

# Kent County Employees Retirement Plan and Trust

51st Annual Actuarial Valuation Report  
December 31, 2017



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May 9, 2018

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

Dear Board Members:

The results of the **51st 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 financial progress and to determine the County's contribution rate for the ensuing fiscal year in accordance with the established funding policy.

The computed contribution rate shown on page B-1 may be considered as a minimum contribution rate that complies with the Board's funding policy. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Given the importance of benefit security to any retirement system, we suggest that contributions to the Plan in excess of those presented in this report be considered.

This report should not be relied on for any purpose 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.

The valuation was based upon information, furnished by the County, concerning retirement plan benefits, financial transactions, and individual members, terminated members, retirees and beneficiaries. Data was checked for internal and year-to-year consistency, but was not audited. We are not responsible for the accuracy or completeness of the information supplied by others.

The date of the valuation was **December 31, 2017**.

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; and changes in plan provisions or applicable law. This report does not contain an analysis of the potential range of such future measurements.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

This report has been prepared by individuals who have substantial experience valuing public employee retirement systems. To the best of our knowledge, this report is complete and accurate and was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board of the American Academy of Actuaries. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate, are reasonable.

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, MAAA



Abra D. Hill, ASA, MAAA

JDA/DH/ADH:sc



## **SECTION A**

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### **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:

$$B = C + I - E$$

**B**enefit payments to any group of members and their beneficiaries cannot exceed the sum of:

**C**ontributions received on behalf of the group

... plus ...

**I**nvestment earnings on contributions received and not required for immediate cash payments of benefits

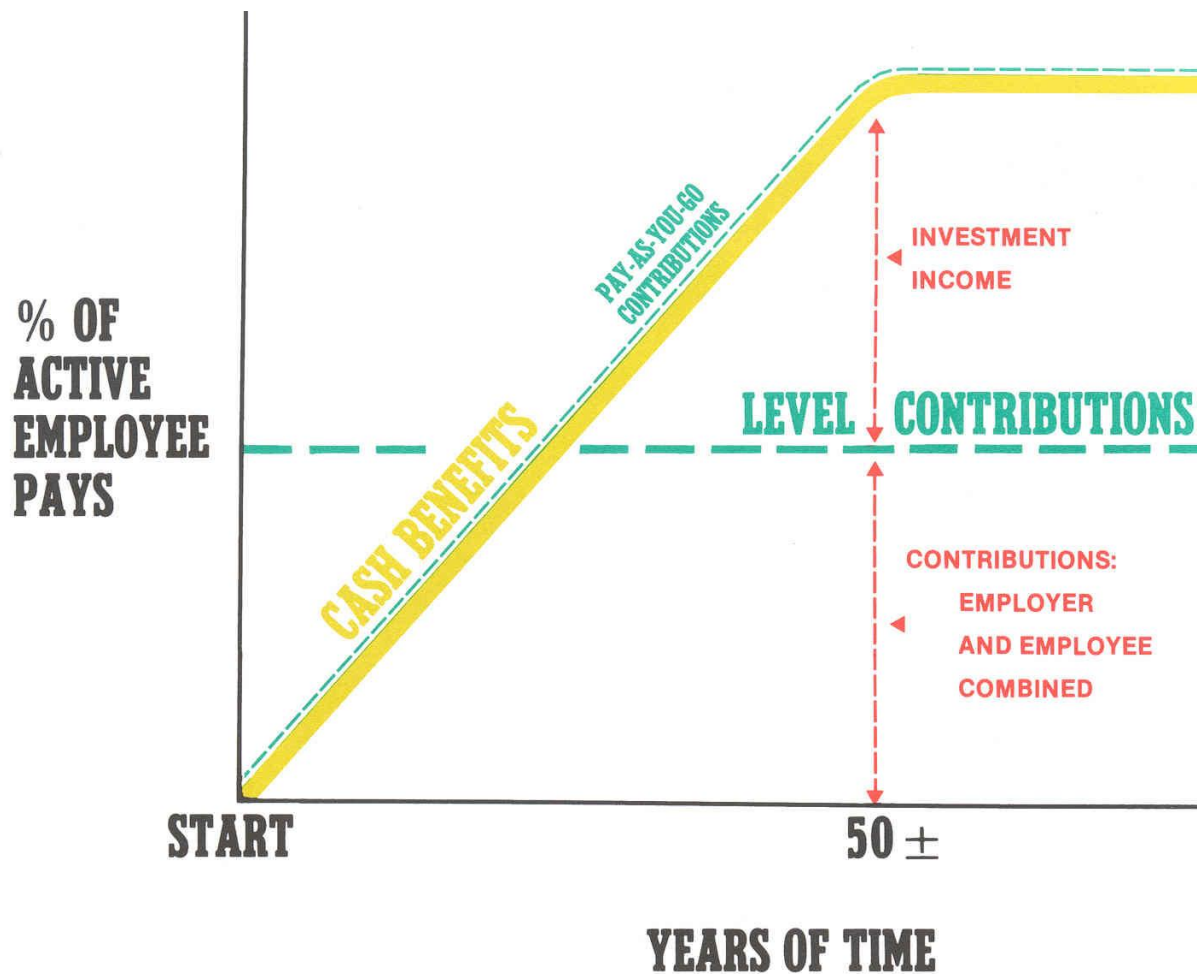
... minus ...

