



2019 SERS BOARD QUERY

Pension Sustainability Data

December 2019

SERS Defined Benefit Plan	2
SERS Cost for a Defined Benefit Plan	2
Benefits and Payments	3
Age and Service Retirement	3
Disability Plan	6
Survivor Benefits	8
Actuarial Valuation	9
Actuarial Valuation Key Components.....	9
Retirement Example	9
Analysis of Financial Experience	10
Breakdown of Total Accrued Liabilities.....	11
Active Members	12
By Attained Age and Years of Service	12
By Gender and Annual Pay.....	13
Employer Trends	14
Trends	14
The Impact of Technology on SERS' Membership.....	14
Projected Member Enrollment in Ohio	15
Member Population Decline	16
Inactive Members	17
Breakdown of Liabilities for Deferred Vested and Non-Vested Members	17
Refund Demographics	18
Retiree Demographics	19
Breakdown of Benefits by Type.....	19
Age and Service Retirees	20
Disability Benefit Recipients.....	21
Survivors of Deceased Active Members	21
Decades View of Service Retirees and Disability Benefit Recipients	22
Portability with Ohio Retirement System	24
Other Retirement System Transfers	25

SERS Defined Benefit Plan

SERS is a defined benefit plan that provides service retirement, disability, and survivor benefits to non-teaching employees of Ohio's public schools. As a public employee in the state of Ohio, SERS members do not contribute to Social Security and therefore do not earn Social Security for their public service. Currently, employees contribute 10% of their salary, while employers contribute an amount equal to 14% of the employee's salary.

SERS Cost for a Defined Benefit Plan

	June 30, 2019 Valuation			
	Pension	Death Benefits	Medicare Part B	Total
Total Normal Cost* Rate				
Service Retirement Benefits	6.10%			
Disability Benefits	0.67			
Survivor Benefits	0.23			
Refunds	2.75			
Total	9.75%	0.01%	0.24%	10.00%
Less Member Rate	10.00%	0.00%	0.00%	10.00%
Employer Normal Cost Rate	-0.25%	0.01%	0.24%	0.00%
Rate to Amortize Unfunded Accrued Liability	10.28%	0.02%	0.38%	10.68%
Actuarially Determined Contribution Rate	10.03%	0.03%	0.62%	10.68%
Funded Policy Contribution Rate				14.00%
Unfunded Accrued Liability (\$millions)	\$5,823	\$14	\$217	\$6,054
Amortization Period	25	25	25	25

*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.

Benefits and Payments

Age and Service Retirement

Eligibility

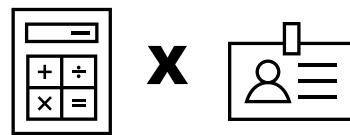
	Members with at least 25 years of service as of August 1, 2017 (Grandfathered)	Members with less than 25 years of service as of August 1, 2017
Unreduced Service Retirement	Age 65 or Any Age with 30 years	Age 67 with 10 years or Age 57 with 30 years
Early Service Retirement (with Reduced Benefits)	Age 55 with 25 years	Age 62 with 10 years or Age 60 with 25 years

Calculation

Based upon a member's age, service, and highest three years of earnings (final average salary or FAS).



2.2 % of FAS x Years of Service Credit



2.5 % of FAS x Years of Service Credit
For each year above 30 years of service credit

When a member takes an early service retirement, the annual benefit is reduced to cover a longer period of retirement. The following tables give a percentage figure to apply a member's FAS to find the pension amount on an annual basis.

Age and Service Tables

In 2013, legislative changes were made to the service retirement eligibility requirements. The changes were implemented on Aug. 1, 2017. Members who reached 25 years of service on or before Aug. 1, 2017, can retire under the previous age and service eligibility requirements.

GRANDFATHERED WITH 25 YEARS OR MORE ON OR BEFORE AUGUST 1, 2017											
Unreduced Service Retirement - Any age and 30 years or Age 65 Early Service Retirement with Reduced Benefits - Age 55 and 25 years											
Years of Service Credit	Attained Age at Retirement										
	55	56	57	58	59	60	61	62	63	64	65
5						9.3%	9.6%	10.0%	10.3%	10.6%	11.0%
6						11.2	11.6	12.0	12.4	12.8	13.2
7						13.0	13.5	14.0	14.4	14.9	15.4
8						14.9	15.4	16.0	16.5	17.0	17.6
9						16.6	17.4	18.0	18.6	19.2	19.8
10						18.7	19.3	20.0	20.6	21.3	22.0
11						20.5	21.2	22.0	22.7	23.4	24.2
12						22.4	23.2	24.0	24.8	25.6	26.4
13						24.3	25.1	26.0	26.8	27.7	28.6
14						26.1	27.1	28.0	28.9	29.8	30.6
15						28.0	29.0	30.0	31.0	32.0	33.0
16						29.9	30.9	32.0	33.0	34.1	35.2
17						31.7	32.9	34.0	35.1	36.2	37.4
18						33.6	34.8	36.0	37.2	38.4	39.6
19						35.5	36.7	38.0	39.2	40.5	41.8
20						37.4	38.7	40.0	41.3	42.6	44.0
21						39.2	40.6	42.0	43.4	44.8	46.2
22						41.1	42.5	44.0	45.4	46.9	48.4
23						43.0	44.5	46.0	47.5	49.0	50.6
24						44.8	46.4	48.0	49.6	51.2	52.8
25	41.2%	41.2%	41.2%	41.2%	44.0%	46.7	48.4	50.0	51.7	53.3	55.0
26	45.7	45.7	45.7	45.7	45.7	48.6	50.3	52.0	53.7	55.4	57.2
27	50.4	50.4	50.4	50.4	50.4	50.4	52.2	54.0	55.8	57.6	59.4
28	55.4	55.4	55.4	55.4	55.4	55.4	55.4	56.0	57.9	59.7	61.6
29	60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6	61.8	63.8
30	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
31	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5
32	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0
33	73.5	73.5	73.5	73.5	73.5	73.5	73.5	73.5	73.5	73.5	73.5
34	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
35	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5
36	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0
37	83.5	83.5	83.5	83.5	83.5	83.5	83.5	83.5	83.5	83.5	83.5
38	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0
39	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5
40	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0
41	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5
42	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0
43	98.5	98.5	98.5	98.5	98.5	98.5	98.5	98.5	98.5	98.5	98.5
44	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Age and Service Tables

