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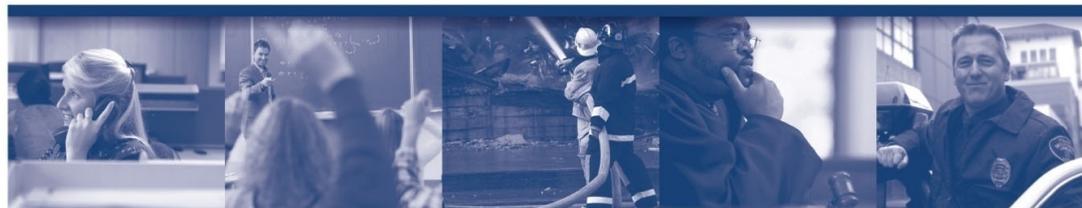
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Registers of Deeds' Supplemental Pension Fund Principal Results of Actuarial Valuation as of December 31, 2020

October 28, 2021 Board of Trustees Meeting

Larry Langer, ASA, FCA, EA, MAAA

Wendy Ludbrook, FSA, FCA, EA, MAAA



Valuation Results



Summary of Results

Inputs

Membership Data
Asset Data
Benefit Provisions
Assumptions
Funding Methodology



Results

Actuarial Value of Assets
Actuarial Accrued Liability
Net Actuarial Gain or Loss
Funded Ratio
Employer Contributions
Benefit Enhancement
Additional Disclosures
Projections

The table below provides a summary of the results developed in this valuation compared to the prior valuation.

Valuation Results as of	12/31/2020	12/31/2019
Active Members		
Number*	100	100
Active Deferred*	1	1
Reported Compensation	\$ 6,950,372	\$ 6,976,884
Valuation Compensation	\$ 7,397,082	\$ 7,416,594
Retired Members and Survivors of Deceased Members Currently Receiving Benefits		
Number	98	99
Annual Allowances	\$ 1,762,650	\$ 1,780,650
Assets		
Actuarial Value (AVA)	\$ 52,146,862	\$ 50,389,452
Market Value	\$ 54,335,380	\$ 51,208,478
Actuarial Accrued Liability (AAL)	\$ 33,840,219	\$ 30,907,611
Unfunded Accrued Liability (AAL-AVA)	\$ (18,306,643)	\$ (19,481,841)
Funded Ratio (AVA/AAL)**	154.1%	163.0%

• As of the valuation date, there were 100 members serving as RODs. One former Register of Deeds is an active employee in the Local Governmental Employees' Retirement System.

** The Funded Ratio on a Market Value of Assets basis is 160.6% and 165.7% at December 31, 2020 and 2019.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B.

RODSPF continues to be a very well funded plan.

Actual contributions to support the Fund are equal to 1.5% of the monthly receipts collected pursuant to Article 1 of Chapter 161 of the General Statutes (about \$1.1 million for calendar year 2020). This level of funding has resulted in the high funded ratio of this plan.

The decrease in the funded ratio as of December 31, 2020 is primarily due to the changes in assumptions and methods from the experience study.



Employer Contributions

- Inputs**
- Membership Data
- Asset Data
- Benefit Provisions
- Assumptions
- Funding Methodology
- ↓
- Results**
- Actuarial Value of Assets
- Actuarial Accrued Liability
- Net Actuarial Gain or Loss
- Funded Ratio
- Employer Contributions**
- Benefit Enhancement
- Additional Disclosures
- Projections

The table below provides a summary of the Actuarially Determined Employer Contribution (ADEC) for FYE June 30, 2023 and 2022.

Contributions for Fiscal Year Ending	6/30/2023	6/30/2022
Actuarially Determined Employer Contribution		
Normal Cost	\$ 1,221,032	\$ 1,079,297
Accrued Liability	\$ (1,221,032)	\$ (1,079,297)
Total	\$ 0	\$ 0
Liquidation Period	20 years	31 years

If the actuarially determined employer contribution (ADEC) is based on 12-year amortization of the unfunded accrued liability, the ADEC is less than \$0, which is not a permissible result.

Therefore, the accrued liability contribution has been set such that the total employer ADEC equals \$0.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B.



Experience Study

- The assumptions used for the December 31, 2020 actuarial valuation are based on the experience study prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021.
- Material assumptions and methods that were changed since the prior valuation:
 - The investment return assumption was lowered from 3.75% to 3.00%
 - The inflation assumption was lowered from 3.00% to 2.50%
 - The real wage growth assumption was increased from 0.50% to 0.75%
 - The payroll growth assumption was lowered from 3.50% to 3.25%
 - The administrative expense assumption was changed from 0.15% of market value of assets, to 0.40% of payroll
 - The withdrawal rates, retirement rates, disability rates, mortality assumption, and annual rate of salary increase assumption were changed

Certification



Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Cavanaugh Macdonald performed no analysis of the potential range of such future differences, except for some limited analysis in financial projections or required disclosure information. Results prior to December 31, 2017 were provided by the prior consulting actuary.

We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

Wendy Ludbrook, FSA, EA, FCA, MAAA
Consulting Actuary



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

Registers of Deeds' Supplemental Pension Fund

Report on the Annual Valuation
Prepared as of December 31, 2020

October 2021





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

October 13, 2021

Board of Trustees
North Carolina Local Governmental Employees' Retirement System
3200 Atlantic Avenue
Raleigh, NC 27604

Members of the Board:

We submit herewith our report on the actuarial valuation of the Registers of Deeds' Supplemental Pension Fund (referred to as RODSPF or "the Fund"), prepared as of December 31, 2020. The report has been prepared in accordance with North Carolina General Statute 161-50. Information contained in our report for plan years prior to December 31, 2017 is based upon valuations performed by the prior actuary.

