

Kent County Employees
Retirement Plan and Trust
54th Annual Actuarial Valuation Report
December 31, 2020



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May 12, 2021

Board of Trustees
Kent County Employees Retirement Plan and Trust
Grand Rapids, Michigan

Dear Board Members:

The results of the December 31, 2020 Annual Actuarial Valuation of the Kent County Employees Retirement Plan and Trust are presented in this report. The purpose of the annual valuation is to measure the Plan's funding progress and to determine the County's contribution rate for the fiscal year beginning January 1, 2022 in accordance with established funding policies. The results of the valuation may not be applicable for other purposes. Disclosures under the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 were issued in a separate report.

This report should not be relied on for any purposes other than those described above. It was prepared at the request of the Board and is intended for use by the Retirement Plan and those designated or approved by the Board. This report may be provided to parties other than the Plan only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report. The signing actuaries are independent of the plan sponsor.

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

Valuation results, comments, recommendations and our certification are contained in Section B.

The valuation was based upon information compiled during the fiscal year ending December 31, 2020, furnished by the County, concerning pension fund benefits, financial transactions, and individual members, terminated members, retired members and beneficiaries. Data was checked for reasonableness and missing information, but was not audited. GRS is not responsible for the accuracy or completeness of the data provided to us. This information is summarized in Section C.

A description of the actuarial valuation process, actuarial assumptions and definitions of technical terms are contained in Section D.


The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section D of this report. This report includes certain risk metrics but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the plan's financial condition.

This report was prepared using our proprietary valuation model and related software, which in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

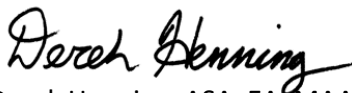
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Kent County Employees Retirement Plan and Trust as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

James D. Anderson, Derek Henning and Abra D. Hill are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

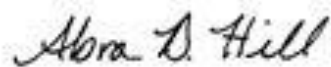
Respectfully submitted,



James D. Anderson, FSA, EA, FCA, MAAA



Derek Henning, ASA, EA, MAAA



Abra D. Hill, ASA, FCA, MAAA

JDA/DH/ADH:dj

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SECTION A

OPERATION OF THE RETIREMENT PLAN

Basic Financial Objective and Operation of the Retirement Plan

Benefit Promises Made Which Must Be Paid For. A retirement program is an orderly means of handing out, keeping track of, and financing contingent pension promises to a group of employees. As each member of the retirement Plan acquires a unit of service credit they are, in effect, handed an "IOU" which reads: "The Employees Retirement Plan promises to pay you one unit of retirement benefits, payments in cash commencing when you retire."

The principal related financial question is: When shall the money required to cover the "IOU" be contributed? This year, when the benefit of the member's service is received? Or, some future year when the "IOU" becomes a cash demand?

The Constitution of the State of Michigan is directed to the question:

"Financial benefits arising on account of service rendered in each fiscal year shall be funded during that year and such funding shall not be used for financing unfunded accrued liabilities."

This retirement Plan meets the constitutional requirement by having the following **Financial Objective: To establish and receive contributions, expressed as percents of active member payroll, which will remain approximately level** from year to year and will not have to be increased for future generations of taxpayers.

Translated into actuarial terminology, a level percent-of-payroll contribution objective means that the contribution rate must be at least:

Normal Cost (the current value of benefits likely to be paid on account of members' service being rendered in the current year)

... plus ...

Interest on the Unfunded Actuarial Accrued Liability (the difference between the actuarial accrued liability and current Plan assets).

If contributions to the retirement program are less than the preceding amount, the difference, **plus investment earnings not realized thereon**, will have to be contributed at some later time, or, benefits will have to be reduced, to satisfy the fundamental fiscal equation under which all retirement programs must operate; that is:

$$B = C + I - E$$

Benefit payments to any group of members and their beneficiaries cannot exceed the sum of:

Contributions received on behalf of the group

... plus ...

Investment earnings on contributions received and not required for immediate cash payments of benefits

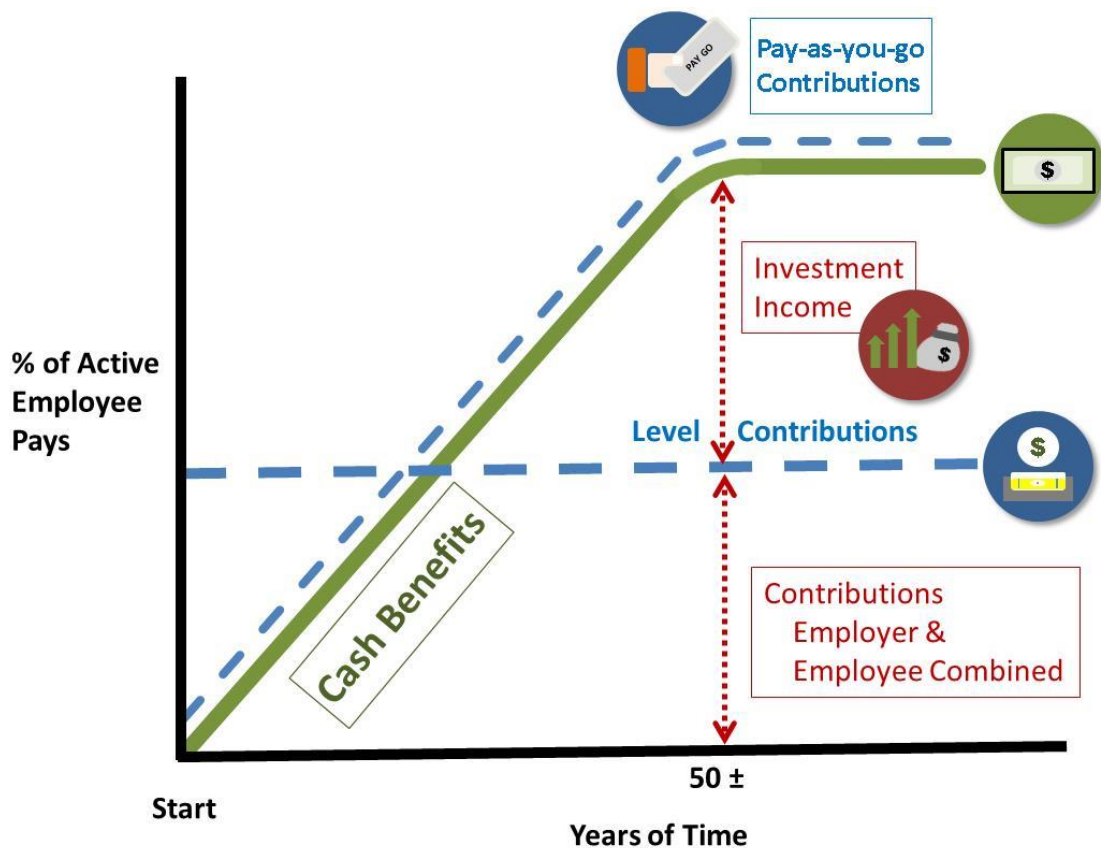
... minus ...

Expenses incurred in operating the program.

There are retirement programs designed to defer the bulk of contributions far into the future. The inevitable consequence is a relentlessly increasing contribution rate to a level which may be greatly in excess of the level percent-of-payroll rate. **This method of financing is prohibited in Michigan by the state constitution.**

The accumulation of invested assets is a by-product of a level percent-of-payroll contributions, not the objective. **Investment income becomes a major contributor** to the retirement program and the amount is directly related to the amount of contributions and investment performance.

Computed Contribution Rate Needed to Finance Benefits. From a given schedule of benefits and from the data furnished, the actuary calculates the contribution rate **by means of an actuarial valuation** - the technique of assigning monetary values to the risks assumed in operating a retirement Plan.



CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

- **Economic Risk Areas**
 - Rates of investment return
 - Rates of pay increase
 - Changes in active member group size
- **Non-Economic Risk Areas**
 - Ages at actual retirement
 - Rates of mortality
 - Rates of withdrawal of active members (turnover)
 - Rates of disability

SECTION B

VALUATION RESULTS

Contributions Computed to Meet the Financial Objective of the Retirement Plan for Fiscal Years Beginning January 1, 2022 and January 1, 2021

Contributions for Fiscal Year Beginning	Percent of Active Payroll	
	January 1, 2022	January 1, 2021
Normal Cost of Benefits:		
Age and service allowances	16.87%	16.90%
Disability allowances	0.29	0.29
Death-in-service allowances	0.38	0.38
Refunds of member contributions	<u>0.77</u>	<u>0.77</u>
Totals	18.31	18.34
Members' Contributions #	9.66	9.68
Employer Normal Cost	8.65	8.66
For Liabilities Associated with Ad-Hoc Cost-of-Living Adjustment Granted in 2003	0.06	0.07
Unfunded Actuarial Accrued Liabilities*	0.11	1.58
COMPUTED EMPLOYER RATE	8.82%	10.31%

* Amortized as a level percent-of-payroll over a closed period of 18 years.

