

City of Springfield

Police Officers' and Fire Fighters' Retirement System

Experience Study for the Period

July 1, 2014 through June 30, 2018

Prepared December 2018

**City of Springfield
Police Officers' and Fire Fighters' Retirement System**

June 30, 2018 Experience Study

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Introduction and Purpose

The Pension Board of the City of Springfield Police Officers' and Fire Fighters' Retirement System requested Milliman to perform an experience analysis of the actuarial assumptions used in the annual funding calculations for the System.

Experience for the period July 1, 2014 - June 30, 2018 was examined in this study. Any exceptions to the period reviewed are specifically noted in the report.

Assumptions were analyzed by reviewing past experience of the System. Where appropriate, industry statistics (such as for mortality experience) were also utilized. Where appropriate, the analysis considers future expectations in addition to prior experience.

In accordance with prior practice, the recommended contribution for the July 1, 2019 - June 30, 2020 fiscal year will be based on the June 30, 2018 actuarial valuation. The June 30, 2018 actuarial valuation results based on the current and proposed assumption sets are presented in this report. Any changes approved by the Trustees will be reflected in the June 30, 2019 actuarial valuation results.

The analysis and recommendations are based upon the System's current provisions. A significant change to the System rules would warrant additional analysis to determine if these recommendations are still appropriate under such a System change.

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Actuarial Certification

As requested, we have performed an experience study of the City of Springfield Police Officers' and Fire Fighters' Retirement System for the period July 1, 2014 through June 30, 2018. Our findings are set forth in this actuary's report. This report reflects the benefit provisions and contribution rates in effect as of June 30, 2018.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the City. This information includes, but is not limited to, statutory provisions, employee data and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The study results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different, and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the System.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The Board of Trustees has the final decision regarding the appropriateness of the assumptions.

Milliman's work is prepared solely for the internal business use of the City of Springfield. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

- (a) The City may provide a copy of Milliman's work, in its entirety, to the System's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the System.
- (b) The City may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

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No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, 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. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,



Michael J. Zwiener, FSA
Consulting Actuary



Michael A. Sudduth, FSA
Consulting Actuary

MJZ/MAS/giy

Analysis of Individual Assumptions

The true cost of a retirement Fund is:

the amount of benefits paid
plus
administrative expenses
minus
investment income earned

In theory, benefits could simply be paid as they come due with no advance funding at all.

Advance funding means to set funds aside while the benefits are being earned by System Members. The actuarial funding method and assumptions are nothing more than a budgeting tool to allocate the costs of the System to the various years in a systematic manner.

It is key to understand that while changing an assumption will impact the current year funding requirement, it does not change the long-term cost of the System at all. Assumptions that are overly conservative will generate actuarial gains and a decreasing pattern of costs over time. Assumptions that are too optimistic will generate actuarial losses and an increasing pattern of costs.

Assumptions must be periodically reviewed and modified, as appropriate, as System experience and external conditions change.

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Rate of Investment Return

The investment return assumption has the greatest impact on the valuation of plan liabilities and annual contribution requirements. The current investment return assumption is 7%. Since no explicit expense assumptions are made in the valuation, the 7% assumption is net of all investment and administrative expenses.

While the true long-term cost of the plan will not change because of the investment return assumptions, it will affect current year contribution requirements. The higher the assumed investment return assumption, the lower the current year contribution requirement. Similarly, a lower investment return assumption will increase the current year contribution requirement.

The valuation investment return assumption should represent the expected long-term rate of return on the actuarial value of assets, considering the System's asset allocation policy, expected long-term real rates of return on specific asset classes, the underlying inflation rate and investment-related expenses.

Actuarial Standard of Practice No. 27 – Selection of Economic Assumptions for Measuring Pension Obligations (ASOP No. 27) provided guidance to actuaries on selecting assumptions for measuring obligations under defined benefit pension plans. Because the future cannot be accurately predicted, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a combination 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, ASOP No. 27 explicitly advises the actuary not to give undue weight to recent experience.

Recognizing that there is not one “right answer,” ASOP No. 27 calls for the actuary to develop a reasonable assumption. Each economic assumption should individually satisfy the standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

Milliman's assumption for long-term inflation is 2.30%. This is based on three forward-looking measures: 1) a fourth quarter 2017 survey of professional forecasters published by the Philadelphia Federal Reserve Bank, 2) a December 1, 2017 survey of economists published by Blue Chip Financial Forecasters and 3) “break even” inflation implied by the US government bond market. The median forecast of average inflation over the next ten years (based on the CPI-U) of 34 professional forecasters surveyed by the Philadelphia Federal Reserve Bank during the fourth quarter of 2017 is 2.20%. The consensus forecast of average inflation over the next ten years by the economists in the Blue Chip survey is 2.24%.

Break-even inflation is the difference between the yield on long maturity conventional treasury bonds and the real yield on long maturity inflation-indexed bonds. It is the average growth rate in the CPI-U needed for the inflation-indexed bonds to provide the same total as the conventional bond. This difference was about 2.3% for maturities in the 10-20 year range at the end of December 2017. Based

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on this analysis, we recommend that the inflation assumption be reduced from 2.50% to 2.30%. The nominal return for each asset class is equal to the real return for that class plus the assumed inflation rate. Milliman’s expected one-year asset class returns (“capital market assumptions”) are updated on an annual basis. The capital market assumptions for fixed income classes are determined using current yield-to-maturity and forecasts of future yields. For equity classes, we use the dividend discount model, smoothed earnings yield model and equity risk premium model to develop expected returns.

The System’s investment policy and the actual investment allocation as of June 30, 2018 are the sources for the asset allocations shown below. The expected one-year nominal returns and annual standard deviation columns are from Milliman’s current capital market assumption model.

Asset Class	% of Target Portfolio	% of Total Actual 06/30/2018 Portfolio	Milliman Capital Market Assumption	
			One-Year Nominal Return	Annual Standard Deviation
U.S. Core Fixed Income	10.0%	9.8%	4.56%	4.55%
U.S. Long-Term Fixed Income	10.0%	9.6%	5.21%	9.85%
Global Bonds	2.5%	7.3%	2.89%	8.65%
Emerging Market Bonds	5.0%	5.7%	6.08%	14.20%
U.S. Large Cap Equity	17.0%	20.5%	6.82%	15.85%
U.S. Small Cap Equity	4.5%	5.4%	8.08%	20.55%
Foreign Developed Equity	11.0%	13.6%	8.08%	18.70%
Emerging Markets Equity	11.0%	11.3%	10.42%	27.35%
Non-U.S. Small Cap Equity	4.0%	3.7%	8.54%	19.75%
Global REITs	2.5%	2.7%	8.13%	21.00%
Real Estate	4.0%	2.8%	6.15%	12.00%
Hedge Fund of Funds-Conservative	5.0%	7.6%	4.07%	5.75%
Hedge Funds – Multi Strategy	5.0%	0.0%	5.86%	8.85%
Hedge Funds – Event-Driven	5.0%	0.0%	5.97%	8.90%
Infrastructure	3.5%	0.0%	7.40%	14.65%

The above returns are one-year or arithmetic mean returns. However, the actuarial rate of return assumption needs to be the geometric mean return to reflect that it is a compounded or annualized rate of return. The geometric mean (annualized return) is always less than the arithmetic mean. Also, the more volatile the returns (measured by higher standard deviations) the larger the difference between the arithmetic mean and geometric mean.

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Applying appropriate correlation factors between each of the asset classes, we estimate that the expected long-term geometric nominal return is 6.19% for the target portfolio and 6.05% for the actual June 30, 2018 asset allocation. We note that the 25th to 75th percentile range from the estimated distribution of geometric returns over a 30-year period is 4.84% to 7.85% for the target allocation and 4.68% to 7.43% for the current allocation.

Because the System does not have an explicit assumption for administrative and investment expenses, the assumption must be net of those items.

The current 7% assumption is within, but at the high end of, the range using both the target allocation and the actual June 30, 2018 allocation.

We further analyzed the investment return assumption by reviewing the most recent annual capital market assumption survey published by Horizon Actuarial Services, LLC. Horizon conducts an annual capital market assumption survey of 35 investment advisory firms. Of this group, 12 provide 20 year expected return information; such data is the best “fit” to our analysis. Their average inflation assumption is 2.44%. When Horizon’s average capital market assumptions by asset class are applied to the System’s asset allocation, the 50th percentile return that results is 7.41%.