**E**xpenses 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**

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### **VALUATION RESULTS**

## Contributions Computed to Meet the Financial Objective of the Retirement Plan for Fiscal Years Beginning January 1, 2019 and January 1, 2018

Contributions for Fiscal Year Beginning	Percent of Active Payroll	
	January 1, 2019	January 1, 2018
Normal Cost of Benefits:		
Age and service allowances	16.55%	16.64%
Disability allowances	0.28	0.28
Death-in-service allowances	0.32	0.32
Refunds of member contributions	<u>0.80</u>	<u>0.80</u>
Totals	17.95	18.04
Members' Contributions #	9.54	9.57
Employer Normal Cost	8.41	8.47
For Liabilities Associated with Ad-Hoc Cost-of-Living Adjustment Granted in 2003	0.09	0.10
Unfunded Actuarial Accrued Liabilities*	0.63	0.65
<b>COMPUTED EMPLOYER RATE</b>	<b>9.13%</b>	<b>9.22%</b>

\* Amortized as a level percent-of-payroll over a closed period of 21 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 **\$8,965,098**.

## Unfunded Actuarial Accrued Liabilities

In financing the actuarial accrued liabilities, the valuation assets of \$854,060,919 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:

	<b>Retired Lives</b>	<b>Active and Inactive Members</b>	<b>Total</b>
Computed Actuarial Accrued Liabilities and Reserves	\$482,342,057	\$382,352,236 *	\$864,694,293
Valuation Assets	482,342,057	371,718,862	854,060,919
Unfunded Actuarial Accrued Liabilities	\$ NONE	\$ 10,633,374	\$ 10,633,374

\* Includes accumulated member contributions.

## Derivation of Experience Gain (Loss) Year Ended December 31, 2017

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	\$11,122,920
(2) Total normal cost from last valuation	16,563,556
(3) Actual employer plus employee contributions	18,240,351
(4) Interest accrual: $[(1) + 1/2 [(2) - (3)]] \times .07$	719,917
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	\$10,166,042
(6) Change from benefit adjustments	0
(7) Change from revised actuarial assumption and methods	0
(8) Expected UAAL at end of year	10,166,042
(9) Actual UAAL at end of year	10,633,374
(10) Gain (loss): (8) - (9)	\$ (467,332)
(11) Gain (loss) as percent of actuarial accrued liabilities at start of year (\$824,953,244)	(0.1)%

\* *Unfunded actuarial accrued liabilities.*

Valuation Date December 31	Experience Gain (Loss) as a % of Beginning of Year Accrued Liability
2003	(7.1)%
2004	(1.8)
2005	(0.9)
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
<b>2017</b>	<b>(0.1)</b>

**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			
1993	617	\$ 316,680	\$ 38,251,688	\$ 38,251,688	100.0 %
1994	652	390,564	49,012,284	49,012,284	100.0
1995	699	482,818	62,784,504	62,784,504	100.0
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
<b>2017</b>	<b>1,434</b>	<b>3,303,244</b>	<b>482,342,057</b>	<b>482,342,057</b>	<b>100.0</b>

\* 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	\$ 896,919,895
2. Funding value adjustment	<u>(42,858,976)</u>
3. Actuarial assets	854,060,919
B. Actuarial present value of expected future employer contributions:	
1. For normal costs	62,197,213
2. For unfunded actuarial accrued liability	<u>10,633,374</u>
3. Total	72,830,587
C. Actuarial present value of expected future member contributions	<u>73,629,059</u>
D. Total Present and Expected Future Resources	<u><u>\$1,000,520,565</u></u>

## Actuarial Present Value of Expected Future Benefit Payments

A. To retired members and beneficiaries	\$ 482,342,057
B. To vested terminated members	23,161,950
C. To present active members:	
1. Allocated to service rendered prior to valuation date - actuarial accrued liability	359,190,286
2. Allocated to service likely to be rendered after valuation date	<u>135,826,272</u>
3. Total	495,016,558
D. Total Actuarial Present Value of Expected Future Benefit Payments	<u><u>\$ 1,000,520,565</u></u>

