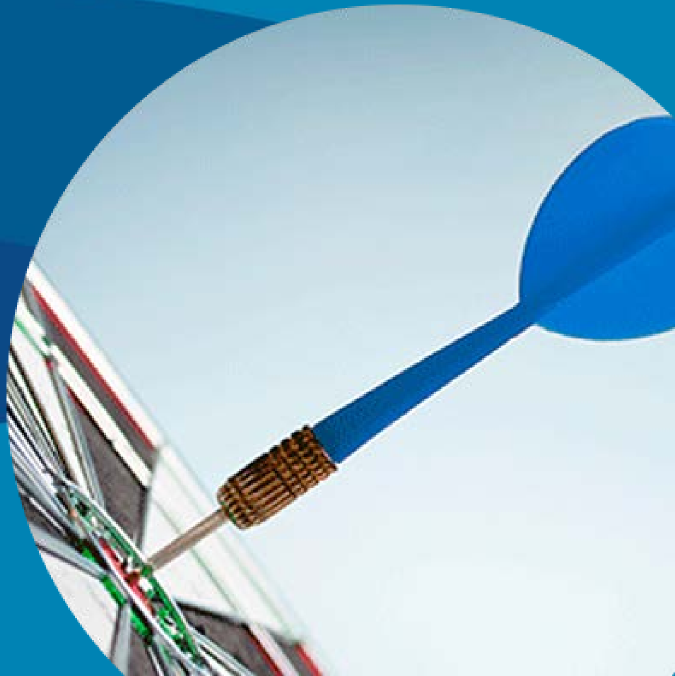
Bay County Employees’ Retirement System
December 31, 2017 Actuarial Valuations

Board of Trustees Meeting

October 9, 2018



Agenda

- Current Events
- Actuarial Valuation Process
- Highlights of 2017 Bay County Actuarial Valuations
- Looking Ahead
- Appendix - Historical Contributions/Funded Ratios

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Current Events

Michigan Public Act 202 (PA 202)

- “Protecting Local Government Retirement and Benefits Act”
- Effective December 20, 2017
- Intended to reflect recommendations from the Governor’s Responsible Retirement Reform Local Government Task Force Report
- Includes:
  - New Mandates
  - New Reporting/Transparency Requirements
  - Underfunded Local Units Requirements

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PA 202 - New Mandates

- Beginning July 1, 2018, the following apply to a Local Unit of Gov't (LUG) that offers OPEB:
  - The LUG pays at least both of the following:
    - Normal Cost for post-June 30, 2018 hires
    - Any retiree premiums that are due to retirants in the retirement system (pay-go-cost)
  - Submission of a Summary Annual Report (SAR) within six months of the close of the LUG's FYE

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PA 202 - New Mandates (Continued)

- Beginning July 1, 2018, the following apply to a Local Unit of Gov't (LUG) that offers OPEB:
  - Conduct an experience study at least once every five years
  - Have an actuarial audit or replace the retained actuary once every eight years
  - LUGs eligible for the specified alternative measurement method are exempt from the experience study and audit requirements above

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PA 202 - New Reporting/Comparison Requirements

- State treasurer established uniform actuarial assumptions for 2019 **Pension reporting**

Assumption	PA 202	Current Pension Assumptions
Investment Return	Maximum of 7%	7.25%
Discount Rate	Possible blend based on GASB approach. Max 7%, Min 3%	7. 25%
Salary Increase	Minimum of 3.5%[1]	3.25%
Mortality	RP-2014 Table[1]	Version of RP-2014
Amortization Period	Maximum of 20 years	25 years underfunded groups 20 years overfunded groups 10 years BABH ERIP[2]

[1] *Or based on actuarial experience study performed in last 5 years*

[2] *Starting with the 2015 contribution*

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PA 202 - New Reporting/Comparison Requirements

- Figures determined using uniform assumptions reported on Form 5572
  - NOT used to determine underfunded status
  - Only for comparison purposes, separate from…
- Assets, liabilities, funded ratio and ADC (Actuarially Determined Contribution) from financial statements
  - Used to determine underfunded status

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PA 202 - New Reporting Requirements (Continued)

- Each year beginning after December 31, 2017 underfunded status of a LUG will be determined
- LUG is underfunded if any of the following apply:
  - AAL of retirement health system is < 40% funded and ARC* is > 12% of LUG's annual general fund operating revenues for the most recent year
  - AAL of pension system is < 60% funded and ARC* is > 10% of LUG's annual general fund operating revenues for the most recent year

AAL – Actuarially Accrued Liability.
ARC - Annual Required Contribution for all of the retirement systems of a local government.*

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PA 202 - New Reporting Requirements (Continued)

- LUG has not submitted reports required under Section 5 of PA 202
- LUG fails to make payments described in Section 4(1) of PA 202
  - Normal Cost for employees first hired after June 30, 2018
  - Any retiree premiums that are due to retirants in the retirement system (pay-go-cost)

- Annual calculation of funded status based on LUG financial statements
- Electronic submission of necessary information no later than six months after LUG's FYE

PA 202 - Underfunded Local Unit Requirements

- Can apply for waiver of underfunded status
  - LUG must demonstrate underfunded status is being addressed
  - State treasurer must approve
- If waiver not approved, Department of Treasury will:
  - Undertake internal review of LUG retirement systems
  - Discuss changes or reforms with LUG designated officials
  - Review actuarial projections

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PA 202 - Underfunded Local Unit Requirements (Concluded)

- Underfunded LUGs shall develop and submit for approval a corrective action plan
- PA 202 Creates the Municipal Stability Board
  - Annually update list of best practices for LUGs developing a corrective action plan
  - Review and approve corrective action plans submitted by underfunded LUGs
  - Monitor each underfunded LUG's compliance with PA 202 and any corrective action plan

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Actuarial Standards Generally

- Actuarial Standards Board (ASB) develops standards for work in various actuarial practice areas (Life, Health, Pension, etc.)
- Our work for the Bay County Employees' Retirement System (BCERS) must follow actuarial standards

Pension Actuarial Standards

- ASOP 4: Measuring Pension Obligations
- ASOP 27: Selecting Economic Assumptions
- ASOP 35: Selecting Demographic Assumptions
- ASOP 41: Actuarial Communications
- ASOP 44: Asset Valuation Methods
- ASOP 51: Risk Disclosures (New)

Changes

- ASOPs 4, 27, 35 are being changed
  - Still in “Exposure Draft Form”
  - Might affect BCERS’ 2019 valuations
- ASOP 51 is new and will affect BCERS’ December 31, 2018 valuations

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ASOP 51

- Actuary should identify risks that may affect the plan's future financial condition. For example:
  - Investment risk
  - Asset/liability mismatch risk
  - Interest rate risk
  - Longevity risk
  - Contribution risk
  - Other…