Past Experience of the Fund

Market value rates of return for the last ten years are shown in the table below:

Rate of Return Net of Investment and Administrative Expenses*

<u>Plan Year Ending</u>		<u>Plan Year Ending</u>	
June 30, 2009	-19.1%	June 30, 2014	14.2%
June 30, 2010	8.6%	June 30, 2015	-1.5%
June 30, 2011	21.7%	June 30, 2016	1.0%
June 30, 2012	0.6%	June 30, 2017	10.0%
June 30, 2013	10.5%	June 30, 2018	4.6%
5 Yr. Arithmetic Avg.	5.66%	5 Yr. Geometric Avg.	5.50%
10 Yr. Arithmetic Avg.	5.06%	10 Yr. Geometric Avg.	4.51%

** These approximate returns were computed using the common formula $2I / (A+B-I)$, where I is recognized investment income net of administrative and investment expenses, A is the beginning of the year market value and B is the end of the year market value.*

These returns cannot be used for purposes of comparing or measuring the performance of investment managers, as they do not reflect the exact timing of cash flows during the year.

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Summary

The System's historical performance has been well below the 7% assumption. The analysis based on Milliman's current capital market assumptions is also significantly below 7.0%. Only the Horizon survey generates a 50th percentile expected return in excess of 7.0%.

Recommendation

We recommend an investment return assumption of 6.5%, net of expenses, and an inflation assumption of 2.30%.

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Salary Increases

The assumption that typically has the greatest impact on the valuation of plan liabilities (other than investment return) is the salary increase assumption. The current salary increase assumption is as follows:

<u>Years of Service</u>	<u>Fire</u>	<u>Police</u>
1	7.0%	7.0%
2	7.0%	7.0%
3	7.0%	7.0%
4	7.0%	7.0%
5	7.0%	7.0%
6	7.0%	7.0%
7	4.0%	7.0%
8	4.0%	7.0%
9	4.0%	4.0%
10	4.0%	4.0%
11	2.5%	4.0%
12	2.5%	4.0%
13 and later	2.5%	2.5%

The higher the assumed salary increase assumption, the greater the current year contribution requirement. A lower salary increase assumption will result in a lower current year contribution requirement.

Past Experience

The salary increase assumption applies with respect to the expected increase in salary for an employee who was an active participant during the entire year. It is not an assumption as to the increase in aggregate payroll because that is affected by the change in the size of the active group as well as salary increases. Historical information for the System is given below:

<u>Plan Year Ending</u>	<u>Average Fire Compensation Increases</u>		
	<u>1 - 8 Years of Service</u>	<u>9 - 12 Years of Service</u>	<u>13+ Years of Service</u>
6/30/15	N/A	6.82%	5.61%
6/30/16	N/A	11.84%	10.02%
6/30/17	N/A	2.05%	-0.55%
6/30/18	N/A	3.45%	1.93%
7/1/14 – 6/30/18			
Weighted Average	N/A	6.78%	4.40%

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Average Police Compensation Increases			
Plan Year <u>Ending</u>	<u>1 - 6 Years</u> <u>of Service</u>	<u>7 - 10 Years</u> <u>of Service</u>	<u>11+ Years</u> <u>of Service</u>
6/30/15	N/A	11.51%	7.33%
6/30/16	N/A	6.14%	10.84%
6/30/17	N/A	-6.83%	0.84%
6/30/18	N/A	N/A	2.96%
7/1/14-6/30/18			
Weighted Average	N/A	9.45%	5.63%

Analysis

Average salary increases over the past four plan years have been higher than the assumed rates for both Fire and Police Members, but lower over the past two years. Further, we note that there are now no members with less than twelve Years of Service and are thus in the stage of their working careers where annual compensation increases gravitate towards annual CPI rates.

Recommendation

Taking into account past experience and the fact that all active Members have passed through the portion of their careers with regular merit increases, we recommend maintaining the ultimate 2.5% annual pay increase assumption.

Further Analysis

Pay received in the year of retirement does not enter into the above analysis since that analysis only considers a Member who is active at both the beginning and end of the year.

The current assumptions include an adjustment to Final Average Earnings. The adjustment for Fire Members is a flat 9%; the adjustment for Police Members is a function of a frozen continuous operating holiday balance. We examined 71 new age/service retirees who retired during the four years ending June 30, 2018. Actual Final Average Earnings were slightly lower on average, than that generated by the assumption for Fire Members; the reverse was true for Police Members.

Recommendation

We recommend maintaining the current assumptions.

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Post-Retirement Mortality

Since mortality is such a low frequency decrement, it requires the experience of a large population to provide credible experience. In other words, even though the experience of the System is considered, the group is not large enough to rely only on System experience.

For healthy lives, the current mortality assumption is the RP-2000 Employee and Healthy Annuitant Mortality Tables, male and female rates, with generational projection based on Scale AA. For disabled lives, the current assumption is the RP-2000 Disabled Mortality Table, male and female rates, with no projection.

The System experienced 39 actual healthy post retirement deaths (and 11 actual disabled post retirement deaths) from July 1, 2014 through June 30, 2018. The current mortality assumption indicates 44 expected healthy deaths and 24 disabled deaths over the same period.

Actual System experience, while informative, is not statistically valid since the size of the studied group is relatively small, so we must rely on industry practice and future expectations.

Recommendation

We recommend maintaining the current assumption for healthy post retirement lives and adopting the Scale AA generational projection for disabled lives.

The Society of Actuaries is in the process of constructing updated mortality tables based on Public Retirement Plan experience. It is currently in the Exposure draft stage; final publication is not expected until 2019. We recommend that when the final tables are published they are compared against the System's current tables to determine if a modification to the System's assumed mortality is warranted.

Charts 1 – 4 in the Appendix show the actual, expected, and proposed post-retirement mortality rates over the study period.

Disability Retirement

Similar to the mortality decrement, disability requires the experience of a large population to provide credible experience.

The current disability assumption generated 10 expected disabilities for the period July 1, 2014 through June 30, 2018. Actual experience for the period produced 4 disabilities (all of which are duty related). The assumption is that all disabilities are duty related.

Recommendation

We recommend reducing the disability incidence rates by 50%.

Charts 5-7 in the Appendix show the actual, expected, and proposed rates of disability incidence over the study period for Fire Members, Police Members, Fire and Police Members combined.

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Turnover

Turnover refers to Members who terminate from employment other than from death, disability or retirement.

Turnover experience differs substantially between Police and Fire. The number of Police Members expected to leave through turnover during the study period was 19. The actual number was 9. The number of Fire Members expected to leave through turnover during the study period was 4. The actual number was 1.

Lower assumed turnover rates will tend to increase current year contribution requirements while higher assumed turnover will decrease current year contribution requirements.

Recommendation

We recommend reducing the turnover rates by 50%.

Charts 8 and 9 in the Appendix show the actual, expected, and proposed turnover rates during the study period for Fire Members and Police Members, respectively.

Retirement Rates

Experience during the period from July 1, 2014 through June 30, 2018 was examined.

During this period, 71 Members retired (other than under the disability provisions). The expected aggregate number of retirements was 43.

Of greater significance is the ages at which retirements are occurring. Rates of retirement at all ages other than age 58 and age 60 are higher than assumed.

Recommendation

Minor increases to the rates between age 45-54 are recommended as shown below:

<u>Retirement Ages</u>	<u>Current</u>	<u>Proposed</u>
45	25%	35%
46	25%	35%
47	25%	35%
48	25%	35%
49	25%	35%
50	25%	35%
51	20%	25%
52	20%	25%
53	20%	25%
54	25%	25%
55	50%	50%
56	50%	50%
57	50%	50%
58	50%	50%
59	50%	50%
60	100%	100%

Note that these rates apply only to those Members who have satisfied the requirements for age/service retirement. For example, the current assumption is that 20% of 51 year olds who are eligible to retire, do so within the year. It is not 20% of all 51 year olds retire within the next year.

Charts 10-12 in the Appendix show the actual, expected, and proposed retirement rates over the study period for Fire Members, Police Members and Fire and Police Members combined.