The primary purpose of the valuation report is to determine the required employer contribution rates, to describe the current financial condition of the Fund, and to analyze changes in such condition. In addition, the report provides information that the Office of the State Controller (OSC) requires for its Comprehensive Annual Financial Report and it summarizes census data. Use of this report for any other purposes or by anyone other than OSC and its auditors, or North Carolina Retirement Systems Division and Department of State Treasurer Staff may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. Because of the risk of misinterpretation of actuarial results, you should ask Cavanaugh Macdonald Consulting (CMC) to review any statement you wish to make on the results contained in this report. CMC will not accept any liability for any such statement made without prior review.

The valuation is based upon membership data and financial information as furnished by the Retirement Systems Division and the Financial Operations Division and as summarized in this report. Although reviewed for reasonableness and consistency with the prior valuation, these elements have not been audited by CMC and we cannot certify as to the accuracy and completeness of the data supplied. Sometimes assumptions are made by CMC to interpret membership data that is imperfect. The valuation is also based on benefit and contribution provisions as presented in this report. If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, or that conditions have changed since the calculations were made, you should contact the authors of this actuarial report prior to relying on this information.

The valuation is further based on the actuarial valuation assumptions, approved by the Board of Trustees, as presented in this report. We believe that these assumptions are appropriate and reasonable and also comply with the requirements of GASB Statement No. 67. We prepared this valuation in accordance with the requirements of this standard and in accordance with all applicable Actuarial Standards of Practice (ASOP).

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The latest assumptions were adopted for use beginning with the December 31, 2020 actuarial valuation, based on the experience study prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021. The economic assumptions with respect to investment yield, salary increase and inflation have been based upon a review of the existing portfolio structure as well as recent and anticipated experience.

Where presented, references to “funded ratio” and “unfunded accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion of all of its liabilities. In various places in the report the results also show funded ratios and unfunded liabilities based upon varying sets of assumptions as well as market values of assets as that is required for certain disclosure information required per accounting rules or statutes. Where this has been done it has been clearly indicated.

In order to prepare the results in this report we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: fund experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law. Such changes in law may include additional costs resulting from future legislated benefit improvements or cost-of-living pension increases or supplements, which are not anticipated in the actuarial valuation. Because of limited scope, CMC performed no analysis of the potential range of such future differences, except for some limited analysis in financial projections or required disclosure information.

We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Sincerely,

A handwritten signature in blue ink, appearing to read 'LL'.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to read 'Wendy Ludbrook'.

Wendy Ludbrook, FSA, EA, FCA, MAAA
Consulting Actuary



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Section 1: Summary of Principal Results

1. This report, prepared as of December 31, 2020, presents the results of the actuarial valuation of the system. For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below.

Table 1: Summary of Principal Results

Valuation Results as of	12/31/2020	12/31/2019
Active Members		
Number**	100	100
Active Deferred**	1	1
Reported Compensation	\$ 6,950,372	\$ 6,976,884
Valuation Compensation***	\$ 7,397,082	\$ 7,416,594
Retired Members and Survivors of Deceased Members Currently Receiving Benefits		
Number	98	99
Annual Allowances	\$ 1,762,650	\$ 1,780,650
Assets		
Actuarial Value (AVA)	\$ 52,146,862	\$ 50,389,452
Market Value	\$ 54,335,380	\$ 51,208,478
Actuarial Accrued Liability (AAL)	\$ 33,840,219	\$ 30,907,611
Unfunded Accrued Liability (AAL-AVA)	\$ (18,306,643)	\$ (19,481,841)
Funded Ratio (AVA/AAL)****	154.1%	163.0%
Contributions for Fiscal Year Ending	6/30/2023	6/30/2022
Actuarially Determined Employer Contribution		
Normal Cost	\$ 1,221,032	\$ 1,079,297
Accrued Liability*	\$ (1,221,032)	\$ (1,079,297)
Total	\$ 0	\$ 0
Liquidation Period	20 years	31 years

* If the actuarially determined employer contribution (ADEC) is based on 12-year amortization of the unfunded accrued liability, the ADEC is less than \$0, which is not a permissible result. Therefore, the accrued liability contribution has been set such that the total employer ADEC equals \$0.

** As of the valuation date, there were 100 members serving as registers of deeds. One former register of deeds is an active employee in the Local Governmental Employees' Retirement System (LGERS) and consequently ineligible to receive a benefit from the RODSPF until retirement from LGERS.

*** Reported compensation adjusted to reflect the assumed rate of pay increase prior to the valuation date.

**** The Funded Ratio on a Market Value of Assets basis is 160.6% at December 31, 2020.



Section 1: Summary of Principal Results

2. Tables summarizing the membership of the Fund as of the valuation date are shown in Section 2.
3. An allocation of investments by category is shown in Section 3.
4. Comments on the valuation results are provided in Section 4.
5. Comments on the experience and actuarial gains/losses during the valuation year are provided in Section 5.
6. Accounting information to be disclosed in the financial statements of the Fund and the employer is provided in Section 6.
7. Comments on risks to the fund are provided in Section 7.
8. Appendix A of this report presents a summary of the results of the valuation, including present and prospective assets and liabilities of the Fund as of December 31, 2020.
9. Appendix B of this report presents the development of the actuarial value of assets.
10. Appendix C of this report outlines the full set of actuarial assumptions and methods employed.
11. Appendix D gives a summary of the benefit and contribution provisions of the Fund.
12. Appendix E provides the projection of cash flows used to determine the discount rate under GASB Statement No. 67.
13. Appendix F provides detailed tabulations of the membership of the Fund as of the valuation date.



Section 2: Membership Data

Data regarding the membership of the system for use as a basis for the valuation were furnished by the System's office. The following tables summarize the membership of the system as of December 31, 2020 upon which the valuation was based.