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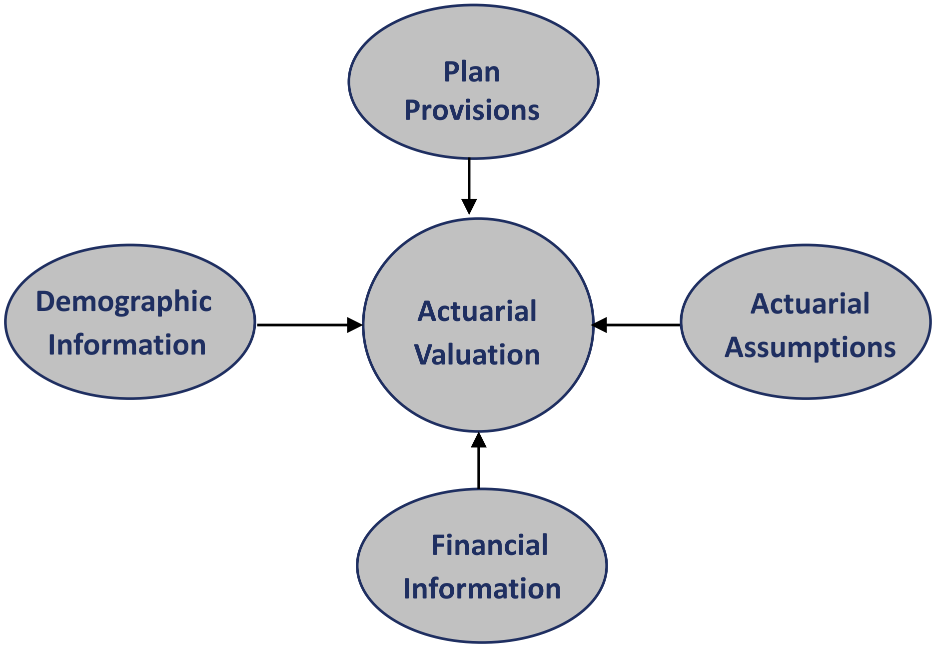
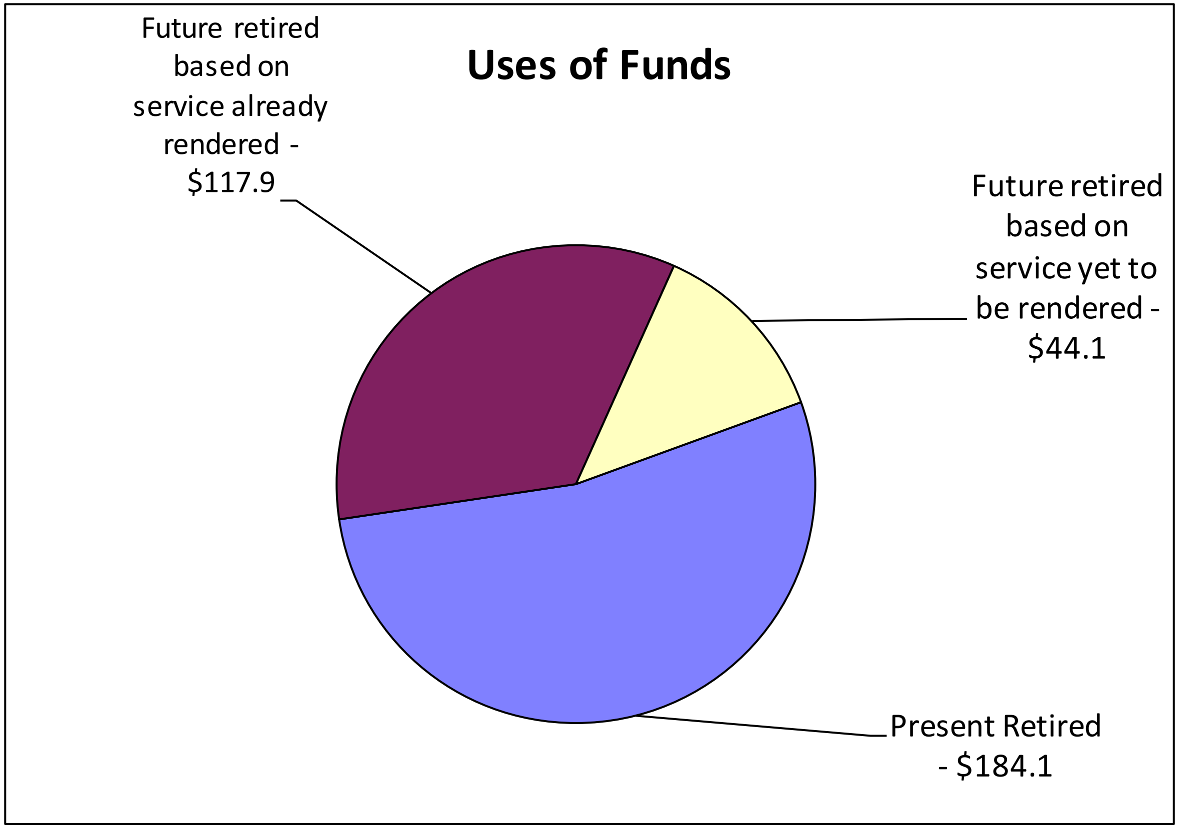
Actuarial Valuation Process



- Demographic Information, Financial Information & Plan Provisions are provided by the plan sponsor.
- Actuarial assumptions are recommended by the actuary and approved by the Board.
- The actuarial valuation is a mathematical process used to project future payments on account of specified benefit provisions. These projected payouts are converted to equivalent present value amounts and a corresponding level percent-of-payroll contribution is determined.

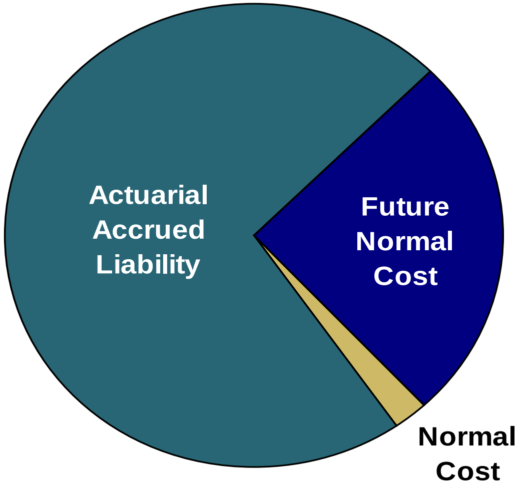
$346.1 Million* of Benefit Promises to Present Active and Retired Members



* *Present value of future benefits; all divisions combined.*

Actuarial Valuation Process

- Present Value of Future Benefits - Present Value (PV) of all Future Benefits payable to current participants (active, retired, terminated vested).
- Actuarial Liability - Portion of PV of Future Benefits allocated to prior years.
- Normal Cost - Portion of PV of Future Benefits allocated to current year.
- Future Normal Costs - Portion of PV of Future Benefits allocated to future years.