RETIREMENT AFTER AUGUST 2017											
Unreduced Service Retirement - Age 57 and 30 years or Age 67 and 10 years											
Service Retirement with Reduced Benefits - Age 60 and 25 years or Age 62 and 10 years											
Years of Service Credit	Attained Age at Retirement										
	57	58	59	60	61	62	63	64	65	66	67
10						12.9%	14.3%	15.9%	17.7%	19.7%	22.0%
11						14.2	15.7	17.4	19.4	21.7	24.2
12						15.5	17.1	19.0	21.2	23.6	26.4
13						16.8	18.6	20.6	23.0	25.6	28.6
14						18.0	20.0	22.2	24.7	27.6	30.6
15						19.3	21.4	23.8	26.5	29.5	33.0
16						20.6	22.8	25.4	28.3	31.5	35.2
17						21.9	24.3	27.0	30.0	33.5	37.4
18						23.2	25.7	28.6	31.8	35.4	39.6
19						24.5	27.1	30.1	33.6	37.4	41.8
20						25.8	28.6	31.7	35.3	39.4	44.0
21						27.1	30.0	33.3	37.1	41.3	46.2
22						28.4	31.4	34.9	38.9	43.3	48.4
23						29.7	32.8	36.5	40.6	45.3	50.6
24						30.9	34.3	38.1	42.4	47.3	52.8
25				41.3%	41.3%	41.3	41.3	41.3	44.2	49.2	55.0
26				45.8	45.8	45.8	45.8	45.8	45.9	51.2	57.2
27				50.5	50.5	50.5	50.5	50.5	50.5	53.2	59.4
28				55.4	55.4	55.4	55.4	55.4	55.4	55.4	61.6
29				60.6	60.6	60.6	60.6	60.6	60.6	60.6	63.8
30	66.0%	66.0%	66.0%	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
31	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5
32	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0
33	73.5	73.5	73.5	73.5	73.5	73.5	73.5	73.5	73.5	73.5	73.5
34	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
35	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5
36	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0
37	83.5	83.5	83.5	83.5	83.5	83.5	83.5	83.5	83.5	83.5	83.5
38	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0
39	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5
40	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0
41	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5
42	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0
43	98.5	98.5	98.5	98.5	98.5	98.5	98.5	98.5	98.5	98.5	98.5
44	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Disability Plan

A member is covered under one of two disability plans. A member who became a member after July 29, 1992, is covered under the **new disability plan**. A member who became a member on or before July 29, 1992, is covered by the **old disability plan** unless they exercised a one-time election to switch to the new plan.

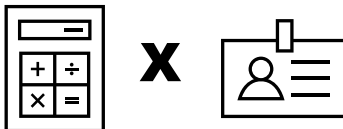
Eligibility

Under both plans, a member is eligible for disability benefits if the member:

- Has at least five (5) years of total service credit;
- Files an application no later than two (2) years from the date that the contributing service stopped;
- Is permanently disabled, either physically or mentally, for work in the member’s last SERS-covered position as determined by a physician appointed by SERS;
- Under the old disability plan, a member also must apply before turning 60 years old. Under the new disability plan a member may apply at any age.
- Disability recipients who are enrolled in SERS health care coverage are required to apply for Social Security disability benefits, if eligible.

Calculation

Old Disability Plan



2.2 % of FAS x Years of Service Credit*

Benefit cannot be less than 30% or more than 75% of FAS.

*includes all service credit the member has at the time of retirement plus years between member’s current age and age 60

New Disability Plan



The greater of 45% of FAS or 2.2 % of FAS x Years of Service Credit (capped at 60%)

The following chart shows the approximate applicable percentage amounts under this plan:

Years of Service Credit	Percentage of the Member’s Final Average Salary
5-21	45.0%
22	48.4
23	50.6
24	52.8
25	55.0
26	57.2
27	59.4
28 or more	60.0

Termination of Benefits

Under the new disability plan, benefits will end after a specified number of months as shown:

Age at Effective Date	Period Benefits Payable
Younger than 60	Until age 65
60 or 61	60 months
62 or 63	48 months
64 or 65	36 months
66, 67, or 68	24 months
69 or older	12 months

At the end of the period, the member can apply for a conversion retirement benefit.

Under both plans a disability benefit stops if any one of the following events occurs:

- A subsequent SERS medical re-examination finds that the member meets the applicable standard for termination.
 - For disability benefit recipients whose benefit was effective before January 7, 2013, the standard is whether the member is no longer disabled from their SERS-covered position.
 - For disability benefit recipients whose benefit was effective on or after January 7, 2013 the standard for termination changes 3 or 5 years after the disability benefits began (depending on whether the member is receiving recommended vocational rehabilitation or medical treatment).
 - For the first 3-5 years, the standard is whether the member is no longer disabled from their SERS-covered position,
 - After 3-5 years, the standard is whether the member is capable of performing the duties of a position with pay at or above 75% of his or her final average salary for which he or she is qualified, and which can reasonably be found in the member's regional job market.
- The member returns to a SERS-covered job
- The member's death
- The member requests that benefits end

Survivor Benefits

Eligibility

If a member dies before the member begins receiving a service retirement, or while receiving a disability benefit, the member’s beneficiary and qualified children are entitled to certain benefits.

