



***North Dakota Public Employees
Retirement System***

*GASB 45 Actuarial Valuation
As of July 1, 2013*

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June 12, 2014

Sparb Collins
North Dakota Public Employees Retirement System
400 East Broadway Suite 505
Bismarck, ND 58502

This report summarizes the GASB actuarial valuation for the North Dakota Public Employees Retirement System (ND PERS) as of July 1, 2013. To the best of our knowledge, the report presents a fair position of the funded status of the plan in accordance with GASB Statement No. 45 (Accounting and Financial Reporting by Employers for Post-Employment Benefits Other Than Pensions). The valuation is also based upon our understanding of the plan provisions as summarized within the report.

The information presented herein is based on the information furnished to us by the Plan Sponsor that has been reconciled and reviewed for reasonableness. We are not aware of any material inadequacy in employee census provided by the Plan Sponsor. We have not audited the information at the source, and therefore do not accept responsibility for the accuracy or the completeness of the data on which the information is based.

The actuarial assumptions were selected by the Plan Sponsor with the concurrence of Nyhart. In our opinion, the actuarial assumptions are individually reasonable and in combination represent our estimate of anticipated experience of the Plan. All computations have been made in accordance with generally accepted actuarial principles and practice.

To our knowledge, there have been no significant events prior to the current year's measurement date or as of the date of this report that could materially affect the results contained herein.

Neither Nyhart nor any of its employees has any relationship with the plan or its sponsor that could impair or appear to impair the objectivity of this report.

Should you have any questions please do not hesitate to contact us.



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Valuation Actuary

Substantive plan provision has changed since the last valuation as of July 1, 2011 as described below.

With the exception of former Legislators, only employees who retire prior to July 1, 2015 are eligible for continuation of health coverage beyond COBRA prior to Medicare eligibility. All employees are allowed to enroll in ND PERS health plans once they are eligible for Medicare (including those who retire on/after July 1, 2015). There is no retirement date cut-off for former Legislators. They continue to be eligible for continuation of health coverage beyond COBRA prior to Medicare eligibility if they have continuous coverage under the health plan.

Several actuarial assumption have been updated since the last actuarial valuation as of July 1, 2011:

1. Age difference between husbands and wives have been updated to be consistent with the assumption used in the North Dakota Retiree Health Insurance Credit Fund actuarial valuation as of July 1, 2013. Comparison of prior and current assumptions are as shown below:
 - a. Prior valuation:
 - i. Main System members – husbands are assumed to be four years older than wives
 - ii. Judges and Highway Patrol members – husbands are assumed to be three years older than wives
 - iii. All other members – husbands are assumed to be five years older than wives.
 - b. Current valuation – husbands are assumed to be three years older than wives for all retirement system members

This change caused a decrease in liabilities.

2. Retiree contribution increase assumption has been updated from an annual increase according to the same health care trend rates applicable to the per capita costs to an every other year increase that is based on the health care trend rates applicable to the per capita costs. This change caused an increase in liabilities. Comparison of prior and current retiree contributions trend increase is as shown below.

FYE	Prior Expected	Current Actual	FYE	Prior Expected	Current Actual
2012	9.0%	N/A	2017	7.0%	0.0%
2013	8.5%	N/A	2018	6.5%	14.0%
2014	8.0%	0.0%	2019	6.0%	0.0%
2015	7.5%	16.1%	2020	6.0%	12.4%*

* On/after FYE June 30, 2019, the retiree contributions are assumed to increase by 12.4% biennially.

3. Amortization method has been changed from level percentage of pay to a level dollar since retiree health benefits are only offered to a closed group of employees (those who retire prior to July 1, 2015).

Summary of Results

Presented below is the summary of GASB 45 results as of July 1, 2013 and 2014 compared to the last full valuation as shown in the GASB 45 actuarial valuation report as of July 1, 2011.

	<i>As of July 1, 2011</i>		<i>As of July 1, 2013</i>		<i>As of July 1, 2014</i>
Actuarial Accrued Liability	\$	65,195,904	\$	33,849,724	\$ 29,912,433
Actuarial Value of Assets	\$	0	\$	0	\$ 0
Unfunded Actuarial Accrued Liability	\$	65,195,904	\$	33,849,724	\$ 29,912,433
Funded Ratio		0.0%		0.0%	0.0%

	<i>FY 2012/13¹</i>		<i>FY 2013/14</i>		<i>FY 2014/15</i>
Annual Required Contribution	\$	8,212,947	\$	3,053,866	\$ 2,848,396
Annual OPEB Cost	\$	8,341,819	\$	2,552,933	\$ 2,395,466
Annual Employer Contribution	\$	3,314,055	\$	6,080,368	\$ 9,403,467

	<i>As of June 30, 2013</i>		<i>As of June 30, 2014</i>		<i>As of June 30, 2015</i>
Net OPEB Obligation	\$	22,292,533	\$	18,765,098	\$ 11,757,097

	<i>As of July 1, 2011</i>		<i>As of July 1, 2013</i>	
Total Active Participants		28,115		29,528
Total Retiree Participants		4,362		4,921

The active participants' number above may include active employees who currently have no health care coverage. Refer to Summary of Participants section for an accurate breakdown of active employees with and without coverage.

¹ As shown in the North Dakota PERS July 1, 2011 actuarial valuation report of retiree health plans.

Below is a breakdown of total GASB 45 liabilities allocated to past, current, and future service as of July 1, 2013 and 2014 compared to the last full valuation.

	<i>As of July 1, 2011</i>	<i>As of July 1, 2013</i>	<i>As of July 1, 2014</i>
Present Value of Future Benefits	\$ 122,141,461	\$ 34,421,863	\$ 30,513,179
Active Employees	118,024,917	21,912,289	20,849,053
Retired Employees	4,116,544	12,509,574	9,664,126
Actuarial Accrued Liability	\$ 65,195,904	\$ 33,849,724	\$ 29,912,433
Active Employees	61,079,360	21,340,150	20,248,307
Retired Employees	4,116,544	12,509,574	9,664,126
Normal Cost	\$ 4,820,407	\$ 572,139	\$ 600,746
Future Normal Cost	\$ 52,125,150	\$ 0	\$ 0

Present Value of Future Benefits (PVFB) is the amount needed as of July 1, 2013 and 2014 to fully fund ND PERS retiree health care subsidies for existing and future retirees and their dependents assuming all actuarial assumptions are met.