## Comments, Recommendation and Conclusion

**Comment A:** Overall experience was slightly less favorable than assumed experience during 2017, with a net loss from all sources of \$0.5 million (approximately 0.10% of the actuarial accrued liability at the beginning of the year, as shown on page B-3). The primary reason for the slight loss was decrement experience deviating from expectations, offset by higher than expected return on assets during 2017. 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, the market value of assets returned 16.70% in 2017 while the return on valuation assets was 7.70%. The ratio of the funding value of assets to the market value of assets decreased from 103.3% last year to 95.2% this year. The ratio of the funding value of assets to actuarial accrued liabilities increased from 98.7% last year to 98.8% this year, and the Retirement Plan's valuation liabilities exceed valuation assets by \$10.6 million for funding purposes. The ratio of the market value of assets to actuarial accrued liabilities increased from 95.5% last year to 103.7% this year.

**Comment B:** Given annual investment returns of 7.00% going forward, net investment gains are scheduled for the next three years (see page C-13 for further details.) Over time, this will exert downward pressure on computed County contribution rates and upward pressure on the funded ratio in absence of future losses. If the computed employer contribution of 9.13% (see page B-1) had been determined using the market value of assets rather than the funding value of assets, the computed employer contribution rate would have been 8.41%.

**Comment C:** 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 0.10% of active member payroll in this report and is reflected as a separate line item on page B-1.

**Comment D:** 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) = 17.18%

Unfunded Actuarial Accrued Liabilities (UAAL) = 0.00%

**Variable Employee Contribution Rate = (NC + UAAL) / 2 = 8.59%**

**Conclusion:** The County's contribution rate for the fiscal year beginning January 1, 2019 has been computed to be 9.13% 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 7.00% 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 Pension 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

## 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		
1992	2,151	\$ 56,694,952	\$ 26,357	5.8 %	580	3.7	\$ 3,166,265	5.6 %	13.09 %	9.39 %
1993@	1,675	48,001,022	28,657	1.6	617	2.7	3,800,161	7.9	13.55	10.98
1994	1,694	50,160,804	29,611	3.3	652	2.6	4,686,733	9.3	13.45	11.07
1995	1,752	53,070,396	30,291	2.3	699	2.5	5,793,816	10.9	13.16	9.36
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
<b>2017</b>	<b>1,500</b>	<b>91,815,718</b>	<b>61,210</b>	<b>1.0</b>	<b>1,434</b>	<b>1.0</b>	<b>39,638,930</b>	<b>43.2</b>	<b>8.41</b>	<b>9.13</b>

\* Revised actuarial assumptions.

@ After transfer of Hospital active members out of Plan.

# Retirement Plan amended.

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

^ After transfer of Community Mental Health 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				
1993@	\$ 163.4	\$ 174.6	\$ (11.2)	10690.0%	-
1994	176.1	186.9	(10.8)	106.1	-
1995	189.9	207.9	(18.0)	109.5	-
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
<b>2017</b>	<b>864.6</b>	<b>854.1</b>	<b>10.5</b>	<b>98.8</b>	<b>11</b>

- \* Revised actuarial assumptions.
- # Retirement Plan amended.
- @ After transfer of Hospital active members out of Plan.
- & 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

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### SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

# Benefit Provisions Evaluated December 31, 2017

## **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, Teamsters-PHN, 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, 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, cost-of-living allowance, clothing allowance, mileage allowance, retirement bonus for unused sick time, compensation due to waiver of health insurance, retirement incentive bonuses, and lump sums due to holiday and/or vacation time. 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 Allowances		No.	Annual Allowances	No.	Annual Allowances		No.	Dollars
		Allowance	Inc.							
1993	58	\$ 705,962	\$ 26,592	21	\$ 98,658	617	\$ 3,800,161	\$ 6,159	20.2	\$ 87,206
1994	58	953,161	28,122	23	94,671	652	4,686,773	7,188	22.2	98,412
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
<b>2017</b>	<b>92</b>	<b>3,218,832</b>	<b>363,549</b>	<b>41</b>	<b>667,812</b>	<b>1,434</b>	<b>39,638,930</b>	<b>27,642</b>	<b>35.7</b>	<b>669,963</b>
Expected 2018									36.3	724,110



