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**Liability Maturity Measurement**

Most public sector retirement systems have been in operation for many years. As a result, they have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members and a growing percentage of retiree liability. The retirement of the remaining baby boomers over the next decade is expected to further exacerbate the aging of the retirement system population. Retiree liability as a percentage of the total actuarial accrued liability has been growing over the last seven years. As more of the total liability begins to reside with retirees, investment volatility has a greater impact on the funding of the system since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs. Below are two tables which demonstrate the ratio of the System’s retiree liability compared to the total accrued liability and the ratio of the number of retirees and beneficiaries to the number of active members.

<b>Year End</b>	<b>Retiree Liability (a)</b>	<b>Total Actuarial Accrued Liability (b)</b>	<b>Retiree Percentage (a) / (b)</b>
6/30/2015	\$ 200,213,973	\$ 348,912,406	57.4%
6/30/2016	220,932,031	373,146,158	59.2%
6/30/2017	248,802,189	411,386,604	60.5%
6/30/2018	266,307,582	436,715,156	61.0%
6/30/2019	290,686,246	462,697,753	62.8%
6/30/2020	312,913,242	493,241,768	63.4%
6/30/2021	338,301,609	525,238,823	64.4%
6/30/2022	375,238,078	597,118,496	62.8%

**Historical Member Statistics**

<b>Valuation Date June 30,</b>	<b>Number of</b>		<b>Active/ Retired</b>
	<b>Active</b>	<b>Retired</b>	
2015	1,336	577	2.32
2016	1,364	620	2.20
2017	1,415	648	2.18
2018	1,429	681	2.10
2019	1,454	726	2.00
2020	1,502	763	1.97
2021	1,495	805	1.86
2022	1,481	840	1.76



## **Appendix A: Actuarial Procedures and Methods**

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The assumptions and methods utilized in the valuation were developed in the five-year experience study for the period ending June 30, 2021.

Tables B-1 through B-5 give rates of decrement for service retirement, disablement, mortality, and other terminations of employment.

### **Actuarial Cost Method**

The actuarial valuation was prepared using the entry age actuarial cost method. Under this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The normal cost was first calculated for each individual member. The normal cost rate is defined to equal the total of the individual normal costs, divided by the total pay rate.

The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets and (b) the actuarial present value of future normal costs is called the UAAL. The UAAL is amortized as a level percentage of the projected salaries of present and future members of the System.

### **Records and Data**

The data used in the valuation consist of financial information; records of age, sex, service, salary, contribution rates, and account balances of contributing members; and records of age, sex, and amount of benefit for retired members and beneficiaries. All of the data was supplied by the System and has been accepted for valuation purposes without audit.

### **Replacement of Terminated Members**

The ages at entry and distribution by sex of future members are assumed to average the same as those of the present members they replace. If the number of active members should increase, it is further assumed that the average entry age of the larger group will be the same, from an actuarial standpoint, as that of the present group. Under these assumptions, the normal cost rates for active members will not vary with the termination of present members.

### **Administrative and Investment Expenses**

The administrative and investment expenses of the System are assumed to be funded by investment earnings in excess of 7.30% per year.



## **Appendix A: Actuarial Procedures and Methods**

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### **Valuation of Assets**

The actuarial asset valuation method spreads asset gains and losses over four years. The expected return is determined each year based on the beginning of year market value and actual cash flows during the year. Any difference between the expected market value return and the actual market value return is recognized evenly over a period of four years.

### **Investment Earnings**

The annual rate of investment earnings of the assets of the System is assumed to be 7.30% per year net of investment and administrative expenses, compounded annually.

### **Interest on Member Contributions**

Interest on member contributions is assumed to accrue at the most recent actual rate granted, or a rate of 0.22% per annum, compounded annually.

### **Future Salaries**

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table B-2. In addition to increases in salary due to merit and longevity, this scale includes an assumed 3.50% annual rate of increase in the general wage level of the membership.

### **Service Retirement**

Table B-3 shows the annual assumed rates of retirement for actives members meeting the service retirement eligibilities.

### **Disablement**

The rates of disablement used in this valuation are illustrated in Table B-4.

### **Mortality**

The mortality rates used in this valuation are described in Table B-1. 10% of all member deaths are assumed to be duty-related.

### **Other Terminations of Employment**

The rates of assumed future withdrawal from active service for reasons other than death, disability or retirement are shown for representative ages in Table B-5.

### **Probability of Marriage & Dependent Children**

If death occurs in active status, all members are assumed to have an eligible surviving spouse with no dependent children. Female spouses are assumed to be three years younger than males.

### **Records with no Birth Date**

New records with no birth date are assumed to be 37 years old. Records that are not new and have no birth date used the same birth date as the prior year's valuation.