Weighted average of rates described on page C-3.

Determining Employer Dollar Contributions

For any period of time, the percent-of-payroll contribution rate needs to be converted to dollars and then contributed to the Retirement Plan.

The recommended procedure is: (1) **at the end of each payroll period, multiply the active member payroll for the period by the employer contribution percent**; and (2) **promptly contribute the dollar amount so determined**.

Actual employer contributions for the last completed fiscal year were reported to be **\$12,005,262**.



Unfunded Actuarial Accrued Liabilities

In financing the actuarial accrued liabilities, the valuation assets of \$978,021,904 were distributed as shown below. Please see page C-13 for information concerning the derivation of valuation assets. Valuation assets were applied against actuarial accrued liabilities to determine unfunded actuarial accrued liabilities as follows:

	Retired Lives	Active and Inactive Members	Total
Computed Actuarial Accrued Liabilities and Reserves	\$566,957,052	\$413,553,404 *	\$980,510,456
Valuation Assets	566,957,052	411,064,852	978,021,904
Unfunded Actuarial Accrued Liabilities	\$ NONE	\$ 2,488,552	\$ 2,488,552

* Includes accumulated member contributions.

Derivation of Experience Gain (Loss) Year Ended December 31, 2020

Actual experience will not (except by coincidence) coincide exactly with assumed experience. It is hoped that gains and losses will offset each other over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain (loss) is shown below, along with a year by year comparative schedule.

(1) UAAL * at start of year	\$23,492,901
(2) Total normal cost from last valuation	19,227,768
(3) Actual employer plus employee contributions	22,608,616
(4) Interest accrual: $[(1) + 1/2 [(2) - (3)]] \times .0675$	1,471,667
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	\$21,583,720
(6) Change from benefit adjustments	0
(7) Change from revised actuarial assumption and methods	0
(8) Expected UAAL at end of year	21,583,720
(9) Actual UAAL at end of year	2,488,552
(10) Gain (loss): (8) - (9)	\$19,095,168
(11) Gain (loss) as percent of actuarial accrued liabilities at start of year (\$938,534,207)	2.0%

* *Unfunded actuarial accrued liabilities.*

Valuation Date December 31	Experience Gain (Loss) as a % of Beginning of Year Accrued Liability
2006	3.1%
2007	2.4
2008	(6.2)
2009	3.8
2010	(3.1)
2011	(2.8)
2012	0.2
2013	2.5
2014	3.7
2015	0.3
2016	1.3
2017	(0.1)
2018	(3.6)
2019	2.0
2020	2.0

Benefit Reserve Fund
Actuarial Accrued Liabilities and Valuation Assets
Comparative Statement

Valuation Date December 31	Allowances Being Paid		Valuation Assets*	Computed Actuarial Accrued Liabilities	Assets/ Liabilities
	No.	Monthly Rate			
1996	787	\$ 653,959	\$ 91,185,024	\$ 91,185,024	100.0 %
1997	775	659,493	91,111,752	91,111,752	100.0
1998	772	681,492	93,447,936	93,447,936	100.0
1999	765	707,961	96,488,532	96,488,532	100.0
2000	789	774,300	105,359,352	105,359,352	100.0
2001	811	860,326	117,010,476	117,010,476	100.0
2002	868	1,045,134	144,382,644	144,382,644	100.0
2003	940	1,260,374	175,596,312	175,596,312	100.0
2004	936	1,297,310	179,359,440	179,359,440	100.0
2005	943	1,359,319	186,750,300	186,750,300	100.0
2006	954	1,428,716	201,339,768	201,339,768	100.0
2007	1,003	1,590,656	225,482,844	225,482,844	100.0
2008	1,012	1,682,449	237,567,504	237,567,504	100.0
2009	1,043	1,792,966	252,316,812	252,316,812	100.0
2010	1,077	1,934,813	271,454,016	271,454,016	100.0
2011	1,164	2,230,453	315,101,664	315,101,664	100.0
2012	1,196	2,358,444	328,257,649	328,257,649	100.0
2013	1,246	2,504,948	356,954,365	356,954,365	100.0
2014	1,298	2,677,012	379,903,436	379,903,436	100.0
2015	1,330	2,850,609	415,851,853	415,851,853	100.0
2016	1,383	3,060,363	445,904,445	445,904,445	100.0
2017	1,434	3,303,244	482,342,057	482,342,057	100.0
2018	1,475	3,475,096	508,636,123	508,636,123	100.0
2019	1,538	3,723,612	545,306,311	545,306,311	100.0
2020	1,560	3,868,132	566,957,052	566,957,052	100.0

* After recommended transfer.

Summary Statement of Plan Resources and Obligations

Present Resources and Expected Future Resources

A. Present valuation assets:	
1. Net assets from Plan financial statements	\$1,031,217,515
2. Funding value adjustment	<u>(53,195,611)</u>
3. Actuarial assets	978,021,904
B. Actuarial present value of expected future employer contributions:	
1. For normal costs	74,114,863
2. For unfunded actuarial accrued liability	<u>2,488,552</u>
3. Total	76,603,415
C. Actuarial present value of expected future member contributions	<u>89,254,042</u>
D. Total Present and Expected Future Resources	<u><u>\$1,143,879,361</u></u>

Actuarial Present Value of Expected Future Benefit Payments

A. To retired members and beneficiaries	\$ 566,957,052
B. To vested terminated members	24,905,329
C. To present active members:	
1. Allocated to service rendered prior to valuation date - actuarial accrued liability	388,648,075
2. Allocated to service likely to be rendered after valuation date	<u>163,368,905</u>
3. Total	552,016,980
D. Total Actuarial Present Value of Expected Future Benefit Payments	<u><u>\$1,143,879,361</u></u>



Comments, Recommendation and Conclusion

Comment A: Overall experience was more favorable than assumed experience during 2020, with a net gain from all sources of \$19.1 million (approximately 2.00% of the actuarial accrued liability at the beginning of the year, as shown on page B-3). The primary reason for the gain was higher than expected return on assets and higher retiree mortality during 2020. Due to the Board’s use of a four-year smoothed market asset valuation method, higher than expected market returns were only 25% recognized, and combined with the scheduled phase-in of the prior three years unrecognized investment income. As a result, while the return on market value of assets was 11.00% in 2020, the return on valuation assets was 9.70%.

Selected comparative Retirement Plan metrics follow:

Valuation Date	12/31/2020	12/31/2019
Funded Status = AAL - FVA	\$2.5 million	\$23.5 million
Funded Percentage = FVA/AAL	99.70%	97.50%
Funded Percentage = MVA/AAL	105.20%	101.40%
Employer Contribution	8.82%	10.31%
Employer Contribution – MVA	8.65%	8.66%
FVA/MVA	94.80%	96.10%

AAL = Actuarial Accrued Liability, FVA = Funding Value of Assets, MVA = Market Value of Assets

Comment B: There were no assumption or method changes for the December 31, 2020 valuation.

Comment C: Net investment gains are scheduled for 2021, 2022, and 2023 (see page C-13 for further details). If return assumptions are realized in the near term it is anticipated that the System will reach or exceed a 100% funded status. The Board’s funding policy calls for continued normal cost contributions in this event.

Comment D: In 2003, all retirees or spouses retired prior to 1991 received a one-time ad-hoc cost-of-living increase ranging between 10% and 25%. This was in addition to the regular cost-of-living adjustment granted each January. This increased the County’s computed contribution rate by 0.07% of active member payroll in this report and is reflected as a separate line item on page B-1.

Comment E: The following figures form the basis for the Variable Employee Contribution Rate, representing aggregate Normal Cost and Unfunded Liability for all plan members, including only the 1% Post-Retirement Cost-of-Living Adjustment that has applied for all plan members since January 1, 1976.

Total Normal Cost of Benefits (NC) = 17.42%

Unfunded Actuarial Accrued Liabilities (UAAL) = 0.00%

Variable Employee Contribution Rate = (NC + UAAL) / 2 = 8.71%

Comments, Recommendation and Conclusion

Comment F: Michigan Public Act 202 of 2017 created new reporting and other requirements for local units of government. Section E of this report satisfies the Public Act 202 uniform assumptions reporting for Fiscal Year 2020.

Conclusion: The County's contribution rate for the fiscal year beginning January 1, 2022 has been computed to be 8.82% of active member payroll. It is the actuary's opinion that the required contribution rates determined by the most recent actuarial valuation are sufficient to meet the Plan's financial objective, presuming continued timely receipt of required contributions.