Present Value of Future Benefits

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Actuarial Valuation Process

Actuarial Accrued Liability

- Actuarial Value of Assets

Unfunded Actuarial Liability

Annual Contribution Requirement	**=**	**Normal Cost**	**+**	**Amortization of the Unfunded Liability**

Highlights of 2017 BCERS Actuarial Valuations

- Two separate valuations as of December 31, 2017
  1. Stand alone valuation for Bay-Arenac Behavioral Health Authority (BABH)
  2. Valuation for all other groups
- Valuation asset development consistent with prior valuations

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Highlights of 2017 BCERS Actuarial Valuations

	General	DWS	Library	Medical Care Facility	Sheriff's Department	Road Commission	Total	BABH
Participants								
Active	397	53	27	308	77	56	918	222
Retired	352	36	46	225	76	98	833	127
Terminated Vested	30	2	6	12	6	1	57	35
Total	779	91	79	545	159	155	1,808	384
Payroll	$ 16,717,573	$ 3,081,093	$ 1,260,394	$ 10,145,592	$ 4,203,711	$ 3,082,755	$ 38,491,118	$ 10,806,001
Actuarial Accrued Liability	102,984,388	16,724,711	11,457,673	51,834,953	31,709,385	33,764,801	248,475,911	53,481,066
Actuarial Value of Assets	123,477,512	14,296,807	12,580,223	59,813,713	39,744,677	29,753,360	279,666,292	54,095,330
Unfunded Actuarial Accrued Liability	(20,493,124)	2,427,904	(1,122,550)	(7,978,760)	(8,035,292)	4,011,441	(31,190,381)	(614,264)
Funded Ratio	120%	86%	110%	115%	125%	88%	113%	101%
Contribution Requirement								
Employer Normal Cost	6.18 %	9.57 %	$ 117,730	6.07 %	9.91 %	11.06 %		7.36 %
Amortization Payment for ERIP^								1.28
Amortization Payment	(8.49)	4.65	(107,300)	(5.50)	(13.23)	7.60		(1.11)
Total	0.00 %	14.22 %	$ 10,430	0.57 %	0.00 %	18.66 %	$ 1,152,393	7.53 %

^ *Amortization payment associated with the Early Retirement Incentive Program (ERIP).*

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Highlights of 2017 BCERS Actuarial Valuations

		Contribution Rate	
	Valuation Year	12/31/2016	12/31/2017
Division	Fiscal Year	1/1/2018	1/1/2019
General County		0.00 %	0.00 %
DWS		14.91	14.22
Library		$ 74,780	$ 10,430
Medical Care Facility		2.76 %	0.57 %
Sheriff's Department		0.00	0.00
Road Commission		21.28	18.66
BABH		9.27 %	7.53 %

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Highlights of 2017 BCERS Actuarial Valuations

- No changes to valuation assumptions or methods for the 2017 valuation.
- The General County first reported, for this valuation, a correction to the benefit eligibility for the Elected Officials and Department Heads, Judges, General County, General Circuit Court, General District Court, General Probate Court, BCAMPS, USWA General, USWA PT, District Court AFSCME, Circuit Court GELC, Elected Sheriff and Appointed Undersheriff, Nurses, and Probate Court USWA – this correction reduced liabilities by $91,929.

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Highlights of 2017 BCERS Actuarial Valuations

- The aggregate experience during 2017 was favorable, with overall gains.
- Investment return on the market value of assets for calendar year 2017 exceeded the assumed rate of return for the valuation.

Highlights of 2017 BCERS Actuarial Valuations: Demographic G/(L)

- Gain from greater member termination than expected for all groups, slightly offset for some groups by actual pay increases greater than assumed.
- Loss due to changes in payroll (actual pay increases were greater than expected).
  - For General County, DWS, Medical Care Facility, Sheriff’s Department, Road Commission, and BABH

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Highlights of 2017 BCERS Actuarial Valuations: Asset Performance

	December 31,									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Market Value of Assets*	$170.2	$206.0	$235.4	$225.7	$246.9	$295.4	$308.1	$300.9	$311.5	$356.5
Rate of Return	(30.62)%	25.46 %	17.63 %	(1.22)%	12.65 %	23.03 %	7.98 %	0.77 %	7.68 %	19.10 %
Actuarial Value of Assets*	246.6	243.3	244.7	241.2	239.3	263.4	282.2	296.1	312.7	333.8
Rate of Return	0.17 %	1.38 %	3.26 %	1.37 %	2.11 %	13.42 %	11.32 %	8.44 %	9.90 %	11.21 %

** Assets in millions of dollars.*

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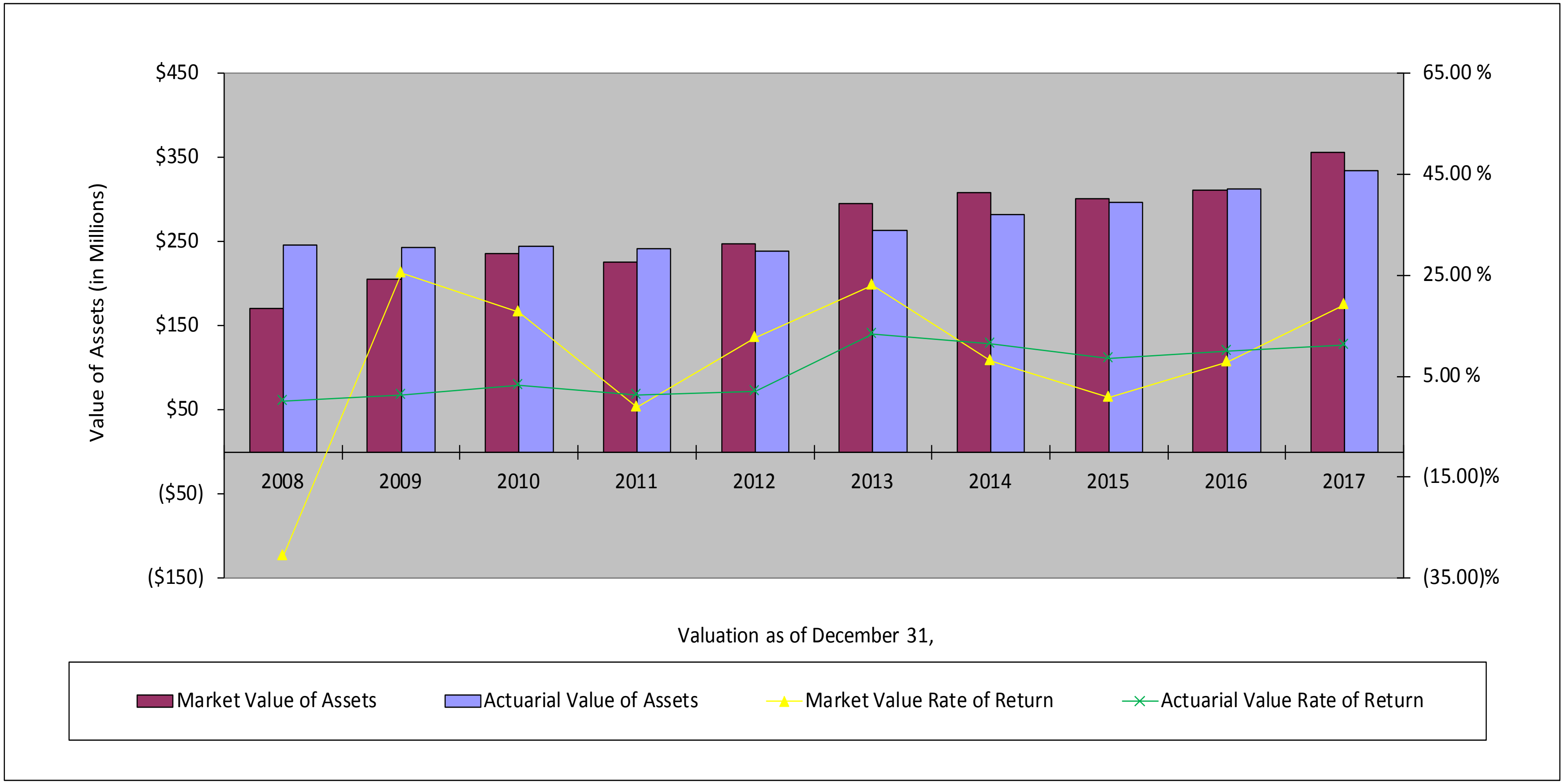
Highlights of 2017 BCERS Actuarial Valuations: Asset Performance



