%	0.110%	0.140%	0.087%	0.090%	0.087%
52	0.220%	0.160%	0.326%	0.220%	0.165%	0.200%
57	0.320%	0.260%	0.630%	0.390%	0.240%	0.350%
62	0.420%	0.360%	0.900%	0.620%	0.320%	0.500%

Assumed Rates
Sheriffs/Deputies
Protection Occupation

Age	Rate
27	0.150%
32	0.150%
37	0.150%
42	0.180%
47	0.230%
52	0.280%
57	0.380%
62	0.510%

Rates of Termination of Employment (effective June 30, 2010)

Regular Membership

	Male			Female		
Years of Service	State	School	Other	State	School	Other
1	15.4%	15.0%	21.0%	15.4%	15.0%	21.0%
5	5.5%	6.9%	8.4%	5.5%	6.9%	9.2%
10	2.2%	2.9%	4.3%	2.2%	2.9%	5.8%
15	1.7%	1.8%	2.6%	1.7%	1.8%	4.1%
20	1.1%	1.3%	2.4%	1.1%	1.3%	3.2%
25	1.1%	1.3%	2.0%	1.1%	1.2%	2.4%
30	1.1%	1.2%	1.2%	1.1%	1.2%	1.5%

Sheriffs/Deputies and Protection Occupation

Age	Rate of Termination
22	5.8%
27	5.8%
32	3.5%
37	3.0%
42	2.6%
47	2.0%
52	2.0%

Probability of Electing a Deferred Vested Benefit (effective June 30, 2010)

	Regular Membership					
	Male			Female		
Years of Service	State	School	Other	State	School	Other
5	66.0%	76.0%	61.0%	61.0%	80.0%	70.0%
10	73.0%	81.0%	66.0%	66.0%	80.0%	73.0%
15	78.0%	86.0%	71.0%	76.0%	85.0%	80.0%
20	83.0%	91.0%	76.0%	86.0%	90.0%	85.0%
25	88.0%	95.0%	80.0%	96.0%	95.0%	90.0%
30	90.0%	95.0%	80.0%	100.0%	100.0%	90.0%

	Sheriffs/Deputies and Protection Occupation
Years of Service	Rate
5	53%
10	65%
15	85%
20	95%
25	100%
30	100%

Rates of Salary Increase* (effective June 30, 2010)

	Annual Increase			
Years of Service	State	School	Other	Sheriffs/Deputies and Protection Occupation
1	15.0%	17.0%	15.0%	17.0%
5	7.6%	6.5%	6.1%	6.5%
10	6.3%	5.3%	5.3%	5.3%
15	5.2%	4.5%	4.8%	4.8%
20	4.8%	4.2%	4.5%	4.5%
25	4.6%	4.0%	4.4%	4.5%
30+	4.3%	4.0%	4.4%	4.0%

* Includes 4.0% wage growth

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APPENDIX E

MORTALITY

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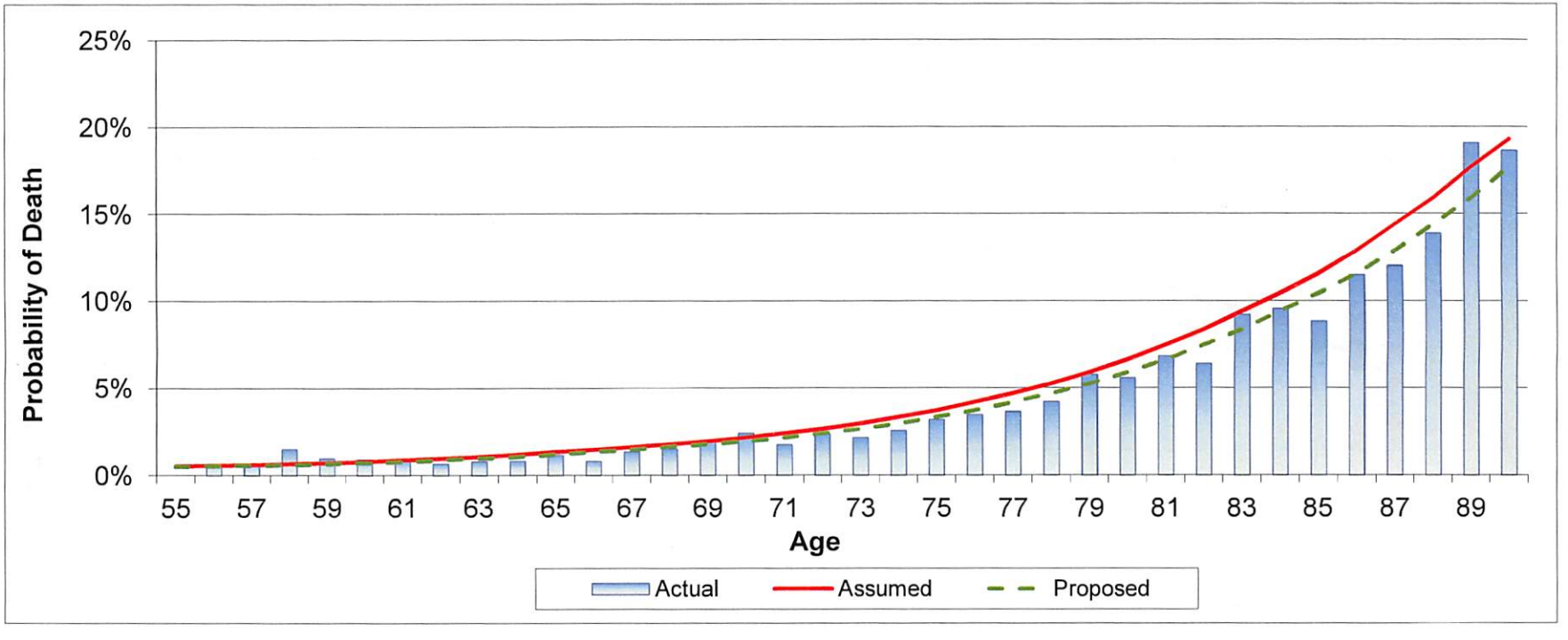
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-1

Probability of Death - Healthy Retirees

Males - State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	1,380	1,579	1,417
Actual/Expected		87%	97%

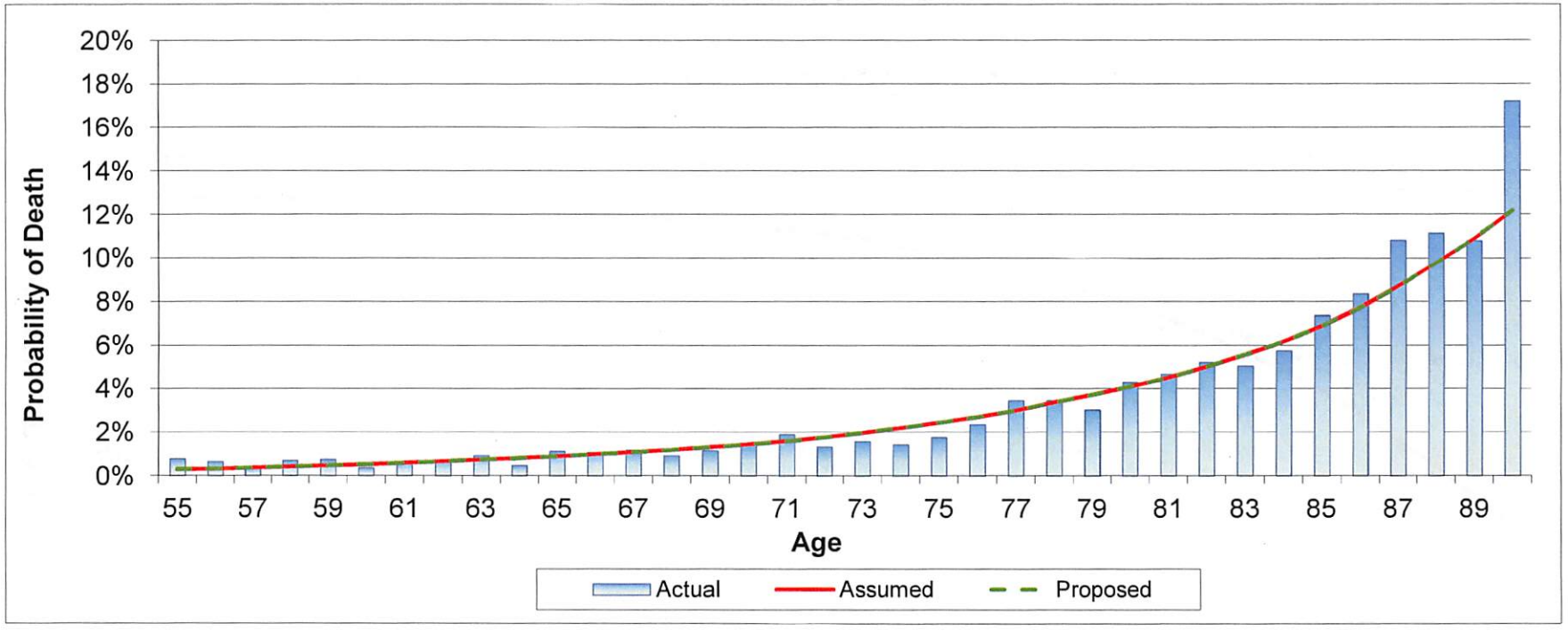
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-2

Probability of Death - Healthy Retirees

Females - State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	1,231	1,204	1,204
Actual/Expected		102%	102%

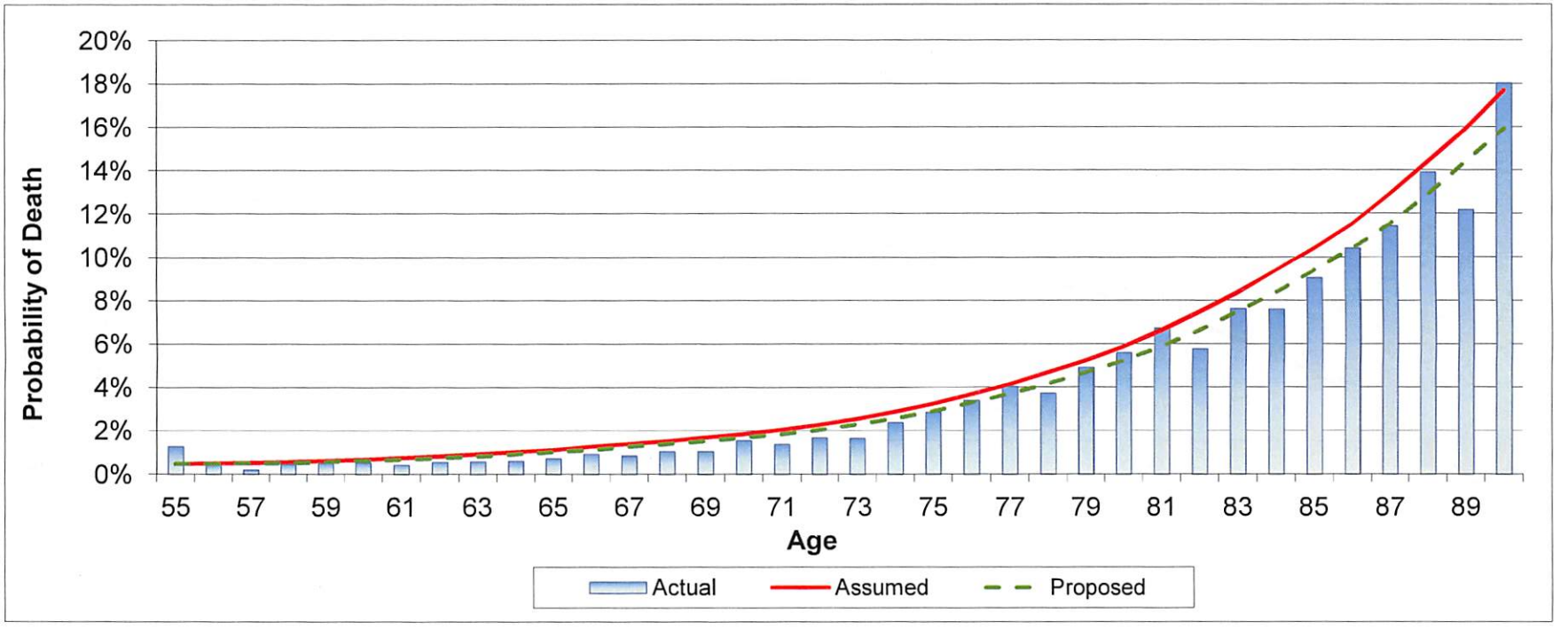
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-3

Probability of Death - Healthy Retirees

Males - School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	2,989	3,556	3,190
Actual/Expected		84%	94%

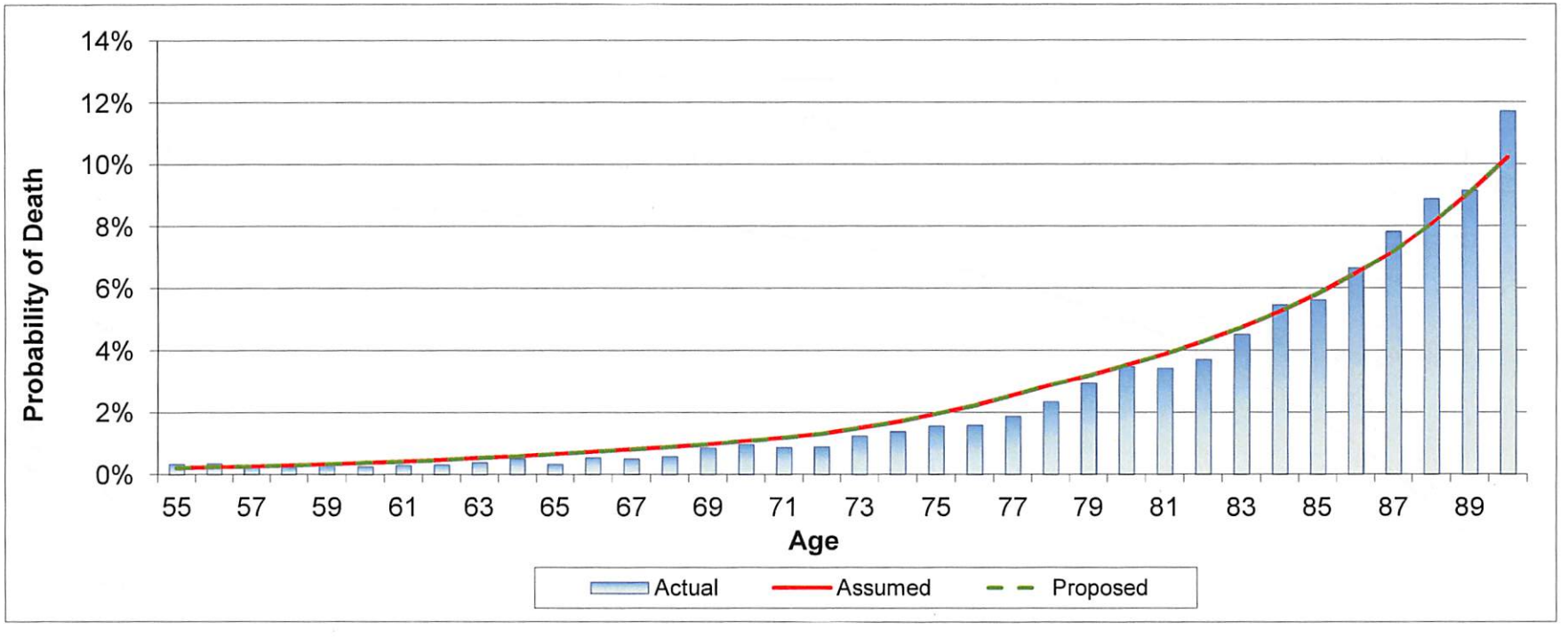
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-4

Probability of Death - Healthy Retirees

Females - School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	4,548	4,978	4,978
Actual/Expected		91%	91%

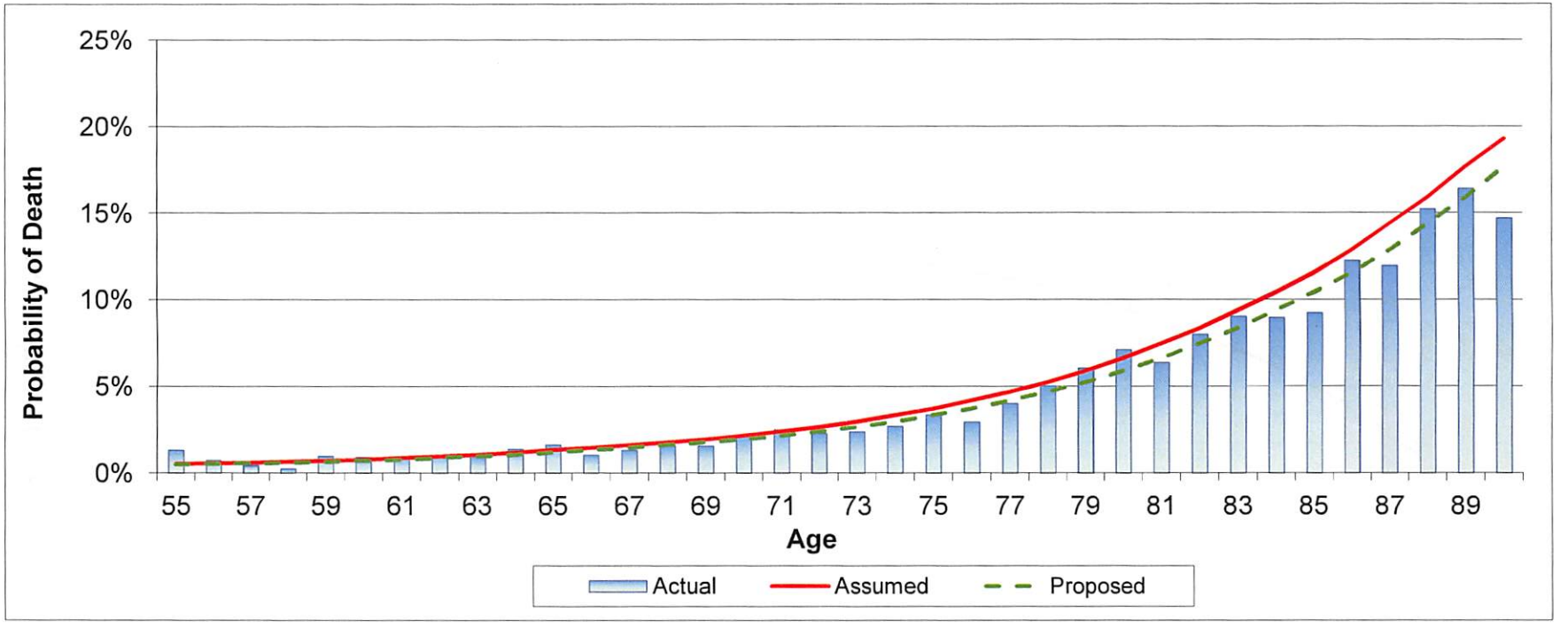
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-5

Probability of Death - Healthy Retirees

Males - Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	2,956	3,257	2,922
Actual/Expected		91%	101%

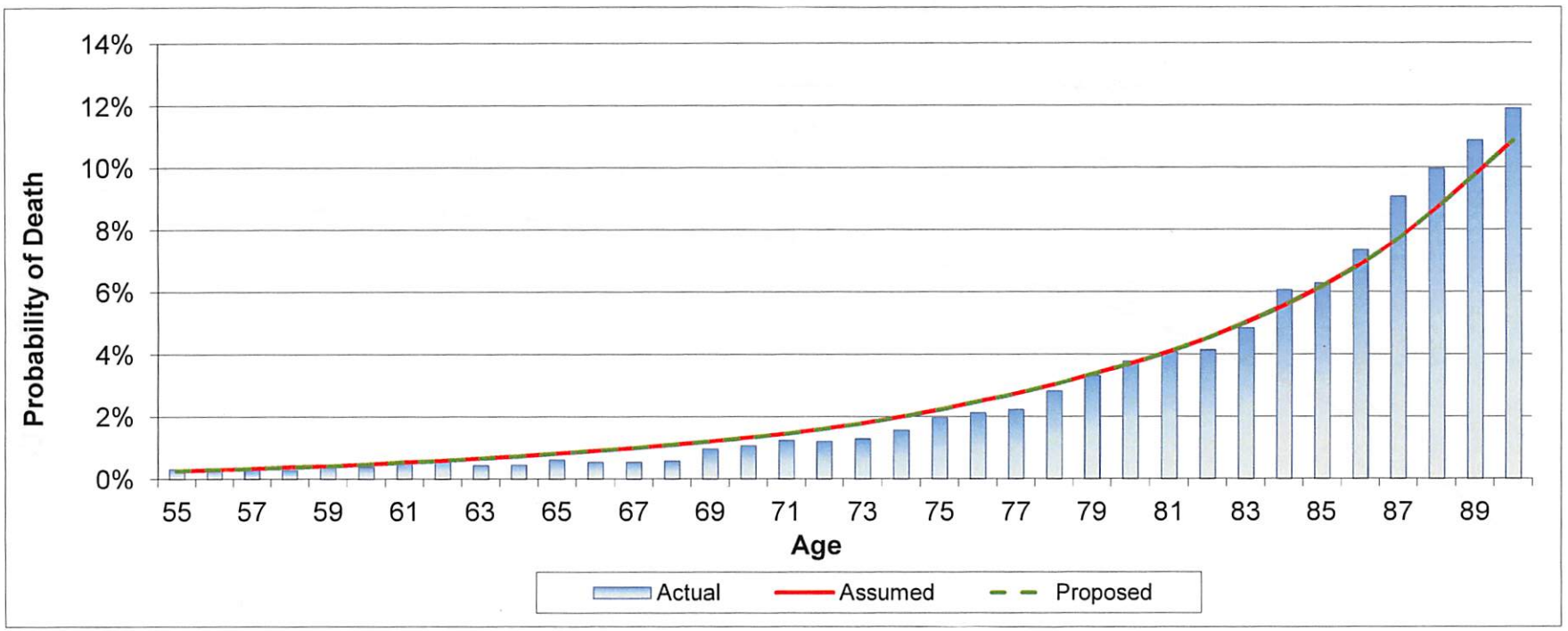
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-6

Probability of Death - Healthy Retirees

Females - Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	2,745	2,891	2,891
Actual/Expected		95%	95%

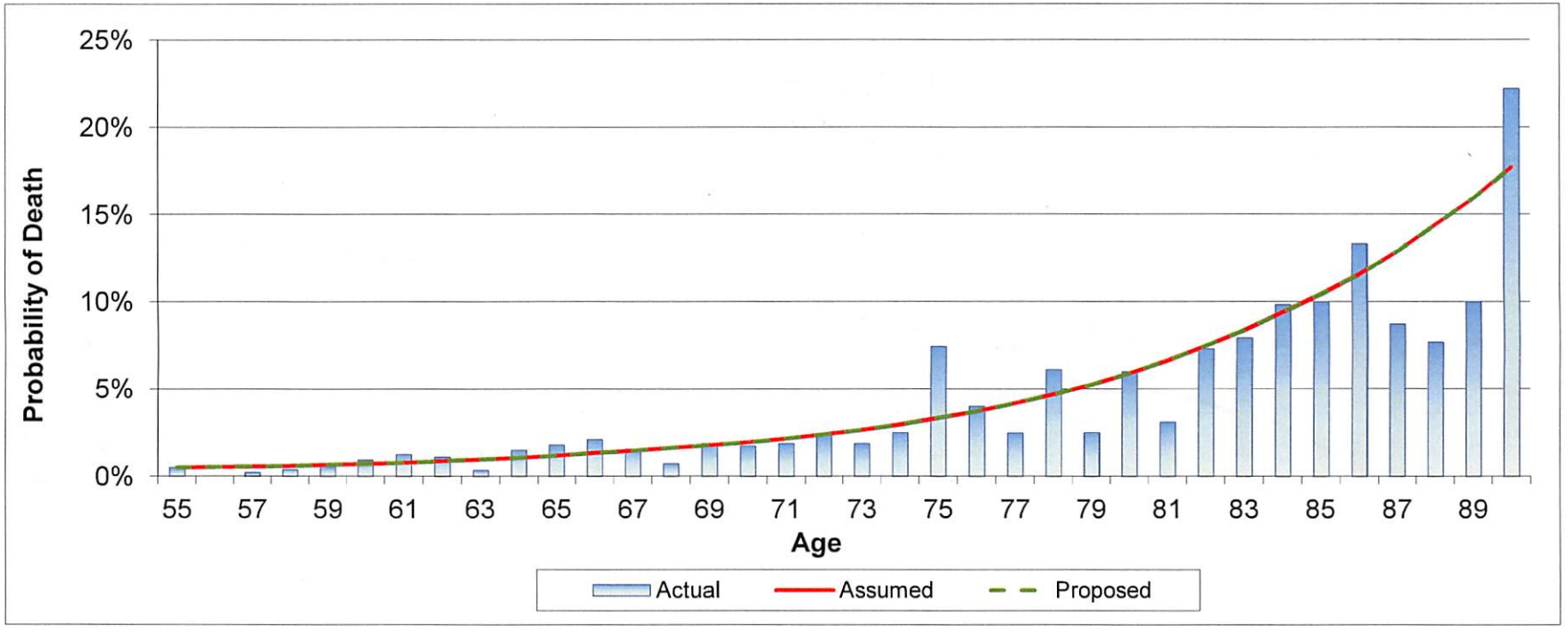
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-7

Probability of Death - Healthy Retirees

Males - Special Services Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	181	183	183
Actual/Expected		99%	99%

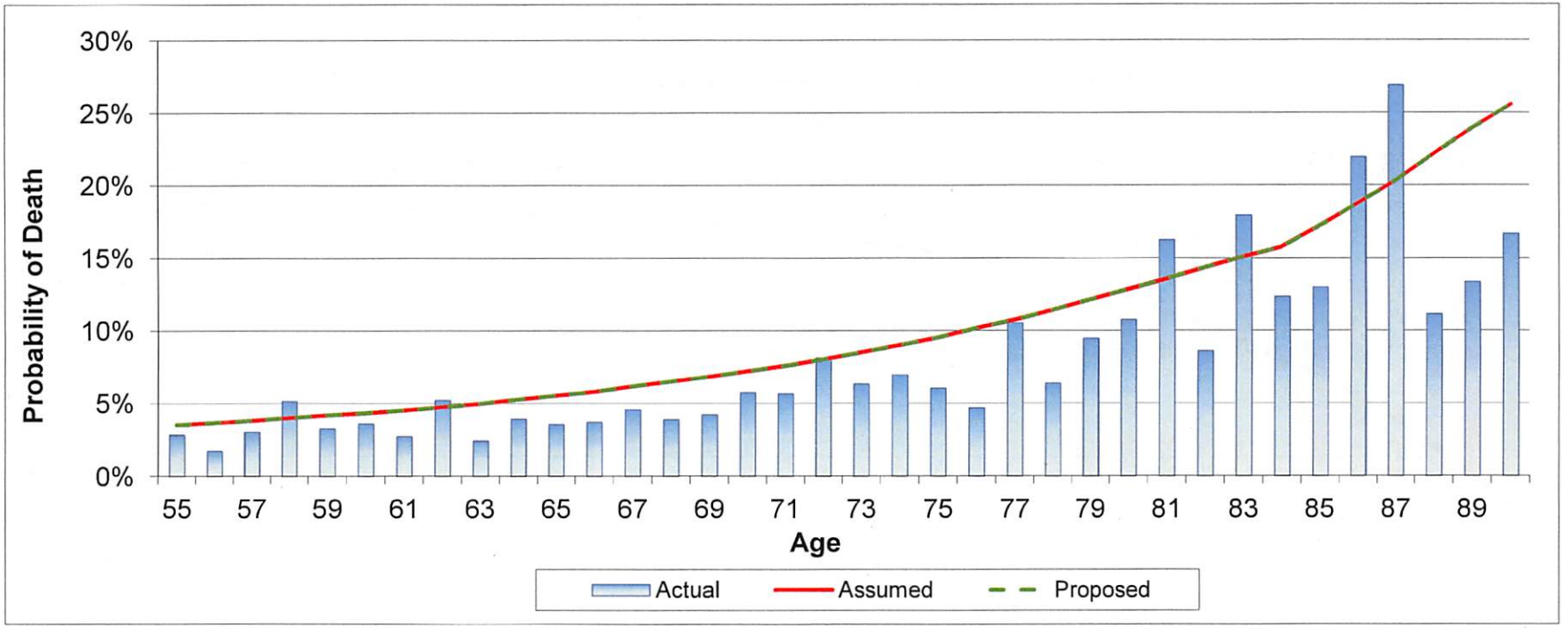
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-8

Probability of Death - Disabled Retirees

Males - Regular Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	483	629	629
Actual/Expected		77%	77%

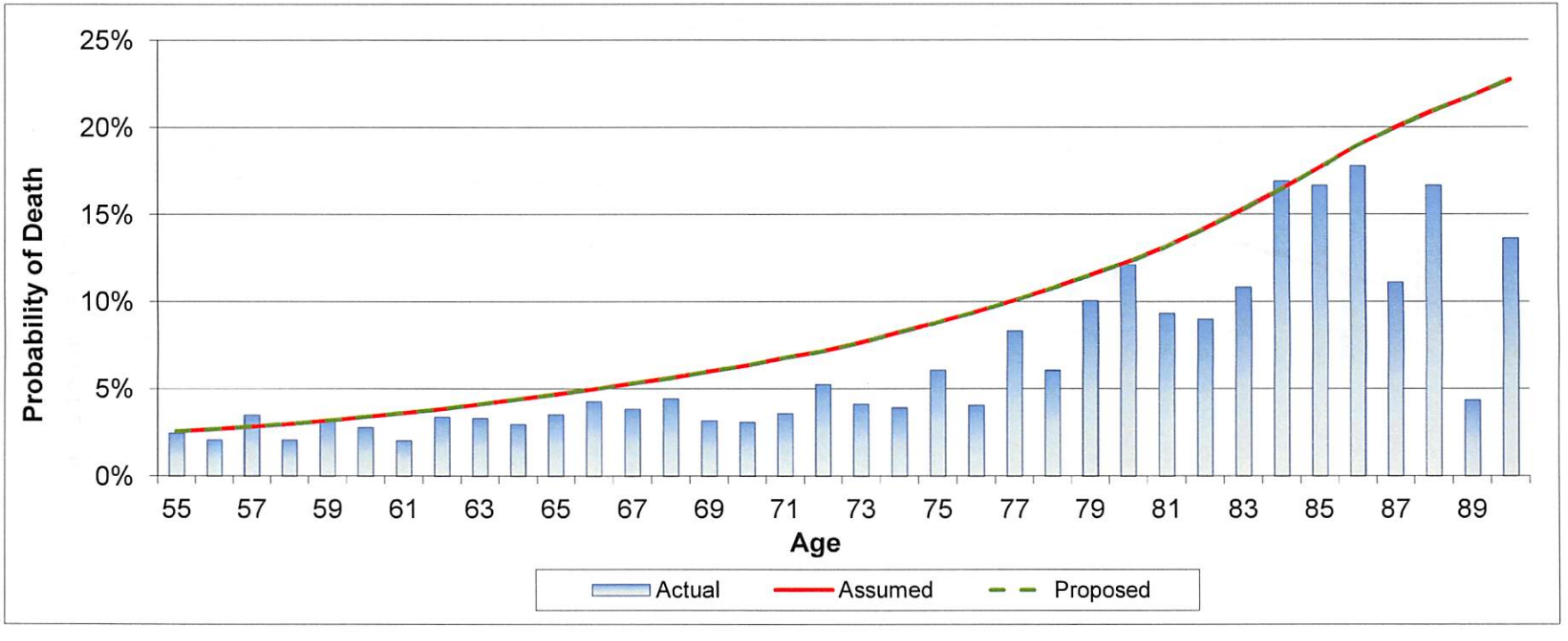
Iowa Public Employees' Retirement System

2009-2013 Experience Study (including 2005-2009 data)

Exhibit E-9

Probability of Death - Disabled Retirees

Females - Regular Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Count	531	737	737
Actual/Expected		72%	72%

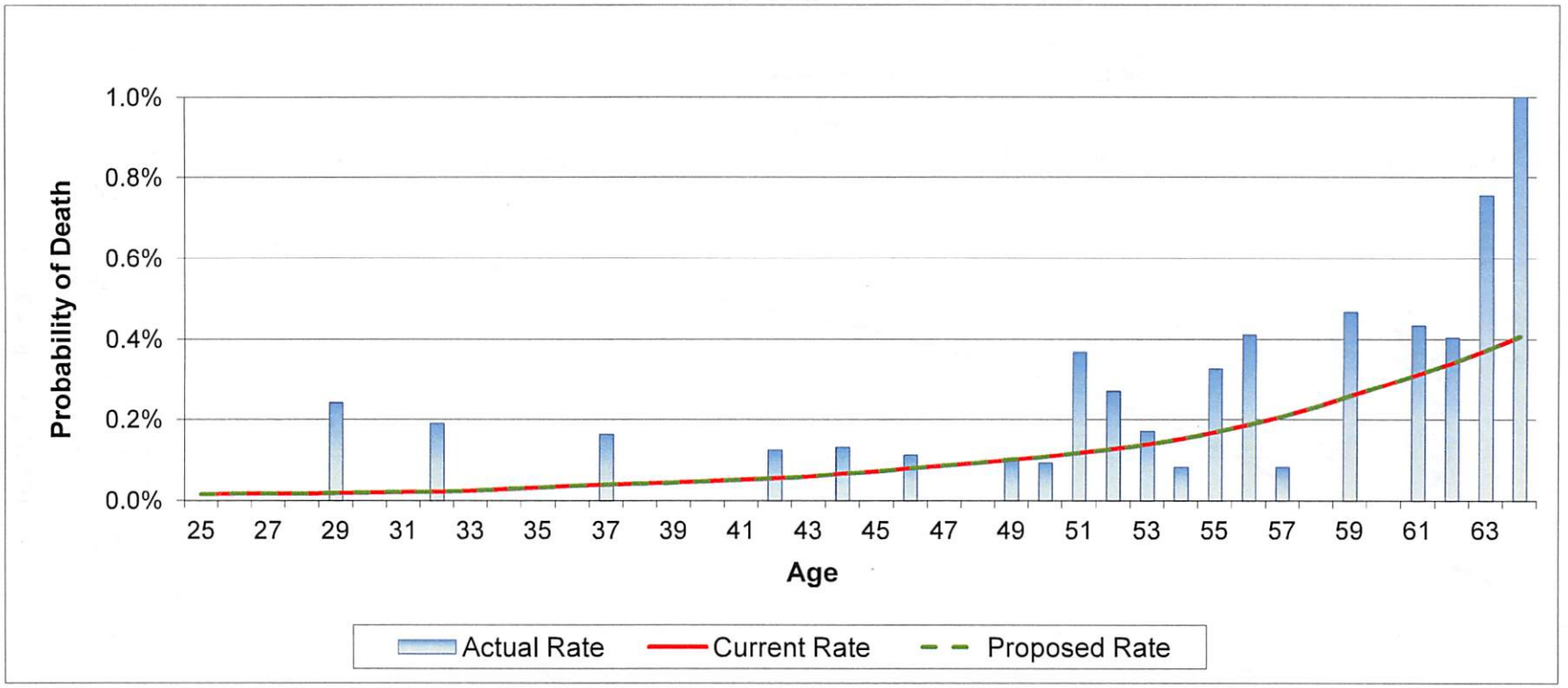
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit E-10

Probability of Death - Active Members

Males - State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	48	40	40
Actual/Expected		120%	120%

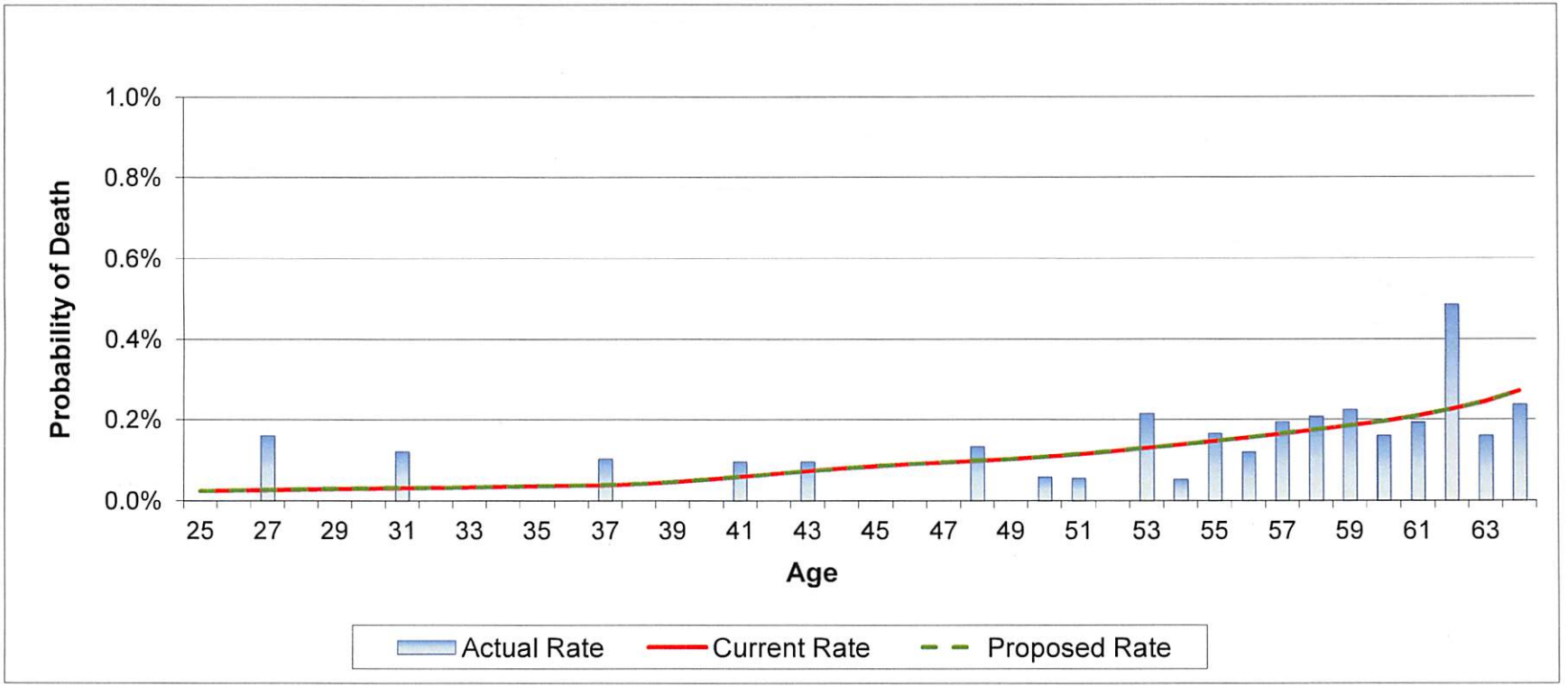
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit E-11

Probability of Death - Active Members

Females - State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	38	47	47
Actual/Expected		81%	81%

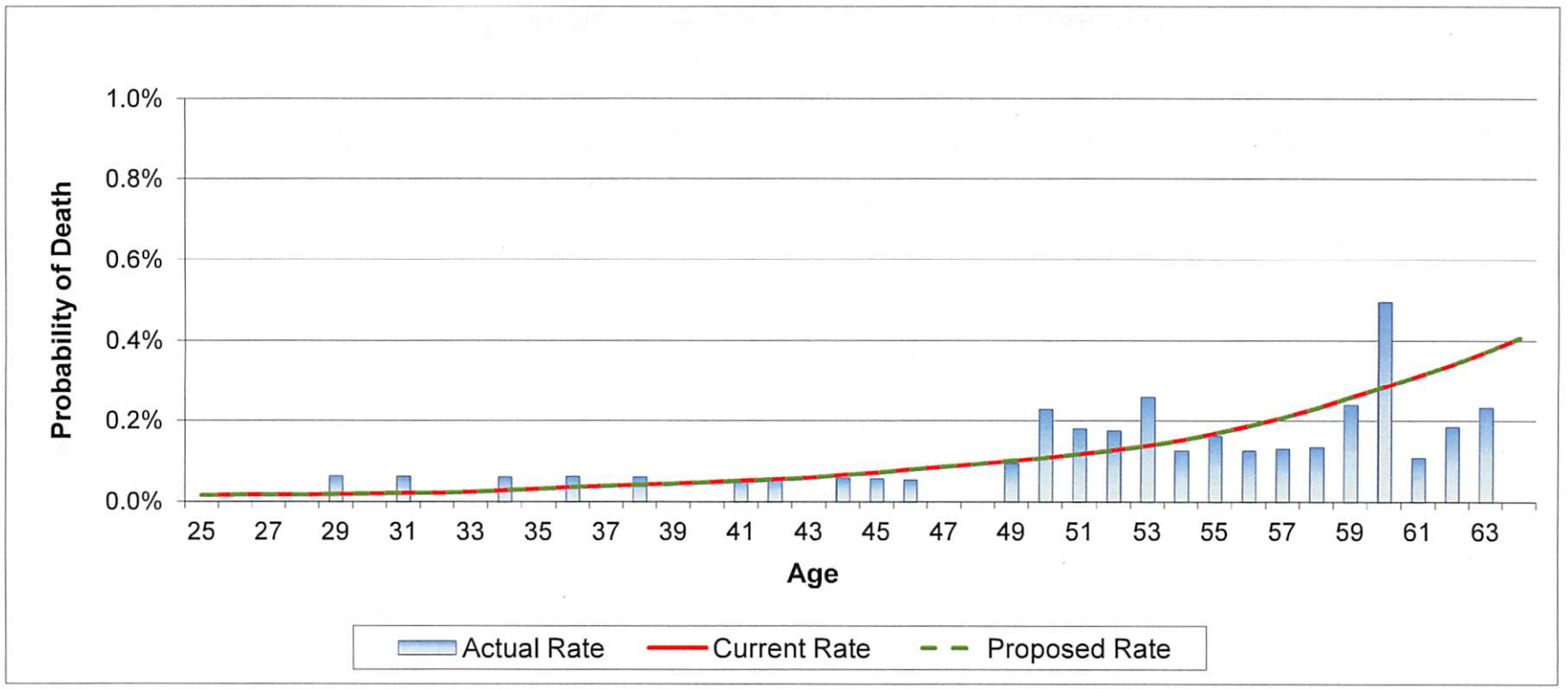
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit E-12

Probability of Death - Active Members

Males - School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	70	84	84
Actual/Expected		83%	83%

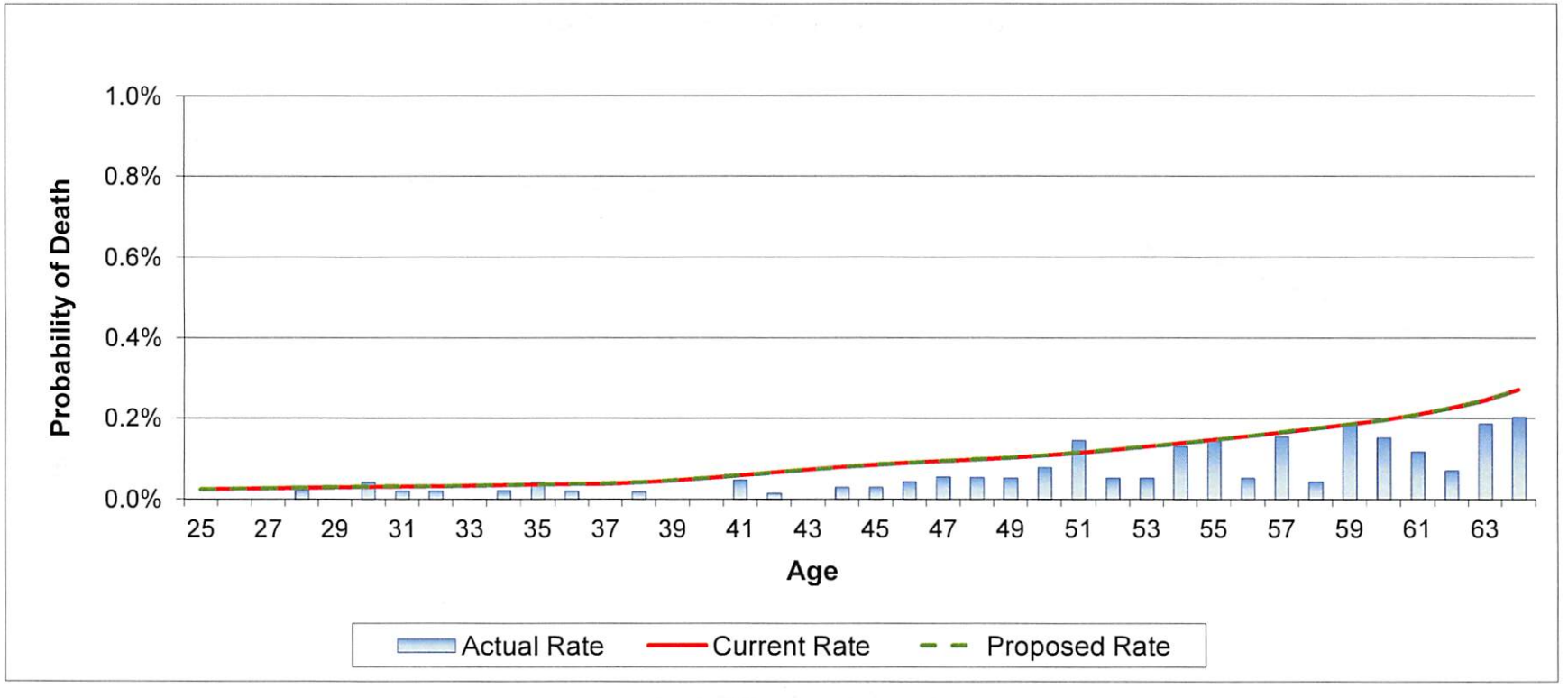
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit E-13

Probability of Death - Active Members

Females - School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	138	231	231
Actual/Expected		60%	60%

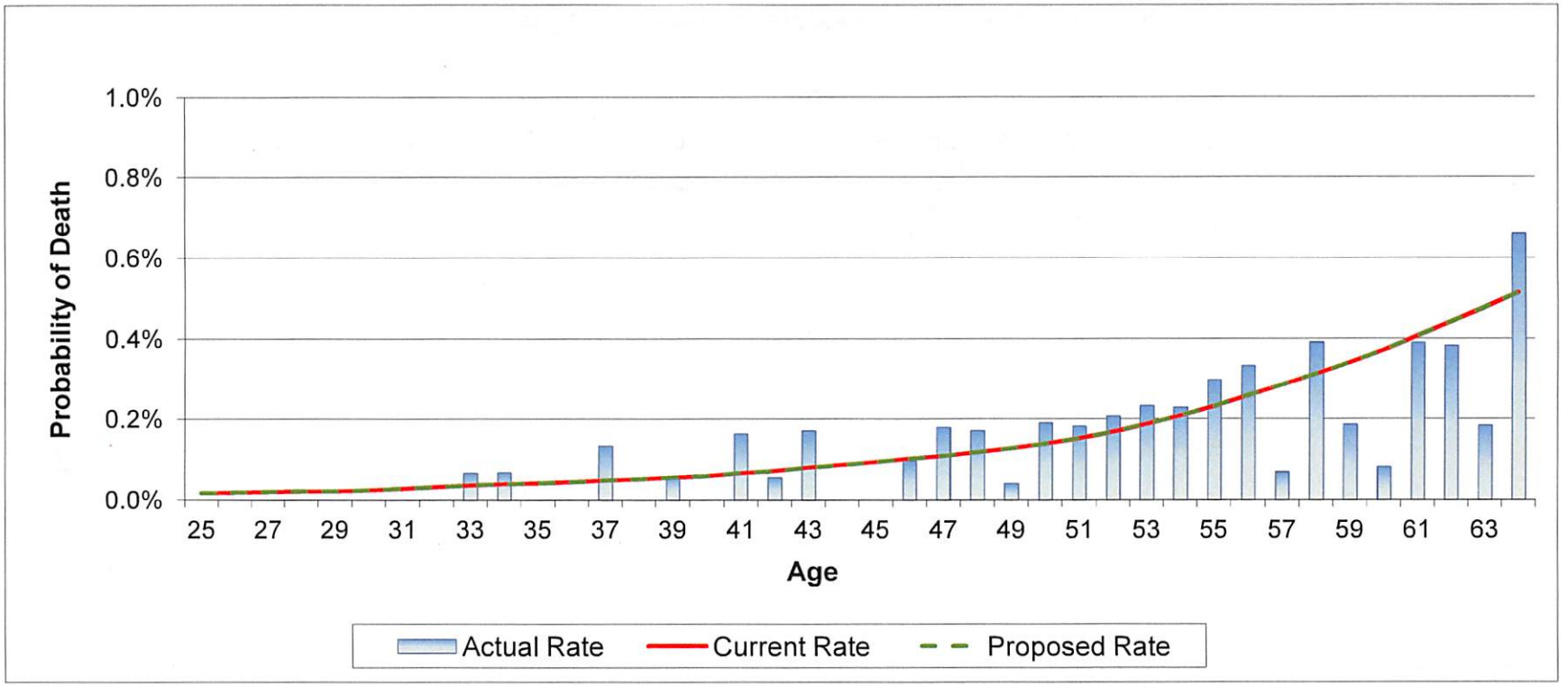
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit E-14

Probability of Death - Active Members

Males - Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	121	134	134
Actual/Expected		90%	90%

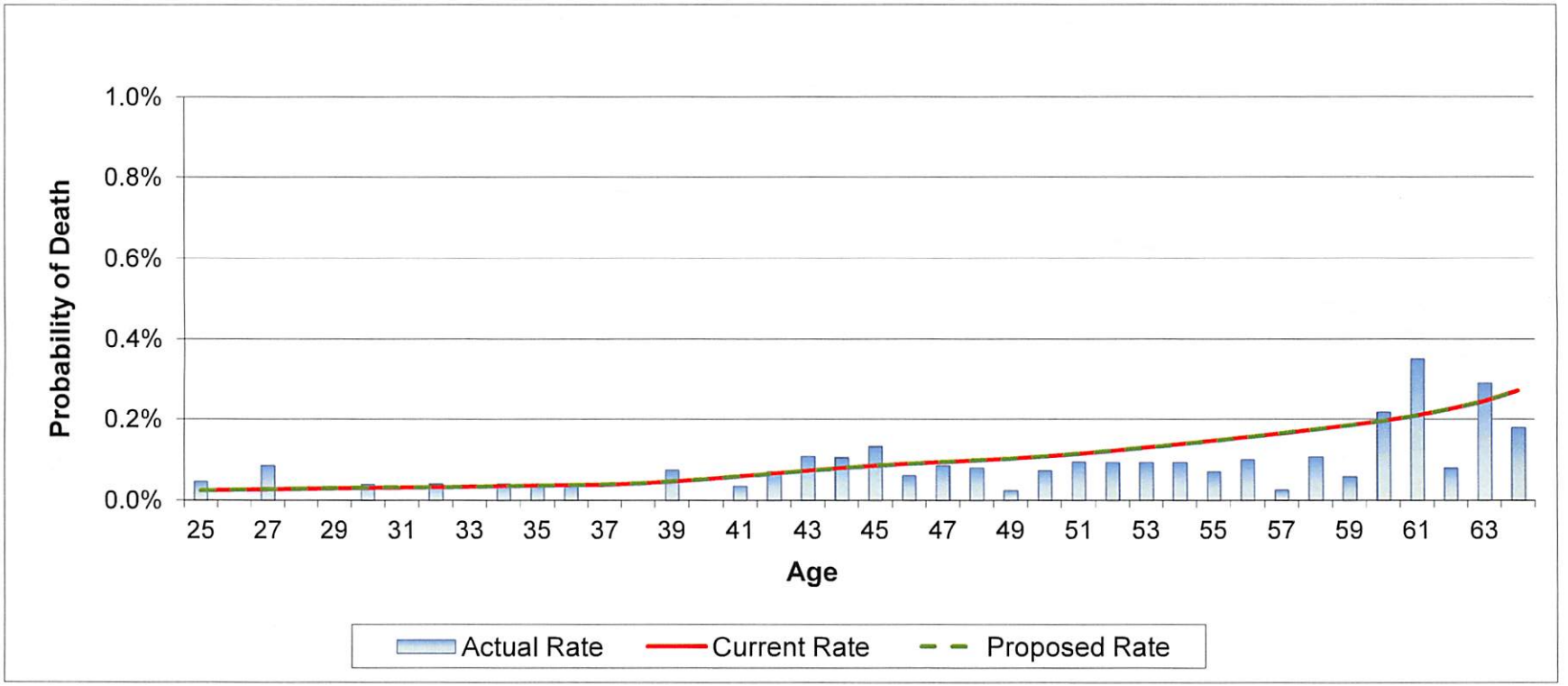
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit E-15

Probability of Death - Active Members

Females - Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	93	123	123
Actual/Expected		76%	76%