## Retirees and Beneficiaries as of December 31, 2017 by Type of Benefits Being Paid

Type of Benefits Being Paid	No.	Monthly Allowances	
		Total	Average
<b>Age and Service Pensions</b>			
Age and service allowances:			
- Straight life	537	\$ 1,134,043	\$ 2,112
- Option A - joint & 100% survivor	494	1,279,115	2,589
- Option B - joint & 50% survivor	191	512,789	2,685
- Option C - 120 months certain & life thereafter	68	128,774	1,894
Surviving beneficiaries of deceased age and service retirants	<u>98</u>	<u>163,345</u>	1,667
Totals	1,388	3,218,066	2,318
Allowances to surviving beneficiaries of deceased members who died while in service	<u>12</u>	<u>24,379</u>	2,032
Total Age and Service pensions being paid	1,400	3,242,445	2,316
<b>Disability Pensions</b>			
Non-duty disability:			
- Straight life	7	12,320	1,760
- Option A	12	22,118	1,843
- Option B	2	6,476	3,238
- Option C	3	5,005	1,668
- Survivor	4	3,913	978
Duty disability:			
- Straight life	2	4,728	2,364
- Option A	3	6,142	2,047
- Option C	<u>1</u>	<u>97</u>	97
Total Disability pensions being paid	34	60,799	1,788
<b>Total Allowances Being Paid</b>	<b>1,434</b>	<b>\$ 3,303,244</b>	<b>\$ 2,304</b>

## Allowances Being Paid December 31, 2017 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
25-29					1	\$ 3,214		
35-39			1	\$ 606				
40-44	2	\$ 958			4	10,559		
45-49	16	49,678	1	333	6	12,634	3	\$ 8,336
50-54	45	152,588	3	10,297	5	11,187	1	3,841
55-59	100	326,488	4	9,354	5	9,486		
60-64	253	698,880	5	9,600	2	1,593	2	5,003
65-69	322	823,461	14	25,977	1	2,154	1	2,544
70-74	257	568,298	14	34,829	3	3,800	1	1,753
75-79	132	240,208	14	21,004	2	1,275		
Over 79	163	194,162	46	55,257	1	985	4	2,902
<b>Totals</b>	<b>1,290</b>	<b>\$ 3,054,721</b>	<b>102</b>	<b>\$ 167,257</b>	<b>30</b>	<b>\$ 56,887</b>	<b>12</b>	<b>\$ 24,379</b>
<b>Averages</b>								
<b>Retirement Age</b>		58.1				46.9		
<b>Attained Age</b>		68.9		75.9		55.5		69.0

## Allowances Being Paid December 31, 2017 Tabulated by Year of Retirement

Year of Retirement	No.	Monthly Allowances	
		Total	Average
1970-1974	1	\$ 289	\$ 289
1975-1979	3	1,665	555
1980-1984	12	9,389	782
1985-1989	40	44,709	1,118
1990-1994	105	147,763	1,407
1995	51	88,670	1,739
1996	50	107,988	2,160
1997	46	83,741	1,820
1998	17	29,492	1,735
1999	23	37,248	1,619
2000	30	67,738	2,258
2001	40	93,463	2,337
2002	72	206,475	2,868
2003	79	208,639	2,641
2004	21	46,370	2,208
2005	33	72,541	2,198
2006	31	71,338	2,301
2007	70	184,697	2,639
2008	40	110,965	2,774
2009	52	114,412	2,200
2010	65	155,838	2,398
2011	111	307,367	2,769
2012	58	140,924	2,430
2013	77	155,360	2,018
2014	79	184,988	2,342
2015	68	184,288	2,710
2016	80	203,078	2,538
2017	80	243,809	3,048
<b>Totals</b>	<b>1,434</b>	<b>\$ 3,303,244</b>	<b>\$ 2,304</b>

## Vested Terminated Members as of December 31, 2017 Tabulated by Attained Ages

Attained Ages	Deferred Pensions	
	No.	Estimated Monthly Allowances
29	1	\$ 654
30	1	405
31	2	1,109
32	2	1,785
33	4	2,033
35	1	551
36	4	3,285
37	6	4,336
38	9	12,091
39	2	3,018
40	10	11,718
41	5	3,475
42	9	10,912
43	12	15,547
44	7	7,133
45	12	12,336
46	5	6,961
47	10	9,373
48	13	17,053
49	6	7,574
50	10	13,084
51	16	21,528
52	8	9,978
53	15	17,681
54	13	16,187
55	11	16,149
56	15	19,311
57	14	10,864
58	9	9,384
59	16	17,735
61	1	445
62	1	202
64	1	291
65	1	714
67	1	931
<b>Totals</b>	<b>253</b>	<b>\$ 285,833</b>