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Highlights of 2017 BCERS Actuarial Valuations: Transfers

- Member transferred between the Sheriff's Department & General group
  - Asset transfer amount based on member actuarial accrued liability and the funded percent of the group they transferred from
- Recommend Board approval of asset transfer
  - $691,734 Sheriff's Department to General County

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Highlights of 2017 BCERS Actuarial Valuations: Transfers

- Recommend Board revisit and establish policy consistent with calculations on previous slide for future transfers involving members with more than 10 years of service

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Highlights of 2017 BCERS Actuarial Valuations

- We developed the value of anticipated future benefit payments to retired members and their beneficiaries. We then compared this accrued liability to the reported value of the retirement reserve account. The figures below compare the retired liabilities and the reserves for each division.

Division	Accrued Liability	Reported Retiree Reserve	Unfunded Retiree Liability
General	$ 59,716,524.00	$ 52,179,129.76	$ 7,537,394.24
DWS	11,394,798.00	9,561,354.29	1,833,443.71
Library	7,402,352.00	6,099,092.31	1,303,259.69
Medical Care Facility	31,447,365.00	28,018,872.58	3,428,492.42
Sheriff's Department	18,242,273.00	15,689,860.05	2,552,412.95
Road Commission	24,289,387.00	22,346,013.44	1,943,373.56
Total	**$ 152,492,699.00**	**$ 133,894,322.43**	**$ 18,598,376.57**

Division	Accrued Liability	Reported Retiree Reserve	Unfunded Retiree Liability
BABH	$ 31,582,263.00	$ 27,801,275.31	$ 3,780,987.69

- As of the valuation date, there is a shortfall in the retiree reserve for all groups.
- The valuation anticipates that the difference between the accrued liability and the reported reserve will be transferred from the Retirement System employer reserve to the retiree reserve effective January 1, 2018 to fully fund the retiree accrued liability.

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Highlights of 2017 BCERS Actuarial Valuations

- Contribution rates should trend toward the long-term cost or normal cost of the benefits over time.
  - Experience gains/losses will always serve to deviate contributions from pure normal cost
- All divisions have required employer contributions, except the General County and Sheriff's Department.

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Looking Ahead
Asset Smoothing - $ in Thousands

	2017	2018	2019	2020	2021
Actual Investment Return	$ 58,230				
Assumed Investment Return	22,190				
Gain/(Loss) to be phased-in	36,040				
Phased-in recognition					
• Current year	$ 7,208				
• First prior year	178	$ 7,208			
• Second prior year	(3,696)	178	$ 7,208		
• Third prior year	760	(3,696)	178	$ 7,208	
• Fourth prior year	7,667	760	(3,696)	178	$ 7,208
Total recognized gain (loss)	$ 12,117	$ 4,450	$ 3,690	$ 7,386	$ 7,208

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Looking Ahead - Contributions

- Asset smoothing helps reduce the volatility of the employer contributions.
  - The funding value of assets is 94% of market value.
  - Remaining phase-in of past market gains from previous valuations.
- The Retirement System will continue to mature.
  - More retirees than active employees.
  - Normal for a prefunded retirement system.

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QUESTIONS

APPENDIX

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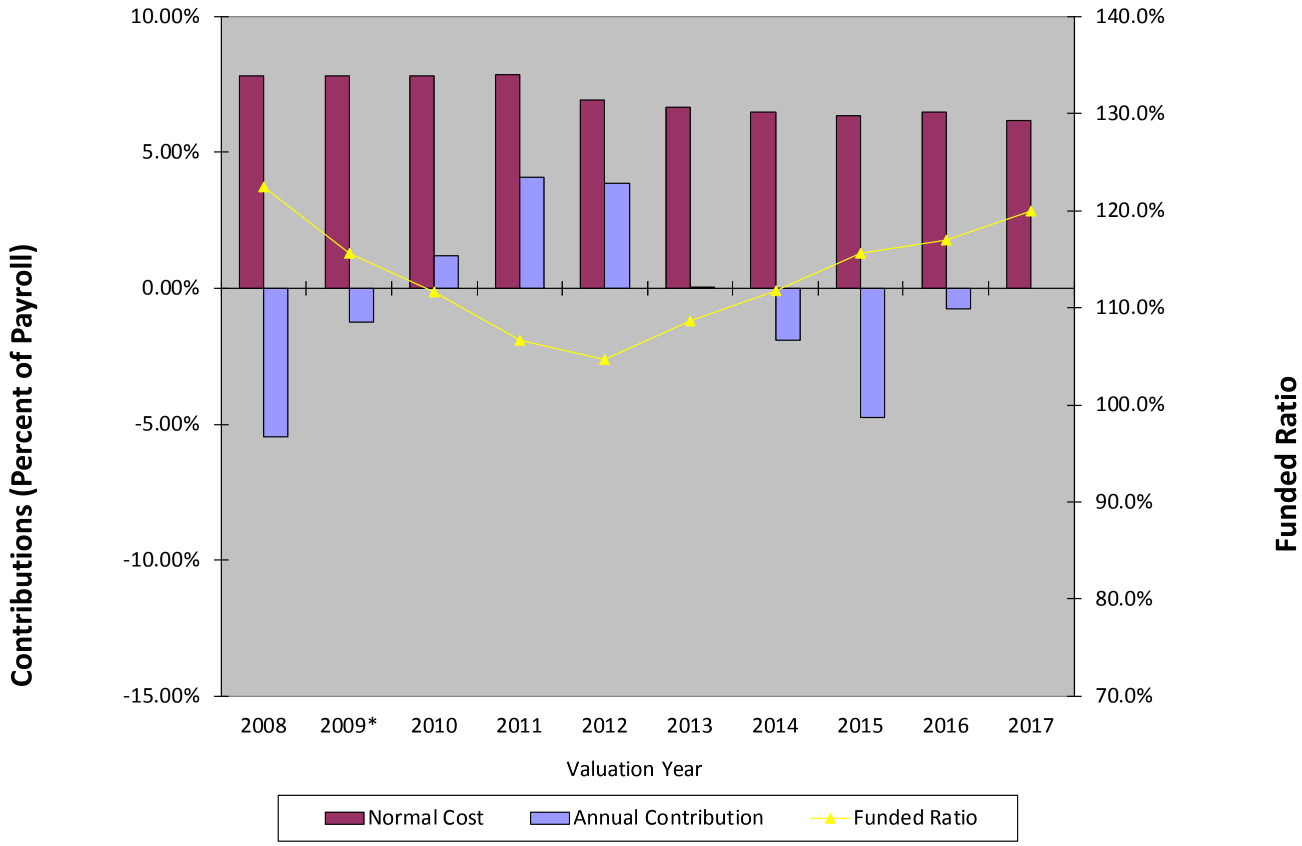
Historical Information – General