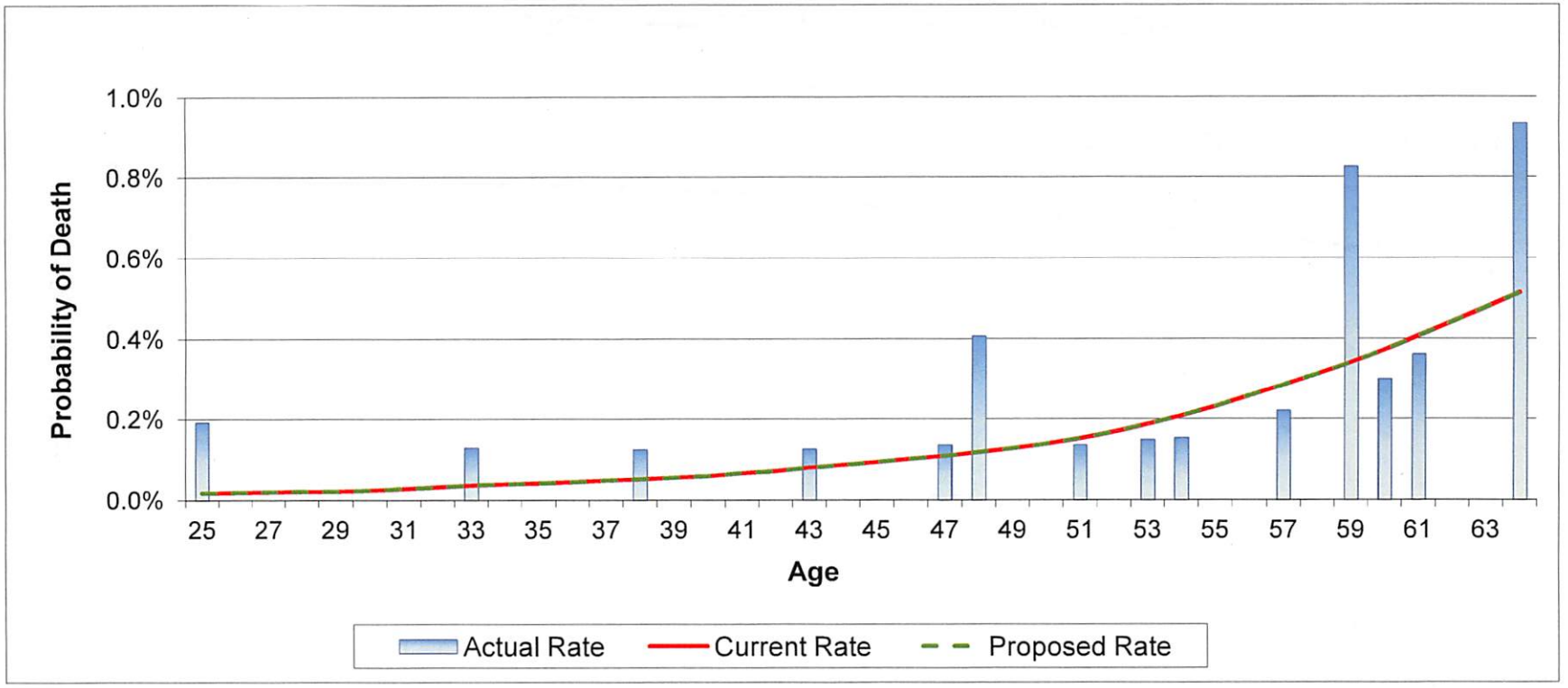
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit E-16

Probability of Death - Active Members

Males - Special Services Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	18	28	28
Actual/Expected		64%	64%

Data Summary E-1
Probability of Death - Healthy Retirees
Males - State Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	87	-	0.0%	0.5	0.5%	0.4	0.5%
56	297	2	0.7%	1.6	0.6%	1.5	0.5%
57	445	3	0.7%	2.7	0.6%	2.5	0.6%
58	600	9	1.5%	3.9	0.6%	3.6	0.6%
59	815	8	1.0%	5.8	0.7%	5.3	0.6%
60	999	9	0.9%	7.8	0.8%	7.1	0.7%
61	1,128	9	0.8%	9.8	0.9%	8.9	0.8%
62	1,346	9	0.7%	13.0	1.0%	11.6	0.9%
63	1,661	13	0.8%	17.7	1.1%	16.0	1.0%
64	1,734	14	0.8%	20.5	1.2%	18.5	1.1%
65	1,722	20	1.2%	22.8	1.3%	20.4	1.2%
66	1,694	14	0.8%	24.8	1.5%	22.4	1.3%
67	1,623	22	1.4%	26.0	1.6%	23.7	1.5%
68	1,581	24	1.5%	28.0	1.8%	25.3	1.6%
69	1,557	31	2.0%	30.2	1.9%	27.6	1.8%
70	1,545	37	2.4%	33.1	2.1%	29.9	1.9%
71	1,528	27	1.8%	36.4	2.4%	32.8	2.1%
72	1,480	35	2.4%	39.3	2.7%	35.2	2.4%
73	1,441	31	2.2%	42.6	3.0%	38.2	2.7%
74	1,407	36	2.6%	46.9	3.3%	41.6	3.0%
75	1,354	43	3.2%	50.3	3.7%	45.1	3.3%
76	1,299	45	3.5%	54.2	4.2%	48.2	3.7%
77	1,263	46	3.6%	59.1	4.7%	52.7	4.2%
78	1,182	50	4.2%	62.0	5.2%	55.3	4.7%
79	1,109	64	5.8%	65.2	5.9%	58.2	5.2%
80	1,071	60	5.6%	71.1	6.6%	63.0	5.9%
81	1,039	71	6.8%	77.8	7.5%	69.0	6.6%
82	951	61	6.4%	79.4	8.3%	71.2	7.5%
83	890	82	9.2%	83.4	9.4%	74.3	8.3%
84	837	80	9.6%	87.0	10.4%	78.4	9.4%
85	770	68	8.8%	88.8	11.5%	80.1	10.4%
86	688	79	11.5%	88.7	12.9%	79.3	11.5%
87	600	72	12.0%	86.4	14.4%	77.3	12.9%
88	497	69	13.9%	79.1	15.9%	71.5	14.4%
89	404	77	19.1%	71.5	17.7%	64.3	15.9%
90	322	60	18.6%	62.0	19.3%	57.0	17.7%
	38,966	1,380	3.5%	1,579.0	4.1%	1,417.4	3.6%

Data Summary E-2
Probability of Death - Healthy Retirees
Females - State Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	128	1	0.8%	0.4	0.3%	0.4	0.3%
56	462	3	0.6%	1.5	0.3%	1.5	0.3%
57	649	2	0.3%	2.4	0.4%	2.4	0.4%
58	852	6	0.7%	3.6	0.4%	3.6	0.4%
59	1,056	8	0.8%	5.0	0.5%	5.0	0.5%
60	1,144	4	0.3%	6.0	0.5%	6.0	0.5%
61	1,365	8	0.6%	8.1	0.6%	8.1	0.6%
62	1,600	11	0.7%	10.6	0.7%	10.6	0.7%
63	1,835	17	0.9%	13.5	0.7%	13.5	0.7%
64	1,896	9	0.5%	15.4	0.8%	15.4	0.8%
65	1,951	22	1.1%	17.5	0.9%	17.5	0.9%
66	1,941	21	1.1%	19.2	1.0%	19.2	1.0%
67	1,871	22	1.2%	20.4	1.1%	20.4	1.1%
68	1,853	17	0.9%	22.2	1.2%	22.2	1.2%
69	1,805	21	1.2%	23.8	1.3%	23.8	1.3%
70	1,741	25	1.4%	25.2	1.4%	25.2	1.4%
71	1,684	32	1.9%	26.9	1.6%	26.9	1.6%
72	1,574	21	1.3%	27.7	1.8%	27.7	1.8%
73	1,513	24	1.6%	29.9	2.0%	29.9	2.0%
74	1,460	21	1.4%	32.0	2.2%	32.0	2.2%
75	1,416	25	1.8%	34.7	2.4%	34.7	2.4%
76	1,397	33	2.4%	37.7	2.7%	37.7	2.7%
77	1,360	47	3.5%	40.8	3.0%	40.8	3.0%
78	1,304	45	3.5%	43.8	3.4%	43.8	3.4%
79	1,261	38	3.0%	46.7	3.7%	46.7	3.7%
80	1,260	54	4.3%	51.5	4.1%	51.5	4.1%
81	1,197	56	4.7%	54.1	4.5%	54.1	4.5%
82	1,185	62	5.2%	59.3	5.0%	59.3	5.0%
83	1,112	56	5.0%	61.7	5.5%	61.7	5.5%
84	1,046	60	5.7%	64.4	6.2%	64.4	6.2%
85	979	72	7.4%	67.1	6.9%	67.1	6.9%
86	888	74	8.3%	68.4	7.7%	68.4	7.7%
87	805	87	10.8%	69.8	8.7%	69.8	8.7%
88	691	77	11.1%	67.4	9.8%	67.4	9.8%
89	593	64	10.8%	64.4	10.9%	64.4	10.9%
90	500	86	17.2%	60.9	12.2%	60.9	12.2%
	45,374	1,231	2.7%	1,204.3	2.7%	1,204.3	2.7%

Data Summary E-3
Probability of Death - Healthy Retirees
Males - School Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	235	3	1.3%	1.1	0.5%	1.1	0.5%
56	927	4	0.4%	4.6	0.5%	4.4	0.5%
57	1,547	3	0.2%	8.1	0.5%	7.6	0.5%
58	2,219	10	0.5%	12.6	0.6%	11.6	0.5%
59	2,809	14	0.5%	17.3	0.6%	15.9	0.6%
60	3,250	17	0.5%	21.9	0.7%	20.0	0.6%
61	3,658	16	0.4%	27.3	0.7%	24.6	0.7%
62	4,161	23	0.6%	34.2	0.8%	31.1	0.7%
63	4,591	27	0.6%	42.1	0.9%	37.7	0.8%
64	4,683	28	0.6%	47.5	1.0%	42.9	0.9%
65	4,774	35	0.7%	53.6	1.1%	48.4	1.0%
66	4,800	45	0.9%	60.3	1.3%	53.9	1.1%
67	4,758	40	0.8%	66.1	1.4%	59.7	1.3%
68	4,691	49	1.0%	71.4	1.5%	65.2	1.4%
69	4,612	49	1.1%	77.6	1.7%	70.2	1.5%
70	4,613	72	1.6%	84.9	1.8%	77.6	1.7%
71	4,679	65	1.4%	95.3	2.0%	86.2	1.8%
72	4,504	76	1.7%	101.9	2.3%	91.8	2.0%
73	4,366	72	1.6%	111.0	2.5%	99.6	2.3%
74	4,271	101	2.4%	122.1	2.9%	109.5	2.6%
75	4,079	116	2.8%	132.5	3.2%	117.6	2.9%
76	3,815	130	3.4%	139.3	3.7%	125.0	3.3%
77	3,518	142	4.0%	145.4	4.1%	129.6	3.7%
78	3,253	121	3.7%	152.1	4.7%	135.6	4.2%
79	3,064	151	4.9%	160.7	5.2%	143.3	4.7%
80	2,837	159	5.6%	166.8	5.9%	148.8	5.2%
81	2,529	170	6.7%	168.0	6.6%	148.7	5.9%
82	2,270	131	5.8%	170.0	7.5%	150.8	6.6%
83	2,103	160	7.6%	175.5	8.3%	157.5	7.5%
84	1,921	146	7.6%	179.9	9.4%	160.3	8.3%
85	1,713	155	9.0%	178.1	10.4%	160.5	9.4%
86	1,470	153	10.4%	169.5	11.5%	152.8	10.4%
87	1,224	140	11.4%	157.7	12.9%	141.1	11.5%
88	1,021	142	13.9%	147.0	14.4%	131.6	12.9%
89	821	100	12.2%	130.6	15.9%	118.2	14.4%
90	688	124	18.0%	121.7	17.7%	109.4	15.9%
	110,474	2,989	2.7%	3,555.6	3.2%	3,189.7	2.9%

Data Summary E-4
Probability of Death - Healthy Retirees
Females - School Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	587	2	0.3%	1.2	0.2%	1.2	0.2%
56	2,227	8	0.4%	5.2	0.2%	5.2	0.2%
57	3,457	8	0.2%	9.1	0.3%	9.1	0.3%
58	4,705	11	0.2%	13.9	0.3%	13.9	0.3%
59	5,841	17	0.3%	19.5	0.3%	19.5	0.3%
60	6,834	17	0.2%	25.8	0.4%	25.8	0.4%
61	7,666	23	0.3%	32.5	0.4%	32.5	0.4%
62	8,678	27	0.3%	41.3	0.5%	41.3	0.5%
63	9,466	36	0.4%	50.5	0.5%	50.5	0.5%
64	9,623	49	0.5%	57.3	0.6%	57.3	0.6%
65	9,796	33	0.3%	64.8	0.7%	64.8	0.7%
66	9,583	52	0.5%	70.2	0.7%	70.2	0.7%
67	9,415	48	0.5%	76.1	0.8%	76.1	0.8%
68	9,246	54	0.6%	82.4	0.9%	82.4	0.9%
69	9,106	78	0.9%	89.4	1.0%	89.4	1.0%
70	8,913	86	1.0%	96.2	1.1%	96.2	1.1%
71	8,799	77	0.9%	104.2	1.2%	104.2	1.2%
72	8,451	75	0.9%	110.2	1.3%	110.2	1.3%
73	8,154	101	1.2%	121.4	1.5%	121.4	1.5%
74	7,853	108	1.4%	133.0	1.7%	133.0	1.7%
75	7,584	118	1.6%	147.7	1.9%	147.7	1.9%
76	7,256	115	1.6%	161.0	2.2%	161.0	2.2%
77	6,857	128	1.9%	174.3	2.5%	174.3	2.5%
78	6,605	155	2.3%	190.0	2.9%	190.0	2.9%
79	6,399	188	2.9%	202.8	3.2%	202.8	3.2%
80	6,153	214	3.5%	216.7	3.5%	216.7	3.5%
81	5,823	200	3.4%	226.1	3.9%	226.1	3.9%
82	5,557	206	3.7%	238.2	4.3%	238.2	4.3%
83	5,273	238	4.5%	249.8	4.7%	249.8	4.7%
84	4,981	272	5.5%	261.2	5.2%	261.2	5.2%
85	4,633	260	5.6%	269.3	5.8%	269.3	5.8%
86	4,248	282	6.6%	274.2	6.5%	274.2	6.5%
87	3,964	310	7.8%	284.6	7.2%	284.6	7.2%
88	3,618	321	8.9%	292.0	8.1%	292.0	8.1%
89	3,248	297	9.1%	295.0	9.1%	295.0	9.1%
90	2,852	334	11.7%	291.5	10.2%	291.5	10.2%
	233,451	4,548	1.9%	4,978.3	2.1%	4,978.3	2.1%

Data Summary E-5
Probability of Death - Healthy Retirees
Males - Other Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	230	3	1.3%	1.2	0.5%	1.1	0.5%
56	685	5	0.7%	3.8	0.6%	3.6	0.5%
57	933	4	0.4%	5.6	0.6%	5.2	0.6%
58	1,192	3	0.3%	7.7	0.6%	7.1	0.6%
59	1,432	14	1.0%	10.2	0.7%	9.3	0.6%
60	1,651	15	0.9%	13.0	0.8%	11.7	0.7%
61	1,831	17	0.9%	15.8	0.9%	14.4	0.8%
62	2,125	22	1.0%	20.5	1.0%	18.4	0.9%
63	2,723	26	1.0%	29.1	1.1%	26.3	1.0%
64	2,841	39	1.4%	33.6	1.2%	30.3	1.1%
65	3,005	49	1.6%	39.7	1.3%	35.5	1.2%
66	3,143	33	1.0%	46.0	1.5%	41.5	1.3%
67	3,205	42	1.3%	51.4	1.6%	46.9	1.5%
68	3,189	51	1.6%	56.5	1.8%	51.1	1.6%
69	3,227	51	1.6%	62.5	1.9%	57.1	1.8%
70	3,285	72	2.2%	70.4	2.1%	63.7	1.9%
71	3,425	86	2.5%	81.6	2.4%	73.5	2.1%
72	3,317	76	2.3%	88.0	2.7%	79.0	2.4%
73	3,227	77	2.4%	95.5	3.0%	85.6	2.7%
74	3,166	85	2.7%	105.5	3.3%	93.7	3.0%
75	3,082	103	3.3%	114.5	3.7%	102.7	3.3%
76	2,984	88	2.9%	124.4	4.2%	110.8	3.7%
77	2,870	115	4.0%	134.2	4.7%	119.7	4.2%
78	2,731	137	5.0%	143.2	5.2%	127.7	4.7%
79	2,591	157	6.1%	152.4	5.9%	135.9	5.2%
80	2,459	175	7.1%	163.3	6.6%	144.6	5.9%
81	2,287	146	6.4%	171.2	7.5%	151.9	6.6%
82	2,030	162	8.0%	169.4	8.3%	152.0	7.5%
83	1,818	164	9.0%	170.3	9.4%	151.7	8.3%
84	1,642	147	9.0%	170.7	10.4%	153.8	9.4%
85	1,452	134	9.2%	167.4	11.5%	151.0	10.4%
86	1,304	160	12.3%	168.0	12.9%	150.3	11.5%
87	1,104	132	12.0%	158.9	14.4%	142.3	12.9%
88	958	146	15.2%	152.4	15.9%	137.9	14.4%
89	768	126	16.4%	135.9	17.7%	122.2	15.9%
90	639	94	14.7%	123.1	19.3%	113.0	17.7%
	78,551	2,956	3.8%	3,256.8	4.1%	2,922.3	3.7%

Data Summary E-6
Probability of Death - Healthy Retirees
Females - Other Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	312	1	0.3%	0.8	0.3%	0.8	0.3%
56	988	3	0.3%	2.9	0.3%	2.9	0.3%
57	1,420	4	0.3%	4.7	0.3%	4.7	0.3%
58	1,749	5	0.3%	6.5	0.4%	6.5	0.4%
59	2,062	8	0.4%	8.6	0.4%	8.6	0.4%
60	2,367	9	0.4%	11.1	0.5%	11.1	0.5%
61	2,694	14	0.5%	14.2	0.5%	14.2	0.5%
62	3,172	19	0.6%	18.8	0.6%	18.8	0.6%
63	3,828	17	0.4%	25.3	0.7%	25.3	0.7%
64	4,125	19	0.5%	30.3	0.7%	30.3	0.7%
65	4,385	27	0.6%	35.7	0.8%	35.7	0.8%
66	4,748	26	0.5%	42.6	0.9%	42.6	0.9%
67	4,837	26	0.5%	47.9	1.0%	47.9	1.0%
68	4,802	28	0.6%	52.4	1.1%	52.4	1.1%
69	4,730	46	1.0%	56.7	1.2%	56.7	1.2%
70	4,747	51	1.1%	62.5	1.3%	62.5	1.3%
71	4,855	60	1.2%	70.3	1.4%	70.3	1.4%
72	4,789	58	1.2%	76.6	1.6%	76.6	1.6%
73	4,584	59	1.3%	81.3	1.8%	81.3	1.8%
74	4,434	69	1.6%	88.2	2.0%	88.2	2.0%
75	4,275	84	2.0%	94.5	2.2%	94.5	2.2%
76	4,164	88	2.1%	102.8	2.5%	102.8	2.5%
77	3,974	88	2.2%	108.2	2.7%	108.2	2.7%
78	3,762	106	2.8%	113.8	3.0%	113.8	3.0%
79	3,574	119	3.3%	120.1	3.4%	120.1	3.4%
80	3,417	129	3.8%	126.6	3.7%	126.6	3.7%
81	3,262	133	4.1%	133.5	4.1%	133.5	4.1%
82	3,047	126	4.1%	137.8	4.5%	137.8	4.5%
83	2,850	138	4.8%	142.6	5.0%	142.6	5.0%
84	2,653	161	6.1%	147.2	5.5%	147.2	5.5%
85	2,455	154	6.3%	151.3	6.2%	151.3	6.2%
86	2,281	168	7.4%	156.3	6.9%	156.3	6.9%
87	2,061	187	9.1%	158.8	7.7%	158.8	7.7%
88	1,788	178	10.0%	155.0	8.7%	155.0	8.7%
89	1,580	172	10.9%	154.2	9.8%	154.2	9.8%
90	1,386	165	11.9%	150.6	10.9%	150.6	10.9%
	116,157	2,745	2.4%	2,890.9	2.5%	2,890.9	2.5%

Data Summary E-7
Probability of Death - Healthy Retirees
Males - Special Services Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	201	1	0.5%	1.0	0.5%	1.0	0.5%
56	411	-	0.0%	2.1	0.5%	2.1	0.5%
57	467	1	0.2%	2.6	0.6%	2.6	0.6%
58	525	2	0.4%	3.1	0.6%	3.1	0.6%
59	545	3	0.6%	3.5	0.6%	3.5	0.6%
60	539	5	0.9%	3.8	0.7%	3.8	0.7%
61	554	7	1.3%	4.4	0.8%	4.4	0.8%
62	541	6	1.1%	4.7	0.9%	4.7	0.9%
63	554	2	0.4%	5.3	1.0%	5.3	1.0%
64	536	8	1.5%	5.7	1.1%	5.7	1.1%
65	506	9	1.8%	6.0	1.2%	6.0	1.2%
66	474	10	2.1%	6.3	1.3%	6.3	1.3%
67	448	7	1.6%	6.6	1.5%	6.6	1.5%
68	418	3	0.7%	6.7	1.6%	6.7	1.6%
69	373	7	1.9%	6.6	1.8%	6.6	1.8%
70	346	6	1.7%	6.7	1.9%	6.7	1.9%
71	319	6	1.9%	6.8	2.1%	6.8	2.1%
72	300	7	2.3%	7.1	2.4%	7.1	2.4%
73	268	5	1.9%	7.1	2.7%	7.1	2.7%
74	240	6	2.5%	7.1	3.0%	7.1	3.0%
75	215	16	7.4%	7.2	3.3%	7.2	3.3%
76	175	7	4.0%	6.5	3.7%	6.5	3.7%
77	161	4	2.5%	6.7	4.2%	6.7	4.2%
78	147	9	6.1%	6.9	4.7%	6.9	4.7%
79	120	3	2.5%	6.3	5.2%	6.3	5.2%
80	117	7	6.0%	6.9	5.9%	6.9	5.9%
81	97	3	3.1%	6.4	6.6%	6.4	6.6%
82	82	6	7.3%	6.1	7.5%	6.1	7.5%
83	63	5	7.9%	5.3	8.3%	5.3	8.3%
84	61	6	9.8%	5.7	9.4%	5.7	9.4%
85	40	4	10.0%	4.2	10.4%	4.2	10.4%
86	30	4	13.3%	3.5	11.5%	3.5	11.5%
87	23	2	8.7%	3.0	12.9%	3.0	12.9%
88	13	1	7.7%	1.9	14.4%	1.9	14.4%
89	10	1	10.0%	1.6	15.9%	1.6	15.9%
90	9	2	22.2%	1.6	17.7%	1.6	17.7%
	9,928	181	1.8%	182.9	1.8%	182.9	1.8%

Data Summary E-8
Probability of Death - Disabled Retirees
Males - Regular Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	247	7	2.8%	8.7	3.5%	8.7	3.5%
56	289	5	1.7%	10.6	3.7%	10.6	3.7%
57	329	10	3.0%	12.6	3.8%	12.6	3.8%
58	371	19	5.1%	14.8	4.0%	14.8	4.0%
59	400	13	3.3%	16.7	4.2%	16.7	4.2%
60	418	15	3.6%	18.1	4.3%	18.1	4.3%
61	437	12	2.7%	19.7	4.5%	19.7	4.5%
62	461	24	5.2%	21.9	4.8%	21.9	4.8%
63	454	11	2.4%	22.6	5.0%	22.6	5.0%
64	459	18	3.9%	24.1	5.3%	24.1	5.3%
65	447	16	3.6%	24.6	5.5%	24.6	5.5%
66	405	15	3.7%	23.5	5.8%	23.5	5.8%
67	394	18	4.6%	24.3	6.2%	24.3	6.2%
68	359	14	3.9%	23.4	6.5%	23.4	6.5%
69	355	15	4.2%	24.2	6.8%	24.2	6.8%
70	349	20	5.7%	25.2	7.2%	25.2	7.2%
71	336	19	5.7%	25.5	7.6%	25.5	7.6%
72	307	25	8.1%	24.7	8.0%	24.7	8.0%
73	284	18	6.3%	24.2	8.5%	24.2	8.5%
74	273	19	7.0%	24.6	9.0%	24.6	9.0%
75	248	15	6.0%	23.7	9.5%	23.7	9.5%
76	234	11	4.7%	23.8	10.2%	23.8	10.2%
77	209	22	10.5%	22.4	10.7%	22.4	10.7%
78	188	12	6.4%	21.4	11.4%	21.4	11.4%
79	169	16	9.5%	20.5	12.1%	20.5	12.1%
80	149	16	10.7%	19.1	12.8%	19.1	12.8%
81	117	19	16.2%	15.9	13.6%	15.9	13.6%
82	93	8	8.6%	13.3	14.3%	13.3	14.3%
83	78	14	17.9%	11.8	15.1%	11.8	15.1%
84	65	8	12.3%	10.2	15.7%	10.2	15.7%
85	54	7	13.0%	9.3	17.2%	9.3	17.2%
86	41	9	22.0%	7.7	18.8%	7.7	18.8%
87	26	7	26.9%	5.3	20.3%	5.3	20.3%
88	18	2	11.1%	4.0	22.1%	4.0	22.1%
89	15	2	13.3%	3.6	24.0%	3.6	24.0%
90	12	2	16.7%	3.1	25.6%	3.1	25.6%
	9,090	483	5.3%	629.1	6.9%	629.1	6.9%

Data Summary E-9
Probability of Death - Disabled Retirees
Females - Regular Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	449	11	2.4%	11.4	2.5%	11.4	2.5%
56	532	11	2.1%	14.3	2.7%	14.3	2.7%
57	598	21	3.5%	16.9	2.8%	16.9	2.8%
58	631	13	2.1%	18.9	3.0%	18.9	3.0%
59	656	21	3.2%	20.8	3.2%	20.8	3.2%
60	645	18	2.8%	21.8	3.4%	21.8	3.4%
61	637	13	2.0%	22.9	3.6%	22.9	3.6%
62	654	22	3.4%	25.1	3.8%	25.1	3.8%
63	662	22	3.3%	27.1	4.1%	27.1	4.1%
64	637	19	3.0%	27.9	4.4%	27.9	4.4%
65	621	22	3.5%	29.0	4.7%	29.0	4.7%
66	583	25	4.3%	29.1	5.0%	29.1	5.0%
67	548	21	3.8%	29.2	5.3%	29.2	5.3%
68	497	22	4.4%	28.0	5.6%	28.0	5.6%
69	470	15	3.2%	28.3	6.0%	28.3	6.0%
70	454	14	3.1%	28.9	6.4%	28.9	6.4%
71	416	15	3.6%	28.2	6.8%	28.2	6.8%
72	398	21	5.3%	28.6	7.2%	28.6	7.2%
73	387	16	4.1%	29.6	7.7%	29.6	7.7%
74	357	14	3.9%	29.4	8.2%	29.4	8.2%
75	328	20	6.1%	28.9	8.8%	28.9	8.8%
76	296	12	4.1%	27.8	9.4%	27.8	9.4%
77	264	22	8.3%	26.5	10.1%	26.5	10.1%
78	214	13	6.1%	23.0	10.7%	23.0	10.7%
79	189	19	10.1%	21.7	11.5%	21.7	11.5%
80	157	19	12.1%	19.3	12.3%	19.3	12.3%
81	118	11	9.3%	15.5	13.1%	15.5	13.1%
82	100	9	9.0%	14.2	14.2%	14.2	14.2%
83	83	9	10.8%	12.7	15.3%	12.7	15.3%
84	71	12	16.9%	11.7	16.4%	11.7	16.4%
85	54	9	16.7%	9.5	17.6%	9.5	17.6%
86	45	8	17.8%	8.5	18.9%	8.5	18.9%
87	36	4	11.1%	7.2	20.0%	7.2	20.0%
88	24	4	16.7%	5.0	20.9%	5.0	20.9%
89	23	1	4.3%	5.0	21.8%	5.0	21.8%
90	22	3	13.6%	5.0	22.7%	5.0	22.7%
	12,856	531	4.1%	737.2	5.7%	737.2	5.7%

Data Summary E-10
Probability of Death - Active Members
Males - State Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	221	-	0.000%	0.0	0.016%	0.0	0.016%
26	270	-	0.000%	0.0	0.016%	0.0	0.016%
27	348	-	0.000%	0.1	0.017%	0.1	0.017%
28	375	-	0.000%	0.1	0.018%	0.1	0.018%
29	413	1	0.242%	0.1	0.019%	0.1	0.019%
30	476	-	0.000%	0.1	0.020%	0.1	0.020%
31	497	-	0.000%	0.1	0.021%	0.1	0.021%
32	522	1	0.192%	0.1	0.022%	0.1	0.022%
33	520	-	0.000%	0.1	0.024%	0.1	0.024%
34	557	-	0.000%	0.2	0.028%	0.2	0.028%
35	573	-	0.000%	0.2	0.032%	0.2	0.032%
36	579	-	0.000%	0.2	0.036%	0.2	0.036%
37	609	1	0.164%	0.2	0.039%	0.2	0.039%
38	671	-	0.000%	0.3	0.042%	0.3	0.042%
39	725	-	0.000%	0.3	0.045%	0.3	0.045%
40	755	-	0.000%	0.4	0.048%	0.4	0.048%
41	800	-	0.000%	0.4	0.051%	0.4	0.051%
42	797	1	0.125%	0.4	0.055%	0.4	0.055%
43	770	-	0.000%	0.5	0.060%	0.5	0.060%
44	754	1	0.133%	0.5	0.066%	0.5	0.066%
45	827	-	0.000%	0.6	0.072%	0.6	0.072%
46	886	1	0.113%	0.7	0.079%	0.7	0.079%
47	940	-	0.000%	0.8	0.087%	0.8	0.087%
48	981	-	0.000%	0.9	0.094%	0.9	0.094%
49	999	1	0.100%	1.0	0.101%	1.0	0.101%
50	1,070	1	0.093%	1.2	0.109%	1.2	0.109%
51	1,088	4	0.368%	1.3	0.117%	1.3	0.117%
52	1,108	3	0.271%	1.4	0.127%	1.4	0.127%
53	1,160	2	0.172%	1.6	0.139%	1.6	0.139%
54	1,203	1	0.083%	1.8	0.152%	1.8	0.152%
55	1,220	4	0.328%	2.1	0.168%	2.1	0.168%
56	1,217	5	0.411%	2.3	0.187%	2.3	0.187%
57	1,200	1	0.083%	2.5	0.208%	2.5	0.208%
58	1,173	-	0.000%	2.7	0.231%	2.7	0.231%
59	1,071	5	0.467%	2.8	0.258%	2.8	0.258%
60	1,002	-	0.000%	2.9	0.285%	2.9	0.285%
61	921	4	0.434%	2.9	0.311%	2.9	0.311%
62	744	3	0.403%	2.5	0.341%	2.5	0.341%
63	529	4	0.756%	2.0	0.372%	2.0	0.372%
64	381	4	1.050%	1.5	0.406%	1.5	0.406%
	30,952	48	0.155%	39.7	0.128%	39.7	0.128%

Data Summary E-11
Probability of Death - Active Members
Females - State Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	417	-	0.000%	0.1	0.024%	0.1	0.024%
26	502	-	0.000%	0.1	0.026%	0.1	0.026%
27	620	1	0.161%	0.2	0.027%	0.2	0.027%
28	700	-	0.000%	0.2	0.028%	0.2	0.028%
29	743	-	0.000%	0.2	0.029%	0.2	0.029%
30	815	-	0.000%	0.2	0.030%	0.2	0.030%
31	824	1	0.121%	0.3	0.032%	0.3	0.032%
32	846	-	0.000%	0.3	0.033%	0.3	0.033%
33	883	-	0.000%	0.3	0.034%	0.3	0.034%
34	908	-	0.000%	0.3	0.035%	0.3	0.035%
35	965	-	0.000%	0.3	0.036%	0.3	0.036%
36	951	-	0.000%	0.4	0.037%	0.4	0.037%
37	970	1	0.103%	0.4	0.039%	0.4	0.039%
38	945	-	0.000%	0.4	0.042%	0.4	0.042%
39	999	-	0.000%	0.5	0.047%	0.5	0.047%
40	1,005	-	0.000%	0.5	0.053%	0.5	0.053%
41	1,030	1	0.097%	0.6	0.060%	0.6	0.060%
42	1,050	-	0.000%	0.7	0.066%	0.7	0.066%
43	1,036	1	0.097%	0.8	0.073%	0.8	0.073%
44	1,081	-	0.000%	0.9	0.080%	0.9	0.080%
45	1,176	-	0.000%	1.0	0.086%	1.0	0.086%
46	1,265	-	0.000%	1.1	0.090%	1.1	0.090%
47	1,401	-	0.000%	1.3	0.095%	1.3	0.095%
48	1,494	2	0.134%	1.5	0.099%	1.5	0.099%
49	1,601	-	0.000%	1.7	0.103%	1.7	0.103%
50	1,698	1	0.059%	1.8	0.109%	1.8	0.109%
51	1,773	1	0.056%	2.0	0.115%	2.0	0.115%
52	1,833	-	0.000%	2.2	0.122%	2.2	0.122%
53	1,855	4	0.216%	2.4	0.131%	2.4	0.131%
54	1,873	1	0.053%	2.6	0.138%	2.6	0.138%
55	1,798	3	0.167%	2.6	0.147%	2.6	0.147%
56	1,663	2	0.120%	2.6	0.156%	2.6	0.156%
57	1,542	3	0.195%	2.5	0.165%	2.5	0.165%
58	1,442	3	0.208%	2.5	0.175%	2.5	0.175%
59	1,330	3	0.226%	2.5	0.185%	2.5	0.185%
60	1,243	2	0.161%	2.4	0.196%	2.4	0.196%
61	1,036	2	0.193%	2.2	0.210%	2.2	0.210%
62	824	4	0.485%	1.9	0.225%	1.9	0.225%
63	621	1	0.161%	1.5	0.245%	1.5	0.245%
64	422	1	0.237%	1.1	0.271%	1.1	0.271%
	45,180	38	0.084%	47.3	0.105%	47.3	0.105%

Data Summary E-12
Probability of Death - Active Members
Males - School Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	1,234	-	0.000%	0.2	0.016%	0.2	0.016%
26	1,340	-	0.000%	0.2	0.016%	0.2	0.016%
27	1,453	-	0.000%	0.2	0.017%	0.2	0.017%
28	1,494	-	0.000%	0.3	0.018%	0.3	0.018%
29	1,566	1	0.064%	0.3	0.019%	0.3	0.019%
30	1,605	-	0.000%	0.3	0.020%	0.3	0.020%
31	1,609	1	0.062%	0.3	0.021%	0.3	0.021%
32	1,638	-	0.000%	0.4	0.022%	0.4	0.022%
33	1,665	-	0.000%	0.4	0.024%	0.4	0.024%
34	1,619	1	0.062%	0.5	0.028%	0.5	0.028%
35	1,608	-	0.000%	0.5	0.032%	0.5	0.032%
36	1,590	1	0.063%	0.6	0.036%	0.6	0.036%
37	1,578	-	0.000%	0.6	0.039%	0.6	0.039%
38	1,638	1	0.061%	0.7	0.042%	0.7	0.042%
39	1,693	-	0.000%	0.8	0.045%	0.8	0.045%
40	1,784	-	0.000%	0.9	0.048%	0.9	0.048%
41	1,838	1	0.054%	0.9	0.051%	0.9	0.051%
42	1,798	1	0.056%	1.0	0.055%	1.0	0.055%
43	1,786	-	0.000%	1.1	0.060%	1.1	0.060%
44	1,711	1	0.058%	1.1	0.066%	1.1	0.066%
45	1,741	1	0.057%	1.3	0.072%	1.3	0.072%
46	1,816	1	0.055%	1.4	0.079%	1.4	0.079%
47	1,887	-	0.000%	1.6	0.087%	1.6	0.087%
48	2,027	-	0.000%	1.9	0.094%	1.9	0.094%
49	2,105	2	0.095%	2.1	0.101%	2.1	0.101%
50	2,177	5	0.230%	2.4	0.109%	2.4	0.109%
51	2,202	4	0.182%	2.6	0.117%	2.6	0.117%
52	2,275	4	0.176%	2.9	0.127%	2.9	0.127%
53	2,320	6	0.259%	3.2	0.139%	3.2	0.139%
54	2,354	3	0.127%	3.6	0.152%	3.6	0.152%
55	2,469	4	0.162%	4.2	0.168%	4.2	0.168%
56	2,362	3	0.127%	4.4	0.187%	4.4	0.187%
57	2,288	3	0.131%	4.8	0.208%	4.8	0.208%
58	2,214	3	0.136%	5.1	0.231%	5.1	0.231%
59	2,088	5	0.239%	5.4	0.258%	5.4	0.258%
60	2,020	10	0.495%	5.8	0.285%	5.8	0.285%
61	1,842	2	0.109%	5.7	0.311%	5.7	0.311%
62	1,612	3	0.186%	5.5	0.341%	5.5	0.341%
63	1,288	3	0.233%	4.8	0.372%	4.8	0.372%
64	1,060	-	0.000%	4.3	0.406%	4.3	0.406%
	72,394	70	0.097%	84.1	0.116%	84.1	0.116%

Data Summary E-13
Probability of Death - Active Members
Females - School Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	3,745	-	0.000%	0.9	0.024%	0.9	0.024%
26	4,068	-	0.000%	1.0	0.026%	1.0	0.026%
27	4,344	-	0.000%	1.2	0.027%	1.2	0.027%
28	4,435	1	0.023%	1.2	0.028%	1.2	0.028%
29	4,599	-	0.000%	1.3	0.029%	1.3	0.029%
30	4,752	2	0.042%	1.4	0.030%	1.4	0.030%
31	4,749	1	0.021%	1.5	0.032%	1.5	0.032%
32	4,782	1	0.021%	1.6	0.033%	1.6	0.033%
33	4,766	-	0.000%	1.6	0.034%	1.6	0.034%
34	4,702	1	0.021%	1.7	0.035%	1.7	0.035%
35	4,699	2	0.043%	1.7	0.036%	1.7	0.036%
36	4,743	1	0.021%	1.8	0.037%	1.8	0.037%
37	4,998	-	0.000%	1.9	0.039%	1.9	0.039%
38	5,332	1	0.019%	2.2	0.042%	2.2	0.042%
39	5,756	-	0.000%	2.7	0.047%	2.7	0.047%
40	6,146	-	0.000%	3.3	0.053%	3.3	0.053%
41	6,346	3	0.047%	3.8	0.060%	3.8	0.060%
42	6,553	1	0.015%	4.4	0.066%	4.4	0.066%
43	6,517	-	0.000%	4.8	0.073%	4.8	0.073%
44	6,552	2	0.031%	5.2	0.080%	5.2	0.080%
45	6,708	2	0.030%	5.7	0.086%	5.7	0.086%
46	6,843	3	0.044%	6.2	0.090%	6.2	0.090%
47	7,101	4	0.056%	6.7	0.095%	6.7	0.095%
48	7,362	4	0.054%	7.3	0.099%	7.3	0.099%
49	7,504	4	0.053%	7.8	0.103%	7.8	0.103%
50	7,614	6	0.079%	8.3	0.109%	8.3	0.109%
51	7,507	11	0.147%	8.6	0.115%	8.6	0.115%
52	7,512	4	0.053%	9.2	0.122%	9.2	0.122%
53	7,586	4	0.053%	9.9	0.131%	9.9	0.131%
54	7,659	10	0.131%	10.6	0.138%	10.6	0.138%
55	7,689	11	0.143%	11.3	0.147%	11.3	0.147%
56	7,437	4	0.054%	11.6	0.156%	11.6	0.156%
57	7,074	11	0.155%	11.7	0.165%	11.7	0.165%
58	6,852	3	0.044%	12.0	0.175%	12.0	0.175%
59	6,527	12	0.184%	12.1	0.185%	12.1	0.185%
60	5,915	9	0.152%	11.6	0.196%	11.6	0.196%
61	5,134	6	0.117%	10.8	0.210%	10.8	0.210%
62	4,251	3	0.071%	9.6	0.225%	9.6	0.225%
63	3,219	6	0.186%	7.9	0.245%	7.9	0.245%
64	2,453	5	0.204%	6.6	0.271%	6.6	0.271%
	232,531	138	0.059%	230.6	0.099%	230.6	0.099%

Data Summary E-14
Probability of Death - Active Members
Males - Other Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	1,040	-	0.000%	0.2	0.018%	0.2	0.018%
26	1,109	-	0.000%	0.2	0.019%	0.2	0.019%
27	1,135	-	0.000%	0.2	0.020%	0.2	0.020%
28	1,212	-	0.000%	0.2	0.021%	0.2	0.021%
29	1,270	-	0.000%	0.3	0.022%	0.3	0.022%
30	1,378	-	0.000%	0.3	0.024%	0.3	0.024%
31	1,433	-	0.000%	0.4	0.028%	0.4	0.028%
32	1,518	-	0.000%	0.5	0.032%	0.5	0.032%
33	1,502	1	0.067%	0.5	0.036%	0.5	0.036%
34	1,454	1	0.069%	0.6	0.039%	0.6	0.039%
35	1,441	-	0.000%	0.6	0.042%	0.6	0.042%
36	1,408	-	0.000%	0.6	0.045%	0.6	0.045%
37	1,495	2	0.134%	0.7	0.048%	0.7	0.048%
38	1,615	-	0.000%	0.8	0.051%	0.8	0.051%
39	1,690	1	0.059%	0.9	0.055%	0.9	0.055%
40	1,728	-	0.000%	1.0	0.060%	1.0	0.060%
41	1,826	3	0.164%	1.2	0.066%	1.2	0.066%
42	1,795	1	0.056%	1.3	0.072%	1.3	0.072%
43	1,750	3	0.171%	1.4	0.079%	1.4	0.079%
44	1,824	-	0.000%	1.6	0.087%	1.6	0.087%
45	1,928	-	0.000%	1.8	0.094%	1.8	0.094%
46	2,078	2	0.096%	2.1	0.101%	2.1	0.101%
47	2,220	4	0.180%	2.4	0.109%	2.4	0.109%
48	2,326	4	0.172%	2.7	0.117%	2.7	0.117%
49	2,474	1	0.040%	3.1	0.127%	3.1	0.127%
50	2,621	5	0.191%	3.6	0.139%	3.6	0.139%
51	2,741	5	0.182%	4.2	0.152%	4.2	0.152%
52	2,886	6	0.208%	4.9	0.168%	4.9	0.168%
53	2,996	7	0.234%	5.6	0.187%	5.6	0.187%
54	3,049	7	0.230%	6.3	0.208%	6.3	0.208%
55	3,024	9	0.298%	7.0	0.231%	7.0	0.231%
56	3,003	10	0.333%	7.7	0.258%	7.7	0.258%
57	2,901	2	0.069%	8.3	0.285%	8.3	0.285%
58	2,815	11	0.391%	8.8	0.311%	8.8	0.311%
59	2,669	5	0.187%	9.1	0.341%	9.1	0.341%
60	2,456	2	0.081%	9.1	0.372%	9.1	0.372%
61	2,309	9	0.390%	9.4	0.406%	9.4	0.406%
62	2,096	8	0.382%	9.2	0.441%	9.2	0.441%
63	1,627	3	0.184%	7.8	0.477%	7.8	0.477%
64	1,362	9	0.661%	7.0	0.514%	7.0	0.514%
	79,204	121	0.153%	133.8	0.169%	133.8	0.169%

Data Summary E-15
Probability of Death - Active Members
Females - Other Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	2,131	1	0.047%	0.5	0.024%	0.5	0.024%
26	2,271	-	0.000%	0.6	0.026%	0.6	0.026%
27	2,325	2	0.086%	0.6	0.027%	0.6	0.027%
28	2,427	-	0.000%	0.7	0.028%	0.7	0.028%
29	2,499	-	0.000%	0.7	0.029%	0.7	0.029%
30	2,493	1	0.040%	0.8	0.030%	0.8	0.030%
31	2,534	-	0.000%	0.8	0.032%	0.8	0.032%
32	2,483	1	0.040%	0.8	0.033%	0.8	0.033%
33	2,458	-	0.000%	0.8	0.034%	0.8	0.034%
34	2,471	1	0.040%	0.9	0.035%	0.9	0.035%
35	2,452	1	0.041%	0.9	0.036%	0.9	0.036%
36	2,461	1	0.041%	0.9	0.037%	0.9	0.037%
37	2,440	-	0.000%	1.0	0.039%	1.0	0.039%
38	2,531	-	0.000%	1.1	0.042%	1.1	0.042%
39	2,650	2	0.075%	1.3	0.047%	1.3	0.047%
40	2,716	-	0.000%	1.4	0.053%	1.4	0.053%
41	2,786	1	0.036%	1.7	0.060%	1.7	0.060%
42	2,802	2	0.071%	1.9	0.066%	1.9	0.066%
43	2,736	3	0.110%	2.0	0.073%	2.0	0.073%
44	2,839	3	0.106%	2.3	0.080%	2.3	0.080%
45	3,007	4	0.133%	2.6	0.086%	2.6	0.086%
46	3,274	2	0.061%	3.0	0.090%	3.0	0.090%
47	3,494	3	0.086%	3.3	0.095%	3.3	0.095%
48	3,743	3	0.080%	3.7	0.099%	3.7	0.099%
49	3,978	1	0.025%	4.1	0.103%	4.1	0.103%
50	4,081	3	0.074%	4.4	0.109%	4.4	0.109%
51	4,177	4	0.096%	4.8	0.115%	4.8	0.115%
52	4,248	4	0.094%	5.2	0.122%	5.2	0.122%
53	4,223	4	0.095%	5.5	0.131%	5.5	0.131%
54	4,233	4	0.094%	5.9	0.138%	5.9	0.138%
55	4,208	3	0.071%	6.2	0.147%	6.2	0.147%
56	3,984	4	0.100%	6.2	0.156%	6.2	0.156%
57	3,906	1	0.026%	6.5	0.165%	6.5	0.165%
58	3,698	4	0.108%	6.5	0.175%	6.5	0.175%
59	3,408	2	0.059%	6.3	0.185%	6.3	0.185%
60	3,212	7	0.218%	6.3	0.196%	6.3	0.196%
61	2,851	10	0.351%	6.0	0.210%	6.0	0.210%
62	2,505	2	0.080%	5.6	0.225%	5.6	0.225%
63	2,068	6	0.290%	5.1	0.245%	5.1	0.245%
64	1,662	3	0.181%	4.5	0.271%	4.5	0.271%
	120,465	93	0.077%	123.1	0.102%	123.1	0.102%

Data Summary E-16
Probability of Death - Active Members
Males - Special Services Membership

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	519	1	0.193%	0.1	0.018%	0.1	0.018%
26	573	-	0.000%	0.1	0.019%	0.1	0.019%
27	651	-	0.000%	0.1	0.020%	0.1	0.020%
28	693	-	0.000%	0.1	0.021%	0.1	0.021%
29	718	-	0.000%	0.2	0.022%	0.2	0.022%
30	743	-	0.000%	0.2	0.024%	0.2	0.024%
31	729	-	0.000%	0.2	0.028%	0.2	0.028%
32	765	-	0.000%	0.2	0.032%	0.2	0.032%
33	775	1	0.129%	0.3	0.036%	0.3	0.036%
34	742	-	0.000%	0.3	0.039%	0.3	0.039%
35	747	-	0.000%	0.3	0.042%	0.3	0.042%
36	731	-	0.000%	0.3	0.045%	0.3	0.045%
37	748	-	0.000%	0.4	0.048%	0.4	0.048%
38	799	1	0.125%	0.4	0.051%	0.4	0.051%
39	828	-	0.000%	0.5	0.055%	0.5	0.055%
40	851	-	0.000%	0.5	0.060%	0.5	0.060%
41	831	-	0.000%	0.5	0.066%	0.5	0.066%
42	820	-	0.000%	0.6	0.072%	0.6	0.072%
43	791	1	0.126%	0.6	0.079%	0.6	0.079%
44	761	-	0.000%	0.7	0.087%	0.7	0.087%
45	749	-	0.000%	0.7	0.094%	0.7	0.094%
46	718	-	0.000%	0.7	0.101%	0.7	0.101%
47	736	1	0.136%	0.8	0.109%	0.8	0.109%
48	738	3	0.407%	0.9	0.117%	0.9	0.117%
49	757	-	0.000%	1.0	0.127%	1.0	0.127%
50	749	-	0.000%	1.0	0.139%	1.0	0.139%
51	736	1	0.136%	1.1	0.152%	1.1	0.152%
52	687	-	0.000%	1.2	0.168%	1.2	0.168%
53	671	1	0.149%	1.3	0.187%	1.3	0.187%
54	647	1	0.155%	1.3	0.208%	1.3	0.208%
55	590	-	0.000%	1.4	0.231%	1.4	0.231%
56	485	-	0.000%	1.3	0.258%	1.3	0.258%
57	452	1	0.221%	1.3	0.285%	1.3	0.285%
58	408	-	0.000%	1.3	0.311%	1.3	0.311%
59	363	3	0.826%	1.2	0.341%	1.2	0.341%
60	333	1	0.300%	1.2	0.372%	1.2	0.372%
61	277	1	0.361%	1.1	0.406%	1.1	0.406%
62	241	-	0.000%	1.1	0.441%	1.1	0.441%
63	156	-	0.000%	0.7	0.477%	0.7	0.477%
64	107	1	0.935%	0.5	0.514%	0.5	0.514%
	25,415	18	0.071%	27.7	0.109%	27.7	0.109%

APPENDIX F

RETIREMENT

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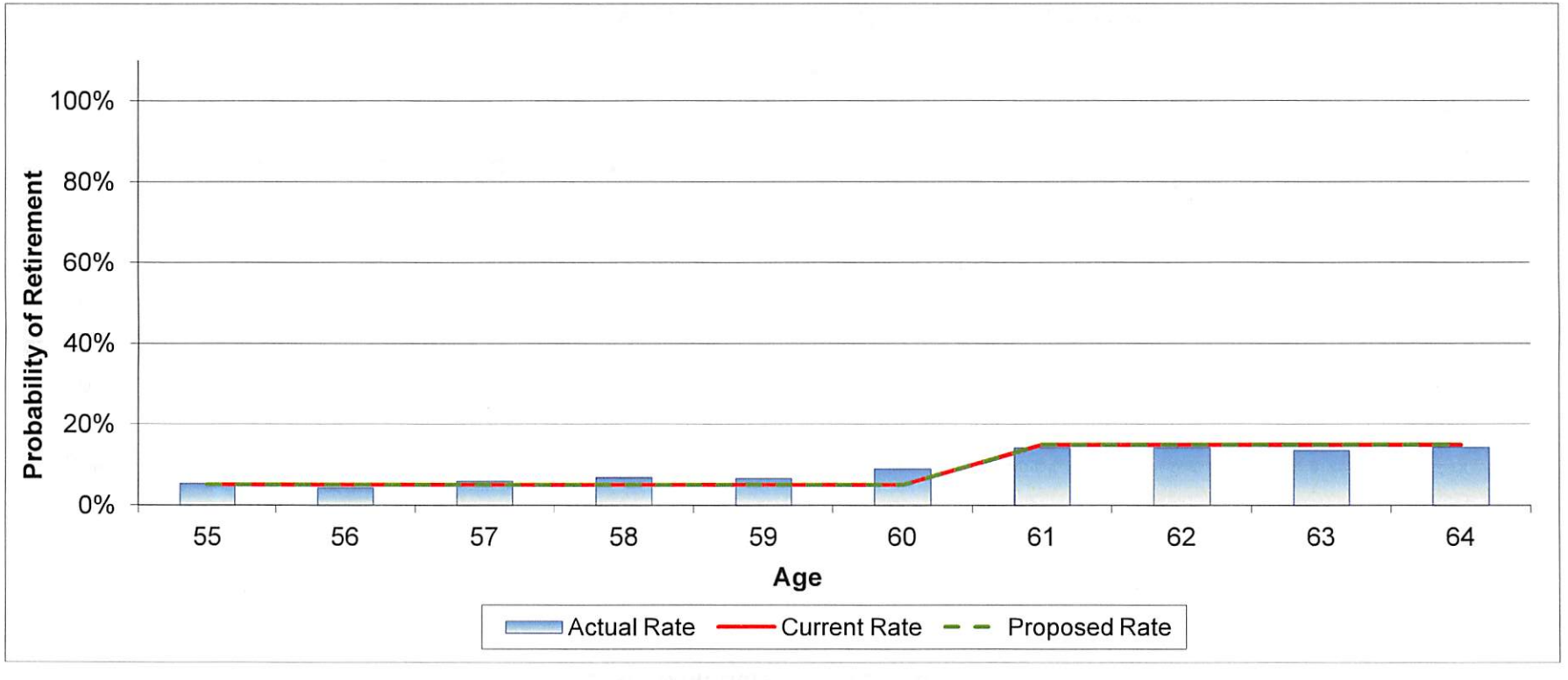
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-1

Retirement Rates - Early

State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	1,201	1,078	1,078
Actual/Expected		111%	111%

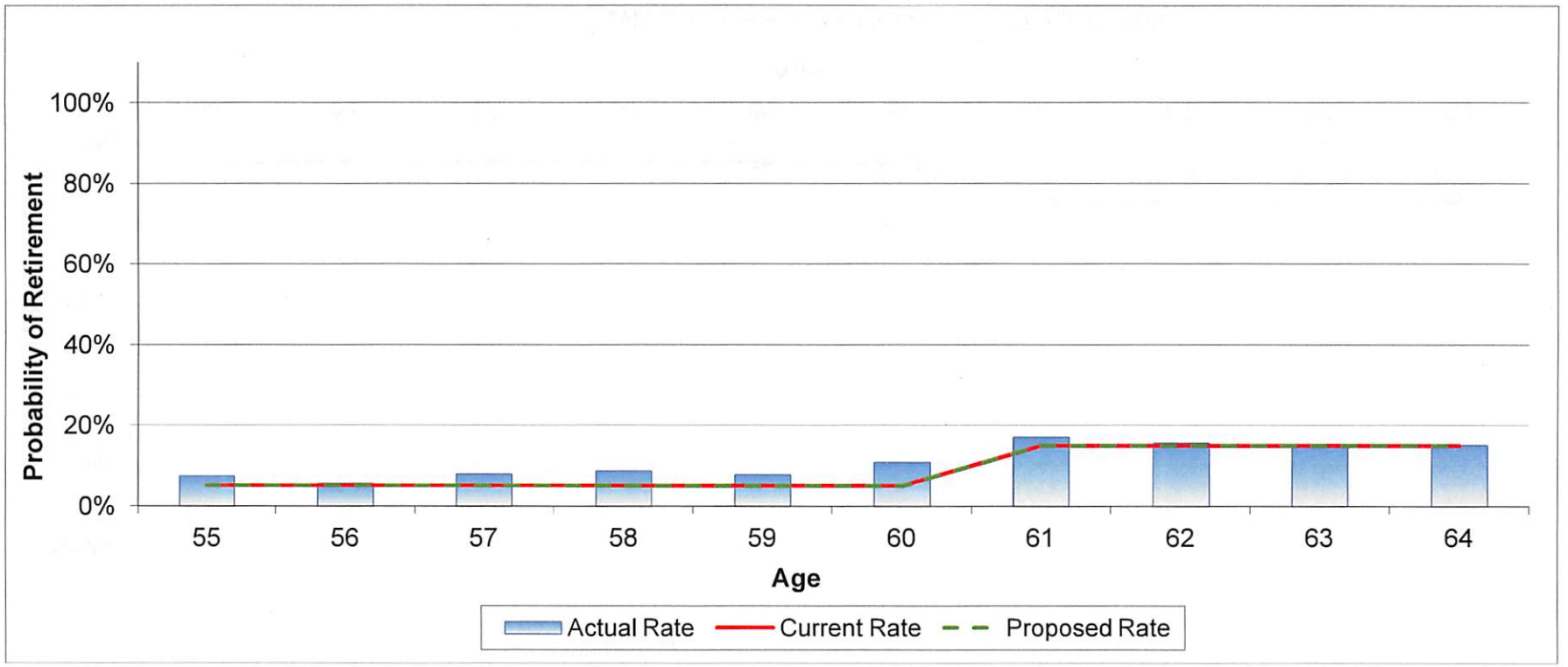
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-2