Table 2: Active Member Data

Group	Member Count*	Average Age	Average Service	Reported Compensation
Males	26	54.72	12.08	\$ 2,006,375
Females	75	56.74	19.19	\$ 4,943,997
Total	101	56.22	17.36	\$ 6,950,372

* As of the valuation date, there were 100 members serving as registers of deeds. One former register of deeds is an active employee in the Local Governmental Employees' Retirement System (LGERS) and consequently ineligible to receive a benefit under the RODSPF until retirement from LGERS.

Table 3: Data for Members Currently Receiving Benefits

Group	Member Count	Average Age	Annual Retirement Allowances
Males	12	72.15	\$ 216,000
Females	86	72.56	\$ 1,546,650
Total	98	72.51	\$ 1,762,650

In addition, there are 4 terminated vested members as of December 31, 2020 included in the valuation with annual allowances totaling \$72,000, who will begin receipt in 2021.



Section 3: Asset Allocation

The following table shows an allocation of investments by category for the Register of Deeds' Supplemental Pension Fund as of December 31, 2020.

Table 4: Allocation of Investments by Category for the Register of Deeds' Supplemental Pension Fund as of December 31, 2020

Cash and Receivables	0.0%
Fixed Income	100.0%
Public Equity	0.0%
Other*	<u>0.0%</u>
Total	100.0%

* Real Estate, Alternatives, Inflation and Credit.



Section 4: Comments on Valuation

Appendix A of this report presents a summary of the results of the valuation, including present and prospective assets and liabilities of the Fund as of December 31, 2020.

The results of the valuation show that the Fund has total prospective liabilities of \$41,620,592 of which \$23,405,901 is for the prospective benefits payable on account of retired members currently receiving benefits and terminated vested members, and \$18,214,691 is for the prospective benefits payable on account of present active members. From these liabilities subtracting the present value of future normal cost contributions of \$7,780,373, leaves \$33,840,219 as the actuarial accrued liability (AAL). The Fund has present assets of \$52,146,862 resulting in an unfunded actuarial accrued liability (UAAL) equal to \$(18,306,643).

The valuation indicates that employer normal cost for the year totals \$1,221,032, which is the annual cost of benefits accruing in the current year under the actuarial funding method, and also includes the amount required for administrative expenses. The payment required to amortize the UAAL is \$(1,221,032), resulting in an actuarially determined contribution of \$0 for fiscal year ending June 30, 2023.



Section 5: Comments on Experience and Gains/Losses

The following table shows a detailed reconciliation of the change in unfunded accrued liability since the prior valuation.

Table 5: Reconciliation of Change in Unfunded Actuarial Accrued Liability Since the Prior Valuation
(in millions)

Unfunded Actuarial Accrued Liability as of 12/31/2019	\$ (19.5)
Normal Cost during 2020 (Including Admin Expenses)	1.1
Reduction due to Actual Contributions during 2020	(1.1)
Interest on UAAL, Normal Cost, and Contributions	(0.7)
Asset (Gain) / Loss	(0.6)
Actuarial Accrued Liability (Gain) / Loss	0.4
Impact of Assumption Changes	2.1
Unfunded Actuarial Accrued Liability as of 12/31/2020	\$ (18.3)

Commentary: During 2020, the UAAL increased \$2.1 million due to the impact of the assumption changes from the experience study. This was offset by an asset gain during the year that decreased the UAAL by \$0.6 million. Demographic experience increased the UAAL by \$0.4 million.



Section 6: Accounting Information

The section contains the accounting information for Governmental Accounting Standards Board (GASB) Statement No. 67 for fiscal year ending June 30, 2021 based on a valuation date of December 31, 2020.

Please note GASB Statement No. 67 (Financial Reporting for Pension Plans) is applicable for fiscal years ending 2014 and later.

The June 30, 2021 total pension liability presented in this section was determined by an actuarial valuation as of December 31, 2020, based on the assumptions, methods and plan provisions described in this report. The actuarial cost method used to develop the total pension liability is the Entry Age Normal Cost method, as required by GASB Statement No. 67.

GASB Statement No. 67 set forth certain items of information to be disclosed in the financial statements of the Plan. The tables below provide a distribution of the number of employees by type of membership.

**Table 6: Number of Active and Retired Participants
as of December 31, 2020**

Group	Number
Retired Members and survivors of deceased members currently receiving benefits	98
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	4
Active Participants*	101
Total	203

*As of the valuation date, there were 100 members serving as registers of deeds. One former register of deeds is an active employee in the Local Governmental Employees' Retirement System (LGERS) and consequently ineligible to receive a benefit under the RODSPF until retirement from LGERS.



Section 6: Accounting Information

GASB Statement No. 67 set forth certain items of information to be disclosed in the financial statements of the Plan. The tables below provide the schedule of changes in Net Pension Liability (Asset).

Table 7: Schedule of Changes in Net Pension Liability (Asset)

Calculation as of	June 30, 2021
Total Pension Liability	
Service Cost	\$ 1,120,000
Interest	1,134,000
Changes of Benefit Terms	0
Difference between Expected and Actual Experience	308,000
Change of Assumptions	2,101,000
Benefit Payments, including Refund of Member Contributions	(1,802,000)
Net Change in Total Pension Liability	\$ 2,861,000
Total Pension Liability - Beginning of Year	\$ 31,129,000
Total Pension Liability - End of Year	\$ 33,990,000
Plan Fiduciary Net Position	
Employer Contributions	\$ 1,200,000
Member Contributions	0
Net Investment Income	(228,000)
Benefit Payments, including Refund of Member Contributions	(1,802,000)
Administrative Expenses	(14,000)
Other	0
Net Change in Fiduciary Net Position	\$ (844,000)
Plan Fiduciary Net Position - Beginning of Year	\$ 54,047,000
Plan Fiduciary Net Position - End of Year	\$ 53,203,000

Table 8: Net Pension Liability (Asset)

Calculation as of	June 30, 2021	June 30, 2020
Total Pension Liability	\$ 33,990,000	\$ 31,129,000
Plan Fiduciary Net Position	\$ 53,203,000	\$ 54,047,000
Net Pension Liability (Asset)	\$ (19,213,000)	\$ (22,918,000)
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	156.53%	173.62%

The table below is the sensitivity of the net pension liability to changes in the discount rate.