The beneficiary is entitled to a one-time, lump-sum payment of only the member’s employee contributions to SERS, or monthly benefits if otherwise eligible. However, if the member is survived by qualified children, only a monthly benefit is available to the qualifying survivors.

Monthly benefit payments are available if the member:

1. Had at least one and one-half (1½) years of contributing service credit;
2. Had at least one-quarter (¼) year of Ohio service credit earned within two and one-half (2½) years prior to death;

The following qualified survivors are eligible for monthly benefits:

1. Surviving spouse at age 62
2. Surviving spouse at any age if the member had 10 or more years of service credit, if caring for a qualified child, or if declared mentally or physically incompetent by a court
3. Children who have never married, and are under 19, or have been declared mentally or physically incompetent by a court
4. Dependent parent age 65 or older

Calculation

The amount of the monthly benefit is determined under one of the following schedules, whichever pays the greater benefit:

	Schedule I	Schedule II
Number of Qualified Beneficiaries	Monthly Benefit Shall Not be Less Than	As a Percentage of the Member’s Final Average Salary
1	\$96*	25%
2	186	40
3	236	50
4	236	55
5 or more	236	60

*Not less than \$106 to spouse if the member had 10 or more years of service credit.

Schedule III	
Year of Service	As a Percent of the Member’s Final Average Salary
20	29%
21	33
22	37
23	41
24	45
25	48
26	51
27	54
28	57
29 or more	60

Actuarial Valuation

Actuarial Valuation Key Components

Known at valuation date:

- Age
- Salary
- Gender
- Service credit to date

Assumed at valuation date:

- Future salary increases
- Retirement date
- Death rates before and after retirement
- Disability rates other termination rates
- Investment return = 7.5%

Retirement Example

Based on an FY2019 New Service Retiree (Not Adjusted for Time Money Value)

Age at First Date of Service	38
Service Credit	26
Final Average Salary	\$38,038
Total Employee Contributions	\$74,248
Total Employer Contributions^{1 2}	\$109,394
Investment Returns on Contributions³	\$248,320
Retirement Age	64
Retirement Benefit	\$17,421
Expected Age Out (Death)⁴	88
Total Accumulated in Example	\$431,962
Overall Payout Over 24 Years	\$418,104
Investment Returns Needed to Cover Overall Payout	\$234,462

¹ Total Employer Contributions represent the total contribution amount for this member.

² For purpose of the example, excludes any allocation to Health Care, Medicare Part B, or Death Benefit Funds.

³ Investments calculated at actual SERS investment returns with compounding. Under a DB plan, investments are member pooled and used to pay retirement benefits.

⁴ Based on SERS mortality tables.

Analysis of Financial Experience

Gains and Losses in Accrued Liabilities Resulting from Differences Between Assumed Experience and Actual Experience in the Basic Benefits

(Total \$ in millions)

Type of Risk Area	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Age and Service Retirements If members retire at older ages, there is a gain. If younger ages, a loss.	\$7.8	\$(209.6)	\$(211.8)	\$(141.0)	\$(123.0)	\$(122.6)	\$(121.9)	\$(154.8)	\$(59.2)	\$(40.6)
Disability Retirements If disability claims are less than assumed, there is a gain. If more claims, a loss.	(9.5)	(14.7)	(37.8)	(50.6)	(53.1)	(56.0)	(53.6)	(47.7)	(28.1)	(23.4)
Death-In-Service Benefits If claims costs are less than assumed, there is a gain. If more claims, a loss.	(4.0)	(6.6)	(0.1)	(28.5)	-	0.1	-	(0.2)	(0.7)	(0.5)
Pay Increases If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	20.3	85.2	(69.2)	70.0	53.3	103.4	219.2	178.7	198.4	182.5
Investment Return If there is greater investment return than assumed, there is a gain. If less return, a loss.	(44.1)	(161.1)	(12.0)	50.6	62.1	403.3	241.0	(692.0)	(1,082.9)	390.5
Withdrawal If more liabilities are released by other separations from active membership than assumed, there is a gain. If smaller releases, a loss.	(106.3)	(124.5)	21.9	30.4	65.1	48.3	61.1	46.5	15.4	11.0
New Members Additional unfunded accrued liability will produce a loss.	(22.4)	(35.7)	(48.1)	(44.0)	(47.6)	(28.2)	(35.1)	(29.5)	(36.4)	(38.1)
Death after Retirement If retirees live longer than assumed, there is a loss. If not as long, a gain.	(24.9)	15.0	97.2	113.8	55.8	3.1	2.9	51.9	(1.0)	46.5
Other Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	78.4	4.6	(26.7)	(0.7)	(0.1)	(2.1)	1.9	(6.2)	(10.0)	(29.6)
Non-Recurring Items Adjustments for plan amendments, assumption changes, or method changes.	-	357.6	998.5	(668.2)	-	-	27.8	194.7	(436.2)	-
Total Gain (Loss) During Year	\$(104.7)	\$(89.8)	\$711.9	\$(668.2)	\$12.5	\$349.3	\$343.3	\$(458.6)	\$(1,440.7)	\$498.3