Retirement Rates - Early

State Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	13,176	9,340	9,340
Actual/Expected		141%	141%

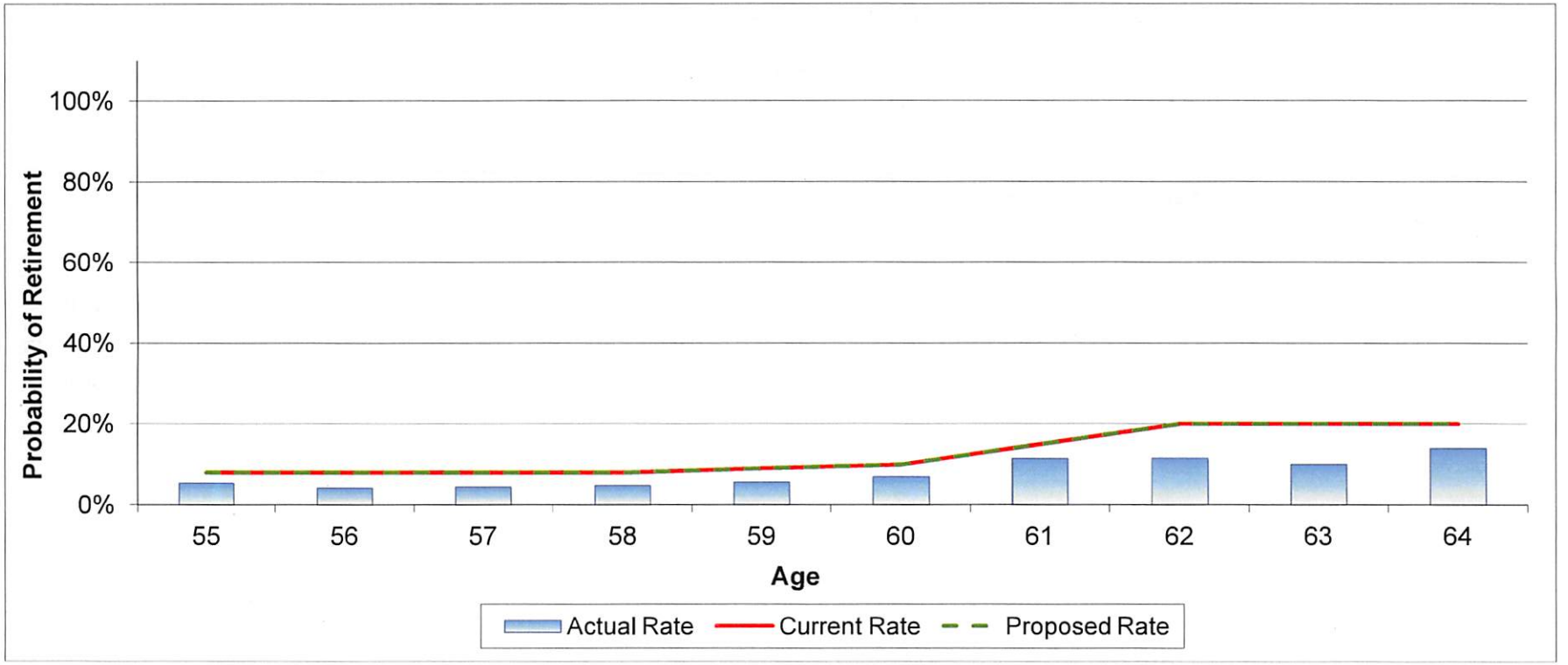
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-3

Retirement Rates - Early

School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	3,896	6,219	6,219
Actual/Expected		63%	63%

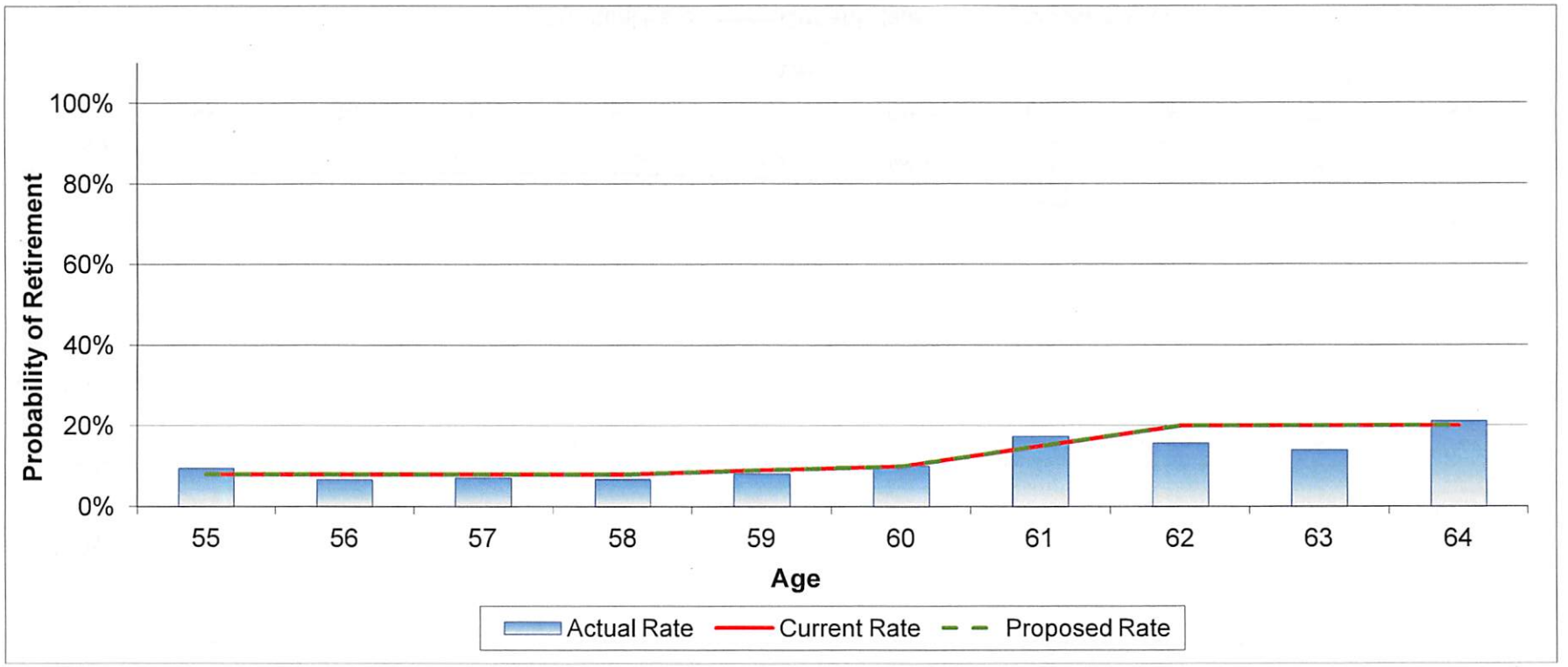
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-4

Retirement Rates - Early

School Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	31,073	32,040	32,040
Actual/Expected		97%	97%

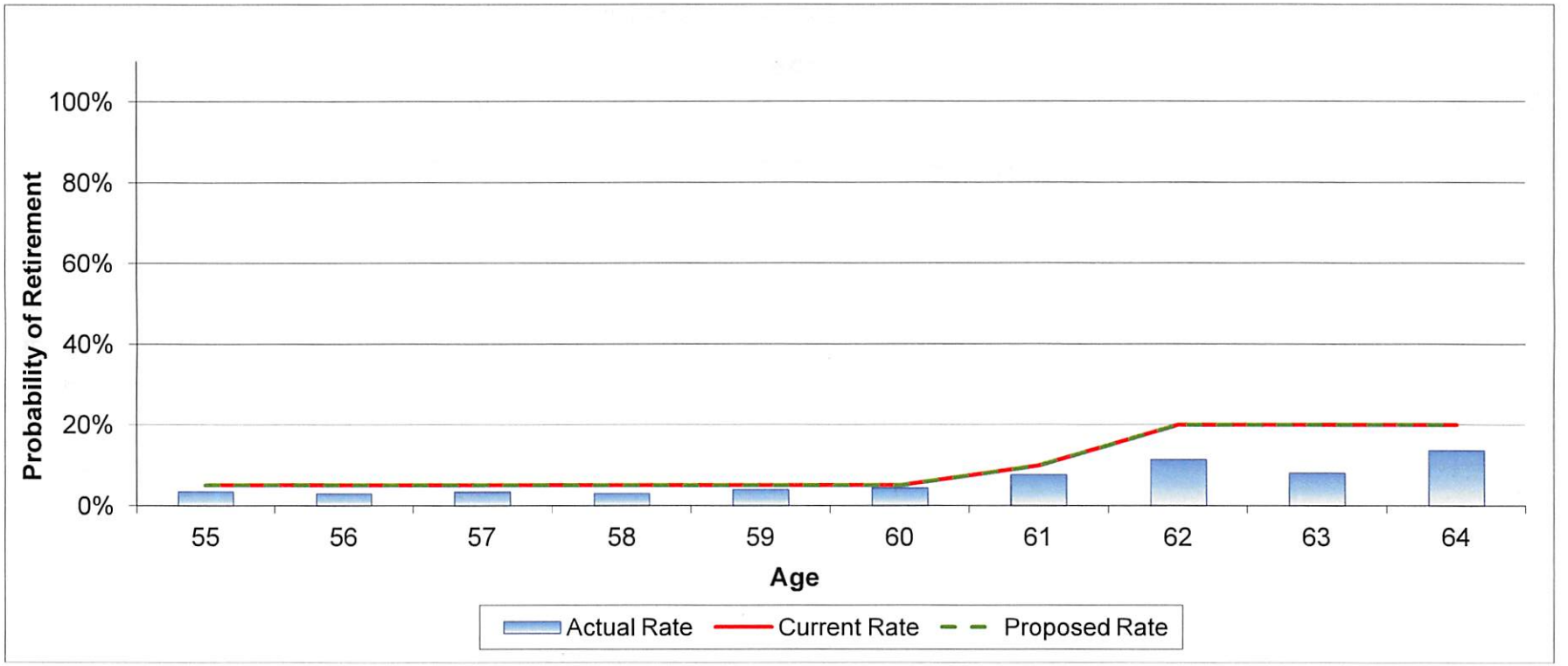
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-5

Retirement Rates - Early

Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	2,319	3,556	3,556
Actual/Expected		65%	65%

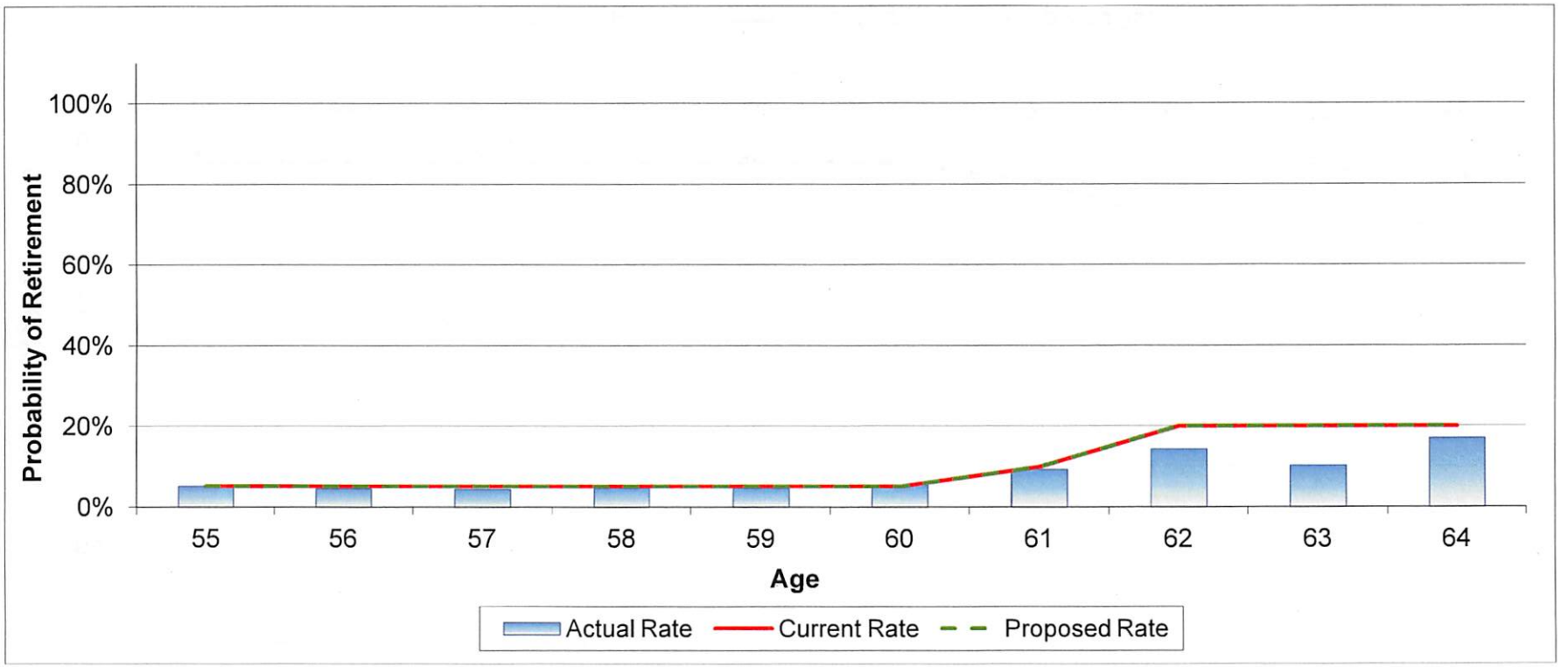
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-6

Retirement Rates - Early

Other Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	14,384	16,390	16,390
Actual/Expected		88%	88%

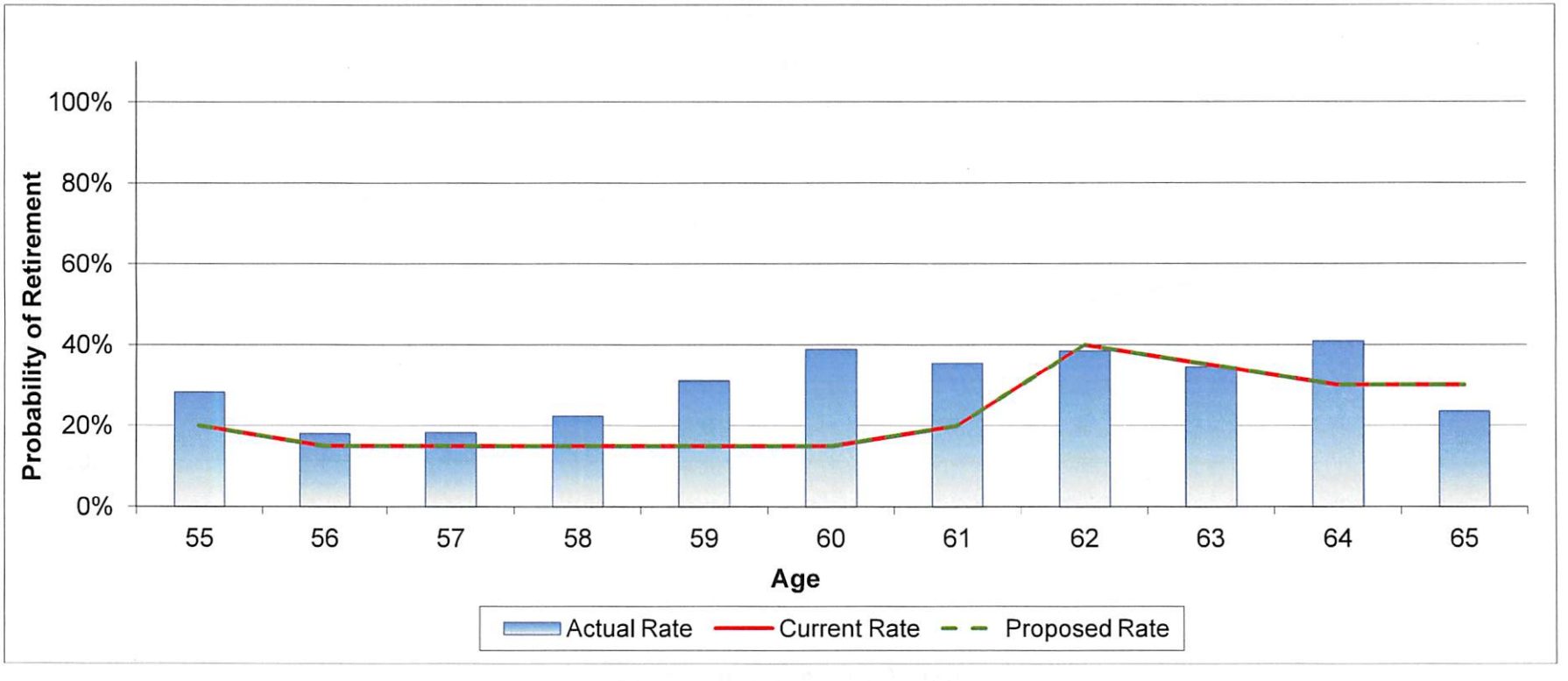
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-7

Retirement Rates - Select Unreduced

State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	598	504	504
Actual/Expected		119%	119%

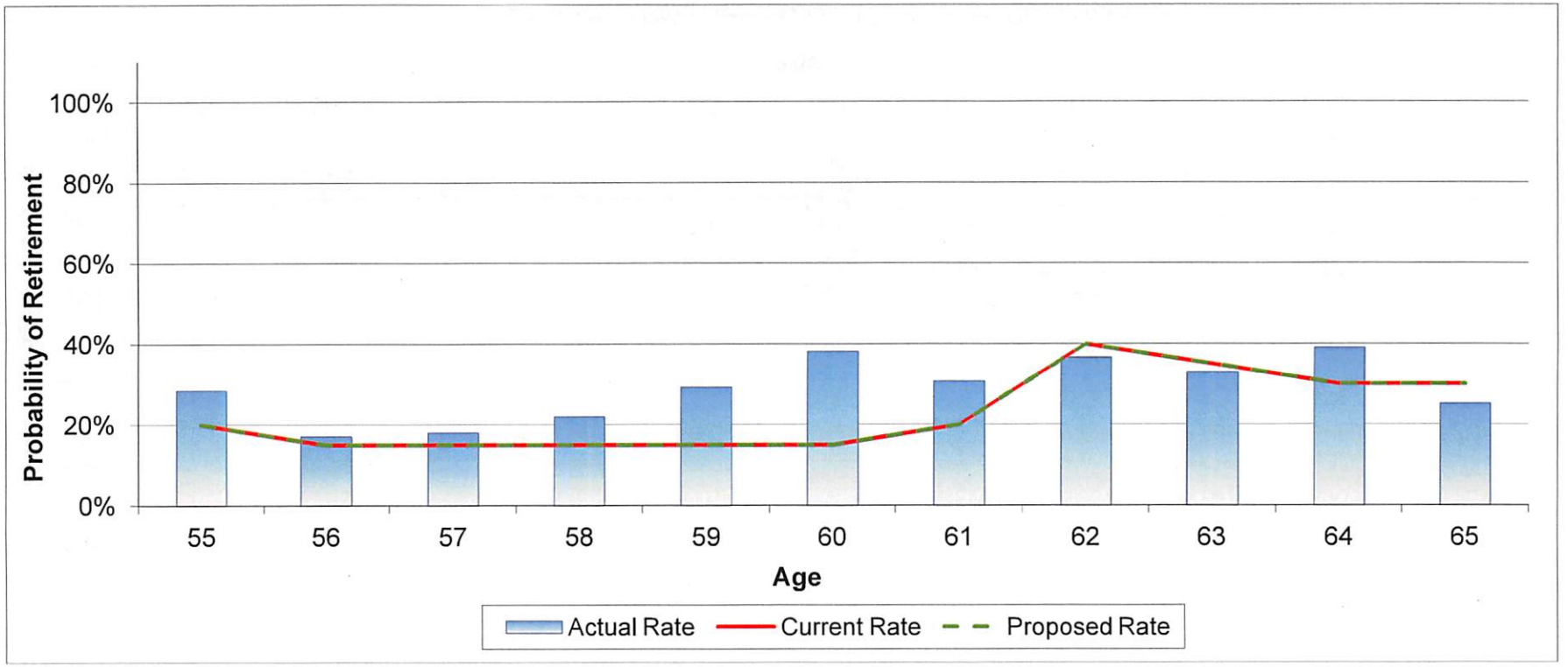
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-8

Retirement Rates - Select Unreduced

State Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	9,314	7,472	7,472
Actual/Expected		125%	125%

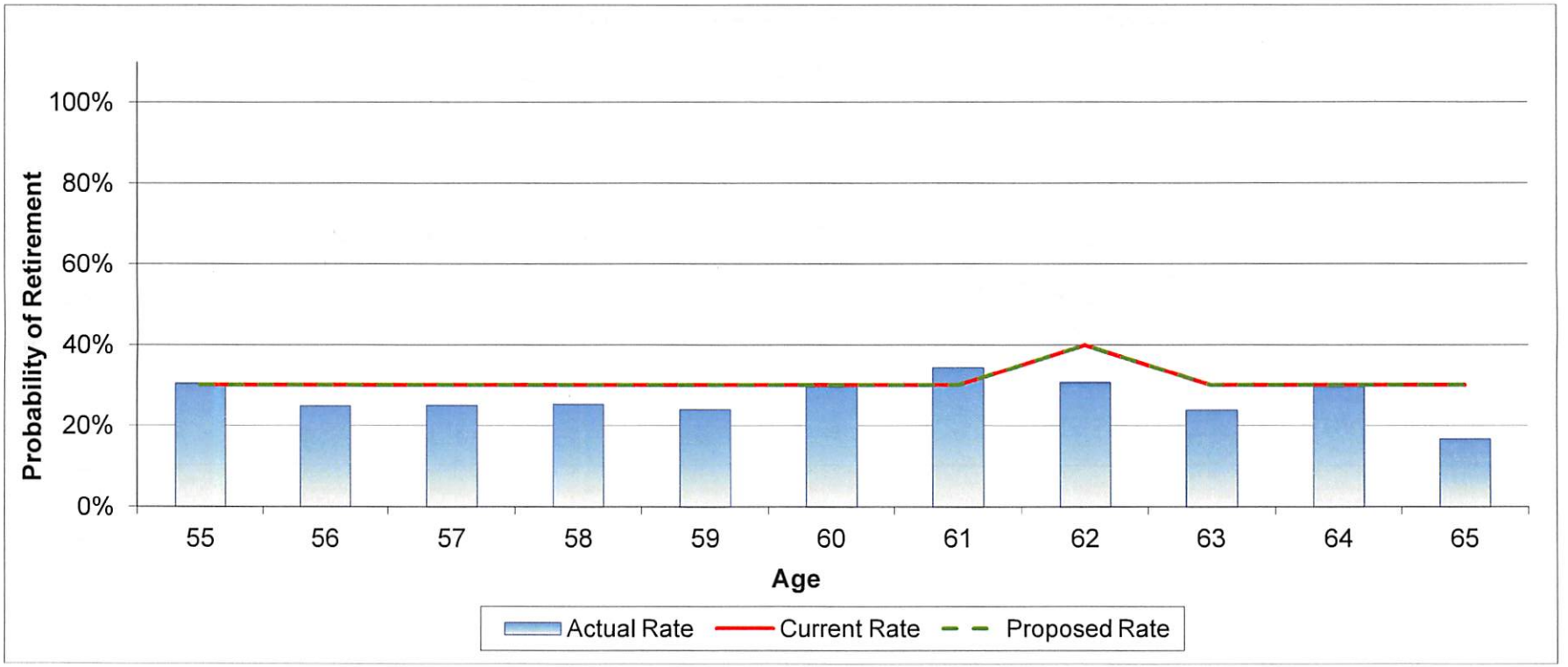
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-9

Retirement Rates - Select Unreduced

School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	1,784	2,260	2,260
Actual/Expected		79%	79%

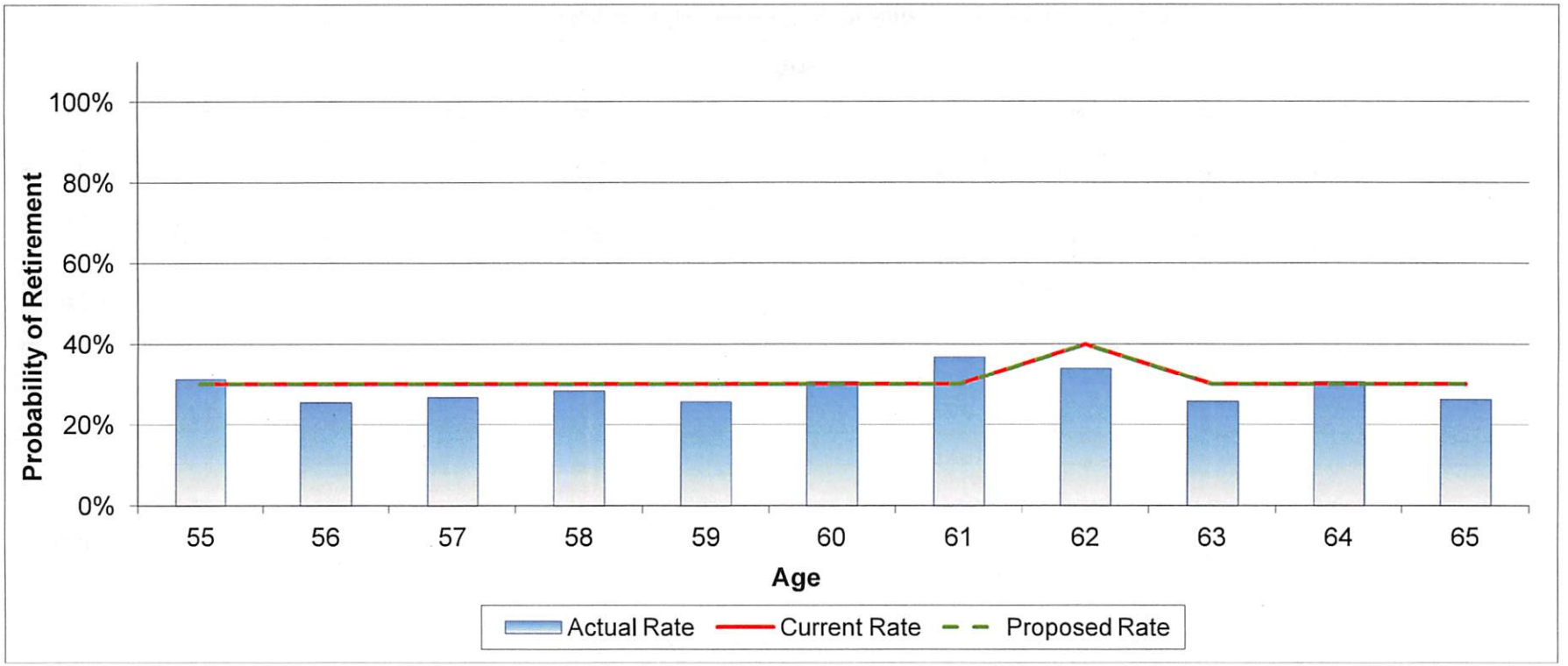
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-10

Retirement Rates - Select Unreduced

School Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	25,685	27,701	27,701
Actual/Expected		93%	93%

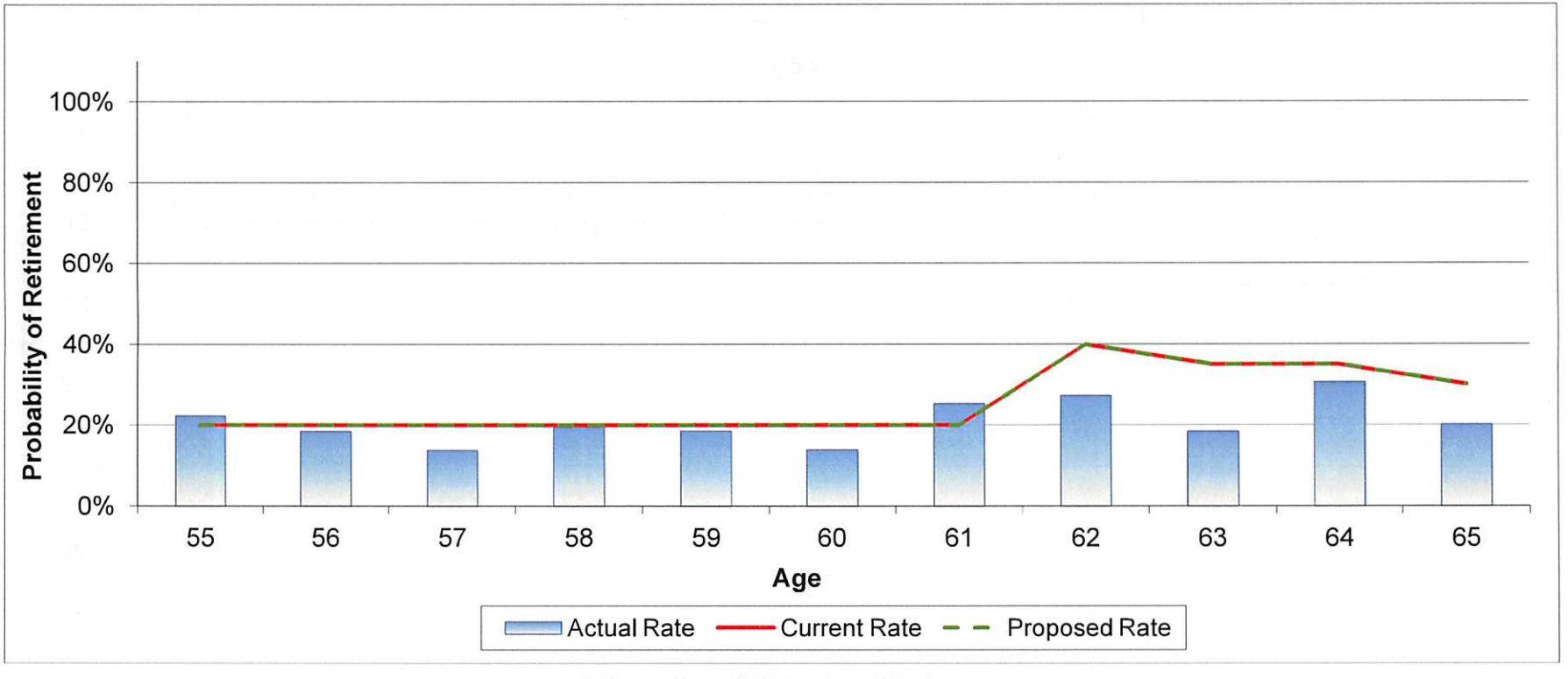
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-11

Retirement Rates - Select Unreduced

Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	1,040	1,357	1,357
Actual/Expected		77%	77%

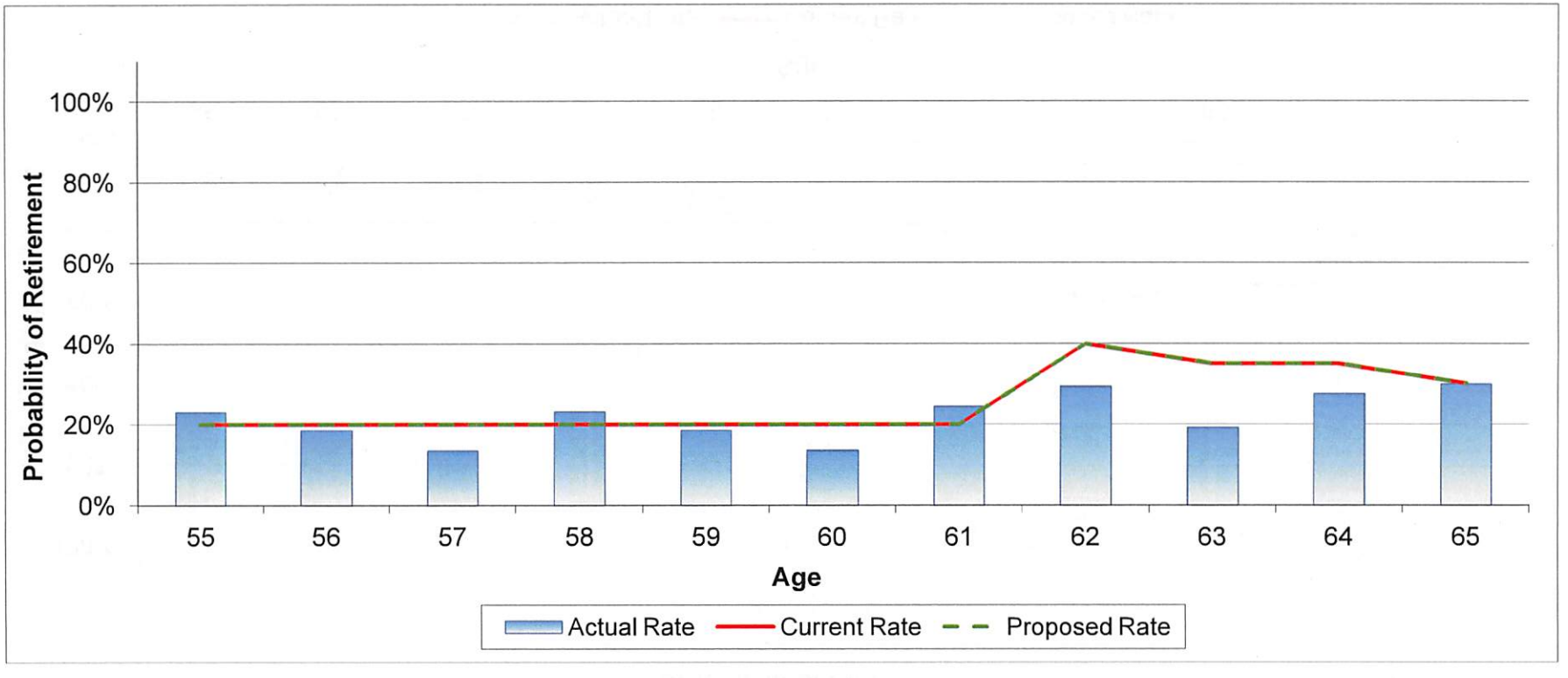
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-12

Retirement Rates - Select Unreduced

Other Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	11,631	12,906	12,906
Actual/Expected		90%	90%

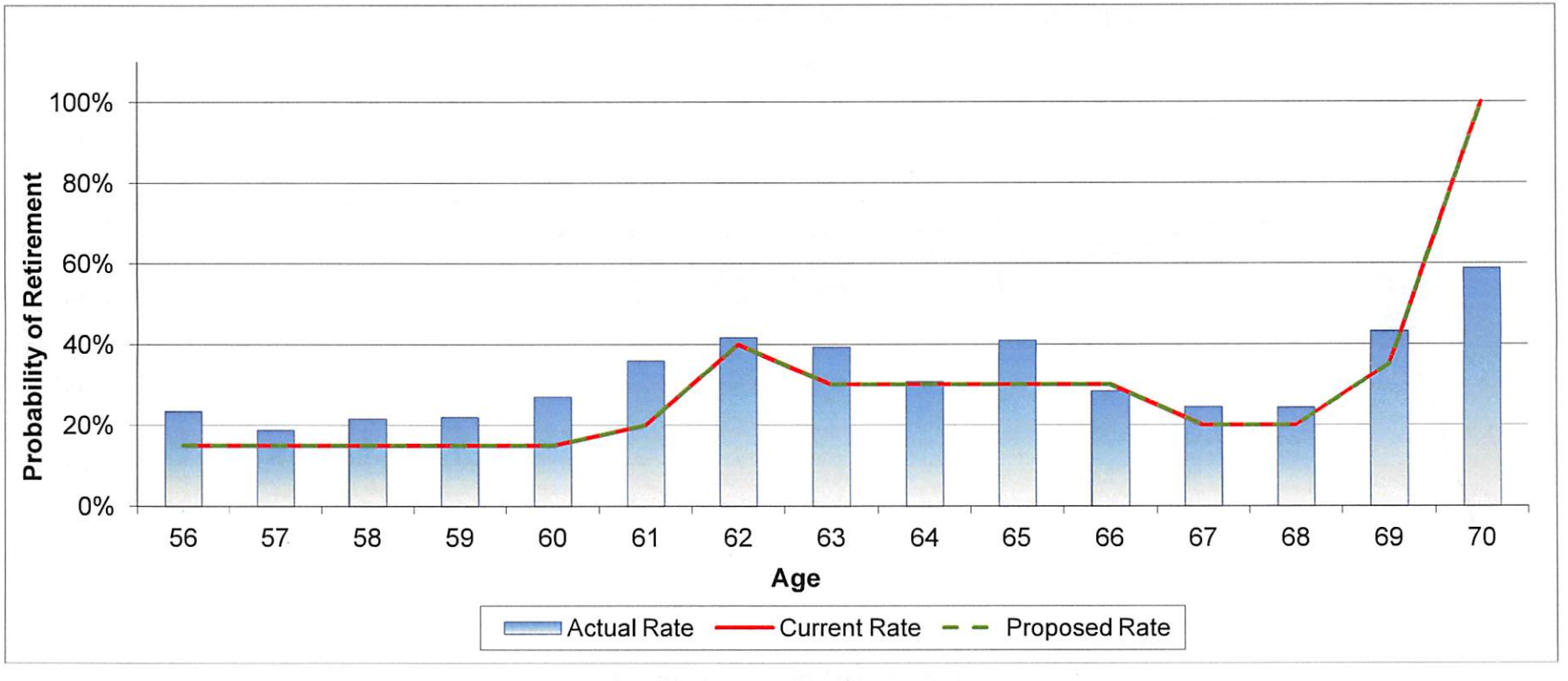
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-13

Retirement Rates - Ultimate Unreduced

State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	1,699	1,368	1,368
Actual/Expected		124%	124%

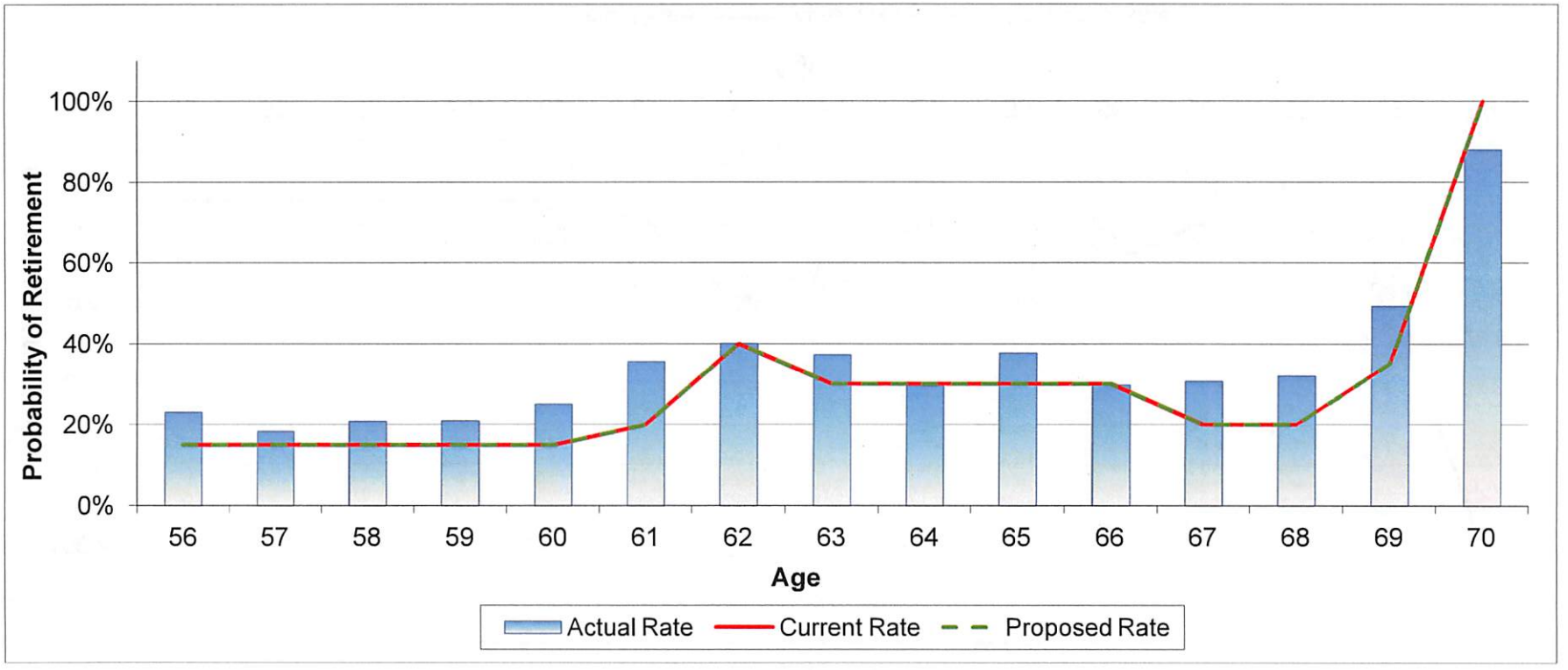
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-14

Retirement Rates - Ultimate Unreduced

State Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	32,800	25,330	25,330
Actual/Expected		129%	129%

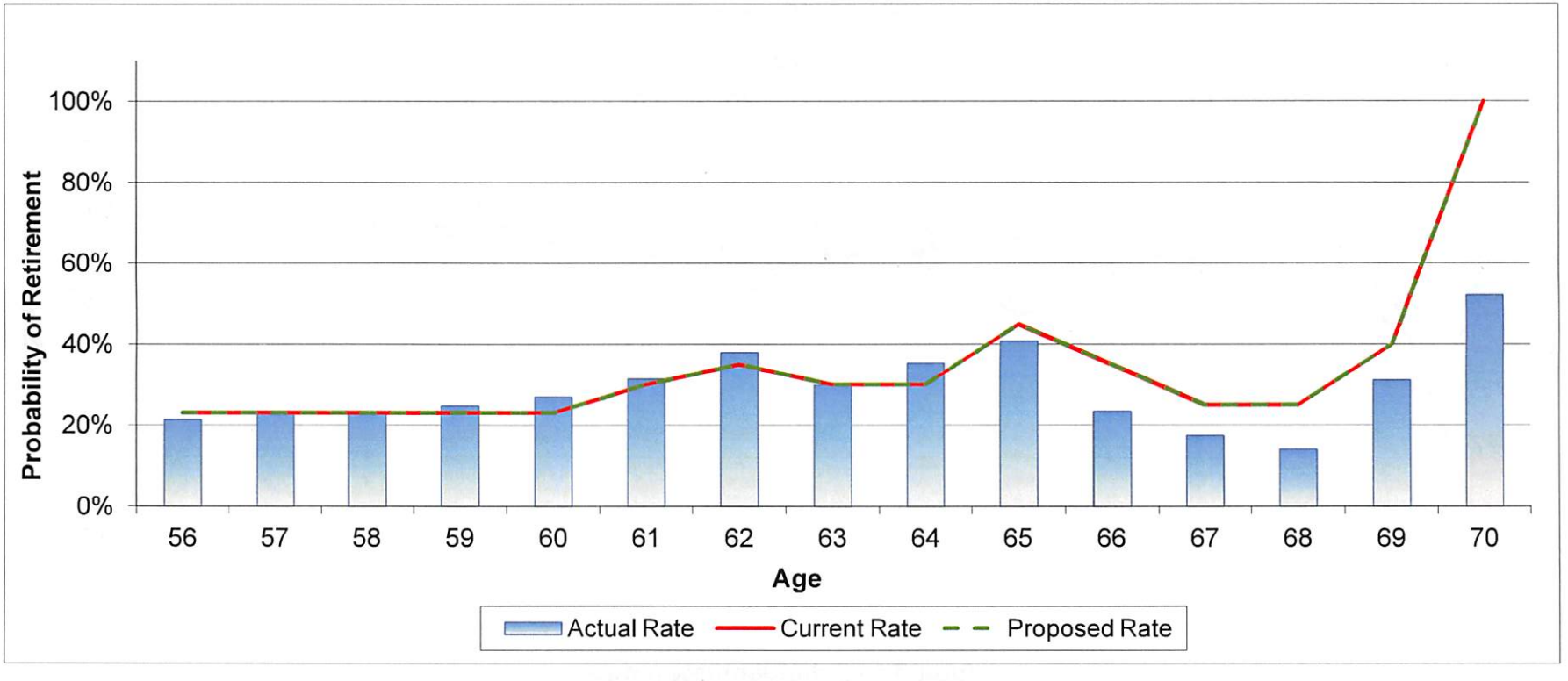
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-15

Retirement Rates - Ultimate Unreduced

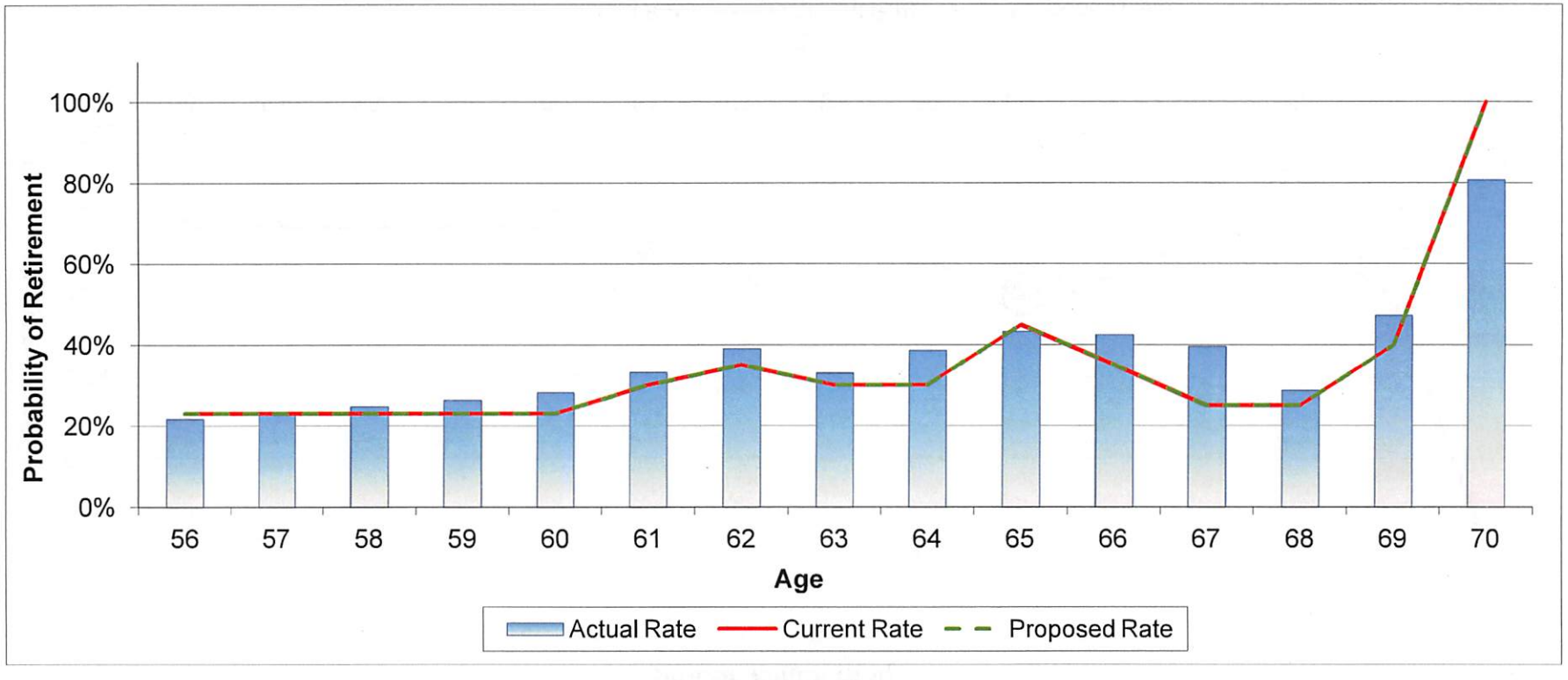
School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	5,639	6,551	6,551
Actual/Expected		86%	86%

Iowa Public Employees' Retirement System

2009-2013 Experience Study
Exhibit F-16
Retirement Rates - Ultimate Unreduced
School Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	89,675	80,306	80,306
Actual/Expected		112%	112%

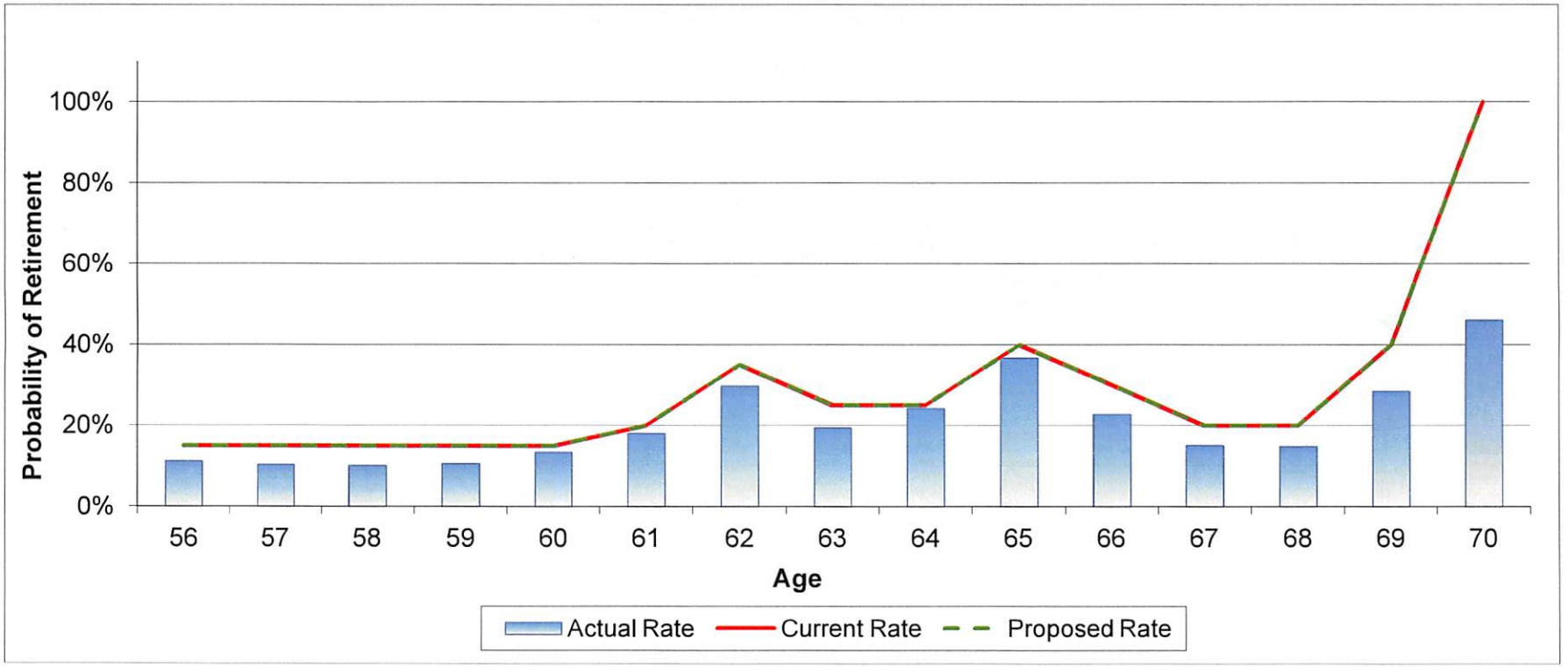
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-17

Retirement Rates - Ultimate Unreduced

Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	2,963	4,083	4,083
Actual/Expected		73%	73%

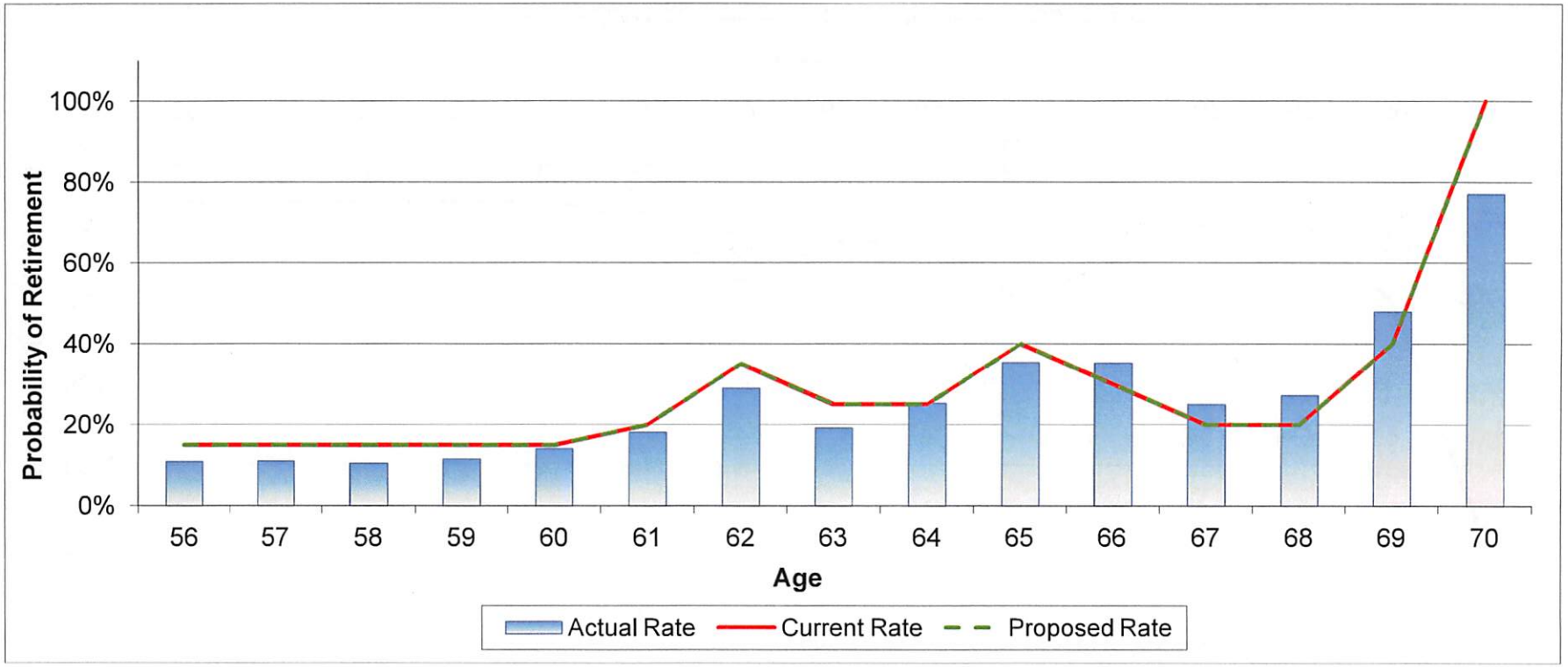
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-18