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Actuarial Methods and Procedures

The recommended contribution to the System each year is determined under the Entry Age Normal Cost Method.

In general, the annual recommended contribution under this method is determined as the sum of two pieces:

- Normal Cost - this is the cost of the benefits assigned to the current year under the cost method, plus
- Amortization of the Unfunded Accrued Liability (UAL)

The UAL may be amortized on a level dollar basis (similar to a home mortgage) or as a level percentage of payroll. Under the level percentage of payroll basis, the dollar amount of the amortization payment will grow from year to year as the payroll increases. The rate at which annual payroll is assumed to grow is thus a significant factor under the level percentage of payroll method.

The System currently uses the level dollar method.

Amortization Period

Current accounting rules allow a System to amortize the UAL over a period of up to 30 years. The amortization period can be “closed” where the period is reduced by 1 year each year or it can be “open” where a new 30 year period is re-established each year.

The System currently uses the “closed” method with a term of 20 years measured from June 30, 2010.

Recommendation

We recommend maintaining the current amortization method.

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Asset Smoothing Method

The System currently uses an asset smoothing method that is common among public sector funds. The purpose of using an asset smoothing method is to “smooth out” year-to-year cost swings that could occur if market value of assets was used in the actuarial calculations. Smoothed assets are sometimes referred to as the actuarial value of assets.

The method compares the amount of investment income expected under the 7.0% assumption and compares it to the investment income actually experienced for the year. The difference is spread over four years, recognizing 25% of this difference in the current year and another 25% in each of the succeeding three years until it is fully recognized.

We do not recommend any change to the asset smoothing method at this time.

Funding Information

The funding recommendation that was developed in the June 30, 2018 actuarial valuation applies to the July 1, 2019 – June 30, 2020 plan year.

We are aware that Board Members desire to have an approximate measure of the impact each of the recommendations contained in this report would have on the June 30, 2018 recommended contribution (for the 7/1/2019 – 6/30/2020 fiscal year). As such, we have provided the estimated cost impact of each recommendation contained in this report below. All amounts are the combined City/Member rates, shown in both dollar amounts and as a % of payroll:

	Funding Policy Contribution		<u>Funded Ratio</u>
	<u>\$ Amount</u>	<u>% of Payroll</u>	
1. June 30, 2018 – Baseline - no changes	13,994,359	84.36%	86.0%
2. Mortality, Disability, Turnover and Retirement Rate changes	15,453,168	93.15%	84.5%
3. Investment Return change	19,733,504	118.96%	79.6%

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Demographic Information

The census information used is the same as was used in the June 30, 2018 actuarial valuation.

A brief summary of the data is as follows:

Age and Service Retirees/Beneficiaries	420
Duty Disability Retirees/Beneficiaries	131
Non-Duty Disability Retirees/Beneficiaries	16
Duty Death Beneficiaries	4
Non-Duty Death Beneficiaries	4
Terminated with Deferred Benefits	18
Active	<u>235</u>
Total	828

In analyzing experience, data submitted for the June 30, 2014 and later valuations was also utilized.

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Summary of Plan Provisions

A summary of the current primary provisions of the System are described below. A complete description of the provisions can be found in Sections 2-441 through 2-483 of the Springfield City Code as amended through General Ordinance 6287 adopted June 27, 2016.

Average Salary

Average of the highest three years' salary within the last 10 Years of Service. Salary for this calculation is equal to actual salary before deductions, plus payments for unused floating holidays, unused compensatory time, scheduled holidays, Kelly days, pin days and accrued vacation time.

Normal Retirement Age

Eligibility for unreduced benefits upon meeting any of the following:

- Age 50 and 20 Years of Service,
- 25 Years of Service, or
- Age 60.

Age/Service Benefit

A monthly benefit equal to 1/12 of Average Salary times 2.8% times Years of Service. The maximum benefit is 70% of Average Salary.

Normal Form of Payment

The benefit is payable for the member's lifetime. If the member should predecease his/her spouse, the spouse is entitled to a lifetime survivors benefit. The amount of the benefit is a percentage of the Average Salary. The percentage is equal to 25% plus 1-1/8% for each Year of Service over five years, not to exceed 50% in total. There are no optional forms of payment.

Cost of Living Adjustment (COLA)

Every July 1st, the monthly pension is increased by 3% for the following groups of retirees provided pension payment has been paid at least 12 months prior to July 1:

- Age/service retirees age 56 or greater
- Disability retirees of any age

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Early Retirement Age

Eligibility for early retirement is satisfied upon attainment of age 55 and completion of five Years of Service.

Early Retirement Benefit

Determined using regular formula and reducing the result 1/200 for each month by which the benefit start date precedes age 60.

Member Contributions

17.70% of pay for Police Members and 15.13% of pay for Fire Members

Duty Disability

All members are eligible. The monthly benefit is equal to 2/3 of the salary in effect at the time of retirement.

Non-Duty Disability

Employees hired on or before January 1, 2005: A monthly benefit equal to 2.45% of Average Salary times Years of Service. A member must have three Years of Service to be eligible.

Employees hired after January 1, 2005 and before June 1, 2006: A monthly benefit equal to 2.45% of Average Salary times Years of Service. A member must have five Years of Service to be eligible.

In all cases, the minimum/maximum benefits are 25%/50% of Average Salary.

Duty Death in Service

All members are eligible. A monthly benefit to the spouse equal to 50% of salary in effect at time of death. Additional benefits to unmarried children under age 18, but total cannot exceed 75% of pre-death salary.

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Non-Duty Death in Service

A member is eligible after completing five Years of Service. The benefit is 25% of Average Salary plus 1 1/8% of Average Salary for each Year of Service in excess of five, not to exceed 50%. Additional benefits to unmarried children under 18 but total benefit cannot exceed 60% of Average Salary.

Return of Contributions

Member contributions are returned to age/service retirees and disability retirees upon commencement of monthly benefits, without interest.

Vested members who terminate before eligible for retirement may elect to receive a return of their own contributions without interest. Election of this benefit results in a forfeiture of any City provided benefit.