Other Observations

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Contributions and Funded Status

Given the Plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the Retirement Plan earning 6.75% on the Market Value of Assets), it is expected that:

1. The employer normal cost is sufficient to cover the cost of benefits accruing each year;
2. The Unfunded Actuarial Accrued Liabilities (UAAL) will continue to be fully amortized; and
3. The funded status of the Retirement Plan will continue to increase gradually towards a 100% funded ratio.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the Actuarial Accrued Liability (AAL) and the Funding Value of Assets (FVA). Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1. The measurement is inappropriate for assessing the sufficiency of Retirement Plan assets to cover the estimated cost of settling the Retirement Plan's benefit obligations, for example: transferring the liability to an unrelated third party in a market value type transaction.
2. The measurement is dependent upon the Actuarial Cost Method which, in combination with the Retirement Plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. Even if the funded status is over 100%, the Retirement Plan would still require future normal cost contributions (i.e., contributions to cover the cost of active membership accruing an additional year of service credit).
3. The measurement would produce a different result if the Market Value of Assets (MVA) were used instead of the FVA, unless the MVA is used in the measurement.

Other Observations

Limitations of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entities to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

Risks to Future Employer Contributions

There are ongoing risks to future employer contribution requirements to which the Retirement Plan is exposed, such as:

- Actual and Assumed Investment Rate of Return
- Actual and Assumed Mortality Rates
- Amortization Policy

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch Risk** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	Pension	
	2020	2019
Ratio of the market value of assets to total payroll	9.84	9.75
Ratio of actuarial accrued liability to payroll	9.35	9.61
Ratio of actives to retirees and beneficiaries	1.02	1.00
Ratio of net cash flow to market value of assets	-2.3%	-2.8%
Duration of the actuarial accrued liability	15.14	15.08

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, a duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Computed Employer Contributions - Comparative Statement

Valuation Date	Active Members				Retirants & Beneficiaries				Employer Contributions as %'s of Payroll	
	No.	Valuation Payroll			No.	Active Per Retired	Annual Allowances		Normal Cost	Total
		Total	Average	% Incr.			\$	%'s of Pay		
1996*&	1,547	\$ 50,927,718	\$ 32,920	8.7 %	787	2.0	\$ 7,847,503	15.4 %	10.57 %	7.34 %
1997#	1,707	57,399,622	33,626	2.1	775	2.2	7,913,917	13.8	11.02	5.89
1998#	1,685	60,462,675	35,883	6.7	772	2.2	8,177,904	13.5	11.21	2.36
1999#	1,740	66,065,896	37,969	5.8	789	2.2	8,495,532	12.9	11.23	0.00
2000#	1,841	71,334,801	38,748	2.1	789	2.3	9,291,571	13.0	13.28	2.35
2001#	1,819	74,193,122	40,788	5.3	811	2.2	10,323,912	13.9	13.56	2.94
2002#	1,857	78,296,675	42,163	3.4	868	2.1	12,541,608	16.0	13.46	5.05
2003#^	1,836	81,946,947	44,633	5.9	940	2.0	15,124,488	18.5	12.43	7.98
2004	1,860	85,022,274	45,711	2.4	936	2.0	15,567,720	18.3	11.46	8.36
2005	1,831	87,221,605	47,636	4.2	943	1.9	16,311,828	18.7	11.44	9.41
2006*	1,821	90,839,349	49,884	4.7	954	1.9	17,144,586	18.9	9.80	5.77
2007	1,793	91,215,447	50,873	2.0	1,003	1.8	19,087,870	20.9	10.43	5.12
2008#	1,780	93,308,014	52,420	3.0	1,012	1.8	20,189,385	21.6	9.44	7.15
2009	1,737	94,508,103	54,409	3.8	1,043	1.7	21,515,592	22.8	9.44	9.29
2010#	1,686	92,487,613	54,856	0.8	1,077	1.6	23,217,756	25.1	8.27	9.29
2011	1,631	90,889,046	55,726	1.6	1,164	1.4	26,765,436	29.4	8.44	10.57
2012#	1,605	91,209,371	56,828	2.0	1,196	1.3	28,301,328	31.0	7.23	9.30
2013*	1,596	91,944,708	57,609	1.4	1,246	1.3	30,059,371	32.7	7.87	9.31
2014#	1,549	90,602,575	58,491	1.5	1,298	1.2	32,124,144	35.5	7.68	7.68
2015#*	1,559	96,301,376	61,771	5.6	1,330	1.2	34,207,317	35.5	8.32	9.57
2016#@	1,462	88,577,675	60,587	(1.9)	1,383	1.1	36,724,361	41.5	8.47	9.22
2017	1,500	91,815,718	61,210	1.0	1,434	1.0	39,638,930	43.2	8.41	9.13
2018#	1,528	97,993,092	64,132	4.8	1,475	1.0	41,701,145	42.6	8.65	11.30
2019	1,533	97,618,555	63,678	(0.7)	1,538	1.0	44,683,349	45.8	8.66	10.31
2020	1,585	104,840,613	66,145	3.9	1,560	1.0	46,417,588	44.3	8.65	8.82

* Revised actuarial assumptions.

Retirement Plan amended.

^ After transfer of Community Mental Health active members out of Plan.

@ Airport members spun-off from the Plan during 2016.

& After transfer of Library District active members out of Plan.



Actuarial Accrued Liabilities and Assets - Comparative Statement

Valuation Date December 31	Actuarial Accrued Liability (AAL)	Valuation Assets	Unfunded Accrued Liability	Valuation Assets as a % of AAL	UAAL as a % of Valuation Payroll
	\$ Millions				
1996*&	\$ 215.9	\$ 237.5	\$ (21.6)	110.0%	-
1997#	238.3	276.8	(38.5)	116.2	-
1998#	254.5	327.2	(72.8)	128.6	-
1999#	281.8	378.9	(97.1)	134.5	-
2000#	322.9	424.8	(101.9)	131.6	-
2001#	348.5	454.0	(105.5)	130.3	-
2002#	387.3	459.7	(72.5)	118.7	-
2003#^	416.8	456.9	(40.1)	109.6	-
2004	442.8	471.8	(29.0)	106.6	-
2005	469.4	493.1	(23.7)	105.0	-
2006*	496.8	542.4	(45.6)	109.2	-
2007	525.5	585.8	(60.3)	111.5	-
2008#	554.9	581.5	(26.6)	104.8	-
2009	586.8	589.3	(2.5)	100.4	-
2010#	612.6	595.3	17.3	97.2	19 %
2011	650.1	614.9	35.3	94.6	39
2012#	678.7	644.2	34.5	94.9	38
2013#	717.4	693.3	24.1	96.6	26
2014#	743.1	746.3	(3.2)	100.4	-
2015#*	815.5	794.7	20.8	97.4	22
2016#@	824.9	813.8	11.1	98.7	13
2017	864.6	854.1	10.5	98.8	11
2018#	907.1	867.8	39.3	95.7	40
2019	938.5	915.0	23.5	97.5	24
2020	980.5	978.0	2.5	99.7	2

Rounding occurs in the above table.

* Revised actuarial assumptions.

Retirement Plan amended.

@ Airport members spun-off from the Plan during 2016.

& After transfer of Library District active members out of Plan.

^ After transfer of Community Mental Health members out of Plan.

Valuation Assets as a percent of AAL is a traditional measure of a Plan's funding progress. Except in years when the Plan is amended or actuarial assumptions are revised, this percent can be expected to increase gradually toward 100%.

UAAL as a percent of Valuation Payroll is another relative index of condition. Unfunded actuarial accrued liabilities represent debt, while active member payroll represents the Plan's capacity to collect contributions to pay toward debt. The lower the percent, the greater the financial strength and vice-versa.



SECTION C

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

Benefit Provisions Evaluated December 31, 2020

Regular Retirement (no reduction factor for age):

Eligibility - Age 60 with 5 years of service or 25 years of service regardless of age. Military service may be purchased.

For members hired on or after January 1, 2011, age 62 with 5 years of service or age 60 (age 55 for Captains/Lieutenants) with 25 years of service, for the following groups: MPP, UAW, TPOAM, Court Reporters, and Prosecuting Attorneys.

For members hired on or after January 1, 2012, age 62 with 5 years of service or age 60 with 25 years of service, for the following groups: Teamsters-Parks, Teamsters-PHN, and Circuit Court Referees.

For KCDSA members hired on or after January 1, 2013, age 60 with 5 years of service or age 50 with 25 years of service.

For FOP members hired on or after January 1, 2015, age 60 with 5 years of service or age 50 with 25 years of service.