## **Appendix A: Actuarial Procedures and Methods**

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### **Active Records with a Salary Less than \$1,000**

These members are included in the active headcounts, however the pay of these members is not included in the Valuation Projected Salaries summarized in Appendix D. The liability for these members is their accumulated member contributions payable on the valuation date.



## Appendix B: Summary of Valuation Assumptions

Table B-1

### Summary of Valuation Assumptions

I. Economic assumptions	
A. General wage increases	3.50%
B. Investment return	7.30%
C. Price inflation assumption	2.75%
D. Payroll growth	3.25%
E. Growth in membership	0.00%
F. Interest on member accounts	0.22%
II. Demographic assumptions	
A. Individual salary increase due to promotion and longevity	Table B-2
B. Retirement	Table B-3
C. Disablement	Table B-4
D. Mortality among Active Participants PUB-2010 Safety Amount Weighted Employee Mortality projected to 2021 for males and females. Projected generationally using MP-2021.	
E. Mortality among Disabled pensioners PUB-2010 Safety Amount Weighted Disabled Retiree Mortality projected to 2021, set forward one year for males.	
F. Mortality among Contingent Survivor pensioners PUB-2010 Safety Amount Weighted Contingent Survivor Mortality projected to 2021, set forward one year for males. Projected generationally using MP-2021.	
G. Mortality among Healthy pensioners PUB-2010 Safety Amount Weighted Healthy Retiree Mortality Table projected to 2021, set forward one year for males and adjusted 105% for males and 100% for females. Projected generationally using MP-2021.	
H. Other terminations of employment	Table B-5



**Appendix B: Summary of Valuation Assumptions**

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**Table B-2**  
**Future Salaries**

Years of Service	(a) Individual Merit & Longevity	(b) General Wage Increase	(1+(a))*(1+(b)) Total Salary Increase
1	6.40%	3.50%	10.12%
2	4.70	3.50	8.36
3	3.60	3.50	7.23
4	2.70	3.50	6.29
5	2.00	3.50	5.57
6	1.40	3.50	4.95
7	1.00	3.50	4.54
8	1.00	3.50	4.54
9	1.00	3.50	4.54
10 & Up	1.00	3.50	4.54





**Table B-3**  
**Retirement**  
**Annual Rates**

Age	20 or More Years of Service
Less than 50	19.0%
50	19.0%
51	19.0
52	19.0
53	19.0
54	19.0
55	29.0
56	29.0
57	29.0
58	29.0
59	29.0
60	29.0
61	29.0
62	29.0
63	29.0
64	29.0
65 & Over	100.0



**Table B-4**  
**Disablement**  
**Annual Rates**

<u>Age</u>	<u>All Members</u>
22	0.00%
27	0.11
32	0.11
37	0.11
42	0.37
47	0.37
52	0.37
57	0.36
62	0.00

75% of disabilities are assumed to be duty-related. All disabilities are assumed to be permanent and without recovery.



**Table B-5**

**Other Terminations of Employment  
Among Members Not Eligible to Retire  
Annual Rates**

<u>Years of Service</u>	<u>All Members</u>
0	24.0%
1	21.0
2	18.0
3	16.0
4	14.0
5	12.0
6	10.0
7	9.0
8	8.0
9	8.0
10	7.0
11	7.0
12	7.0
13	6.0
14	6.0
15 & Over	5.0

**Family Composition**

Female spouses are assumed to be three years younger than males. 100% of non-retired employees are assumed married for both male and female employees. Actual marital characteristics are used for pensioners.

**Vested Benefits for Termination Members**

Vested benefits for members who terminated during years ending June 30, 2009 and later were estimated based upon compensation and service information in the census data. For members who terminated prior to June 30, 2008, vested benefits valued were the same as had been calculated by the prior actuary for the June 30, 2008 actuarial valuation.