Retirement Rates - Ultimate Unreduced

Other Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	35,015	39,090	39,090
Actual/Expected		90%	90%

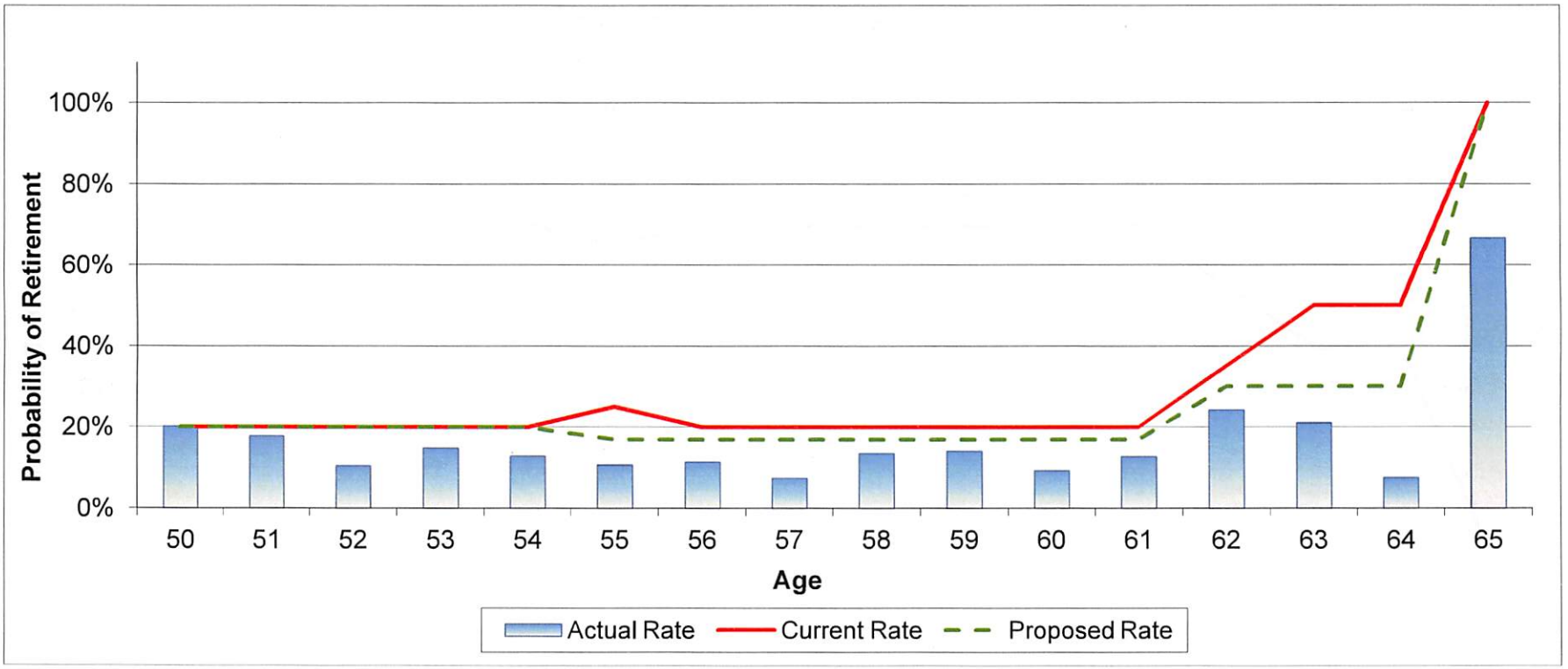
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-19

Retirement Rates

Special Services Group 1



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	156	254	222
Actual/Expected		61%	70%

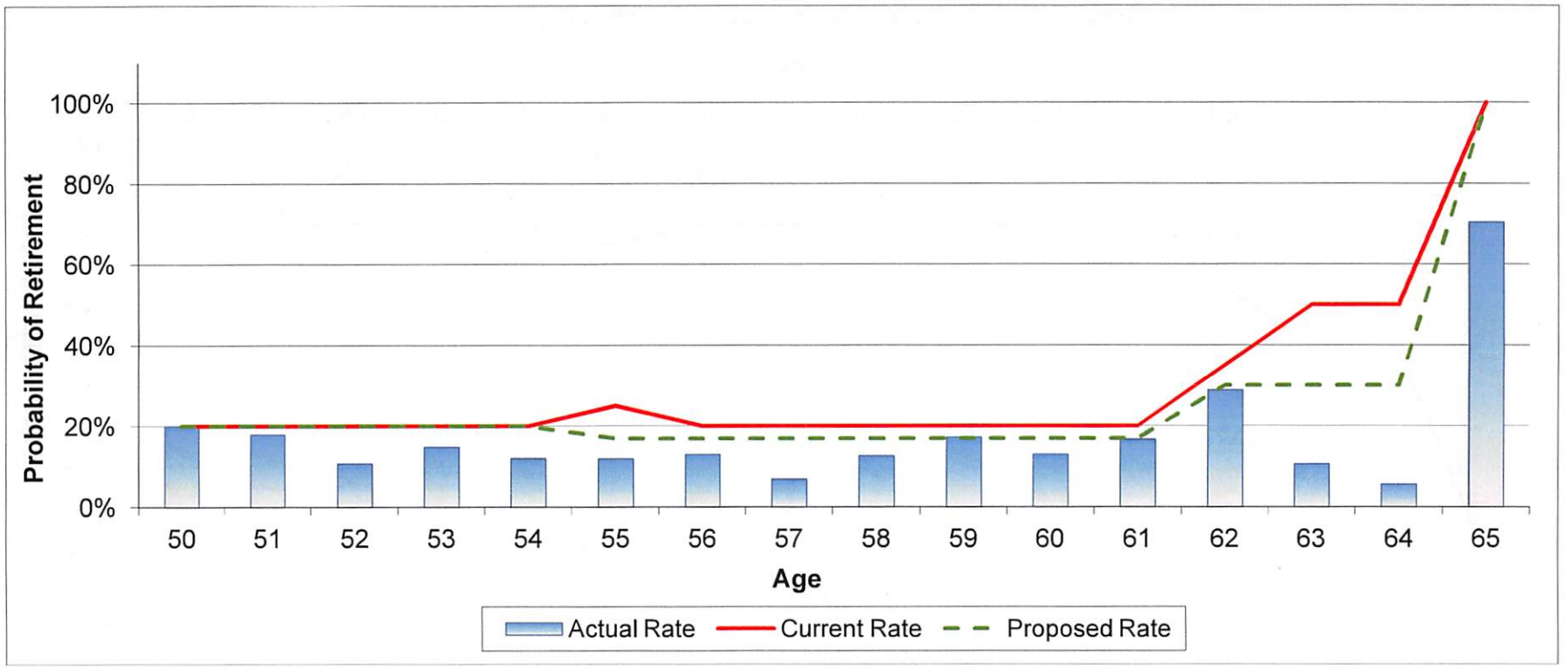
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-20

Retirement Rates

Special Services Group 1 (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	2,689	4,166	3,676
Actual/Expected		65%	73%

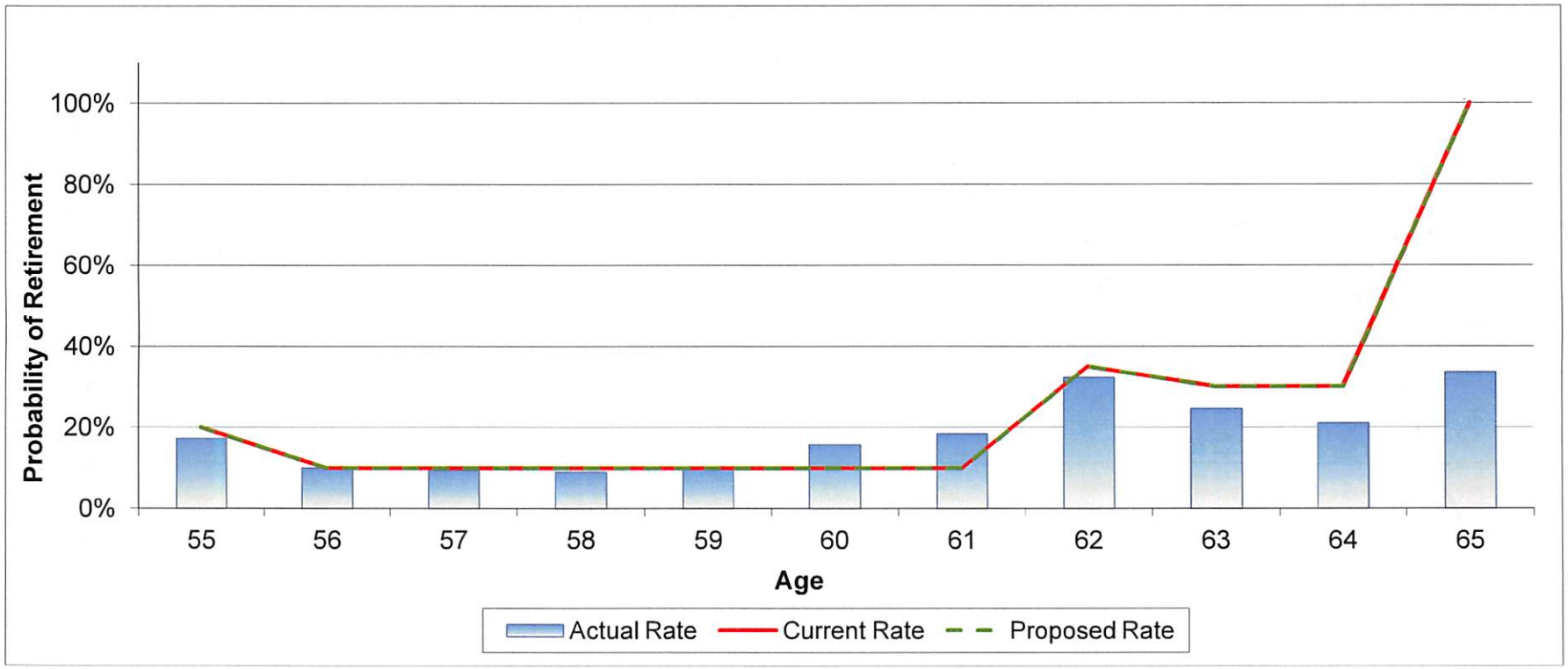
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-21

Retirement Rates

Special Services Group 2



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	626	692	692
Actual/Expected		90%	90%

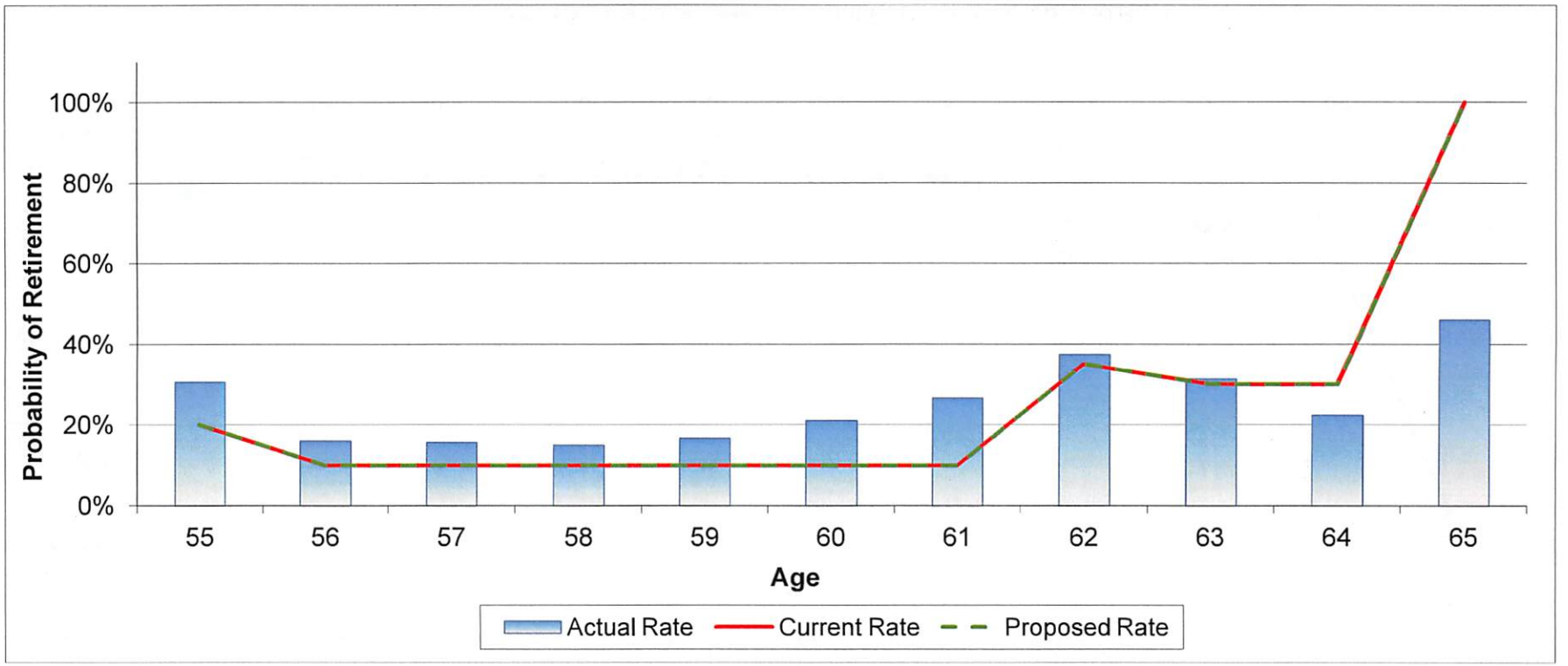
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit F-22

Retirement Rates

Special Services Group 2 (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	7,739	5,562	5,562
Actual/Expected		139%	139%

Data Summary F-1
Retirement Rates - Early
State Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	2,674	143	5.3%	133.7	5.0%	133.7	5.0%
56	2,398	104	4.3%	119.9	5.0%	119.9	5.0%
57	2,174	132	6.1%	108.7	5.0%	108.7	5.0%
58	1,969	136	6.9%	98.5	5.0%	98.5	5.0%
59	1,738	117	6.7%	86.9	5.0%	86.9	5.0%
60	1,555	142	9.1%	77.8	5.0%	77.8	5.0%
61	1,290	184	14.3%	193.5	15.0%	193.5	15.0%
62	716	102	14.2%	107.4	15.0%	107.4	15.0%
63	581	79	13.6%	87.2	15.0%	87.2	15.0%
64	433	62	14.3%	65.0	15.0%	65.0	15.0%
	15,528	1,201	7.7%	1,078.4	6.9%	1,078.4	6.9%

Data Summary F-2
Retirement Rates - Early
State Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	29,517	2,220	7.5%	1,475.9	5.0%	1,475.9	5.0%
56	24,811	1,417	5.7%	1,240.5	5.0%	1,240.5	5.0%
57	21,245	1,696	8.0%	1,062.3	5.0%	1,062.3	5.0%
58	18,532	1,644	8.9%	926.6	5.0%	926.6	5.0%
59	15,728	1,247	7.9%	786.4	5.0%	786.4	5.0%
60	14,027	1,536	10.9%	701.3	5.0%	701.3	5.0%
61	11,220	1,920	17.1%	1,683.0	15.0%	1,683.0	15.0%
62	4,043	634	15.7%	606.4	15.0%	606.4	15.0%
63	3,269	490	15.0%	490.3	15.0%	490.3	15.0%
64	2,451	372	15.2%	367.6	15.0%	367.6	15.0%
	144,843	13,176	9.1%	9,340.4	6.4%	9,340.4	6.4%

Data Summary F-3
Retirement Rates - Early
School Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	9,320	504	5.4%	745.6	8.0%	745.6	8.0%
56	8,167	346	4.2%	653.4	8.0%	653.4	8.0%
57	7,526	337	4.5%	602.1	8.0%	602.1	8.0%
58	7,087	340	4.8%	567.0	8.0%	567.0	8.0%
59	6,649	374	5.6%	598.4	9.0%	598.4	9.0%
60	6,032	419	6.9%	603.2	10.0%	603.2	10.0%
61	5,245	603	11.5%	786.8	15.0%	786.8	15.0%
62	3,296	381	11.6%	659.2	20.0%	659.2	20.0%
63	2,773	279	10.1%	554.6	20.0%	554.6	20.0%
64	2,242	313	14.0%	448.4	20.0%	448.4	20.0%
	58,337	3,896	6.7%	6,218.6	10.7%	6,218.6	10.7%

Data Summary F-4
Retirement Rates - Early
School Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	72,536	6,859	9.5%	5,802.9	8.0%	5,802.9	8.0%
56	52,958	3,579	6.8%	4,236.7	8.0%	4,236.7	8.0%
57	46,130	3,260	7.1%	3,690.4	8.0%	3,690.4	8.0%
58	41,411	2,803	6.8%	3,312.9	8.0%	3,312.9	8.0%
59	37,777	3,093	8.2%	3,400.0	9.0%	3,400.0	9.0%
60	32,653	3,284	10.1%	3,265.3	10.0%	3,265.3	10.0%
61	26,163	4,571	17.5%	3,924.4	15.0%	3,924.4	15.0%
62	9,438	1,477	15.6%	1,887.5	20.0%	1,887.5	20.0%
63	7,242	1,016	14.0%	1,448.5	20.0%	1,448.5	20.0%
64	5,358	1,130	21.1%	1,071.6	20.0%	1,071.6	20.0%
	331,667	31,073	9.4%	32,040.1	9.7%	32,040.1	9.7%

Data Summary F-5
Retirement Rates - Early
Other Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	6,648	235	3.5%	332.4	5.0%	332.4	5.0%
56	6,247	190	3.0%	312.4	5.0%	312.4	5.0%
57	5,903	205	3.5%	295.2	5.0%	295.2	5.0%
58	5,462	171	3.1%	273.1	5.0%	273.1	5.0%
59	5,007	201	4.0%	250.4	5.0%	250.4	5.0%
60	4,546	200	4.4%	227.3	5.0%	227.3	5.0%
61	4,011	312	7.8%	401.1	10.0%	401.1	10.0%
62	2,856	328	11.5%	571.2	20.0%	571.2	20.0%
63	2,433	199	8.2%	486.6	20.0%	486.6	20.0%
64	2,030	278	13.7%	406.0	20.0%	406.0	20.0%
	45,143	2,319	5.1%	3,555.6	7.9%	3,555.6	7.9%

Data Summary F-6
Retirement Rates - Early
Other Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	43,939	2,258	5.1%	2,196.9	5.0%	2,196.9	5.0%
56	39,457	1,742	4.4%	1,972.9	5.0%	1,972.9	5.0%
57	34,939	1,511	4.3%	1,747.0	5.0%	1,747.0	5.0%
58	31,302	1,451	4.6%	1,565.1	5.0%	1,565.1	5.0%
59	27,368	1,259	4.6%	1,368.4	5.0%	1,368.4	5.0%
60	23,960	1,313	5.5%	1,198.0	5.0%	1,198.0	5.0%
61	20,046	1,871	9.3%	2,004.6	10.0%	2,004.6	10.0%
62	8,872	1,275	14.4%	1,774.4	20.0%	1,774.4	20.0%
63	7,099	726	10.2%	1,419.9	20.0%	1,419.9	20.0%
64	5,715	976	17.1%	1,142.9	20.0%	1,142.9	20.0%
	242,698	14,384	5.9%	16,390.1	6.8%	16,390.1	6.8%

Data Summary F-7
Retirement Rates - Select Unreduced
State Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	344	97	28.2%	68.8	20.0%	68.8	20.0%
56	243	44	18.1%	36.5	15.0%	36.5	15.0%
57	196	36	18.4%	29.4	15.0%	29.4	15.0%
58	169	38	22.5%	25.4	15.0%	25.4	15.0%
59	119	37	31.1%	17.9	15.0%	17.9	15.0%
60	113	44	38.9%	17.0	15.0%	17.0	15.0%
61	121	43	35.5%	24.2	20.0%	24.2	20.0%
62	404	156	38.6%	161.6	40.0%	161.6	40.0%
63	26	9	34.6%	9.1	35.0%	9.1	35.0%
64	22	9	40.9%	6.6	30.0%	6.6	30.0%
65	359	85	23.7%	107.7	30.0%	107.7	30.0%
	2,116	598	28.3%	504.0	23.8%	504.0	23.8%

Data Summary F-8
Retirement Rates - Select Unreduced
State Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	7,048	2,010	28.5%	1,409.6	20.0%	1,409.6	20.0%
56	5,012	862	17.2%	751.7	15.0%	751.7	15.0%
57	4,242	769	18.1%	636.3	15.0%	636.3	15.0%
58	3,466	764	22.0%	519.9	15.0%	519.9	15.0%
59	2,309	676	29.3%	346.4	15.0%	346.4	15.0%
60	1,977	754	38.1%	296.6	15.0%	296.6	15.0%
61	2,230	685	30.7%	445.9	20.0%	445.9	20.0%
62	5,684	2,083	36.6%	2,273.6	40.0%	2,273.6	40.0%
63	306	101	33.0%	107.0	35.0%	107.0	35.0%
64	244	95	39.1%	73.2	30.0%	73.2	30.0%
65	2,038	515	25.3%	611.4	30.0%	611.4	30.0%
	34,556	9,314	27.0%	7,471.8	21.6%	7,471.8	21.6%

Data Summary F-9
Retirement Rates - Select Unreduced
School Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	838	255	30.4%	251.4	30.0%	251.4	30.0%
56	979	244	24.9%	293.7	30.0%	293.7	30.0%
57	494	124	25.1%	148.2	30.0%	148.2	30.0%
58	394	100	25.4%	118.2	30.0%	118.2	30.0%
59	299	72	24.1%	89.7	30.0%	89.7	30.0%
60	314	93	29.6%	94.2	30.0%	94.2	30.0%
61	305	105	34.4%	91.5	30.0%	91.5	30.0%
62	1,339	411	30.7%	535.6	40.0%	535.6	40.0%
63	134	32	23.9%	40.2	30.0%	40.2	30.0%
64	105	31	29.5%	31.5	30.0%	31.5	30.0%
65	1,887	317	16.8%	566.1	30.0%	566.1	30.0%
	7,088	1,784	25.2%	2,260.3	31.9%	2,260.3	31.9%

Data Summary F-10
Retirement Rates - Select Unreduced
School Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	16,941	5,296	31.3%	5,082.2	30.0%	5,082.2	30.0%
56	20,682	5,283	25.5%	6,204.7	30.0%	6,204.7	30.0%
57	9,843	2,635	26.8%	2,953.0	30.0%	2,953.0	30.0%
58	6,922	1,967	28.4%	2,076.7	30.0%	2,076.7	30.0%
59	5,129	1,323	25.8%	1,538.6	30.0%	1,538.6	30.0%
60	4,553	1,396	30.7%	1,366.0	30.0%	1,366.0	30.0%
61	4,428	1,632	36.9%	1,328.4	30.0%	1,328.4	30.0%
62	13,451	4,575	34.0%	5,380.3	40.0%	5,380.3	40.0%
63	1,057	274	25.9%	317.1	30.0%	317.1	30.0%
64	788	241	30.6%	236.3	30.0%	236.3	30.0%
65	4,058	1,065	26.2%	1,217.3	30.0%	1,217.3	30.0%
	87,852	25,685	29.2%	27,700.6	31.5%	27,700.6	31.5%

Data Summary F-11
Retirement Rates - Select Unreduced
Other Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	584	130	22.3%	116.8	20.0%	116.8	20.0%
56	313	58	18.5%	62.6	20.0%	62.6	20.0%
57	296	41	13.9%	59.2	20.0%	59.2	20.0%
58	272	53	19.5%	54.4	20.0%	54.4	20.0%
59	199	37	18.6%	39.8	20.0%	39.8	20.0%
60	200	28	14.0%	40.0	20.0%	40.0	20.0%
61	217	55	25.3%	43.4	20.0%	43.4	20.0%
62	897	245	27.3%	358.8	40.0%	358.8	40.0%
63	92	17	18.5%	32.2	35.0%	32.2	35.0%
64	75	23	30.7%	26.3	35.0%	26.3	35.0%
65	1,744	353	20.2%	523.2	30.0%	523.2	30.0%
	4,889	1,040	21.3%	1,356.7	27.7%	1,356.7	27.7%

Data Summary F-12
Retirement Rates - Select Unreduced
Other Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	10,492	2,419	23.1%	2,098.4	20.0%	2,098.4	20.0%
56	5,764	1,069	18.5%	1,152.7	20.0%	1,152.7	20.0%
57	5,308	720	13.6%	1,061.6	20.0%	1,061.6	20.0%
58	4,735	1,100	23.2%	947.0	20.0%	947.0	20.0%
59	3,148	585	18.6%	629.6	20.0%	629.6	20.0%
60	2,892	395	13.7%	578.3	20.0%	578.3	20.0%
61	2,834	694	24.5%	566.8	20.0%	566.8	20.0%
62	9,792	2,876	29.4%	3,916.9	40.0%	3,916.9	40.0%
63	848	163	19.3%	296.8	35.0%	296.8	35.0%
64	595	164	27.6%	208.2	35.0%	208.2	35.0%
65	4,832	1,446	29.9%	1,449.6	30.0%	1,449.6	30.0%
	51,239	11,631	22.7%	12,905.8	25.2%	12,905.8	25.2%

Data Summary F-13
Retirement Rates - Ultimate Unreduced
State Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
56	239	56	23.4%	35.9	15.0%	35.9	15.0%
57	372	70	18.8%	55.8	15.0%	55.8	15.0%
58	477	103	21.6%	71.6	15.0%	71.6	15.0%
59	544	120	22.1%	81.6	15.0%	81.6	15.0%
60	577	156	27.0%	86.6	15.0%	86.6	15.0%
61	546	197	36.1%	109.2	20.0%	109.2	20.0%
62	448	187	41.7%	179.2	40.0%	179.2	40.0%
63	543	214	39.4%	162.9	30.0%	162.9	30.0%
64	348	107	30.7%	104.4	30.0%	104.4	30.0%
65	236	97	41.1%	70.8	30.0%	70.8	30.0%
66	416	118	28.4%	124.8	30.0%	124.8	30.0%
67	285	70	24.6%	57.0	20.0%	57.0	20.0%
68	234	57	24.4%	46.8	20.0%	46.8	20.0%
69	178	77	43.3%	62.3	35.0%	62.3	35.0%
70	119	70	58.8%	119.0	100.0%	119.0	100.0%
	5,562	1,699	30.5%	1,367.7	24.6%	1,367.7	24.6%

Data Summary F-14
Retirement Rates - Ultimate Unreduced
State Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
56	5,088	1,176	23.1%	763.2	15.0%	763.2	15.0%
57	8,246	1,515	18.4%	1,236.9	15.0%	1,236.9	15.0%
58	11,060	2,300	20.8%	1,659.0	15.0%	1,659.0	15.0%
59	12,881	2,710	21.0%	1,932.2	15.0%	1,932.2	15.0%
60	13,744	3,449	25.1%	2,061.5	15.0%	2,061.5	15.0%
61	13,004	4,630	35.6%	2,600.9	20.0%	2,600.9	20.0%
62	10,714	4,306	40.2%	4,285.8	40.0%	4,285.8	40.0%
63	10,717	4,012	37.4%	3,215.2	30.0%	3,215.2	30.0%
64	6,982	2,066	29.6%	2,094.5	30.0%	2,094.5	30.0%
65	4,627	1,747	37.8%	1,388.0	30.0%	1,388.0	30.0%
66	4,472	1,336	29.9%	1,341.6	30.0%	1,341.6	30.0%
67	3,223	992	30.8%	644.7	20.0%	644.7	20.0%
68	2,596	832	32.0%	519.1	20.0%	519.1	20.0%
69	1,790	883	49.3%	626.4	35.0%	626.4	35.0%
70	961	846	88.0%	961.2	100.0%	961.2	100.0%
	110,105	32,800	29.8%	25,330.1	23.0%	25,330.1	23.0%

Data Summary F-15
Retirement Rates - Ultimate Unreduced
School Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
56	653	140	21.4%	150.2	23.0%	150.2	23.0%
57	1,342	306	22.8%	308.7	23.0%	308.7	23.0%
58	1,585	372	23.5%	364.6	23.0%	364.6	23.0%
59	1,667	414	24.8%	383.4	23.0%	383.4	23.0%
60	1,589	430	27.1%	365.5	23.0%	365.5	23.0%
61	1,426	449	31.5%	427.8	30.0%	427.8	30.0%
62	1,228	467	38.0%	429.8	35.0%	429.8	35.0%
63	1,600	479	29.9%	480.0	30.0%	480.0	30.0%
64	1,166	413	35.4%	349.8	30.0%	349.8	30.0%
65	803	328	40.8%	361.4	45.0%	361.4	45.0%
66	1,985	465	23.4%	694.8	35.0%	694.8	35.0%
67	1,532	268	17.5%	383.0	25.0%	383.0	25.0%
68	1,338	188	14.1%	334.5	25.0%	334.5	25.0%
69	1,249	389	31.1%	499.6	40.0%	499.6	40.0%
70	1,018	531	52.2%	1,018.0	100.0%	1,018.0	100.0%
	20,181	5,639	27.9%	6,550.9	32.5%	6,550.9	32.5%

Data Summary F-16
Retirement Rates - Ultimate Unreduced
School Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
56	13,885	3,014	21.7%	3,193.5	23.0%	3,193.5	23.0%
57	29,798	6,996	23.5%	6,853.5	23.0%	6,853.5	23.0%
58	35,636	8,842	24.8%	8,196.3	23.0%	8,196.3	23.0%
59	37,270	9,851	26.4%	8,572.2	23.0%	8,572.2	23.0%
60	35,121	9,929	28.3%	8,077.8	23.0%	8,077.8	23.0%
61	30,867	10,290	33.3%	9,260.0	30.0%	9,260.0	30.0%
62	25,827	10,109	39.1%	9,039.5	35.0%	9,039.5	35.0%
63	24,737	8,183	33.1%	7,421.2	30.0%	7,421.2	30.0%
64	17,570	6,789	38.6%	5,271.1	30.0%	5,271.1	30.0%
65	11,558	5,008	43.3%	5,201.1	45.0%	5,201.1	45.0%
66	9,696	4,120	42.5%	3,393.7	35.0%	3,393.7	35.0%
67	5,585	2,210	39.6%	1,396.3	25.0%	1,396.3	25.0%
68	3,628	1,045	28.8%	906.9	25.0%	906.9	25.0%
69	2,954	1,398	47.3%	1,181.8	40.0%	1,181.8	40.0%
70	2,341	1,891	80.8%	2,341.1	100.0%	2,341.1	100.0%
	286,474	89,675	31.3%	80,306.0	28.0%	80,306.0	28.0%

Data Summary F-17
Retirement Rates - Ultimate Unreduced
Other Membership

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
56	427	48	11.2%	64.1	15.0%	64.1	15.0%
57	608	63	10.4%	91.2	15.0%	91.2	15.0%
58	779	79	10.1%	116.9	15.0%	116.9	15.0%
59	871	93	10.7%	130.7	15.0%	130.7	15.0%
60	922	124	13.4%	138.3	15.0%	138.3	15.0%
61	932	169	18.1%	186.4	20.0%	186.4	20.0%
62	848	253	29.8%	296.8	35.0%	296.8	35.0%
63	1,170	228	19.5%	292.5	25.0%	292.5	25.0%
64	919	223	24.3%	229.8	25.0%	229.8	25.0%
65	639	235	36.8%	255.6	40.0%	255.6	40.0%
66	1,670	381	22.8%	501.0	30.0%	501.0	30.0%
67	1,322	200	15.1%	264.4	20.0%	264.4	20.0%
68	1,146	171	14.9%	229.2	20.0%	229.2	20.0%
69	1,032	294	28.5%	412.8	40.0%	412.8	40.0%
70	873	402	46.0%	873.0	100.0%	873.0	100.0%
	14,158	2,963	20.9%	4,082.5	28.8%	4,082.5	28.8%

Data Summary F-18
Retirement Rates - Ultimate Unreduced
Other Membership (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
56	7,852	859	10.9%	1,177.9	15.0%	1,177.9	15.0%
57	11,621	1,283	11.0%	1,743.2	15.0%	1,743.2	15.0%
58	15,230	1,613	10.6%	2,284.6	15.0%	2,284.6	15.0%
59	17,087	1,991	11.7%	2,563.1	15.0%	2,563.1	15.0%
60	17,624	2,481	14.1%	2,643.6	15.0%	2,643.6	15.0%
61	17,488	3,182	18.2%	3,497.6	20.0%	3,497.6	20.0%
62	15,518	4,502	29.0%	5,431.4	35.0%	5,431.4	35.0%
63	17,539	3,375	19.2%	4,384.6	25.0%	4,384.6	25.0%
64	13,647	3,463	25.4%	3,411.8	25.0%	3,411.8	25.0%
65	9,270	3,279	35.4%	3,707.8	40.0%	3,707.8	40.0%
66	8,607	3,037	35.3%	2,582.1	30.0%	2,582.1	30.0%
67	5,486	1,374	25.0%	1,097.2	20.0%	1,097.2	20.0%
68	4,037	1,102	27.3%	807.5	20.0%	807.5	20.0%
69	3,386	1,623	47.9%	1,354.4	40.0%	1,354.4	40.0%
70	2,404	1,852	77.0%	2,403.6	100.0%	2,403.6	100.0%
	166,798	35,015	21.0%	39,090.5	23.4%	39,090.5	23.4%

Data Summary F-19
Retirement Rates
Special Services Group 1

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
50	89	18	20.2%	17.8	20.0%	17.8	20.0%
51	90	16	17.8%	18.0	20.0%	18.0	20.0%
52	95	10	10.5%	19.0	20.0%	19.0	20.0%
53	101	15	14.9%	20.2	20.0%	20.2	20.0%
54	101	13	12.9%	20.2	20.0%	20.2	20.0%
55	121	13	10.7%	30.3	25.0%	20.6	17.0%
56	96	11	11.5%	19.2	20.0%	16.3	17.0%
57	93	7	7.5%	18.6	20.0%	15.8	17.0%
58	81	11	13.6%	16.2	20.0%	13.8	17.0%
59	71	10	14.1%	14.2	20.0%	12.1	17.0%
60	64	6	9.4%	12.8	20.0%	10.9	17.0%
61	47	6	12.8%	9.4	20.0%	8.0	17.0%
62	37	9	24.3%	13.0	35.0%	11.1	30.0%
63	19	4	21.1%	9.5	50.0%	5.7	30.0%
64	13	1	7.7%	6.5	50.0%	3.9	30.0%
65	9	6	66.7%	9.0	100.0%	9.0	100.0%
	1,127	156	13.8%	253.8	22.5%	222.3	19.7%

Data Summary F-20
Retirement Rates
Special Services Group 1 (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
50	1,512	303	20.0%	302.4	20.0%	302.4	20.0%
51	1,585	284	17.9%	317.0	20.0%	317.0	20.0%
52	1,693	182	10.8%	338.5	20.0%	338.5	20.0%
53	1,814	271	14.9%	362.8	20.0%	362.8	20.0%
54	1,833	221	12.1%	366.6	20.0%	366.6	20.0%
55	1,959	234	12.0%	489.8	25.0%	333.1	17.0%
56	1,611	210	13.0%	322.2	20.0%	273.9	17.0%
57	1,511	104	6.9%	302.1	20.0%	256.8	17.0%
58	1,342	170	12.7%	268.4	20.0%	228.1	17.0%
59	1,088	188	17.3%	217.7	20.0%	185.0	17.0%
60	983	129	13.1%	196.7	20.0%	167.2	17.0%
61	676	113	16.7%	135.2	20.0%	114.9	17.0%
62	480	139	28.9%	168.0	35.0%	144.0	30.0%
63	256	27	10.7%	128.0	50.0%	76.8	30.0%
64	208	12	5.6%	104.0	50.0%	62.4	30.0%
65	146	103	70.4%	146.5	100.0%	146.5	100.0%
	18,697	2,689	14.4%	4,165.8	22.3%	3,675.9	19.7%

Data Summary F-21
Retirement Rates
Special Services Group 2

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	678	117	17.3%	135.6	20.0%	135.6	20.0%
56	559	56	10.0%	55.9	10.0%	55.9	10.0%
57	530	50	9.4%	53.0	10.0%	53.0	10.0%
58	460	42	9.1%	46.0	10.0%	46.0	10.0%
59	413	42	10.2%	41.3	10.0%	41.3	10.0%
60	380	60	15.8%	38.0	10.0%	38.0	10.0%
61	324	60	18.5%	32.4	10.0%	32.4	10.0%
62	284	92	32.4%	99.4	35.0%	99.4	35.0%
63	190	47	24.7%	57.0	30.0%	57.0	30.0%
64	137	29	21.2%	41.1	30.0%	41.1	30.0%
65	92	31	33.7%	92.0	100.0%	92.0	100.0%
	4,047	626	15.5%	691.7	17.1%	691.7	17.1%

Data Summary F-22
Retirement Rates
Special Services Group 2 (Weighted)

Age	Exposure	Actual Retirements	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
55	6,574	2,011	30.6%	1,314.8	20.0%	1,314.8	20.0%
56	4,506	727	16.1%	450.6	10.0%	450.6	10.0%
57	4,322	678	15.7%	432.2	10.0%	432.2	10.0%
58	3,816	574	15.1%	381.6	10.0%	381.6	10.0%
59	3,573	600	16.8%	357.3	10.0%	357.3	10.0%
60	3,278	693	21.2%	327.8	10.0%	327.8	10.0%
61	2,711	722	26.6%	271.1	10.0%	271.1	10.0%
62	2,254	845	37.5%	788.8	35.0%	788.8	35.0%
63	1,349	423	31.4%	404.6	30.0%	404.6	30.0%
64	950	213	22.4%	285.1	30.0%	285.1	30.0%
65	548	252	46.1%	548.0	100.0%	548.0	100.0%
	33,881	7,739	22.8%	5,562.0	16.4%	5,562.0	16.4%

APPENDIX G

DISABILITY

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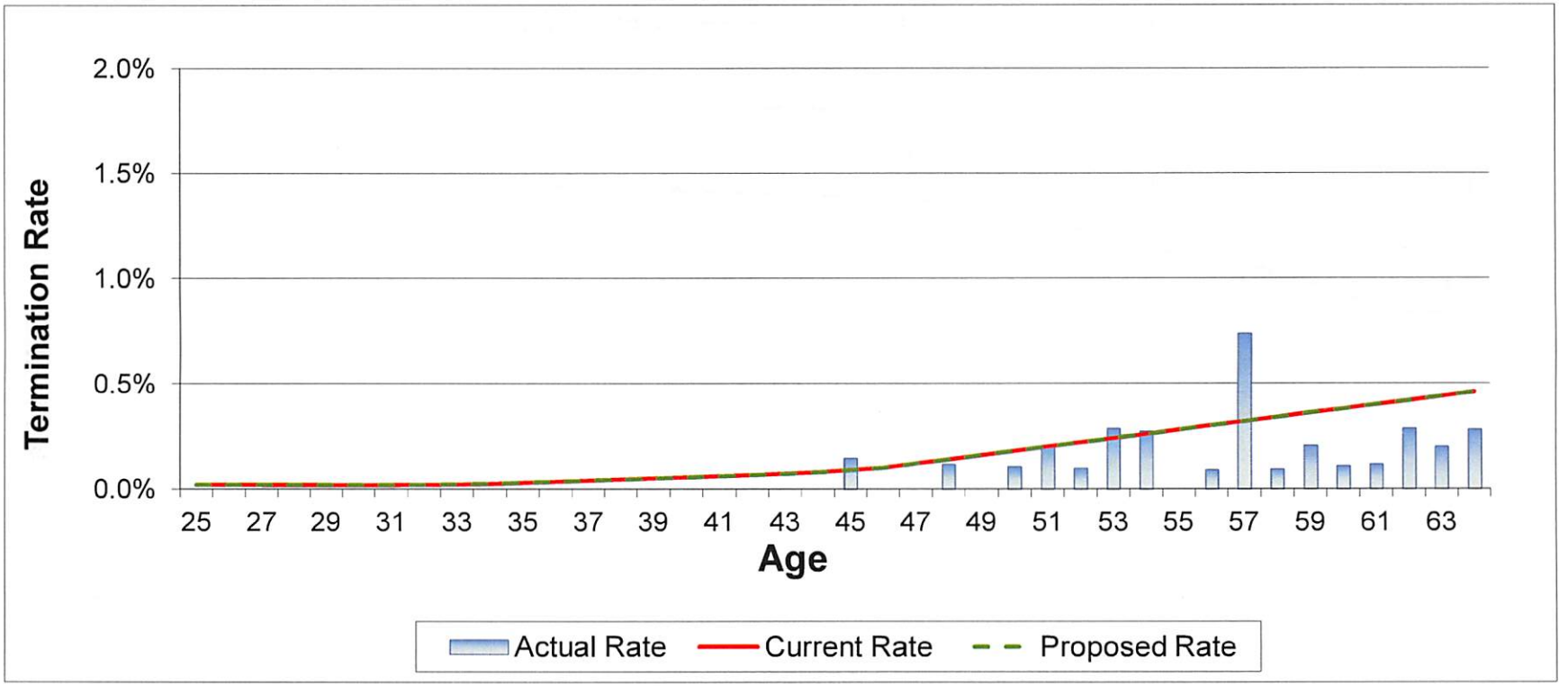
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit G-1

Rates of Disability

Males - State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	30	50	50
Actual/Expected		60%	60%

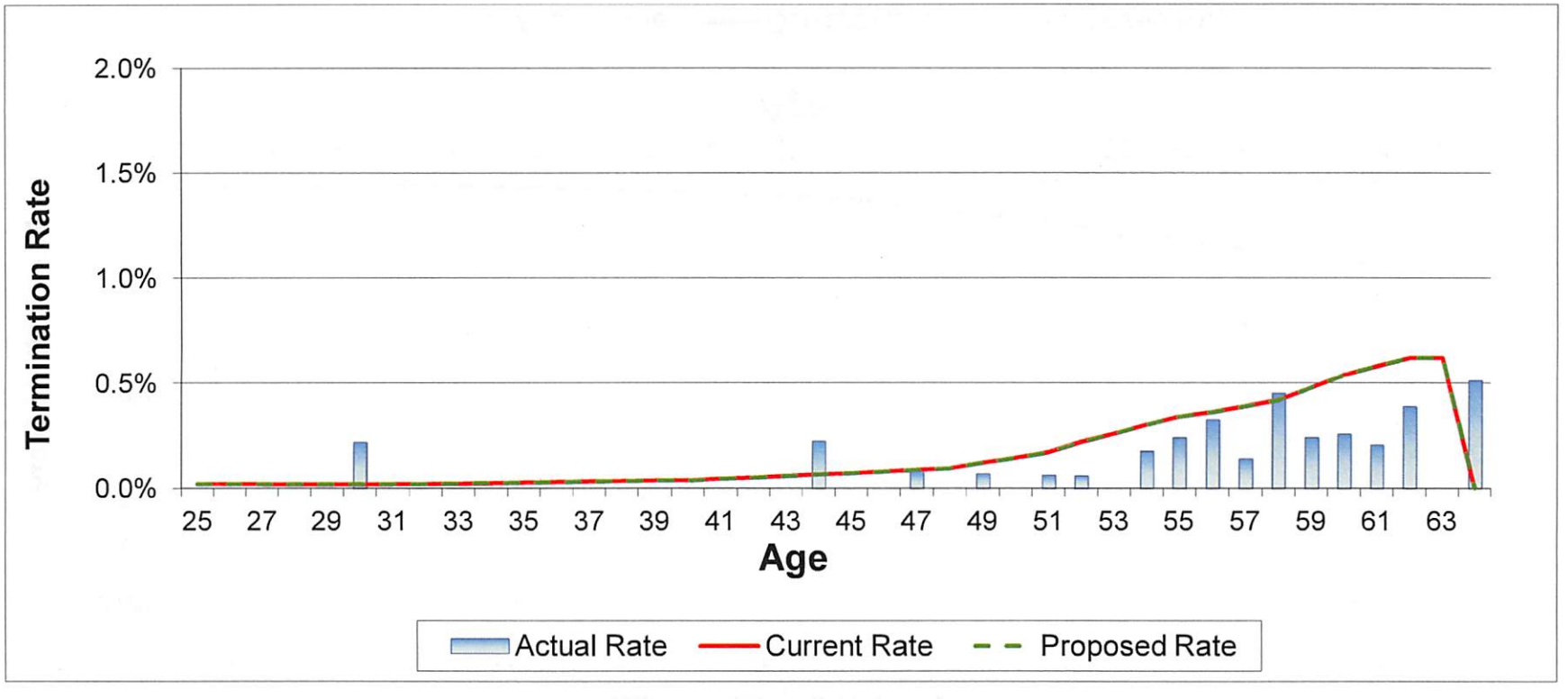
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit G-2

Rates of Disability

Females - State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	40	76	76
Actual/Expected		53%	53%

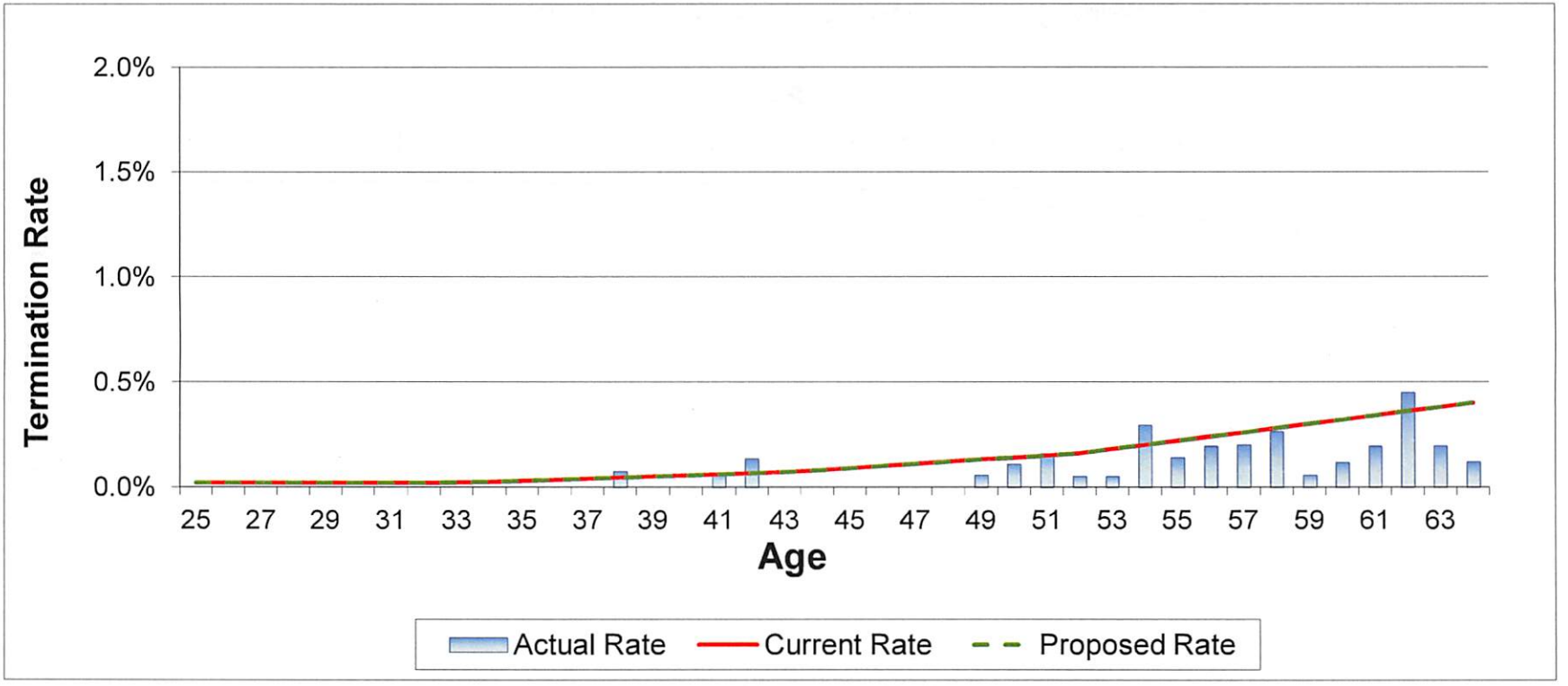
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit G-3

Rates of Disability

Males - School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	49	83	83
Actual/Expected		59%	59%

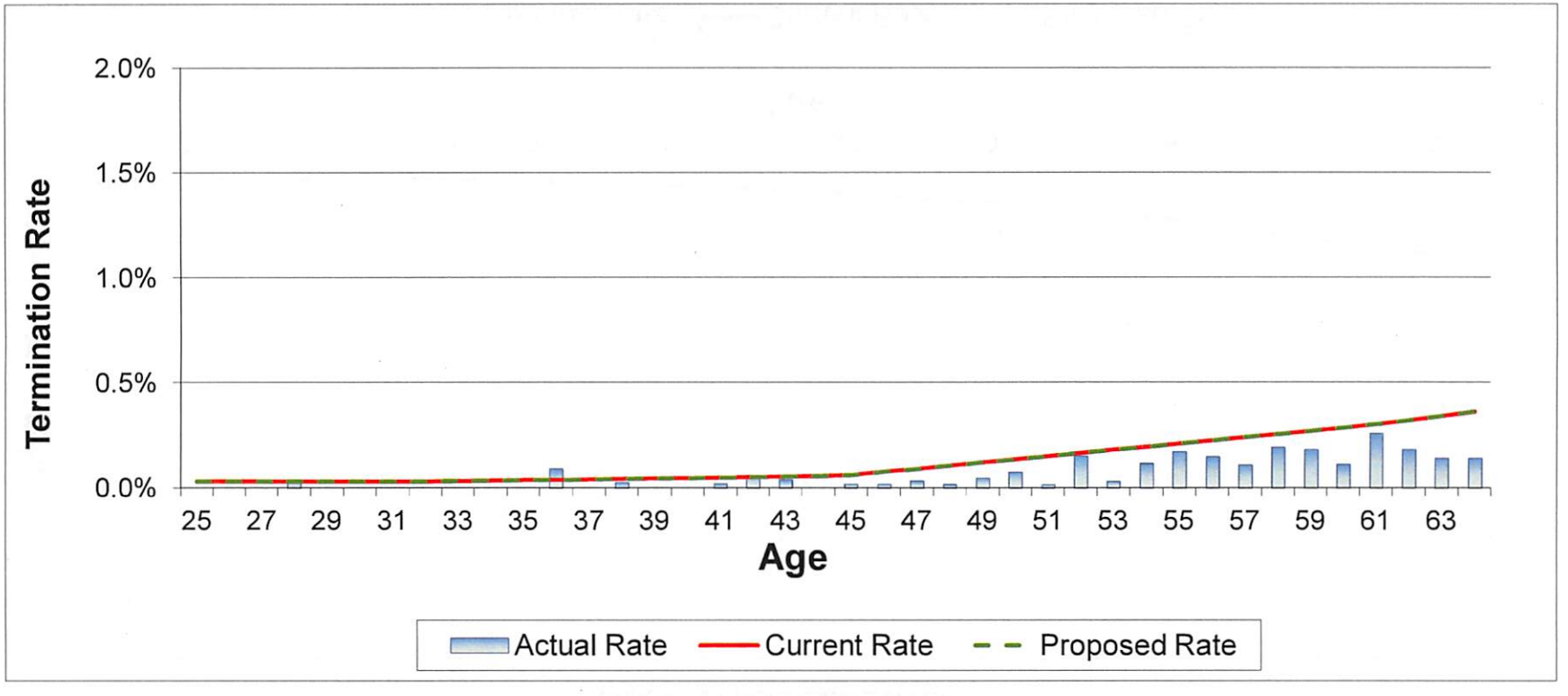
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit G-4

Rates of Disability

Females - School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	129	247	247
Actual/Expected		52%	52%

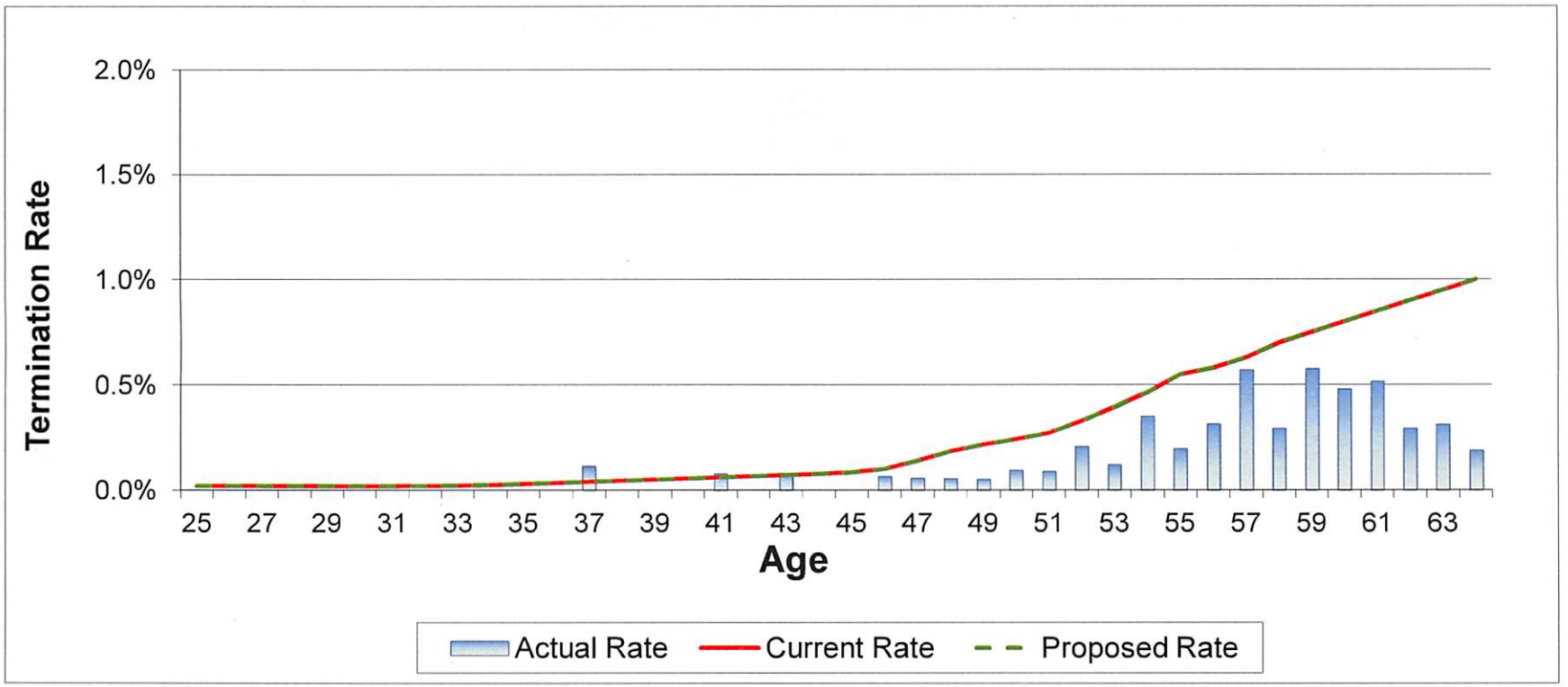
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit G-5