Breakdown of Total Accrued Liabilities

As of June 30, 2019

	Total Liability	Accrued Liability
Active Members		
Retirement	\$ 8,689,859,490	\$ 7,088,787,739
Death	183,157,796	128,306,072
Disability	416,820,377	237,436,261
Termination	692,986,693	(30,410,837)
Medicare Part B	206,538,521	153,423,551
Death after Retirement	11,307,527	8,188,256
Total	\$ 10,200,670,404	\$ 7,585,731,042
Retirees		
Retirement/Survivor/Disability	\$ 12,053,886,231	\$ 12,053,886,231
Medicare Part B	227,492,251	227,492,251
Death after Retirement	30,439,827	30,439,827
Total	\$ 12,311,818,309	\$ 12,311,818,309
Deferred Vested Members	317,102,505	317,102,505
Inactive Members	312,599,592	312,599,592
Total Actuarial Values	\$ 23,142,190,810	\$ 20,527,251,448
Actuarial Value of Assets		14,473,089,414
Unfunded Actuarial Accrued Liability		\$ 6,054,162,034

Active Members

By Attained Age and Years of Service

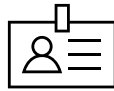
Total Active Members as of June 30, 2019

Averages:



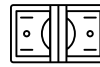
47.1

Age



7.5

Years of Service



\$21,727

Annual Pay

Attained Age	Years of Service to Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
Under 20	3,125							3,125
Avg Pay	\$8,431							\$8,431
20-24	10,033	87						10,120
Avg Pay	\$9,761	\$26,126						\$9,902
25-29	10,041	855	34					10,930
Avg Pay	\$13,925	\$29,590	\$39,885					\$15,231
30-34	8,819	1,705	411	39				10,974
Avg Pay	\$15,410	\$32,051	\$39,112	\$ 43,726				\$8,984
35-39	10,180	2,403	946	390	54			13,973
Avg Pay	\$15,465	\$29,911	\$40,612	\$ 46,948	\$ 48,885			\$20,660
40-44	10,692	3,085	1,369	814	331	29		16,320
Avg Pay	\$14,351	\$27,395	\$35,554	\$ 45,518	\$ 48,875	\$ 53,204		\$20,918
45-49	10,608	3,880	2,374	1,721	873	250	26	19,732
Avg Pay	\$13,754	\$26,184	\$32,254	\$ 38,943	\$ 47,686	\$ 53,649	\$ 48,696	\$22,674
50-54	8,604	3,672	3,238	2,969	1,814	653	248	21,198
Avg Pay	\$14,222	\$26,550	\$29,242	\$ 34,372	\$ 40,210	\$ 51,441	\$ 52,282	\$25,290
55-59	6,989	3,102	3,184	4,112	3,590	1,448	671	23,096
Avg Pay	\$13,808	\$25,576	\$29,099	\$ 32,244	\$ 35,592	\$ 41,629	\$ 49,274	\$26,940
60-64	5,278	2,273	2,010	2,652	2,897	1,811	999	17,920
Avg Pay	\$12,796	\$24,490	\$30,151	\$ 32,461	\$ 33,853	\$ 37,611	\$ 43,129	\$26,739
65-69	3,053	965	694	730	814	685	759	7,700
Avg Pay	\$9,288	\$21,408	\$27,794	\$ 32,495	\$ 34,242	\$ 35,211	\$ 39,056	\$22,554
70 & over	2,004	575	408	319	241	203	525	4,275
Avg Pay	\$7,796	\$15,509	\$21,617	\$ 24,718	\$ 30,806	\$ 32,509	\$ 32,973	\$16,978
Totals	89,426	22,602	14,668	13,746	10,614	5,079	3,228	159,363
Avg Pay	\$13,275	\$26,647	\$31,165	\$34,659	\$37,171	\$40,886	\$42,545	\$21,727

Active members currently eligible for age and service retirement

The 55-59 active members likely include those who are not grandfathered and will need to wait until they reach 30 years or age 62. The 60-64 active members likely include members under 62 who will need to wait until age 62.