## **Appendix C: Summary of Benefit Provisions**

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- |  |   |
|--|---|
| <b>Service credit</b>  | <ul style="list-style-type: none"><li>• Service credit is used to determine the amount of a member's retirement benefit.</li><li>• One month of service credit is earned for each month where the member is paid for 160 hours. This includes certain transferred and purchased service.</li></ul>  |
| <b>Membership service</b>  | <ul style="list-style-type: none"><li>• Membership service is used to determine eligibility for vesting, retirement or other benefits.</li><li>• One month of membership service is earned for any month member contributions are made, regardless of the number of hours worked.</li><li>• Eligible members in all systems may purchase service that counts toward membership service.</li><li>• Additionally, eligible active and inactive Sheriffs' Retirement System (SRS) members may purchase 1 for 5 (additional) service that will count as membership service.</li></ul> |
| <b>Contributions</b>   | <ul style="list-style-type: none"><li>• Member contributions are made through an "employer pick-up" arrangement which results in deferral of taxes on the contributions.</li></ul>  |
| <b>Compensation</b>  | <ul style="list-style-type: none"><li>• Compensation generally means all remuneration paid, excluding certain allowances, benefits, and lump sum payments. Compensation is specifically defined in law and differs amongst the systems.</li><li>• Bonuses paid <b>on or after</b> July 1, 2013 to any member will not be treated as compensation for retirement purposes. No member or employer contributions will be paid on bonuses.</li></ul>  |
| <b>Withdrawal of employee contributions</b>                      | <ul style="list-style-type: none"><li>• A member is eligible for a withdrawal of their contributions when they terminate service and are either not eligible for or have not taken a retirement benefit.</li><li>• The member receives the accumulated member contributions, which consists of member contributions and regular interest.</li><li>• Upon receipt of a refund of accumulated contributions a member's vested right to a monthly benefit is forfeited.</li></ul>  |
| <b>Member contributions interest credited (regular interest)</b> | <ul style="list-style-type: none"><li>• Interest is credited to member accounts at the rates determined by the Board.</li><li>• The current interest rate credited to member accounts is 0.22%.</li></ul>   |



## Appendix C: Summary of Benefit Provisions

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### Working Retiree Limitations

Applies to retirement system members who return **on or after** July 1, 2017 to covered employment in the system from which they retired. These limits already applied to SRS members before July 1, 2017.

- Members who return for **less than 480 hours** in a **calendar year**:
  - may not become an active member in the system; and
  - are subject to a \$1 reduction in their retirement benefit for each \$3 earned in excess of \$5,000 in the calendar year.
- Members who return for **480 or more hours** in a **calendar year**;
  - must become an active member of the system;
  - will stop receiving a retirement benefit from the system; **and**
  - will be eligible for a second retirement benefit if they earn 5 or more years of service credit through their second employment.
- Employee, employer and state contributions apply as follows:
  - Employer contributions and state contributions (if any) must be paid on all working retirees;
  - Employee contributions must be paid on working retirees who return to covered employment for 480 or more hours in a calendar year.

NOTE: PERS has its own limits.

### Second Retirement Benefit

Applies to retirement system members who return on or after July 1, 2017 to active service covered by the system from which they retired.

- If the member works more than 480 hours in a calendar year and accumulates less than 5 years of service credit before terminating again, the member:
  - is not awarded service credit for the period of reemployment;
  - is refunded the accumulated contributions associated with the period of reemployment;
  - starting the first month following termination of service, receives the same retirement benefit previously paid to the member; and
  - does not accrue post-retirement benefit adjustments during the term of reemployment but receives a GABA in January immediately following second retirement.



## Appendix C: Summary of Benefit Provisions

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- |  |   |
|--|---|
| <b>Second Retirement Benefit (continued)</b> | <ul style="list-style-type: none"><li>• If the member works more than 480 hours in a calendar year and accumulates at least 5 years of service credit before terminating again, the member:<ul style="list-style-type: none"><li>○ is awarded service credit for the period of reemployment;</li><li>○ starting the first month following termination of service, receives:<ul style="list-style-type: none"><li>* the same retirement benefit previously paid to the member; <b>and</b></li><li>* a second retirement benefit for the period of reemployment calculated based on the laws in effect as of the member's rehire date; <b>and</b></li></ul></li><li>○ does not accrue post-retirement benefit adjustments during the term of reemployment but receives a GABA:<ul style="list-style-type: none"><li>* on the initial retirement benefit in January immediately following second retirement; <b>and</b></li><li>* on the second retirement benefit starting in January after receiving that benefit for at least 12 months.</li></ul></li></ul></li><li>• A member who returns to covered service is <b>not</b> eligible for a disability benefit.</li></ul> |
| <b>Refunds</b>                               | <ul style="list-style-type: none"><li>• Terminating members eligible to retire may, in lieu of receiving a monthly retirement benefit, refund their accumulated contributions in a lump sum.</li><li>• Terminating members with accumulated contributions between \$200 and \$1,000 who wish to rollover their refund must do so within 90 days of termination of service.</li><li>• Trusts, estates, and charitable organizations listed as beneficiaries are entitled to receive only a lump sum payment.</li></ul>   |
| <b>Lump-sum payouts</b>                      | <ul style="list-style-type: none"><li>• Effective July 1, 2017, lump sum payouts in all systems are limited to the member's accumulated contributions rather than the present value of the member's benefit.</li></ul>  |
| <b>Type of plan</b>                          | <ul style="list-style-type: none"><li>• Multiple-employer cost sharing</li></ul>  |
| <b>Membership eligibility</b>                | <ul style="list-style-type: none"><li>• Sheriffs</li><li>• Investigators (effective July 1, 1993)</li><li>• Detention officers (effective July 1, 2005)</li></ul>   |
| <b>Member contributions</b>                  | <ul style="list-style-type: none"><li>• 10.495% of member's compensation (effective July 1, 2017)</li></ul>   |