Rates of Disability

Males - Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	106	211	211
Actual/Expected		50%	50%

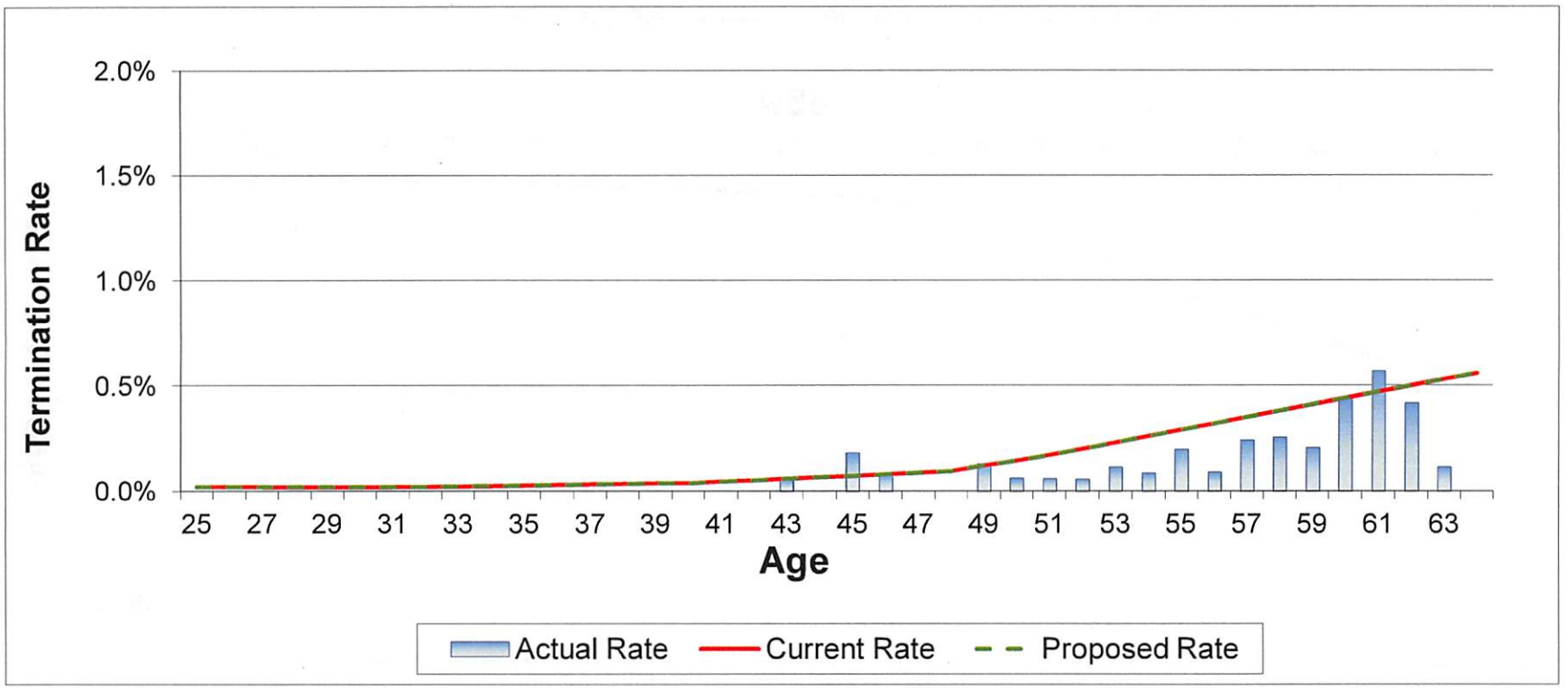
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit G-6

Rates of Disability

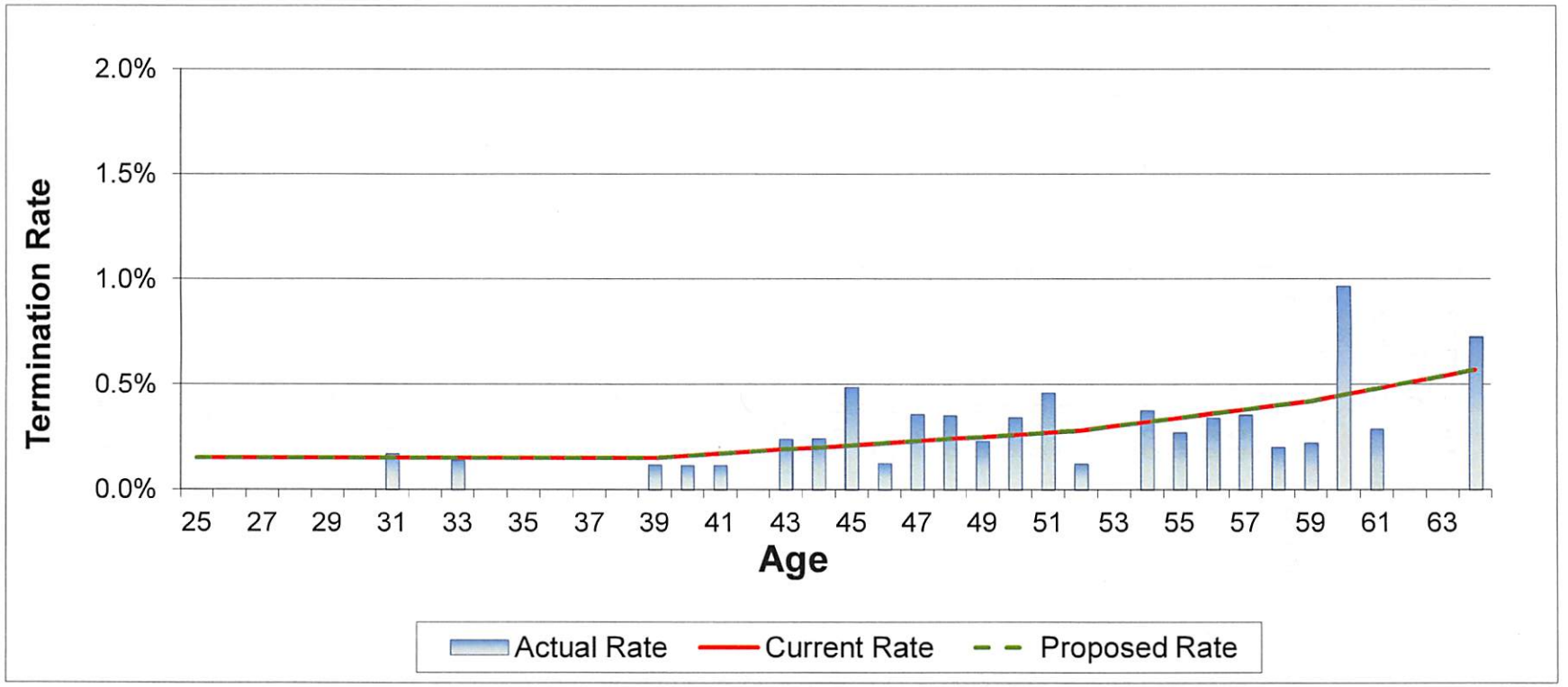
Females - Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	93	165	165
Actual/Expected		56%	56%

Iowa Public Employees' Retirement System

2009-2013 Experience Study
Exhibit G-7
Rates of Disability
Special Services



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	47	60	60
Actual/Expected		78%	78%

Data Summary G-1
Rates of Disability
Males - State Membership

Age	Exposure	Actual Disabilities	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	27	-	0.000%	0.0	0.020%	0.0	0.020%
26	43	-	0.000%	0.0	0.020%	0.0	0.020%
27	106	-	0.000%	0.0	0.020%	0.0	0.020%
28	144	-	0.000%	0.0	0.020%	0.0	0.020%
29	190	-	0.000%	0.0	0.020%	0.0	0.020%
30	238	-	0.000%	0.0	0.020%	0.0	0.020%
31	269	-	0.000%	0.1	0.020%	0.1	0.020%
32	327	-	0.000%	0.1	0.020%	0.1	0.020%
33	356	-	0.000%	0.1	0.022%	0.1	0.022%
34	367	-	0.000%	0.1	0.025%	0.1	0.025%
35	392	-	0.000%	0.1	0.030%	0.1	0.030%
36	413	-	0.000%	0.1	0.035%	0.1	0.035%
37	437	-	0.000%	0.2	0.040%	0.2	0.040%
38	488	-	0.000%	0.2	0.045%	0.2	0.045%
39	551	-	0.000%	0.3	0.050%	0.3	0.050%
40	594	-	0.000%	0.3	0.055%	0.3	0.055%
41	625	-	0.000%	0.4	0.060%	0.4	0.060%
42	613	-	0.000%	0.4	0.065%	0.4	0.065%
43	606	-	0.000%	0.4	0.070%	0.4	0.070%
44	614	-	0.000%	0.5	0.080%	0.5	0.080%
45	692	1	0.145%	0.6	0.090%	0.6	0.090%
46	739	-	0.000%	0.7	0.100%	0.7	0.100%
47	787	-	0.000%	0.9	0.120%	0.9	0.120%
48	861	1	0.116%	1.2	0.140%	1.2	0.140%
49	875	-	0.000%	1.4	0.160%	1.4	0.160%
50	950	1	0.105%	1.7	0.180%	1.7	0.180%
51	975	2	0.205%	2.0	0.200%	2.0	0.200%
52	1,008	1	0.099%	2.2	0.220%	2.2	0.220%
53	1,050	3	0.286%	2.5	0.240%	2.5	0.240%
54	1,097	3	0.273%	2.9	0.260%	2.9	0.260%
55	1,123	-	0.000%	3.1	0.280%	3.1	0.280%
56	1,095	1	0.091%	3.3	0.300%	3.3	0.300%
57	1,082	8	0.739%	3.5	0.320%	3.5	0.320%
58	1,066	1	0.094%	3.6	0.340%	3.6	0.340%
59	974	2	0.205%	3.5	0.360%	3.5	0.360%
60	924	1	0.108%	3.5	0.380%	3.5	0.380%
61	862	1	0.116%	3.4	0.400%	3.4	0.400%
62	697	2	0.287%	2.9	0.420%	2.9	0.420%
63	497	1	0.201%	2.2	0.440%	2.2	0.440%
64	354	1	0.282%	1.6	0.460%	1.6	0.460%
	25,108	30	0.119%	50.3	0.200%	50.3	0.200%

Data Summary G-2
Rates of Disability
Females - State Membership

Age	Exposure	Actual Disabilities	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	67	-	0.000%	0.0	0.020%	0.0	0.020%
26	108	-	0.000%	0.0	0.020%	0.0	0.020%
27	184	-	0.000%	0.0	0.020%	0.0	0.020%
28	245	-	0.000%	0.0	0.020%	0.0	0.020%
29	369	-	0.000%	0.1	0.020%	0.1	0.020%
30	459	1	0.218%	0.1	0.020%	0.1	0.020%
31	502	-	0.000%	0.1	0.020%	0.1	0.020%
32	559	-	0.000%	0.1	0.020%	0.1	0.020%
33	609	-	0.000%	0.1	0.022%	0.1	0.022%
34	649	-	0.000%	0.2	0.025%	0.2	0.025%
35	690	-	0.000%	0.2	0.027%	0.2	0.027%
36	696	-	0.000%	0.2	0.030%	0.2	0.030%
37	702	-	0.000%	0.2	0.032%	0.2	0.032%
38	730	-	0.000%	0.2	0.034%	0.2	0.034%
39	784	-	0.000%	0.3	0.036%	0.3	0.036%
40	807	-	0.000%	0.3	0.038%	0.3	0.038%
41	850	-	0.000%	0.4	0.044%	0.4	0.044%
42	867	-	0.000%	0.4	0.051%	0.4	0.051%
43	837	-	0.000%	0.5	0.057%	0.5	0.057%
44	898	2	0.223%	0.6	0.065%	0.6	0.065%
45	992	-	0.000%	0.7	0.072%	0.7	0.072%
46	1,072	-	0.000%	0.9	0.080%	0.9	0.080%
47	1,221	1	0.082%	1.1	0.087%	1.1	0.087%
48	1,324	-	0.000%	1.3	0.095%	1.3	0.095%
49	1,424	1	0.070%	1.7	0.120%	1.7	0.120%
50	1,535	-	0.000%	2.2	0.145%	2.2	0.145%
51	1,602	1	0.062%	2.7	0.170%	2.7	0.170%
52	1,674	1	0.060%	3.7	0.220%	3.7	0.220%
53	1,704	-	0.000%	4.4	0.260%	4.4	0.260%
54	1,710	3	0.175%	5.1	0.300%	5.1	0.300%
55	1,660	4	0.241%	5.6	0.340%	5.6	0.340%
56	1,532	5	0.326%	5.5	0.360%	5.5	0.360%
57	1,419	2	0.141%	5.5	0.390%	5.5	0.390%
58	1,328	6	0.452%	5.6	0.420%	5.6	0.420%
59	1,246	3	0.241%	6.0	0.480%	6.0	0.480%
60	1,168	3	0.257%	6.3	0.540%	6.3	0.540%
61	973	2	0.206%	5.6	0.580%	5.6	0.580%
62	772	3	0.389%	4.8	0.620%	4.8	0.620%
63	570	-	0.000%	3.5	0.620%	3.5	0.620%
64	391	2	0.512%	-	0.000%	-	0.000%
	36,929	40	0.108%	76.4	0.207%	76.4	0.207%

Data Summary G-3
Rates of Disability
Males - School Membership

Age	Exposure	Actual Disabilities	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	89	-	0.000%	0.0	0.020%	0.0	0.020%
26	246	-	0.000%	0.0	0.020%	0.0	0.020%
27	540	-	0.000%	0.1	0.020%	0.1	0.020%
28	851	-	0.000%	0.2	0.020%	0.2	0.020%
29	1,029	-	0.000%	0.2	0.020%	0.2	0.020%
30	1,140	-	0.000%	0.2	0.020%	0.2	0.020%
31	1,179	-	0.000%	0.2	0.020%	0.2	0.020%
32	1,230	-	0.000%	0.2	0.020%	0.2	0.020%
33	1,286	-	0.000%	0.3	0.022%	0.3	0.022%
34	1,291	-	0.000%	0.3	0.025%	0.3	0.025%
35	1,296	-	0.000%	0.4	0.030%	0.4	0.030%
36	1,301	-	0.000%	0.5	0.035%	0.5	0.035%
37	1,322	-	0.000%	0.5	0.040%	0.5	0.040%
38	1,350	1	0.074%	0.6	0.045%	0.6	0.045%
39	1,416	-	0.000%	0.7	0.050%	0.7	0.050%
40	1,468	-	0.000%	0.8	0.055%	0.8	0.055%
41	1,514	1	0.066%	0.9	0.060%	0.9	0.060%
42	1,491	2	0.134%	1.0	0.065%	1.0	0.065%
43	1,457	-	0.000%	1.0	0.070%	1.0	0.070%
44	1,408	-	0.000%	1.1	0.080%	1.1	0.080%
45	1,452	-	0.000%	1.3	0.090%	1.3	0.090%
46	1,505	-	0.000%	1.5	0.100%	1.5	0.100%
47	1,571	-	0.000%	1.7	0.110%	1.7	0.110%
48	1,711	-	0.000%	2.1	0.120%	2.1	0.120%
49	1,767	1	0.057%	2.3	0.130%	2.3	0.130%
50	1,835	2	0.109%	2.6	0.140%	2.6	0.140%
51	1,879	3	0.160%	2.8	0.150%	2.8	0.150%
52	1,926	1	0.052%	3.1	0.160%	3.1	0.160%
53	1,974	1	0.051%	3.6	0.180%	3.6	0.180%
54	2,039	6	0.294%	4.1	0.200%	4.1	0.200%
55	2,158	3	0.139%	4.7	0.220%	4.7	0.220%
56	2,063	4	0.194%	5.0	0.240%	5.0	0.240%
57	1,985	4	0.202%	5.2	0.260%	5.2	0.260%
58	1,895	5	0.264%	5.3	0.280%	5.3	0.280%
59	1,752	1	0.057%	5.3	0.300%	5.3	0.300%
60	1,701	2	0.118%	5.4	0.320%	5.4	0.320%
61	1,548	3	0.194%	5.3	0.340%	5.3	0.340%
62	1,337	6	0.449%	4.8	0.360%	4.8	0.360%
63	1,025	2	0.195%	3.9	0.380%	3.9	0.380%
64	841	1	0.119%	3.4	0.400%	3.4	0.400%
	56,868	49	0.086%	82.6	0.145%	82.6	0.145%

Data Summary G-4
Rates of Disability
Females - School Membership

Age	Exposure	Actual Disabilities	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	234	-	0.000%	0.1	0.030%	0.1	0.030%
26	820	-	0.000%	0.2	0.030%	0.2	0.030%
27	1,884	-	0.000%	0.6	0.030%	0.6	0.030%
28	2,626	1	0.038%	0.8	0.030%	0.8	0.030%
29	3,102	-	0.000%	0.9	0.030%	0.9	0.030%
30	3,322	-	0.000%	1.0	0.030%	1.0	0.030%
31	3,439	-	0.000%	1.0	0.030%	1.0	0.030%
32	3,476	-	0.000%	1.0	0.030%	1.0	0.030%
33	3,500	-	0.000%	1.1	0.032%	1.1	0.032%
34	3,415	-	0.000%	1.2	0.034%	1.2	0.034%
35	3,406	-	0.000%	1.2	0.036%	1.2	0.036%
36	3,353	3	0.089%	1.3	0.038%	1.3	0.038%
37	3,542	-	0.000%	1.4	0.040%	1.4	0.040%
38	3,816	1	0.026%	1.6	0.042%	1.6	0.042%
39	4,146	-	0.000%	1.8	0.044%	1.8	0.044%
40	4,529	-	0.000%	2.1	0.046%	2.1	0.046%
41	4,755	1	0.021%	2.3	0.048%	2.3	0.048%
42	5,019	3	0.060%	2.5	0.050%	2.5	0.050%
43	5,095	2	0.039%	2.6	0.052%	2.6	0.052%
44	5,269	-	0.000%	2.9	0.055%	2.9	0.055%
45	5,431	1	0.018%	3.3	0.060%	3.3	0.060%
46	5,684	1	0.018%	4.3	0.075%	4.3	0.075%
47	5,940	2	0.034%	5.3	0.090%	5.3	0.090%
48	6,249	1	0.016%	6.6	0.105%	6.6	0.105%
49	6,477	3	0.046%	7.8	0.120%	7.8	0.120%
50	6,672	5	0.075%	9.0	0.135%	9.0	0.135%
51	6,620	1	0.015%	9.9	0.150%	9.9	0.150%
52	6,666	10	0.150%	11.0	0.165%	11.0	0.165%
53	6,783	2	0.029%	12.2	0.180%	12.2	0.180%
54	6,938	8	0.115%	13.5	0.195%	13.5	0.195%
55	6,981	12	0.172%	14.7	0.210%	14.7	0.210%
56	6,762	10	0.148%	15.2	0.225%	15.2	0.225%
57	6,454	7	0.108%	15.5	0.240%	15.5	0.240%
58	6,249	12	0.192%	15.9	0.255%	15.9	0.255%
59	6,011	11	0.183%	16.2	0.270%	16.2	0.270%
60	5,418	6	0.111%	15.4	0.285%	15.4	0.285%
61	4,655	12	0.258%	14.0	0.300%	14.0	0.300%
62	3,827	7	0.183%	12.2	0.320%	12.2	0.320%
63	2,838	4	0.141%	9.6	0.340%	9.6	0.340%
64	2,143	3	0.140%	7.7	0.360%	7.7	0.360%
	183,546	129	0.070%	247.1	0.135%	247.1	0.135%

Data Summary G-5
Rates of Disability
Males - Other Membership

Age	Exposure	Actual Disabilities	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	150	-	0.000%	0.0	0.020%	0.0	0.020%
26	233	-	0.000%	0.0	0.020%	0.0	0.020%
27	310	-	0.000%	0.1	0.020%	0.1	0.020%
28	431	-	0.000%	0.1	0.020%	0.1	0.020%
29	534	-	0.000%	0.1	0.020%	0.1	0.020%
30	605	-	0.000%	0.1	0.020%	0.1	0.020%
31	674	-	0.000%	0.1	0.020%	0.1	0.020%
32	772	-	0.000%	0.2	0.020%	0.2	0.020%
33	825	-	0.000%	0.2	0.022%	0.2	0.022%
34	802	-	0.000%	0.2	0.025%	0.2	0.025%
35	837	-	0.000%	0.3	0.030%	0.3	0.030%
36	842	-	0.000%	0.3	0.035%	0.3	0.035%
37	887	1	0.113%	0.4	0.040%	0.4	0.040%
38	1,028	-	0.000%	0.5	0.045%	0.5	0.045%
39	1,130	-	0.000%	0.6	0.050%	0.6	0.050%
40	1,228	-	0.000%	0.7	0.055%	0.7	0.055%
41	1,283	1	0.078%	0.8	0.060%	0.8	0.060%
42	1,277	-	0.000%	0.8	0.065%	0.8	0.065%
43	1,267	1	0.079%	0.9	0.070%	0.9	0.070%
44	1,329	-	0.000%	1.0	0.075%	1.0	0.075%
45	1,416	-	0.000%	1.2	0.085%	1.2	0.085%
46	1,573	1	0.064%	1.6	0.100%	1.6	0.100%
47	1,755	1	0.057%	2.5	0.140%	2.5	0.140%
48	1,861	1	0.054%	3.4	0.184%	3.4	0.184%
49	1,971	1	0.051%	4.2	0.214%	4.2	0.214%
50	2,136	2	0.094%	5.1	0.240%	5.1	0.240%
51	2,283	2	0.088%	6.2	0.270%	6.2	0.270%
52	2,431	5	0.206%	7.9	0.326%	7.9	0.326%
53	2,514	3	0.119%	9.9	0.392%	9.9	0.392%
54	2,580	9	0.349%	11.9	0.462%	11.9	0.462%
55	2,574	5	0.194%	14.2	0.550%	14.2	0.550%
56	2,560	8	0.313%	14.8	0.580%	14.8	0.580%
57	2,447	14	0.572%	15.4	0.630%	15.4	0.630%
58	2,395	7	0.292%	16.8	0.700%	16.8	0.700%
59	2,253	13	0.577%	16.9	0.750%	16.9	0.750%
60	2,078	10	0.481%	16.6	0.800%	16.6	0.800%
61	1,935	10	0.517%	16.4	0.850%	16.4	0.850%
62	1,715	5	0.292%	15.4	0.900%	15.4	0.900%
63	1,288	4	0.311%	12.2	0.950%	12.2	0.950%
64	1,069	2	0.187%	10.7	1.000%	10.7	1.000%
	57,278	106	0.185%	210.6	0.368%	210.6	0.368%

Data Summary G-6
Rates of Disability
Females - Other Membership

Age	Exposure	Actual Disabilities	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	338	-	0.000%	0.1	0.020%	0.1	0.020%
26	512	-	0.000%	0.1	0.020%	0.1	0.020%
27	692	-	0.000%	0.1	0.020%	0.1	0.020%
28	889	-	0.000%	0.2	0.020%	0.2	0.020%
29	1,078	-	0.000%	0.2	0.020%	0.2	0.020%
30	1,201	-	0.000%	0.2	0.020%	0.2	0.020%
31	1,310	-	0.000%	0.3	0.020%	0.3	0.020%
32	1,312	-	0.000%	0.3	0.020%	0.3	0.020%
33	1,340	-	0.000%	0.3	0.022%	0.3	0.022%
34	1,386	-	0.000%	0.3	0.025%	0.3	0.025%
35	1,427	-	0.000%	0.4	0.027%	0.4	0.027%
36	1,462	-	0.000%	0.4	0.030%	0.4	0.030%
37	1,511	-	0.000%	0.5	0.032%	0.5	0.032%
38	1,611	-	0.000%	0.5	0.034%	0.5	0.034%
39	1,738	-	0.000%	0.6	0.036%	0.6	0.036%
40	1,804	-	0.000%	0.7	0.038%	0.7	0.038%
41	1,873	-	0.000%	0.8	0.044%	0.8	0.044%
42	1,954	-	0.000%	1.0	0.051%	1.0	0.051%
43	1,916	1	0.052%	1.1	0.057%	1.1	0.057%
44	2,063	-	0.000%	1.3	0.065%	1.3	0.065%
45	2,208	4	0.181%	1.6	0.072%	1.6	0.072%
46	2,396	2	0.083%	1.9	0.080%	1.9	0.080%
47	2,638	-	0.000%	2.3	0.087%	2.3	0.087%
48	2,874	-	0.000%	2.7	0.095%	2.7	0.095%
49	3,108	4	0.129%	3.7	0.120%	3.7	0.120%
50	3,236	2	0.062%	4.7	0.145%	4.7	0.145%
51	3,380	2	0.059%	5.7	0.170%	5.7	0.170%
52	3,465	2	0.058%	6.9	0.200%	6.9	0.200%
53	3,488	4	0.115%	8.0	0.230%	8.0	0.230%
54	3,519	3	0.085%	9.1	0.260%	9.1	0.260%
55	3,534	7	0.198%	10.2	0.290%	10.2	0.290%
56	3,350	3	0.090%	10.7	0.320%	10.7	0.320%
57	3,304	8	0.242%	11.6	0.350%	11.6	0.350%
58	3,146	8	0.254%	12.0	0.380%	12.0	0.380%
59	2,915	6	0.206%	12.0	0.410%	12.0	0.410%
60	2,754	12	0.436%	12.1	0.440%	12.1	0.440%
61	2,445	14	0.573%	11.5	0.470%	11.5	0.470%
62	2,152	9	0.418%	10.8	0.500%	10.8	0.500%
63	1,759	2	0.114%	9.3	0.530%	9.3	0.530%
64	1,442	-	0.000%	8.1	0.560%	8.1	0.560%
	84,530	93	0.110%	164.5	0.195%	164.5	0.195%

Data Summary G-7
Rates of Disability
Special Services

Age	Exposure	Actual Disabilities	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	143	-	0.000%	0.2	0.150%	0.2	0.150%
26	221	-	0.000%	0.3	0.150%	0.3	0.150%
27	316	-	0.000%	0.5	0.150%	0.5	0.150%
28	428	-	0.000%	0.6	0.150%	0.6	0.150%
29	498	-	0.000%	0.7	0.150%	0.7	0.150%
30	563	-	0.000%	0.8	0.150%	0.8	0.150%
31	590	1	0.169%	0.9	0.150%	0.9	0.150%
32	647	-	0.000%	1.0	0.150%	1.0	0.150%
33	721	1	0.139%	1.1	0.150%	1.1	0.150%
34	702	-	0.000%	1.1	0.150%	1.1	0.150%
35	712	-	0.000%	1.1	0.150%	1.1	0.150%
36	686	-	0.000%	1.0	0.150%	1.0	0.150%
37	706	-	0.000%	1.1	0.150%	1.1	0.150%
38	786	-	0.000%	1.2	0.150%	1.2	0.150%
39	851	1	0.118%	1.3	0.150%	1.3	0.150%
40	877	1	0.114%	1.4	0.160%	1.4	0.160%
41	870	1	0.115%	1.5	0.170%	1.5	0.170%
42	876	-	0.000%	1.6	0.180%	1.6	0.180%
43	835	2	0.240%	1.6	0.190%	1.6	0.190%
44	827	2	0.242%	1.7	0.200%	1.7	0.200%
45	826	4	0.484%	1.7	0.210%	1.7	0.210%
46	801	1	0.125%	1.8	0.220%	1.8	0.220%
47	838	3	0.358%	1.9	0.230%	1.9	0.230%
48	850	3	0.353%	2.0	0.240%	2.0	0.240%
49	876	2	0.228%	2.2	0.250%	2.2	0.250%
50	880	3	0.341%	2.3	0.260%	2.3	0.260%
51	870	4	0.460%	2.3	0.270%	2.3	0.270%
52	814	1	0.123%	2.3	0.280%	2.3	0.280%
53	817	-	0.000%	2.5	0.300%	2.5	0.300%
54	801	3	0.375%	2.6	0.320%	2.6	0.320%
55	742	2	0.270%	2.5	0.340%	2.5	0.340%
56	592	2	0.338%	2.1	0.360%	2.1	0.360%
57	566	2	0.353%	2.2	0.380%	2.2	0.380%
58	500	1	0.200%	2.0	0.400%	2.0	0.400%
59	450	1	0.222%	1.9	0.420%	1.9	0.420%
60	414	4	0.966%	1.9	0.450%	1.9	0.450%
61	348	1	0.287%	1.7	0.480%	1.7	0.480%
62	302	-	0.000%	1.5	0.510%	1.5	0.510%
63	195	-	0.000%	1.1	0.540%	1.1	0.540%
64	138	1	0.725%	0.8	0.570%	0.8	0.570%
	25,475	47	0.184%	59.7	0.235%	59.7	0.235%

APPENDIX H

TERMINATION OF EMPLOYMENT

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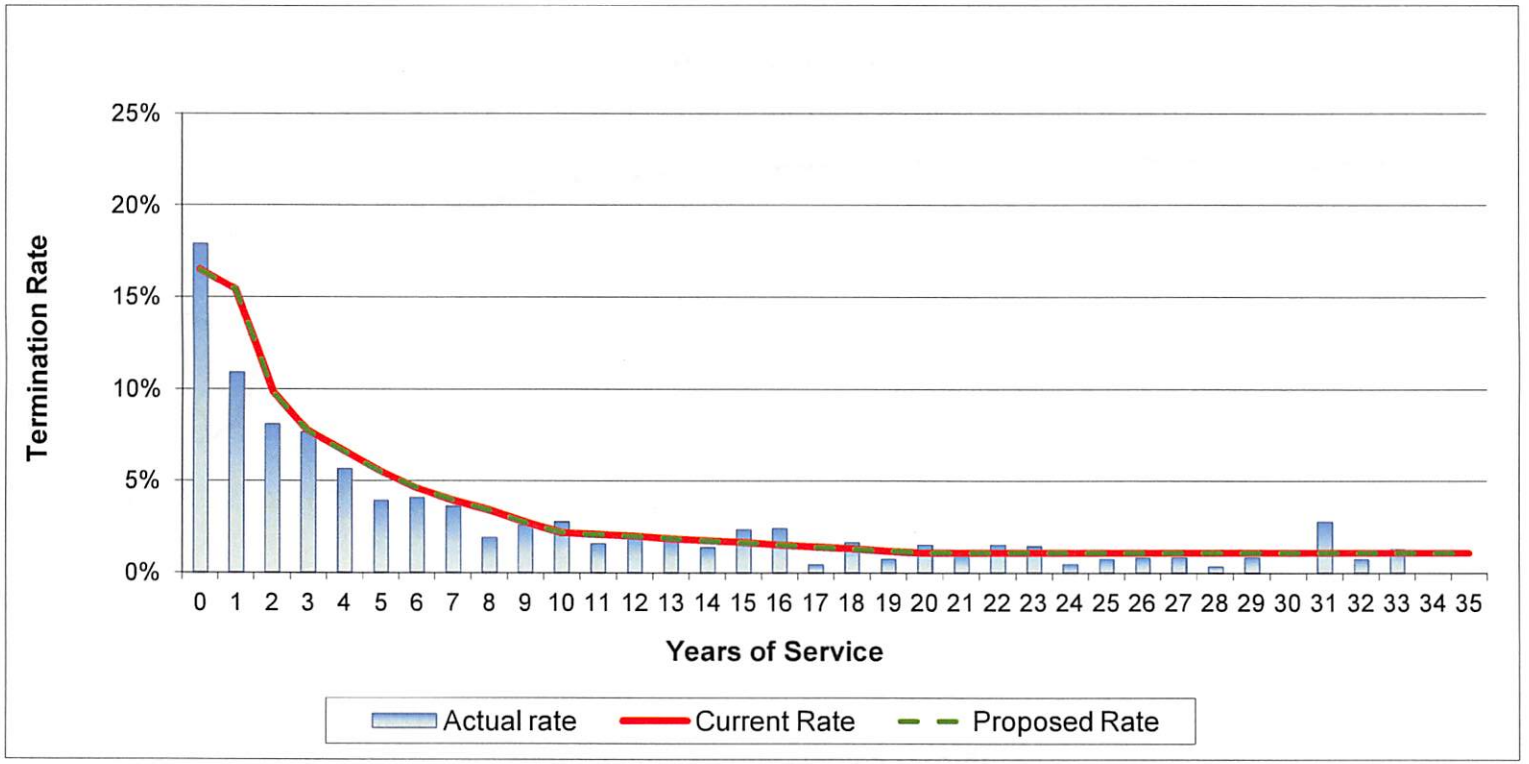
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-1

Termination of Employment

State Membership - Males



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	972	1,099	1,099
Actual/Expected		88%	88%

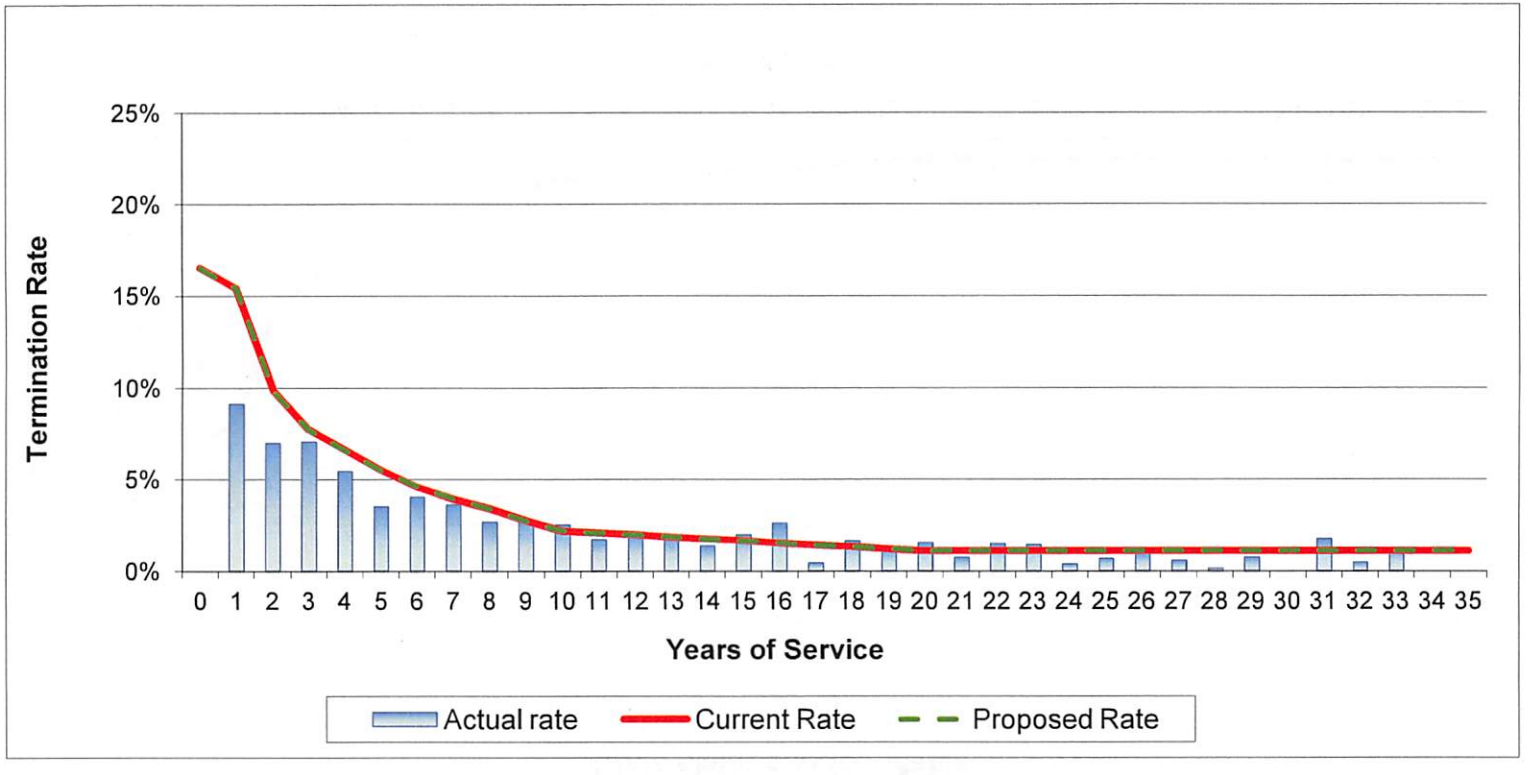
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-2

Termination of Employment

State Membership - Males (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	25,868	29,683	29,683
Actual/Expected		87%	87%

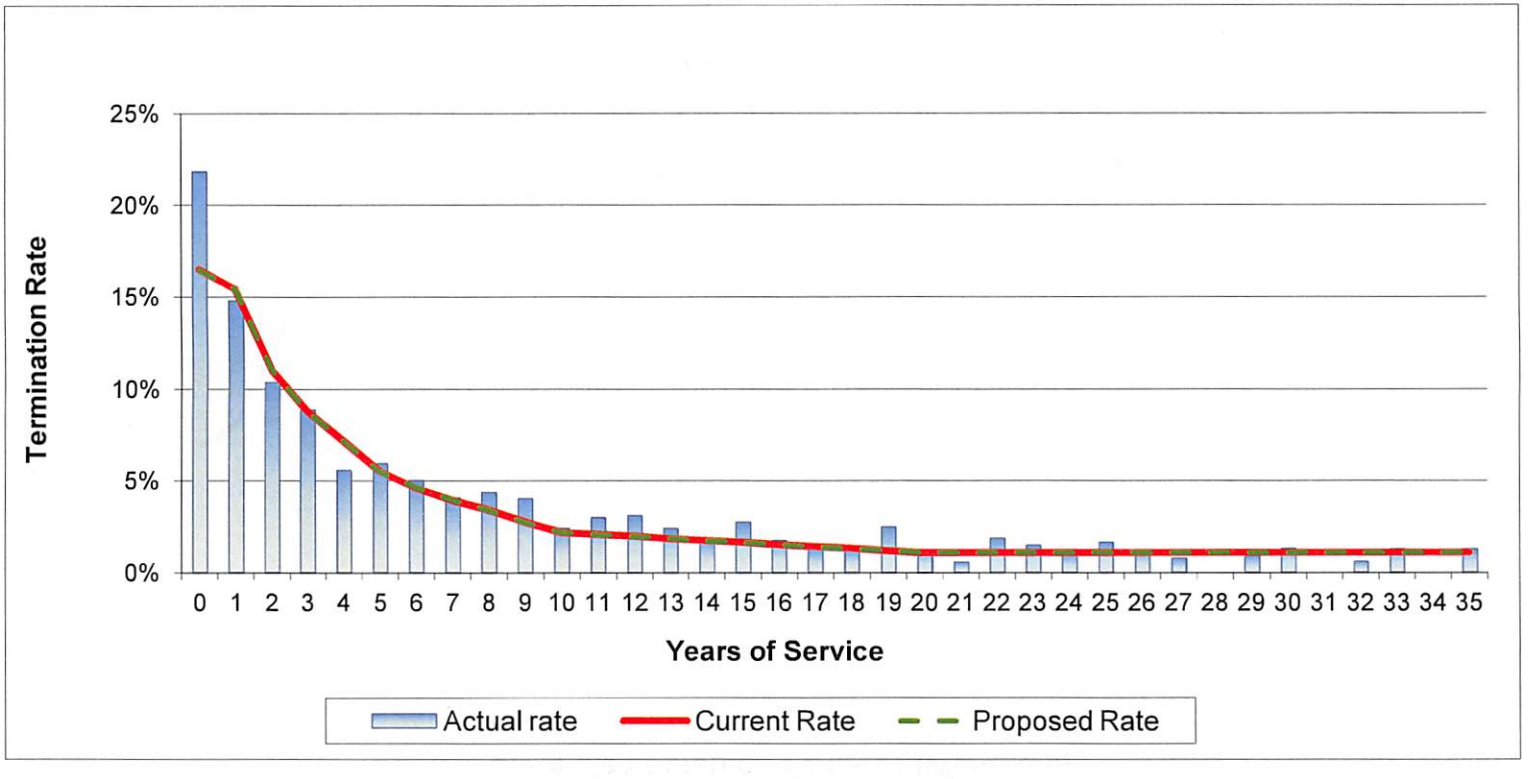
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-3

Termination of Employment

State Membership - Females



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	1,845	1,727	1,727
Actual/Expected		107%	107%

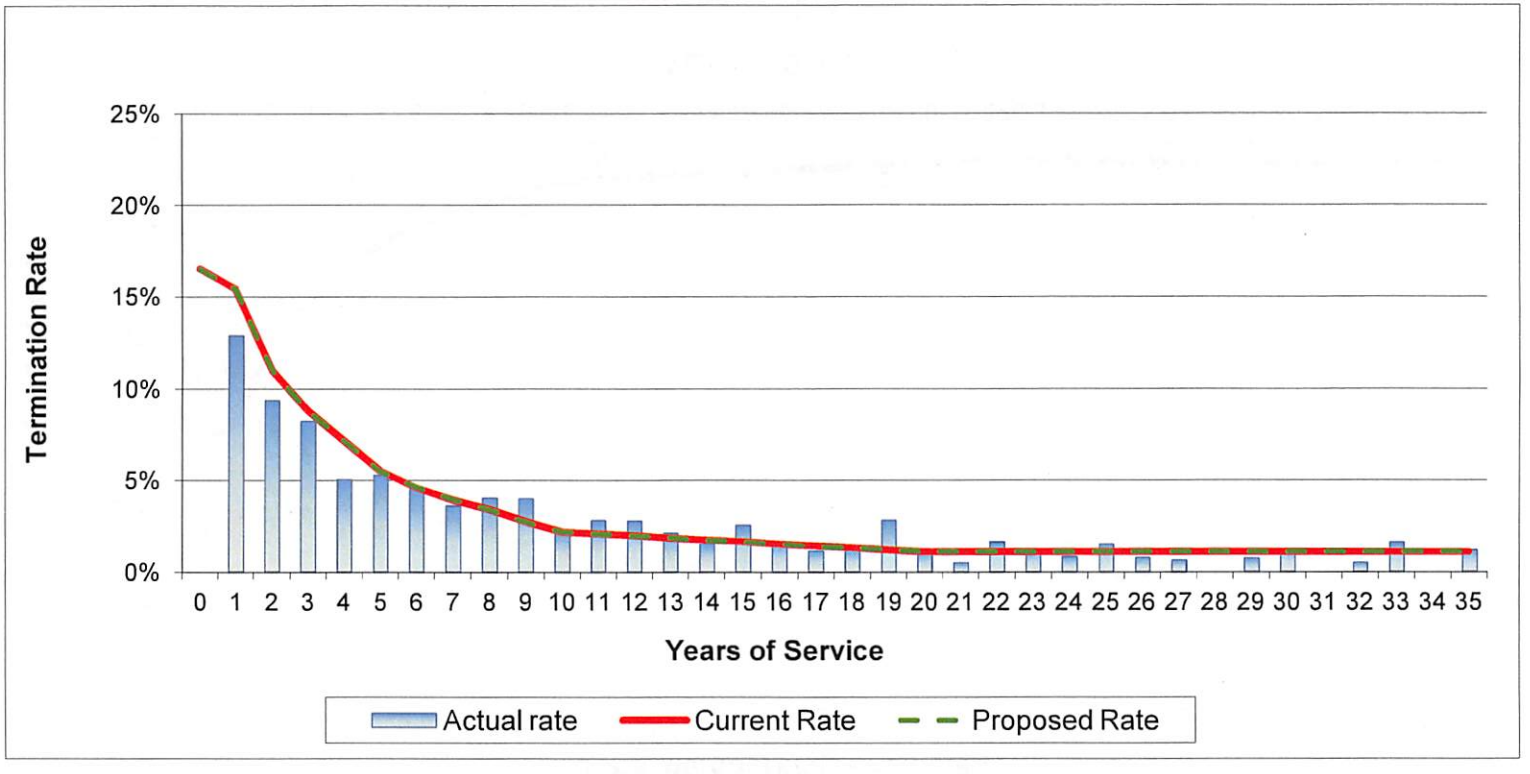
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-4

Termination of Employment

State Membership - Females (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	41,198	41,713	41,713
Actual/Expected		99%	99%

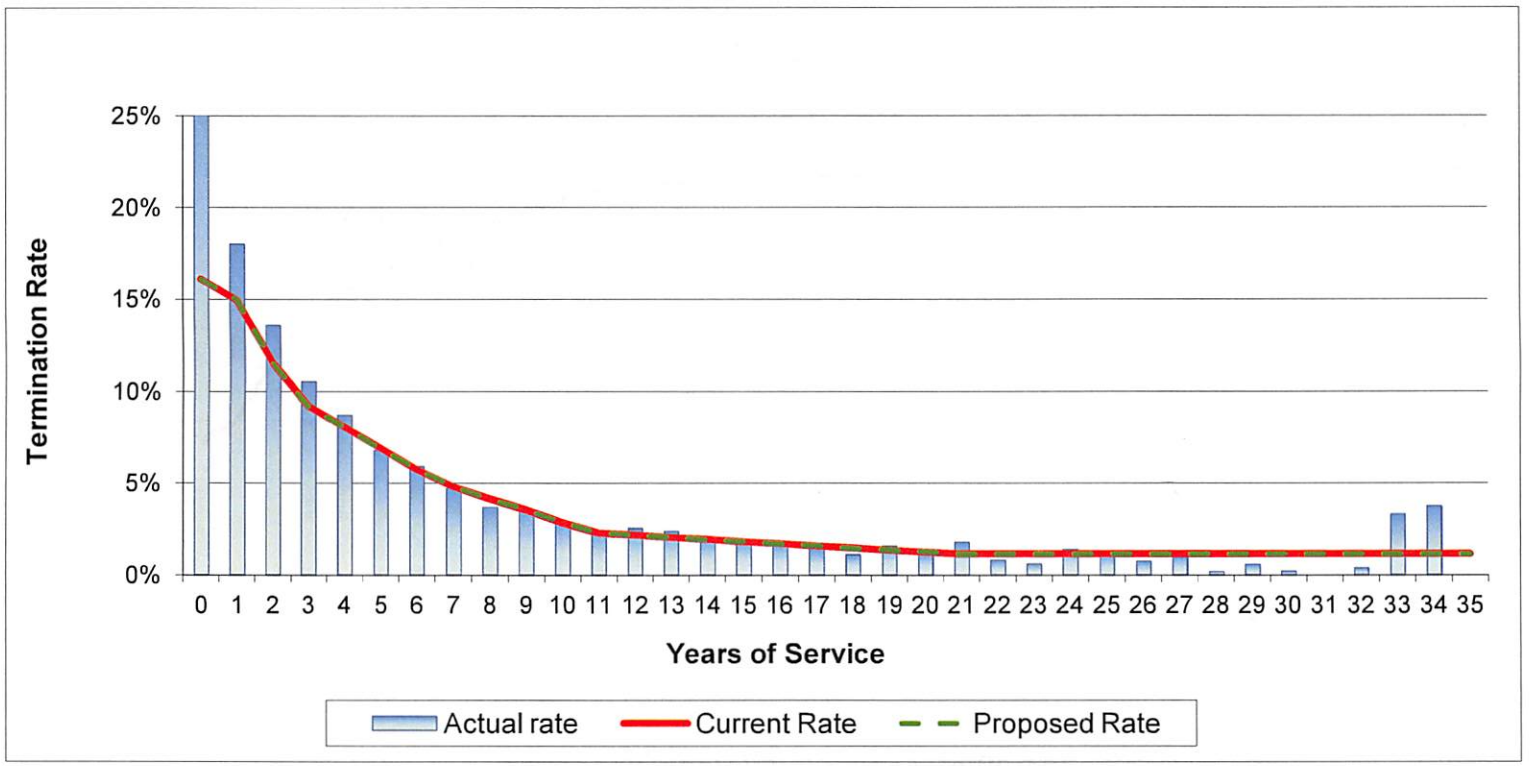
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-5

Termination of Employment

School Membership - Males



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	3,928	3,267	3,267
Actual/Expected		120%	120%

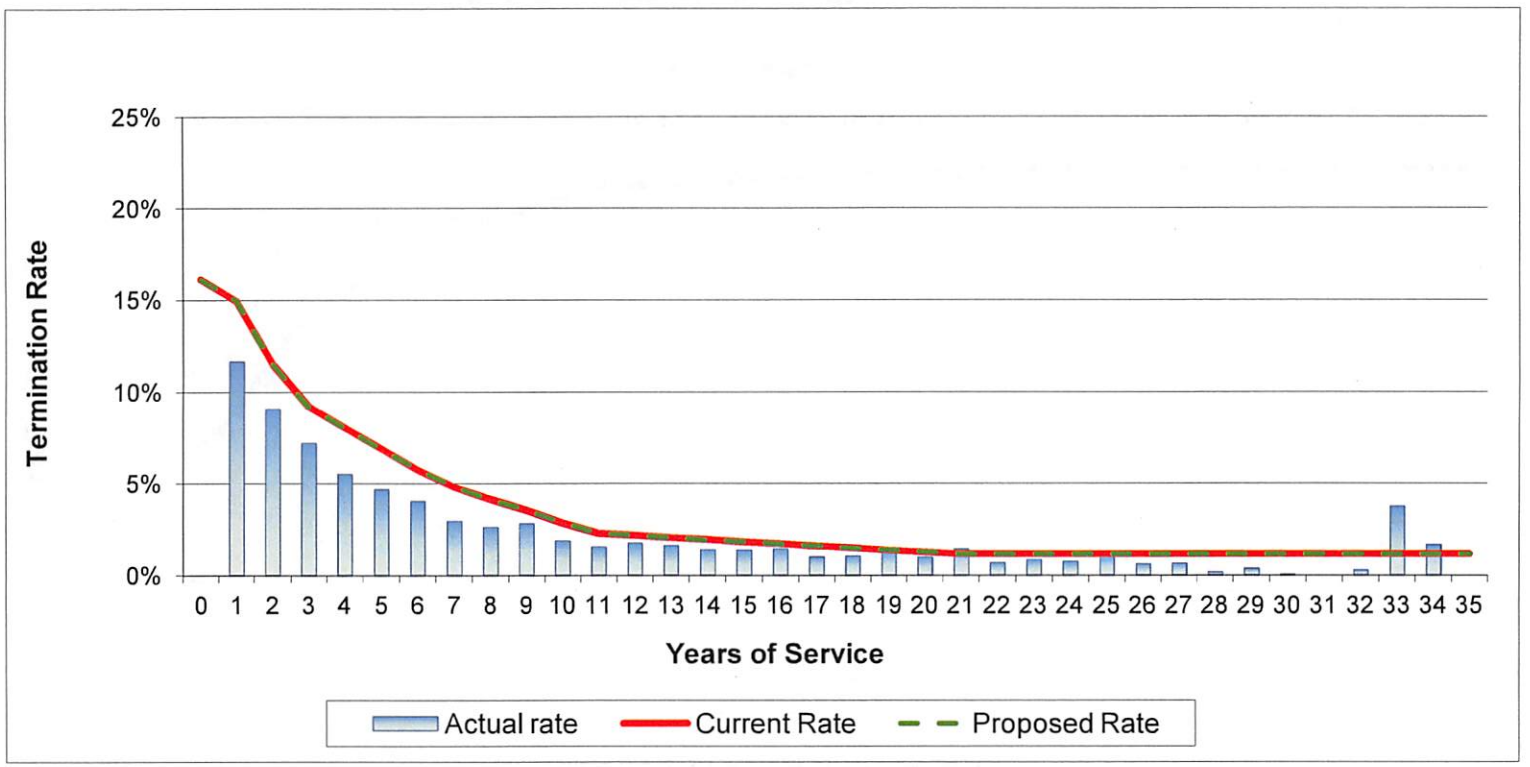
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-6

Termination of Employment

School Membership - Males (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	47,952	68,665	68,665
Actual/Expected		70%	70%