** 2009 valuation implemented a 1-year lag – results used for FY 2010 and FY 2011.*

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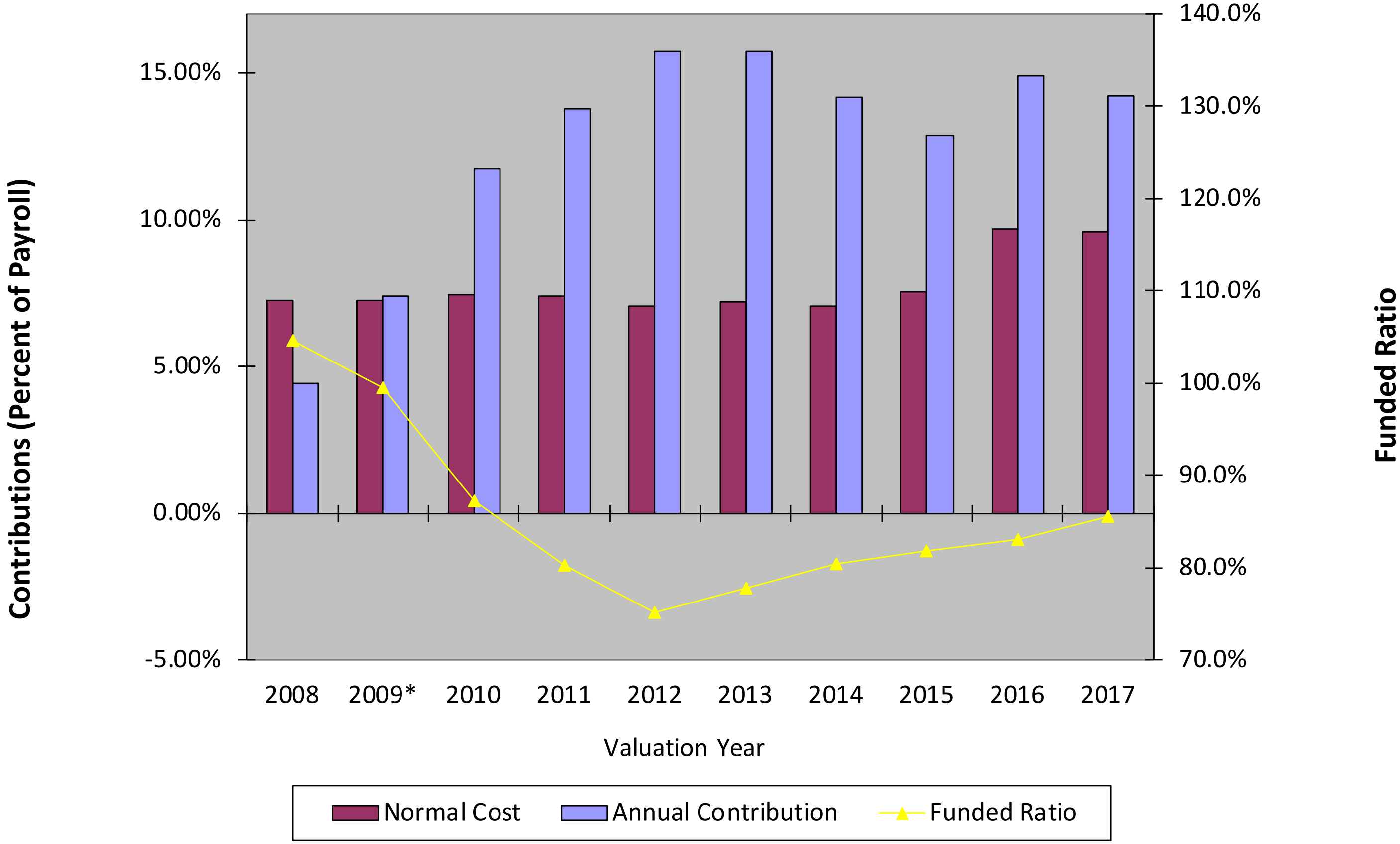
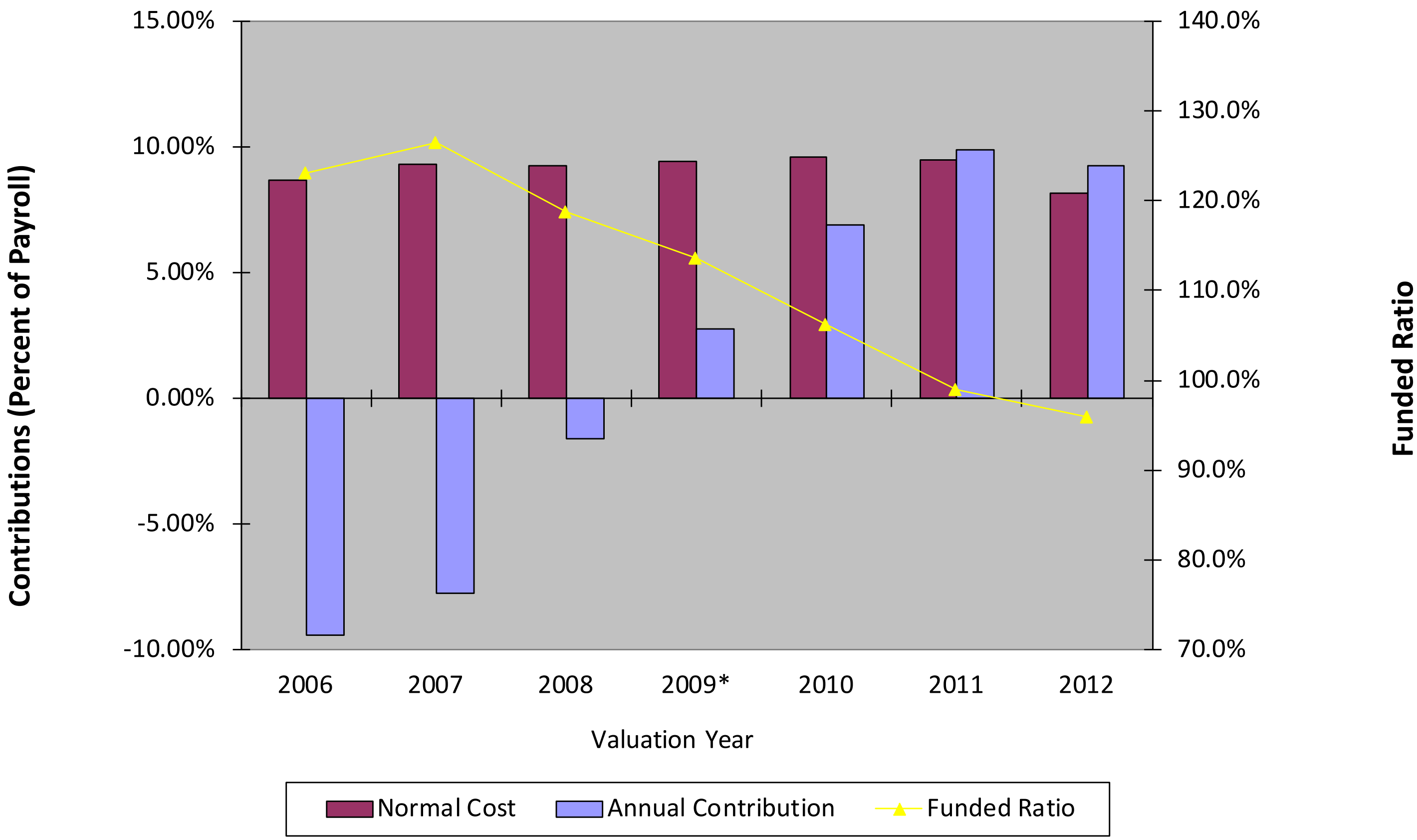
Historical Information – DWS