## Appendix C: Summary of Benefit Provisions

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<b>Employer contributions</b>	<ul style="list-style-type: none"><li>• 13.115% of each member's compensation (effective July 1, 2017)</li><li>• Rate increased 0.29% from 9.535% to 9.825% on July 1, 2007, then to 10.115% on July 1, 2009, and then to present rate 13.115% on July 1, 2017.</li><li>• SRS employee contributions will return to 9.245% and SRS employer contributions will return to 9.535% when reducing the employee contribution and terminating the additional employer contributions will not cause the amortization period to exceed 25 years.</li><li>• Beginning July 1, 2013, employers of retirees who return to work in a position working less than 480 hours contribute 10.115% of the working retiree's compensation.</li></ul>
<b>Compensation period used in benefit calculation</b>	<ul style="list-style-type: none"><li>• HAC = Highest Average Compensation</li><li>• Hired <b>prior to</b> July 1, 2011: HAC is average of the highest 36 consecutive months (or shorter period of total service) of compensation paid to member.</li><li>• Hired <b>on or after</b> July 1, 2011: HAC is average of the highest 60 consecutive months (or shorter period of total service) of compensation paid to member.</li><li>• Hired <b>on or after</b> July 1, 2013: 110% annual cap on compensation considered as part of a member's HAC.</li></ul>
<b>Service retirement eligibility and benefit formula</b>	<ul style="list-style-type: none"><li>• 20 years of membership service</li><li>• 2.5% of HAC x years of service credit</li></ul>
<b>Early retirement eligibility and benefit</b>	<ul style="list-style-type: none"><li>• Age 50 with 5 years of membership service</li><li>• Normal retirement benefit calculated using HAC and service credit at early retirement, and reduced to the actuarial equivalent commencing at the earliest of age 60 or the attainment of 20 years of service credit.</li></ul>
<b>Disability retirement eligibility and benefit formula</b>	<p><b>Non-duty-related</b> disability:</p> <ul style="list-style-type: none"><li>• Active or inactive vested member</li><li>• 5 years membership service</li><li>• The actuarial equivalent of the accrued normal retirement benefit available at time of disability.</li></ul> <p><b>Duty-related</b> disability:</p> <ul style="list-style-type: none"><li>• Vested or non-vested active member</li><li>• Any membership service</li><li>• <b>Less than 20 years</b> of membership service: 50% of HAC, or</li><li>• <b>20 years or more</b> of membership service: 2.5% of HAC x years of service credit</li></ul>



## Appendix C: Summary of Benefit Provisions

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### Survivor's eligibility and benefit formula

#### Duty-related death:

- Vested or non-vested active member
- Lump-sum payment of the member's accumulated contributions; **or**
- A monthly survivor benefit to the designated beneficiary **equal to the greater of:**
  - 50% of HAC; **or**
  - 2.5% of HAC for each year of service credit if over 20 years.

#### Non-duty-related death:

- Active or Inactive member
- Lump-sum payment of the member's accumulated contributions; **or**
- A monthly survivor benefit equal to 2.5% of HAC for each year of service credit actuarially reduced from age 60 **or** from the date when 20 years of membership service would have been completed, whichever provides the greater benefit.
- A beneficiary may elect to receive the present value of the benefit as a single lump sum.
- For retired members without a contingent annuitant, a payment will be made to the designated beneficiary equal to the accumulated contributions reduced by any retirement benefits already paid.

### Vesting eligibility and benefit

- 5 years of membership service
- Accrued normal retirement benefit, payable when eligible for retirement.
- In lieu of a pension, a member may receive a refund of accumulated contributions.
- Upon receipt of a refund of accumulated contributions, a member's vested right to a monthly benefit is forfeited.

### Retirement benefits - Form of payment

Option 1, the normal form of payment is a single life annuity with a refund of any remaining accumulated contributions (account balance) to a designated beneficiary.

#### Optional Benefits:

- Option 2, a life annuity and joint 100% survivor benefit,
- Option 3, a life annuity and joint 50% survivor benefit, and
- Option 4, a life annuity with a period certain.

If a retiring member selects Option 2 or 3 and the contingent annuitant predeceases or is divorced from the member, the retiree may, with 18 months of the death or divorce, choose to revert to the higher Option 1 benefit available at retirement or the retiree may select a different contingent annuitant and/or a different option.