Annual Amount -

2.50% of FAS times years of credited service.

Maximum County financed benefit is 75% of FAS.

Type of Final Average Salary - Highest 36 consecutive months out of last 60.

Early Retirement (age reduction factor used):

Eligibility - Age 55 with 15 or more years of service.

Annual Amount - Computed as regular retirement but reduced to the actuarial equivalent of a life allowance at normal retirement age.

Deferred Retirement (vested benefit):

Eligibility - 8 years of service for: Commissioners, Lieutenants/Captains, POLC-Attorney Referees/POLC-Prosecuting Attorney. 5 years of service for all other units.

Annual Amount - Same as regular retirement but based upon service and final average salary at termination.



Duty Disability Retirement:

Eligibility - No minimum age or service requirement.

Annual Amount - Computed as regular retirement but with additional service granted from date of disability to age 60. Maximum is 90% of FAS less any other payments such as worker's compensation or Social Security.

Non-Duty Disability Retirement:

Eligibility - 10 years of service.

Effective January 1, 2016 - The Non-Duty Disability benefit provision will not apply to employees in the following groups: Circuit Court Referee Association, Management Pay Plan, Teamsters – PHN, UAW, Prosecuting Attorneys, and Court Reporters.

Effective March 1, 2016 - The Non-Duty Disability benefit provision will not apply to employees in the following groups: Teamsters – Parks.

Effective July 1, 2016 - The Non-Duty Disability benefit provision will not apply to employees in the following groups: TPOAM.

Annual Amount - Same as regular retirement benefit.

Death Before Retirement:

Eligibility - 5 years of service.

Annual Amount - Computed as a regular retirement but actuarially reduced in accordance with a 100% joint and survivor election. If the participant dies before attaining earliest retirement age and has less than 15 years of service, the benefit will be reduced to reflect commencement prior to the participant's normal retirement age.

Post-Retirement Cost-of-Living Adjustments:

Annual increase equal to 1% of original benefit, beginning 3 full years after retirement, providing there has been a corresponding increase in the Consumers Price Index. The first increase was January 1, 1976.

Lieutenants and Captains have a 3% Cost-of-Living Adjustment (compounded) effective for retirements on or after July 1, 2000, beginning 3 full years after retirement.

KCDSA, effective July 1, 2002, have a Cost-of-Living Adjustment equal to the increase in CPI up to 2% (compounded), beginning 3 full years after retirement. Retirements on or after April 1, 2013 have a 2% COLA (compounded) beginning 3 full years after retirement.

FOP have a 2% Cost-of-Living Adjustment (compounded) effective for retirements on or after July 1, 2010, beginning 3 full years after retirement.



Member Contributions:

Management Pay Plan, Judges, Elected Officials and Commissioners, Circuit Court Referees, Teamsters – Parks, Teamster – PHN, UAW, TPOAM, Prosecuting Attorney, Court Reporter, and Attorney Referees: ½ annual amortized actuarial valuation not to exceed 9.5%.

Lieutenants/Captains: ½ annual amortized actuarial valuation not to exceed 9.5% plus 3.5%.

Combined KCDSA: ½ annual amortized actuarial valuation not to exceed 9.5% plus 1.75%.

FOP: ½ annual amortized actuarial valuation not to exceed 8.5% plus 3.32%.

Covered Salary:

Salary for Retirement Plan purposes includes base pay, overtime pay and employer sponsored sickness and accident benefits. Salary excludes longevity pay, reimbursements or expense allowances, compensation due to waiver of health insurance, retirement incentive bonuses, and lump sums due to credits for participating in the County's wellness program. KCDSA and FOP have limitations on overtime included in final average compensation.

Retirees and Beneficiaries Added to and Removed from Rolls Comparative Statement

Year Ended December 31	Added to Rolls			Removed from Rolls		Rolls End of Year		Average Allowance	Expected Removals	
	No.	Annual Allowance	Inc.	No.	Annual Allowances	No.	Annual Allowances		No.	Dollars
1995	70	\$ 1,169,378	\$ 30,461	23	\$ 92,796	699	\$ 5,793,816	\$ 8,289	23.7	\$ 105,216
1996	120	2,172,887	33,579	32	152,779	787	7,847,503	9,947	23.5	132,552
1997	15	146,028	38,326	27	117,940	775	7,913,917	10,212	21.9	129,732
1998	21	379,236	51,510	24	166,759	772	8,177,904	10,593	23.7	138,060
1999	31	447,224	73,226	38	202,822	765	8,495,532	11,105	24.1	149,184
2000	40	817,006	74,787	16	95,753	789	9,291,572	11,776	24.3	156,996
2001	47	1,070,764	69,252	25	107,676	811	10,323,912	12,730	25.4	173,928
2002	87	2,373,564	60,390	30	216,258	868	12,541,608	14,449	25.7	192,048
2003	97	2,507,836	322,695	25	247,651	940	15,124,488	16,090	28.1	225,408
2004	36	627,720	102,094	40	286,582	936	15,567,720	16,632	29.6	269,616
2005	39	837,383	132,865	32	226,140	943	16,311,828	17,298	29.6	287,628
2006	36	882,309	146,061	25	195,612	954	17,144,586	17,971	30.0	308,904
2007	74	2,088,366	159,714	25	304,796	1,003	19,087,870	19,031	28.3	298,872
2008	48	1,334,418	168,566	39	401,469	1,012	20,189,385	19,950	30.1	335,328
2009	64	1,527,171	159,370	33	360,334	1,043	21,515,592	20,629	30.4	366,804
2010	70	1,864,899	195,252	36	357,987	1,077	23,217,756	21,558	31.6	400,800
2011	116	3,632,340	233,376	29	318,036	1,164	26,765,436	22,994	32.1	436,980
2012	70	1,868,532	238,824	38	571,464	1,196	28,301,328	23,663	33.9	494,280
2013	83	1,983,304	297,425	33	522,681	1,246	30,059,376	24,125	34.4	537,876
2014	89	2,316,216	270,912	37	522,360	1,298	32,124,144	24,749	36.6	528,902
2015	69	2,224,224	273,780	37	414,840	1,330	34,207,308	25,720	35.3	575,575
2016	90	2,619,768	390,233	37	492,948	1,383	36,724,361	26,554	35.2	626,576
2017	92	3,218,832	363,549	41	667,812	1,434	39,638,930	27,642	35.7	669,963
2018	72	2,311,788	353,834	31	603,408	1,475	41,701,145	28,272	36.3	724,110
2019	98	3,230,428	512,024	35	760,248	1,538	44,683,349	29,053	39.8	817,578
2020	81	2,702,258	423,560	59	1,391,579	1,560	46,417,588	29,755	41.4	877,994
Expected 2021									41.2	913,309

Retirees and Beneficiaries as of December 31, 2020 by Type of Benefits Being Paid

Type of Benefits Being Paid	No.	Monthly Allowances	
		Total	Average
Age and Service Pensions			
Age and service allowances:			
- Straight life	570	\$ 1,280,411	\$ 2,246
- Option A - joint & 100% survivor	567	1,545,385	2,726
- Option B - joint & 50% survivor	207	604,282	2,919
- Option C - 120 months certain & life thereafter	68	158,018	2,324
Surviving beneficiaries of deceased age and service retirants	<u>108</u>	<u>195,099</u>	1,806
Totals	1,520	3,783,195	2,489
Allowances to surviving beneficiaries of deceased members who died while in service	<u>9</u>	<u>19,235</u>	2,137
Total Age and Service pensions being paid	1,529	3,802,430	2,487
Disability Pensions			
Non-duty disability:			
- Straight life	7	12,771	1,824
- Option A	13	26,210	2,016
- Option B	2	6,738	3,369
- Option C	3	5,184	1,728
Duty disability:			
- Straight life	2	3,781	1,891
- Option A	3	10,941	3,647
- Option B	0	-	-
- Option C	<u>1</u>	<u>77</u>	77
Total Disability pensions being paid	31	65,702	2,119
Total Allowances Being Paid	1,560	\$ 3,868,132	\$ 2,480

Allowances Being Paid December 31, 2020 Tabulated by Attained Ages

Attained Ages	Retirants		Surviving Beneficiaries		Disability		Death-In-Service	
	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances
Under 30								
30-34					1	\$ 2,791		
35-39			2	\$ 983				
40-44	1	\$ 486	1	621	2	4,688		
45-49	17	66,601	2	4,260	4	12,257	3	\$ 8,591
50-54	58	218,483	1	3,074	7	18,093		
55-59	115	397,568	4	7,968	5	12,419		
60-64	229	614,176	9	21,870	5	7,024	2	5,139
65-69	328	873,880	13	27,907			2	4,415
70-74	305	764,406	23	61,470	3	5,106		
75-79	181	398,082	14	22,571	3	2,314		
80 & over	178	254,414	39	44,375	1	1,010	2	1,090
Totals	1,412	\$ 3,588,096	108	\$ 195,099	31	\$ 65,702	9	\$ 19,235
Averages								
Retirement Age		69.7				58.5		
Attained Age		58.0		75.1		46.8		68.2

