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# **Registers of Deeds' Supplemental Pension Fund Principal Results of Actuarial Valuation as of December 31, 2019**

**October 29, 2020 Board of Trustees Meeting**

**Larry Langer, ASA, FCA, EA, MAAA**

**Jonathan Craven, ASA, FCA, EA, MAAA**

**Wendy Ludbrook, FSA, FCA, EA, MAAA**





# 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	12/31/2019	12/31/2018
Active Members		
Number*	100	100
Active Deferred*	1	1
Reported Compensation	\$ 6,976,884	\$ 6,539,270
Valuation Compensation	\$ 7,416,594	\$ 7,127,497
Retired Members and Survivors of Deceased		
Members Currently Receiving Benefits		
Number	99	100
Annual Allowances	\$ 1,780,650	\$ 1,798,650
Assets		
Actuarial Value (AVA)	\$ 50,389,452	\$ 49,665,163
Market Value	\$ 51,208,478	\$ 47,930,669
Actuarial Accrued Liability (AAL)	\$ 30,907,611	\$ 30,558,606
Unfunded Accrued Liability (AAL-AVA)	\$ (19,481,841)	\$ (19,106,557)
Funded Ratio (AVA/AAL)**	163.0%	162.5%

- 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 165.7% and 156.8% at December 31, 2019 and 2018.

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 \$896,000 for calendar year 2019). This level of funding has resulted in the high funded ratio of this plan.



# 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, 2022 and 2021.

Contributions for Fiscal Year Ending	6/30/2022	6/30/2021
Actuarially Determined Employer Contribution		
Normal Cost	\$ 1,079,297	\$ 1,084,772
Accrued Liability	\$ (1,079,297)	\$ (1,084,772)
Total	\$ 0	\$ 0
Liquidation Period	31 years	29 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.



# 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

Jonathan T. Craven, ASA, EA, FCA, MAAA  
Consulting Actuary



Cavanaugh Macdonald  
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# Registers of Deeds' Supplemental Pension Fund

Report on the Annual Valuation  
Prepared as of December 31, 2019

October 2020





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

October 7, 2020

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, 2019. 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 (CAFR) 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).



The latest assumptions were adopted for use beginning with the December 31, 2015 actuarial valuation, based on the experience study prepared as of December 31, 2014 and adopted by the Board of Trustees on April 21, 2016. 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.

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 stylized, handwritten signature in blue ink, consisting of two large, overlapping loops.

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

A handwritten signature in blue ink, written in a cursive style that includes the first and last names.

Jonathan T. Craven, ASA, EA, FCA, MAAA  
Consulting Actuary



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## Section 1: Summary of Principal Results

1. This report, prepared as of December 31, 2019, 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	12/31/2019	12/31/2018
Active Members		
Number**	100	100
Active Deferred**	1	1
Reported Compensation	\$ 6,976,884	\$ 6,539,270
Valuation Compensation***	\$ 7,416,594	\$ 7,127,497
Retired Members and Survivors of Deceased Members Currently Receiving Benefits		
Number	99	100
Annual Allowances	\$ 1,780,650	\$ 1,798,650
Assets		
Actuarial Value (AVA)	\$ 50,389,452	\$ 49,665,163
Market Value	\$ 51,208,478	\$ 47,930,669
Actuarial Accrued Liability (AAL)	\$ 30,907,611	\$ 30,558,606
Unfunded Accrued Liability (AAL-AVA)	\$ (19,481,841)	\$ (19,106,557)
Funded Ratio (AVA/AAL)****	163.0%	162.5%
<b>Contributions for Fiscal Year Ending</b>	<b>6/30/2022</b>	<b>6/30/2021</b>
Actuarially Determined Employer Contribution		
Normal Cost	\$ 1,079,297	\$ 1,084,772
Accrued Liability*	\$ (1,079,297)	\$ (1,084,772)
Total	\$ 0	\$ 0
Liquidation Period	31 years	29 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 165.7% at December 31, 2019.



## Section 1: Summary of Principal Results

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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, 2019.
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

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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, 2019 upon which the valuation was based.