## **Appendix C: Summary of Benefit Provisions**

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### **Post retirement benefit increases**

For retired members who have been retired at least 12 months, a Guaranteed Annual Benefit Adjustment (GABA) will be made each year equal to:

- 3% for members hired **before** July 1, 2007, and
- 1.5% for members hired **on or after** July 1, 2007

### **Changes since last valuation**

- None



**Appendix D: Valuation Data**

**Valuation Data**

This chart is presented for informational purposes only. The counts shown in the valuation line were used for preparation of the liabilities disclosed within this report. The counts disclosed for the Annual Financial Report and the Summary of Results (page 1) match the ACFR at the request of the Board. The differences between counts, if any, have no material effect upon the liability calculation.

	<u>Active</u>	<u>Disabled</u>	<u>Retirees and Beneficiaries</u>	<u>Terminated Vested Members</u>	<u>Terminated Non-Vested Members</u>	<u>Total</u>
<b>Participant Counts Used for Valuation</b>	1,481	81	759	209	912	3,442
Disabled Members having attained normal retirement age		(50)	50			
Beneficiaries of Disabled Members						
Beneficiaries with less than one year of certain payments remaining						
Other Adjustments				2	2	4
<b>Participant Counts shown in the Annual Financial Report</b>	1,481	31	809	211	914	3,446



## Appendix D: Valuation Data

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### Valuation Data

This valuation is based upon the membership of the System as of June 30, 2022. Membership data was supplied by the System and has been accepted for valuation purposes without audit. However, tests were performed to ensure that the data is sufficiently accurate for valuation purposes.

The salaries used in the tables and charts which follow are different than the salaries used for the Board Summary on page 1. The valuation projected salaries to be paid for the following fiscal year, whereas the Board Summary, salaries are applicable in the year ending on the valuation date.

<u>Active Members</u>	<u>Number</u>	<u>Valuation Projected Salaries</u>
Full-Time Members	1,341	\$ 91,523,964
Part-Time Members	<u>140</u>	<u>\$ 3,081,720</u>
Total Active Members	1,481	\$ 94,605,684

Table D-1 contains summaries of the data for contributing members. For full-time members, values shown in the tables are the numbers of members and their total and average annual salaries. For part-time members, only the numbers of members are shown.

Table D-2 presents distributions of the following:

- Members receiving service retirement benefits.
- Members receiving disability retirement benefits.
- Survivors of deceased retired members receiving benefits.
- Survivors of deceased active members.
- Terminated vested members.

Table D-3 is a reconciliation of membership data from June 30, 2021 to June 30, 2022.



## Appendix D: Valuation Data

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The following is a summary of retired members and beneficiaries currently receiving benefits. The chart reflects the counts and benefits used for valuation purposes as a result of data processing. Please refer to the chart on page 47 for an explanation of the number of annuitants used for valuation purposes.

Type of Annuitant	Number	Annual Benefits	Average Annual Benefits
Service Retirement	684	\$ 21,671,195	\$ 31,683
Survivors of Deceased Retired Members	52	1,064,377	20,469
Survivors of Deceased Active Members	23	641,310	27,883
Total Retirees and Beneficiaries	759	\$ 23,376,882	\$ 30,800
Disability Retirement	81	2,285,332	28,214
Total Annuitants	840	\$ 25,662,214	\$ 30,550

Terminated Members with Contributions Not Withdrawn	Number
Vested Terminated Members	209
Non-Vested Terminated Members	912
Total Terminated Members	1,121



**Table D-1:  
Active Members Distribution of  
Full-Time Employees and Salaries  
as of June 30, 2022**

**Number of Employees**

Age	<u>Completed Years of Service</u>											Totals		
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39		40+	
<25	51	38	19	16	1									125
25 to 29	37	35	36	59	46	1								214
30 to 34	29	30	25	42	75	14								215
35 to 39	13	22	21	22	61	44	18							201
40 to 44	10	16	4	23	34	39	38	6						170
45 to 49	10	9	9	13	15	24	41	13	4					138
50 to 54	4	8	7	10	26	19	29	17	3	1				124
55 to 59	6	3	3	10	18	12	21	7	6	2				88
60 to 64			1	3	11	10	13	6	3	2	1			50
65 to 69			1	2	3	2	6		1					15
70 and up											1			1
Totals	160	161	126	200	290	165	166	49	17	5	2	-		1,341