Vested terminated members included in the valuation totaled 253, with estimated deferred annual allowances of \$3,429,996. 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	Active Members			Vested Term. Member	Valuation Payroll	Average		
	Gen.	Hosp.	Total			Age	Service	Pay
December 31								
2003 <sup>^</sup>	1,836	-	1,836	148	\$ 81,946,947	41.8 yrs.	9.5 yrs.	44,633
2004	1,860	-	1,860	152	85,022,274	42.5	10.0	45,711
2005	1,831	-	1,831	164	87,221,605	43.1	10.7	47,636
2006	1,821	-	1,821	176	90,839,349	43.6	11.2	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
<b>2017</b>	<b>1,500</b>	<b>-</b>	<b>1,500</b>	<b>253</b>	<b>91,815,718</b>	<b>44.3</b>	<b>13.1</b>	<b>61,210</b>

Year Ended	Number Added During Year	Terminations During Year								Active Members End of Year
		Normal Retirement		Disability Retirement		Other Terminations				
		A	E	A	E	Vested	Other	Total		
December 31	A#	A	E	A	E	A	A*	A	E	
2003 <sup>^</sup>	242	77	60.7	3	3.3	22	161	183	118.5	1,836
2004	119	19	62.8	0	3.1	12	64	76	120.3	1,860
2005	81	24	84.1	0	3.4	21	65	86	112.0	1,831
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
<b>2017</b>	<b>144</b>	<b>61</b>	<b>73.1</b>	<b>0</b>	<b>1.5</b>	<b>20</b>	<b>25</b>	<b>45</b>	<b>67.0</b>	<b>1,500</b>
5-Year Totals		286	388.5	12	8.4	92	250	342	353.9	

A represents actual number.

E represents expected number.

\* Estimated.

# Includes those completing probationary period during calendar year.

<sup>^</sup> Community Mental Health members transferred out of Plan prior to 12/31/2003.

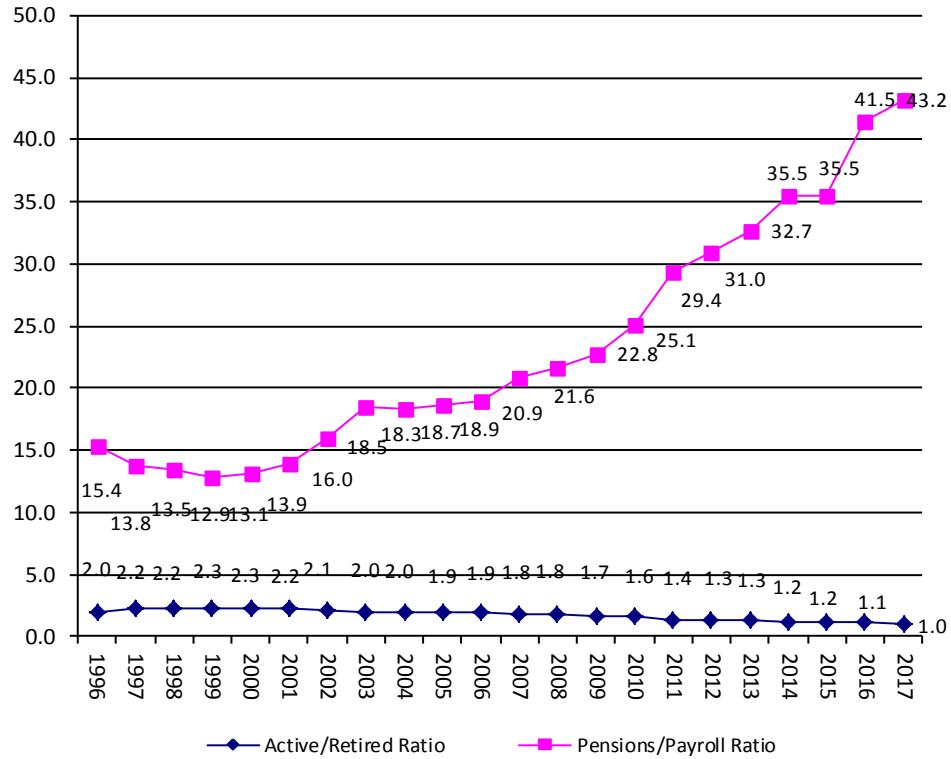
**Active Members**  
**December 31, 2017**  
**by Attained Age and Years of Service**