**Table 2: Active Member Data**

Group	Member Count*	Average Age	Average Service	Reported Compensation
Males	27	55.30	11.56	\$ 2,069,349
Females	74	56.51	20.20	\$ 4,907,535
Total	101	56.19	17.89	\$ 6,976,884

\* 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	13	72.34	\$ 234,000
Females	86	71.83	\$ 1,546,650
Total	99	71.89	\$ 1,780,650



## Section 3: Asset Allocation

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The following table shows an allocation of investments by category for the Register of Deeds' Supplemental Pension Fund as of December 31, 2019.

**Table 4: Allocation of Investments by Category for the Register of Deeds' Supplemental Pension Fund as of December 31, 2019**

Cash and Receivables	0.1%
Fixed Income	99.9%
Public Equity	0.0%
Other*	<u>0.0%</u>
Total	100.0%

\* Real Estate, Alternatives, Inflation and Credit.



## Section 4: Comments on Valuation

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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, 2019.

The results of the valuation show that the Fund has total prospective liabilities of \$37,987,454 of which \$21,222,586 is for the prospective benefits payable on account of retired members currently receiving benefits and \$16,764,868 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 \$7,079,843, leaves \$30,907,611 as the actuarial accrued liability (AAL). The Fund has present assets of \$50,389,452 resulting in an unfunded actuarial accrued liability (UAAL) equal to \$(19,481,841).

The valuation indicates that employer normal cost for the year totals \$1,079,297, 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 \$(1,079,297), resulting in an actuarially determined contribution of \$0 for fiscal year ending June 30, 2022.



## 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 12/31/2018	\$ (19.1)
Normal Cost during 2019 (Including Admin Expenses)	1.1
Reduction due to Actual Contributions during 2019	(0.9)
Interest on UAAL, Normal Cost, and Contributions	(0.7)
Asset (Gain) / Loss	0.2
Actuarial Accrued Liability (Gain) / Loss	(0.1)
Impact of Assumption Changes	-
Unfunded Actuarial Accrued Liability as of 12/31/2019	\$ (19.5)

**Commentary:** During 2019, there was an asset loss during the year that increased the UAAL by \$0.2 million. Demographic experience decreased the UAAL by \$0.1 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, 2020 based on a valuation date of December 31, 2019.

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

The June 30, 2020 total pension liability presented in this section was determined by an actuarial valuation as of December 31, 2019, 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, 2019**

Group	Number
Retired Members and survivors of deceased members currently receiving benefits	99
Terminated members and survivors of deceased members entitled to benefits but not year receiving benefits	0
Active Participants*	101
Total	200

\*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, 2020
<b>Total Pension Liability</b>	
Service Cost	\$ 1,125,000
Interest	1,122,000
Changes of Benefit Terms	0
Difference between Expected and Actual Experience	(124,000)
Change of Assumptions	0
Benefit Payments, including Refund of Member Contributions	(1,788,000)
Net Change in Total Pension Liability	\$ 335,000
Total Pension Liability - Beginning of Year	\$ 30,794,000
Total Pension Liability - End of Year	\$ 31,129,000
<b>Plan Fiduciary Net Position</b>	
Employer Contributions	\$ 958,000
Member Contributions	0
Net Investment Income	4,353,000
Benefit Payments, including Refund of Member Contributions	(1,788,000)
Administrative Expenses	(12,000)
Other	0
Net Change in Fiduciary Net Position	\$ 3,511,000
Plan Fiduciary Net Position - Beginning of Year	\$ 50,536,000
Plan Fiduciary Net Position - End of Year	\$ 54,047,000

**Table 8: Net Pension Liability (Asset)**

Calculation as of	June 30, 2020	June 30, 2019
Total Pension Liability	\$ 31,129,000	\$ 30,794,000
Plan Fiduciary Net Position	\$ 54,047,000	\$ 50,536,000
Net Pension Liability (Asset)	\$ (22,918,000)	\$ (19,742,000)
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	173.62%	164.11%

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, 2020 to Changes in the Discount Rate**

	1% Decrease	Current	1% Increase
Discount Rate	2.75%	3.75%	4.75%
Net Pension Liability (Asset)	(19,466,000)	(22,918,000)	(25,839,000)

The discount rate used to measure the total pension liability was 3.75%. 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	12/31/2019
Actuarial Cost Method	Entry Age
Amortization Method	Level dollar closed
Amortization Period *	31 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	3.75%
Projected Salary Increases	3.50% - 7.75%
** Includes Inflation of	3.00%
*** Includes inflation of and productivity of	3.50%
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