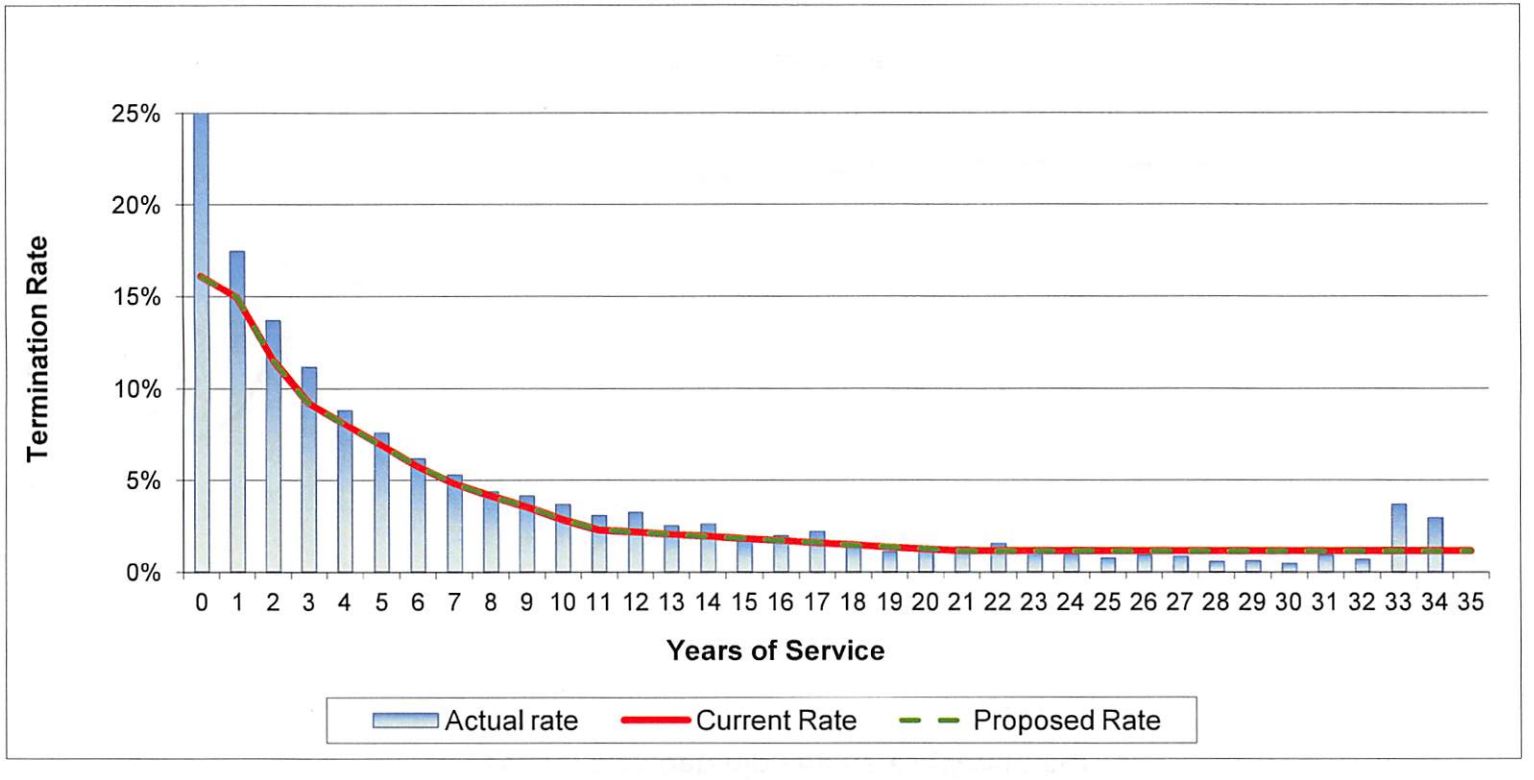
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-7

Termination of Employment

School Membership - Females



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	13,657	11,151	11,151
Actual/Expected		122%	122%

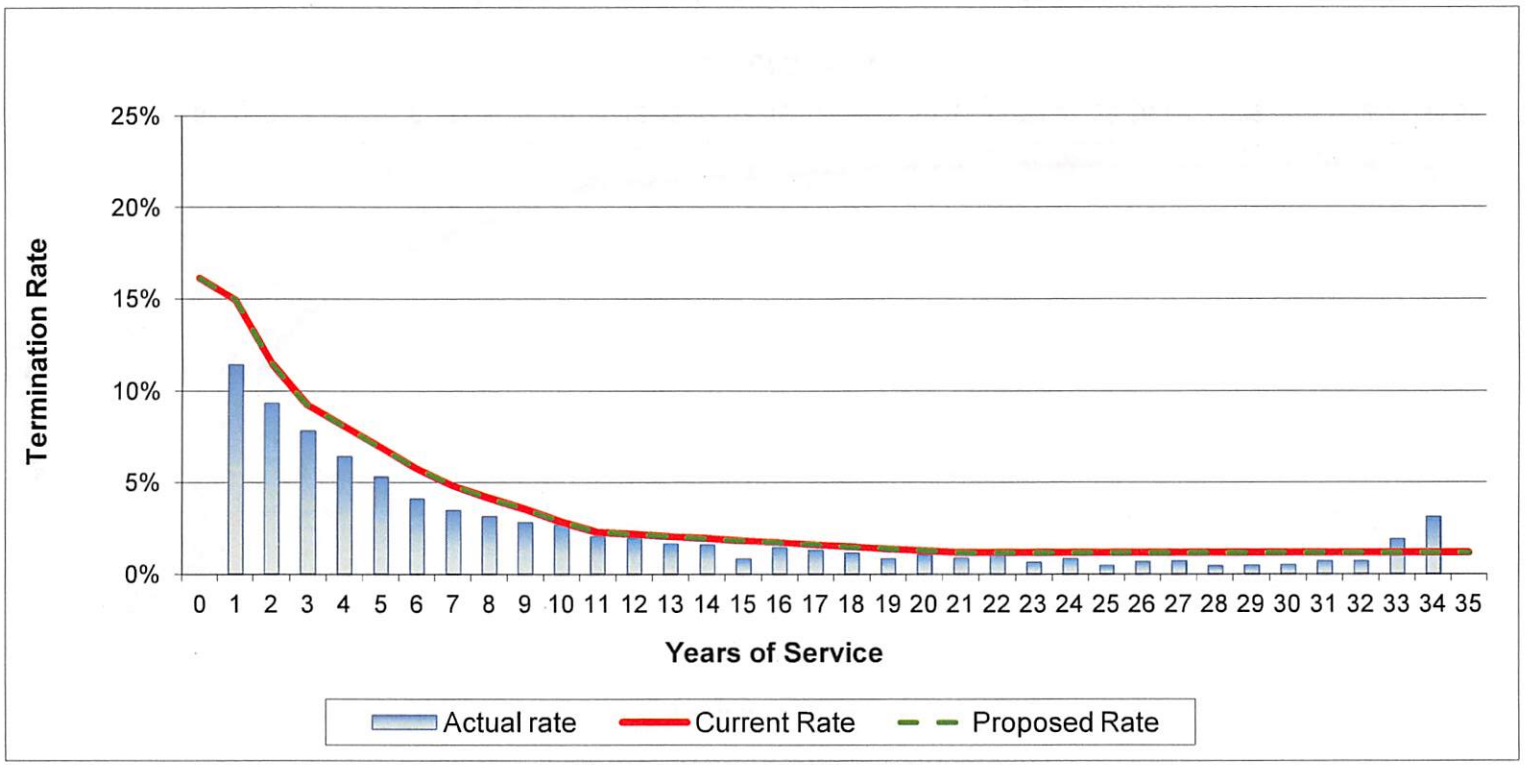
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-8

Termination of Employment

School Membership - Females (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	131,104	172,832	172,832
Actual/Expected		76%	76%

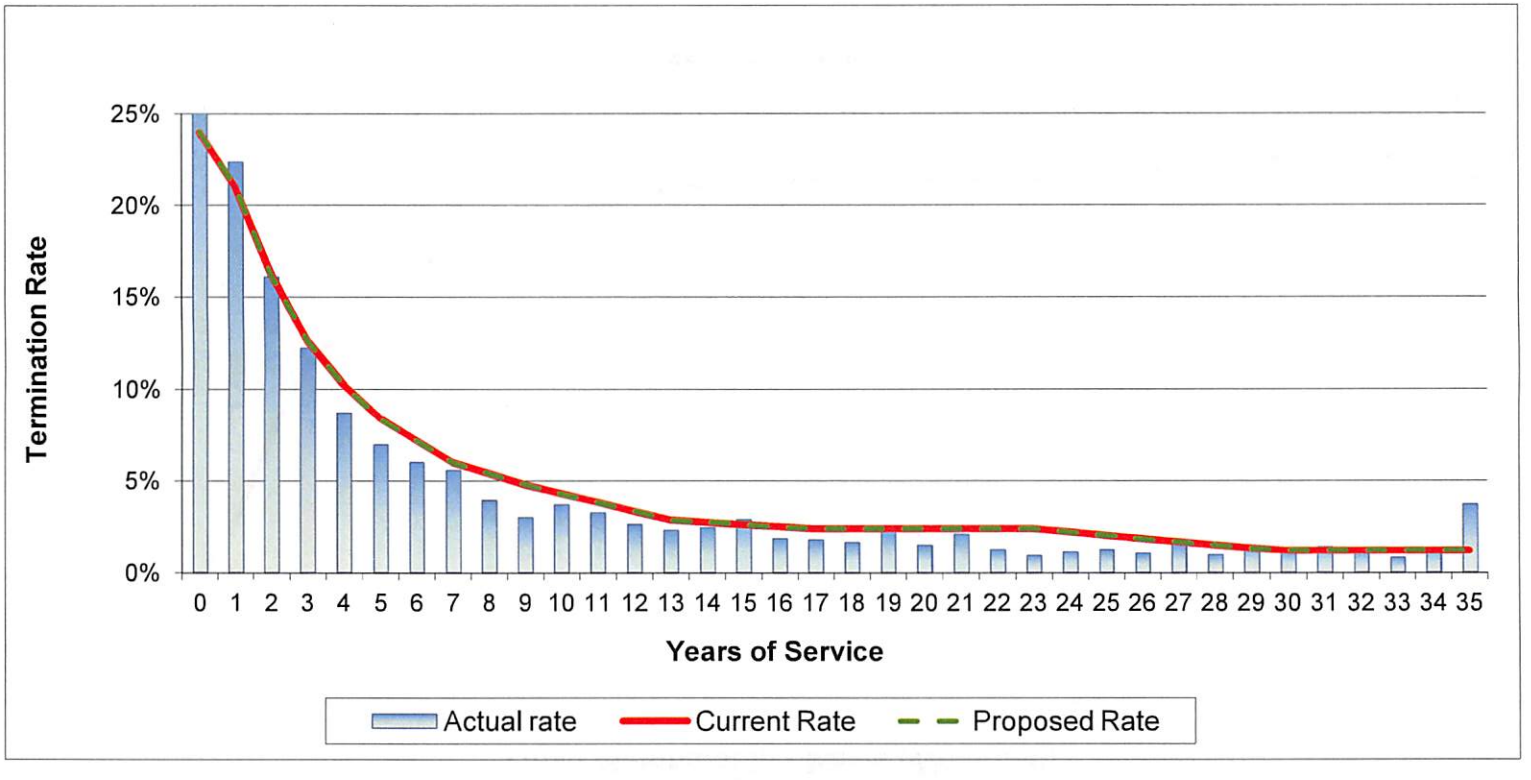
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-9

Termination of Employment

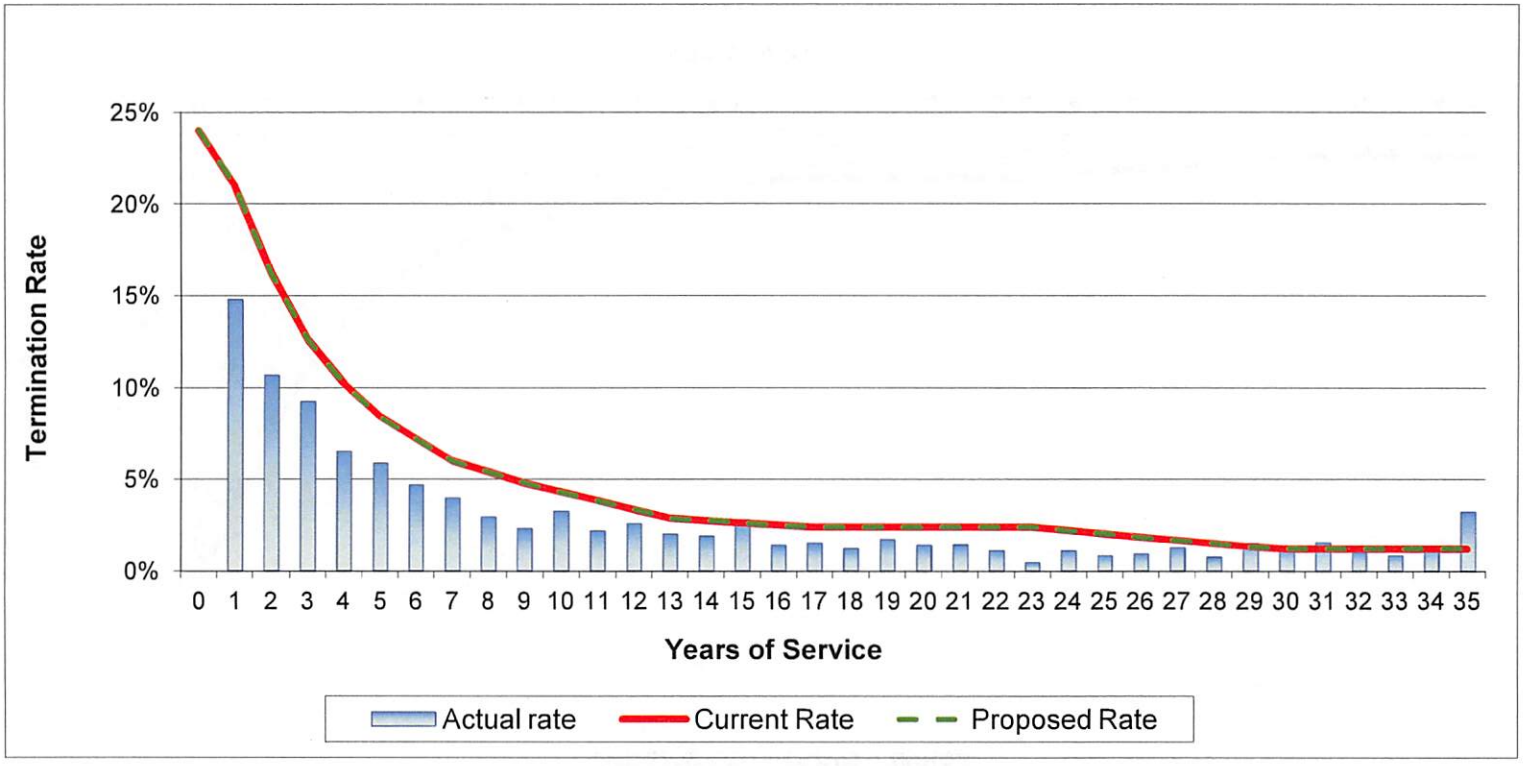
Other Membership - Males



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	6,051	5,864	5,864
Actual/Expected		103%	103%

Iowa Public Employees' Retirement System

2009-2013 Experience Study
Exhibit H-10
Termination of Employment
Other Membership - Males (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	61,682	92,896	92,896
Actual/Expected		66%	66%

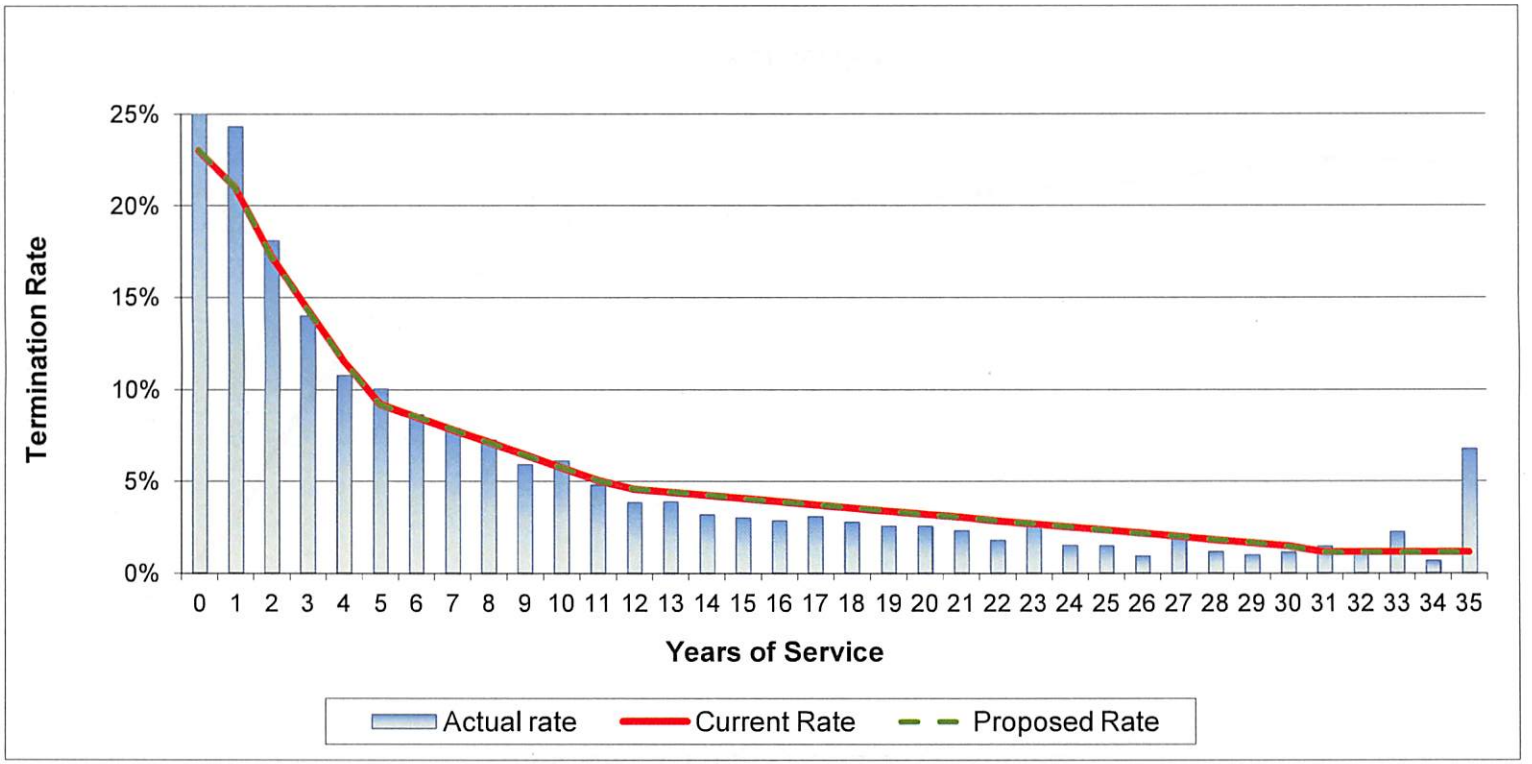
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-11

Termination of Employment

Other Membership - Females



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	12,134	11,086	11,086
Actual/Expected		109%	109%

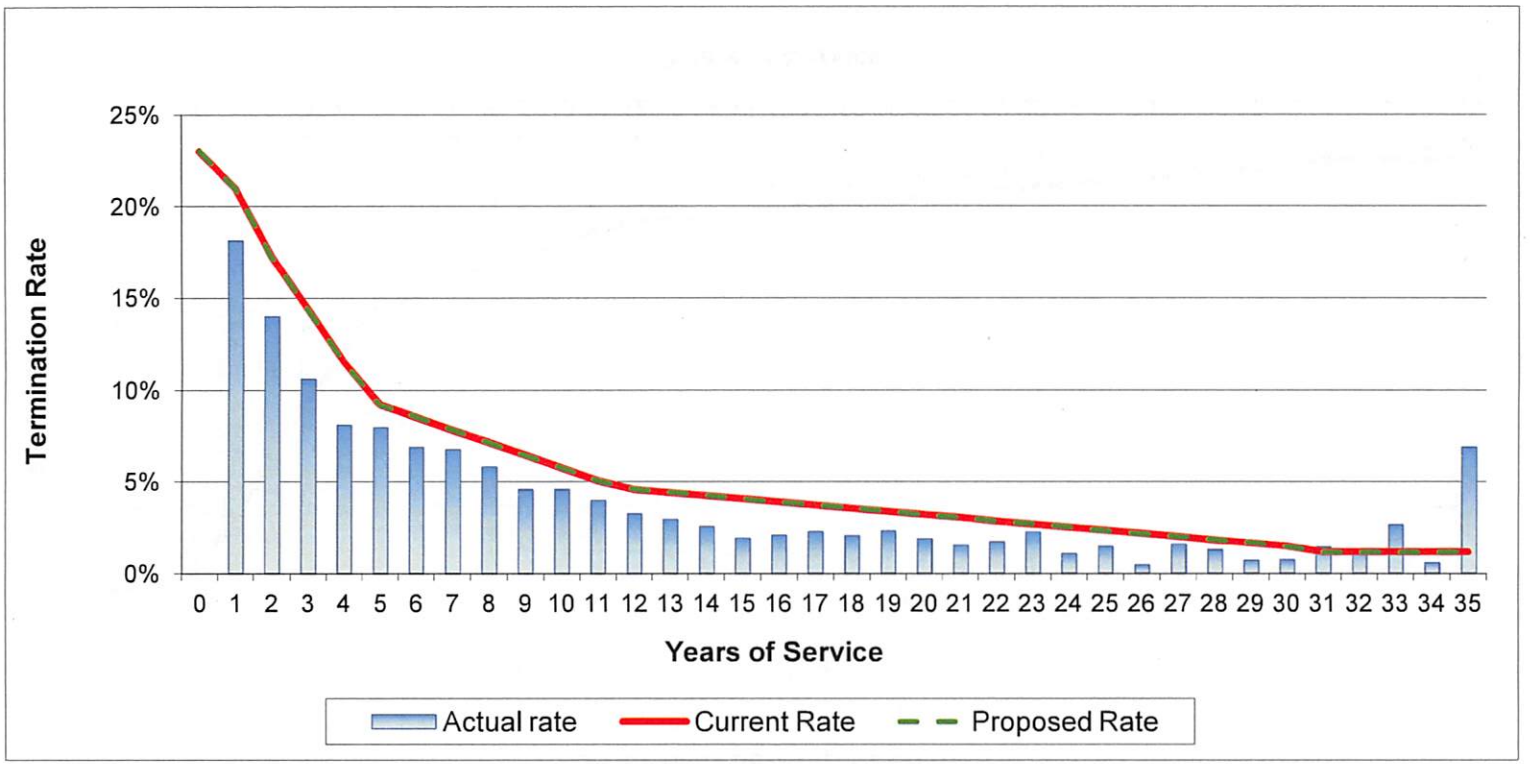
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit H-12

Termination of Employment

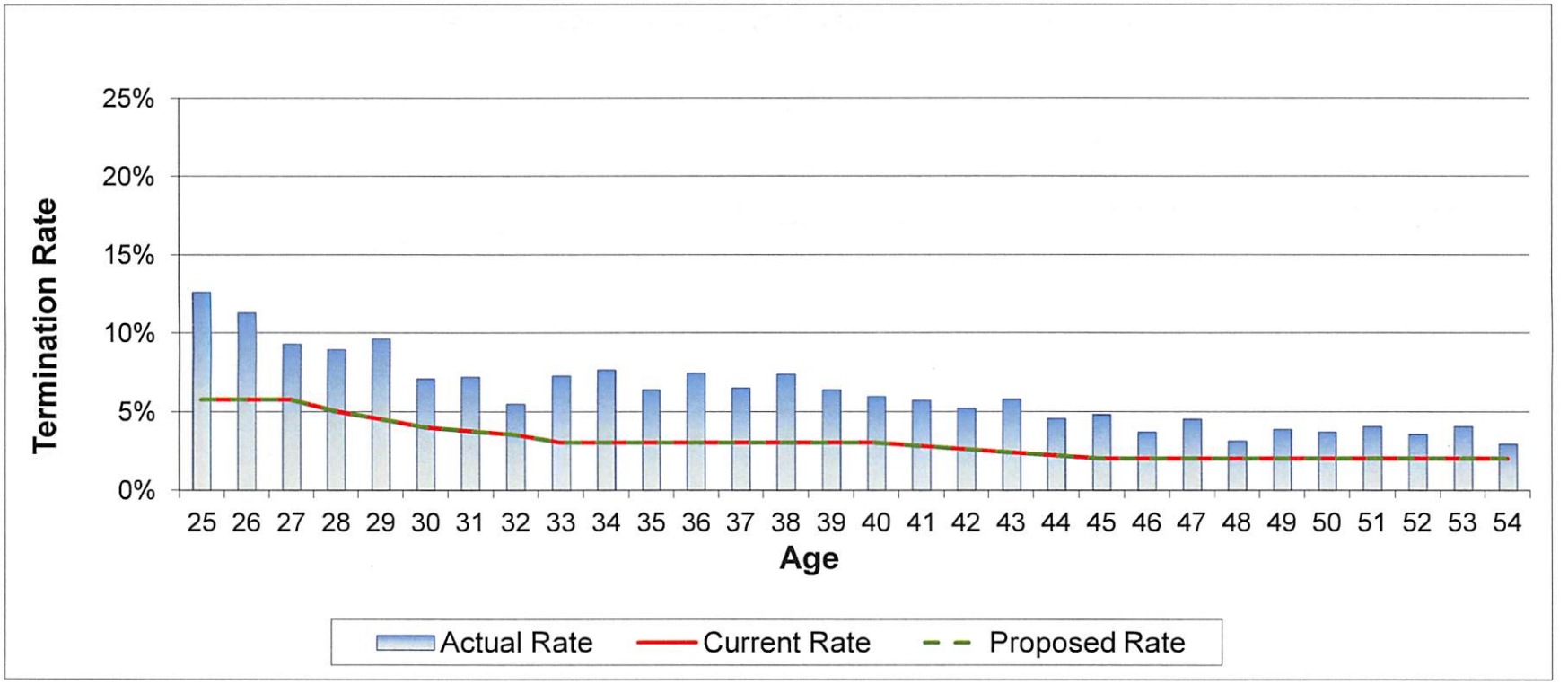
Other Membership - Females (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	106,541	145,959	145,959
Actual/Expected		73%	73%

Iowa Public Employees' Retirement System

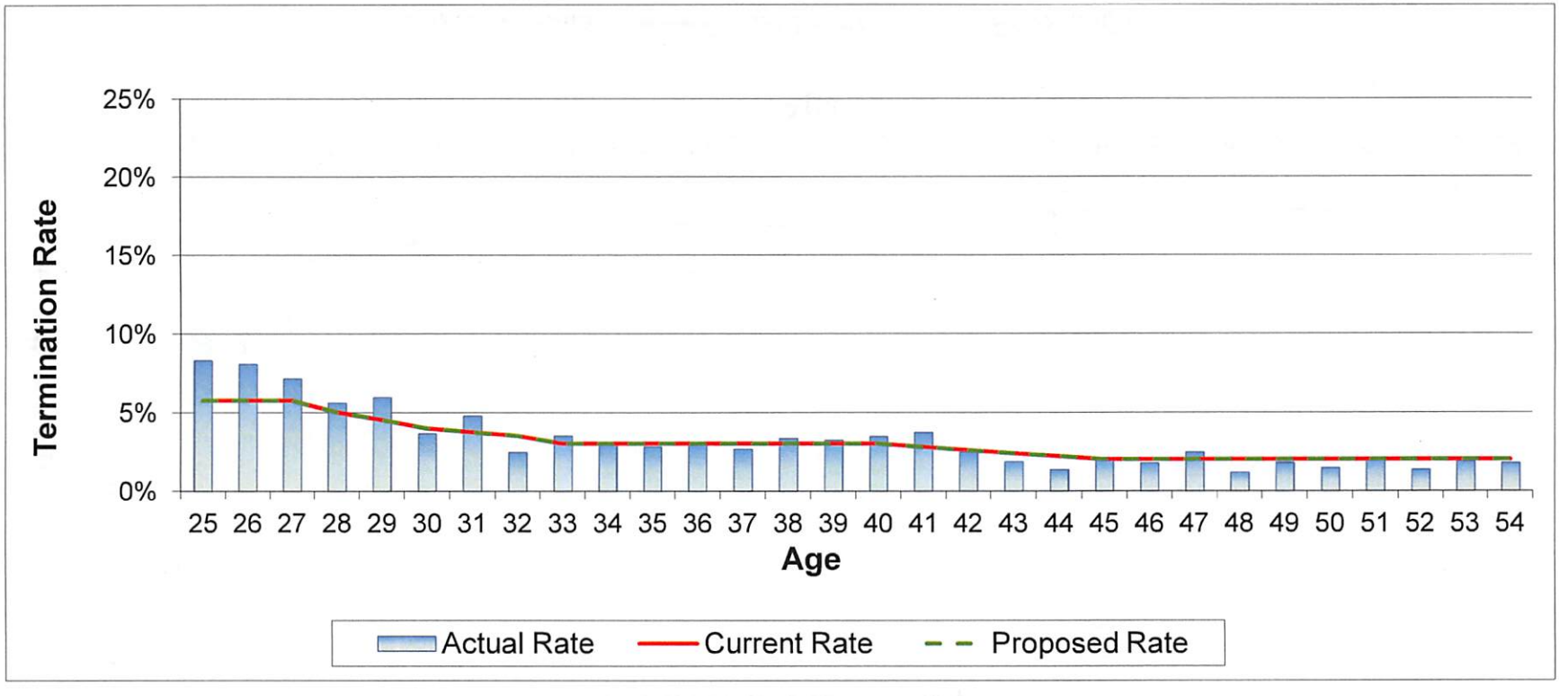
2009-2013 Experience Study
Exhibit H-13
Termination of Employment
Special Services Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	1,672	824	824
Actual/Expected		203%	203%

Iowa Public Employees' Retirement System

2009-2013 Experience Study
Exhibit H-14
Termination of Employment
Special Services Membership (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	34,020	34,860	34,860
Actual/Expected		98%	98%

Data Summary H-1
Termination of Employment
State Membership - Males

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	1,155	207	17.9%	190.6	16.5%	190.6	16.5%
1	1,531	167	10.9%	235.8	15.4%	235.8	15.4%
2	1,461	118	8.1%	144.6	9.9%	144.6	9.9%
3	1,345	103	7.7%	103.6	7.7%	103.6	7.7%
4	1,303	74	5.7%	86.0	6.6%	86.0	6.6%
5	1,045	41	3.9%	57.5	5.5%	57.5	5.5%
6	900	37	4.1%	41.6	4.6%	41.6	4.6%
7	718	26	3.6%	28.4	4.0%	28.4	4.0%
8	667	13	1.9%	22.7	3.4%	22.7	3.4%
9	769	20	2.6%	21.1	2.8%	21.1	2.8%
10	824	23	2.8%	18.1	2.2%	18.1	2.2%
11	927	15	1.6%	19.4	2.1%	19.4	2.1%
12	909	19	2.1%	18.0	2.0%	18.0	2.0%
13	821	15	1.8%	15.4	1.9%	15.4	1.9%
14	716	10	1.4%	12.6	1.8%	12.6	1.8%
15	629	15	2.4%	10.4	1.7%	10.4	1.7%
16	532	13	2.4%	8.2	1.5%	8.2	1.5%
17	455	2	0.4%	6.5	1.4%	6.5	1.4%
18	416	7	1.7%	5.5	1.3%	5.5	1.3%
19	393	3	0.8%	4.8	1.2%	4.8	1.2%
20	387	6	1.6%	4.3	1.1%	4.3	1.1%
21	433	4	0.9%	4.8	1.1%	4.8	1.1%
22	457	7	1.5%	5.0	1.1%	5.0	1.1%
23	410	6	1.5%	4.5	1.1%	4.5	1.1%
24	415	2	0.5%	4.6	1.1%	4.6	1.1%
25	393	3	0.8%	4.3	1.1%	4.3	1.1%
26	366	3	0.8%	4.0	1.1%	4.0	1.1%
27	349	3	0.9%	3.8	1.1%	3.8	1.1%
28	291	1	0.3%	3.2	1.1%	3.2	1.1%
29	239	2	0.8%	2.6	1.1%	2.6	1.1%
30	232	-	0.0%	2.6	1.1%	2.6	1.1%
31	179	5	2.8%	2.0	1.1%	2.0	1.1%
32	132	1	0.8%	1.5	1.1%	1.5	1.1%
33	77	1	1.3%	0.8	1.1%	0.8	1.1%
34	44	-	0.0%	0.5	1.1%	0.5	1.1%
35	19	-	0.0%	0.2	1.1%	0.2	1.1%
	21,939	972	4.4%	1,099.4	5.0%	1,099.4	5.0%

Data Summary H-2
Termination of Employment
State Membership - Males (Weighted)

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	-	-	0.0%	-	16.5%	-	16.5%
1	6,128	559	9.1%	943.8	15.4%	943.8	15.4%
2	12,909	902	7.0%	1,278.0	9.9%	1,278.0	9.9%
3	18,894	1,334	7.1%	1,454.8	7.7%	1,454.8	7.7%
4	25,741	1,404	5.5%	1,698.9	6.6%	1,698.9	6.6%
5	27,006	953	3.5%	1,485.4	5.5%	1,485.4	5.5%
6	28,893	1,176	4.1%	1,334.9	4.6%	1,334.9	4.6%
7	28,542	1,039	3.6%	1,130.2	4.0%	1,130.2	4.0%
8	31,510	853	2.7%	1,074.5	3.4%	1,074.5	3.4%
9	40,852	1,160	2.8%	1,123.4	2.8%	1,123.4	2.8%
10	48,732	1,244	2.6%	1,072.1	2.2%	1,072.1	2.2%
11	61,685	1,085	1.8%	1,289.2	2.1%	1,289.2	2.1%
12	68,152	1,388	2.0%	1,349.4	2.0%	1,349.4	2.0%
13	68,246	1,277	1.9%	1,276.2	1.9%	1,276.2	1.9%
14	64,831	887	1.4%	1,141.0	1.8%	1,141.0	1.8%
15	60,727	1,223	2.0%	1,002.0	1.7%	1,002.0	1.7%
16	55,256	1,452	2.6%	850.9	1.5%	850.9	1.5%
17	50,491	231	0.5%	722.0	1.4%	722.0	1.4%
18	49,151	821	1.7%	648.8	1.3%	648.8	1.3%
19	49,626	579	1.2%	600.5	1.2%	600.5	1.2%
20	52,133	826	1.6%	573.5	1.1%	573.5	1.1%
21	61,315	464	0.8%	674.5	1.1%	674.5	1.1%
22	68,450	1,027	1.5%	753.0	1.1%	753.0	1.1%
23	63,915	923	1.4%	703.1	1.1%	703.1	1.1%
24	68,539	254	0.4%	753.9	1.1%	753.9	1.1%
25	67,267	458	0.7%	739.9	1.1%	739.9	1.1%
26	65,168	618	0.9%	716.8	1.1%	716.8	1.1%
27	64,994	381	0.6%	714.9	1.1%	714.9	1.1%
28	55,380	89	0.2%	609.2	1.1%	609.2	1.1%
29	45,297	341	0.8%	498.3	1.1%	498.3	1.1%
30	45,220	-	0.0%	497.4	1.1%	497.4	1.1%
31	34,881	624	1.8%	383.7	1.1%	383.7	1.1%
32	25,755	128	0.5%	283.3	1.1%	283.3	1.1%
33	15,095	170	1.1%	166.0	1.1%	166.0	1.1%
34	8,673	-	0.0%	95.4	1.1%	95.4	1.1%
35	3,967	-	0.0%	43.6	1.1%	43.6	1.1%
	1,543,422	25,868	1.7%	29,682.6	1.9%	29,682.6	1.9%

Data Summary H-3
Termination of Employment
State Membership - Females

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	1,567	342	21.8%	258.6	16.5%	258.6	16.5%
1	2,209	327	14.8%	340.2	15.4%	340.2	15.4%
2	2,184	227	10.4%	240.2	11.0%	240.2	11.0%
3	2,169	193	8.9%	190.9	8.8%	190.9	8.8%
4	2,174	122	5.6%	155.4	7.2%	155.4	7.2%
5	1,796	107	6.0%	98.8	5.5%	98.8	5.5%
6	1,554	78	5.0%	71.8	4.6%	71.8	4.6%
7	1,266	52	4.1%	50.1	4.0%	50.1	4.0%
8	1,137	50	4.4%	38.8	3.4%	38.8	3.4%
9	1,179	48	4.1%	32.4	2.8%	32.4	2.8%
10	1,227	30	2.4%	27.0	2.2%	27.0	2.2%
11	1,356	41	3.0%	28.3	2.1%	28.3	2.1%
12	1,270	40	3.1%	25.1	2.0%	25.1	2.0%
13	1,102	27	2.5%	20.6	1.9%	20.6	1.9%
14	992	18	1.8%	17.5	1.8%	17.5	1.8%
15	864	24	2.8%	14.3	1.7%	14.3	1.7%
16	732	13	1.8%	11.3	1.5%	11.3	1.5%
17	616	8	1.3%	8.8	1.4%	8.8	1.4%
18	558	7	1.3%	7.4	1.3%	7.4	1.3%
19	557	14	2.5%	6.7	1.2%	6.7	1.2%
20	621	7	1.1%	6.8	1.1%	6.8	1.1%
21	699	4	0.6%	7.7	1.1%	7.7	1.1%
22	728	14	1.9%	8.0	1.1%	8.0	1.1%
23	660	10	1.5%	7.3	1.1%	7.3	1.1%
24	614	6	1.0%	6.8	1.1%	6.8	1.1%
25	591	10	1.7%	6.5	1.1%	6.5	1.1%
26	523	6	1.1%	5.8	1.1%	5.8	1.1%
27	521	4	0.8%	5.7	1.1%	5.7	1.1%
28	486	-	0.0%	5.3	1.1%	5.3	1.1%
29	438	4	0.9%	4.8	1.1%	4.8	1.1%
30	451	6	1.3%	5.0	1.1%	5.0	1.1%
31	399	-	0.0%	4.4	1.1%	4.4	1.1%
32	325	2	0.6%	3.6	1.1%	3.6	1.1%
33	226	3	1.3%	2.5	1.1%	2.5	1.1%
34	153	-	0.0%	1.7	1.1%	1.7	1.1%
35	77	1	1.3%	0.8	1.1%	0.8	1.1%
	34,021	1,845	5.4%	1,726.8	5.1%	1,726.8	5.1%

Data Summary H-4
Termination of Employment
State Membership - Females (Weighted)

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	-	-	0.0%	-	16.5%	-	16.5%
1	7,634	985	12.9%	1,175.7	15.4%	1,175.7	15.4%
2	16,639	1,560	9.4%	1,830.3	11.0%	1,830.3	11.0%
3	26,430	2,175	8.2%	2,325.8	8.8%	2,325.8	8.8%
4	37,301	1,889	5.1%	2,667.0	7.2%	2,667.0	7.2%
5	39,957	2,114	5.3%	2,197.6	5.5%	2,197.6	5.5%
6	43,647	1,991	4.6%	2,016.5	4.6%	2,016.5	4.6%
7	43,042	1,559	3.6%	1,704.5	4.0%	1,704.5	4.0%
8	45,803	1,868	4.1%	1,561.9	3.4%	1,561.9	3.4%
9	54,269	2,197	4.0%	1,492.4	2.8%	1,492.4	2.8%
10	63,295	1,450	2.3%	1,392.5	2.2%	1,392.5	2.2%
11	78,969	2,248	2.8%	1,650.5	2.1%	1,650.5	2.1%
12	81,655	2,283	2.8%	1,616.8	2.0%	1,616.8	2.0%
13	79,449	1,698	2.1%	1,485.7	1.9%	1,485.7	1.9%
14	77,736	1,200	1.5%	1,368.2	1.8%	1,368.2	1.8%
15	71,844	1,845	2.6%	1,185.4	1.7%	1,185.4	1.7%
16	65,608	1,020	1.6%	1,010.4	1.5%	1,010.4	1.5%
17	60,527	687	1.1%	865.5	1.4%	865.5	1.4%
18	57,871	720	1.2%	763.9	1.3%	763.9	1.3%
19	61,214	1,747	2.9%	740.7	1.2%	740.7	1.2%
20	72,363	740	1.0%	796.0	1.1%	796.0	1.1%
21	86,032	432	0.5%	946.4	1.1%	946.4	1.1%
22	95,681	1,591	1.7%	1,052.5	1.1%	1,052.5	1.1%
23	90,917	1,088	1.2%	1,000.1	1.1%	1,000.1	1.1%
24	89,568	746	0.8%	985.2	1.1%	985.2	1.1%
25	90,369	1,400	1.5%	994.1	1.1%	994.1	1.1%
26	82,376	652	0.8%	906.1	1.1%	906.1	1.1%
27	86,510	556	0.6%	951.6	1.1%	951.6	1.1%
28	83,183	-	0.0%	915.0	1.1%	915.0	1.1%
29	75,665	560	0.7%	832.3	1.1%	832.3	1.1%
30	79,908	1,019	1.3%	879.0	1.1%	879.0	1.1%
31	71,988	-	0.0%	791.9	1.1%	791.9	1.1%
32	59,270	305	0.5%	652.0	1.1%	652.0	1.1%
33	42,408	692	1.6%	466.5	1.1%	466.5	1.1%
34	29,572	-	0.0%	325.3	1.1%	325.3	1.1%
35	15,262	183	1.2%	167.9	1.1%	167.9	1.1%
	2,163,960	41,198	1.9%	41,712.9	1.9%	41,712.9	1.9%

Data Summary H-5
Termination of Employment
School Membership - Males

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	3,036	873	28.8%	488.8	16.1%	488.8	16.1%
1	4,562	822	18.0%	682.0	15.0%	682.0	15.0%
2	3,870	527	13.6%	445.1	11.5%	445.1	11.5%
3	3,501	369	10.5%	322.1	9.2%	322.1	9.2%
4	3,290	287	8.7%	264.8	8.1%	264.8	8.1%
5	2,975	202	6.8%	205.3	6.9%	205.3	6.9%
6	2,575	153	5.9%	148.1	5.8%	148.1	5.8%
7	2,350	111	4.7%	113.5	4.8%	113.5	4.8%
8	2,157	80	3.7%	89.3	4.1%	89.3	4.1%
9	2,086	75	3.6%	74.4	3.6%	74.4	3.6%
10	2,057	60	2.9%	59.1	2.9%	59.1	2.9%
11	2,056	49	2.4%	47.3	2.3%	47.3	2.3%
12	1,994	51	2.6%	43.6	2.2%	43.6	2.2%
13	1,870	45	2.4%	38.7	2.1%	38.7	2.1%
14	1,673	34	2.0%	32.7	2.0%	32.7	2.0%
15	1,535	30	2.0%	28.2	1.8%	28.2	1.8%
16	1,446	26	1.8%	24.9	1.7%	24.9	1.7%
17	1,322	19	1.4%	21.3	1.6%	21.3	1.6%
18	1,239	14	1.1%	18.5	1.5%	18.5	1.5%
19	1,168	19	1.6%	16.1	1.4%	16.1	1.4%
20	1,023	12	1.2%	12.9	1.3%	12.9	1.3%
21	932	17	1.8%	10.7	1.2%	10.7	1.2%
22	860	7	0.8%	9.9	1.2%	9.9	1.2%
23	795	5	0.6%	9.1	1.2%	9.1	1.2%
24	780	11	1.4%	9.0	1.2%	9.0	1.2%
25	731	8	1.1%	8.4	1.2%	8.4	1.2%
26	676	5	0.7%	7.8	1.2%	7.8	1.2%
27	605	6	1.0%	7.0	1.2%	7.0	1.2%
28	562	1	0.2%	6.5	1.2%	6.5	1.2%
29	527	3	0.6%	6.1	1.2%	6.1	1.2%
30	488	1	0.2%	5.6	1.2%	5.6	1.2%
31	425	-	0.0%	4.9	1.2%	4.9	1.2%
32	271	1	0.4%	3.1	1.2%	3.1	1.2%
33	90	3	3.3%	1.0	1.2%	1.0	1.2%
34	53	2	3.8%	0.6	1.2%	0.6	1.2%
35	32	-	0.0%	0.4	1.2%	0.4	1.2%
	55,612	3,928	7.1%	3,266.8	5.9%	3,266.8	5.9%

Data Summary H-6
Termination of Employment
School Membership - Males (Weighted)

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	-	-	0.0%	-	16.1%	-	16.1%
1	10,331	1,206	11.7%	1,544.5	15.0%	1,544.5	15.0%
2	22,208	2,021	9.1%	2,553.9	11.5%	2,553.9	11.5%
3	33,741	2,441	7.2%	3,104.2	9.2%	3,104.2	9.2%
4	46,858	2,589	5.5%	3,772.1	8.1%	3,772.1	8.1%
5	57,622	2,710	4.7%	3,975.9	6.9%	3,975.9	6.9%
6	62,653	2,551	4.1%	3,602.5	5.8%	3,602.5	5.8%
7	70,051	2,073	3.0%	3,383.5	4.8%	3,383.5	4.8%
8	76,712	2,028	2.6%	3,175.9	4.1%	3,175.9	4.1%
9	87,235	2,476	2.8%	3,109.9	3.6%	3,109.9	3.6%
10	99,605	1,906	1.9%	2,863.6	2.9%	2,863.6	2.9%
11	114,572	1,817	1.6%	2,635.1	2.3%	2,635.1	2.3%
12	124,065	2,199	1.8%	2,710.8	2.2%	2,710.8	2.2%
13	131,673	2,157	1.6%	2,725.6	2.1%	2,725.6	2.1%
14	131,537	1,874	1.4%	2,571.5	2.0%	2,571.5	2.0%
15	131,650	1,822	1.4%	2,422.4	1.8%	2,422.4	1.8%
16	134,052	1,928	1.4%	2,312.4	1.7%	2,312.4	1.7%
17	132,817	1,325	1.0%	2,138.3	1.6%	2,138.3	1.6%
18	135,505	1,420	1.0%	2,025.8	1.5%	2,025.8	1.5%
19	136,542	1,765	1.3%	1,884.3	1.4%	1,884.3	1.4%
20	128,215	1,260	1.0%	1,621.9	1.3%	1,621.9	1.3%
21	123,435	1,802	1.5%	1,419.5	1.2%	1,419.5	1.2%
22	118,926	819	0.7%	1,367.6	1.2%	1,367.6	1.2%
23	114,062	972	0.9%	1,311.7	1.2%	1,311.7	1.2%
24	116,895	860	0.7%	1,344.3	1.2%	1,344.3	1.2%
25	114,116	1,212	1.1%	1,312.3	1.2%	1,312.3	1.2%
26	112,658	691	0.6%	1,295.6	1.2%	1,295.6	1.2%
27	105,484	682	0.6%	1,213.1	1.2%	1,213.1	1.2%
28	101,561	170	0.2%	1,168.0	1.2%	1,168.0	1.2%
29	99,135	364	0.4%	1,140.0	1.2%	1,140.0	1.2%
30	94,340	21	0.0%	1,084.9	1.2%	1,084.9	1.2%
31	83,253	-	0.0%	957.4	1.2%	957.4	1.2%
32	52,925	146	0.3%	608.6	1.2%	608.6	1.2%
33	13,329	503	3.8%	153.3	1.2%	153.3	1.2%
34	8,299	140	1.7%	95.4	1.2%	95.4	1.2%
35	5,120	-	0.0%	58.9	1.2%	58.9	1.2%
	3,131,180	47,952	1.5%	68,665.0	2.2%	68,665.0	2.2%

Data Summary H-7
Termination of Employment
School Membership - Females

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	8,917	2,413	27.1%	1,435.6	16.1%	1,435.6	16.1%
1	15,506	2,711	17.5%	2,318.1	15.0%	2,318.1	15.0%
2	13,566	1,858	13.7%	1,560.1	11.5%	1,560.1	11.5%
3	12,781	1,427	11.2%	1,175.9	9.2%	1,175.9	9.2%
4	11,962	1,054	8.8%	962.9	8.1%	962.9	8.1%
5	10,793	819	7.6%	744.7	6.9%	744.7	6.9%
6	9,713	602	6.2%	558.5	5.8%	558.5	5.8%
7	8,634	458	5.3%	417.0	4.8%	417.0	4.8%
8	8,140	359	4.4%	337.0	4.1%	337.0	4.1%
9	7,973	333	4.2%	284.2	3.6%	284.2	3.6%
10	7,691	286	3.7%	221.1	2.9%	221.1	2.9%
11	7,400	229	3.1%	170.2	2.3%	170.2	2.3%
12	6,887	226	3.3%	150.5	2.2%	150.5	2.2%
13	6,160	157	2.5%	127.5	2.1%	127.5	2.1%
14	5,520	145	2.6%	107.9	2.0%	107.9	2.0%
15	5,009	84	1.7%	92.2	1.8%	92.2	1.8%
16	4,566	92	2.0%	78.8	1.7%	78.8	1.7%
17	4,025	90	2.2%	64.8	1.6%	64.8	1.6%
18	3,561	56	1.6%	53.2	1.5%	53.2	1.5%
19	3,166	35	1.1%	43.7	1.4%	43.7	1.4%
20	2,826	36	1.3%	35.7	1.3%	35.7	1.3%
21	2,596	36	1.4%	29.9	1.2%	29.9	1.2%
22	2,233	35	1.6%	25.7	1.2%	25.7	1.2%
23	1,991	20	1.0%	22.9	1.2%	22.9	1.2%
24	1,816	18	1.0%	20.9	1.2%	20.9	1.2%
25	1,697	13	0.8%	19.5	1.2%	19.5	1.2%
26	1,576	15	1.0%	18.1	1.2%	18.1	1.2%
27	1,378	12	0.9%	15.8	1.2%	15.8	1.2%
28	1,181	7	0.6%	13.6	1.2%	13.6	1.2%
29	1,112	7	0.6%	12.8	1.2%	12.8	1.2%
30	1,054	5	0.5%	12.1	1.2%	12.1	1.2%
31	949	9	0.9%	10.9	1.2%	10.9	1.2%
32	598	4	0.7%	6.9	1.2%	6.9	1.2%
33	108	4	3.7%	1.2	1.2%	1.2	1.2%
34	67	2	3.0%	0.8	1.2%	0.8	1.2%
35	27	-	0.0%	0.3	1.2%	0.3	1.2%
	183,179	13,657	7.5%	11,151.2	6.1%	11,151.2	6.1%

Data Summary H-8
Termination of Employment
School Membership - Females (Weighted)

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	-	-	0.0%	-	16.1%	-	16.1%
1	27,643	3,167	11.5%	4,132.7	15.0%	4,132.7	15.0%
2	60,881	5,694	9.4%	7,001.3	11.5%	7,001.3	11.5%
3	95,920	7,490	7.8%	8,824.6	9.2%	8,824.6	9.2%
4	130,773	8,413	6.4%	10,527.2	8.1%	10,527.2	8.1%
5	158,569	8,428	5.3%	10,941.2	6.9%	10,941.2	6.9%
6	181,491	7,515	4.1%	10,435.8	5.8%	10,435.8	5.8%
7	197,016	6,888	3.5%	9,515.9	4.8%	9,515.9	4.8%
8	219,238	6,942	3.2%	9,076.5	4.1%	9,076.5	4.1%
9	247,719	7,061	2.9%	8,831.2	3.6%	8,831.2	3.6%
10	272,948	7,423	2.7%	7,847.3	2.9%	7,847.3	2.9%
11	301,150	6,242	2.1%	6,926.4	2.3%	6,926.4	2.3%
12	315,539	6,201	2.0%	6,894.5	2.2%	6,894.5	2.2%
13	318,255	5,318	1.7%	6,587.9	2.1%	6,587.9	2.1%
14	318,021	5,132	1.6%	6,217.3	2.0%	6,217.3	2.0%
15	322,085	2,762	0.9%	5,926.4	1.8%	5,926.4	1.8%
16	325,665	4,691	1.4%	5,617.7	1.7%	5,617.7	1.7%
17	310,512	4,053	1.3%	4,999.3	1.6%	4,999.3	1.6%
18	306,856	3,506	1.1%	4,587.5	1.5%	4,587.5	1.5%
19	295,123	2,486	0.8%	4,072.7	1.4%	4,072.7	1.4%
20	285,148	2,965	1.0%	3,607.1	1.3%	3,607.1	1.3%
21	287,205	2,537	0.9%	3,302.9	1.2%	3,302.9	1.2%
22	265,774	2,850	1.1%	3,056.4	1.2%	3,056.4	1.2%
23	252,912	1,633	0.6%	2,908.5	1.2%	2,908.5	1.2%
24	245,655	2,057	0.8%	2,825.0	1.2%	2,825.0	1.2%
25	243,668	1,203	0.5%	2,802.2	1.2%	2,802.2	1.2%
26	238,437	1,597	0.7%	2,742.0	1.2%	2,742.0	1.2%
27	219,517	1,539	0.7%	2,524.4	1.2%	2,524.4	1.2%
28	196,520	853	0.4%	2,260.0	1.2%	2,260.0	1.2%
29	189,264	935	0.5%	2,176.5	1.2%	2,176.5	1.2%
30	186,155	950	0.5%	2,140.8	1.2%	2,140.8	1.2%
31	171,746	1,244	0.7%	1,975.1	1.2%	1,975.1	1.2%
32	107,805	766	0.7%	1,239.8	1.2%	1,239.8	1.2%
33	14,984	292	1.9%	172.3	1.2%	172.3	1.2%
34	8,611	270	3.1%	99.0	1.2%	99.0	1.2%
35	3,175	-	0.0%	36.5	1.2%	36.5	1.2%
	7,321,979	131,104	1.8%	172,831.8	2.4%	172,831.8	2.4%

Data Summary H-9
Termination of Employment
Other Membership - Males

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	6,168	1,900	30.8%	1,480.3	24.0%	1,480.3	24.0%
1	6,503	1,455	22.4%	1,365.6	21.0%	1,365.6	21.0%
2	4,973	802	16.1%	805.6	16.2%	805.6	16.2%
3	4,032	493	12.2%	508.0	12.6%	508.0	12.6%
4	3,438	300	8.7%	350.7	10.2%	350.7	10.2%
5	2,783	195	7.0%	233.8	8.4%	233.8	8.4%
6	2,419	146	6.0%	174.2	7.2%	174.2	7.2%
7	2,180	122	5.6%	130.8	6.0%	130.8	6.0%
8	2,099	83	4.0%	113.3	5.4%	113.3	5.4%
9	2,139	65	3.0%	102.7	4.8%	102.7	4.8%
10	2,172	81	3.7%	93.8	4.3%	93.8	4.3%
11	2,057	68	3.3%	79.0	3.8%	79.0	3.8%
12	1,844	49	2.7%	62.0	3.4%	62.0	3.4%
13	1,574	37	2.4%	45.3	2.9%	45.3	2.9%
14	1,417	35	2.5%	39.1	2.8%	39.1	2.8%
15	1,270	37	2.9%	33.5	2.6%	33.5	2.6%
16	1,124	21	1.9%	28.3	2.5%	28.3	2.5%
17	1,045	19	1.8%	25.1	2.4%	25.1	2.4%
18	955	16	1.7%	22.9	2.4%	22.9	2.4%
19	961	22	2.3%	23.1	2.4%	23.1	2.4%
20	935	14	1.5%	22.4	2.4%	22.4	2.4%
21	903	19	2.1%	21.7	2.4%	21.7	2.4%
22	780	10	1.3%	18.7	2.4%	18.7	2.4%
23	633	6	0.9%	15.2	2.4%	15.2	2.4%
24	520	6	1.2%	11.5	2.2%	11.5	2.2%
25	471	6	1.3%	9.6	2.0%	9.6	2.0%
26	458	5	1.1%	8.5	1.9%	8.5	1.9%
27	445	7	1.6%	7.5	1.7%	7.5	1.7%
28	402	4	1.0%	6.0	1.5%	6.0	1.5%
29	407	6	1.5%	5.4	1.3%	5.4	1.3%
30	439	5	1.1%	5.3	1.2%	5.3	1.2%
31	421	6	1.4%	5.1	1.2%	5.1	1.2%
32	352	4	1.1%	4.2	1.2%	4.2	1.2%
33	248	2	0.8%	3.0	1.2%	3.0	1.2%
34	155	2	1.3%	1.9	1.2%	1.9	1.2%
35	80	3	3.8%	1.0	1.2%	1.0	1.2%
	58,802	6,051	10.3%	5,864.1	10.0%	5,864.1	10.0%