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	19							19	\$ 696,255
25-29	110	12						122	5,613,034
30-34	89	59	19	2				169	9,137,528
35-39	65	44	69	44				222	13,745,142
40-44	40	29	49	90	26	1		235	14,938,776
45-49	22	21	36	78	91	13		261	18,110,115
50-54	17	21	22	39	49	25	4	177	11,418,372
55-59	10	20	25	38	40	15	13	161	10,165,904
60			4	11	10	9	1	35	2,059,996
61	1	1	3	4	3	5		17	998,728
62	4	3	1	5	3	3	1	20	1,059,490
63		1	1	2	3	3	2	12	779,396
64	1	1	2	4		3	3	14	895,563
65	1		2	3	2	2	3	13	763,942
66			2		1		2	5	397,513
67									
68			3					3	89,053
69	1			1	1		1	4	379,341
70 & Over			1	4	2	1	3	11	567,570
<b>Totals</b>	<b>380</b>	<b>212</b>	<b>239</b>	<b>325</b>	<b>231</b>	<b>80</b>	<b>33</b>	<b>1,500</b>	<b>\$ 91,815,718</b>

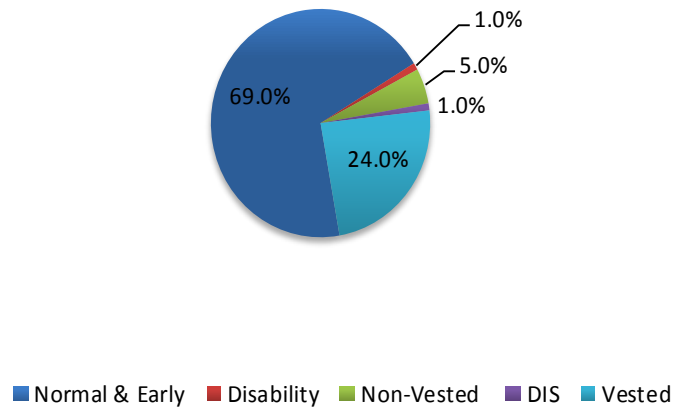
While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 44.3 years  
Service: 13.1 years  
Pay: \$61,210

# Plan Maturity Indicators



## Ultimate Disposition of Current Active Members as of December 31, 2017



## Summary of Current Asset Information from Financial Data Furnished for Valuation

### Balance Sheet

<b>Reported Assets – Market Value</b>	
Cash & equivalents	\$ 24,992,161
Receivables & accruals	1,297,835
Stocks	536,384,475
Bonds & government securities	271,218,514
Real Estate	63,943,559
Accounts Payable	(916,649)
<b>Total Current Assets</b>	<b>\$ 896,919,895</b>

### Revenues and Expenditures

	<b>2016</b>	<b>2017</b>
Balance – January 1	\$ 771,969,061	\$ 788,089,260
Revenues:		
Employees' contributions	9,131,552	9,275,253
Employer contributions	7,153,893	8,965,098
Investment income*	<u>59,626,708</u>	<u>133,724,000</u>
Total	75,912,153	151,964,351
Expenditures:		
Benefit payments	35,536,696	38,366,716
Refund of member contributions	725,789	478,636
Administrative and investment expenses	4,366,871	4,288,364
Spin Off - Airport Authority	<u>19,162,598</u>	<u>-</u>
Total	59,791,954	43,133,716
Asset correction	0	0
Balance - December 31	<u>\$ 788,089,260</u>	<u>\$ 896,919,895</u>

\* *Balancing item.*

Valuation assets are derived on the following page.



## Development of Funding Value of Assets

Year Ended December 31:	2015	2016	2017	2018	2019	2020
A. Funding Value Beginning of Year	\$ 746,298,467	\$ 794,741,438	\$ 813,830,324			
B. Market Value End of Year *	771,969,061	788,089,260	896,919,895			
C. Market Value Beginning of Year	789,770,521	771,969,061	788,089,260			
D. Non-Investment Net Cash Flow	(16,097,987)	(39,714,149)	(21,270,345)			
E. Investment Income:						
E1. Market Total: B - C - D	(1,703,473)	55,834,348	130,100,980			
E2. Amount for Immediate Recognition (7.0%)	51,677,463	54,241,905	56,223,661			
E3. Amount for Phased-In Recognition: E1-E2	(53,380,936)	1,592,443	73,877,319			
F. Phased-In Recognition of Investment Income:						
F1. Current Year: 0.25 x E3	(13,345,234)	398,111	18,469,330			
F2. First Prior Year	(244,930)	(13,345,234)	398,111	\$ 18,469,330		
F3. Second Prior Year	17,753,182	(244,930)	(13,345,234)	398,111	\$ 18,469,330	
F4. Third Prior Year	8,700,477	17,753,183	(244,928)	(13,345,234)	398,110	\$ 18,469,329
F5. Total Recognized Investment Gain	12,863,495	4,561,130	5,277,279	5,522,207	18,867,440	18,469,329
<b>G. Funding Value End of Year: A + D + E2 + F5</b>	<b>794,741,438</b>	<b>813,830,324</b>	<b>854,060,919</b>			
H. Difference between Market & Funding Value	(22,772,377)	(25,741,064)	42,858,976			
I. Recognized Rate of Return	8.7%	7.6%	7.7%			
J. Ratio of Funding to Market Value	102.9%	103.3%	95.2%			

\* Unaudited amount.