Actuarial Accrued Liability is the portion of PVFB considered to be accrued or earned as of July 1, 2013 and 2014. This amount is a required disclosure in the Required Supplementary Information section.

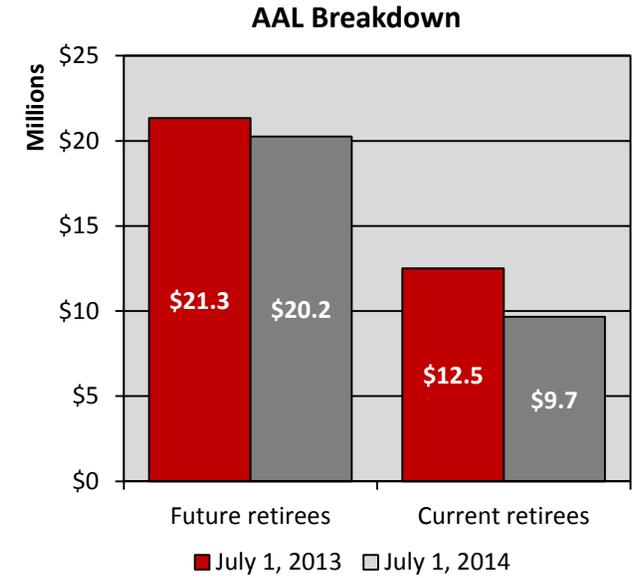
Normal Cost is the portion of the total liability amount that is attributed and accrued for current year's active employee service by the actuarial cost method.

Future Normal Cost is the portion of the total liability amount that is attributed to the future employee service by the actuarial cost method.

Executive Summary

Below is a breakdown of total GASB 45 Actuarial Accrued Liability (AAL) allocated to pre and post Medicare eligibility. The liability shown below includes explicit (if any) and implicit subsidies. Refer to the Substantive Plan Provisions section for complete information on the Plan Sponsor’s GASB subsidies.

Actuarial Accrued Liability (AAL)	As of July 1, 2011	As of July 1, 2013	As of July 1, 2014
Active Pre-Medicare	\$ 61,079,360	\$ 21,340,150	\$ 20,248,307
Active Post-Medicare	0	0	0
Total Active AAL	\$ 61,079,360	\$ 21,340,150	\$ 20,248,307
Retirees Pre-Medicare	\$ 4,116,544	\$ 12,509,574	\$ 9,664,126
Retirees Post-Medicare	0	0	0
Total Retirees AAL	\$ 4,116,544	\$ 12,509,574	\$ 9,664,126
Total AAL	\$ 65,195,904	\$ 33,849,724	\$ 29,912,433

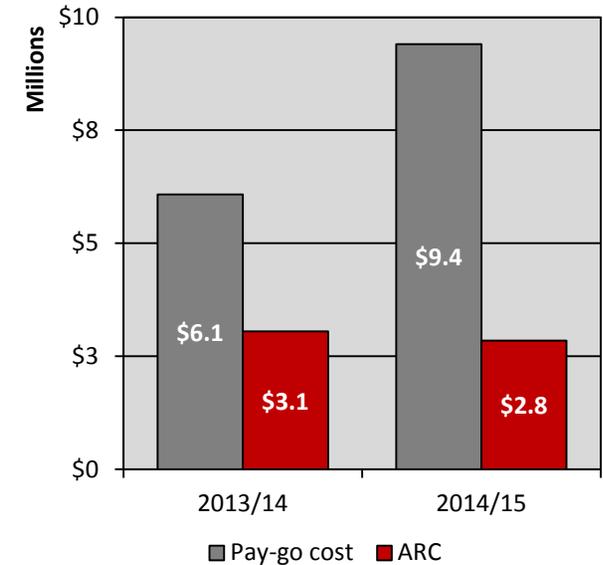


Development of Annual Required Contribution (ARC)

Required Supplementary Information	FY 2012/13	FY 2013/14	FY 2014/15
Actuarial Accrued Liability as of beginning of year	\$ 70,901,678 ²	\$ 33,849,724	\$ 29,912,433
Actuarial Value of Assets as of beginning of year	0	0	0
Unfunded Actuarial Accrued Liability (UAAL)	\$ 70,901,678	\$ 33,849,724	\$ 29,912,433
Covered payroll	\$ N/A	\$ N/A	N/A
UAAL as a % of covered payroll	N/A	N/A	N/A

Annual Required Contribution	FY 2012/13	FY 2013/14	FY 2014/15
Normal cost as of beginning of year	\$ 4,820,407	\$ 572,139	\$ 600,746
Amortization of the UAAL	3,001,447	2,336,305	2,112,012
Total normal cost and amortization payment	\$ 7,821,854	\$ 2,908,444	\$ 2,712,758
Interest to end of year	391,093	145,422	135,638
Total Annual Required Contribution (ARC)	\$ 8,212,947	\$ 3,053,866	\$ 2,848,396

Cash vs Accrual Accounting



Annual Required Contribution (ARC) is the annual expense recorded in the income statement under GASB 45 accrual accounting. It replaces the cash basis method of accounting recognition with an accrual method.

² Based on July 1, 2011 Actuarial Accrued Liability actuarially projected to July 1, 2012 on a no gain/loss basis.

Development of Annual OPEB Cost and Net OPEB Obligation

Annual employer contribution for pay-go costs are estimated for 2012/13, 2013/14, and 2014/15.

Net OPEB Obligation (NOO)	FY 2012/13		FY 2013/14		FY 2014/15	
ARC as of end of year	\$	8,212,947	\$	3,053,866	\$	2,848,396
Interest on NOO to end of year		863,238		1,114,627		938,255
NOO amortization adjustment to the ARC		(734,366)		(1,615,560)		(1,391,185)
Annual OPEB cost	\$	8,341,819	\$	2,552,933	\$	2,395,466
Annual employer contribution for pay-go cost		(3,314,055)		(6,080,368)		(9,403,467)
Annual employer contribution for pre-funding		0		0		0
Change in NOO	\$	5,027,764	\$	(3,527,435)	\$	(7,008,001)
NOO as of beginning of year		17,264,769		22,292,533		18,765,098
NOO as of end of year	\$	22,292,533	\$	18,765,098	\$	11,757,097

Pay-as-you-go Cost is the expected total employer cash cost for the coming period based on all explicit and implicit subsidies. It is also the amount recognized as expense on the Income Statement under pay-as-you-go accounting.