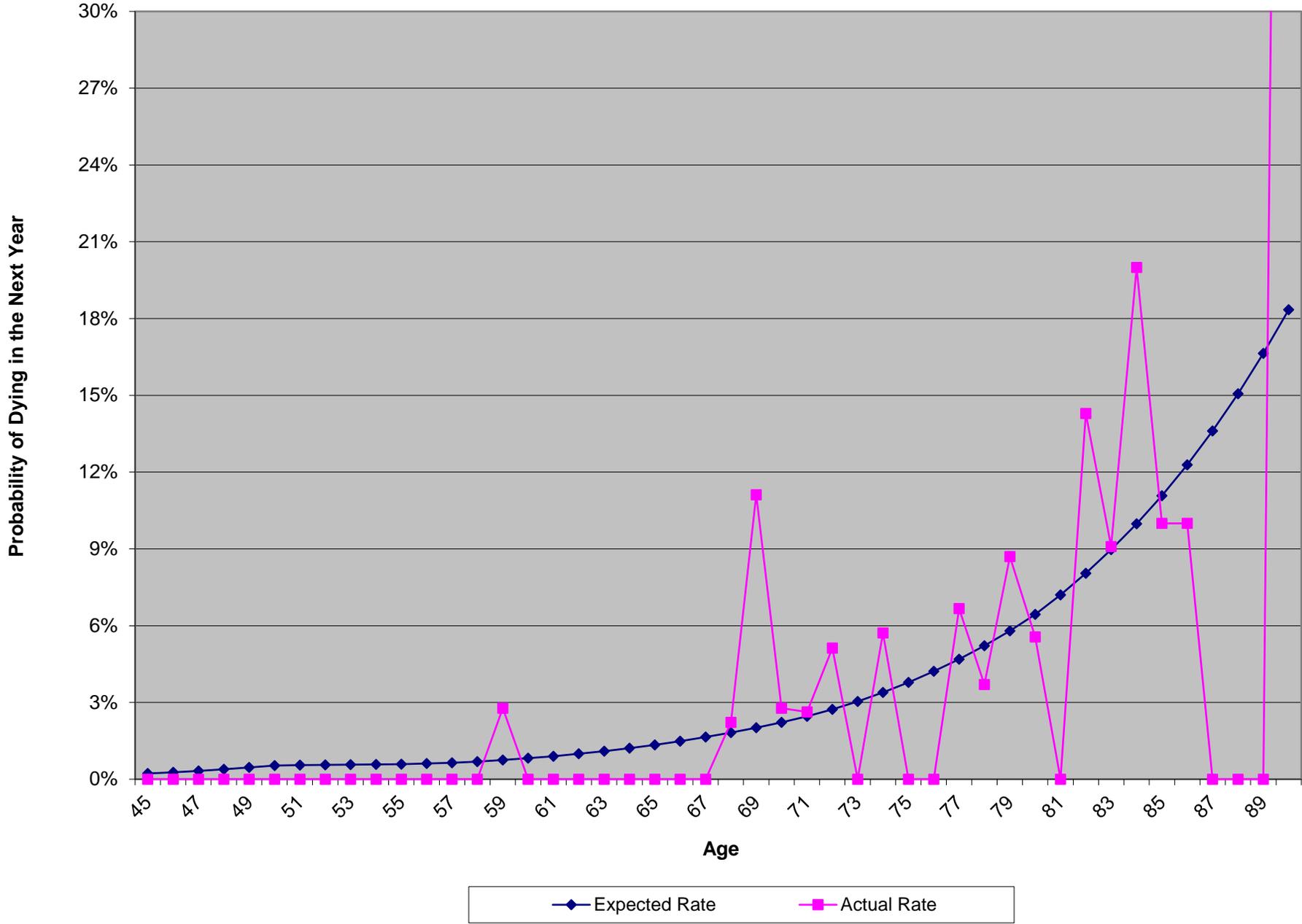
Eligibility

The System is now closed to new employees. Members hired on or after June 1, 2006 have been removed from the System and are currently participants in the LAGERS Pension System. Their contributions in this System have been refunded, and they are no longer due any benefits.

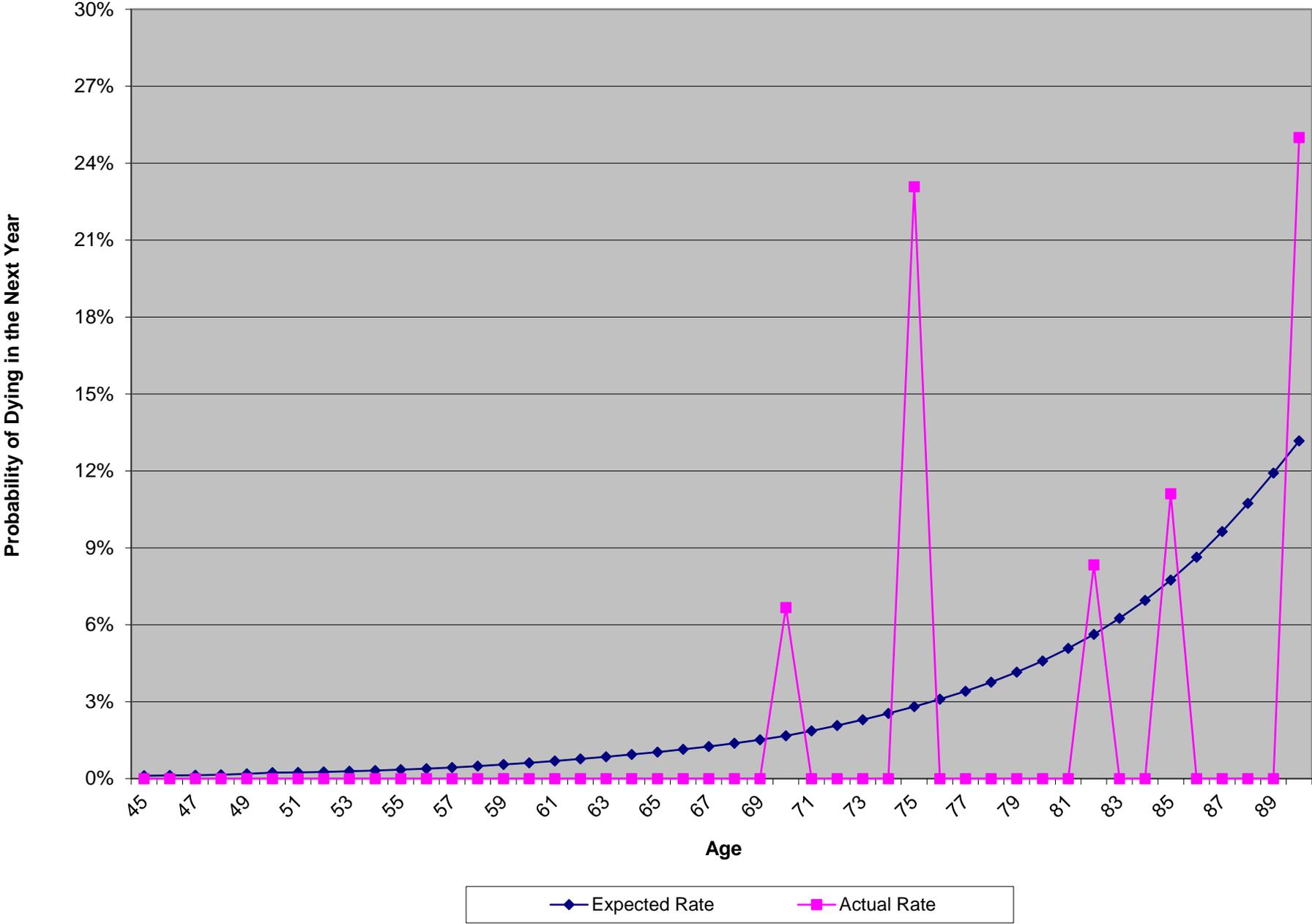
Members hired before June 1, 2006 will continue to earn benefits under the Plan as described above.

APPENDIX

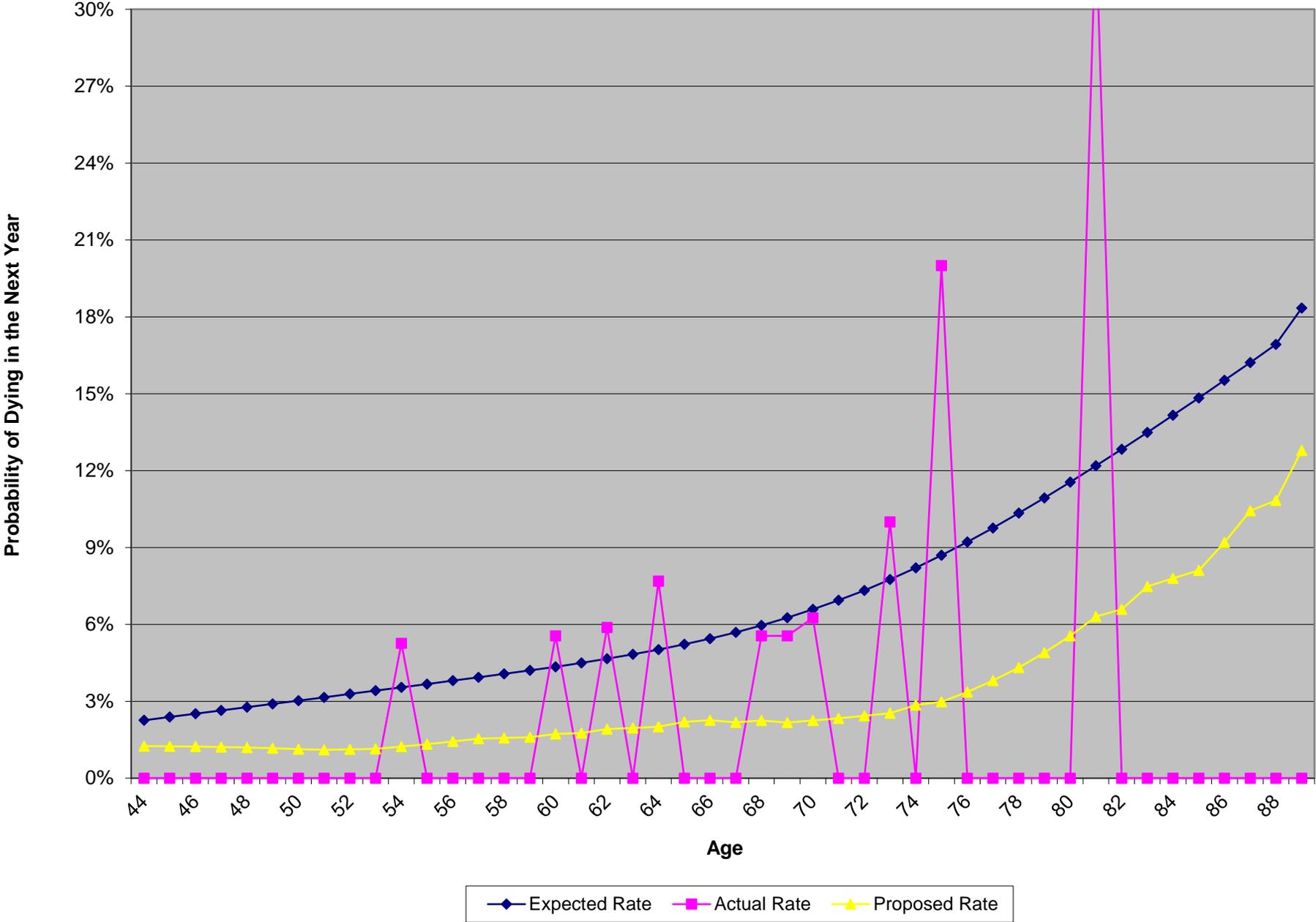
2014-2018 Springfield Police and Fire Healthy Male Post-Retirement Mortality Rates