Data Summary H-10
Termination of Employment
Other Membership - Males (Weighted)

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	-	-	0.0%	-	24.0%	-	24.0%
1	19,669	2,910	14.8%	4,130.4	21.0%	4,130.4	21.0%
2	35,175	3,754	10.7%	5,698.4	16.2%	5,698.4	16.2%
3	47,104	4,357	9.2%	5,935.1	12.6%	5,935.1	12.6%
4	55,211	3,605	6.5%	5,631.6	10.2%	5,631.6	10.2%
5	57,831	3,403	5.9%	4,857.8	8.4%	4,857.8	8.4%
6	63,219	2,978	4.7%	4,551.8	7.2%	4,551.8	7.2%
7	68,757	2,762	4.0%	4,125.4	6.0%	4,125.4	6.0%
8	77,857	2,320	3.0%	4,204.3	5.4%	4,204.3	5.4%
9	91,594	2,142	2.3%	4,396.5	4.8%	4,396.5	4.8%
10	104,635	3,424	3.3%	4,520.2	4.3%	4,520.2	4.3%
11	109,805	2,417	2.2%	4,216.5	3.8%	4,216.5	3.8%
12	109,379	2,848	2.6%	3,675.1	3.4%	3,675.1	3.4%
13	102,090	2,085	2.0%	2,940.2	2.9%	2,940.2	2.9%
14	101,481	1,957	1.9%	2,800.9	2.8%	2,800.9	2.8%
15	99,774	2,811	2.8%	2,634.0	2.6%	2,634.0	2.6%
16	95,452	1,338	1.4%	2,405.4	2.5%	2,405.4	2.5%
17	94,220	1,411	1.5%	2,261.3	2.4%	2,261.3	2.4%
18	89,548	1,127	1.3%	2,149.2	2.4%	2,149.2	2.4%
19	96,359	1,692	1.8%	2,312.6	2.4%	2,312.6	2.4%
20	99,867	1,424	1.4%	2,396.8	2.4%	2,396.8	2.4%
21	102,298	1,463	1.4%	2,455.2	2.4%	2,455.2	2.4%
22	94,747	1,059	1.1%	2,273.9	2.4%	2,273.9	2.4%
23	80,166	392	0.5%	1,924.0	2.4%	1,924.0	2.4%
24	68,758	766	1.1%	1,526.4	2.2%	1,526.4	2.2%
25	65,392	559	0.9%	1,334.0	2.0%	1,334.0	2.0%
26	65,589	620	0.9%	1,219.9	1.9%	1,219.9	1.9%
27	64,607	829	1.3%	1,085.4	1.7%	1,085.4	1.7%
28	63,010	482	0.8%	945.2	1.5%	945.2	1.5%
29	64,965	1,009	1.6%	857.5	1.3%	857.5	1.3%
30	70,142	807	1.2%	841.7	1.2%	841.7	1.2%
31	70,074	1,106	1.6%	840.9	1.2%	840.9	1.2%
32	59,574	611	1.0%	714.9	1.2%	714.9	1.2%
33	43,245	372	0.9%	518.9	1.2%	518.9	1.2%
34	27,884	352	1.3%	334.6	1.2%	334.6	1.2%
35	15,037	489	3.3%	180.4	1.2%	180.4	1.2%
	2,574,513	61,682	2.4%	92,896.4	3.6%	92,896.4	3.6%

Data Summary H-11
Termination of Employment
Other Membership - Females

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	10,451	3,176	30.4%	2,403.7	23.0%	2,403.7	23.0%
1	11,677	2,840	24.3%	2,450.7	21.0%	2,450.7	21.0%
2	8,942	1,621	18.1%	1,542.5	17.3%	1,542.5	17.3%
3	7,590	1,062	14.0%	1,091.1	14.4%	1,091.1	14.4%
4	6,486	700	10.8%	745.9	11.5%	745.9	11.5%
5	5,419	544	10.0%	498.5	9.2%	498.5	9.2%
6	4,525	391	8.6%	385.1	8.5%	385.1	8.5%
7	3,960	313	7.9%	309.7	7.8%	309.7	7.8%
8	3,586	260	7.3%	255.7	7.1%	255.7	7.1%
9	3,393	201	5.9%	218.5	6.4%	218.5	6.4%
10	3,425	210	6.1%	196.9	5.8%	196.9	5.8%
11	3,135	151	4.8%	158.6	5.1%	158.6	5.1%
12	2,797	108	3.9%	128.7	4.6%	128.7	4.6%
13	2,553	100	3.9%	113.0	4.4%	113.0	4.4%
14	2,148	69	3.2%	91.4	4.3%	91.4	4.3%
15	1,851	56	3.0%	75.6	4.1%	75.6	4.1%
16	1,675	48	2.9%	65.5	3.9%	65.5	3.9%
17	1,454	45	3.1%	54.3	3.7%	54.3	3.7%
18	1,276	36	2.8%	45.5	3.6%	45.5	3.6%
19	1,198	31	2.6%	40.6	3.4%	40.6	3.4%
20	1,125	29	2.6%	36.2	3.2%	36.2	3.2%
21	1,068	25	2.3%	32.5	3.0%	32.5	3.0%
22	998	18	1.8%	28.7	2.9%	28.7	2.9%
23	841	24	2.9%	22.7	2.7%	22.7	2.7%
24	712	11	1.5%	18.0	2.5%	18.0	2.5%
25	596	9	1.5%	14.1	2.4%	14.1	2.4%
26	526	5	1.0%	11.5	2.2%	11.5	2.2%
27	498	10	2.0%	10.0	2.0%	10.0	2.0%
28	501	6	1.2%	9.2	1.8%	9.2	1.8%
29	489	5	1.0%	8.2	1.7%	8.2	1.7%
30	516	6	1.2%	7.7	1.5%	7.7	1.5%
31	469	7	1.5%	5.4	1.2%	5.4	1.2%
32	376	5	1.3%	4.3	1.2%	4.3	1.2%
33	263	6	2.3%	3.0	1.2%	3.0	1.2%
34	150	1	0.7%	1.7	1.2%	1.7	1.2%
35	74	5	6.8%	0.9	1.2%	0.9	1.2%
	96,743	12,134	12.5%	11,085.7	11.5%	11,085.7	11.5%

Data Summary H-12
Termination of Employment
Other Membership - Females (Weighted)

Duration	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
0	-	-	0.0%	-	23.0%	-	23.0%
1	26,875	4,875	18.1%	5,640.3	21.0%	5,640.3	21.0%
2	47,570	6,659	14.0%	8,205.8	17.3%	8,205.8	17.3%
3	66,115	7,010	10.6%	9,504.0	14.4%	9,504.0	14.4%
4	80,749	6,532	8.1%	9,286.2	11.5%	9,286.2	11.5%
5	89,040	7,086	8.0%	8,191.7	9.2%	8,191.7	9.2%
6	92,576	6,375	6.9%	7,878.2	8.5%	7,878.2	8.5%
7	96,676	6,529	6.8%	7,560.1	7.8%	7,560.1	7.8%
8	101,547	5,908	5.8%	7,240.3	7.1%	7,240.3	7.1%
9	111,902	5,130	4.6%	7,206.5	6.4%	7,206.5	6.4%
10	126,045	5,780	4.6%	7,247.6	5.8%	7,247.6	5.8%
11	130,786	5,229	4.0%	6,617.8	5.1%	6,617.8	5.1%
12	131,112	4,283	3.3%	6,031.2	4.6%	6,031.2	4.6%
13	131,337	3,905	3.0%	5,815.0	4.4%	5,815.0	4.4%
14	121,678	3,131	2.6%	5,177.4	4.3%	5,177.4	4.3%
15	115,562	2,251	1.9%	4,717.8	4.1%	4,717.8	4.1%
16	111,749	2,347	2.1%	4,369.4	3.9%	4,369.4	3.9%
17	105,406	2,434	2.3%	3,939.6	3.7%	3,939.6	3.7%
18	98,837	2,063	2.1%	3,523.5	3.6%	3,523.5	3.6%
19	98,860	2,314	2.3%	3,353.8	3.4%	3,353.8	3.4%
20	99,720	1,896	1.9%	3,211.0	3.2%	3,211.0	3.2%
21	100,870	1,574	1.6%	3,074.0	3.0%	3,074.0	3.0%
22	102,172	1,773	1.7%	2,937.4	2.9%	2,937.4	2.9%
23	92,415	2,090	2.3%	2,497.5	2.7%	2,497.5	2.7%
24	83,102	904	1.1%	2,102.5	2.5%	2,102.5	2.5%
25	73,965	1,083	1.5%	1,743.7	2.4%	1,743.7	2.4%
26	66,574	314	0.5%	1,454.6	2.2%	1,454.6	2.2%
27	67,550	1,088	1.6%	1,359.4	2.0%	1,359.4	2.0%
28	70,300	911	1.3%	1,293.5	1.8%	1,293.5	1.8%
29	71,419	517	0.7%	1,190.9	1.7%	1,190.9	1.7%
30	77,418	574	0.7%	1,157.4	1.5%	1,157.4	1.5%
31	71,840	1,037	1.4%	826.2	1.2%	826.2	1.2%
32	60,186	770	1.3%	692.1	1.2%	692.1	1.2%
33	42,583	1,142	2.7%	489.7	1.2%	489.7	1.2%
34	23,977	140	0.6%	275.7	1.2%	275.7	1.2%
35	12,816	884	6.9%	147.4	1.2%	147.4	1.2%
	3,001,327	106,541	3.5%	145,959.2	4.9%	145,959.2	4.9%

Data Summary H-13
Termination of Employment
Special Services Membership

Age	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	675	85	12.6%	38.8	5.8%	38.8	5.8%
26	734	83	11.3%	42.2	5.8%	42.2	5.8%
27	815	76	9.3%	46.9	5.8%	46.9	5.8%
28	870	78	9.0%	43.5	5.0%	43.5	5.0%
29	883	85	9.6%	39.7	4.5%	39.7	4.5%
30	930	66	7.1%	37.2	4.0%	37.2	4.0%
31	902	65	7.2%	33.8	3.8%	33.8	3.8%
32	950	52	5.5%	33.3	3.5%	33.3	3.5%
33	972	71	7.3%	29.2	3.0%	29.2	3.0%
34	926	71	7.7%	27.8	3.0%	27.8	3.0%
35	922	59	6.4%	27.7	3.0%	27.7	3.0%
36	896	67	7.5%	26.9	3.0%	26.9	3.0%
37	904	59	6.5%	27.1	3.0%	27.1	3.0%
38	973	72	7.4%	29.2	3.0%	29.2	3.0%
39	1,031	66	6.4%	30.9	3.0%	30.9	3.0%
40	1,059	63	5.9%	31.8	3.0%	31.8	3.0%
41	1,031	59	5.7%	28.9	2.8%	28.9	2.8%
42	1,042	54	5.2%	27.1	2.6%	27.1	2.6%
43	984	57	5.8%	23.6	2.4%	23.6	2.4%
44	965	44	4.6%	21.2	2.2%	21.2	2.2%
45	960	46	4.8%	19.2	2.0%	19.2	2.0%
46	923	34	3.7%	18.5	2.0%	18.5	2.0%
47	953	43	4.5%	19.1	2.0%	19.1	2.0%
48	956	30	3.1%	19.1	2.0%	19.1	2.0%
49	981	38	3.9%	19.6	2.0%	19.6	2.0%
50	894	33	3.7%	17.9	2.0%	17.9	2.0%
51	867	35	4.0%	17.3	2.0%	17.3	2.0%
52	791	28	3.5%	15.8	2.0%	15.8	2.0%
53	770	31	4.0%	15.4	2.0%	15.4	2.0%
54	754	22	2.9%	15.1	2.0%	15.1	2.0%
	27,313	1,672	6.1%	823.7	3.0%	823.7	3.0%

Data Summary H-14
Termination of Employment
Special Services Membership (Weighted)

Age	Exposure	Actual Terminations	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
25	5,465	456	8.4%	314.3	5.8%	314.3	5.8%
26	7,622	618	8.1%	438.3	5.8%	438.3	5.8%
27	10,071	720	7.2%	579.1	5.8%	579.1	5.8%
28	12,838	722	5.6%	641.9	5.0%	641.9	5.0%
29	15,145	904	6.0%	681.5	4.5%	681.5	4.5%
30	18,453	678	3.7%	738.1	4.0%	738.1	4.0%
31	21,522	1,025	4.8%	807.1	3.8%	807.1	3.8%
32	24,984	618	2.5%	874.4	3.5%	874.4	3.5%
33	29,432	1,037	3.5%	883.0	3.0%	883.0	3.0%
34	30,492	914	3.0%	914.8	3.0%	914.8	3.0%
35	32,896	933	2.8%	986.9	3.0%	986.9	3.0%
36	34,739	1,027	3.0%	1,042.2	3.0%	1,042.2	3.0%
37	37,386	996	2.7%	1,121.6	3.0%	1,121.6	3.0%
38	43,801	1,468	3.4%	1,314.0	3.0%	1,314.0	3.0%
39	49,669	1,611	3.2%	1,490.1	3.0%	1,490.1	3.0%
40	53,221	1,855	3.5%	1,596.6	3.0%	1,596.6	3.0%
41	55,923	2,087	3.7%	1,565.8	2.8%	1,565.8	2.8%
42	59,623	1,482	2.5%	1,550.2	2.6%	1,550.2	2.6%
43	58,827	1,109	1.9%	1,411.8	2.4%	1,411.8	2.4%
44	63,224	848	1.3%	1,390.9	2.2%	1,390.9	2.2%
45	66,326	1,359	2.0%	1,326.5	2.0%	1,326.5	2.0%
46	67,265	1,189	1.8%	1,345.3	2.0%	1,345.3	2.0%
47	74,120	1,838	2.5%	1,482.4	2.0%	1,482.4	2.0%
48	76,288	899	1.2%	1,525.8	2.0%	1,525.8	2.0%
49	82,910	1,483	1.8%	1,658.2	2.0%	1,658.2	2.0%
50	73,142	1,056	1.4%	1,462.8	2.0%	1,462.8	2.0%
51	73,193	1,534	2.1%	1,463.9	2.0%	1,463.9	2.0%
52	70,121	938	1.3%	1,402.4	2.0%	1,402.4	2.0%
53	72,152	1,363	1.9%	1,443.0	2.0%	1,443.0	2.0%
54	70,344	1,253	1.8%	1,406.9	2.0%	1,406.9	2.0%
	1,391,194	34,020	2.4%	34,859.8	2.5%	34,859.8	2.5%

APPENDIX I

PROBABILITY OF ELECTING A VESTED BENEFIT

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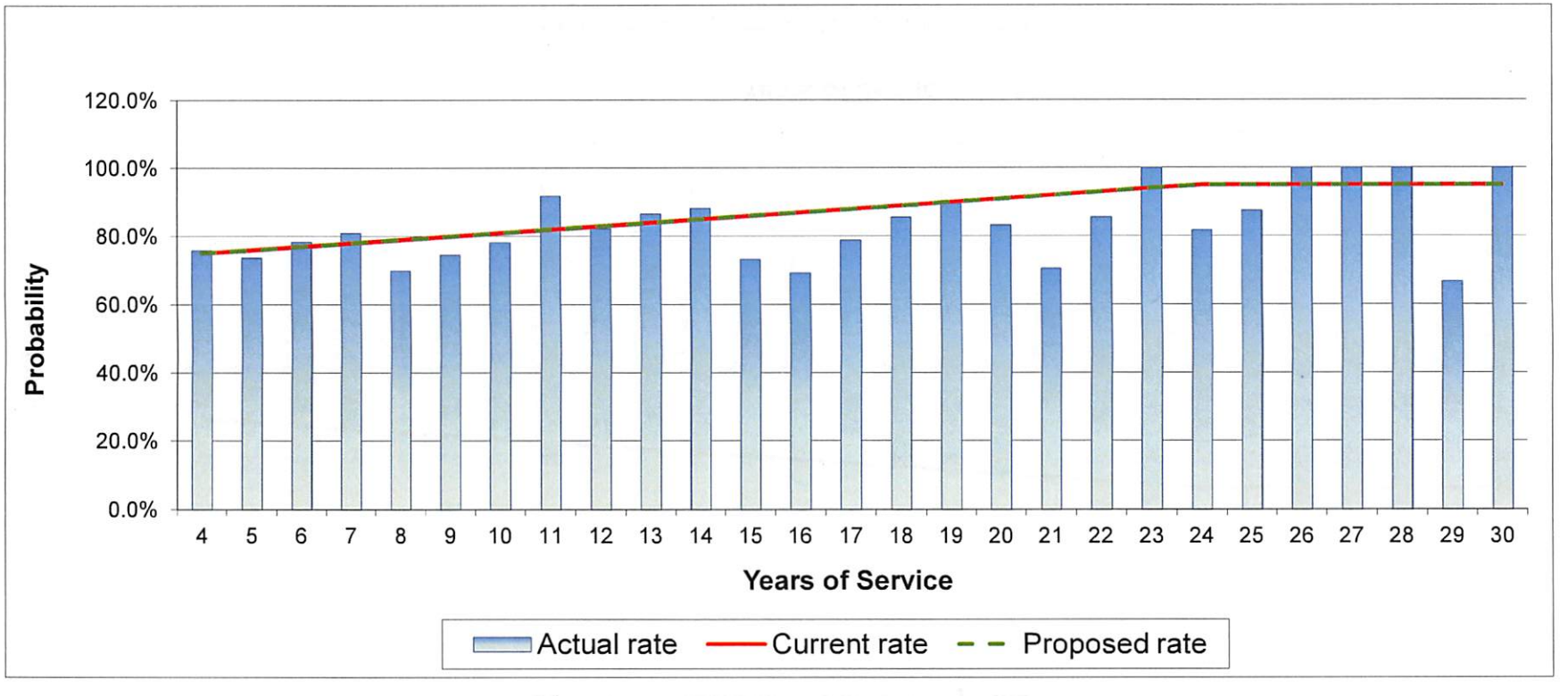
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-1

Probability of Electing a Vested Benefit

School Membership - Males



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	1,040	1,060	1,060
Actual/Expected		98%	98%

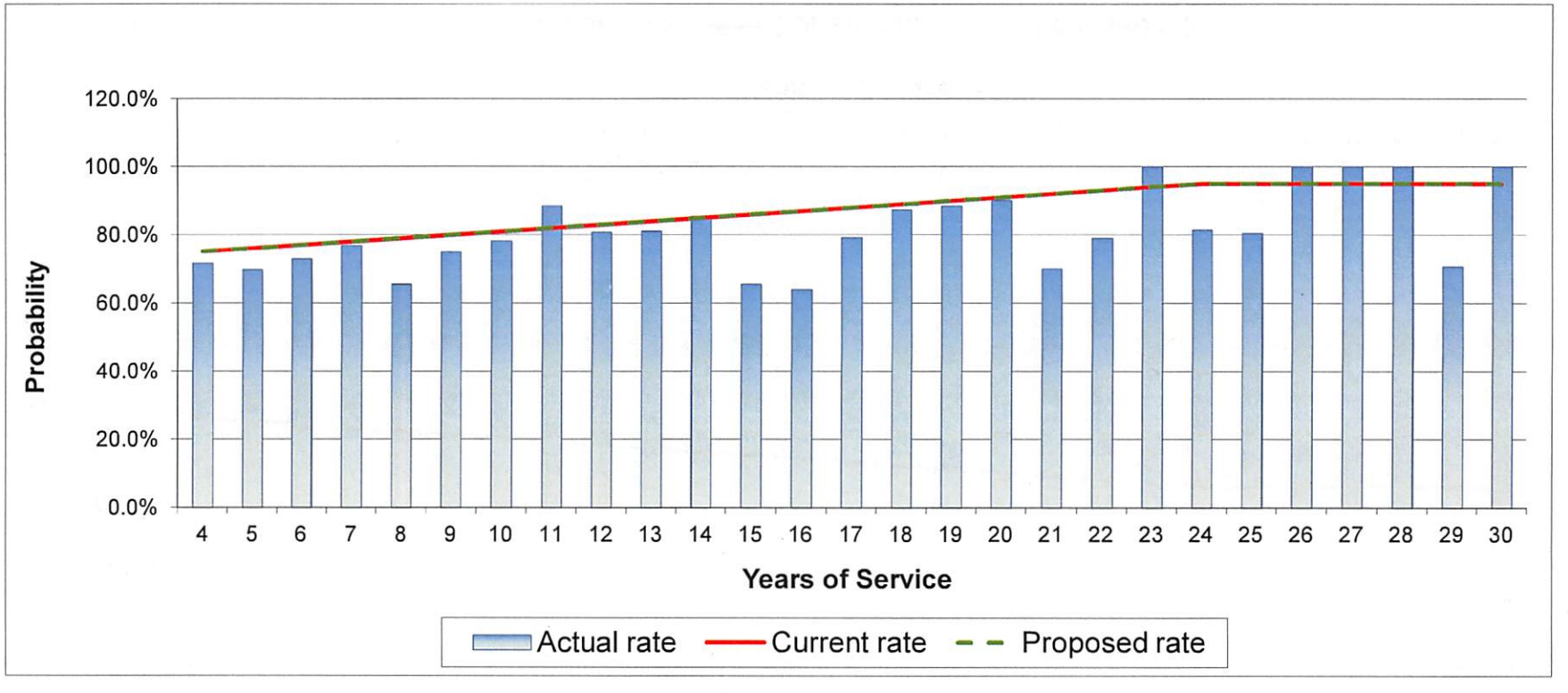
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-2

Probability of Electing a Vested Benefit

School Membership - Males (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	32,408	34,974	34,974
Actual/Expected		93%	93%

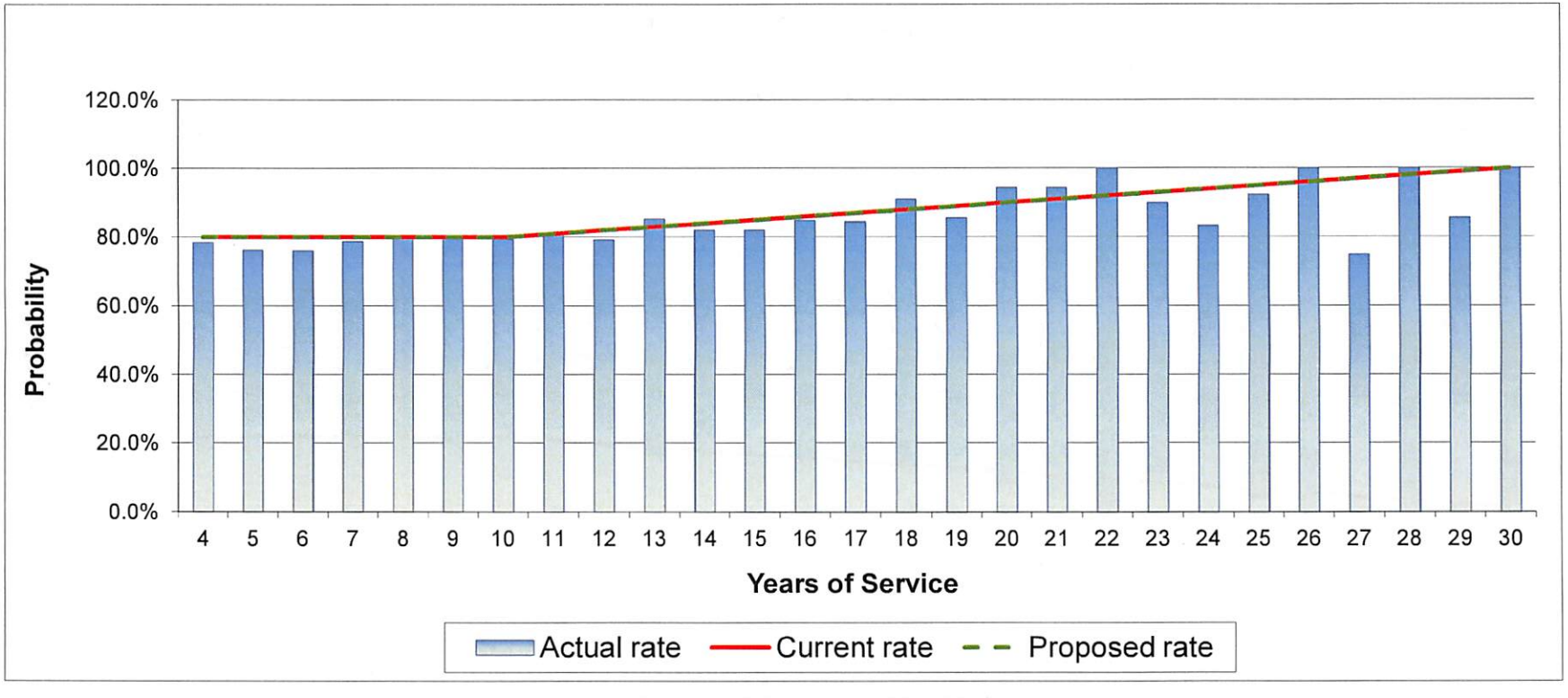
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-3

Probability of Electing a Vested Benefit

School Membership - Females



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	4,161	4,251	4,251
Actual/Expected		98%	98%

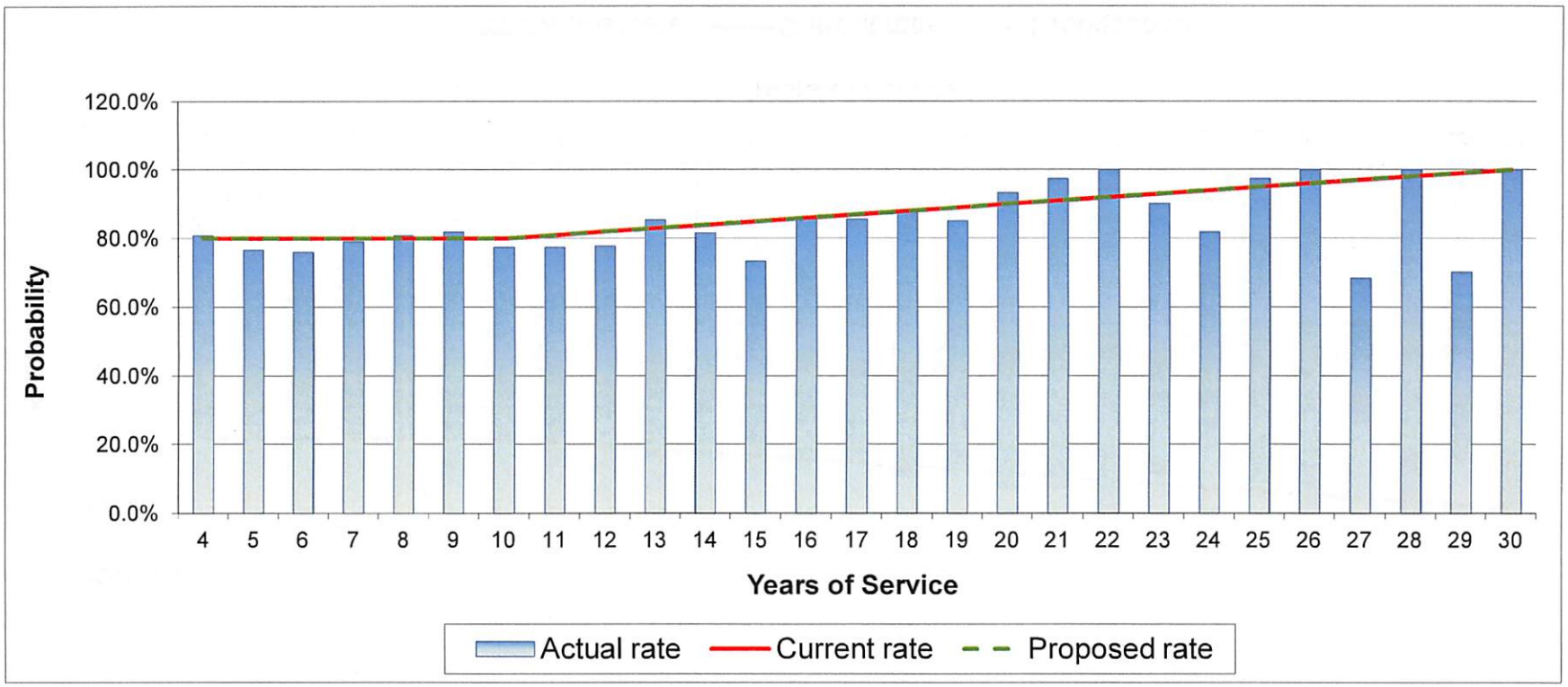
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-4

Probability of Electing a Vested Benefit

School Membership - Females (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	92,230	94,140	94,140
Actual/Expected		98%	98%

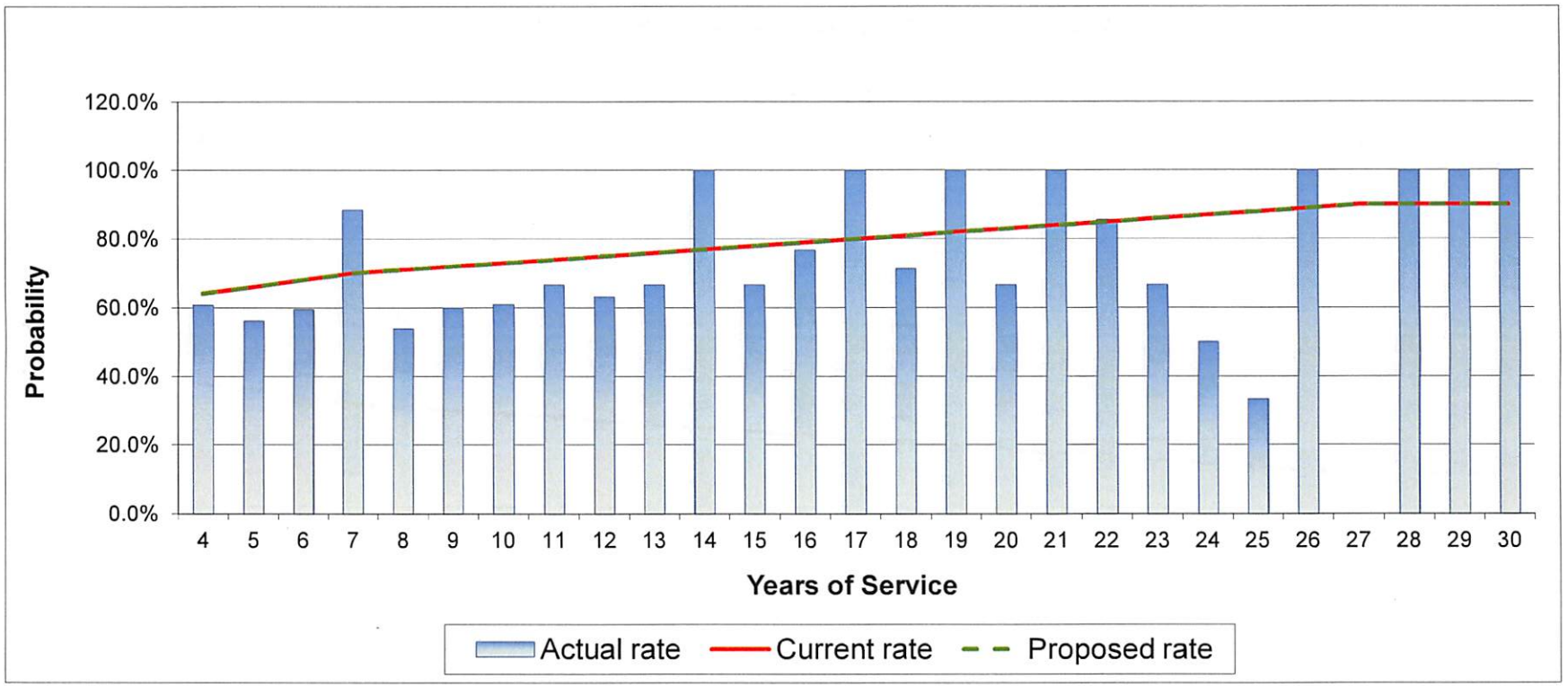
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-5

Probability of Electing a Vested Benefit

State Membership - Males



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	244	266	266
Actual/Expected		92%	92%

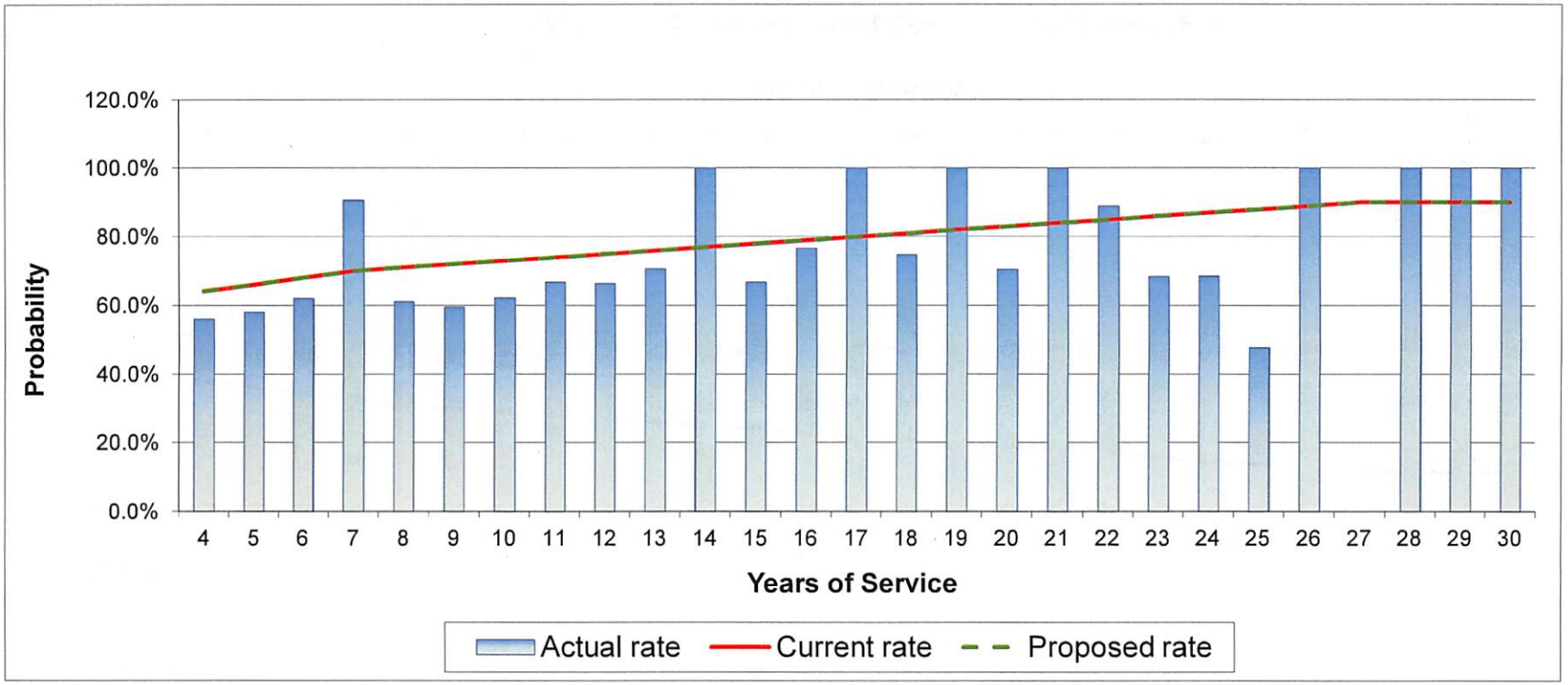
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-6

Probability of Electing a Vested Benefit

State Membership - Males (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	15,820	16,972	16,972
Actual/Expected		93%	93%

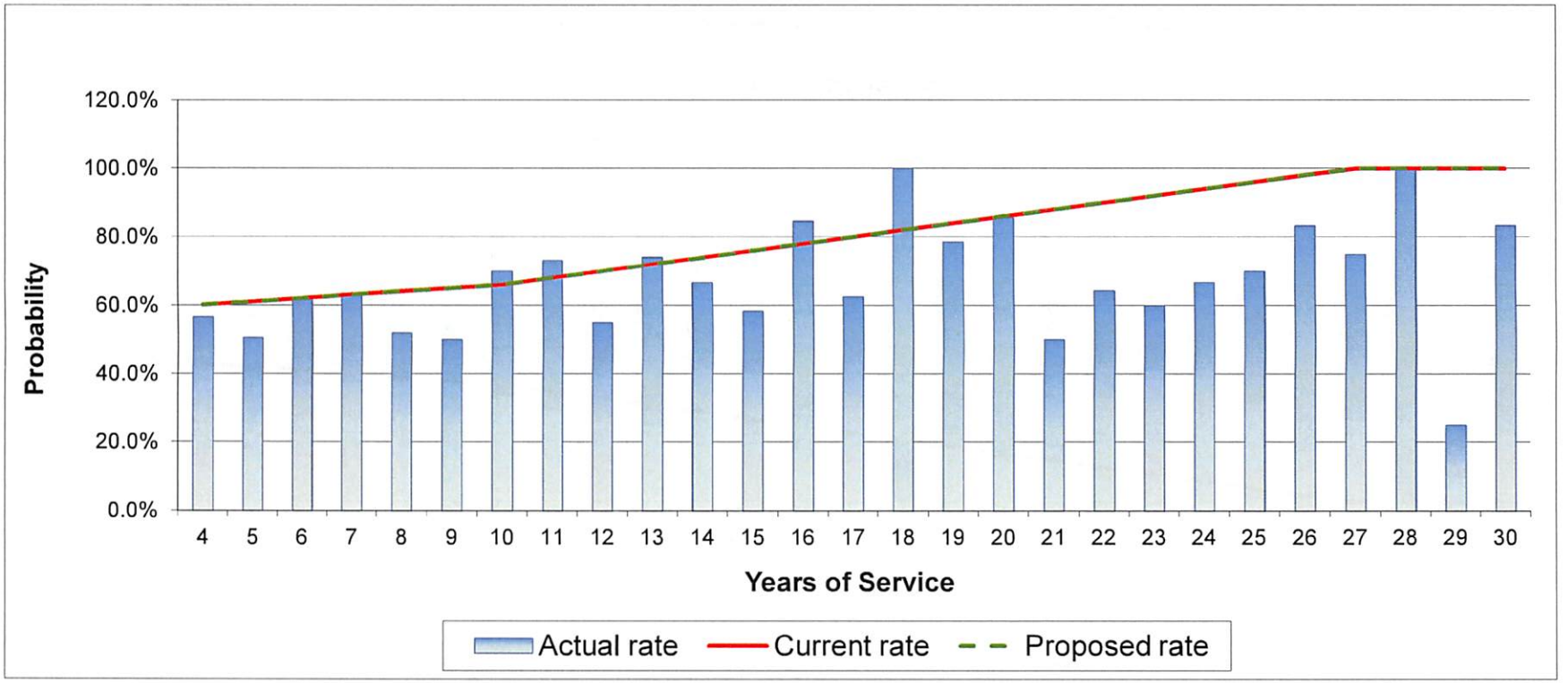
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-7

Probability of Electing a Vested Benefit

State Membership - Females



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	455	510	510
Actual/Expected		89%	89%

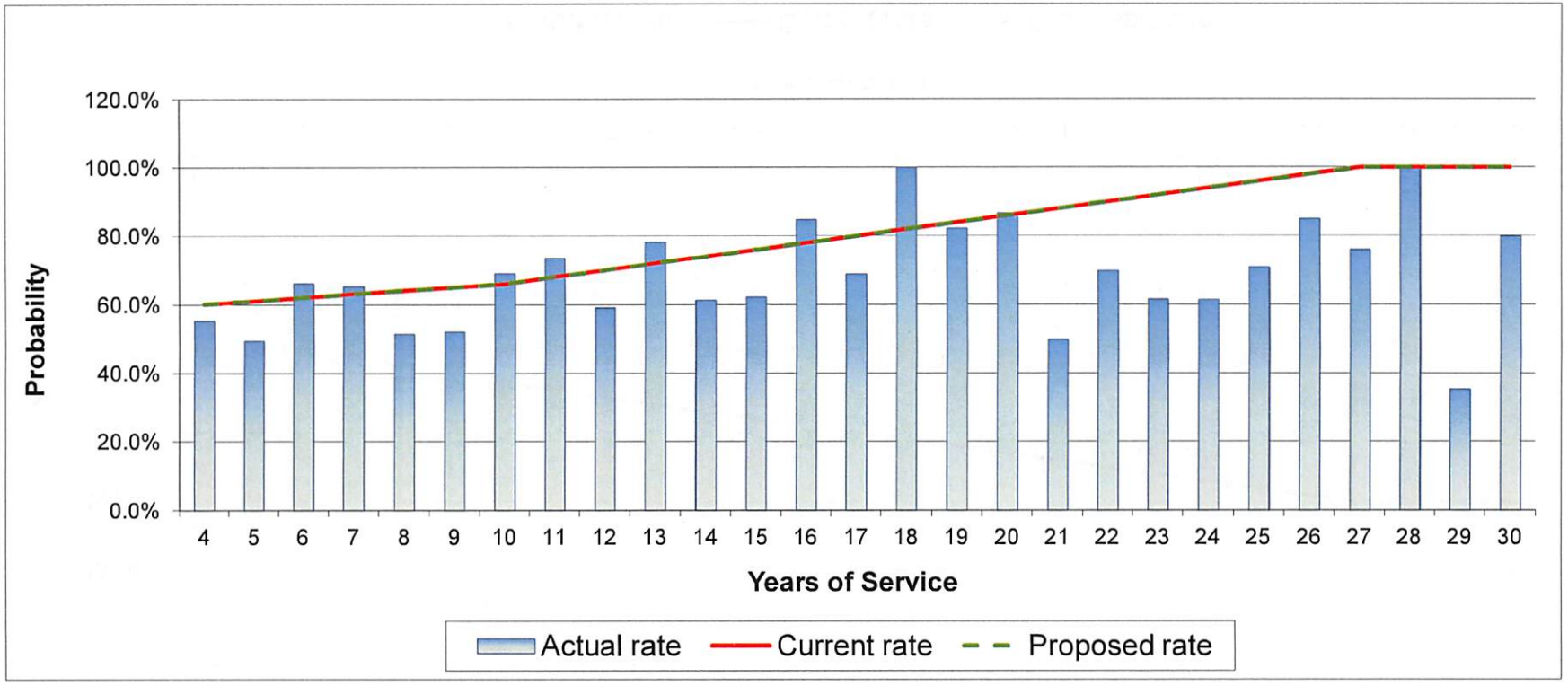
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-8

Probability of Electing a Vested Benefit

State Membership - Females (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	23,322	26,530	26,530
Actual/Expected		88%	88%

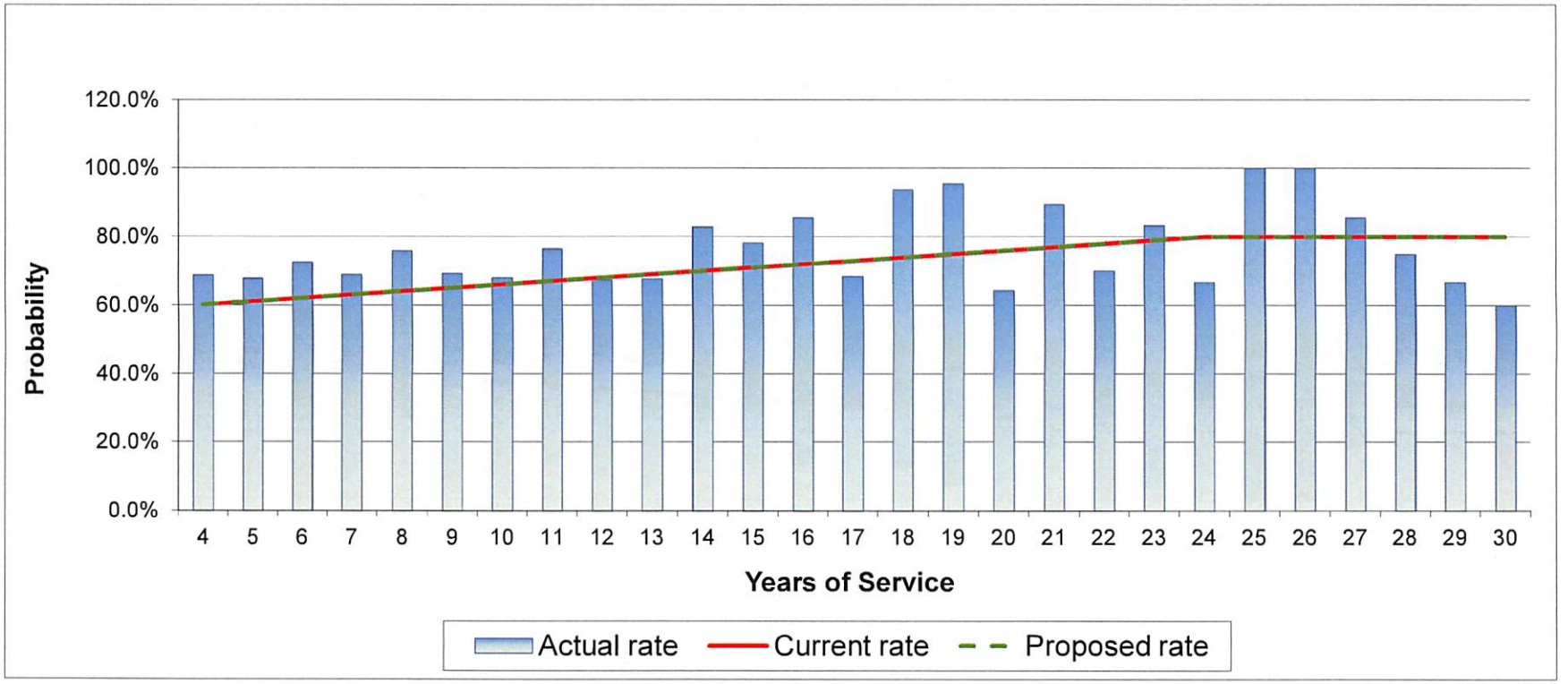
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-9

Probability of Electing a Vested Benefit

Other Membership - Males



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	995	897	897
Actual/Expected		111%	111%

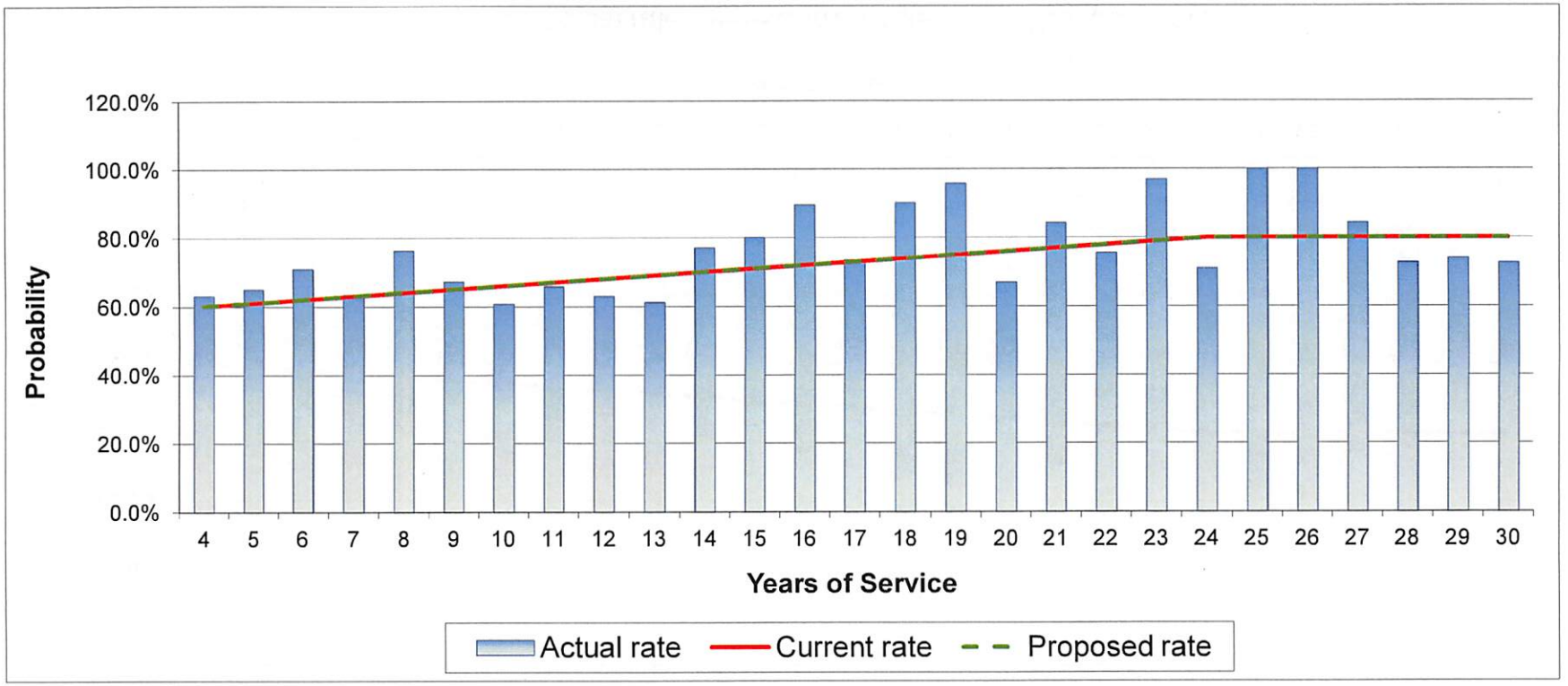
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-10

Probability of Electing a Vested Benefit

Other Membership - Males (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	34,430	32,822	32,822
Actual/Expected		105%	105%

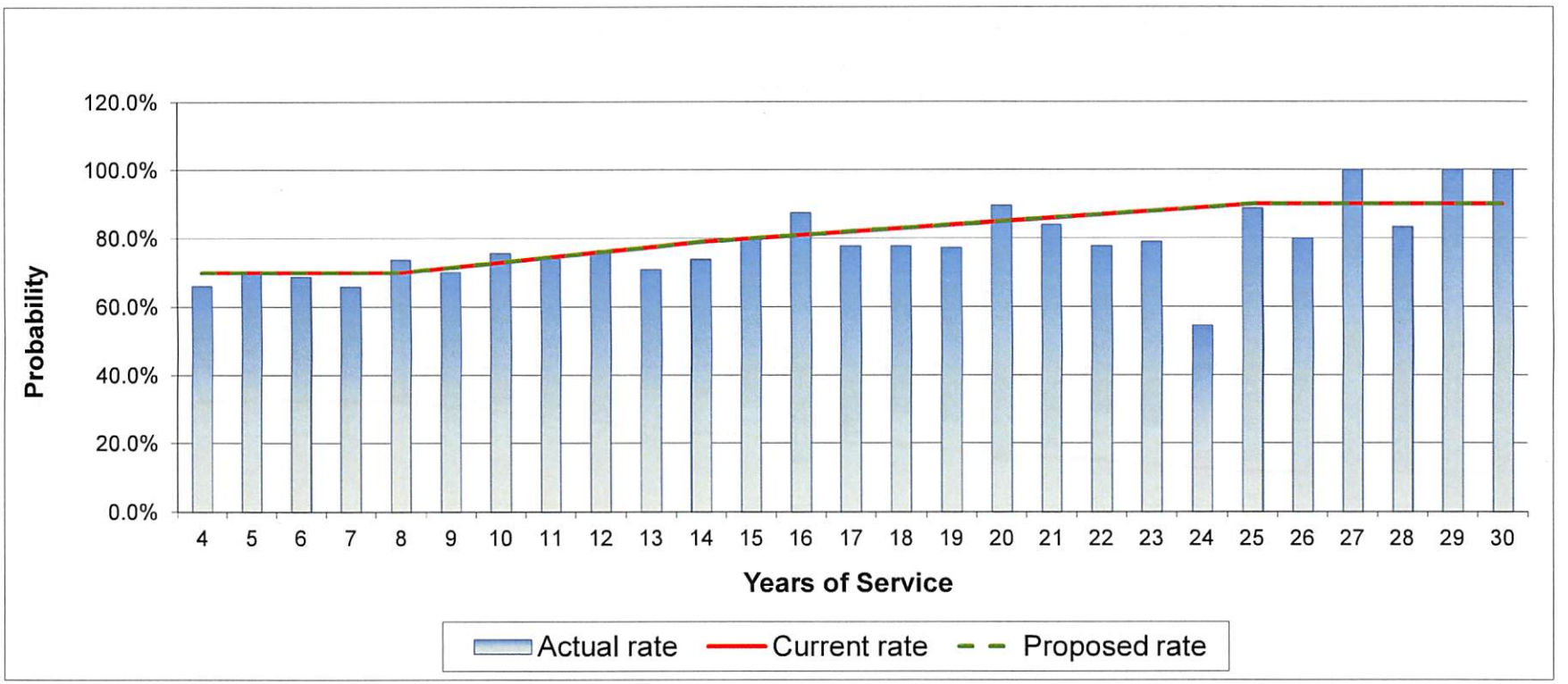
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-11

Probability of Electing a Vested Benefit

Other Membership - Females



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Count	2,425	2,475	2,475
Actual/Expected		98%	98%