Net OPEB Obligation is the cumulative difference between the annual OPEB cost and employer contributions. This obligation will be created if cash contributions are less than the current year expense under GASB 45 accrual rules.

The net obligation is recorded as a liability on the employer's balance sheet which will reduce the net fund balance.

The value of implicit subsidies is considered as part of cash contributions for the current period. Other cash expenditures that meet certain conditions are also considered as contributions for GASB 45 purposes.

Summary of GASB 45 Financial Results

Presented below is the summary of GASB 45 results for the fiscal year ending June 30, 2014 and prior fiscal years as shown in the State of North Dakota Notes to Financial Statements.

Schedule of Funding Progress

<i>As of</i>	<i>Actuarial Accrued Liability (AAL)</i>	<i>Actuarial Value of Assets (AVA)</i>	<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	<i>Funded Ratio</i>	<i>Covered Payroll</i>	<i>UAAL as % of Covered Payroll</i>
	<i>A</i>	<i>B</i>	<i>C = A - B</i>	<i>D = B / A</i>	<i>E</i>	<i>F = C / E</i>
July 1, 2013	\$ 33,849,724	\$ -	\$ 33,849,724	0.0%	\$ N/A	N/A
July 1, 2012	\$ 70,901,678	\$ -	\$ 70,901,678	0.0%	\$ N/A	N/A
July 1, 2011	\$ 65,195,904	\$ -	\$ 65,195,904	0.0%	\$ N/A	N/A

Schedule of Employer Contributions

<i>FYE</i>	<i>Employer Contributions</i>	<i>Annual Required Contribution (ARC)</i>	<i>% of ARC Contributed</i>
	<i>A</i>	<i>B</i>	<i>C = A / B</i>
June 30, 2014	\$ 6,080,368	\$ 3,053,866	199.1%
June 30, 2013	\$ 3,314,055	\$ 8,212,947	40.4%
June 30, 2012	\$ 2,552,416	\$ 7,854,425	32.5%

Historical Annual OPEB Cost

<i>As of</i>	<i>Annual OPEB Cost</i>	<i>% of Annual OPEB Cost Contributed</i>	<i>Net OPEB Obligation</i>
June 30, 2014	\$ 2,552,933	238.2%	\$ 18,765,098
June 30, 2013	\$ 8,341,819	39.7%	\$ 22,292,533
June 30, 2012	\$ 7,961,185	32.1%	\$ 17,264,769

Reconciliation of Actuarial Accrued Liability

The Actuarial Accrued Liability (AAL) is expected to change on an annual basis as a result of expected and unexpected events. Under normal circumstances, it is generally expected to have a net increase each year. Below is a list of the most common events affecting the AAL and whether they increase or decrease the liability.

Expected Events

- Increases in AAL due to additional benefit accruals as employees continue to earn service each year
- Increases in AAL due to interest as the employees and retirees age
- Decreases in AAL due to benefit payments

Unexpected Events

- Increases in AAL when actual premium rates increase more than expected. A liability decrease occurs when premium rates increase less than expected.
- Increases in AAL when more new retirements occur than expected or fewer terminations occur than anticipated. Liability decreases occur when the opposite outcomes happen.
- Increases or decreases in AAL depending on whether benefit provisions are improved or reduced.

	<i>FY 2012/13</i>	<i>FY 2013/14³</i>
Actuarial Accrued Liability as of beginning of year	\$ 70,901,678 ⁴	\$ 33,849,724
Normal cost as of beginning of year	4,820,407	572,139
Expected benefit payments during the year	(3,314,055)	(6,080,368)
Interest adjustment to end of year	3,704,263	1,570,938
Expected Actuarial Accrued Liability as of end of year	\$ 76,112,293	\$ 29,912,433
Actuarial (gain) / loss due to experience	13,381,037	0
Actuarial (gain) / loss due to provisions changes	(55,757,690)	0
Actuarial (gain) / loss due to assumptions changes	114,084	0
Actual Actuarial Accrued Liability as of end of year	\$ 33,849,724	\$ 29,912,433

Reconciliation of AAL shows what the actuary expects the actuarial accrued liability to be at the beginning of the following fiscal year based on current assumptions and plan provisions. The expected end of year AAL will change as actual plan experience varies from assumptions. Generally, the AAL is expected to have a net increase each year.

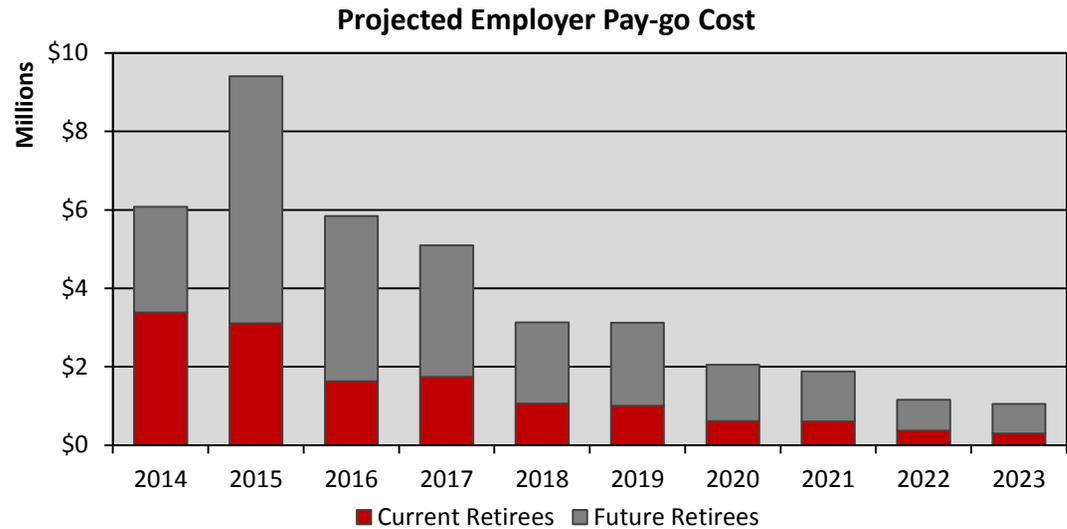
³ Actuarial Accrued Liability (AAL) as of beginning of year was actuarially projected to the end of the fiscal year on a “no gain/loss” basis.