** 2009 valuation implemented a 1-year lag – results used for FY 2010 and FY 2011.*

Historical Information – Library



** 2009 valuation implemented a 1-year lag – results used for FY 2010 and FY 2011.*

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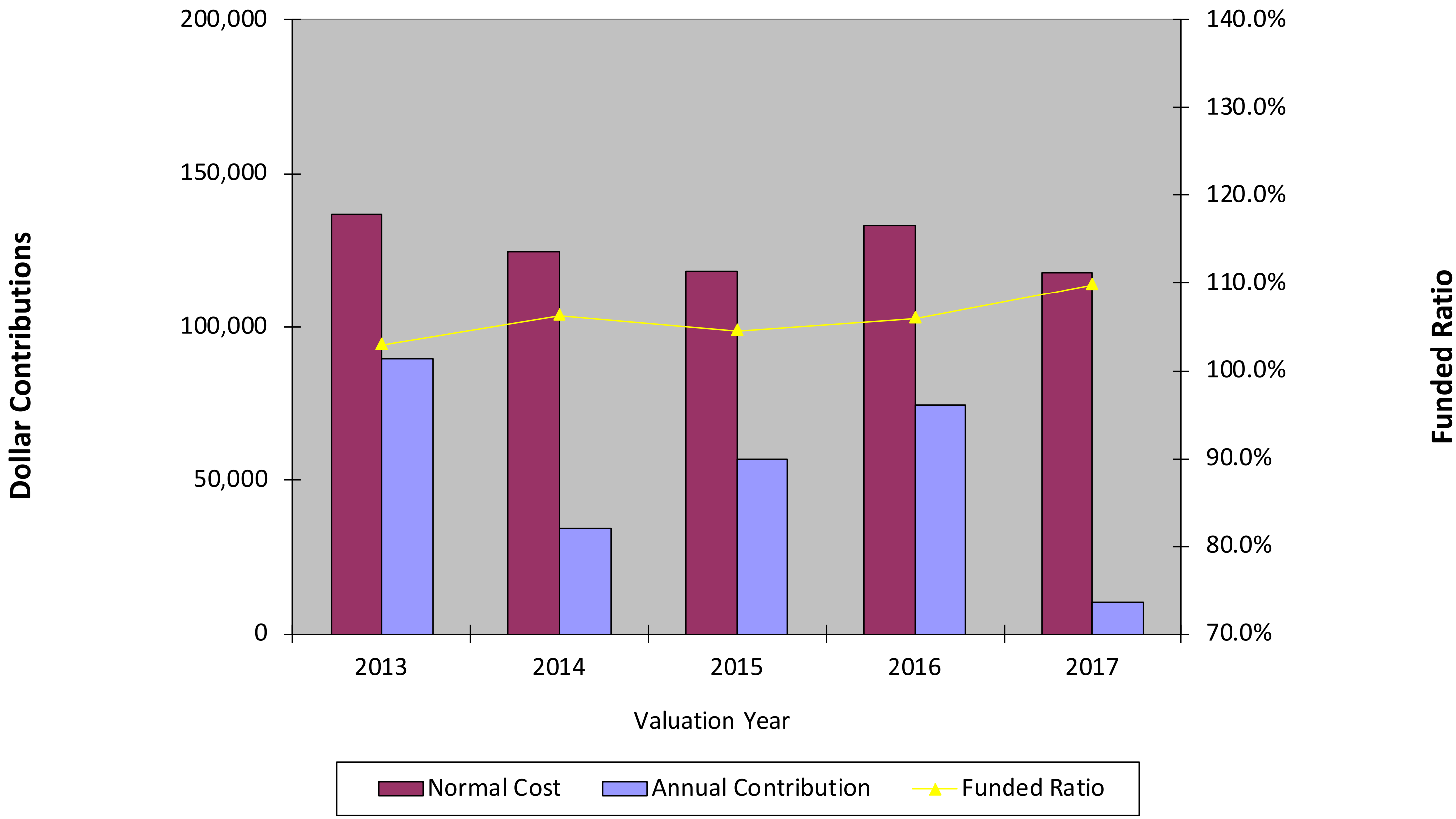
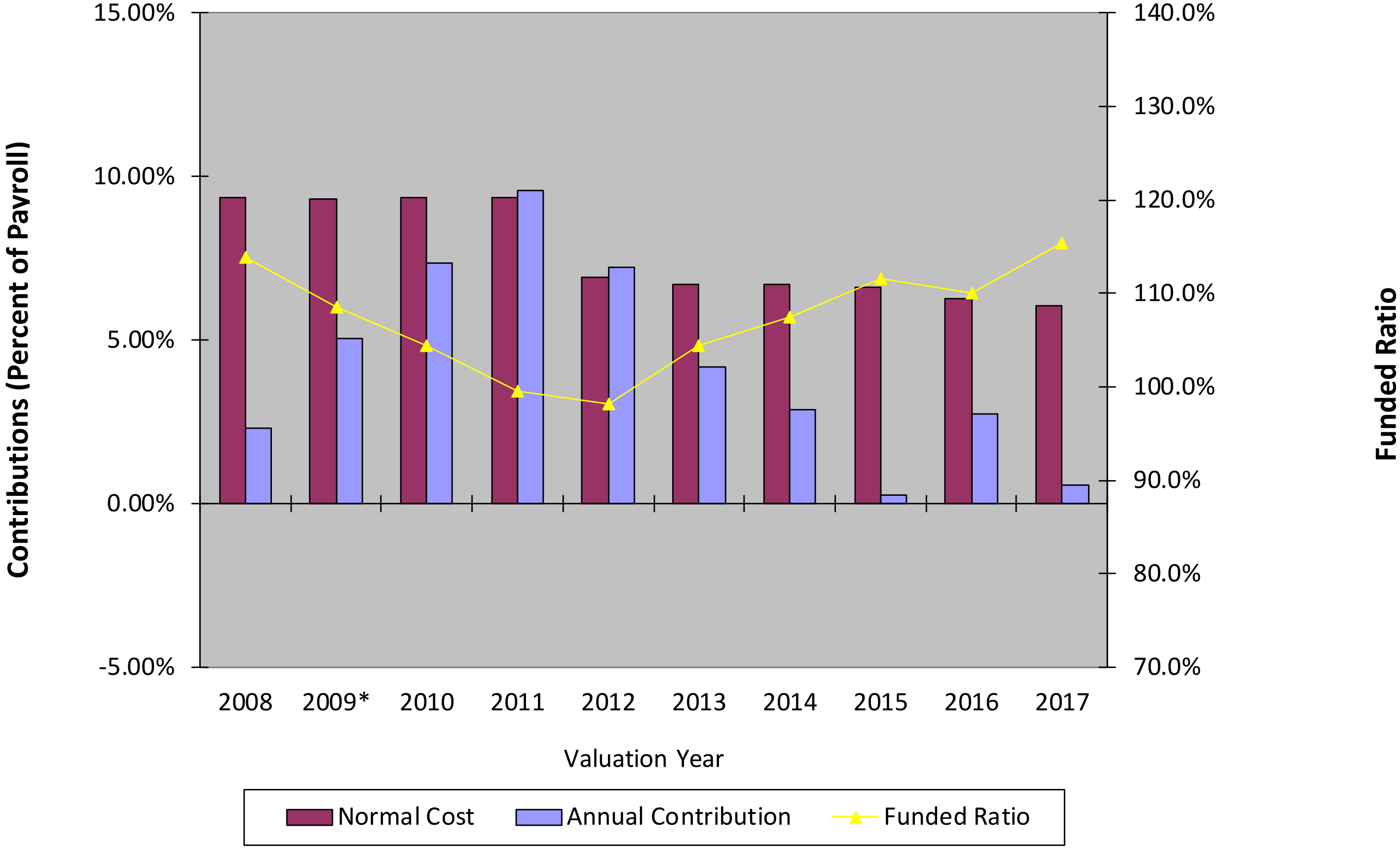
Historical Information – Library (Concluded)