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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

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Valuation Results as of	12/31/2019
1. Present Value of Future Benefits	
a. Members Currently Receiving Benefits	\$ 21,222,586
b. Active Members	\$ 16,764,868
c. Total Present Value of Future Benefits	\$ 37,987,454
2. Present Value of Future Normal Cost Contributions	\$ 7,079,843
3. Actuarial Accrued Liability (AAL): (1) - (2)	\$ 30,907,611
4. Actuarial Value of Assets	\$ 50,389,452
5. Unfunded Actuarial Accrued Liability (UAAL): (3) - (4)	\$ (19,481,841)



## Appendix B: Development of Actuarial Value of Assets

Asset Data as of	12/31/2019
Beginning of Year Market Value of Assets	\$ 47,930,669
Contributions	895,784
Benefit Payments and Administrative Expenses	\$ (1,783,519)
Net Cash Flow	\$ (887,735)
Expected Investment Return	\$ 1,780,908
Expected End of Year Market Value of Assets	\$ 48,823,842
End of Year Market Value of Assets	\$ 51,208,478
Excess of Market Value Over Expected Market Value	\$ 2,384,636
80% of 2019 Asset Gain/(Loss)	\$ 1,907,709
60% of 2018 Asset Gain/(Loss)	(1,117,592)
40% of 2017 Asset Gain/(Loss)	(59,572)
20% of 2016 Asset Gain/(Loss)	88,481
Total Deferred Asset Gain/(Loss)	\$ 819,026
Preliminary End of Year Actuarial Value of Assets	\$ 50,389,452
Final End of Year Actuarial Value of Assets (not less than 80% and not greater than 120% of Market Value)	\$ 50,389,452
Estimated Net Investment Return on Actuarial Value	3.28%
Estimated Net Investment Return on Market Value	8.77%

**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.

Lower than expected market return in 2015, 2017 and 2018 resulted in an actuarial value of asset return for calendar year 2019 of 3.28% and a recognized asset loss of \$0.2 million during 2019.



## Appendix C: Actuarial Assumptions and Methods

Assumptions are based on the experience investigation prepared as of December 31, 2014 and adopted by the Board of Trustees on April 21, 2016 for use beginning with the December 31, 2015 annual actuarial valuation.

**Interest Rate:** 3.75% per annum, compounded annually.

**Inflation:** Both general and wage inflation are assumed to be 3.00% per annum.

**Real Wage Growth:** 0.50% per annum.

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

<b>Annual Rate of Withdrawal</b>		
<u>Service</u>	<u>Male</u>	<u>Female</u>
0	.1850	.2050
1	.1550	.1750
2	.1300	.1500
3	.1050	.1250
4	.0850	.1050

<b>Annual Rates of</b>						
<u>Age</u>	<u>Withdrawal and Vesting*</u>		<u>Base Mortality**</u>		<u>Disability</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
25	.0750	.1000	.0005	.0002	.0004	.0005
30	.0600	.0900	.0005	.0002	.0005	.0005
35	.0450	.0650	.0005	.0003	.0005	.0005
40	.0400	.0500	.0006	.0004	.0030	.0020
45	.0400	.0450	.0010	.0007	.0040	.0030
50	.0400	.0450	.0017	.0011	.0060	.0035
55	.0400	.0450	.0028	.0017	.0080	.0060
60	.0400	.0450	.0047	.0024	.0080	.0060
65			.0083	.0037		
69			.0125	.0057		

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

\*\* Base mortality rates as of 2014.



## Appendix C: Actuarial Assumptions and Methods

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

<b>Males</b>							
<u>Age</u>	<u>Service</u>						
	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>
50				0.0300	0.0700	0.2750	0.1500
55				0.0500	0.1000	0.2500	0.1500
60	0.1000	0.1000	0.1000	0.1000	0.2750	0.3000	0.2500
65	0.3000	0.3000	0.3000	0.3000	0.3500	0.3500	0.3500
70	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

<b>Females</b>							
<u>Age</u>	<u>Service</u>						
	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>
50				0.0450	0.0600	0.3000	0.2000
55				0.0600	0.0850	0.3000	0.2000
60	0.1100	0.1100	0.1100	0.1100	0.3000	0.3500	0.2500
65	0.3500	0.3500	0.3500	0.3500	0.3500	0.3500	0.3500
70	0.1500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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