⁴ Based on July 1, 2011 AAL projected to July 1, 2012 on a “no gain/loss” basis.

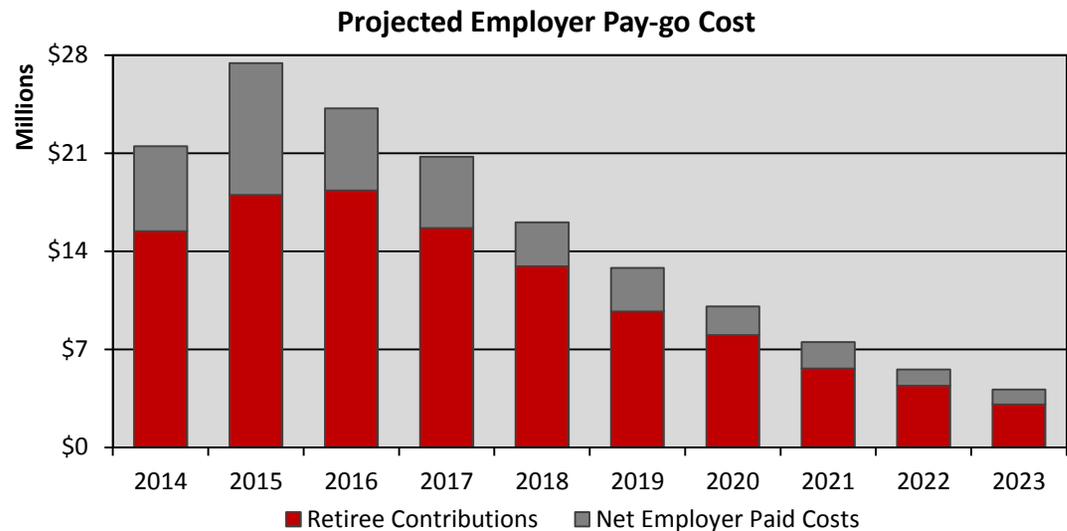
Employer Contribution Cash Flow Projections

The below projections show the actuarially estimated employer-paid contributions for retiree health benefits for the next ten years. Results are shown separately for current /future retirees and gross claim costs/retiree contributions. These projections include explicit and implicit subsidies.

FYE	Current Retirees	Future Retirees ⁵	Total
2014	\$ 3,387,277	\$ 2,693,091	\$ 6,080,368
2015	\$ 3,105,675	\$ 6,297,792	\$ 9,403,467
2016	\$ 1,628,111	\$ 4,216,386	\$ 5,844,497
2017	\$ 1,746,783	\$ 3,347,996	\$ 5,094,779
2018	\$ 1,064,892	\$ 2,064,455	\$ 3,129,347
2019	\$ 1,008,544	\$ 2,115,110	\$ 3,123,654
2020	\$ 612,650	\$ 1,436,100	\$ 2,048,750
2021	\$ 611,377	\$ 1,270,986	\$ 1,882,363
2022	\$ 370,369	\$ 791,599	\$ 1,161,968
2023	\$ 302,930	\$ 753,011	\$ 1,055,941



FYE	Estimated Claims Costs	Retiree Contributions	Net Employer Paid Costs
2014	\$ 21,500,130	\$ 15,419,762	\$ 6,080,368
2015	\$ 27,422,878	\$ 18,019,411	\$ 9,403,467
2016	\$ 24,192,608	\$ 18,348,111	\$ 5,844,497
2017	\$ 20,740,952	\$ 15,646,173	\$ 5,094,779
2018	\$ 16,061,983	\$ 12,932,636	\$ 3,129,347
2019	\$ 12,819,991	\$ 9,696,337	\$ 3,123,654
2020	\$ 10,059,756	\$ 8,011,006	\$ 2,048,750
2021	\$ 7,524,542	\$ 5,642,179	\$ 1,882,363
2022	\$ 5,572,195	\$ 4,410,227	\$ 1,161,968
2023	\$ 4,128,474	\$ 3,072,533	\$ 1,055,941



⁵ Projections for future retirees do not take into account future new hires.

Eligibility

Former Legislators are eligible for continuation of health coverage beyond COBRA prior to Medicare eligibility if they have continuous coverage under the health plan. For all other employees, only those retiring prior to July 1, 2015 are eligible for continuation of health coverage beyond COBRA prior to Medicare eligibility. All employees are allowed to enroll in ND PERS health plans once they are eligible for Medicare (including those who retire on/after July 1, 2015).

Eligibility requirements for retiree health benefits are as follows:

1. Main System (ND PERS) / Judges – earlier of:
 - a. Age 55 and vested (early retirement)
 - b. Rule of 85 (normal retirement)
 - c. Age 65 (normal retirement)
2. National Guard / Law Enforcement – earlier of:
 - a. Age 50 and vested (early retirement)
 - b. Rule of 85 (normal retirement) – for Law Enforcement only
 - c. Age 55 with 3 years of service (normal retirement)
3. Highway Patrol (NDHPRS) – earlier of:
 - a. Age 50 and vested (early retirement)
 - b. Rule of 80 (normal retirement)
 - c. Age 55 (normal retirement)

Additionally, the following members are also eligible for retiree health benefits:

- Those receiving retirement benefits from North Dakota Teacher’s Fund for Retirement (TFFR) or TIAA-CREF (North Dakota University System only).
- Certain political subdivisions members if enrolled in the Dakota Plan as an active employee and receiving a “retirement allowance” from NDPERS Board approved employer sponsored retirement plan.

Vesting requirements for the different retirement systems are as follows:

- 3 years of service for Main System, National Guard, and Law Enforcement
- 5 years of service for Judges
- 10 years of service for Highway Patrol

Deferred vested employees are eligible to receive retiree health benefits once they start receiving their pension benefits.

Spouse Benefit

Retiree health coverage continues to surviving spouse upon death of retirees or active employees eligible to retire provided they are receiving a beneficiary benefit from the retirement plans. Surviving spouses of active employees who are not eligible to retire are eligible for COBRA benefits only.

Explicit Subsidy

None

Retiree Cost Sharing

Retirees contribute 102% of the active rates during COBRA period (called COBRA rates below) and 150% of the active rates afterwards (called retiree rates below). Monthly COBRA and retiree rates effective on January 1, 2014 are as shown below.