Section 6: Accounting Information

**Table 9: Sensitivity of the Net Pension Liability (Asset)
at June 30, 2021 to Changes in the Discount Rate**

	1% Decrease	Current	1% Increase
Discount Rate	2.00%	3.00%	4.00%
Net Pension Liability (Asset)	(15,261,000)	(19,213,000)	(22,534,000)

The discount rate used to measure the total pension liability was 3.00%. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Please see Appendix E for additional detail.

The table below provides the methods and assumptions used to calculate the actuarially determined contribution rate.

Table 10: Additional Information for GASB Statement No. 67

Valuation Date	12/31/2021
Actuarial Cost Method	Entry Age
Amortization Method	Level dollar closed
Amortization Period *	20 years
Asset Valuation Method	Asset returns in excess of or less than the expected return on market value of assets reflected over a five-year period (not greater than 120% of market value and not less than 80% of market value)
Actuarial Assumptions	
Investment Rate of Return	3.00%
Projected Salary Increases	3.25% - 8.25%
** Includes Inflation of	2.50%
*** Includes inflation of and productivity of	3.25%
Cost-of-Living Adjustments	N/A

* If the actuarially determined employer contribution (ADEC) is based on 12 year amortization of the unfunded accrued liability, the ADEC is less than \$0, which is not a permissible result. Therefore, the accrued liability contribution has been set such that the total employer ADEC equals \$0.



Section 7: Risk

Measuring pension obligations and actuarially determined contributions requires the use of assumptions regarding future economic and demographic experience. Whenever assumptions are made about future events, there is risk that actual experience will differ from expected. Actuarial valuations include the risk that actual future measurements will deviate from expected future measurements due to actual experience that is different than the actuarial assumptions. The primary areas of risk in this actuarial valuation are:

- Investment Risk – the potential that investment returns will be different than expected.
- Longevity and Other Demographic Risks – the potential that mortality or other demographic experience will be different than expected.
- Interest Rate Risk – To the extent market rates of interest affect the expected return on assets, there is a risk of change to the discount rate which determines the present value of liabilities and actuarial valuation results.
- Contribution Risk – The potential that actual contributions are different than the actuarially determined contributions.

Annual actuarial valuations are performed for RSD which re-measure the assets and liabilities and compute a new actuarially determined contribution. RSD also has experience studies performed every five years to analyze the discrepancies between actuarial assumptions and actual experience and determine if the actuarial assumptions need to be changed. Annual actuarial valuations and periodic experience studies are practical ways to monitor and reassess risk.



Appendix A: Results of the Valuation

Valuation Results as of	12/31/2020
1. Present Value of Future Benefits	
a. Members Currently Receiving Benefits and Terminated Vested Members	\$ 23,405,901
b. Active Members	\$ 18,214,691
c. Total Present Value of Future Benefits	\$ 41,620,592
2. Present Value of Future Normal Cost Contributions	\$ 7,780,373
3. Actuarial Accrued Liability (AAL): (1) - (2)	\$ 33,840,219
4. Actuarial Value of Assets	\$ 52,146,862
5. Unfunded Actuarial Accrued Liability (UAAL): (3) - (4)	\$ (18,306,643)



Appendix B: Development of Actuarial Value of Assets

Asset Data as of	12/31/2020
Beginning of Year Market Value of Assets	\$ 51,208,478
Contributions	1,085,980
Benefit Payments and Administrative Expenses	\$ (1,782,192)
Net Cash Flow	\$ (696,212)
Expected Investment Return	\$ 1,907,384
Expected End of Year Market Value of Assets	\$ 52,419,650
End of Year Market Value of Assets	\$ 54,335,380
Excess of Market Value Over Expected Market Value	\$ 1,915,730
80% of 2019 Asset Gain/(Loss)	\$ 1,532,584
60% of 2018 Asset Gain/(Loss)	1,430,782
40% of 2017 Asset Gain/(Loss)	(745,062)
20% of 2016 Asset Gain/(Loss)	(29,786)
Total Deferred Asset Gain/(Loss)	\$ 2,188,518
Preliminary End of Year Actuarial Value of Assets	\$ 52,146,862
Final End of Year Actuarial Value of Assets (not less than 80% and not greater than 120% of Market Value)	\$ 52,146,862
Estimated Net Investment Return on Actuarial Value	4.90%
Estimated Net Investment Return on Market Value	7.52%

Commentary: The actuarial value of assets smooths investment gains/losses resulting in less volatility in the employer contribution. The asset valuation method recognizes asset returns in excess of or less than the expected return on the market value of assets over a five-year period.

Higher than expected market returns in 2019 and 2020 resulted in an actuarial value of asset return for calendar year 2020 of 4.90% and a recognized asset gain of \$0.5 million during 2020.



Appendix C: Actuarial Assumptions and Methods

Assumptions are based on the experience investigation prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021 for use beginning with the December 31, 2020 annual actuarial valuation.

Interest Rate: 3.00% per annum, compounded annually.

Inflation: 2.50% per annum, compounded annually.

Real Wage Growth: 0.75% per annum.

Payroll Growth: 3.25% per annum.