Allowances Being Paid December 31, 2020 Tabulated by Year of Retirement

Year of Retirement	No.	Monthly Allowances	
		Total	Average
1970-1974	1	\$ 296	\$ 296
1975-1979	2	660	330
1980-1984	5	3,488	698
1985-1989	25	27,745	1,110
1990-1994	78	109,219	1,400
1995-1999	166	326,891	1,969
2000	29	63,526	2,191
2001	40	95,057	2,376
2002	70	206,433	2,949
2003	76	210,361	2,768
2004	20	45,929	2,296
2005	33	74,643	2,262
2006	30	73,534	2,451
2007	69	188,472	2,731
2008	40	115,855	2,896
2009	51	113,614	2,228
2010	62	154,532	2,492
2011	107	305,881	2,859
2012	56	142,180	2,539
2013	72	155,155	2,155
2014	79	191,699	2,427
2015	66	187,612	2,843
2016	77	200,047	2,598
2017	80	248,980	3,112
2018	67	183,221	2,735
2019	92	256,103	2,784
2020	67	186,999	2,791
Totals	1,560	\$ 3,868,132	\$ 2,480

Vested Terminated Members as of December 31, 2020 Tabulated by Attained Ages

Attained Ages	Deferred Pensions	
	No.	Estimated Monthly Allowances
25 - 29	1	\$ 656
32	3	1,803
33	2	1,798
34	2	1,109
35	4	4,086
36	5	3,676
39	3	2,703
40	7	5,727
41	10	12,736
42	2	3,018
43	13	15,269
44	5	3,611
45	9	13,086
46	13	19,392
47	6	6,606
48	13	14,353
49	8	12,302
50	10	8,777
51	15	19,992
52	6	7,574
53	11	13,850
54	14	17,391
55	9	11,089
56	18	23,007
57	13	16,187
58	11	17,797
59	16	20,332
60	3	3,257
61	1	547
62 & above	2	736
Totals	235	\$ 282,466

Vested terminated members included in the valuation totaled 235 with estimated deferred annual allowances of \$3,389,592. A vested terminated member is a person who has left County employment with entitlement to a retirement allowance after attaining normal retirement age and upon application thereof.

Active Members Included in Valuation Number Added to and Removed from Active Membership

Valuation Date December 31	Active Members			Vested Term. Member	Valuation Payroll	Average		
	Gen.	Hosp.	Total			Age	Service	Pay
2006	1,821	-	1,821	176	\$ 90,839,349	43.6 yrs.	11.2 yrs.	49,884
2007	1,793	-	1,793	180	91,215,447	43.9	11.5	50,873
2008	1,780	-	1,780	186	93,308,014	44.5	12.0	52,420
2009	1,737	-	1,737	199	94,508,103	44.8	12.5	54,409
2010	1,686	-	1,686	203	92,487,613	45.0	13.0	54,856
2011	1,631	-	1,631	212	90,889,046	44.8	12.8	55,726
2012	1,605	-	1,605	221	91,209,371	45.1	13.2	56,828
2013	1,596	-	1,596	215	91,944,708	45.2	13.4	57,609
2014	1,549	-	1,549	223	90,602,575	45.2	13.6	58,491
2015	1,559	-	1,559	233	96,301,376	45.1	13.4	61,771
2016 [^]	1,462	-	1,462	250	88,577,675	44.8	13.6	60,587
2017	1,500	-	1,500	253	91,815,718	44.3	13.1	61,210
2018	1,528	-	1,528	259	97,993,092	43.8	12.7	64,132
2019	1,533	-	1,533	261	97,618,555	43.5	12.4	63,678
2020	1,585	-	1,585	235	104,840,613	43.4	12.2	66,145

Year Ended December 31	Number Added During Year A#	Terminations During Year								Active Members End of Year
		Normal Retirement		Disability Retirement		Other Terminations				
		A	E	A	E	Vested	Other	Total		
						A	A*	A	E	
2006	83	27	93.8	0	3.6	20	46	66	102.3	1,821
2007	105	54	89.0	3	1.9	18	58	76	94.6	1,793
2008	80	32	90.8	0	1.9	16	45	61	93.0	1,780
2009	85	44	95.5	0	1.9	22	62	84	89.4	1,737
2010	78	60	100.5	0	1.9	9	60	69	85.2	1,686
2011	100	95	98.9	1	2.0	19	40	59	80.0	1,631
2012	73	43	83.1	1	2.0	16	39	55	81.9	1,605
2013	90	50	85.1	5	2.0	18	25	43	78.1	1,597
2014	92	65	78.2	2	1.7	19	54	73	69.5	1,549
2015	113	48	77.1	1	1.6	21	33	54	68.0	1,559
2016 [^]	96	62	75.0	4	1.6	14	113	127	71.3	1,462
2017	144	61	73.1	0	1.5	20	25	45	67.0	1,500
2018	150	50	72.4	0	1.5	24	48	72	74.4	1,528
2019	147	77	63.5	0	1.5	14	51	65	73.6	1,533
2020	148	50	61.7	1	1.5	9	36	45	75.7	1,585
5-Year Totals		300	345.7	5	7.6	81	273	354	362.0	

A represents actual number.

E represents expected number.

* Estimated.

Includes those completing probationary period during calendar year.

[^] Airport members spun-off from the Plan during 2016.



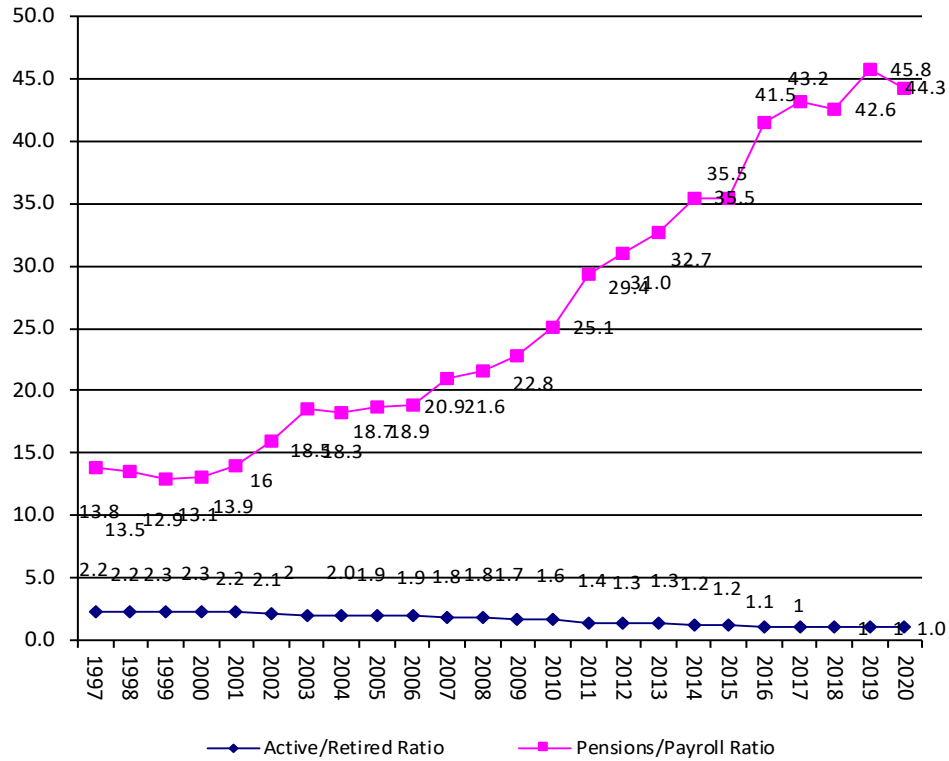
Active Members
December 31, 2020
by Attained Age and Years of Service

Age Group	Years of Accrued Service							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.	Salary
20-24	24							24	\$ 1,013,623
25-29	136	18						154	8,082,295
30-34	135	76	13	3				227	13,302,726
35-39	78	54	51	19				202	12,849,560
40-44	53	39	42	81	33	1		249	17,554,595
45-49	26	28	21	58	95	15		243	18,014,895
50-54	30	15	24	39	74	30	3	215	15,660,919
55-59	21	12	25	27	31	10	12	138	9,203,304
60	3		4	2	8	1	4	22	1,462,240
61	5	3	2	3	4	6	2	25	1,608,790
62	2	3	1	5	3	1	2	17	1,446,057
63	2			6	5	6	4	23	1,521,674
64	1	1		4	3			9	607,383
65	1	3	2	1	2	2		11	686,497
66				1	2	1	1	5	494,667
67				1	2	1		4	281,314
68		1		1	2	1	2	7	457,767
69				1			2	3	276,106
70 & Over	1		1	1	1	1	2	7	316,201
Totals	518	253	186	253	265	76	34	1,585	\$ 104,840,613