COBRA Rates	1/2014 – 6/2015		1/2014 – 6/2014		7/2014 – 6/2015	
	Single	Family	Single	Family	Single	Family
State Agencies PPO	\$ 482.18	\$ 1,162.12	N/A	N/A	N/A	N/A
State Agencies HDHP	\$ 420.24	\$ 1,012.18	N/A	N/A	N/A	N/A
Political Subdivisions PPO	Single	Family	Single	Family	Single	Family
Enrolled < 7/1/2013 Grandfathered	\$ 515.16	\$ 1,244.62	N/A	N/A	N/A	N/A
Enrolled < 7/1/2013 Non-Grandfathered	\$ 522.98	\$ 1,263.54	N/A	N/A	N/A	N/A
Enrolled ≥ 7/1/2013 Grandfathered	N/A	N/A	\$ 511.02	\$ 1,235.02	\$ 539.86	\$ 1,304.98
Enrolled ≥ 7/1/2013 Non-Grandfathered	N/A	N/A	\$ 522.38	\$ 1,262.46	\$ 551.88	\$ 1,334.00
Political Subdivisions HDHP	Single	Family	Single	Family	Single	Family
Enrolled < 7/1/2013 Non-Grandfathered	\$ 461.66	\$ 1,115.40	N/A	N/A	N/A	N/A
Enrolled ≥ 7/1/2013 Non-Grandfathered	N/A	N/A	\$ 449.00	\$ 1,084.68	\$ 474.34	\$ 1,146.12
Retiree Rates	1/2014 – 6/2015		1/2014 – 6/2014		7/2014 – 6/2015	
	Retiree	Ret/Sp	Retiree	Ret/Sp	Retiree	Ret/Sp
Non-Medicare	\$ 709.10	\$ 1,418.20	N/A	N/A	N/A	N/A
Medicare retirees enrolled < 7/1/2013	\$ 221.24	\$ 439.72	N/A	N/A	N/A	N/A
Medicare retirees enrolled ≥ 7/1/2013	N/A	N/A	\$ 222.16	\$ 441.50	\$ 227.00	\$ 451.22

Medical Benefit

Same benefit options are available to retirees as active employees. The health plans are fully-insured and partially experience rated. Monthly active premium rates effective on January 1, 2014 are as shown below.

Active Rates	With Wellness		Without Wellness	
	Single	Family	Single	Family
State Agencies PPO and HDHP	\$ 981.68	\$ 981.68	\$ 991.50	\$ 991.50
Political Subdivision enrolled < 7/1/2013				
Rates effective 1/2014 – 6/2015	Single	Family	Single	Family
Grandfathered PPO	\$ 505.06	\$ 1,220.22	\$ 510.10	\$ 1,232.42
Non-Grandfathered PPO	\$ 512.74	\$ 1,238.76	\$ 517.26	\$ 1,249.70
Non-Grandfathered HDHP	\$ 452.62	\$ 1,093.54	\$ 457.14	\$ 1,104.48
Political Subdivision enrolled ≥ 7/1/2013				
Rates effective 1/2014 – 6/2014	Single	Family	Single	Family
Grandfathered PPO	\$ 501.00	\$ 1,210.80	\$ 506.00	\$ 1,222.90
Non-Grandfathered PPO	\$ 512.14	\$ 1,237.72	\$ 516.54	\$ 1,248.34
Non-Grandfathered HDHP	\$ 440.20	\$ 1,063.42	\$ 444.60	\$ 1,074.04
Rates effective 7/2014 – 6/2015	Single	Family	Single	Family
Grandfathered PPO	\$ 529.28	\$ 1,279.40	\$ 534.56	\$ 1,292.18
Non-Grandfathered PPO	\$ 541.06	\$ 1,307.84	\$ 545.70	\$ 1,319.08
Non-Grandfathered HDHP	\$ 465.04	\$ 1,123.66	\$ 469.68	\$ 1,134.90

Disability Benefit

All future disabled employees are assumed to be eligible for Medicare. No liabilities have been valued for them.

Post-Medicare Liability

There is no post-Medicare GASB liabilities as retirees pay the full cost of coverage.

The actuarial assumptions used in this report represent a reasonable long-term expectation of future OPEB outcomes. As national economic and North Dakota PERS experience change over time, the assumptions will be tested for ongoing reasonableness and, if necessary, updated.

There are changes to the actuarial methods and assumptions since the last GASB valuation, which was as of July 1, 2011. Refer to Actuary's Notes section for complete information on these changes. For the current year GASB valuation, we have also updated the per capita costs. We expect to update health care trend rates and per capita costs again in the next full GASB valuation, which will be as of July 1, 2015.

Measurement Date	July 1, 2013
Discount Rate	5.0%
Payroll Growth	4.5% per year
Inflation Rate	3.5% per year
Cost Method	Projected Unit Credit with linear proration to decrement
Amortization	Level dollar over a closed 30-year period beginning on July 1, 2007. The remaining amortization period as of July 1, 2013 is 24 years.
Census Data	<p>Census information was provided by ND PERS in March 2014. We have reviewed it for reasonableness and we have made the following assumptions:</p> <ul style="list-style-type: none"> • A hire date of age 36 or current age (whichever is earlier) is assumed for actives listed without a hire date. • Records in the data missing employee group designations (law enforcement, highway patrol, judges, etc.) are valued as "Main System."
Employer Funding Policy	Pay-as-you-go cash basis
Mortality	<p>Healthy retirees:</p> <ul style="list-style-type: none"> • NDHPRS: RP-2000 Combined Healthy Mortality Table set back one year for males and females • All others: RP-2000 Combined Healthy Mortality Table set back three years for males and females <p>Disabled retirees: RP-2000 Disabled Retiree Mortality Table set back one year for males (no set back for females)</p>

Turnover Rate

Assumption used to project terminations (voluntary and involuntary) prior to meeting minimum retirement eligibility for retiree health coverage. The rates represent the probability of termination in the next 12 months. The termination rates are based ND PERS actuarial valuation as of July 1, 2013.