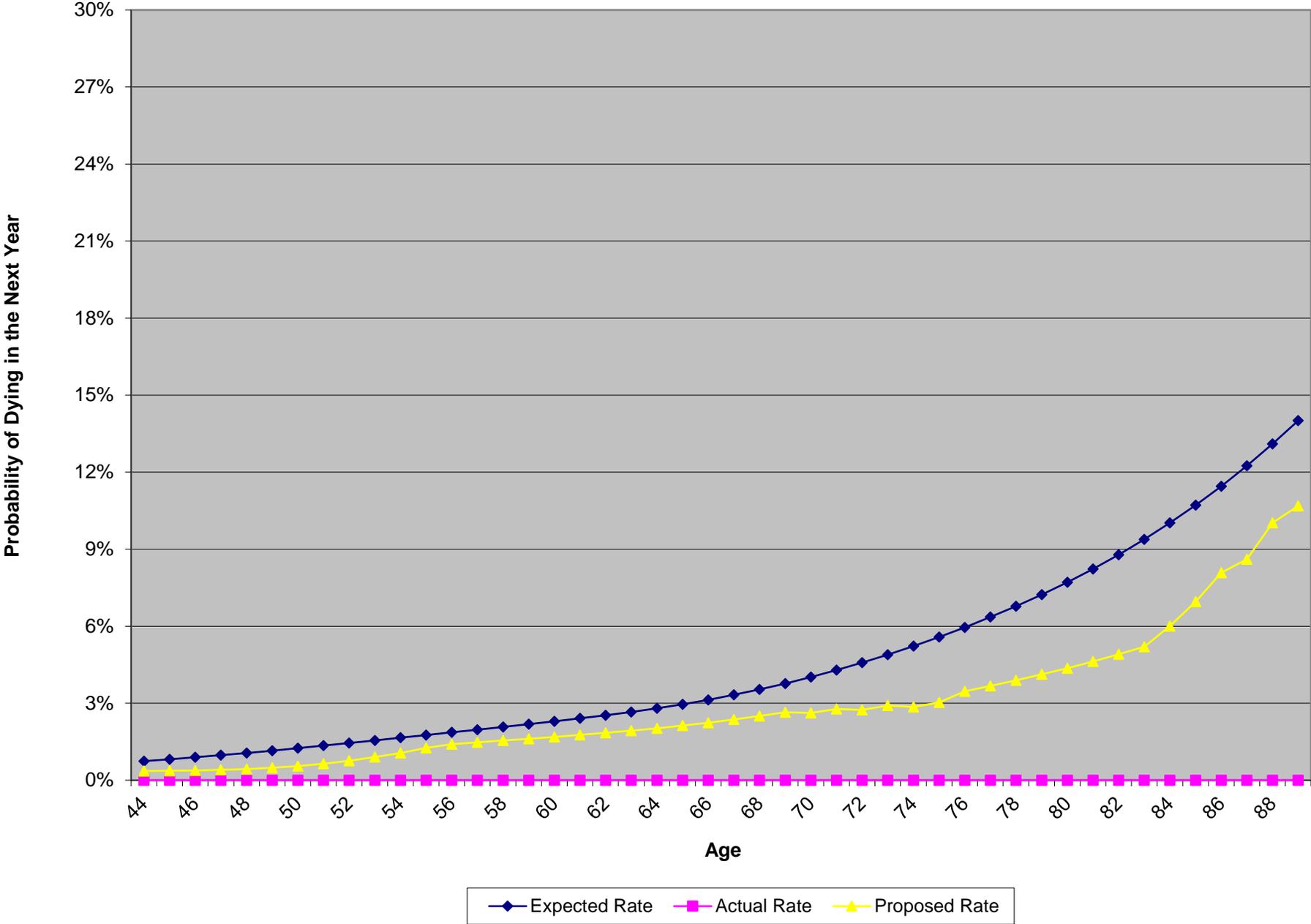
2014-2018 Springfield Police and Fire Healthy Female Post-Retirement Mortality Rates



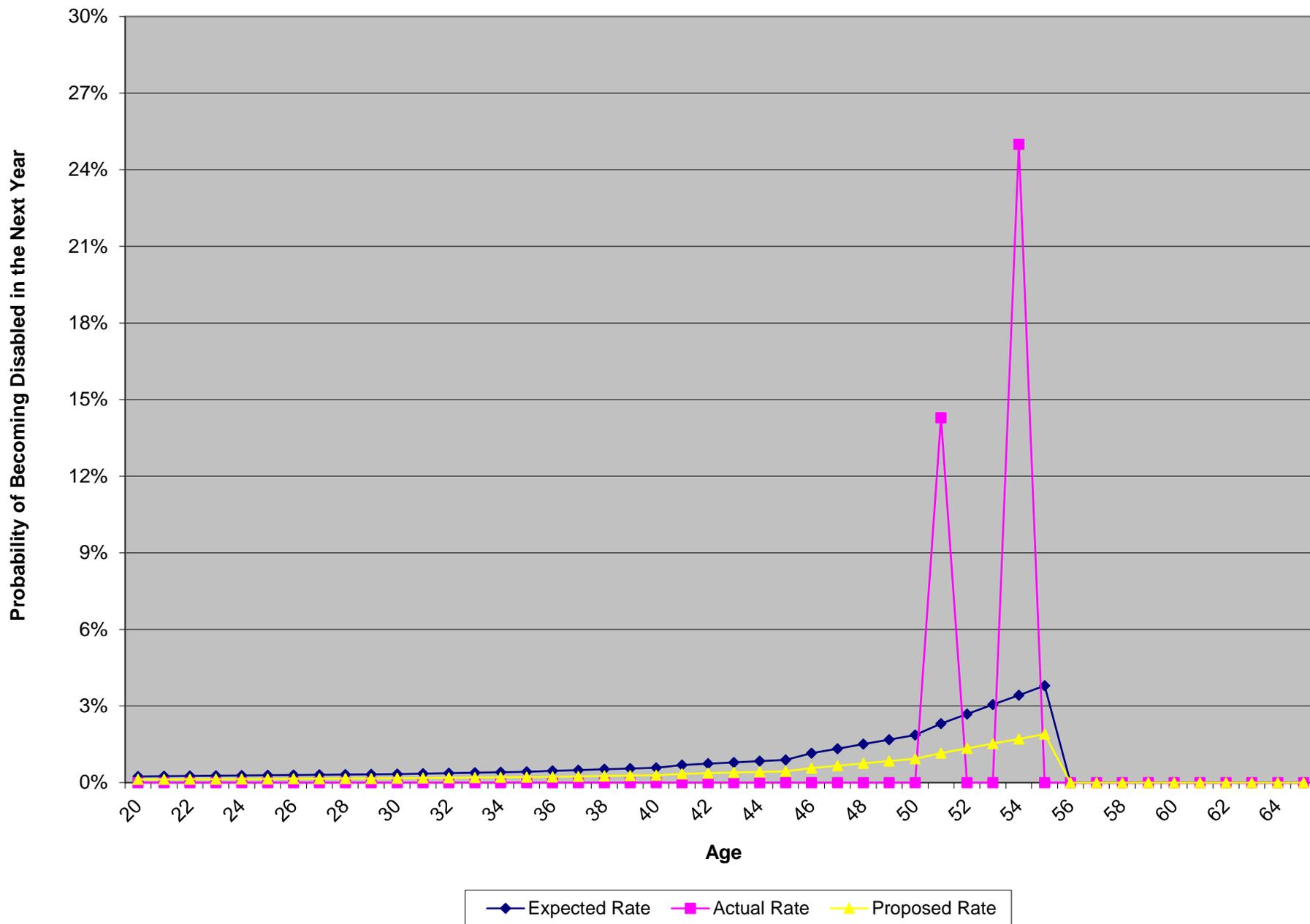
2014-2018 Springfield Police and Fire Disabled Male Post-Retirement Mortality Rates