The Funding Value of Assets recognizes assumed investment income (line E2) fully each year. Differences between actual and assumed investment income (line E3) are phased-in over a closed 4-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 3 consecutive years, the Funding Value will become equal to Market Value.

## **SECTION D**

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### **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 21 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).

Assumptions were last revised for the December 31, 2015 actuarial valuation.

**The rate of investment return** was 7.0% per year compounded annually net of expenses. The assumed real rate of return (the net return in excess of the wage inflation rate) is 3.0%.

**The wage inflation assumption**, or base rate of salary increase, used for individual members was 4.0% per year.

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

Experience over the last 5 years is illustrated below:

	Year Ending December 31					5-Year Average
	2017	2016	2015	2014	2013	
1) Nominal rate (net)	7.7%	7.6%	8.7%	9.8%	9.7%	8.7%
2) Increase in CPI	2.1	2.1	0.7	0.8	1.5	1.4
3) Average salary increase <sup>#</sup>	5.2	0.5	7.9	2.7	2.9	3.8
4) Real return as measured by						
- CPI						7.3
- Average salary increase						4.9
- Assumption						3.0

<sup>#</sup> 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 %	4.0 %	11.0 %
25	5.8	4.0	9.8
30	3.5	4.0	7.5
35	2.1	4.0	6.1
40	1.4	4.0	5.4
45	1.1	4.0	5.1
50	0.8	4.0	4.8
55	0.5	4.0	4.5
60	0.2	4.0	4.2
65	0.0	4.0	4.0

If the number of active members remains constant, then the total active member payroll will increase 4.0% 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, 2013 valuation.

**The mortality table** was the RP-2014 Mortality Tables with 2-dimensional, fully generational improvements projected with the MP-2015 Mortality Improvement Scales. These tables were first used for the December 31, 2015 valuation. (These tables were used for valuation purposes only. For optional form of payment actuarial equivalent benefit computations, a unisex mortality table based on the 1983 Group Annuity Mortality Table made up of 60% male and 40% female rates, is used.)

Attained Age in 2017	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	\$166.12	\$171.13	0.3736%	0.2600%	35.12	37.72
55	157.21	163.03	0.5508%	0.3652%	30.32	32.78
60	146.57	152.96	0.7625%	0.5255%	25.74	27.98
65	133.68	140.54	1.0717%	0.7869%	21.35	23.35
70	118.27	125.59	1.6392%	1.2578%	17.17	18.95
75	100.71	108.39	2.6692%	2.0758%	13.32	14.87
80	81.94	89.62	4.5009%	3.5271%	9.92	11.22

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	20.00%
	1	15.00
	2	10.00
	3	8.00
	4	7.00
25	5 & Over	6.00
30		6.00
35		5.40
40		4.40
45		3.70
50		3.20
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	
Years of Service	Active Members Retiring Next Year
25	25%
26	20
27	15
28	15
29	20
30	20
31	20
32	30
33	40
34	60
35	100

Age and Service Based			
Retirement Ages	Active Members Retiring Next Year		
	Normal		Early
	Eligible At Age 60	Eligible At Age 55	
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	60	
65	20	100	
66	25		
67	25		
68	25		
69	25		
70	100		

These rates were first used for the December 31, 2013 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 3.00% 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	971		971		971		971	
52	943		943		943		943	
53	916		925		933		943	
54	889		907		924		943	
55	863		889		915		943	
60	745	\$1,000	804	\$1,000	872	\$1,000	943	\$1,000
61	723	971	788	971	863	971	943	971
62	702	943	772	943	855	943	943	943
63	682	916	756	925	847	933	943	943
64	662	889	741	907	838	924	943	943
65	643	863	726	889	830	915	943	943
70	554	745	654	804	791	872	943	943
75	478	643	588	726	753	830	943	943
80	412	554	528	654	717	791	943	943
85	355	478	473	588	683	753	943	943

\* COLA beginning 3 years after retirement.