**Table D-1:  
Active Members Distribution of  
Full-Time Employees and Salaries  
as of June 30, 2022**

**Annual Salaries in Thousands**

Age	Completed Years of Service											Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39		40+
<25	2,580	2,014	1,067	953	53								6,668
25 to 29	1,858	2,042	2,175	3,691	3,222	49							13,037
30 to 34	1,574	1,840	1,500	2,700	5,334	1,052							13,999
35 to 39	723	1,365	1,339	1,415	4,662	3,539	1,480						14,522
40 to 44	472	1,012	220	1,520	2,546	2,906	3,175	559					12,410
45 to 49	366	578	609	935	974	1,771	3,345	1,375	385				10,338
50 to 54	186	498	457	602	1,855	1,422	2,425	1,550	366	107			9,467
55 to 59	349	192	165	555	1,193	938	1,626	536	655	178			6,389
60 to 64			70	159	608	772	923	406	250	192	85		3,465
65 to 69			73	133	206	143	422		68				1,046
70 and up											183		183
Totals	8,109	9,542	7,675	12,664	20,654	12,590	13,396	4,427	1,724	477	268	-	91,524



**Table D-1:  
Active Members Distribution of  
Full-Time Employees and Salaries  
as of June 30, 2022**

**Average Annual Salary**

Age	Completed Years of Service											Totals		
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39		40+	
<25	50,595	53,009	56,153	59,575	52,821									53,341
25 to 29	50,223	58,356	60,411	62,558	70,045	48,882								60,922
30 to 34	54,262	61,323	60,015	64,288	71,122	75,110								65,114
35 to 39	55,606	62,051	63,779	64,298	76,424	80,431	82,206							72,251
40 to 44	47,191	63,230	54,905	66,090	74,892	74,506	83,547	93,249						72,998
45 to 49	36,647	64,210	67,671	71,926	64,912	73,788	81,592	105,760	96,260					74,915
50 to 54	46,466	62,232	65,223	60,221	71,354	74,819	83,624	91,203	121,877	106,728				76,348
55 to 59	58,235	64,162	55,054	55,503	66,269	78,171	77,441	76,579	109,226	89,096				72,600
60 to 64			69,858	53,072	55,312	77,151	71,003	67,617	83,259	96,065	84,994			69,293
65 to 69			73,334	66,698	68,772	71,380	70,300		68,059					69,711
70 and up											182,806			182,806
Totals	50,680	59,264	60,913	63,319	71,220	76,303	80,699	90,338	101,404	95,410	133,900			68,251



**Table D-1:  
Active Members Distribution of  
Part-Time Employees  
as of June 30, 2022**

**Number of Employees**

Age	Completed Years of Service											Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39		40+
<25	23	2	2	2									29
25 to 29	27	1	3	2	2								35
30 to 34	9	1	1	1	4	1							17
35 to 39	5	1	2	1	4	2							15
40 to 44	3	1	1			1							6
45 to 49	4				1	1	1						7
50 to 54	6			2	3	1							12
55 to 59	5	1	1	2	2			2					13
60 to 64	1			2	1								4
65 to 69					2								2
70 and up													
<b>Totals</b>	<b>83</b>	<b>7</b>	<b>10</b>	<b>12</b>	<b>19</b>	<b>6</b>	<b>1</b>	<b>2</b>					<b>140</b>





**Appendix D: Valuation Data**

**Table D-2:  
Distribution of Inactive Lives**

The charts reflects the counts and benefits used for valuation purposes as a result of data processing. Please refer to the chart on page 47 for an explanation of the number of annuitants used for valuation purposes.

**Members Receiving Service Retirement Benefits as of June 30, 2022**

Age	Number of Persons	Annual Benefits	Average Annual Benefits
<50	39	\$ 1,492,439	\$ 38,268
50 to 54	62	2,008,120	32,389
55 to 59	78	2,268,902	29,088
60 to 64	132	3,962,940	30,022
65 to 69	153	4,959,525	32,415
70 to 74	122	4,104,476	33,643
75 to 79	64	1,811,811	28,310
80 to 84	27	932,950	34,554
85 to 89	6	113,315	18,886
90 and up	1	16,717	16,717
Totals	684	\$ 21,671,195	\$ 31,683

**Members Receiving Disability Retirement Benefits as of June 30, 2022**

Age	Number of Persons	Annual Benefits	Average Annual Benefits
<50	13	\$ 394,450	\$ 30,342
50 to 54	12	378,321	31,527
55 to 59	11	324,081	29,462
60 to 64	12	340,077	28,340
65 to 69	15	424,636	28,309
70 to 74	12	308,864	25,739
75 to 79	5	93,299	18,660
80 to 84	-	-	-
85 to 89	1	21,604	21,604
90 and up	-	-	-
Totals	81	\$ 2,285,332	\$ 28,214



Table D-2: Distribution of Inactive Lives

The charts reflects the counts and benefits used for valuation purposes as a result of data processing. Please refer to the chart on page 47 for an explanation of the number of annuitants used for valuation purposes.