Separations From Active Service: Representative values of the assumed rates of separation from active service are as follows:

Annual Rates of Withdrawal		
Service	Male	Female
0	.1100	.1100
1	.1750	.1750
2	.1500	.1550
3	.1250	.1300
4	.1050	.1150

Annual Rates of						
Age	Withdrawal and Vesting*		Base Mortality**		Disability	
	Male	Female	Male	Female	Male	Female
25	.1200	.1750	.00028	.00009	.0004	.0005
30	.0750	.1100	.00036	.00015	.0005	.0005
35	.0550	.0900	.00047	.00023	.0005	.0005
40	.0550	.0700	.00066	.00036	.0010	.0005
45	.0425	.0500	.00098	.00056	.0020	.0015
50	.0425	.0450	.00149	.00083	.0030	.0030
55	.0425	.0450	.00219	.00123	.0050	.0045
60	.0425	.0450	.00319	.00186	.0065	.0045
65			.00468	.00296		
69			.00646	.00442		

* These rates apply only after five years of membership in the system.

** Base mortality rates as of 2010.



Appendix C: Actuarial Assumptions and Methods

Retirements: Representative values of the assumed rates of retirement from active service are as follows:

Males							
Age	Service						
	5	10	15	20	25	30	35
50				0.030	0.055	0.400	0.400
55				0.030	0.055	0.350	0.250
60	0.080	0.070	0.070	0.075	0.200	0.400	0.225
65	0.250	0.250	0.275	0.325	0.300	0.350	0.300
70	0.200	0.250	0.200	0.275	0.300	0.350	0.300
75	0.250	0.200	0.300	0.275	0.300	0.350	0.300

Females							
Age	Service						
	5	10	15	20	25	30	35
50				0.035	0.050	0.400	0.450
55				0.050	0.055	0.300	0.300
60	0.080	0.090	0.070	0.100	0.250	0.375	0.250
65	0.250	0.250	0.350	0.350	0.350	0.350	0.300
70	0.200	0.250	0.225	0.300	0.200	0.300	0.250
75	0.200	0.200	0.225	0.300	0.200	0.250	0.250

Salary Increases: Representative values of the assumed annual rates of future salary increase are as follows:

Service	Annual Rate of Salary Increase
0	8.25%
5	5.95
10	4.98
15	4.33
20	3.94
25	3.80
30	3.80
35	3.25
40	3.25
45	3.25
50	3.25



Appendix C: Actuarial Assumptions and Methods

Deaths After Retirement: Representative values of the assumed post-retirement mortality rates as of 2010 prior to any mortality improvements are as follows:

Annual Rate of Death after Retirement				
	Retirees (Healthy at Retirement)		Retirees (Disabled at Retirement)	
Age	Male	Female	Male	Female
55	.00477	.00286	.02355	.01692
60	.00684	.00384	.02785	.01914
65	.01064	.00613	.03524	.02178
70	.01828	.01063	.04599	.02706
75	.03227	.01883	.06347	.03718
80	.05810	.03360	.09259	.05517

Deaths After Retirement (Healthy Members at Retirement): Mortality rates are based on the General Mortality Table for Retirees. Rates for male members are first Set Forward 2 years, then are multiplied by 96% for ages under 81, and increase until reaching 100% at age 85 and above. Rates for female members are 100% for ages under 92 and increase until reaching 110% at age 94 and above. Because the retiree tables have no rates prior to age 50, the General Mortality Table for Employees is used for ages less than 50.

Deaths After Retirement (Survivors of Deceased Members): Mortality rates are based on the Below-median Teachers Mortality Table for Contingent Survivors. Rates for male members are Set Forward 3 years. Rates for female members are Set Forward 1 year. Because the contingent survivor tables have no rates prior to age 45, the Below-median Teachers Mortality Table for Employees is used for ages less than 45.

Death After Retirement (Disabled Members at Retirement): Mortality rates are based on the General Mortality Table for Disabled Retirees. Rates for General Employee male members are Set Forward 3 years, while Firefighter, Rescue Squad Worker & Law Enforcement Officer male members are Set Back 3 years. Rates for General Employee female members are Set Back 1 year, while Firefighter, Rescue Squad Worker & Law Enforcement Officer female members are Set Back 3 years.

Deaths Prior to Retirement: Mortality rates for General Employees are based on the General Mortality Table for Employees. Mortality rates for Firefighters, Rescue Squad Workers & Law Enforcement Officers are based on the Safety Mortality Table for Employees.

Mortality Projection (Non-Disabled): All mortality rates are projected from 2010 using generational improvement with Scale MP-2019.

Missing Gender Code: For members reported on the data without a gender code, we use the prior year's code where available or assign a code based on inspection.

Timing of Assumptions: All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur July 1 of each year. The timing of retirement changes from mid-year to beginning of year at and after the 100% retirement age.

Administrative Expenses: Assumed to be 0.40% of payroll and added to normal cost.

Reported Compensation: Calendar year compensation as furnished by the system's office.



Appendix C: Actuarial Assumptions and Methods

Valuation Compensation: Reported compensation adjusted to reflect the assumed rate of pay as of the valuation date and the probability of decrement during the year.

Compensation Limits: No compensation limits are applied.

Actuarial Cost Method: Entry age normal cost method.

Normal Cost: Normal cost rate reflects the impact of new entrants during the year.

Asset Valuation Method: Actuarial value, as developed in Appendix B. The actuarial value of assets is based upon a smoothed market value method. Under this method, asset returns in excess of or less than the expected return on market value of assets will be reflected in the actuarial value of assets over a five-year period. The calculation of the Actuarial Value of Assets is based on the following formula:

$$MV - 80\% \times G/(L)_1 - 60\% \times G/(L)_2 - 40\% \times G/(L)_3 - 20\% \times G/(L)_4$$

MV = the market value of assets as of the valuation date

$G/(L)_i$ = the asset gain or (loss) for the i-th year preceding the valuation date

Changes Since Prior Valuation

The assumptions used for the December 31, 2020 actuarial valuation are based on the experience study prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021. Material assumptions and methods that were changed since the prior valuation:

- The investment return assumption was lowered from 3.75% to 3.00%
- The inflation assumption was lowered from 3.00% to 2.50%
- The real wage growth assumption was increased from 0.50% to 0.75%
- The payroll growth assumption was lowered from 3.50% to 3.25%
- The administrative expense assumption was changed from 0.15% of the market value of assets to 0.40% of payroll
- The withdrawal rates, retirement rates, disability rates, mortality assumption, and annual rates of salary increase assumption were changed



Appendix D: Summary of Main Benefit Provisions

The Registers of Deeds' Supplemental Pension Fund was established October 1, 1987 for all county registers of deeds who are retired from the Local Governmental Employees' Retirement System or an equivalent locally sponsored plan.