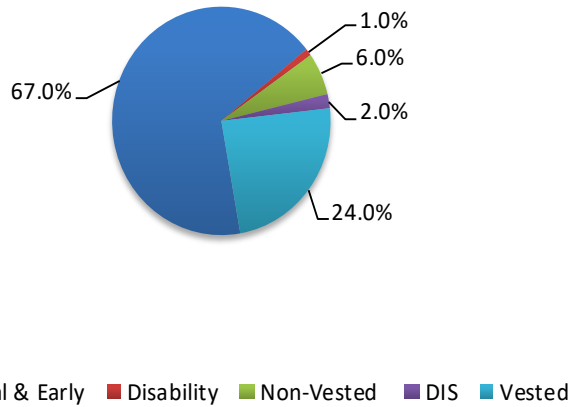
While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 43.4 years
Service: 12.2 years
Pay: \$66,145

Plan Maturity Indicators



Ultimate Disposition of Current Active Members as of December 31, 2020



Summary of Current Asset Information from Financial Data Furnished for Valuation

Balance Sheet

Reported Assets – Market Value	
Cash & equivalents	\$ 21,868,992
Receivables & accruals	2,747,931
Stocks	633,902,471
Bonds & government securities	308,716,105
Real estate	70,304,162
Accounts payable	(6,322,146)
Total Current Assets	\$ 1,031,217,515

Revenues and Expenditures

	2019	2020
Balance – January 1	\$ 823,240,227	\$ 951,910,145
Revenues:		
Employees' contributions	9,602,636	10,603,354
Employer contributions	9,007,032	12,005,262
Investment income*	<u>161,513,062</u>	<u>106,586,809</u>
Total	180,122,730	129,195,425
Expenditures:		
Benefit payments	43,444,076	45,596,530
Refund of member contributions	749,644	423,931
Administrative and investment expenses	<u>7,259,092</u>	<u>3,867,594</u>
Total	51,452,812	49,888,055
Asset correction	0	0
Balance - December 31	<u>\$ 951,910,145</u>	<u>\$ 1,031,217,515</u>

* *Balancing item.*

Valuation assets are derived on the following page.

Development of Funding Value of Assets

Year Ended December 31:	2018	2019	2020	2021	2022	2023
A. Funding Value Beginning of Year	\$ 854,060,919	\$ 867,800,296	\$ 915,041,306			
B. Market Value End of Year *	823,240,227	951,910,145	1,031,217,515			
C. Market Value Beginning of Year	896,919,895	823,240,227	951,910,145			
D. Non-Investment Net Cash Flow	(23,447,486)	(26,347,252)	(24,084,561)			
E. Investment Income:						
E1. Market Total: B - C - D	(50,232,182)	155,017,170	103,391,931			
E2. Assumed Rate of Investment Return	7.00%	6.75%	6.75%	6.75%		
E3. Amount for Immediate Recognition	58,963,602	57,687,300	60,952,434			
E4. Amount for Phased-In Recognition: E1-E3	(109,195,784)	97,329,870	42,439,497			
F. Phased-In Recognition of Investment Income:						
F1. Current Year: 0.25 x E4	(27,298,946)	24,332,468	10,609,874			
F2. First Prior Year	18,469,330	(27,298,946)	24,332,468	\$ 10,609,874		
F3. Second Prior Year	398,111	18,469,330	(27,298,946)	24,332,468	\$ 10,609,874	
F4. Third Prior Year	(13,345,234)	398,110	18,469,329	(27,298,946)	24,332,466	\$ 10,609,875
F5. Total Recognized Investment Gain	(21,776,739)	15,900,962	26,112,725	7,643,396	34,942,340	10,609,875
G. Funding Value End of Year: A + D + E3 + F5	867,800,296	915,041,306	978,021,904			
H. Difference between Market & Funding Value	(44,560,069)	36,868,839	53,195,611			
I. Recognized Rate of Return	4.4%	8.6%	9.6%			
J. Ratio of Funding to Market Value	105.4%	96.1%	94.8%			

* Unaudited amount.

The Funding Value of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased-in over a closed four-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. The Funding Value of Assets is **unbiased** with respect to Market Value. At any time, it may be either greater or less than Market Value. If actual and assumed rates of investment income are exactly equal for three consecutive years, the Funding Value will become equal to Market Value.



SECTION D

SUMMARY OF VALUATION METHOD AND ASSUMPTIONS

Actuarial Valuation Method

Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an individual **entry-age normal cost** method having the following characteristics:

- (i) The annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) Each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Financing of Unfunded Actuarial Accrued Liabilities. Unfunded actuarial accrued liabilities were amortized by level (principal & interest combined) percent-of-payroll contributions over a closed period of 18 years.

Assumptions Used in the Valuation

The actuarial assumptions are adopted by the Retirement Board after consultation with the actuary. In general, the actuarial assumptions were based on plan experience, as well as on experience of other plans in Michigan. In addition, the mortality tables also reflect national trends. The reasonableness of the economic assumptions was based upon capital market expectations provided by various investment consultants and other sources such as the Social Security Trustees report. The actuarial assumptions represent estimates of future experience.

The actuary calculates the contribution requirements and benefit values by applying assumptions to the benefit provisions and participant information furnished, using the valuation methods described on the previous page.

The principal areas of financial risk which require assumptions about future experiences are:

- Long term rates of investment return to be generated by the assets of the Plan;
- Patterns of pay increases to members;
- Rates of mortality among members, retirees and beneficiaries;
- Rates of withdrawal from active memberships;
- Rates of disability among members; and
- The age patterns of service retirements.

In a valuation, the actuary calculates the monetary effect of each assumption for as long as a present covered person survives - - - a period of time which can be as long as a century.

Actual experience of the Plan will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions, or the skill of the actuary and the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time to time it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year-to-year fluctuations).

The rationale for the current assumptions is based on the 5-Year Experience Study issued November 8, 2018 covering the period between January 1, 2013 through December 31, 2017. These assumptions were first used for the December 31, 2018 actuarial valuation.

The rate of investment return was 6.75% per year compounded annually net of expenses. The assumed real rate of return (the net return in excess of the wage inflation rate) is 3.25%.

The wage inflation assumption, or base rate of salary increase, used for individual members was 3.5% per year.

The price inflation assumption was 2.5% (not explicit in the valuation).

Experience over the last five years is illustrated below:

	Year Ending December 31					5-Year Average
	2020	2019	2018	2017	2016	
1) Nominal rate (net)	9.65 %	8.60 %	4.40 %	7.65 %	7.60 %	7.55 %
2) Increase in CPI	1.35	2.30	1.90	2.10	2.05	1.95
3) Average salary increase [#]	7.20	1.60	7.35	5.20	0.50	4.35
4) Real return as measured by						
- CPI						5.60
- Average salary increase						3.20
- Assumption						3.25

[#] Excludes new hires and terminations during year.

The nominal rate of return was computed using the approximate formula: $i = I \text{ divided by } 1/2 (A+B-I)$, where I is the net realized investment income, A is the beginning of year asset value and B is the end of year asset value.

The rates of salary increase used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefit amounts will be based.

Sample Ages	Salary Increase Assumptions For an Individual Member		
	Merit and Seniority	Base (Economic)	Increase Next Year
20	7.0 %	3.5 %	10.5 %
25	5.8	3.5	9.3
30	3.5	3.5	7.0
35	2.1	3.5	5.6
40	1.4	3.5	4.9
45	1.1	3.5	4.6
50	0.8	3.5	4.3
55	0.5	3.5	4.0
60	0.2	3.5	3.7
65	0.0	3.5	3.5

If the number of active members remains constant, then the total active member payroll will increase 3.5% annually, the base portion of the individual salary increase assumptions. This increasing payroll was recognized in amortizing unfunded accrued liabilities. These rates were first used for the December 31, 2018 valuation.

The mortality table used was the RP-2014 Mortality Tables with 2-dimensional, fully generational improvements projected with the MP-2018 Mortality Improvement Scales. These tables were first used for the December 31, 2018 valuation. In addition, a unisex version of the tables is used for optional form of payment actuarial equivalent benefit computations (Retirements on or after January 1, 2021).