Survivors of Deceased Retired Members as of June 30, 2022

Age	Number of Persons	Annual Benefits	Average Annual Benefits
<50	2	\$ 25,990	\$ 12,995
50 to 54	2	14,404	7,202
55 to 59	2	57,152	28,576
60 to 64	2	71,970	35,985
65 to 69	8	251,963	31,495
70 to 74	13	227,196	17,477
75 to 79	6	129,353	21,559
80 to 84	9	130,187	14,465
85 to 89	3	74,357	24,786
90 and up	5	81,805	16,361
Totals	52	\$ 1,064,377	\$ 20,469

Survivors of Deceased Active Members as of June 30, 2022

Age	Number of Persons	Annual Benefits	Average Annual Benefits
<50	8	\$ 161,725	\$ 20,216
50 to 54	3	65,136	21,712
55 to 59	2	85,822	42,911
60 to 64	1	69,731	69,731
65 to 69	3	118,881	39,627
70 to 74	2	61,596	30,798
75 to 79	2	51,771	25,886
80 to 84	-	-	-
85 to 89	-	-	-
90 and up	2	26,648	13,324
Totals	23	\$ 641,310	\$ 27,883



**Table D-2:  
Distribution of Inactive Lives**

The chart reflects the counts and benefits used for valuation purposes as a result of data processing. Please refer to the chart on page 47 for an explanation of the number of annuitants used for valuation purposes.

**Terminated Vested Members as of June 30, 2022  
Number of Persons**

<u>Age</u>	<u>Number</u>
<25	
25 to 29	11
30 to 34	27
35 to 39	40
40 to 44	39
45 to 49	39
50 to 54	29
55 to 59	15
60 to 64	5
65 to 69	4
70 and above	
Total	209



**Table D-3:  
Data Reconciliation**

The following table shows a reconciliation of the participants used in the previous valuation to this valuation. This chart reflects the counts used for valuation purposes as a result of data processing.

	<b>Active Contributing Members</b>	<b>Terminated Vested Members</b>	<b>Service Retired Members</b>	<b>Disabled Members</b>	<b>Survivors and Beneficiaries</b>
<b>June 30, 2021 Valuation</b>	1,495	176	654	80	71
Refunds and Non-Vested Terminations	(172)	(13)			(1)
Vested Terminations	(51)	55			
Service Retirements	(44)	(4)	48		
Disability Retirements	(3)			3	
Deaths	(1)		(15)	(2)	
New Entrants	248				5
Rehires	9	(6)			
Other		1	(3)		
<b>June 30, 2022 Valuation</b>	1,481	209	684	81	75



## **Appendix E: Comparative Schedules**

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### **Comparative Schedules**

This section contains tables that summarize the experience of the System shown in present and past valuation reports.

Table E-1 shows a summary of the active members covered as of the various valuation dates.

Table E-2 shows a summary of the retired and inactive members as of the various valuation dates.

Table E-3 summarizes the contribution rates determined by each annual actuarial valuation.



**Table E-1:  
Active Membership Data**

<u>Valuation Date June 30,</u>	<u>Actives</u>	<u>Annual Salaries in Thousands</u>	<u>Average Annual Salary</u>	<u>Average Age</u>	<u>Average Years of Service</u>	<u>Average Hire Age</u>
2022	1,481	\$ 96,370	\$65,071	39.0	7.1	32.0
2021	1,495	90,869	60,782	39.3	7.2	32.2
2020	1,502	84,943	56,553	39.4	7.2	32.3
2019	1,454	80,461	55,338	39.6	7.2	32.4
2018	1,429	77,587	54,295	39.8	7.4	32.4
2017	1,415	74,581	52,708	40.0	7.2	33.8
2016	1,364	70,593	51,755	40.1	7.2	32.9
2015	1,336	67,881	50,809	40.3	7.2	33.1
2014	1,307	64,424	49,291			
2013	1,276	60,948	47,765			
2012	1,241	58,281	46,963			



Table E-2:
Members in Receipt of Annuities and Inactive Membership Data

Table with 9 columns: Valuation Date June 30, Number, Annual Benefits in Thousands, Average Annual Benefit, Average Current Age, Average Age at Retirement, Average Service at Retirement, Number Vested Terminated, Number Non-Vested Terminated. Rows for years 2012-2022.