By Gender and Annual Pay

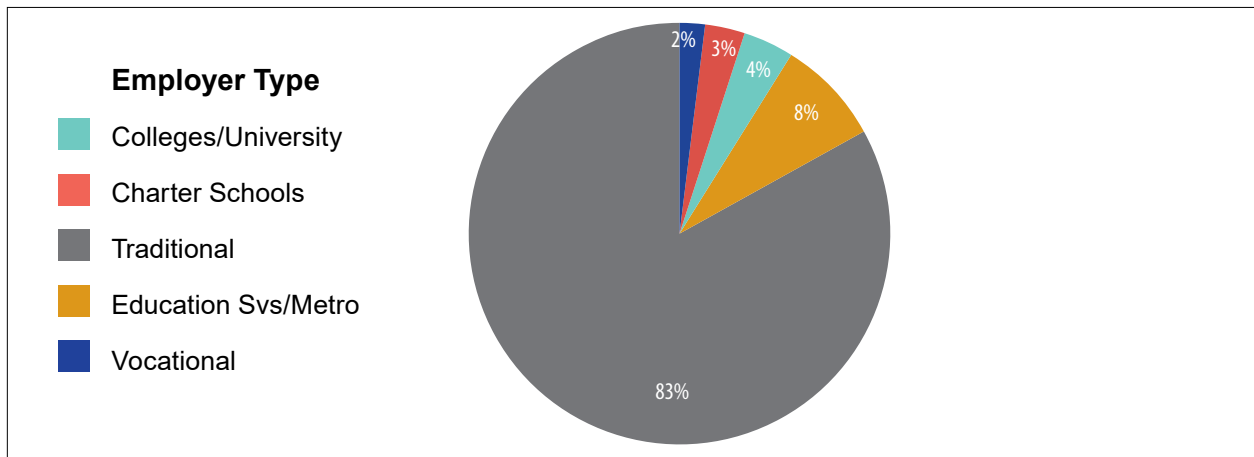
Active Members as of June 30, 2019

Annual Pay	Number of Active Members		
	Men	Women	Totals
Less than \$1,000	2,236	4,021	6,257
\$1,000 - 1,999	2,845	3,713	6,558
2,000 - 2,999	3,617	3,710	7,327
3,000 - 3,999	3,495	3,306	6,801
4,000 - 4,999	2,555	2,948	5,503
5,000 - 5,999	1,963	2,789	4,752
6,000 - 6,999	1,505	2,843	4,348
7,000 - 7,999	1,235	2,593	3,828
8,000 - 8,999	1,085	2,538	3,623
9,000 - 9,999	872	2,698	3,570
10,000 - 11,999	1,731	5,612	7,343
12,000 - 13,999	1,615	5,518	7,133
14,000 - 15,999	1,569	5,478	7,047
16,000 - 17,999	1,430	6,018	7,448
18,000 - 19,999	1,246	6,205	7,451
20,000 - 24,999	3,085	14,454	17,539
25,000 - 29,999	2,416	9,665	12,081
30,000 - 35,999	2,889	7,728	10,617
36,000 and over	13,448	16,689	30,137
Total	50,837	108,526	159,363

Employer Trends

Trends	Members			% Change		
	EMPLOYER TYPE	% of Total 2019	2017	2018	2019	18 vs. '17
Colleges/University*	3.33%	5,883	5,356	4,808	-8.96%	-10.23%
Charter Schools	3.27%	4,201	4,013	4,721	-4.48%	17.64%
Traditional	83.30%	119,546	119,353	120,140	-0.16%	0.66%
Education Svs/Metro	7.88%	10,655	11,026	11,363	3.48%	3.06%
Vocational	2.22%	3,260	3,201	3,196	-1.81%	-0.16%
Total	100.0%	143,545	142,949	144,228	-0.42%	0.89%

*Non-teaching employees of the University of Akron employed on or after September 28, 2016 contribute to OPERS.



The Impact of Technology on SERS' Membership

Minimally Affect SERS Membership

Still require regular, if not full-time attendance at a brick-and-mortar school building:

- traditional learning model
- blended learning
 - station rotation
 - lab rotation
 - individual rotation
 - flipped classroom
 - flex
 - a la carte

Threats to SERS' Membership

Threats to SERS-related positions could come from

- increased usage of the enriched virtual model
- online learning programs
- self-driving school buses
- school consolidation
- shared services
- automation and artificial intelligence