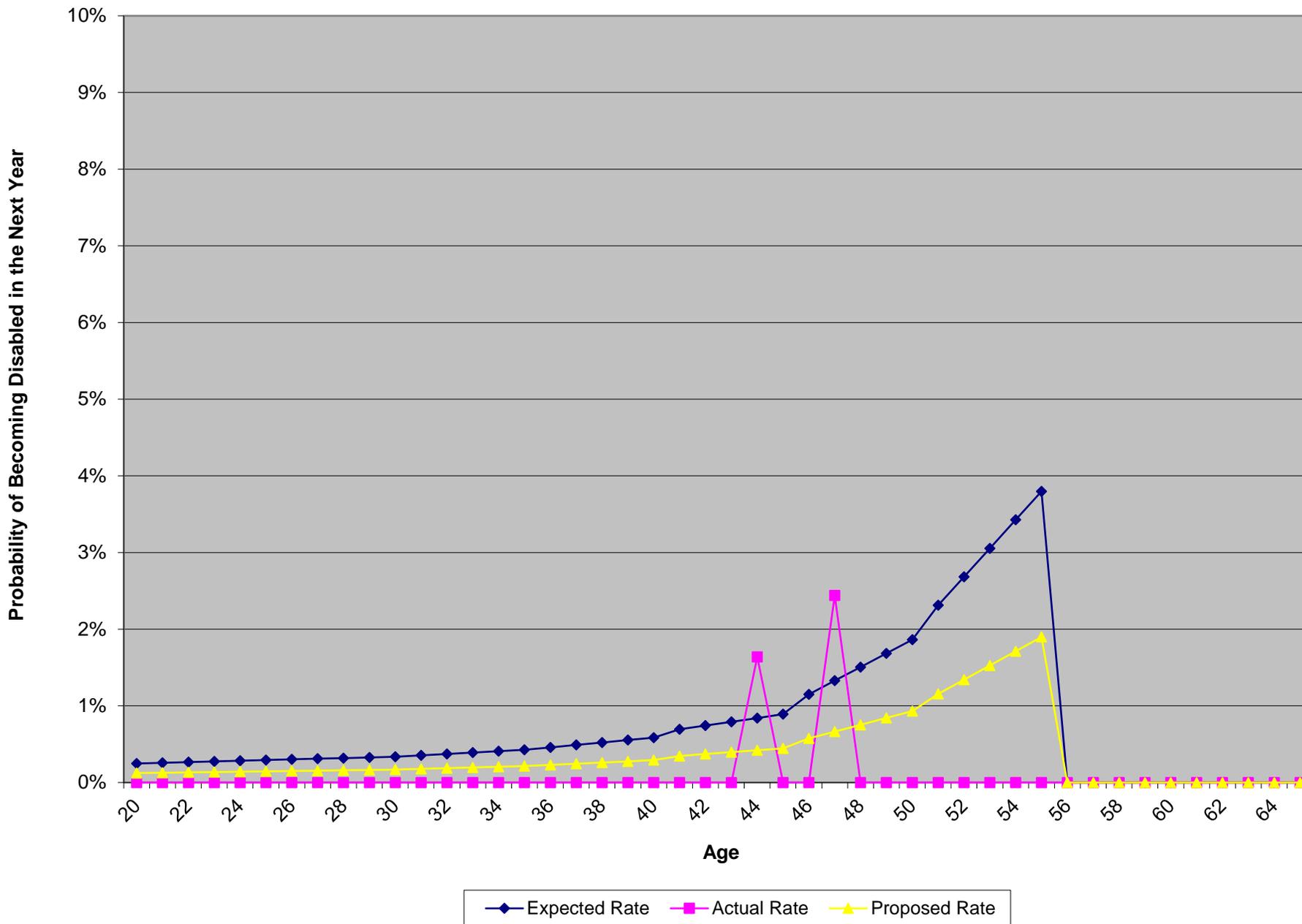
2014-2018 Springfield Police and Fire Disabled Female Post-Retirement Mortality Rates



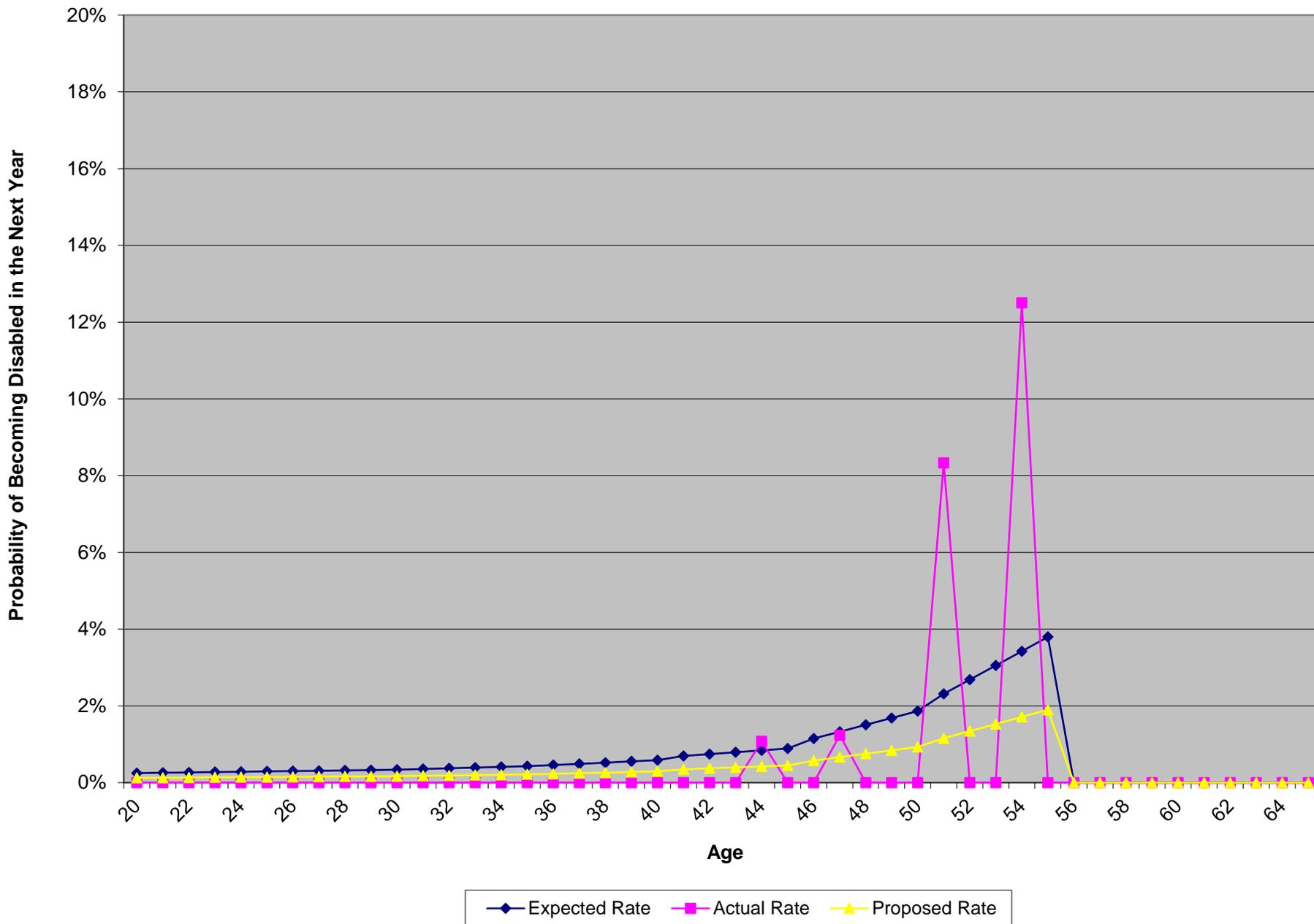
2014-2018 Springfield Fire Disability Rates