Benefits

Service Retirement Pension

Conditions for Pension Retirement from the Local Governmental Employees' Retirement System or equivalent locally sponsored plan with 10 or more years of service as a register of deeds.

Amount of Pension For Registers of Deeds who began service before September 10, 2009, the benefit payable for the life of the member only, equal to 75% of the equivalent annual salary immediately preceding retirement computed on the latest monthly base rate. Maximum benefit is \$1,500 per month.

For Registers of Deeds who began service September 10, 2009 or later, the benefit is minimum of (A,B):

A = 75% of equivalent annual salary immediately preceding retirement computed on the latest monthly base rate (minus maximum pension from LGERS or equivalent locally sponsored plan).

B = \$1,500.

Deferred Vested Retirement Pension

Conditions for Pension Separation from service after completing at least 10 years of service as a register of deeds.

Amount of Pension Service Retirement Pension described above commencing upon retirement with the Local Governmental Retirement System.

Contributions

Employer Contributions 1.5% of the monthly receipts collected pursuant to Article 1 of Chapter 161 of the General Statutes.

Employee Contributions None.

Changes Since Prior Valuation None.



Appendix E: GASB 67 Fiduciary Net Position Projection

Table E-1: Projection of Fiduciary Net Positions
(in thousands)

Calendar Year	Beginning Fiduciary Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Position
2021	\$ 54,335	\$ 0	\$ 0	\$ 1,894	\$ 30	\$ 1,601	\$ 54,013
2022	54,013	0	0	1,934	27	1,591	53,643
2023	53,643	0	0	1,979	26	1,579	53,218
2024	53,218	0	0	2,029	24	1,566	52,732
2025	52,732	0	0	2,076	22	1,551	52,185
2026	52,185	0	0	2,121	20	1,534	51,578
2027	51,578	0	0	2,147	18	1,515	50,928
2028	50,928	0	0	2,167	17	1,495	50,240
2029	50,240	0	0	2,181	15	1,475	49,519
2030	49,519	0	0	2,188	13	1,453	48,770
2031	48,770	0	0	2,213	12	1,430	47,975
2032	47,975	0	0	2,216	10	1,406	47,156
2033	47,156	0	0	2,211	8	1,382	46,318
2034	46,318	0	0	2,189	7	1,357	45,479
2035	45,479	0	0	2,153	6	1,332	44,653
2036	44,653	0	0	2,103	5	1,308	43,854
2037	43,854	0	0	2,048	4	1,285	43,087
2038	43,087	0	0	1,995	3	1,263	42,352
2039	42,352	0	0	1,926	3	1,242	41,665
2040	41,665	0	0	1,853	2	1,222	41,033
2041	41,033	0	0	1,777	2	1,204	40,458
2042	40,458	0	0	1,703	1	1,188	39,942
2043	39,942	0	0	1,629	1	1,174	39,486
2044	39,486	0	0	1,547	1	1,162	39,100
2045	39,100	0	0	1,464	1	1,151	38,786
2046	38,786	0	0	1,385	1	1,143	38,544
2047	38,544	0	0	1,304	0	1,137	38,377
2048	38,377	0	0	1,223	0	1,133	38,286
2049	38,286	0	0	1,144	0	1,132	38,274
2050	38,274	0	0	1,066	0	1,132	38,340
2051	38,340	0	0	991	0	1,135	38,484
2052	38,484	0	0	918	0	1,141	38,707
2053	38,707	0	0	848	0	1,149	39,008
2054	39,008	0	0	780	0	1,159	39,386
2055	39,386	0	0	716	0	1,171	39,841
2056	39,841	0	0	655	0	1,185	40,372
2057	40,372	0	0	597	0	1,202	40,978
2058	40,978	0	0	542	0	1,221	41,657
2059	41,657	0	0	490	0	1,242	42,409
2060	42,409	0	0	442	0	1,266	43,233
2061	43,233	0	0	396	0	1,291	44,128
2062	44,128	0	0	354	0	1,319	45,092
2063	45,092	0	0	315	0	1,348	46,125
2064	46,125	0	0	279	0	1,380	47,226
2065	47,226	0	0	246	0	1,413	48,393
2066	48,393	0	0	215	0	1,449	49,627
2067	49,627	0	0	187	0	1,486	50,926
2068	50,926	0	0	162	0	1,525	52,289
2069	52,289	0	0	139	0	1,567	53,716
2070	53,716	0	0	119	0	1,610	55,207



Appendix E: GASB 67 Fiduciary Net Position Projection

Table E-1: Projection of Fiduciary Net Positions (continued)
(in thousands)