The life expectancy of a 50 year old male retiree in 2017 is 85 and the life expectancy of a 60 year old male retiree in 2017 is age 86. The life expectancy for a 50 year old female retiree in 2017 is age 88 and the life expectancy for a 60 year old female in 2017 retiree is age 88. 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

<b>Marriage Assumption:</b>	100% of males and females are assumed to be married for purposes of death-in-service benefits.
<b>Pay Increase Timing:</b>	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.
<b>Decrement Timing:</b>	Decrements of all types are assumed to occur mid-year.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year at time of decrement.
<b>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.
<b>Decrement Relativity:</b>	Decrement rates are used without adjustment for multiple decrement table effects.
<b>Decrement Operation:</b>	Disability and mortality do not operate during the first five years of service. Disability and withdrawal do not operate during retirement eligibility.
<b>Normal Form of Benefit:</b>	The assumed normal form of benefit is the straight life form.
<b>Incidence of Contributions:</b>	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.
<b>Data Adjustments</b>	Valuation pay is adjusted upward for active members that worked a partial year due to FMLA. The valuation pay is estimated by dividing the member contributions for the year by the assumed member contribution rate.

# 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 4 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.

**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."

**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 4-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.

## SECTION E

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### ADDITIONAL DISCLOSURE INFORMATION

GASB Statements No. 67 and No. 68 are the accounting standards which replaced GASB Statements No. 25 and No. 27. GASB Statement No. 67 is first effective for fiscal year 2014 and GASB Statement No. 68 is first effective for fiscal year 2015. A separate GASB Statements No. 67 and No. 68 report has been issued outside of this report. This section contains historical GASB Statements No. 25 and No. 27 reporting information for prior fiscal years and illustrative information for fiscal year 2015 and after.

## 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, 2017. 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 7% per year compounded annually, (b) projected salary increases of 4% 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 3 years after retirement.

At December 31, 2017, the assets in excess of the actuarial accrued liability were \$(10,633,374) determined as follows:

Actuarial Accrued Liability	
Active participants (1,088 vested and 412 non-vested)	\$ 359,190,286
Retired participants and beneficiaries currently receiving benefits (1,434 recipients)	482,342,057
Vested terminated participants not yet receiving benefits (253 vested)	<u>23,161,950</u>
Total Actuarial Accrued Liability	864,694,293
Actuarial Value of Assets (smoothed market value)	<u>854,060,919</u>
Unfunded Actuarial Accrued Liability	<u><u>\$ 10,633,374</u></u>

During the period from December 31, 2016 to December 31, 2017 the Plan experienced an increase of \$39,741,049 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)
2003**^	\$456.9	\$416.8	\$ (40.1)	10962.1%	\$81.9	- %
2004	471.8	442.8	(29.0)	106.5	85.0	-
2005	493.1	469.4	(23.7)	105.0	87.2	-
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
<b>2017</b>	<b>854.1</b>	<b>864.6</b>	<b>10.5</b>	<b>98.8</b>	<b>91.8</b>	<b>11.4</b>

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

\*\* Retirement Plan amended.

\* Revised actuarial assumptions.

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

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 21 years.

During the year ended December 31, 2017 contributions totaling \$18,240,351 -- \$8,965,098 employer and \$9,275,253 employee -- were made in accordance with contribution requirements determined by an actuarial valuation of the Plan as of December 31, 2015. The employer contributions consisted of \$7,776,791 for normal cost and \$1,188,307 for amortization of the unfunded actuarial accrued liability. Employer contributions represented 9.76% of covered payroll.

### Notes to Required Supplementary Information Summary of Actuarial Methods and Assumptions

Valuation Date	December 31, 2017
Actuarial Cost Method	Individual Entry Age
Amortization Method	Level Percent-of-payroll, Closed
Remaining Amortization Period	21 years
Asset Valuation Method	4-year smoothed market
Actuarial Assumptions:	
Investment Rate of Return*	7.0%
Projected Salary Increases*	4.0% - 11.0%
*Includes Inflation at	4.0%

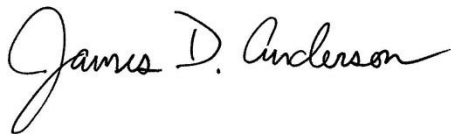
May 9, 2017

Ms. Michelle Balcom  
Pension Administrator  
Kent County Controller's Office  
300 Monroe Avenue, N.W.  
Grand Rapids, Michigan 49503-2222

Dear Michelle:

Enclosed are twelve copies of the December 31, 2017 Kent County Employees Retirement Plan and Trust Actuarial Valuation Report.

Respectfully submitted,



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

JDA:sc  
Enclosures

cc: Ms. Kristin Hoogerwerf, Rehmann Robson  
(one report copy)