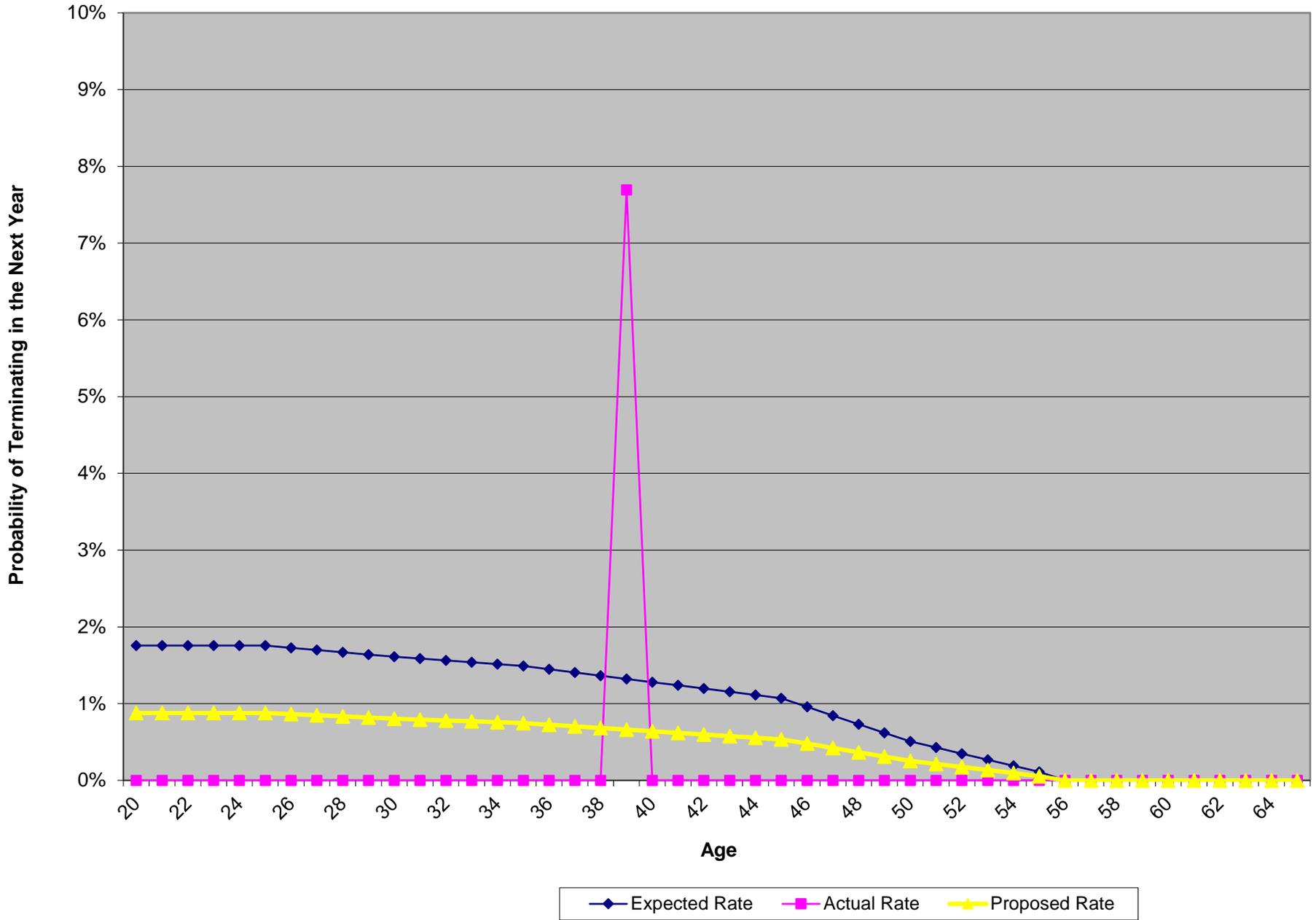
2014-2018 Springfield Police Disability Rates



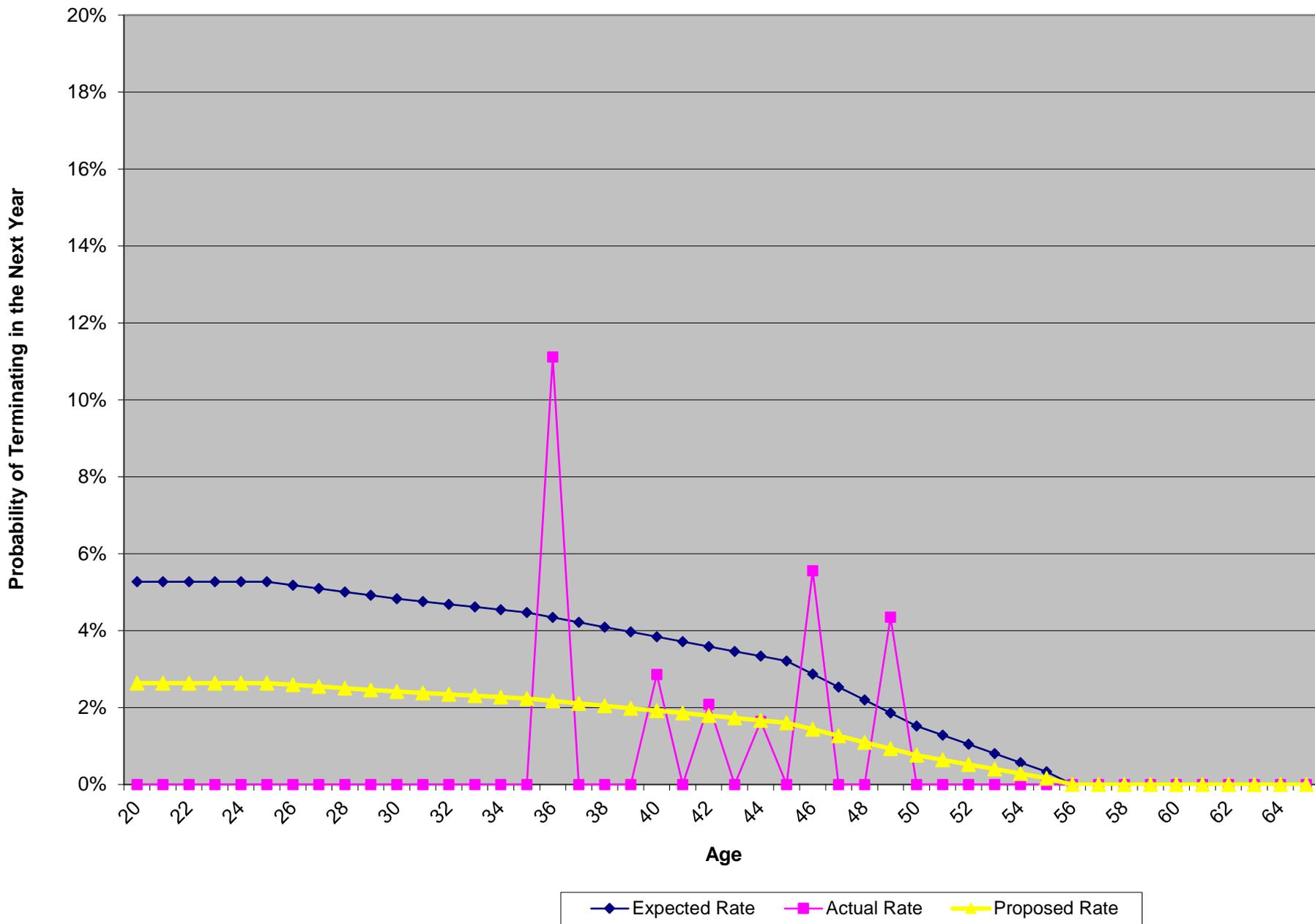
2014-2018 Springfield Police and Fire Disability Rates