Table E-3:  
Contribution Rates

Valuation Date June 30,	Contribution Rates			Normal Cost Rate*	UAAL Rate**
	Employee	Employer	Total		
2022	10.495 %	13.115 %	23.61 %	16.18 %	7.43 %
2021	10.495	13.115	23.61	15.76	7.85
2020	10.495	13.115	23.61	15.94	7.67
2019	10.495	13.115	23.61	15.96	7.65
2018	10.495	13.115	23.61	16.17	7.44
2017	9.245	13.115	23.61	16.49	7.12
2016	9.245	10.115	19.36	18.08	1.28
2015	9.245	10.115	19.36	18.22	1.14
2014	9.245	10.115	19.36	18.46	0.90
2013	9.245	10.115	19.36	18.52	0.84
2012	9.245	10.115	19.36	18.73	0.63

\* Includes administrative expenses starting with the 2014 through 2021 Valuation Dates

\*\* The UAAL rate is the amount available to amortize the UAAL. It is equal to the total contribution rate, minus the normal cost rate.





## **Appendix F: Financial Statement Information**

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The information presented in the required supplementary schedules was determined as part of the actuarial valuation as of June 30, 2022. Additional information as of the latest actuarial valuation follows.

Valuation date	June 30, 2022
Actuarial cost method	Entry Age Normal
Amortization method	Open
Remaining amortization period	30 Years
Asset valuation method	Four-year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.30%
General wage growth*	3.50%
Merit salary increases	1.0% - 6.4%
*Includes inflation	2.75%



**Appendix F: Financial Statement Information**

Gain and Loss in Accrued Liability During Years Ended June 30 Resulting from Differences Between Assumed Experience and Actual Experience						
Type of Activity	Gain or (Loss) for Year Ending June 30, (expressed in thousands)					
	2017	2018	2019	2020	2021	2022
Investment Income on Actuarial Value of Assets	\$ 1,492	\$ (2,426)	\$ (1,459)	\$ (2,300)	\$ 12,569	\$ 2,027
Combined Liability Experience	(2,488)	(2,713)	(2,114)	(6,625)	(8,233)	(7,352)
(Loss)/Gain During Year from Financial Experience	\$ (996)	\$ (5,140)	\$ (3,573)	\$ (8,925)	\$ 4,336	\$ (5,325)
Non-Recurring Items	(12,973)	0	0	0	0	(38,848)
Composite Gain or (Loss) During Year	\$ (13,969)	\$ (5,140)	\$ (3,573)	\$ (8,925)	\$ 4,336	\$ (44,173)

Schedule of Funding Progress (expressed in thousands)						
Valuation Date June 30,	Actuarial Value of Assets	Actuarial Liability (AAL)	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Percentage of Covered Payroll
2022	\$ 469,549	\$ 597,118	79%	\$ 127,570	\$ 96,370	132%
2021	438,036	525,239	83%	87,203	90,869	96%
2020	400,720	493,242	81%	92,522	84,943	109%
2019	377,387	462,698	82%	85,311	80,461	106%
2018	353,904	436,715	81%	82,811	77,587	107%
2017	332,169	411,387	81%	79,217	74,581	106%



**Appendix F: Financial Statement Information**

Solvency Test								
Aggregate Accrued Liabilities for (expressed in thousands)								
Valuation Date June 30,	Active Member Contributions	Retirees & Beneficiaries	Active Member Employer Financed Contributions	Actuarial Value of Reported Assets	Portion of Accrued Liability Covered by Reported Assets			
	(1)	(2)	(3)		(1)	(2)	(3)	
2022	\$ 66,071	\$ 354,858	\$ 176,189	\$ 469,549	100%	100%	28%	
2021	64,537	322,525	138,177	438,036	100%	100%	37%	
2020	62,479	300,677	130,086	400,720	100%	100%	29%	
2019	57,884	279,198	125,616	377,387	100%	100%	32%	
2018	55,236	254,965	126,515	353,904	100%	100%	35%	
2017	51,998	239,648	119,741	332,169	100%	100%	34%	



## **Appendix G: Glossary**

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The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases the definitions have been modified for specific applicability to the Sheriffs' Retirement System. Defined terms are capitalized throughout this Appendix.

### **Accrued Benefit**

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

### **Actuarial Accrued Liability**

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

### **Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

### **Actuarial Cost Method**

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

### **Actuarial Gains and Losses**

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

### **Actuarial Present Value**

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

### **Actuarial Valuation**

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

### **Actuarial Value of Assets**

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

### **Actuarially Equivalent**

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.



## **Appendix G: Glossary**

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### **Amortization Payment**

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

### **Entry Age Actuarial Cost Method**

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

### **Market Value of Assets**

The fair value of cash, investments and other property belonging to a pension plan that could be acquired by exchanging them on the open market.

### **Normal Cost**

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

### **Projected Benefits**

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

### **Unaccrued Benefit**

The excess of an individual's Projected Benefits over the Accrued Benefits as of a specified date.

### **Unfunded Actuarial Accrued Liability**

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.