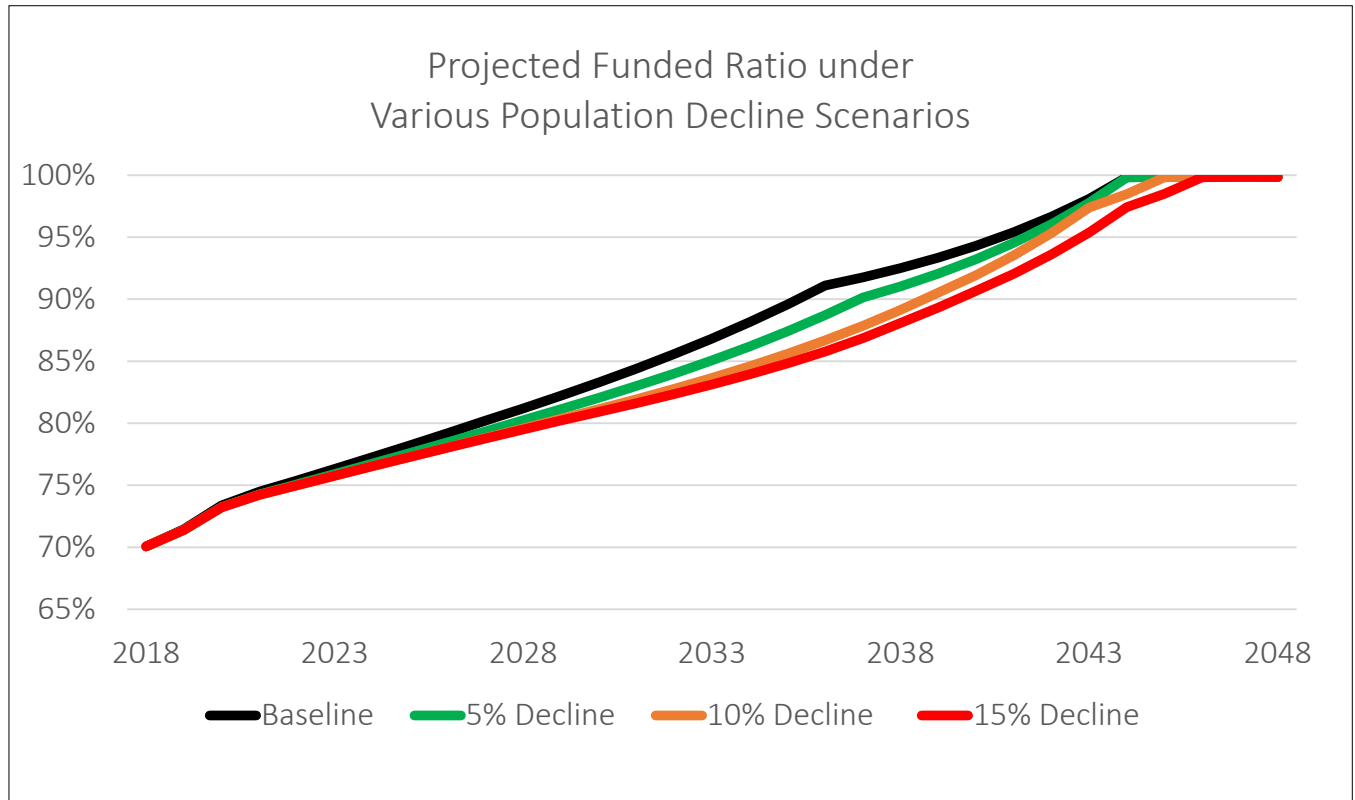
Projected Member Enrollment in Ohio

Region	School District	Blended Learning	2014	2019	Projected Enrollment
Northwest	Perrysburg	Yes	4,941	5,388	▲ Projected increase of 10.3% by 2022. Total population is expected to grow by 3.7%, and the number of families is expected to increase by 2.1%, both by 2028.
Northwest	Washington Local	No	6,978	7,058	▲ Projected increase of 1.23% by 2023, and ▼ Decrease of 0.385% by 2027.
Northeast	Cleveland	Yes	37,496	38,000	▼ K-8: Projected decrease of 3.9% by 2023; ▲ 9-12: Projected increase by 0.7% by 2023
Northeast	Chardon	Yes	2,927	2,760	▼ Projected decrease of 6.78% by 2023.
Northeast	Akron	Yes	21,030	20,742	▼ Projected decrease of 10.44% by 2023, and 12.51% by 2026.
Northeast	Poland	No	2,057	1,780	▼ Projected decrease of 1.97% by 2023, and 2.42% by 2029.
Northeast	Mentor	Yes	7,685	7,538	▼ Projected decrease of 4.55% by 2023.
Central (West)	Troy	No	4,364	4,144	▲ Projected increase of 0.10% by 2023, ▼ Projected decrease of 0.31% by 2027.
Central	Columbus	Yes	50,870	49,008	▲ Projected increase of 1.49% by 2023, and 0.93% by 2025.
Central	Dublin	No	14,776	16,348	▲ Projected increase of 15.15% by 2023, and 23.09% by 2027.
Central	Pickerington	Yes	10,278	10,658	▲ Projected increase of 2.89% by 2023.
Central	Gahanna	Yes	7,154	7,783	▲ Projected increase of 11.42% by 2025.
Central	Grandview Heights	Yes	1,072	1,065	▲ Projected increase of 3.92% by 2023, and 9.47% by 2027.
Central	Big Walnut	No	3,204	3,617	▲ Projected increase of 20.68% by 2025.
Central	Worthington	Yes	9,628	10,302	▲ Projected increase of 6.38% by 2023, 11.01% by 2026, and 15.28% by 2029.
Southwest	Forest Hills	Yes	7,564	7,382	▼ Projected decrease of 4.69% by 2024.
Southwest	Oakwood	No	2,075	1,994	▼ Projected decrease of 1.65% by 2023, and 2.16% by 2027.
Southwest	Kings Local		4,059	4,524	▲ Projected increase of 13.46% by 2023, and 18.83% by 2028.
Southwest	West Clermont	Yes	8,413	8,264	▼ Projected decrease of 4.87% by 2024.
Southeast	Goshen Local	No	2,773	2,875	▲ Projected increase of 10.71% by 2027.
Southeast	Athens City	Yes	2,680	2,535	▲ Projected increase of 4.18% by 2021.

Source: Figures gathered through comparing the school district's master facilities plan or enrollment projections to the Ohio Department of Education's enrollment data. Many districts go through the Ohio Facilities Construction Commission (OFCC) to be able to obtain state funding. The OFCC utilizes the company FutureThink to project future enrollments based on historical enrollment, birth data, migration patterns, population trends, and building permits issued over the last 10 years. FutureThink assesses this information then develops 10-year enrollment projections by grade.

Member Population Decline

A reduction in population will result in a reduction in covered payroll which will reduce the funding available to the System since employer contributions are limited to 14% of payroll which will ultimately increase the amount of time necessary to completely amortize the unfunded liability.



Inactive Members

Breakdown of Liabilities for Deferred Vested and Non-Vested Members

Deferred Vested Member: Meets the service eligibility requirement, but not the age eligibility requirement

Non-Vested Member: Does not meet the service eligibility requirement


	2019	2018	2017
Deferred Vested Members	5,464	5,091	4,735
Total Inactive Members	260,321	277,923	267,897
Present Value of Benefits Liability for Deferred Vested Members	\$317,102,505	\$269,493,956	\$211,841,981
Refund Liability for Non-Vested Members*	\$312,599,592	\$309,901,052	\$291,698,221

*Refund liability includes employee contributions **only**

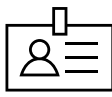
Refund Demographics

As of June 30, 2019

Average Non-vested:




57.4
Age

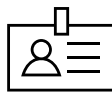


1.3
Years of Service

Average Vested:



53.1
Age



14.2
Years of Service

Attained Age	Years of Service to Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
Under 20	19							19
20-24	317	2						319
25-29	531	29	1					561
30-34	528	80	18					626
35-39	501	96	23	6				626
40-44	493	97	46	14	1			651
44-49	535	122	51	25	7			740
50-54	3,332	231	48	35	7			3,653
55-59	5,949	373	65	52	8	1		6,448
60-64	6,503	294	36	26	6			6,865
65-69	2,376	127	22	2	2			2,529
70 and over	1,587	90	13	5				1,695
	22,671	1,541	323	165	31	1	-	24,732

If a member leaves their SERS-covered employment, they are entitled to a return of their employee contributions **only**.