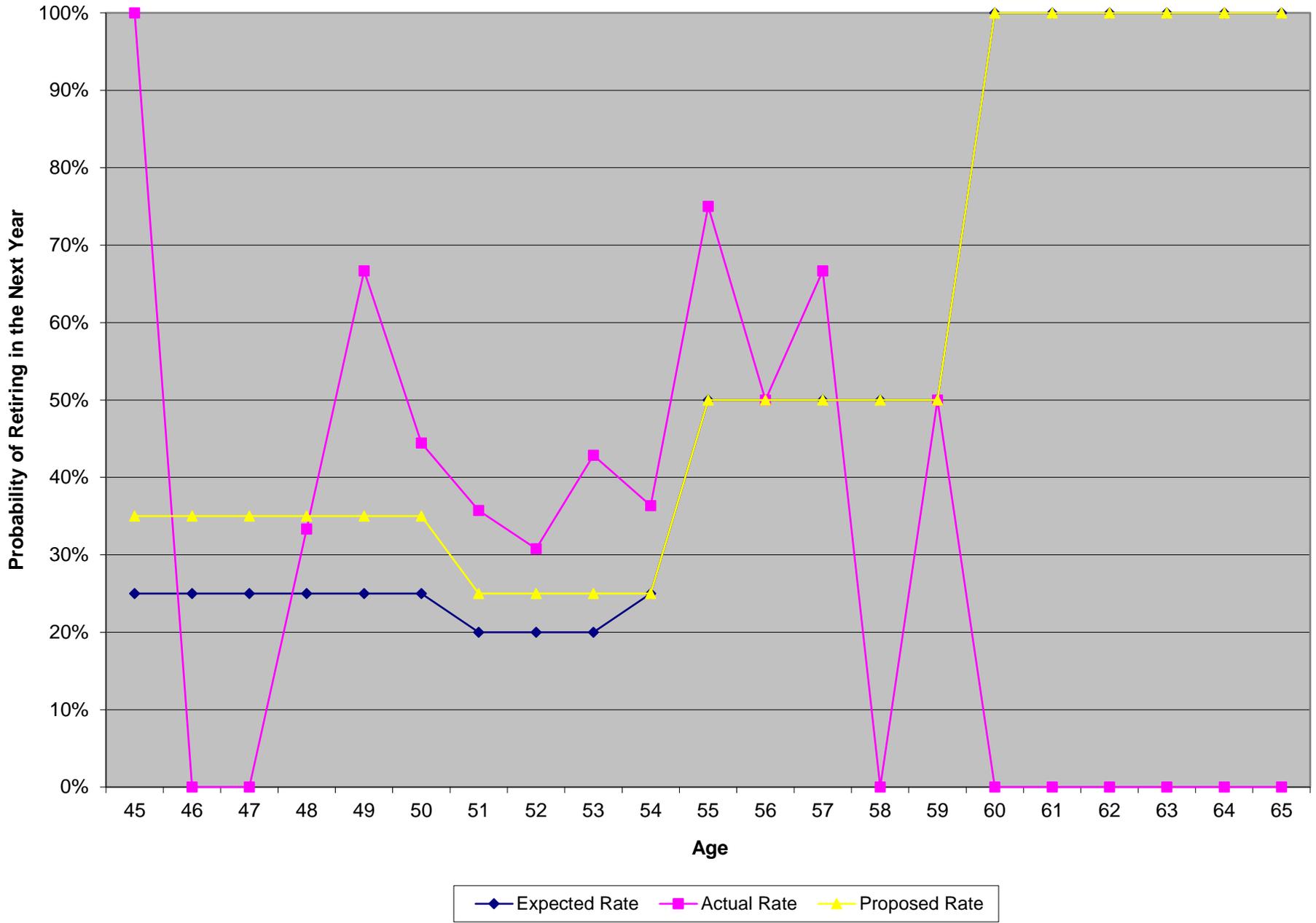
2014-2018 Springfield Fire Turnover Rates



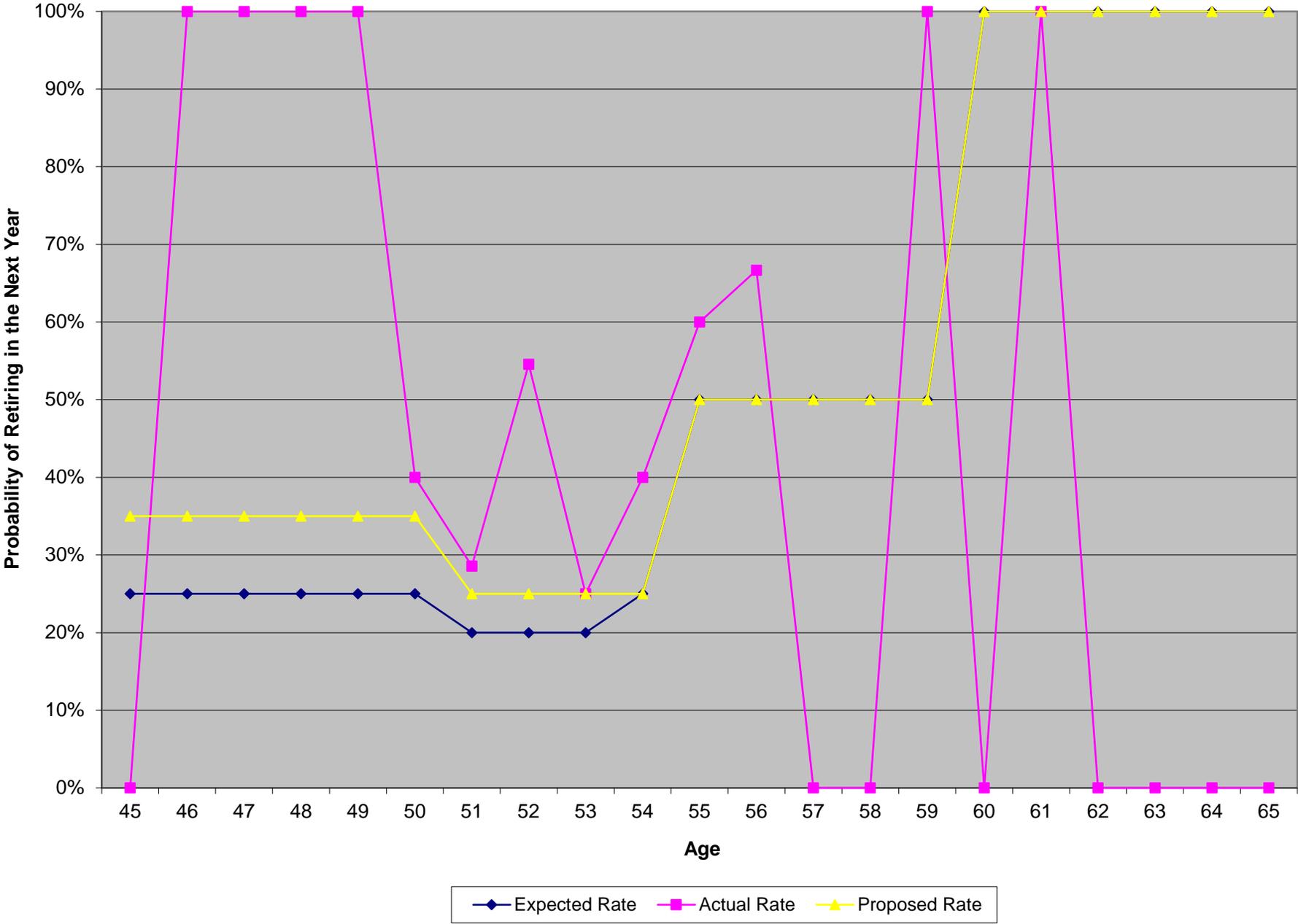
2014-2018 Springfield Police Turnover Rates



2014-2018 Springfield Fire Retirement Rates



2014-2018 Springfield Police Retirement Rates



2014-2018 Springfield Police and Fire Retirement Rates