Group A		Age			After 5 YOS			
YOS	<29	30 – 39	40+	Age	Group A/B	Group C*	Group D	
1	22%	16%	12%	20 – 24	8.8%	2.2%	2.5%	
2	18%	14%	10%	25 – 29	8.8%	2.2%	2.5%	
3	16%	12%	10%	30 – 34	5.5%	1.4%	2.5%	
4	14%	12%	8%	35 – 39	4.7%	1.2%	1.0%	
5	14%	11%	7%	40 – 44	3.9%	1.0%	1.0%	
				45 – 49	3.7%	0.9%	1.0%	
				50 – 54	3.4%	0.8%	1.0%	
				55 – 59	0.1%	0.0%	1.0%	
				60+	0.2%	0.1%	1.0%	

Group B		Age		
YOS	<29	30 – 39	40+	
1	25%	20%	17%	
2	23%	17%	15%	
3	20%	15%	12%	
4	17%	13%	10%	
5	15%	11%	7%	

Group D		Age		
YOS	<29	30 – 39	40+	
1	10%	10%	10%	
2 – 5	5%	5%	5%	

- Group A – Main System members
- Group B – National Guard and Law Enforcement members
- Group C – Judges
- Group D – Highway Patrol members

* These rates are applicable at all years of service.

Retirement Rate

The retirement rates are based ND PERS actuarial valuation as of July 1, 2013.

Age	Main System		Judges	National Guard / Law Enforcement
	Unreduced*	Reduced		
51 – 52	8%	0%	N/A	N/A
53 – 54	8%	0%	N/A	N/A
55	8%	2%	N/A	20%
56 – 59	10%	2%	N/A	20%
60	10%	4%	10%	20%
61	20%	10%	10%	20%
62	35%	20%	20%	20%
63	25%	15%	20%	20%
64	30%	10%	20%	50%
65	30%	N/A	50%	100%
66 – 69	20%	N/A	50%	100%
70 – 74	20%	N/A	100%	100%
75+	100%	N/A	100%	100%

* Age 65 or rule of 85

For Highway Patrol members, the retirement assumption is as follows:

- Early retirement (age 50 with 10 years of service) – 25%
- First year eligible for unreduced retirement (age 55 and 10 years of service or rule of 80) – 75%
- After first year eligibility for unreduced retirement – 100%

Disability

None

Health Care Coverage Election Rate

Active employees assumed retiree health care election rate based on North Dakota Retiree Health Insurance Credit Fund actuarial valuation as of July 1, 2013 are as follows:

Main System, National Guard and Law Enforcement		Judges and Highway Patrol	
YOS	Rate	YOS	Rate
<3	0%	<5	0%
3 – 4	30%	5 – 9	50%
5 – 9	50%	10 – 14	65%
10 – 14	65%	15 – 19	80%
15 – 19	80%	20 – 24	85%
20 – 24	85%	25+	90%
25+	90%		

100% of inactive employees who currently have coverage are assumed to continue coverage in the future.
0% of inactive employees who currently have no coverage are assumed to elect coverage in the future.

0% of deferred vested employees are assumed to elect coverage at retirement.

Spousal Coverage

Spousal coverage for current retirees is based on actual data.

Percentage of employees assumed to elect spousal coverage are as shown below:

	Male	Female
Main System, National Guard, and Law Enforcement	80%	65%
Judges	100%	100%
Highway Patrol	90%	90%

Husbands are assumed to be three years older than wives for all retirement system members.

Health Care Trend Rates

FYE	Trends
2014	8.0%
2015	7.5%
2016	7.0%
2017	6.5%
2018+	6.0%

The initial trend rate was based on a combination of employer history, national trend surveys, and professional judgment.

The ultimate trend rate was selected based on historical medical CPI information.

Retiree Contributions

Retiree contribution are assumed to increase according to the table below.

FYE	Trends	FYE	Trends
2014	0.0%	2017	14.0%
2015	16.1%	2018	0.0%
2016	0.0%	2019+	12.4%*

* Retiree contribution on or after FYE June 30, 2019 is assumed to increase 12.4% biennially.

Per Capita Costs

Annual per capita costs were calculated based on a weighted average of the 36-month ending December 31, 2013 claims experience projected to 2014/15 plan year plus administrative expenses, actuarially increased using health index factors and current enrollment. The costs are assumed to increase with health care trend rates. Sample monthly per capita costs are as shown below:

Age	Costs
40	\$ 420
45	\$ 489
50	\$ 570
55	\$ 684
60	\$ 824
64	\$ 964
65	N/A

The per capita costs represent the cost of coverage for a retiree-only population.

Actuarial standards require the recognition of higher inherent costs for a retired population versus an active population.

Age 65 Claims Cost	7/1/2011	7/1/2013	% increase
Per member	\$ 825.69	\$ 1,002.40	21.4%

Explicit Subsidy

The difference between (a) the premium rate and (b) the retiree contribution. Below is an example of the monthly explicit subsidies for a State Agency retiree enrolled in the PPO plan during and after the COBRA periods.

During COBRA Period	COBRA Rates	Retiree Contribution	Explicit Subsidy
	A	B	C = A – B
Retiree	\$ 482	\$ 482	\$ 0
Spouse	\$ 680	\$ 680	\$ 0

After COBRA Period	Retiree Rates	Retiree Contribution	Explicit Subsidy
	A	B	C = A – B
Retiree	\$ 709	\$ 709	\$ 0
Spouse	\$ 709	\$ 709	\$ 0

Implicit Subsidy

The difference between (a) the per capita cost and (b) the premium rate. Below is an example of the monthly implicit subsidies for a State Agency retiree age 60 with spouse of the same age during and after the COBRA periods.

During COBRA Period	Per Capita Cost	COBRA Rates	Implicit Subsidy
	A	B	C = A – B
Retiree	\$ 824	\$ 482	\$ 342
Spouse	\$ 824	\$ 680	\$ 144

After COBRA Period	Per Capita Cost	Retiree Rates	Implicit Subsidy
	A	B	C = A – B
Retiree	\$ 824	\$ 709	\$ 115
Spouse	\$ 824	\$ 709	\$ 115

All employers that utilize premium rates based on blended active/retiree claims experience will have an implicit subsidy. There is an exception for plans using a true community-rated premium rate.

GASB Subsidy Breakdown

Below is a breakdown of the GASB 45 monthly total cost for a State Agency retiree age 60 and his/her spouse of the same age enrolled in the PPO plan during and after the COBRA periods.