Retiree Demographics

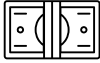
Breakdown of Benefits by Type

As of June 30, 2019


Averages:

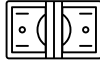
Service


74.7
 Age



\$1,264
 Monthly Benefit

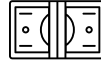
Disability


66
 Age


\$1,475
 Monthly Benefit

Survivor


72.6
 Age


\$762
 Monthly Benefit

Amount of Monthly Benefit	Service	Disability	Survivor	Total
\$1 - 250	9,585	37	757	10,379
251 - 500	10,005	341	1,146	11,492
501 - 750	9,521	631	821	10,973
751 - 1,000	8,251	857	592	9,700
1,001 - 1,500	12,401	1,377	541	14,319
1,501 - 2,000	7,661	855	209	8,725
Over 2,000	14,032	1,163	241	15,436
	71,456	5,261	4,307	81,024

Age and Service Retirees

New Age and Service Retirees During FY2019 Valuation Year

Averages:  **64.6** Age  **26.4** Years of Service

	Years of Service to Valuation Date					Totals
	10-14	15-19	20-24	25-29	30 plus	
Avg. Monthly Benefit	\$510	\$778	\$1,054	\$1,507	\$2,547	\$1,741
Avg. FAS	\$28,669	\$30,580	\$31,073	\$34,975	\$45,156	\$38,038
Number of Retirees	222	204	162	403	838	1,829

Age	Years of Service to Valuation Date					Totals
	10-14	15-19	20-24	25-29	30+	
Under 50	0	0	0	0	14	14
50	0	0	0	0	5	5
51	0	0	0	0	10	10
52	0	0	0	0	11	11
53	0	0	0	0	22	22
54	0	0	0	0	12	12
55	0	0	0	15	30	45
56	0	0	0	7	25	32
57	0	0	0	4	26	30
58	0	0	0	13	32	45
59	0	0	0	10	39	49
60	0	1	4	49	61	115
61	0	1	1	37	53	92
62	18	20	11	25	53	127
63	9	12	7	22	57	107
64	13	11	5	21	52	102
65	26	37	35	60	99	257
66	29	33	17	32	46	157
67	22	19	26	16	35	118
68	22	6	19	26	23	96
69	15	18	4	10	26	73
70 and Over	68	46	33	56	107	310
Totals	222	204	162	403	838	1,829

Disability Benefit Recipients

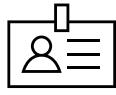
New Disability Benefit Recipients During FY2019 Valuation Year

Averages:



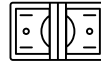
55.1

Age



16.8

Years of Service



\$32,962

FAS

Central Age Group Beginning of Year	Number
Under 25	0
25	0
30	1
35	2
40	7
45	17
50	40
55	73
60	78
65	17
70 and Over	0
Total	235

Survivors of Deceased Active Members

As of June 30, 2019

Attained Age	Number	Annual Benefits
Under 45	91	\$1,006,684
45-49	45	\$621,729
50-54	128	\$1,543,102
55-59	244	\$2,896,110
60-64	503	\$5,552,141
65-69	666	\$6,236,434
70-74	743	\$7,335,790
75-79	647	\$5,380,197
80-84	569	\$4,659,770
85-89	382	\$2,609,858
90 and Over	289	\$1,520,627
Totals	4,307	\$39,362,442

Decades View of Service Retirees and Disability Benefit Recipients

Annuity and Pension Reserve Fund – Retirees as of June 30, 1990
 Current Annual Benefits by Attained Ages

Attained Ages	Age and Service Retirees		Disability Benefit Recipients		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	0	\$-	174	\$1,780,604	174	\$1,780,604
45-49	6	\$92,942	191	\$1,372,009	197	\$1,464,951
50-54	109	\$1,852,398	388	\$2,559,390	497	\$4,411,788
55-59	435	\$5,484,976	610	\$3,436,997	1,045	\$8,921,973
60-64	5,578	\$25,709,266	793	\$3,884,545	6,371	\$29,593,811
65-69	10,183	\$43,075,837	600	\$2,616,733	10,783	\$45,692,570
70-74	9,323	\$33,990,466	404	\$1,313,058	9,727	\$35,303,524
75-79	6,767	\$20,945,899	131	\$333,807	6,898	\$21,279,706
80-84	3,591	\$10,262,086	47	\$127,636	3,638	\$10,389,722
85-89	1,465	\$4,099,247	10	\$29,570	1,475	\$4,128,817
90 and Over	630	\$1,867,003	1	\$10,298	631	\$1,877,301
Totals	38,087	\$147,380,120	3,349	\$17,464,647	41,436	\$164,844,767

Annuity and Pension Reserve Fund – Retirees as of June 30, 2000
 Current Annual Benefits by Attained Age

Attained Ages	Age and Service Retirees		Disability Benefit Recipients		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	0		269	\$4,041,972	269	\$4,041,972
45-49	37	\$905,351	348	\$5,084,374	385	\$5,989,725
50-54	214	\$4,931,372	585	\$7,121,940	799	\$12,053,312
55-59	921	\$13,611,932	819	\$8,393,120	1,740	\$22,005,052
60-64	5,142	\$44,629,287	1,064	\$9,524,038	6,206	\$54,153,325
65-69	8,529	\$66,321,694	722	\$5,261,208	9,251	\$71,582,902
70-74	9,697	\$65,746,954	525	\$3,044,938	10,222	\$68,791,892
75-79	9,315	\$53,018,433	384	\$1,979,413	9,699	\$54,997,846
80-84	6,306	\$28,790,291	208	\$764,122	6,514	\$29,554,413
85-89	3,248	\$12,112,477	38	\$105,176	3,286	\$12,217,653
90 and Over	1,258	\$4,447,964	13	\$42,340	1,271	\$4,490,304
Totals	44,667	\$294,515,755	4,975	\$45,362,641	49,642	\$339,878,396

Annuity and Pension Reserve Fund – Retirees as of June 30, 2010
Current Annual Benefits by Attained Ages