<b>Service</b>	<b>Annual Rate of Salary Increase</b>
0	7.75%
5	6.00
10	4.95
15	4.20
20	3.75
25	3.50
30	3.50
35	3.50
40	3.50
45	3.50
50	3.50



## Appendix C: Actuarial Assumptions and Methods

**Deaths After Retirement:** Representative values of the assumed post-retirement mortality rates as of 2014 prior to any mortality improvements are as follows:

### Annual Rate of Death after Retirement

Age	Retirees (Healthy at Retirement)		Retirees (Disabled at Retirement)	
	Male	Female	Male	Female
55	.0066	.0029	.0241	.0143
60	.0089	.0041	.0274	.0168
65	.0127	.0064	.0326	.0207
70	.0193	.0102	.0416	.0279
75	.0309	.0165	.0559	.0406
80	.0604	.0404	.0789	.0604

**Deaths After Retirement (Healthy Members at Retirement):** Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. Rates for male members are multiplied by 115% for ages 50-78 and by 135% for ages greater than 78. Rates for female members are multiplied by 79% for ages 50-78 and by 116% for ages greater than 78. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

**Death After Retirement (Disabled Members at Retirement):** Mortality rates are based on the RP-2014 Total Data Set for Disabled Annuitants Mortality Table. Rates for male members are multiplied by 103% for all ages. Rates for female members are multiplied by 99% for all ages.

**Deaths Prior to Retirement:** Mortality rates are based on the RP-2014 Total Data Set Employee Mortality Table.

**Mortality Projection (Non-Disabled):** All mortality rates are projected from 2014 using generational improvement with Scale MP-2015.

**Timing of Assumptions:** All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur July 1 of each year.

**Administrative Expenses:** Assumed to be 0.15% of the market value of assets at the beginning of each calendar year and added to normal cost.

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

**Valuation Compensation:** Reported compensation adjusted to reflect the assumed rate of pay as of the valuation date.

**Actuarial Cost Method:** Entry age normal cost method.

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



## Appendix C: Actuarial Assumptions and Methods

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**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:** None.





## Appendix D: Summary of Main Benefit Provisions

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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.
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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.
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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.

Note: For valuation purposes, all members are valued under the pre-2009 provisions due to the immateriality of the difference in benefits

#### Deferred Vested Retirement Pension

Conditions for Pension	Separation from service after completing at least 10 years of service as a register of deeds.
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Amount of Pension	Service Retirement Pension described above commencing upon retirement with the Local Governmental Retirement System.
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### Contributions