Attained Age in 2020*	Single Life Retirement Values					
	Present Value of \$1.00 Monthly Increasing by \$.01 Yearly After 3 Years		Percent Dying Next Year		Future Life Expectancy (Years)	
	Men	Women	Men	Women	Men	Women
50	\$169.08	\$174.76	0.4110%	0.2744%	34.29	36.92
55	159.43	165.73	0.5814%	0.3884%	29.57	32.00
60	147.82	154.76	0.8243%	0.5880%	25.04	27.26
65	134.21	141.75	1.1883%	0.8593%	20.74	22.74
70	118.46	126.24	1.7438%	1.3027%	16.70	18.44
75	100.54	108.24	2.7492%	2.1266%	12.96	14.42
80	81.23	88.57	4.6152%	3.6476%	9.61	10.80

* Based on retirements in 2020. Retirements in future years will reflect improvements in life expectancy.

This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement.

Rates of separation from active membership were as shown below. This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year
ALL	0	18.00%
	1	13.00
	2	10.00
	3	8.00
	4	7.00
25	5 & Over	5.40
30		5.40
35		4.86
40		3.96
45		3.33
50		3.00
55		3.00
60		3.00

The rates of retirement used to measure the probability of eligible members retiring during the next year were as follows:

Service Based		Age and Service Based			
Years of Service	Active Members Retiring Next Year	Active Members Retiring Next Year			Early
		Normal			
		Eligible At Age 60	Eligible At Age 55		
25	25%				
26	20				
27	15				
28	15				
29	20				
30	20				
31	20				
32	30				
33	40				
34	40				
35	60				
36	60				
37	60				
38	60				
39	60				
40	100				
		Retirement Ages			
		55		25%	5%
		56		20	5
		57		15	5
		58		15	5
		59		20	5
		60	20%	20	5
		61	20	20	5
		62	20	30	
		63	20	40	
		64	20	40	
		65	20	60	
		66-69	30	60	
		70-74	35	100	
		75	100	100	

For members Captains and Lieutenants, KCDSA and FOP members hired after a certain date who are subject to the 55 & 25 or 50 & 25 retirement eligibility conditions, the “age and service” retirement rates for these groups be set to the “service based” retirement rates shown above. These rates were first used for the December 31, 2018 valuation.

Rates of disability were as follows:

Sample Ages	% of Active Members Becoming Disabled within Next Year
20	0.02%
25	0.03
30	0.04
35	0.07
40	0.10
45	0.14
50	0.23
55	0.38
60	0.55

25% of disabilities were assumed to be duty related. These rates were first used for the December 31, 2006 valuation.

Summary of Assumptions Used

Pensions in an Inflationary Environment Value of \$1,000/month Retirement Benefit to an Individual Who Retires at Age 50 or 60 in an Environment of 2.50% Price Inflation

Age	Relative Purchasing Power of Benefit at Retirement in Years after Retirement							
	No COLA		1% Simple COLA *		2% Compound COLA *		3% Compound COLA *	
50	\$1,000		\$1,000		\$1,000		\$1,000	
51	976		976		976		976	
52	952		952		952		952	
53	929		938		947		956	
54	906		924		943		961	
55	884		910		938		966	
60	780	\$1,000	844	\$1,000	915	\$1,000	990	\$1,000
61	761	976	831	976	911	976	994	976
62	742	952	818	952	906	952	999	952
63	724	929	805	938	902	947	1004	956
64	706	906	792	924	898	943	1009	961
65	689	884	780	910	893	938	1014	966
70	609	780	720	844	872	915	1039	990
75	539	689	664	780	851	893	1065	1014
80	476	609	610	720	830	872	1091	1039
85	420	539	560	664	810	851	1118	1065

* COLA beginning three years after retirement.

The life expectancy of a 50-year-old male retiree in 2020 is 84 and the life expectancy of a 60-year-old male retiree in 2020 is age 85. The life expectancy for a 50-year-old female retiree in 2020 is age 87 and the life expectancy for a 60-year-old female in 2020 retiree is age 87. Half of the people will outlive their life expectancy. The effects of even moderate amounts of inflation can be significant for those who live to an advanced age.

Summary of Assumptions Used Miscellaneous and Technical Assumptions

Marriage Assumption:	100% of males and females are assumed to be married for purposes of death-in-service benefits.
Pay Increase Timing:	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year at time of decrement.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and mortality do not operate during the first five years of service. Disability and withdrawal do not operate during retirement eligibility.
Normal Form of Benefit:	The assumed normal form of benefit is the straight life form.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent-of-payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

Kent County Employees Retirement Plan and Trust Plan Funding Policy

Introduction

The purpose of this Actuarial Funding Policy is to record the funding objectives and policy set by the Board of Trustees (Board) for the Kent County Employees Retirement Plan and Trust. The Board establishes this Funding Policy to help ensure the systematic funding of future benefit payments for members of the Retirement Plan.

In 2012, the Governmental Accounting Standards Board (GASB) approved two new financial reporting standards. GASB Statement No. 67, "Financial Reporting for Pension Plans" replaces the requirements of Statement No. 25. GASB Statement No. 68, "Accounting and Financial Reporting for Pensions" replaces the requirements of Statements No. 27 and No. 50. Prior to the changes, the Annual Required Contribution (ARC) rate was used as a basis for funding decisions. The new GASB statements separate accounting cost (expense) from funding cost (contributions), necessitating the creation of this funding policy.

This funding policy shall be reviewed by the Board annually for several years following creation. Subsequently, it shall be reviewed every five years in conjunction with the experience study.

Funding Objectives

1. Maintain adequate assets so that current plan assets plus future contributions and investment earnings should be sufficient to fund all benefits expected to be paid to members and their beneficiaries.
2. Maintain stability of employer contribution rates, consistent with other funding objectives.
3. Maintain public policy goals of accountability and transparency. Each policy element is clear in intent and effect, and each should allow an assessment of whether, how and when the funding requirements of the plan will be met.
4. Promote intergenerational equity. Each generation of members and employers should incur the cost of benefits for the employees who provide services to them, rather than deferring those costs to future members and employers.
5. Provide a reasonable margin for adverse experience to help offset risks.
6. Continue progress of systematic reduction of the Unfunded Actuarial Accrued Liabilities (UAAL).

Elements of Actuarial Funding Policy

1. Actuarial Cost Method

- a. The Individual Entry Age Normal actuarial cost method of valuation shall be used in determining Actuarial Accrued Liability (AAL) and Normal Cost. Differences in the past between assumed experience and actual experience (“actuarial gains and losses”) shall become part of the AAL. The Normal Cost shall be determined on an individual basis for each active member.

2. Asset Smoothing Method

- a. The investment gains or losses of each valuation period, resulting from the difference between actual investment return and assumed investment return, shall be recognized annually in level amounts over four years in calculating the Funding Value of Assets.

3. Amortization Method

- a. The Level Percent Closed amortization method shall be used to systematically pay off the UAAL over a closed amortization period. Annual payments equal to a level percentage of pay shall cover accrued interest on the UAAL plus an amortized portion of the UAAL sufficient to fully pay down the UAAL over the closed amortization period.
- b. The closed amortization period, decreasing by one year annually, will remain unchanged until the period decreases to 10 years remaining. At that point in time, the closed amortization period may be adjusted so that the UAAL is fully amortized over the adjusted closed amortization period, not to exceed 30 years.

4. Funding Target

- a. The targeted funded ratio shall be 100%.
- b. The maximum amortization period shall be 30 years.
- c. A funding plan shall be considered if the funded ratio falls below or is projected to fall below 75%.
- d. If the funded ratio falls between 100%-120%, a contribution equal to the Normal Cost will be made.

5. Risk Management

a. Assumption Changes

- The actuarial assumptions used shall be those last adopted by the Board based on the most recent experience study and upon the advice and recommendation of the actuary. In accordance with best practices, the actuary shall conduct an experience study every five years. The results of the study shall be the basis for the actuarial assumption changes recommended to the Board.
- The actuarial assumptions can be updated during the five-year period if significant plan design changes or other significant events occur, as advised by the actuary.

b. Amortization Method

- The amortization method, Level Percent Closed, will ensure full payment of the UAAL over a finite, systematically decreasing period not to exceed 30 years.

c. Risk Measures

- The following risk measures will be annually determined to provide quantifiable measurements of risk and their movement over time.
 - (i) Classic measures currently determined
 - Funded ratio (assets / liability)
 - (ii) Total Payroll / UAAL
 - Measures the risk associated with contribution decreases relative impact on the ability to fund the UAAL. A decrease in this measure indicates a decrease in contribution risk.
 - (iii) Total Payroll / Total Liability
 - Measures the risk associated with the ability to respond to liability experience through adjustments in contributions. A decrease in this measure indicates an increase in experience risk.