Attained Ages	Age and Service Retirees		Disability Benefit Recipients		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	0	\$-	96	\$1,425,016	96	\$1,425,016
45-49	51	\$1,596,672	255	\$4,737,421	306	\$6,334,093
50-54	515	\$16,393,729	567	\$10,621,345	1,082	\$27,015,074
55-59	1,409	\$38,666,060	935	\$16,415,370	2,344	\$55,081,430
60-64	5,710	\$85,816,391	1,144	\$17,552,119	6,854	\$103,368,510
65-69	9,366	\$119,879,952	770	\$10,219,489	10,136	\$130,099,441
70-74	10,357	\$122,363,460	590	\$6,386,335	10,947	\$128,749,795
75-79	8,883	\$91,678,284	443	\$3,661,363	9,326	\$95,339,647
80-84	7,486	\$64,689,429	276	\$2,019,729	7,762	\$66,709,158
85-89	5,063	\$35,898,694	143	\$836,067	5,206	\$36,734,761
90 and Over	2,676	\$14,033,584	45	\$169,178	2,721	\$14,202,762
Totals	51,516	\$591,016,255	5,264	\$74,043,432	56,780	\$665,059,687

Annuity and Pension Reserve Fund – Retirees as of June 30, 2019
Current Annual Benefits by Attained Ages

Attained Ages	Age and Service Retirees		Disability Benefit Recipients		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	34	\$246,753	60	\$818,052	94	\$1,064,805
45-49	48	\$722,980	145	\$2,243,920	193	\$2,966,900
50-54	295	\$9,354,417	352	\$6,046,042	647	\$15,400,459
55-59	1,640	\$53,281,181	862	\$16,735,465	2,502	\$70,016,646
60-64	7,984	\$150,570,798	1,394	\$26,765,329	9,378	\$177,336,127
65-69	14,762	\$238,149,684	810	\$16,950,379	15,572	\$255,100,063
70-74	14,358	\$225,273,363	630	\$11,127,641	14,988	\$236,401,004
75-79	11,936	\$171,443,859	472	\$7,096,374	12,408	\$178,540,233
80-84	9,679	\$126,436,787	307	\$3,460,855	9,986	\$129,897,642
85-89	6,310	\$70,551,663	159	\$1,403,107	6,469	\$71,954,770
90 and Over	4,410	\$37,824,767	70	\$456,221	4,480	\$38,280,988
Totals	71,456	\$1,083,856,252	5,261	\$93,103,385	76,717	\$1,176,959,637

Portability with Ohio Retirement System

Ohio Public Employees Retirement System (OPERS), State Teachers Retirement System (STRS, and School Employees Retirement System (SERS) members have the option of combining their defined benefit accounts at the time of retirement with the retirement system that has the greatest service credit to be the paying system. If the service credit is equal the system with the greatest amount of contributions will be the paying retirement system. Earnings from the non-paying retirement system are added to the paying system earnings for purposes of the final average salary calculation.

Before legislative changes that took effect in January 2013, the non-paying retirement system transferred the member's account to the paying system. The amount transferred was the member's contributions times two.

There was concern from OPERS, STRS, and SERS the formula for combining accounts of contributions multiplied by 2 does not give the paying system the funds to pay the additional liability incurred. Each system included language in their pension reform legislation to correct the formula.

SB 341 (effective January 7, 2013) changed the calculation of the amount transferred by the non-paying system to the paying system from the formula of contributions multiplied by two to the following formula for each year of service (3309.35(B)(5)(a)) :

1. The amount contributed by the member, or, in the case of service credit purchased by the member, paid by the member, that is attributable to the year of service;
2. An amount equal to the lesser of the employer's contributions made on behalf of the member to the transferring system for that year of service less the retention percentage (this provision became effective with SB 42 effective March 23, 2015) or the amount that would have been contributed by the employer for the service had the member been a member of the school employees retirement system at the time the credit was earned less the retention percentage;
3. If applicable, an amount equal to the amount paid on behalf of the member by an employer under section 145.483 of the Revised Code;
4. Interest compounded annually on the above amounts at the lesser of the actuarial assumption rate for that year of the paying system or the transferring system or systems.

After pension reform, staff from all three systems met many times to address the calculation again. It was determined the formula that became effective with the pension reform legislation in 2013 exceeded the actuarial amount needed for the benefit to the paying system and was a hardship for the transferring system. In September 2014 the directors of the three systems issued a joint letter to each of the retirement boards outlining the changes needed. The result of this process resulted in a retention percentage as part of the calculation for transfers per SB 42 that became effective march 23, 2015.

The retention percentage is reviewed by the state retirement systems not less than once every five years or on request of any of the systems.

Other Retirement System Transfers

Fiscal Year	OPERS transfers to SERS	STRS Ohio to SERS	Total Transfers In	SERS transfers to OPERS	SERS to STRS Ohio	Total Transfers Out
2019	249	57	306	523	536	1,059
2018	549	172	721	735	529	1,264
2017	388	109	497	538	313	851
2016	421	148	569	664	817	1,481
2015	515	150	665	1,229	1,713	2,942
2014	490	119	609	888	1,643	2,531
2013	535	147	682	1,082	1,579	2,661
2012	507	166	673	829	1,485	2,314
2011	391	108	499	736	1,226	1,962
2010	307	109	416	740	1,011	1,751
2009	337	104	441	619	941	1,560
2008	403	98	501	610	1,029	1,639
2007	371	121	492	625	1,044	1,669
2006	299	100	399	584	1,005	1,589
2005	305	75	380	544	899	1,443
2004	285	62	347	545	837	1,382
2003	259	47	306	548	776	1,324
2002	173	37	210	522	837	1,359
2001	185	51	236	384	788	1,172
2000	163	33	196	390	899	1,289