Calendar Year	Beginning Fiduciary Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Position
2071	\$ 55,207	\$ 0	\$ 0	\$ 101	\$ 0	\$ 1,655	\$ 56,761
2072	56,761	0	0	85	0	1,702	58,377
2073	58,377	0	0	71	0	1,750	60,057
2074	60,057	0	0	59	0	1,801	61,799
2075	61,799	0	0	48	0	1,853	63,605
2076	63,605	0	0	39	0	1,908	65,473
2077	65,473	0	0	31	0	1,964	67,406
2078	67,406	0	0	25	0	2,022	69,403
2079	69,403	0	0	20	0	2,082	71,465
2080	71,465	0	0	15	0	2,144	73,594
2081	73,594	0	0	12	0	2,208	75,790
2082	75,790	0	0	9	0	2,274	78,054
2083	78,054	0	0	6	0	2,342	80,390
2084	80,390	0	0	5	0	2,412	82,797
2085	82,797	0	0	3	0	2,484	85,277
2086	85,277	0	0	2	0	2,558	87,833
2087	87,833	0	0	2	0	2,635	90,466
2088	90,466	0	0	1	0	2,714	93,179
2089	93,179	0	0	1	0	2,795	95,974
2090	95,974	0	0	0	0	2,879	98,853
2091	98,853	0	0	0	0	2,966	101,818
2092	101,818	0	0	0	0	3,055	104,872
2093	104,872	0	0	0	0	3,146	108,019
2094	108,019	0	0	0	0	3,241	111,259
2095	111,259	0	0	0	0	3,338	114,597
2096	114,597	0	0	0	0	3,438	118,035
2097	118,035	0	0	0	0	3,541	121,576
2098	121,576	0	0	0	0	3,647	125,223
2099	125,223	0	0	0	0	3,757	128,980
2100	128,980	0	0	0	0	3,869	132,849
2101	132,849	0	0	0	0	3,985	136,835
2102	136,835	0	0	0	0	4,105	140,940
2103	140,940	0	0	0	0	4,228	145,168
2104	145,168	0	0	0	0	4,355	149,523
2105	149,523	0	0	0	0	4,486	154,008
2106	154,008	0	0	0	0	4,620	158,629
2107	158,629	0	0	0	0	4,759	163,388
2108	163,388	0	0	0	0	4,902	168,289
2109	168,289	0	0	0	0	5,049	173,338
2110	173,338	0	0	0	0	5,200	178,538
2111	178,538	0	0	0	0	5,356	183,894
2112	183,894	0	0	0	0	5,517	189,411
2113	189,411	0	0	0	0	5,682	195,093
2114	195,093	0	0	0	0	5,853	200,946
2115	200,946	0	0	0	0	6,028	206,975
2116	206,975	0	0	0	0	6,209	213,184
2117	213,184	0	0	0	0	6,396	219,579
2118	219,579	0	0	0	0	6,587	226,167
2119	226,167	0	0	0	0	6,785	232,952
2120	232,952	0	0	0	0	6,989	239,940



Appendix E: GASB 67 Fiduciary Net Position Projection

Table E-2: Actuarial Value of Projected Benefit Payments
(in thousands)

Calendar Year	Beginning Fiduciary Position	Benefit Payments	Funded Benefit Payments	Unfunded Benefit Payments	Present Value of Benefit Payments		
					Funded Payments at 3.00%	Unfunded Payments at 2.16%	Using Single Discount Rate of 3.00%
2021	\$ 54,335	\$ 1,894	\$ 1,894	\$ 0	\$ 1,867	\$ 0	\$ 1,867
2022	54,013	1,934	1,934	0	1,850	0	1,850
2023	53,643	1,979	1,979	0	1,838	0	1,838
2024	53,218	2,029	2,029	0	1,829	0	1,829
2025	52,732	2,076	2,076	0	1,817	0	1,817
2026	52,185	2,121	2,121	0	1,802	0	1,802
2027	51,578	2,147	2,147	0	1,771	0	1,771
2028	50,928	2,167	2,167	0	1,736	0	1,736
2029	50,240	2,181	2,181	0	1,696	0	1,696
2030	49,519	2,188	2,188	0	1,652	0	1,652
2031	48,770	2,213	2,213	0	1,622	0	1,622
2032	47,975	2,216	2,216	0	1,577	0	1,577
2033	47,156	2,211	2,211	0	1,528	0	1,528
2034	46,318	2,189	2,189	0	1,469	0	1,469
2035	45,479	2,153	2,153	0	1,402	0	1,402
2036	44,653	2,103	2,103	0	1,330	0	1,330
2037	43,854	2,048	2,048	0	1,257	0	1,257
2038	43,087	1,995	1,995	0	1,189	0	1,189
2039	42,352	1,926	1,926	0	1,115	0	1,115
2040	41,665	1,853	1,853	0	1,041	0	1,041
2041	41,033	1,777	1,777	0	970	0	970
2042	40,458	1,703	1,703	0	902	0	902
2043	39,942	1,629	1,629	0	838	0	838
2044	39,486	1,547	1,547	0	772	0	772
2045	39,100	1,464	1,464	0	710	0	710
2046	38,786	1,385	1,385	0	652	0	652
2047	38,544	1,304	1,304	0	596	0	596
2048	38,377	1,223	1,223	0	543	0	543
2049	38,286	1,144	1,144	0	493	0	493
2050	38,274	1,066	1,066	0	446	0	446
2051	38,340	991	991	0	402	0	402
2052	38,484	918	918	0	362	0	362
2053	38,707	848	848	0	324	0	324
2054	39,008	780	780	0	290	0	290
2055	39,386	716	716	0	258	0	258
2056	39,841	655	655	0	229	0	229
2057	40,372	597	597	0	203	0	203
2058	40,978	542	542	0	179	0	179
2059	41,657	490	490	0	157	0	157
2060	42,409	442	442	0	137	0	137
2061	43,233	396	396	0	120	0	120
2062	44,128	354	354	0	104	0	104
2063	45,092	315	315	0	90	0	90
2064	46,125	279	279	0	77	0	77
2065	47,226	246	246	0	66	0	66
2066	48,393	215	215	0	56	0	56
2067	49,627	187	187	0	47	0	47
2068	50,926	162	162	0	40	0	40
2069	52,289	139	139	0	33	0	33
2070	53,716	119	119	0	28	0	28



Appendix E: GASB 67 Fiduciary Net Position Projection

Table E-2: Actuarial Value of Projected Benefit Payments (continued)
(in thousands)