Employer Contributions	1.5% of the monthly receipts collected pursuant to Article 1 of Chapter 161 of the General Statutes.
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Employee Contributions	None.
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Changes Since Prior Valuation	None.
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## 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
2020	\$ 51,208	\$ 0	\$ 0	\$ 1,839	\$ 77	\$ 1,885	\$ 51,178
2021	51,178	0	0	1,880	71	1,883	51,110
2022	51,110	0	0	1,929	66	1,880	50,994
2023	50,994	0	0	1,968	62	1,875	50,839
2024	50,839	0	0	2,017	57	1,868	50,633
2025	50,633	0	0	2,064	53	1,859	50,375
2026	50,375	0	0	2,133	49	1,849	50,042
2027	50,042	0	0	2,166	43	1,836	49,668
2028	49,668	0	0	2,204	39	1,821	49,246
2029	49,246	0	0	2,231	33	1,805	48,787
2030	48,787	0	0	2,246	28	1,787	48,299
2031	48,299	0	0	2,260	24	1,769	47,784
2032	47,784	0	0	2,256	20	1,750	47,258
2033	47,258	0	0	2,240	16	1,730	46,732
2034	46,732	0	0	2,205	13	1,711	46,225
2035	46,225	0	0	2,160	11	1,693	45,748
2036	45,748	0	0	2,104	9	1,676	45,311
2037	45,311	0	0	2,041	7	1,661	44,924
2038	44,924	0	0	1,979	6	1,648	44,587
2039	44,587	0	0	1,905	5	1,637	44,314
2040	44,314	0	0	1,827	4	1,628	44,111
2041	44,111	0	0	1,746	3	1,622	43,984
2042	43,984	0	0	1,667	3	1,618	43,933
2043	43,933	0	0	1,590	2	1,618	43,960
2044	43,960	0	0	1,505	2	1,620	44,074
2045	44,074	0	0	1,420	1	1,626	44,279
2046	44,279	0	0	1,339	1	1,636	44,574
2047	44,574	0	0	1,256	1	1,648	44,965
2048	44,965	0	0	1,175	0	1,664	45,454
2049	45,454	0	0	1,095	0	1,684	46,043
2050	46,043	0	0	1,018	0	1,708	46,732
2051	46,732	0	0	943	0	1,735	47,524
2052	47,524	0	0	870	0	1,766	48,420
2053	48,420	0	0	801	0	1,801	49,420
2054	49,420	0	0	734	0	1,840	50,526
2055	50,526	0	0	671	0	1,882	51,737
2056	51,737	0	0	611	0	1,929	53,055
2057	53,055	0	0	554	0	1,979	54,480
2058	54,480	0	0	501	0	2,034	56,012
2059	56,012	0	0	451	0	2,092	57,653
2060	57,653	0	0	405	0	2,154	59,403
2061	59,403	0	0	361	0	2,221	61,263
2062	61,263	0	0	321	0	2,291	63,233
2063	63,233	0	0	284	0	2,366	65,315
2064	65,315	0	0	250	0	2,445	67,510
2065	67,510	0	0	219	0	2,528	69,819
2066	69,819	0	0	190	0	2,615	72,243
2067	72,243	0	0	165	0	2,706	74,784
2068	74,784	0	0	142	0	2,802	77,444
2069	77,444	0	0	121	0	2,902	80,225



## 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
2070	80,225	0	0	103	0	3,007	83,128
2071	83,128	0	0	87	0	3,116	86,157
2072	86,157	0	0	72	0	3,230	89,315
2073	89,315	0	0	60	0	3,348	92,603
2074	92,603	0	0	50	0	3,472	96,025
2075	96,025	0	0	40	0	3,600	99,584
2076	99,584	0	0	33	0	3,734	103,285
2077	103,285	0	0	26	0	3,873	107,132
2078	107,132	0	0	21	0	4,017	111,128
2079	111,128	0	0	16	0	4,167	115,279
2080	115,279	0	0	13	0	4,323	119,589
2081	119,589	0	0	10	0	4,484	124,064
2082	124,064	0	0	7	0	4,652	128,709
2083	128,709	0	0	5	0	4,826	133,530
2084	133,530	0	0	4	0	5,007	138,533
2085	138,533	0	0	3	0	5,195	143,725
2086	143,725	0	0	2	0	5,390	149,113
2087	149,113	0	0	1	0	5,592	154,704
2088	154,704	0	0	1	0	5,801	160,504
2089	160,504	0	0	1	0	6,019	166,523
2090	166,523	0	0	0	0	6,245	172,767
2091	172,767	0	0	0	0	6,479	179,245
2092	179,245	0	0	0	0	6,722	185,967
2093	185,967	0	0	0	0	6,974	192,941
2094	192,941	0	0	0	0	7,235	200,176
2095	200,176	0	0	0	0	7,507	207,683
2096	207,683	0	0	0	0	7,788	215,471
2097	215,471	0	0	0	0	8,080	223,551
2098	223,551	0	0	0	0	8,383	231,934
2099	231,934	0	0	0	0	8,698	240,632
2100	240,632	0	0	0	0	9,024	249,655
2101	249,655	0	0	0	0	9,362	259,017
2102	259,017	0	0	0	0	9,713	268,730
2103	268,730	0	0	0	0	10,077	278,808
2104	278,808	0	0	0	0	10,455	289,263
2105	289,263	0	0	0	0	10,847	300,111
2106	300,111	0	0	0	0	11,254	311,365
2107	311,365	0	0	0	0	11,676	323,041
2108	323,041	0	0	0	0	12,114	335,155
2109	335,155	0	0	0	0	12,568	347,723
2110	347,723	0	0	0	0	13,040	360,763
2111	360,763	0	0	0	0	13,529	374,291
2112	374,291	0	0	0	0	14,036	388,327
2113	388,327	0	0	0	0	14,562	402,890
2114	402,890	0	0	0	0	15,108	417,998
2115	417,998	0	0	0	0	15,675	433,673
2116	433,673	0	0	0	0	16,263	449,936
2117	449,936	0	0	0	0	16,873	466,808
2118	466,808	0	0	0	0	17,505	484,314
2119	484,314	0	0	0	0	18,162	502,475