2013 valuation reflects closure of plan to new hires – contribution expressed as level dollar amount.

Historical Information – Medical Care Facility



** 2009 valuation implemented a 1-year lag – results used for FY 2010 and FY 2011.*

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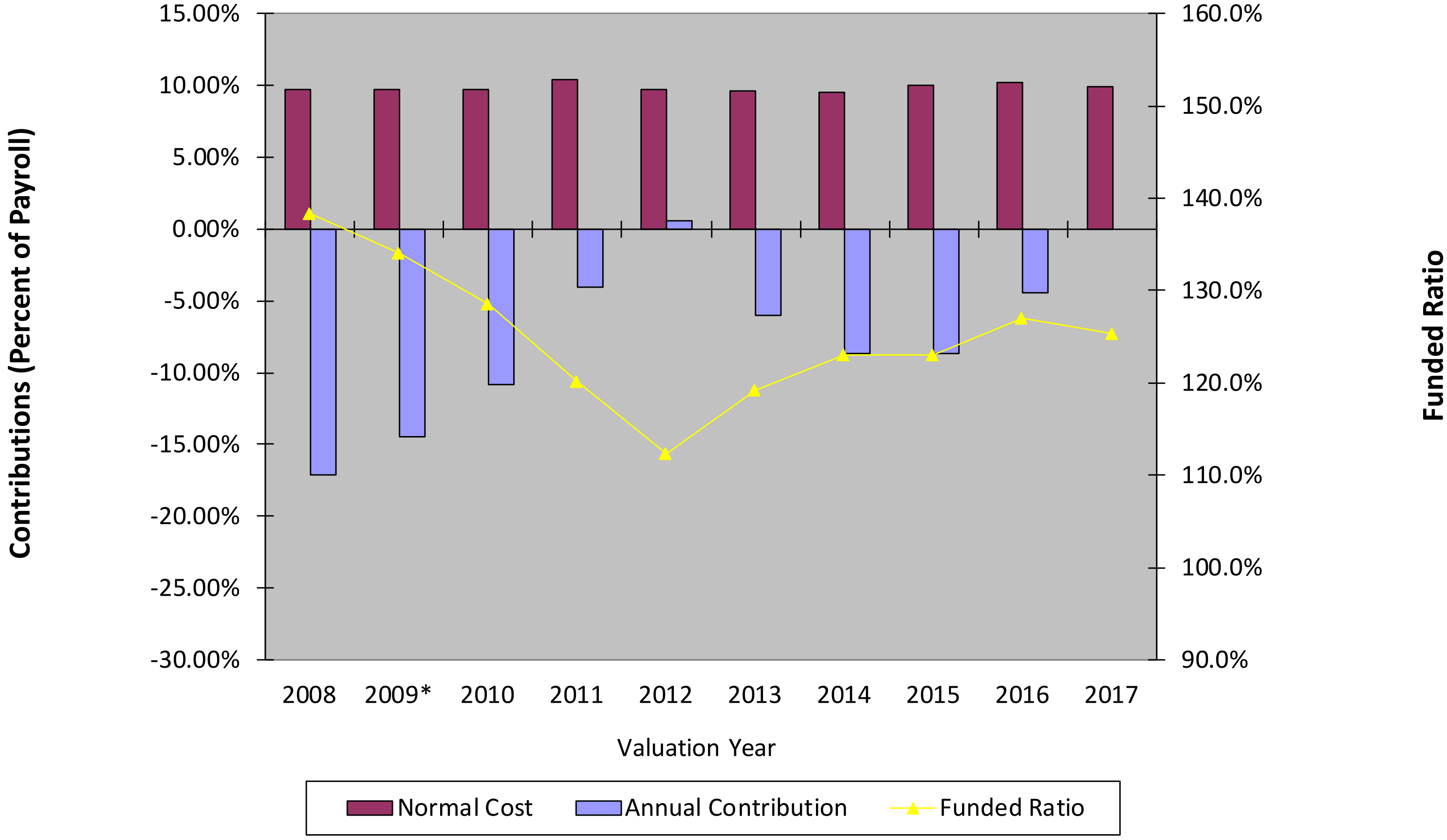
Historical Information – Sheriff's Department