Calendar Year	Beginning Fiduciary Position	Benefit Payments	Funded Benefit Payments	Unfunded Benefit Payments	Present Value of Benefit Payments		
					Funded Payments at 3.75%	Unfunded Payments at 2.21%	Using Single Discount Rate of 3.75%
2071	\$ 55,207	\$ 101	\$ 101	\$ 0	\$ 23	\$ 0	\$ 23
2072	56,761	85	85	0	19	0	19
2073	58,377	71	71	0	15	0	15
2074	60,057	59	59	0	12	0	12
2075	61,799	48	48	0	10	0	10
2076	63,605	39	39	0	8	0	8
2077	65,473	31	31	0	6	0	6
2078	67,406	25	25	0	5	0	5
2079	69,403	20	20	0	3	0	3
2080	71,465	15	15	0	3	0	3
2081	73,594	12	12	0	2	0	2
2082	75,790	9	9	0	1	0	1
2083	78,054	6	6	0	1	0	1
2084	80,390	5	5	0	1	0	1
2085	82,797	3	3	0	0	0	0
2086	85,277	2	2	0	0	0	0
2087	87,833	2	2	0	0	0	0
2088	90,466	1	1	0	0	0	0
2089	93,179	1	1	0	0	0	0
2090	95,974	0	0	0	0	0	0
2091	98,853	0	0	0	0	0	0
2092	101,818	0	0	0	0	0	0
2093	104,872	0	0	0	0	0	0
2094	108,019	0	0	0	0	0	0
2095	111,259	0	0	0	0	0	0
2096	114,597	0	0	0	0	0	0
2097	118,035	0	0	0	0	0	0
2098	121,576	0	0	0	0	0	0
2099	125,223	0	0	0	0	0	0
2100	128,980	0	0	0	0	0	0
2101	132,849	0	0	0	0	0	0
2102	136,835	0	0	0	0	0	0
2103	140,940	0	0	0	0	0	0
2104	145,168	0	0	0	0	0	0
2105	149,523	0	0	0	0	0	0
2106	154,008	0	0	0	0	0	0
2107	158,629	0	0	0	0	0	0
2108	163,388	0	0	0	0	0	0
2109	168,289	0	0	0	0	0	0
2110	173,338	0	0	0	0	0	0
2111	178,538	0	0	0	0	0	0
2112	183,894	0	0	0	0	0	0
2113	189,411	0	0	0	0	0	0
2114	195,093	0	0	0	0	0	0
2115	200,946	0	0	0	0	0	0
2116	206,975	0	0	0	0	0	0
2117	213,184	0	0	0	0	0	0
2118	219,579	0	0	0	0	0	0
2119	226,167	0	0	0	0	0	0
2120	232,952	0	0	0	0	0	0



Appendix F: Detailed Tabulations of the Data

Table F-1: The Number and Average Reported Compensation of Active Members Distributed by Age and Service as of December 31, 2020

Age	Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	0	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	2	1	0	0	0	0	0	0	0	0	3
	0	56,432	103,210	0	0	0	0	0	0	0	0	72,025
40 to 44	1	0	1	2	3	1	0	0	0	0	0	8
	26,756	0	61,384	67,554	54,607	72,011	0	0	0	0	0	57,385
45 to 49	0	0	2	1	3	2	1	1	0	0	0	10
	0	0	61,236	65,710	67,121	80,608	69,440	82,183	0	0	0	70,238
50 to 54	1	1	2	4	4	2	2	1	0	0	0	17
	42,318	56,920	72,099	56,644	93,939	79,974	65,138	82,694	0	0	0	71,687
55 to 59	1	6	1	0	3	4	4	3	2	0	0	24
	48,637	78,025	67,344	0	73,597	64,563	62,870	91,430	72,252	0	0	72,227
60 to 64	0	3	3	3	3	4	1	2	0	2	2	21
	0	62,889	70,359	50,961	60,297	57,884	56,662	89,563	0	75,755	0	64,398
65 to 69	0	0	1	1	4	0	2	3	1	0	0	12
	0	0	83,468	77,969	84,167	0	57,612	73,574	105,749	0	0	78,317
70 & Up	1	0	1	0	1	1	0	1	0	0	0	5
	64,425	0	80,667	0	54,357	67,959	0	61,143	0	0	0	65,710
Total	4	12	12	11	21	14	10	11	3	2	100	
	45,534	68,883	72,818	59,841	73,031	67,923	62,308	81,833	83,418	75,755	69,504	

Table excludes one former register of deeds who is an active employee in the Local Governmental Employees' Retirement System (LGERS) and consequently ineligible to receive a benefit under the RODSPF until retirement from LGERS.



Appendix F: Detailed Tabulations of the Data

Table F-2: The Number and Annual Retirement Pensions of Retired Members and Survivors of Deceased Members Distributed by Age as of December 31, 2020

Age	Men		Women	
	Number	Allowances	Number	Allowances
54			2	\$36,000
57			1	\$18,000
59			1	\$18,000
61			2	\$36,000
62	1	\$18,000	3	\$54,000
63			2	\$36,000
64			4	\$72,000
65			4	\$72,000
66			1	\$18,000
67	1	\$18,000	3	\$54,000
68	3	\$54,000	5	\$90,000
69			3	\$54,000
70			2	\$36,000
71	1	\$18,000	7	\$126,000
72	1	\$18,000	5	\$90,000
73	1	\$18,000	5	\$90,000
74	1	\$18,000	4	\$72,000
75			6	\$108,000
76			4	\$72,000
78			2	\$36,000
79	1	\$18,000	1	\$18,000
80	1	\$18,000	4	\$70,650
81			3	\$54,000
82			3	\$54,000
84			1	\$18,000
85	1	\$18,000	1	\$18,000
87			1	\$18,000
88			2	\$36,000
89			1	\$18,000
91			2	\$36,000
95			1	\$18,000
Total	12	\$216,000	86	\$1,546,650