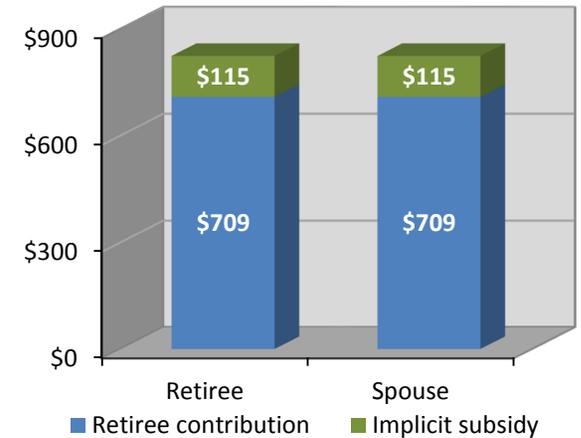
During COBRA	Retiree	Spouse
Retiree contribution	\$ 482	\$ 680
Explicit subsidy	\$ 0	\$ 0
Implicit subsidy	\$ 342	\$ 144
Total monthly cost	\$ 824	\$ 824

After COBRA	Retiree	Spouse
Retiree contribution	\$ 709	\$ 709
Explicit subsidy	\$ 0	\$ 0
Implicit subsidy	\$ 115	\$ 115
Total monthly cost	\$ 824	\$ 824

GASB Subsidy Breakdown (During COBRA)



GASB Subsidy Breakdown (After COBRA)



Summary of Plan Participants

<i>Actives with coverage⁶</i>	<i>Single</i>	<i>Family</i>	<i>Total</i>	<i>Avg. Age</i>	<i>Avg. Svc</i>	<i>Salary</i>
Dakota Plan under 65	5,830	14,369	20,199	45.2	10.6	N/A
Dakota Plan over 65	234	451	685	68.4	24.8	N/A
Total actives with coverage	6,064	14,820	20,884	45.9	11.1	N/A

<i>Actives without coverage</i>	<i>Total</i>	<i>Avg. Age</i>	<i>Avg. Svc</i>	<i>Salary</i>
Total actives without coverage	8,644	45.8	7.1	N/A

All active employees who currently have no coverage are assumed to elect coverage according to the health care coverage election assumption shown in the Actuarial Assumptions section. They have been included in the GASB valuation.

<i>Retirees with coverage⁵</i>	<i>Single</i>	<i>Family</i>	<i>Total</i>	<i>Avg. Age</i>
Dakota Plan under 65	605	414	1,019	61.6
Dakota Plan over 65	2,390	1,512	3,902	74.7
Total retirees with coverage	2,995	1,926	4,921	72.0

There is no liabilities for retirees over 65 as they pay the full cost of coverage.

⁶ Age determination is made as of July 1, 2013. For retirees, enrollment grouping is based on the retiree's age. If the retiree is under 65, the entire policy will be counted in the under 65 enrollment grouping, regardless of whether the spouse is over or under 65.

Active Age-Service Distribution

Age	Years of Service										Total
	< 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	1,030	232	5								1,267
25 to 29	1,551	872	241								2,664
30 to 34	1,462	752	672	138	2						3,026
35 to 39	896	1,062	575	405	113	1					3,052
40 to 44	511	746	1,175	417	336	105	6				3,296
45 to 49	395	590	708	1,037	317	323	138	9			3,517
50 to 54	420	616	652	755	1,128	370	377	203	17		4,538
55 to 59	328	476	583	487	600	1,165	310	242	160	4	4,355
60 to 64	123	272	361	313	278	446	717	143	118	34	2,805
65 to 69	31	73	119	87	60	44	110	184	13	11	732
70 & up	12	26	36	49	26	11	4	38	54	20	276
Total	6,759	5,717	5,127	3,688	2,860	2,465	1,662	819	362	69	29,528

APPENDIX

Comparison of Participant Demographic Information

The active participants' number below may include active employees who currently have no health care coverage. Refer to Summary of Participants section for an accurate breakdown of active employees with and without coverage.

	<i>As of July 1, 2011</i>	<i>As of July 1, 2013</i>
Active Participants	28,115	29,528
Retired Participants	4,362	4,921
Averages for Active		
Age	46.4	45.9
Service	N/A	9.9
Averages for Inactive		
Age	71.6	72.0

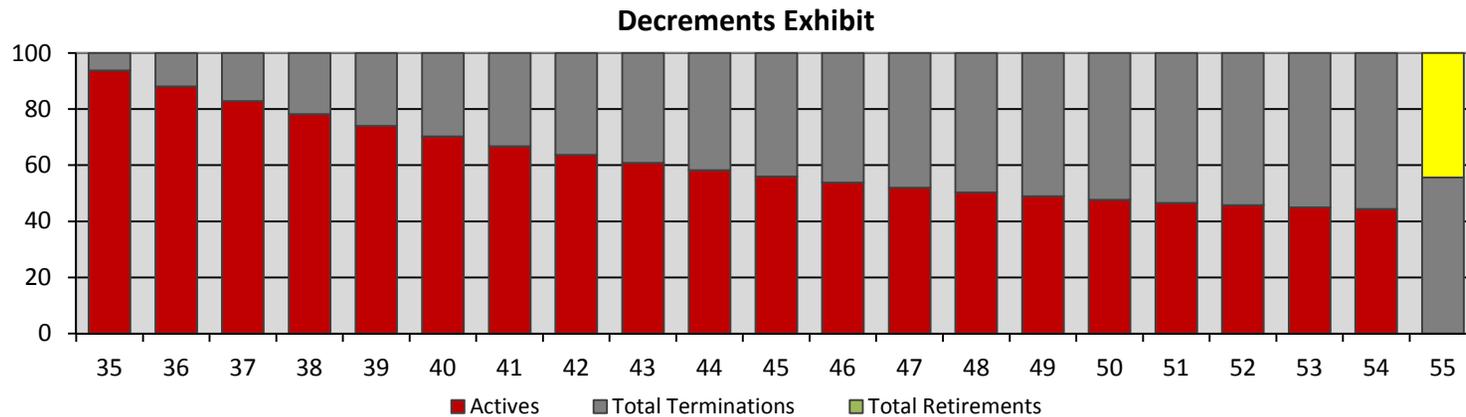
Glossary

Decrements Exhibit

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. Starting with 100 employees at age 35, the illustrated actuarial assumptions show that 44.430 employees out of the original 100 are expected to retire and could elect retiree health benefits at age 55.