** 2009 valuation implemented a 1-year lag – results used for FY 2010 and FY 2011.*

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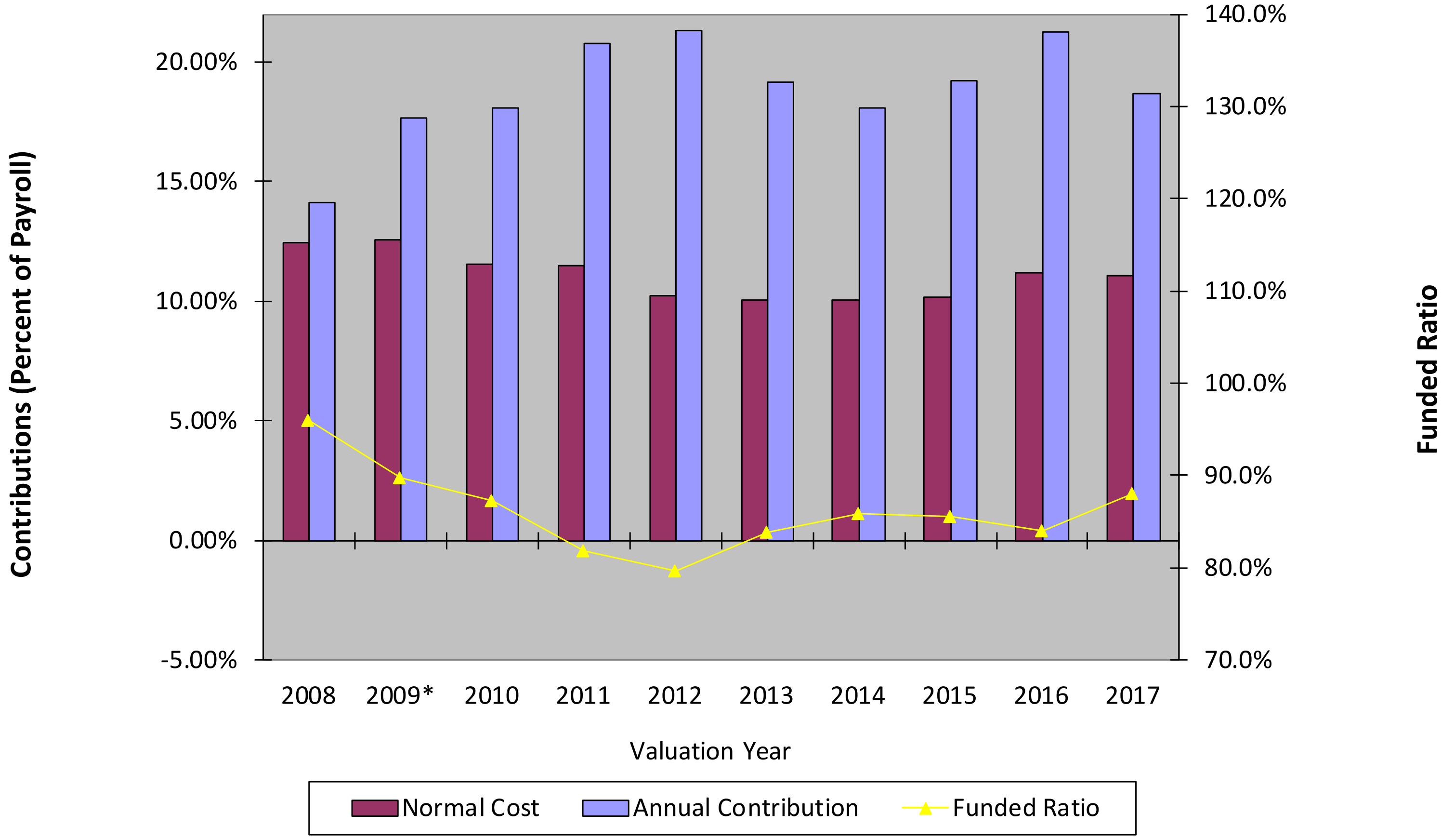
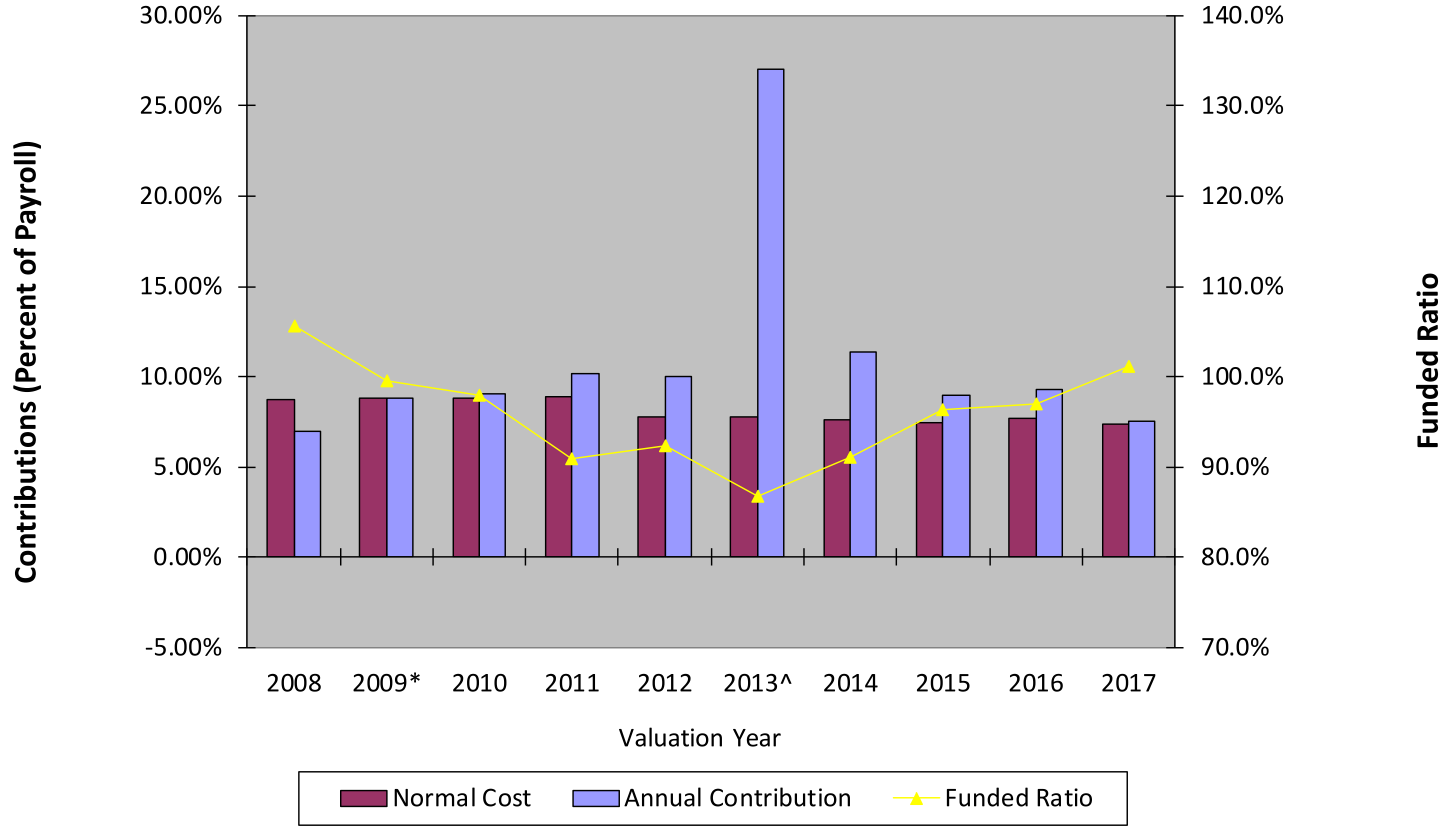
Historical Information – Road Commission



** 2009 valuation implemented a 1-year lag – results used for FY 2010 and FY 2011.*

Historical Information – BABH



** 2009 valuation implemented a 1-year lag – results used for FY 2010 and FY 2011.*
^ 2013 valuation reflected an advanced payment of the unfunded ERIP liability.

Disclaimers

- This presentation is one of many documents comprising the December 31, 2017 actuarial valuations of the Bay County Employees' Retirement System. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
- Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

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Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- James D. Anderson and Shana M. Neeson are independent of the plan sponsor, 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.

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