Glossary

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability".

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss). 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, in accordance with the actuarial funding method being used.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for future service and salary. The termination liability will generally be less than the liabilities computed on a "going-concern" basis and is not normally determined in a routine actuarial valuation.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets. Also referred to as actuarial value of assets, funding value of assets, or smoothed market value of assets.

Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased-in over a closed four-year period. During periods when investment performance exceeds the assumed rate, valuation assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, valuation assets will tend to be greater than market value. If assumed rates are exactly realized for 3 consecutive years, valuation assets will become equal to market value.

Valuation Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

SECTION E

MICHIGAN PUBLIC ACT 202

State Reporting Assumptions as of December 31, 2020

The Protecting Local Government Retirement and Benefits Act, Public Act 202 of 2017 (PA 202), was put into law effective December 20, 2017. One outcome of the law is the requirement for the local unit of government to provide select reporting disclosures to the State. Section 5(1) of the Act provides the State treasurer with the authority to annually establish uniform actuarial assumptions for purposes of developing the requisite disclosures. Below you will find information which may be used to assist the local unit of government with required reporting.

Uniform Assumptions, as applicable to the measurement and the required disclosures under uniform assumptions are denoted below. Additional discussion of the PA 202 and uniform assumptions may be found on the State website.

Uniform Assumption	PA 202	Valuation Assumption Used	Uniform Assumption Used
Investment Rate of Return Discount Rate	Maximum of 7.00%^	6.75%	6.75%
Salary Increase	Minimum of 3.50% or based on experience study within last 5 years	3.50% + Merit and longevity (based on experience study dated November 8, 2018)	3.50% + Merit and longevity (based on experience study dated November 8, 2018)
Mortality	Version of the Pub-2010 or based on experience study within last 5 years	A version of RP-2014 (Based on experience study dated November 8, 2018)	A version of RP-2014 (Based on experience study dated November 8, 2018)
Amortization of the Unfunded Accrued Actuarial Liability: Period	Maximum Period of 19 Years	19 years for all groups	18 years for all groups
Method	Closed Plans: Level Dollar Open Plans: Level Percent of Payroll or Level Dollar	Level Percent of Payroll	Level Percent of Payroll
Type	Closed	Closed	Closed

^ A blended rate calculated using GASB Statement No. 68 methodology. For periods in which projected plan assets are sufficient to make projected benefit payments – maximum of 7.00%; for periods in which projected plan assets are NOT sufficient to make projected benefit payments – 3.00%.

State Reporting as of December 31, 2020

The following information has been prepared to provide some of the information necessary to complete the pension reporting requirements for the State of Michigan's Local Government Retirement System Annual Report (Form No. 5572). Additional resources are available on the State website.

Line	Descriptive Information	
18	Actuarial Assumptions	
19	Actuarial assumed rate of investment return ¹	6.75%
20	Amortization method utilized for funding the system's unfunded actuarial accrued liability, if any	Level Percent
21	Amortization period utilized for funding the system's unfunded actuarial accrued liability, if any	18
22	Is each division within the system closed to new employees?	No
23	Uniform Assumptions²	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$978,021,904
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions	\$980,510,456
26	Funded ratio using uniform assumptions	Auto ³
27	Actuarially Determined Contribution (ADC) using uniform assumptions ⁴	\$ 9,905,556
28	All systems combined ADC/Governmental fund revenues	Auto ³

¹ Net of administrative expenses.

² Information on lines 24-28 is based on assumptions listed on the prior page as of the most recent valuation date, December 31, 2020, after reflecting uniform assumptions.

³ Automatically calculated by State of Michigan Form 5572.

⁴ 8.82% Percent-of-Payroll contribution rate multiplied by projected pay for the fiscal year ending December 31, 2022.

Actuarial Accrued Liability

The actuarial accrued liability is a measure intended to help users assess (i) a pension fund's funded status on a going-concern basis, and (ii) progress being made toward accumulating the assets needed to pay benefits as due. Allocation of the actuarial present value of projected benefits between past and future service was based on service using the individual entry-age actuarial cost method. Assumptions, including projected pay increases, were the same as used to determine the Plan's level percent-of-payroll annual required contribution between entry-age and assumed exit age. Entry-age was established by subtracting credited service from current age on the valuation date.

The entry age actuarial accrued liability was determined as part of an actuarial valuation of the Plan as of December 31, 2020. Significant actuarial assumptions used in determining the entry age actuarial accrued liability include (a) a rate of return on the investment of present and future assets of 6.75% per year compounded annually, (b) projected salary increases of 3.5% per year compounded annually, attributable to inflation, (c) additional projected salary increases ranging from 0.0% to 7.0% per year, depending on age, attributable to seniority/merit and (d) the assumption that benefits will increase beginning three years after retirement.

At December 31, 2020, the assets in excess of the actuarial accrued liability were \$(2,488,552) determined as follows:

Actuarial Accrued Liability

Active participants (1,033 vested and 552 non-vested)	\$ 388,648,075
Retired participants and beneficiaries currently receiving benefits (1,560 recipients)	566,957,052
Vested terminated participants not yet receiving benefits (235 vested)	<u>24,905,329</u>
Total Actuarial Accrued Liability	980,510,456
Actuarial Value of Assets (smoothed market value)	<u>978,021,904</u>
Unfunded Actuarial Accrued Liability	<u><u>\$ 2,488,552</u></u>

During the period from December 31, 2019 to December 31, 2020 the Plan experienced an increase of \$41,976,249 in the actuarial accrued liability.



Supplementary Information Schedule of Funding Progress (\$ Amounts in Millions)

Actuarial Valuation Date December 31	Actuarial Value of Assets # (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (b)-(a)	Funded Ratio (a)/(b)	Active Member Covered Payroll (c)	Unfunded AAL as a Percentage of Active Member Covered Payroll ((b-a)/c)
2006*	\$542.4	\$496.8	\$ (45.6)	109.2%	\$90.8	- %
2007	585.8	525.5	(60.3)	111.5	91.2	-
2008**	581.5	554.9	(26.6)	104.8	93.3	-
2009	589.3	586.8	(2.5)	100.4	94.5	-
2010**	595.3	612.6	17.3	97.2	92.5	18.7
2011	614.9	650.1	35.2	94.6	90.9	38.7
2012**	644.2	678.7	34.5	94.9	91.2	37.8
2013*	693.3	717.4	24.1	96.6	91.9	26.2
2014**	746.3	743.1	(3.2)	100.4	90.6	-
2015**	794.7	815.5	20.8	97.4	96.3	21.6
2016**	813.8	824.9	11.1	98.7	88.6	12.5
2017	854.1	864.6	10.5	98.8	91.8	11.4
2018 **	867.8	907.1	39.3	95.7	98.0	40.1
2019	915.0	938.5	23.5	97.5	97.6	24.1
2020	978.0	980.5	2.5	99.7	104.8	2.4

Prior to the 12/31/1996 valuation, assets are reported on a cost basis.

** Retirement Plan amended.

* Revised actuarial assumptions.

Analysis of the dollar amounts of actuarial value of assets, actuarial accrued liability, or unfunded actuarial accrued liability in isolation can be misleading. Expressing the actuarial value of assets as a percentage of the actuarial accrued liability provides one indication of the Plan's funded status on an ongoing basis. Analysis of this percentage over time indicates whether the Plan is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. The unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial accrued liability as a percentage of covered payroll approximately adjusts for the effects of inflation and aids analysis of the progress being made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.



Contributions Required and Contributions Made

The County's funding policy provides for periodic employer contributions at actuarially determined rates that, expressed as percentages of covered payroll, are designed to accumulate sufficient assets to pay benefits when due. The normal cost and actuarial accrued liability are determined using an entry-age actuarial cost method. Unfunded actuarial accrued liability is being amortized as a level percent-of-payroll over a closed period of 18 years.

During the year ended December 31, 2020 contributions totaling \$22,608,616 -- \$12,005,262 employer and \$10,603,354 employee -- were made in accordance with contribution requirements determined by an actuarial valuation of the Plan as of December 31, 2018. The employer contributions consisted of \$9,079,197 for normal cost and \$2,926,065 for amortization of the unfunded actuarial accrued liability. Employer contributions represented 11.45% of covered payroll.

Summary of Actuarial Methods and Assumptions

Valuation Date	December 31, 2020
Actuarial Cost Method	Individual Entry Age
Amortization Method	Level Percent-of-payroll, Closed
Remaining Amortization Period	18 years
Asset Valuation Method	4-year smoothed market
Actuarial Assumptions:	
Investment Rate of Return*	6.75%
Projected Salary Increases*	3.5% - 10.5%
*Includes Inflation at	3.5%