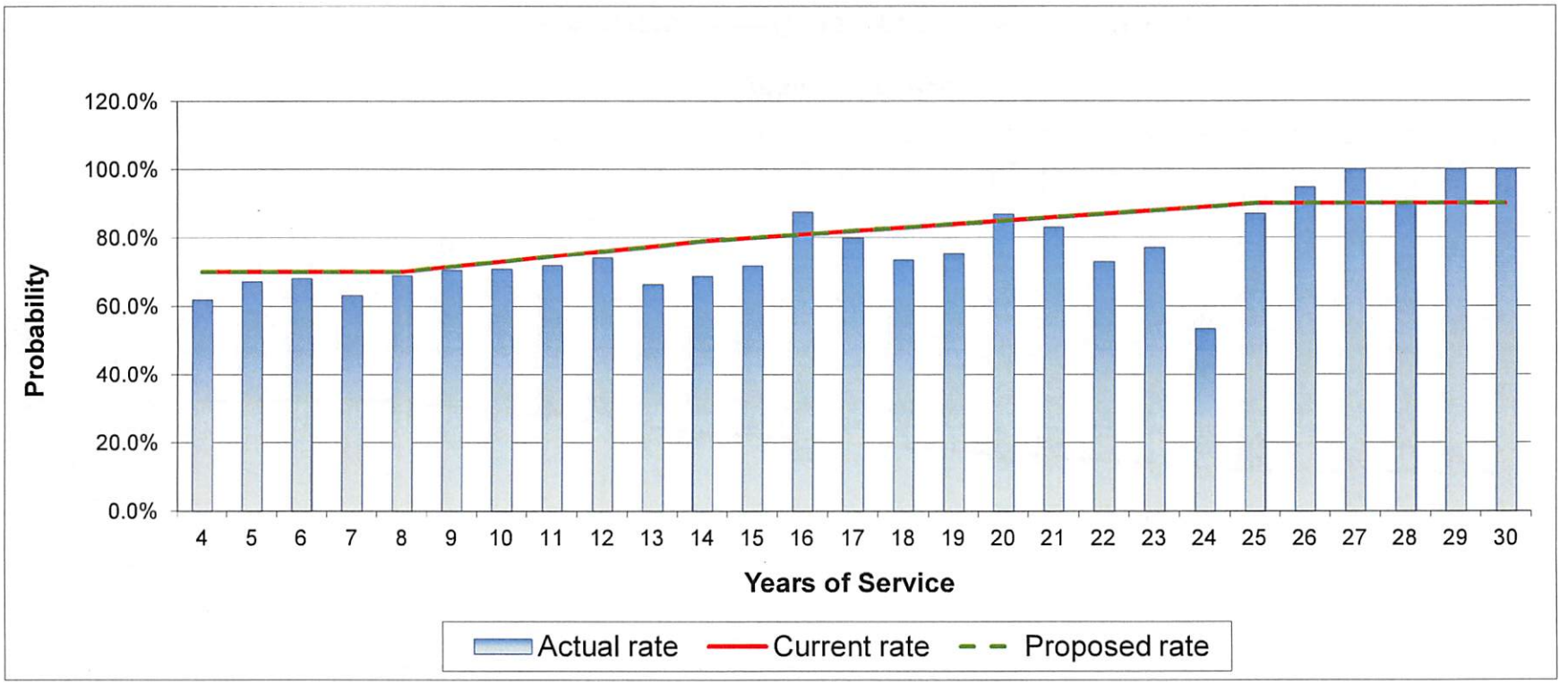
Iowa Public Employees' Retirement System

2009 - 2013 Experience Study

Exhibit I-12

Probability of Electing a Vested Benefit

Other Membership - Females (Weighted)



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	60,190	63,784	63,784
Actual/Expected		94%	94%

Data Summary I-1
Probability of Electing a Vested Benefit
School Membership - Males

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	287	218	76.0%	215.3	75.0%	215.3	75.0%
5	202	149	73.8%	153.5	76.0%	153.5	76.0%
6	153	120	78.4%	117.8	77.0%	117.8	77.0%
7	111	90	81.1%	86.6	78.0%	86.6	78.0%
8	80	56	70.0%	63.2	79.0%	63.2	79.0%
9	75	56	74.7%	60.0	80.0%	60.0	80.0%
10	60	47	78.3%	48.6	81.0%	48.6	81.0%
11	49	45	91.8%	40.2	82.0%	40.2	82.0%
12	51	42	82.4%	42.3	83.0%	42.3	83.0%
13	45	39	86.7%	37.8	84.0%	37.8	84.0%
14	34	30	88.2%	28.9	85.0%	28.9	85.0%
15	30	22	73.3%	25.8	86.0%	25.8	86.0%
16	26	18	69.2%	22.6	87.0%	22.6	87.0%
17	19	15	78.9%	16.7	88.0%	16.7	88.0%
18	14	12	85.7%	12.5	89.0%	12.5	89.0%
19	19	17	89.5%	17.1	90.0%	17.1	90.0%
20	12	10	83.3%	10.9	91.0%	10.9	91.0%
21	17	12	70.6%	15.6	92.0%	15.6	92.0%
22	7	6	85.7%	6.5	93.0%	6.5	93.0%
23	5	5	100.0%	4.7	94.0%	4.7	94.0%
24	11	9	81.8%	10.5	95.0%	10.5	95.0%
25	8	7	87.5%	7.6	95.0%	7.6	95.0%
26	5	5	100.0%	4.8	95.0%	4.8	95.0%
27	6	6	100.0%	5.7	95.0%	5.7	95.0%
28	1	1	100.0%	1.0	95.0%	1.0	95.0%
29	3	2	66.7%	2.9	95.0%	2.9	95.0%
30	1	1	100.0%	1.0	95.0%	1.0	95.0%
	1,331	1,040	78.1%	1,059.9	79.6%	1,059.9	79.6%

Data Summary I-2
Probability of Electing a Vested Benefit
School Membership - Males (Weighted)

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	2,589	1,852	71.5%	1,942.1	75.0%	1,942.1	75.0%
5	2,710	1,890	69.7%	2,059.6	76.0%	2,059.6	76.0%
6	2,551	1,860	72.9%	1,964.0	77.0%	1,964.0	77.0%
7	2,073	1,593	76.9%	1,617.0	78.0%	1,617.0	78.0%
8	2,028	1,327	65.5%	1,602.1	79.0%	1,602.1	79.0%
9	2,476	1,856	75.0%	1,981.2	80.0%	1,981.2	80.0%
10	1,906	1,491	78.2%	1,543.7	81.0%	1,543.7	81.0%
11	1,817	1,609	88.6%	1,490.1	82.0%	1,490.1	82.0%
12	2,199	1,779	80.9%	1,825.5	83.0%	1,825.5	83.0%
13	2,157	1,749	81.1%	1,812.0	84.0%	1,812.0	84.0%
14	1,874	1,603	85.5%	1,592.9	85.0%	1,592.9	85.0%
15	1,822	1,193	65.5%	1,567.2	86.0%	1,567.2	86.0%
16	1,928	1,234	64.0%	1,677.4	87.0%	1,677.4	87.0%
17	1,325	1,050	79.2%	1,166.0	88.0%	1,166.0	88.0%
18	1,420	1,241	87.4%	1,263.8	89.0%	1,263.8	89.0%
19	1,765	1,562	88.5%	1,588.6	90.0%	1,588.6	90.0%
20	1,260	1,137	90.2%	1,147.0	91.0%	1,147.0	91.0%
21	1,802	1,263	70.1%	1,658.0	92.0%	1,658.0	92.0%
22	819	648	79.1%	761.5	93.0%	761.5	93.0%
23	972	972	100.0%	914.0	94.0%	914.0	94.0%
24	860	701	81.4%	817.3	95.0%	817.3	95.0%
25	1,212	976	80.6%	1,151.0	95.0%	1,151.0	95.0%
26	691	691	100.0%	656.9	95.0%	656.9	95.0%
27	682	682	100.0%	647.6	95.0%	647.6	95.0%
28	170	170	100.0%	161.6	95.0%	161.6	95.0%
29	364	257	70.6%	345.5	95.0%	345.5	95.0%
30	21	21	100.0%	19.8	95.0%	19.8	95.0%
	41,495	32,408	78.1%	34,973.5	84.3%	34,973.5	84.3%

Data Summary I-3
Probability of Electing a Vested Benefit
School Membership - Females

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	1,054	827	78.5%	843.2	80.0%	843.2	80.0%
5	819	624	76.2%	655.2	80.0%	655.2	80.0%
6	602	458	76.1%	481.6	80.0%	481.6	80.0%
7	458	361	78.8%	366.4	80.0%	366.4	80.0%
8	359	287	79.9%	287.2	80.0%	287.2	80.0%
9	333	265	79.6%	266.4	80.0%	266.4	80.0%
10	286	227	79.4%	228.8	80.0%	228.8	80.0%
11	229	186	81.2%	185.5	81.0%	185.5	81.0%
12	226	179	79.2%	185.3	82.0%	185.3	82.0%
13	157	134	85.4%	130.3	83.0%	130.3	83.0%
14	145	119	82.1%	121.8	84.0%	121.8	84.0%
15	84	69	82.1%	71.4	85.0%	71.4	85.0%
16	92	78	84.8%	79.1	86.0%	79.1	86.0%
17	90	76	84.4%	78.3	87.0%	78.3	87.0%
18	56	51	91.1%	49.3	88.0%	49.3	88.0%
19	35	30	85.7%	31.2	89.0%	31.2	89.0%
20	36	34	94.4%	32.4	90.0%	32.4	90.0%
21	36	34	94.4%	32.8	91.0%	32.8	91.0%
22	35	35	100.0%	32.2	92.0%	32.2	92.0%
23	20	18	90.0%	18.6	93.0%	18.6	93.0%
24	18	15	83.3%	16.9	94.0%	16.9	94.0%
25	13	12	92.3%	12.4	95.0%	12.4	95.0%
26	15	15	100.0%	14.4	96.0%	14.4	96.0%
27	12	9	75.0%	11.6	97.0%	11.6	97.0%
28	7	7	100.0%	6.9	98.0%	6.9	98.0%
29	7	6	85.7%	6.9	99.0%	6.9	99.0%
30	5	5	100.0%	5.0	100.0%	5.0	100.0%
	5,229	4,161	79.6%	4,251.0	81.3%	4,251.0	81.3%

Data Summary I-4
Probability of Electing a Vested Benefit
School Membership - Females (Weighted)

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	8,413	6,798	80.8%	6,730.5	80.0%	6,730.5	80.0%
5	8,428	6,459	76.6%	6,742.3	80.0%	6,742.3	80.0%
6	7,515	5,714	76.0%	6,011.8	80.0%	6,011.8	80.0%
7	6,888	5,449	79.1%	5,510.3	80.0%	5,510.3	80.0%
8	6,942	5,617	80.9%	5,553.8	80.0%	5,553.8	80.0%
9	7,061	5,785	81.9%	5,648.8	80.0%	5,648.8	80.0%
10	7,423	5,750	77.5%	5,938.7	80.0%	5,938.7	80.0%
11	6,242	4,840	77.5%	5,055.9	81.0%	5,055.9	81.0%
12	6,201	4,830	77.9%	5,085.1	82.0%	5,085.1	82.0%
13	5,318	4,547	85.5%	4,414.3	83.0%	4,414.3	83.0%
14	5,132	4,193	81.7%	4,310.6	84.0%	4,310.6	84.0%
15	2,762	2,031	73.5%	2,347.8	85.0%	2,347.8	85.0%
16	4,691	4,014	85.6%	4,034.0	86.0%	4,034.0	86.0%
17	4,053	3,469	85.6%	3,525.8	87.0%	3,525.8	87.0%
18	3,506	3,082	87.9%	3,084.9	88.0%	3,084.9	88.0%
19	2,486	2,118	85.2%	2,212.8	89.0%	2,212.8	89.0%
20	2,965	2,768	93.4%	2,668.3	90.0%	2,668.3	90.0%
21	2,537	2,474	97.5%	2,308.7	91.0%	2,308.7	91.0%
22	2,850	2,850	100.0%	2,622.4	92.0%	2,622.4	92.0%
23	1,633	1,472	90.1%	1,518.8	93.0%	1,518.8	93.0%
24	2,057	1,687	82.0%	1,933.8	94.0%	1,933.8	94.0%
25	1,203	1,172	97.4%	1,143.1	95.0%	1,143.1	95.0%
26	1,597	1,597	100.0%	1,533.4	96.0%	1,533.4	96.0%
27	1,539	1,054	68.5%	1,492.5	97.0%	1,492.5	97.0%
28	853	853	100.0%	836.1	98.0%	836.1	98.0%
29	935	657	70.2%	925.8	99.0%	925.8	99.0%
30	950	950	100.0%	949.9	100.0%	949.9	100.0%
	112,181	92,230	82.2%	94,140.1	83.9%	94,140.1	83.9%

Data Summary I-5
Probability of Electing a Vested Benefit
State Membership - Males

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	74	45	60.8%	47.4	64.0%	47.4	64.0%
5	41	23	56.1%	27.1	66.0%	27.1	66.0%
6	37	22	59.5%	25.2	68.0%	25.2	68.0%
7	26	23	88.5%	18.2	70.0%	18.2	70.0%
8	13	7	53.8%	9.2	71.0%	9.2	71.0%
9	20	12	60.0%	14.4	72.0%	14.4	72.0%
10	23	14	60.9%	16.8	73.0%	16.8	73.0%
11	15	10	66.7%	11.1	74.0%	11.1	74.0%
12	19	12	63.2%	14.3	75.0%	14.3	75.0%
13	15	10	66.7%	11.4	76.0%	11.4	76.0%
14	10	10	100.0%	7.7	77.0%	7.7	77.0%
15	15	10	66.7%	11.7	78.0%	11.7	78.0%
16	13	10	76.9%	10.3	79.0%	10.3	79.0%
17	2	2	100.0%	1.6	80.0%	1.6	80.0%
18	7	5	71.4%	5.7	81.0%	5.7	81.0%
19	3	3	100.0%	2.5	82.0%	2.5	82.0%
20	6	4	66.7%	5.0	83.0%	5.0	83.0%
21	4	4	100.0%	3.4	84.0%	3.4	84.0%
22	7	6	85.7%	6.0	85.0%	6.0	85.0%
23	6	4	66.7%	5.2	86.0%	5.2	86.0%
24	2	1	50.0%	1.7	87.0%	1.7	87.0%
25	3	1	33.3%	2.6	88.0%	2.6	88.0%
26	3	3	100.0%	2.7	89.0%	2.7	89.0%
27	3	-	0.0%	2.7	90.0%	2.7	90.0%
28	1	1	100.0%	0.9	90.0%	0.9	90.0%
29	2	2	100.0%	1.8	90.0%	1.8	90.0%
30	-	-	100.0%	-	90.0%	-	90.0%
	370	244	65.9%	266.3	72.0%	266.3	72.0%

Data Summary I-6
Probability of Electing a Vested Benefit
State Membership - Males (Weighted)

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	1,404	787	56.0%	898.4	64.0%	898.4	64.0%
5	953	553	58.1%	628.8	66.0%	628.8	66.0%
6	1,176	729	62.0%	799.6	68.0%	799.6	68.0%
7	1,039	942	90.7%	727.6	70.0%	727.6	70.0%
8	853	521	61.0%	605.5	71.0%	605.5	71.0%
9	1,160	690	59.5%	835.0	72.0%	835.0	72.0%
10	1,244	774	62.2%	908.4	73.0%	908.4	73.0%
11	1,085	725	66.8%	802.7	74.0%	802.7	74.0%
12	1,388	920	66.3%	1,040.7	75.0%	1,040.7	75.0%
13	1,277	903	70.7%	970.7	76.0%	970.7	76.0%
14	887	887	100.0%	683.2	77.0%	683.2	77.0%
15	1,223	817	66.8%	954.2	78.0%	954.2	78.0%
16	1,452	1,115	76.8%	1,147.3	79.0%	1,147.3	79.0%
17	231	231	100.0%	184.5	80.0%	184.5	80.0%
18	821	614	74.8%	665.1	81.0%	665.1	81.0%
19	579	579	100.0%	475.1	82.0%	475.1	82.0%
20	826	582	70.5%	685.7	83.0%	685.7	83.0%
21	464	464	100.0%	390.0	84.0%	390.0	84.0%
22	1,027	914	89.0%	872.8	85.0%	872.8	85.0%
23	923	632	68.4%	794.2	86.0%	794.2	86.0%
24	254	174	68.5%	220.9	87.0%	220.9	87.0%
25	458	219	47.7%	402.7	88.0%	402.7	88.0%
26	618	618	100.0%	549.8	89.0%	549.8	89.0%
27	381	-	0.0%	342.6	90.0%	342.6	90.0%
28	89	89	100.0%	80.3	90.0%	80.3	90.0%
29	341	341	100.0%	306.5	90.0%	306.5	90.0%
30	-	-	100.0%	-	90.0%	-	90.0%
	22,153	15,820	71.4%	16,972.4	76.6%	16,972.4	76.6%

Data Summary I-7
Probability of Electing a Vested Benefit
State Membership - Females

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	122	69	56.6%	73.2	60.0%	73.2	60.0%
5	107	54	50.5%	65.3	61.0%	65.3	61.0%
6	78	48	61.5%	48.4	62.0%	48.4	62.0%
7	52	33	63.5%	32.8	63.0%	32.8	63.0%
8	50	26	52.0%	32.0	64.0%	32.0	64.0%
9	48	24	50.0%	31.2	65.0%	31.2	65.0%
10	30	21	70.0%	19.8	66.0%	19.8	66.0%
11	41	30	73.2%	27.9	68.0%	27.9	68.0%
12	40	22	55.0%	28.0	70.0%	28.0	70.0%
13	27	20	74.1%	19.4	72.0%	19.4	72.0%
14	18	12	66.7%	13.3	74.0%	13.3	74.0%
15	24	14	58.3%	18.2	76.0%	18.2	76.0%
16	13	11	84.6%	10.1	78.0%	10.1	78.0%
17	8	5	62.5%	6.4	80.0%	6.4	80.0%
18	7	7	100.0%	5.7	82.0%	5.7	82.0%
19	14	11	78.6%	11.8	84.0%	11.8	84.0%
20	7	6	85.7%	6.0	86.0%	6.0	86.0%
21	4	2	50.0%	3.5	88.0%	3.5	88.0%
22	14	9	64.3%	12.6	90.0%	12.6	90.0%
23	10	6	60.0%	9.2	92.0%	9.2	92.0%
24	6	4	66.7%	5.6	94.0%	5.6	94.0%
25	10	7	70.0%	9.6	96.0%	9.6	96.0%
26	6	5	83.3%	5.9	98.0%	5.9	98.0%
27	4	3	75.0%	4.0	100.0%	4.0	100.0%
28	-	-	100.0%	-	100.0%	-	100.0%
29	4	1	25.0%	4.0	100.0%	4.0	100.0%
30	6	5	83.3%	6.0	100.0%	6.0	100.0%
	750	455	60.7%	510.0	68.0%	510.0	68.0%

Data Summary I-8
Probability of Electing a Vested Benefit
State Membership - Females (Weighted)

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	1,889	1,046	55.4%	1,133.6	60.0%	1,133.6	60.0%
5	2,114	1,045	49.4%	1,289.3	61.0%	1,289.3	61.0%
6	1,991	1,318	66.2%	1,234.5	62.0%	1,234.5	62.0%
7	1,559	1,019	65.4%	982.1	63.0%	982.1	63.0%
8	1,868	962	51.5%	1,195.2	64.0%	1,195.2	64.0%
9	2,197	1,147	52.2%	1,428.1	65.0%	1,428.1	65.0%
10	1,450	1,001	69.1%	956.9	66.0%	956.9	66.0%
11	2,248	1,652	73.5%	1,528.3	68.0%	1,528.3	68.0%
12	2,283	1,349	59.1%	1,597.8	70.0%	1,597.8	70.0%
13	1,698	1,330	78.3%	1,222.7	72.0%	1,222.7	72.0%
14	1,200	736	61.3%	888.3	74.0%	888.3	74.0%
15	1,845	1,147	62.2%	1,402.5	76.0%	1,402.5	76.0%
16	1,020	866	84.8%	795.7	78.0%	795.7	78.0%
17	687	474	69.0%	549.9	80.0%	549.9	80.0%
18	720	720	100.0%	590.1	82.0%	590.1	82.0%
19	1,747	1,437	82.2%	1,467.9	84.0%	1,467.9	84.0%
20	740	643	86.8%	636.7	86.0%	636.7	86.0%
21	432	216	49.9%	379.9	88.0%	379.9	88.0%
22	1,591	1,112	69.9%	1,431.8	90.0%	1,431.8	90.0%
23	1,088	669	61.5%	1,001.0	92.0%	1,001.0	92.0%
24	746	457	61.4%	700.9	94.0%	700.9	94.0%
25	1,400	990	70.7%	1,344.0	96.0%	1,344.0	96.0%
26	652	554	85.0%	638.6	98.0%	638.6	98.0%
27	556	422	76.0%	555.5	100.0%	555.5	100.0%
28	-	-	100.0%	-	100.0%	-	100.0%
29	560	197	35.2%	559.8	100.0%	559.8	100.0%
30	1,019	814	79.9%	1,019.5	100.0%	1,019.5	100.0%
	35,299	23,322	66.1%	26,530.3	75.2%	26,530.3	75.2%

Data Summary I-9
Probability of Electing a Vested Benefit
Other Membership - Males

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	300	206	68.7%	180.0	60.0%	180.0	60.0%
5	195	132	67.7%	119.0	61.0%	119.0	61.0%
6	146	106	72.6%	90.5	62.0%	90.5	62.0%
7	122	84	68.9%	76.9	63.0%	76.9	63.0%
8	83	63	75.9%	53.1	64.0%	53.1	64.0%
9	65	45	69.2%	42.2	65.0%	42.2	65.0%
10	81	55	67.9%	53.5	66.0%	53.5	66.0%
11	68	52	76.5%	45.6	67.0%	45.6	67.0%
12	49	33	67.3%	33.3	68.0%	33.3	68.0%
13	37	25	67.6%	25.5	69.0%	25.5	69.0%
14	35	29	82.9%	24.5	70.0%	24.5	70.0%
15	37	29	78.4%	26.3	71.0%	26.3	71.0%
16	21	18	85.7%	15.1	72.0%	15.1	72.0%
17	19	13	68.4%	13.9	73.0%	13.9	73.0%
18	16	15	93.8%	11.8	74.0%	11.8	74.0%
19	22	21	95.5%	16.5	75.0%	16.5	75.0%
20	14	9	64.3%	10.6	76.0%	10.6	76.0%
21	19	17	89.5%	14.6	77.0%	14.6	77.0%
22	10	7	70.0%	7.8	78.0%	7.8	78.0%
23	6	5	83.3%	4.7	79.0%	4.7	79.0%
24	6	4	66.7%	4.8	80.0%	4.8	80.0%
25	6	6	100.0%	4.8	80.0%	4.8	80.0%
26	5	5	100.0%	4.0	80.0%	4.0	80.0%
27	7	6	85.7%	5.6	80.0%	5.6	80.0%
28	4	3	75.0%	3.2	80.0%	3.2	80.0%
29	6	4	66.7%	4.8	80.0%	4.8	80.0%
30	5	3	60.0%	4.0	80.0%	4.0	80.0%
	1,384	995	71.9%	896.7	64.8%	896.7	64.8%

Data Summary I-10
Probability of Electing a Vested Benefit
Other Membership - Males (Weighted)

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	3,605	2,276	63.1%	2,163.3	60.0%	2,163.3	60.0%
5	3,403	2,216	65.1%	2,075.8	61.0%	2,075.8	61.0%
6	2,978	2,114	71.0%	1,846.2	62.0%	1,846.2	62.0%
7	2,762	1,751	63.4%	1,740.4	63.0%	1,740.4	63.0%
8	2,320	1,773	76.4%	1,484.9	64.0%	1,484.9	64.0%
9	2,142	1,442	67.3%	1,392.5	65.0%	1,392.5	65.0%
10	3,424	2,083	60.8%	2,259.9	66.0%	2,259.9	66.0%
11	2,417	1,590	65.8%	1,619.5	67.0%	1,619.5	67.0%
12	2,848	1,795	63.0%	1,936.5	68.0%	1,936.5	68.0%
13	2,085	1,275	61.1%	1,438.8	69.0%	1,438.8	69.0%
14	1,957	1,511	77.2%	1,369.7	70.0%	1,369.7	70.0%
15	2,811	2,257	80.3%	1,996.1	71.0%	1,996.1	71.0%
16	1,338	1,199	89.6%	963.3	72.0%	963.3	72.0%
17	1,411	1,037	73.5%	1,030.2	73.0%	1,030.2	73.0%
18	1,127	1,018	90.3%	833.7	74.0%	833.7	74.0%
19	1,692	1,622	95.9%	1,268.8	75.0%	1,268.8	75.0%
20	1,424	954	66.9%	1,082.6	76.0%	1,082.6	76.0%
21	1,463	1,234	84.3%	1,126.2	77.0%	1,126.2	77.0%
22	1,059	801	75.6%	826.2	78.0%	826.2	78.0%
23	392	380	96.9%	310.0	79.0%	310.0	79.0%
24	766	544	71.0%	612.5	80.0%	612.5	80.0%
25	559	559	100.0%	446.9	80.0%	446.9	80.0%
26	620	620	100.0%	495.9	80.0%	495.9	80.0%
27	829	700	84.4%	663.2	80.0%	663.2	80.0%
28	482	350	72.6%	385.5	80.0%	385.5	80.0%
29	1,009	747	74.0%	807.1	80.0%	807.1	80.0%
30	807	586	72.6%	645.7	80.0%	645.7	80.0%
	47,731	34,430	72.1%	32,821.5	68.8%	32,821.5	68.8%

Data Summary I-11
Probability of Electing a Vested Benefit
Other Membership - Females

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	700	462	66.0%	490.0	70.0%	490.0	70.0%
5	544	382	70.2%	380.8	70.0%	380.8	70.0%
6	391	269	68.8%	273.7	70.0%	273.7	70.0%
7	313	206	65.8%	219.1	70.0%	219.1	70.0%
8	260	192	73.8%	182.0	70.0%	182.0	70.0%
9	201	141	70.1%	143.7	71.5%	143.7	71.5%
10	210	159	75.7%	153.3	73.0%	153.3	73.0%
11	151	112	74.2%	112.5	74.5%	112.5	74.5%
12	108	82	75.9%	82.1	76.0%	82.1	76.0%
13	100	71	71.0%	77.5	77.5%	77.5	77.5%
14	69	51	73.9%	54.5	79.0%	54.5	79.0%
15	56	45	80.4%	44.8	80.0%	44.8	80.0%
16	48	42	87.5%	38.9	81.0%	38.9	81.0%
17	45	35	77.8%	36.9	82.0%	36.9	82.0%
18	36	28	77.8%	29.9	83.0%	29.9	83.0%
19	31	24	77.4%	26.0	84.0%	26.0	84.0%
20	29	26	89.7%	24.7	85.0%	24.7	85.0%
21	25	21	84.0%	21.5	86.0%	21.5	86.0%
22	18	14	77.8%	15.7	87.0%	15.7	87.0%
23	24	19	79.2%	21.1	88.0%	21.1	88.0%
24	11	6	54.5%	9.8	89.0%	9.8	89.0%
25	9	8	88.9%	8.1	90.0%	8.1	90.0%
26	5	4	80.0%	4.5	90.0%	4.5	90.0%
27	10	10	100.0%	9.0	90.0%	9.0	90.0%
28	6	5	83.3%	5.4	90.0%	5.4	90.0%
29	5	5	100.0%	4.5	90.0%	4.5	90.0%
30	6	6	100.0%	5.4	90.0%	5.4	90.0%
	3,411	2,425	71.1%	2,475.3	72.6%	2,475.3	72.6%

Data Summary I-12
Probability of Electing a Vested Benefit
Other Membership - Females (Weighted)

Duration	Exposure	Actual Remaining	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
4	6,532	4,044	61.9%	4,572.2	70.0%	4,572.2	70.0%
5	7,086	4,758	67.1%	4,960.2	70.0%	4,960.2	70.0%
6	6,375	4,341	68.1%	4,462.4	70.0%	4,462.4	70.0%
7	6,529	4,127	63.2%	4,570.1	70.0%	4,570.1	70.0%
8	5,908	4,067	68.8%	4,135.5	70.0%	4,135.5	70.0%
9	5,130	3,615	70.5%	3,668.1	71.5%	3,668.1	71.5%
10	5,780	4,096	70.9%	4,219.7	73.0%	4,219.7	73.0%
11	5,229	3,762	71.9%	3,895.9	74.5%	3,895.9	74.5%
12	4,283	3,178	74.2%	3,254.8	76.0%	3,254.8	76.0%
13	3,905	2,589	66.3%	3,026.5	77.5%	3,026.5	77.5%
14	3,131	2,153	68.8%	2,473.9	79.0%	2,473.9	79.0%
15	2,251	1,615	71.7%	1,801.2	80.0%	1,801.2	80.0%
16	2,347	2,056	87.6%	1,900.7	81.0%	1,900.7	81.0%
17	2,434	1,944	79.9%	1,996.0	82.0%	1,996.0	82.0%
18	2,063	1,516	73.5%	1,712.5	83.0%	1,712.5	83.0%
19	2,314	1,745	75.4%	1,944.1	84.0%	1,944.1	84.0%
20	1,896	1,649	87.0%	1,611.9	85.0%	1,611.9	85.0%
21	1,574	1,307	83.0%	1,353.6	86.0%	1,353.6	86.0%
22	1,773	1,292	72.9%	1,542.2	87.0%	1,542.2	87.0%
23	2,090	1,614	77.2%	1,839.6	88.0%	1,839.6	88.0%
24	904	483	53.4%	804.6	89.0%	804.6	89.0%
25	1,083	944	87.1%	974.7	90.0%	974.7	90.0%
26	314	297	94.7%	282.6	90.0%	282.6	90.0%
27	1,088	1,088	100.0%	979.0	90.0%	979.0	90.0%
28	911	818	89.8%	820.3	90.0%	820.3	90.0%
29	517	517	100.0%	465.3	90.0%	465.3	90.0%
30	574	574	100.0%	516.7	90.0%	516.7	90.0%
	84,023	60,190	71.6%	63,784.2	75.9%	63,784.2	75.9%

APPENDIX J

SALARY INCREASES

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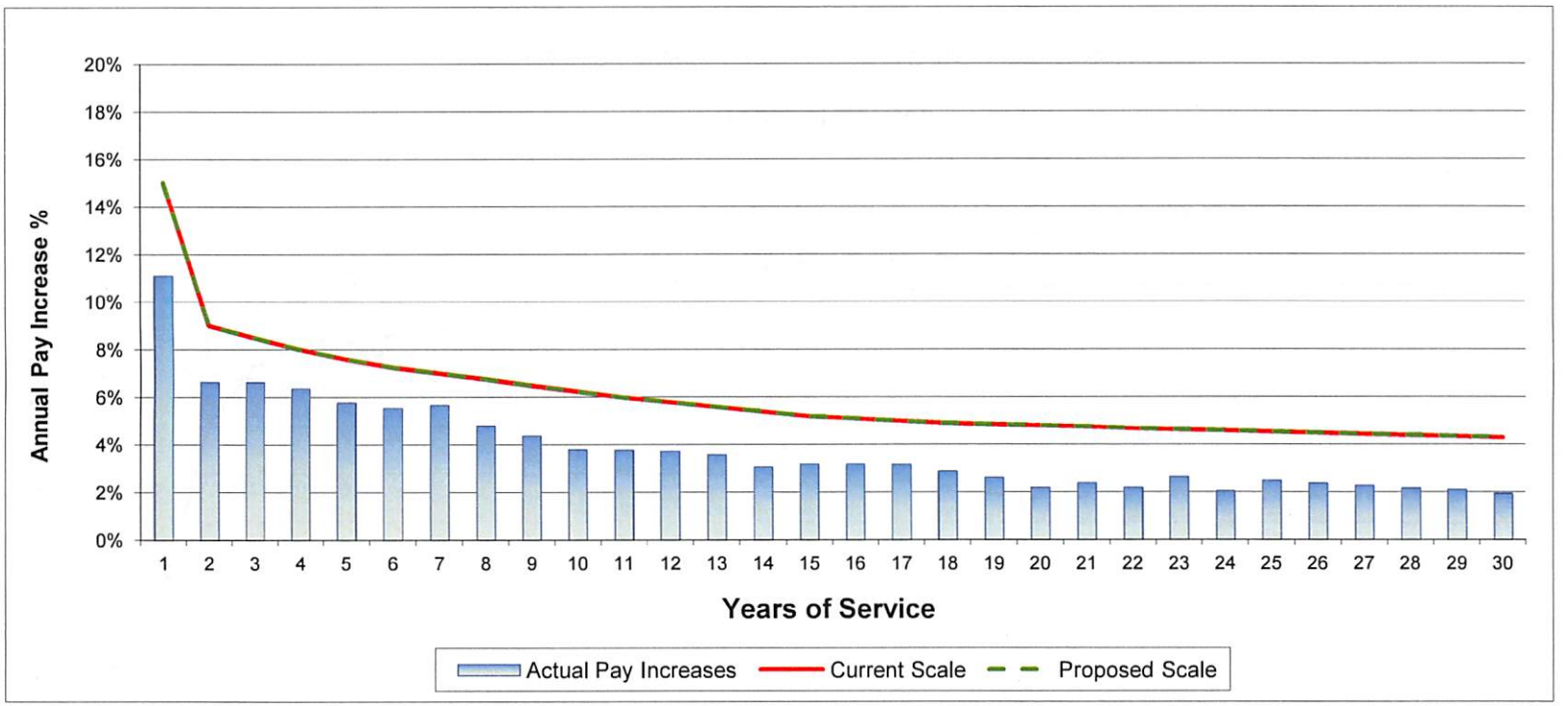
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit J-1

Salary Increases

State Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Salary Increases	4.16%	6.31%	6.31%

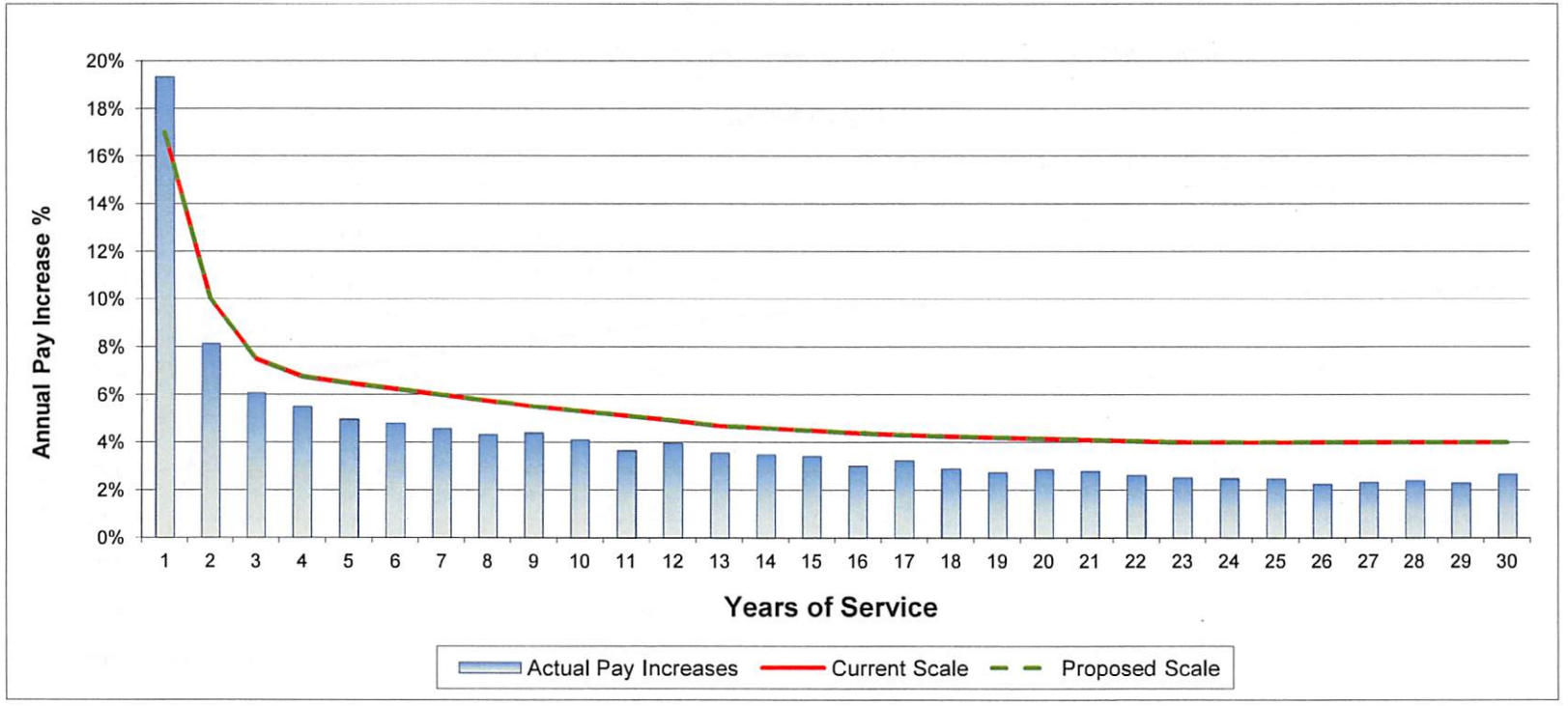
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit J-2

Salary Increases

School Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Salary Increases	4.48%	5.70%	5.70%

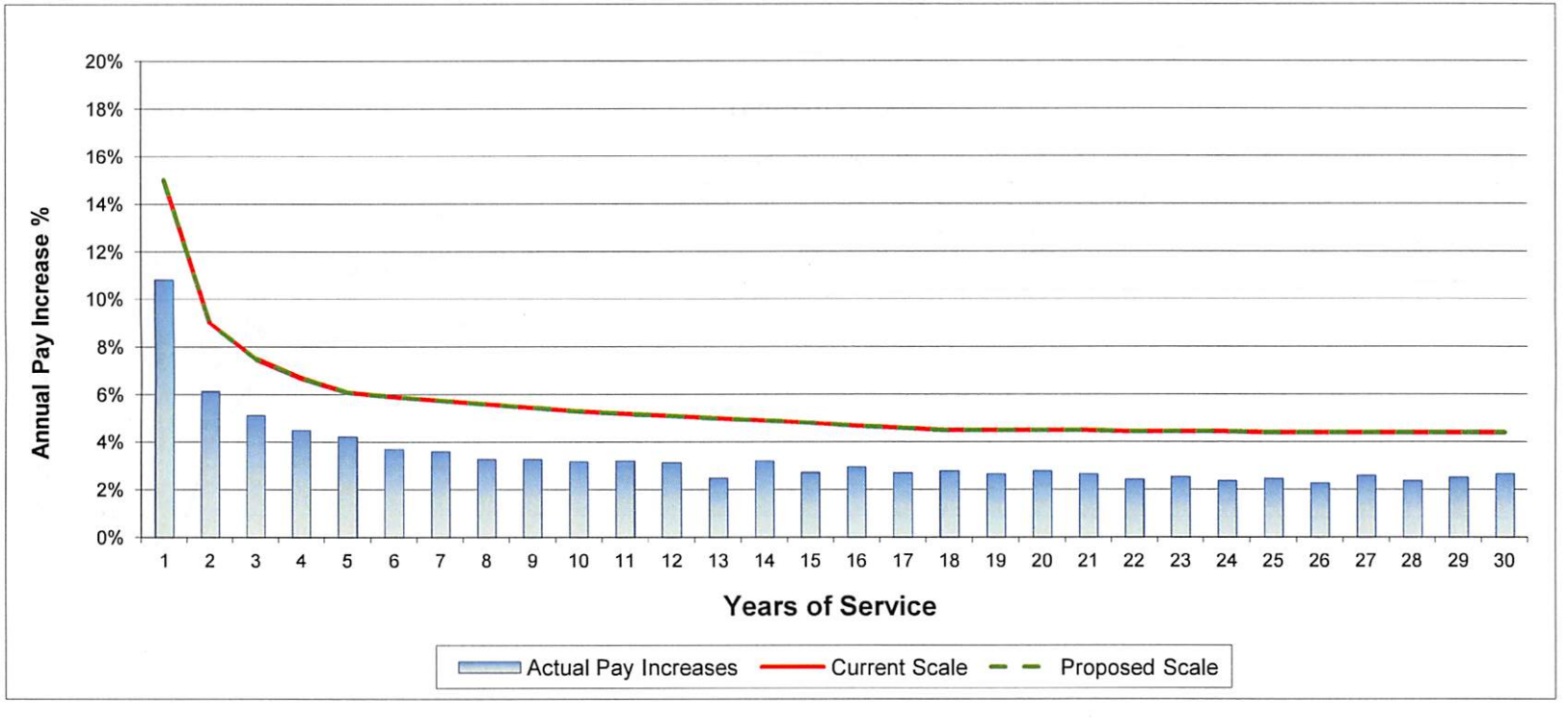
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit J-3

Salary Increases

Other Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Salary Increases	3.99%	6.22%	6.22%

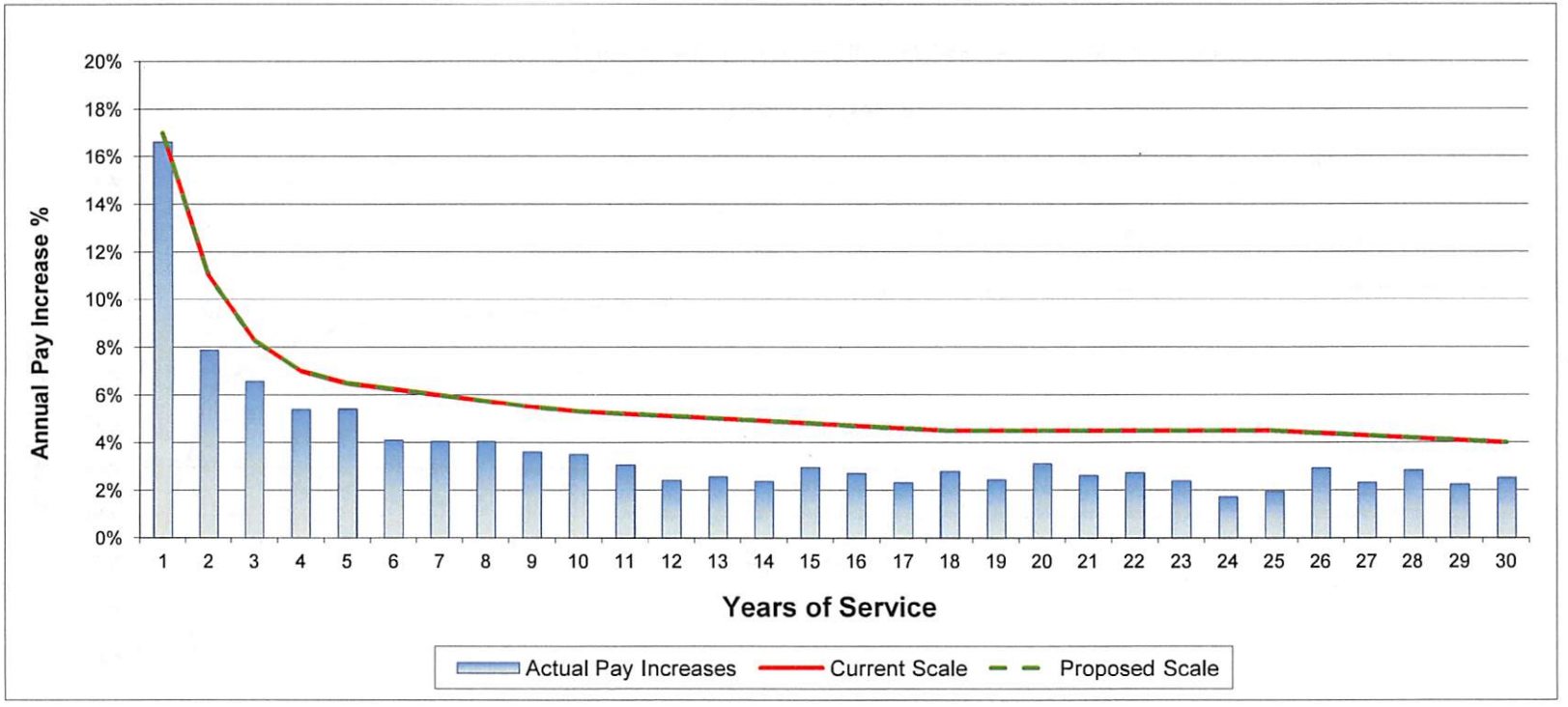
Iowa Public Employees' Retirement System

2009-2013 Experience Study

Exhibit J-4

Salary Increases

Special Services Membership



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Total Salary Increases	4.26%	6.20%	6.20%

Data Summary J-1
Salary Increases
State Membership

Duration	Initial Salary (Millions)	Subsequent Salary (Millions)	Actual Rate	Current Expected (Millions)	Current Rate	Proposed Expected (Millions)	Proposed Rate
1	137.6	152.9	11.1%	158.2	15.0%	158.2	15.0%
2	153.8	164.0	6.6%	167.7	9.0%	167.7	9.0%
3	159.8	170.4	6.6%	173.4	8.5%	173.4	8.5%
4	171.1	182.0	6.4%	184.8	8.0%	184.8	8.0%
5	150.0	158.7	5.8%	161.4	7.6%	161.4	7.6%
6	138.9	146.6	5.6%	149.0	7.3%	149.0	7.3%
7	121.3	128.2	5.7%	129.8	7.0%	129.8	7.0%
8	115.3	120.8	4.8%	123.0	6.8%	123.0	6.8%
9	127.0	132.6	4.4%	135.3	6.5%	135.3	6.5%
10	137.6	142.8	3.8%	146.2	6.3%	146.2	6.3%
11	158.7	164.7	3.8%	168.3	6.0%	168.3	6.0%
12	156.7	162.5	3.7%	165.7	5.8%	165.7	5.8%
13	143.7	148.9	3.6%	151.8	5.6%	151.8	5.6%
14	130.6	134.6	3.1%	137.7	5.4%	137.7	5.4%
15	113.5	117.2	3.2%	119.5	5.2%	119.5	5.2%
16	102.8	106.1	3.2%	108.1	5.1%	108.1	5.1%
17	89.8	92.6	3.2%	94.3	5.0%	94.3	5.0%
18	81.9	84.2	2.9%	85.9	4.9%	85.9	4.9%
19	82.4	84.6	2.6%	86.4	4.9%	86.4	4.9%
20	90.1	92.0	2.2%	94.4	4.8%	94.4	4.8%
21	103.0	105.5	2.4%	107.9	4.8%	107.9	4.8%
22	110.0	112.4	2.2%	115.1	4.7%	115.1	4.7%
23	102.9	105.7	2.7%	107.7	4.7%	107.7	4.7%
24	102.6	104.7	2.0%	107.3	4.6%	107.3	4.6%
25	101.5	104.0	2.5%	106.1	4.6%	106.1	4.6%
26	93.2	95.5	2.4%	97.4	4.5%	97.4	4.5%
27	92.5	94.6	2.3%	96.6	4.5%	96.6	4.5%
28	81.7	83.4	2.2%	85.3	4.4%	85.3	4.4%
29	71.9	73.4	2.1%	75.0	4.4%	75.0	4.4%
30	72.3	73.7	1.9%	75.4	4.3%	75.4	4.3%
	3,494.0	3,639.3	4.2%	3,714.4	6.3%	3,714.4	6.3%

Data Summary J-2
Salary Increases
School Membership

Duration	Initial Salary (Millions)	Subsequent Salary (Millions)	Actual Rate	Current Expected (Millions)	Current Rate	Proposed Expected (Millions)	Proposed Rate
1	370.6	442.3	19.3%	433.6	17.0%	433.6	17.0%
2	415.8	449.6	8.1%	457.4	10.0%	457.4	10.0%
3	442.1	469.0	6.1%	475.3	7.5%	475.3	7.5%
4	462.7	488.2	5.5%	494.0	6.8%	494.0	6.8%
5	455.5	478.1	5.0%	485.1	6.5%	485.1	6.5%
6	434.7	455.5	4.8%	461.9	6.3%	461.9	6.3%
7	412.8	431.6	4.6%	437.5	6.0%	437.5	6.0%
8	405.4	422.9	4.3%	428.7	5.8%	428.7	5.8%
9	412.8	430.9	4.4%	435.5	5.5%	435.5	5.5%
10	419.7	437.0	4.1%	442.0	5.3%	442.0	5.3%
11	430.5	446.2	3.7%	452.4	5.1%	452.4	5.1%
12	423.1	439.9	4.0%	443.9	4.9%	443.9	4.9%
13	405.7	420.2	3.6%	424.8	4.7%	424.8	4.7%
14	384.7	398.1	3.5%	402.4	4.6%	402.4	4.6%
15	372.3	385.1	3.4%	389.1	4.5%	389.1	4.5%
16	359.9	370.8	3.0%	375.7	4.4%	375.7	4.4%
17	336.7	347.6	3.2%	351.2	4.3%	351.2	4.3%
18	325.9	335.3	2.9%	339.7	4.3%	339.7	4.3%
19	311.8	320.3	2.7%	324.8	4.2%	324.8	4.2%
20	291.8	300.2	2.9%	303.9	4.2%	303.9	4.2%
21	281.4	289.3	2.8%	292.9	4.1%	292.9	4.1%
22	261.9	268.8	2.6%	272.5	4.1%	272.5	4.1%
23	241.3	247.3	2.5%	250.9	4.0%	250.9	4.0%
24	228.5	234.1	2.5%	237.6	4.0%	237.6	4.0%
25	217.8	223.2	2.5%	226.6	4.0%	226.6	4.0%
26	207.4	212.1	2.3%	215.7	4.0%	215.7	4.0%
27	187.0	191.4	2.3%	194.5	4.0%	194.5	4.0%
28	167.8	171.8	2.4%	174.5	4.0%	174.5	4.0%
29	157.6	161.3	2.3%	163.9	4.0%	163.9	4.0%
30	157.4	161.6	2.7%	163.7	4.0%	163.7	4.0%
	9,982.7	10,429.8	4.5%	10,551.8	5.7%	10,551.8	5.7%

Data Summary J-3
Salary Increases
Other Membership

Duration	Initial Salary (Millions)	Subsequent Salary (Millions)	Actual Rate	Current Expected (Millions)	Current Rate	Proposed Expected (Millions)	Proposed Rate
1	448.3	496.9	10.8%	515.5	15.0%	515.5	15.0%
2	425.8	451.9	6.1%	464.1	9.0%	464.1	9.0%
3	402.8	423.5	5.2%	433.0	7.5%	433.0	7.5%
4	377.7	394.7	4.5%	403.0	6.7%	403.0	6.7%
5	330.2	344.1	4.2%	350.3	6.1%	350.3	6.1%
6	298.1	309.2	3.7%	315.7	5.9%	315.7	5.9%
7	277.3	287.3	3.6%	293.2	5.8%	293.2	5.8%
8	269.1	277.9	3.3%	284.2	5.6%	284.2	5.6%
9	276.5	285.7	3.3%	291.6	5.5%	291.6	5.5%
10	285.6	294.7	3.2%	300.7	5.3%	300.7	5.3%
11	275.4	284.3	3.2%	289.8	5.2%	289.8	5.2%
12	256.8	264.9	3.1%	269.9	5.1%	269.9	5.1%
13	234.8	240.6	2.5%	246.5	5.0%	246.5	5.0%
14	212.2	219.1	3.2%	222.6	4.9%	222.6	4.9%
15	198.1	203.6	2.7%	207.7	4.8%	207.7	4.8%
16	185.5	191.0	3.0%	194.2	4.7%	194.2	4.7%
17	174.7	179.5	2.7%	182.8	4.6%	182.8	4.6%
18	163.4	168.0	2.8%	170.7	4.5%	170.7	4.5%
19	164.6	169.0	2.7%	172.0	4.5%	172.0	4.5%
20	164.1	168.8	2.8%	171.5	4.5%	171.5	4.5%
21	162.6	167.0	2.7%	170.0	4.5%	170.0	4.5%
22	155.7	159.5	2.5%	162.6	4.5%	162.6	4.5%
23	137.5	141.0	2.6%	143.6	4.5%	143.6	4.5%
24	124.6	127.5	2.4%	130.1	4.5%	130.1	4.5%
25	113.5	116.3	2.5%	118.4	4.4%	118.4	4.4%
26	102.4	104.7	2.3%	106.9	4.4%	106.9	4.4%
27	97.1	99.6	2.6%	101.4	4.4%	101.4	4.4%
28	92.3	94.5	2.4%	96.4	4.4%	96.4	4.4%
29	92.3	94.6	2.5%	96.4	4.4%	96.4	4.4%
30	96.4	98.9	2.7%	100.6	4.4%	100.6	4.4%
	6,595.4	6,858.5	4.0%	7,005.5	6.2%	7,005.5	6.2%

Data Summary J-4
Salary Increases
Special Services Membership

Duration	Initial Salary (Millions)	Subsequent Salary (Millions)	Actual Rate	Current Expected (Millions)	Current Rate	Proposed Expected (Millions)	Proposed Rate
1	57.0	66.4	16.6%	66.7	17.0%	66.7	17.0%
2	70.4	75.9	7.9%	78.1	11.0%	78.1	11.0%
3	73.6	78.4	6.6%	79.7	8.3%	79.7	8.3%
4	74.4	78.4	5.4%	79.6	7.0%	79.6	7.0%
5	65.3	68.8	5.4%	69.5	6.5%	69.5	6.5%
6	58.8	61.2	4.1%	62.5	6.3%	62.5	6.3%
7	55.0	57.2	4.1%	58.3	6.0%	58.3	6.0%
8	53.0	55.1	4.1%	56.0	5.8%	56.0	5.8%
9	58.9	61.1	3.6%	62.2	5.5%	62.2	5.5%
10	62.1	64.3	3.5%	65.4	5.3%	65.4	5.3%
11	67.1	69.2	3.1%	70.6	5.2%	70.6	5.2%
12	70.3	72.0	2.4%	73.9	5.1%	73.9	5.1%
13	62.5	64.1	2.6%	65.6	5.0%	65.6	5.0%
14	55.8	57.1	2.4%	58.5	4.9%	58.5	4.9%
15	48.8	50.2	3.0%	51.1	4.8%	51.1	4.8%
16	43.4	44.6	2.7%	45.5	4.7%	45.5	4.7%
17	37.1	37.9	2.3%	38.8	4.6%	38.8	4.6%
18	32.8	33.7	2.8%	34.3	4.5%	34.3	4.5%
19	33.0	33.8	2.4%	34.5	4.5%	34.5	4.5%
20	31.3	32.3	3.1%	32.8	4.5%	32.8	4.5%
21	31.4	32.2	2.6%	32.8	4.5%	32.8	4.5%
22	30.6	31.4	2.7%	31.9	4.5%	31.9	4.5%
23	26.2	26.8	2.4%	27.4	4.5%	27.4	4.5%
24	23.4	23.8	1.7%	24.4	4.5%	24.4	4.5%
25	23.8	24.2	2.0%	24.8	4.5%	24.8	4.5%
26	21.0	21.6	2.9%	21.9	4.4%	21.9	4.4%
27	20.2	20.6	2.3%	21.0	4.3%	21.0	4.3%
28	18.5	19.0	2.8%	19.3	4.2%	19.3	4.2%
29	16.5	16.8	2.3%	17.1	4.1%	17.1	4.1%
30	15.4	15.8	2.5%	16.0	4.0%	16.0	4.0%
	1,337.3	1,394.2	4.3%	1,420.2	6.2%	1,420.2	6.2%