## 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 3.75%	Unfunded Payments at 2.21%	Using Single Discount Rate of 3.75%
2020	\$ 51,208	\$ 1,839	\$ 1,839	\$ 0	\$ 1,805	\$ 0	\$ 1,805
2021	51,178	1,880	1,880	0	1,779	0	1,779
2022	51,110	1,929	1,929	0	1,759	0	1,759
2023	50,994	1,968	1,968	0	1,730	0	1,730
2024	50,839	2,017	2,017	0	1,709	0	1,709
2025	50,633	2,064	2,064	0	1,686	0	1,686
2026	50,375	2,133	2,133	0	1,679	0	1,679
2027	50,042	2,166	2,166	0	1,643	0	1,643
2028	49,668	2,204	2,204	0	1,612	0	1,612
2029	49,246	2,231	2,231	0	1,573	0	1,573
2030	48,787	2,246	2,246	0	1,526	0	1,526
2031	48,299	2,260	2,260	0	1,480	0	1,480
2032	47,784	2,256	2,256	0	1,424	0	1,424
2033	47,258	2,240	2,240	0	1,363	0	1,363
2034	46,732	2,205	2,205	0	1,293	0	1,293
2035	46,225	2,160	2,160	0	1,221	0	1,221
2036	45,748	2,104	2,104	0	1,146	0	1,146
2037	45,311	2,041	2,041	0	1,072	0	1,072
2038	44,924	1,979	1,979	0	1,002	0	1,002
2039	44,587	1,905	1,905	0	929	0	929
2040	44,314	1,827	1,827	0	859	0	859
2041	44,111	1,746	1,746	0	791	0	791
2042	43,984	1,667	1,667	0	728	0	728
2043	43,933	1,590	1,590	0	669	0	669
2044	43,960	1,505	1,505	0	611	0	611
2045	44,074	1,420	1,420	0	555	0	555
2046	44,279	1,339	1,339	0	505	0	505
2047	44,574	1,256	1,256	0	457	0	457
2048	44,965	1,175	1,175	0	412	0	412
2049	45,454	1,095	1,095	0	370	0	370
2050	46,043	1,018	1,018	0	331	0	331
2051	46,732	943	943	0	296	0	296
2052	47,524	870	870	0	263	0	263
2053	48,420	801	801	0	233	0	233
2054	49,420	734	734	0	206	0	206
2055	50,526	671	671	0	182	0	182
2056	51,737	611	611	0	159	0	159
2057	53,055	554	554	0	139	0	139
2058	54,480	501	501	0	121	0	121
2059	56,012	451	451	0	105	0	105
2060	57,653	405	405	0	91	0	91
2061	59,403	361	361	0	78	0	78
2062	61,263	321	321	0	67	0	67
2063	63,233	284	284	0	57	0	57
2064	65,315	250	250	0	49	0	49
2065	67,510	219	219	0	41	0	41
2066	69,819	190	190	0	34	0	34
2067	72,243	165	165	0	29	0	29
2068	74,784	142	142	0	24	0	24
2069	77,444	121	121	0	20	0	20



## 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%
2070	80,225	103	103	0	16	0	16
2071	83,128	87	87	0	13	0	13
2072	86,157	72	72	0	10	0	10
2073	89,315	60	60	0	8	0	8
2074	92,603	50	50	0	7	0	7
2075	96,025	40	40	0	5	0	5
2076	99,584	33	33	0	4	0	4
2077	103,285	26	26	0	3	0	3
2078	107,132	21	21	0	2	0	2
2079	111,128	16	16	0	2	0	2
2080	115,279	13	13	0	1	0	1
2081	119,589	10	10	0	1	0	1
2082	124,064	7	7	0	1	0	1
2083	128,709	5	5	0	1	0	1
2084	133,530	4	4	0	0	0	0
2085	138,533	3	3	0	0	0	0
2086	143,725	2	2	0	0	0	0
2087	149,113	1	1	0	0	0	0
2088	154,704	1	1	0	0	0	0
2089	160,504	1	1	0	0	0	0
2090	166,523	0	0	0	0	0	0
2091	172,767	0	0	0	0	0	0
2092	179,245	0	0	0	0	0	0
2093	185,967	0	0	0	0	0	0
2094	192,941	0	0	0	0	0	0
2095	200,176	0	0	0	0	0	0
2096	207,683	0	0	0	0	0	0
2097	215,471	0	0	0	0	0	0
2098	223,551	0	0	0	0	0	0
2099	231,934	0	0	0	0	0	0
2100	240,632	0	0	0	0	0	0
2101	249,655	0	0	0	0	0	0
2102	259,017	0	0	0	0	0	0
2103	268,730	0	0	0	0	0	0
2104	278,808	0	0	0	0	0	0
2105	289,263	0	0	0	0	0	0
2106	300,111	0	0	0	0	0	0
2107	311,365	0	0	0	0	0	0
2108	323,041	0	0	0	0	0	0
2109	335,155	0	0	0	0	0	0
2110	347,723	0	0	0	0	0	0
2111	360,763	0	0	0	0	0	0
2112	374,291	0	0	0	0	0	0
2113	388,327	0	0	0	0	0	0
2114	402,890	0	0	0	0	0	0
2115	417,998	0	0	0	0	0	0
2116	433,673	0	0	0	0	0	0
2117	449,936	0	0	0	0	0	0
2118	466,808	0	0	0	0	0	0
2119	484,314	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, 2019**

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	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	0	0	0	0	0	0	0	0	0	0
30 to 34	0	1	0	0	0	0	0	0	0	0	1
	0	56,255	0	0	0	0	0	0	0	0	56,255
35 to 39	0	1	1	0	0	0	0	0	0	0	2
	0	48,244	95,706	0	0	0	0	0	0	0	71,975
40 to 44	0	0	2	0	3	0	0	0	0	0	5
	0	0	55,631	0	62,088	0	0	0	0	0	59,505
45 to 49	0	0	3	2	5	3	3	0	0	0	16
	0	0	68,985	55,310	85,000	73,856	76,248	0	0	0	74,555
50 to 54	0	2	1	3	3	3	3	1	0	0	16
	0	66,243	66,377	56,045	76,860	69,449	59,270	91,176	0	0	67,182
55 to 59	0	7	1	2	3	4	3	2	2	0	24
	0	74,941	97,721	52,101	64,788	62,722	58,164	102,853	72,051	0	70,669
60 to 64	1	0	2	4	2	2	3	1	2	3	20
	56,496	0	52,880	55,950	65,524	65,949	62,744	102,835	97,440	62,368	66,103
65 to 69	0	1	3	0	4	0	1	3	1	0	13
	0	116,153	79,449	0	78,942	0	44,211	72,251	64,753	0	76,614
70 & Up	0	0	1	0	0	1	0	1	0	0	3
	0	0	73,045	0	0	66,646	0	57,574	0	0	65,755
Total	1	12	14	11	20	13	13	8	5	3	100
	56,496	73,144	71,084	55,159	74,151	67,642	62,576	84,255	80,747	62,368	69,769

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, 2019**

Age	Men		Women	
	Number	Allowances	Number	Allowances
53			1	\$18,000
56			1	\$18,000
58			1	\$18,000
60			2	\$36,000
61	1	\$18,000	3	\$54,000
62			2	\$36,000
63			4	\$72,000
64			4	\$72,000
65			1	\$18,000
66	1	\$18,000	3	\$54,000
67	3	\$54,000	5	\$90,000
68			3	\$54,000
69			2	\$36,000
70	1	\$18,000	7	\$126,000
71	1	\$18,000	5	\$90,000
72	1	\$18,000	5	\$90,000
73	1	\$18,000	4	\$72,000
74			6	\$108,000
75			5	\$90,000
77			2	\$36,000
78	1	\$18,000	1	\$18,000
79	1	\$18,000	4	\$70,650
80			3	\$54,000
81			3	\$54,000
83			1	\$18,000
84	1	\$18,000	1	\$18,000
86			1	\$18,000
87	1	\$18,000	2	\$36,000
88			1	\$18,000
90			2	\$36,000
94			1	\$18,000
95				
Total	13	\$234,000	86	\$1,546,650