Age	# Remaining Employees	# of Terminations per Year*	# of Retirements per Year*	Total Decrements
35	100.000	6.276	0.000	6.276
36	93.724	5.677	0.000	5.677
37	88.047	5.136	0.000	5.136
38	82.911	4.648	0.000	4.648
39	78.262	4.209	0.000	4.209
40	74.053	3.814	0.000	3.814
41	70.239	3.456	0.000	3.456
42	66.783	3.131	0.000	3.131
43	63.652	2.835	0.000	2.835
44	60.817	2.564	0.000	2.564
45	58.253	2.316	0.000	2.316

Age	# Remaining Employees	# of Terminations per Year*	# of Retirements per Year*	Total Decrements
46	55.938	2.085	0.000	2.085
47	53.853	1.866	0.000	1.866
48	51.987	1.656	0.000	1.656
49	50.331	1.452	0.000	1.452
50	48.880	1.253	0.000	1.253
51	47.627	1.060	0.000	1.060
52	46.567	0.877	0.000	0.877
53	45.690	0.707	0.000	0.707
54	44.983	0.553	0.000	0.553
55	44.430	0.000	44.430	44.430

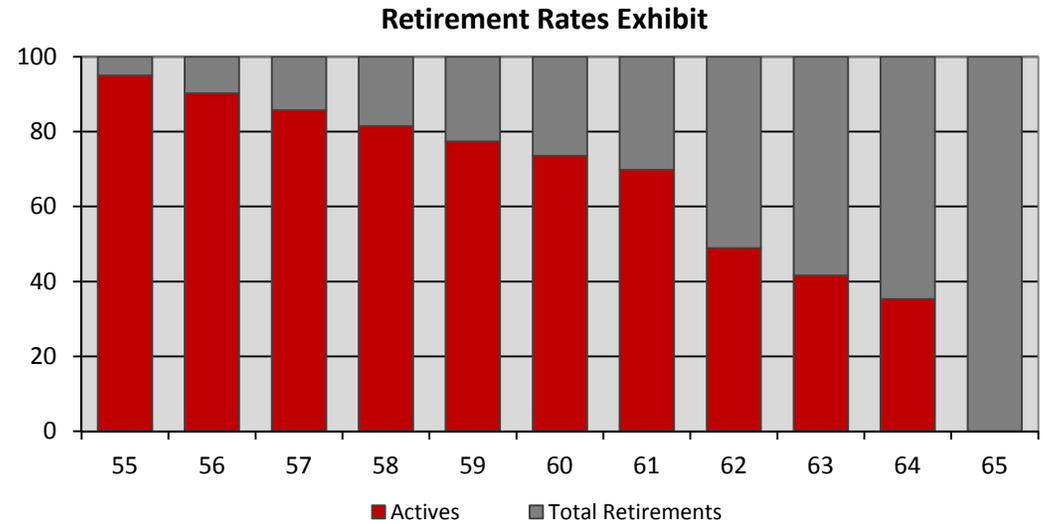


* The above rates are illustrative rates and are not used in our GASB calculations.

Retirement Rates Exhibit

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. The illustrated retirement rates show the number of employees who are assumed to retire annually based on 100 employees age 55 who are eligible for retiree health care coverage. The average age at retirement is 62.0.

Age	Active Employees BOY	Annual Retirement Rates*	# Retirements per Year	Active Employees EOY
55	100.000	5.0%	5.000	95.000
56	95.000	5.0%	4.750	90.250
57	90.250	5.0%	4.513	85.738
58	85.738	5.0%	4.287	81.451
59	81.451	5.0%	4.073	77.378
60	77.378	5.0%	3.869	73.509
61	73.509	5.0%	3.675	69.834
62	69.834	30.0%	20.950	48.884
63	48.884	15.0%	7.333	41.551
64	41.551	15.0%	6.233	35.318
65	35.318	100.0%	35.318	0.000



* The above rates are illustrative rates and are not used in our GASB calculations.

Illustration of GASB Calculations

The purpose of the illustration is to familiarize non-actuaries with the GASB 45 actuarial calculation process.

I. Facts

1. The employer provides subsidized retiree health coverage worth \$100,000 to employees retiring at age 55 with 25 years of service. The employer funds for retiree health coverage on a pay-as-you-go basis.
2. Employee X is age 50 and has worked 20 years with the employer.
3. Retiree health subsidies are paid from the general fund assets which are expected to earn 4.5% per year on a long-term basis.
4. Based on Employee X's age and sex he has a 98.0% probability of living to age 55 and a 95.0% probability of continuing to work to age 55.

II. Calculation of Present Value of Future Benefits

Present Value of Future Benefits represents the cost to finance benefits payable in the future to current and future retirees and beneficiaries, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

	Value	Description
A.	\$100,000	Projected benefit at retirement
B.	80.2%	Interest discount for five years = $(1 / 1.045)^5$
C.	98.0%	Probability of living to retirement age
D.	95.0%	Probability of continuing to work to retirement age
E.	\$74,666	Present value of projected retirement benefit measured at employee's current age = $A \times B \times C \times D$

Illustration of GASB Calculations (continued)

III. Calculation of Actuarial Accrued Liability

Actuarial Accrued Liability represents the portion of the Present Value of Future Benefits which has been accrued recognizing the employee's past service with the employer. The Actuarial Accrued Liability is a required disclosure in the Required Supplementary Information section of the employer's financial statement.

	Value	Description
A.	\$74,666	Present value of projected retirement benefit measured at employee's current age
B.	20	Current years of service with employer
C.	25	Projected years of service with employer at retirement
D.	\$59,733	Actuarial accrued liability measured at employee's current age = $A \times B / C$

IV. Calculation of Normal Cost

Normal Cost represents the portion of the Present Value of Future Benefits allocated to the current year.

	Value	Description
A.	\$74,666	Present value of projected retirement benefit measured at employee's current age
B.	25	Projected years of service with employer at retirement
C.	\$2,987	Normal cost measured at employee's current age = A / B

V. Calculation of Annual Required Contribution

Annual Required Contribution is the total expense for the current year to be shown in the employer's income statement.

	Value	Description
A.	\$2,987	Normal Cost for the current year
B.	\$3,509	30-year amortization (level dollar method) of Unfunded Actuarial Accrued Liability using a 4.5% interest rate discount factor
C.	\$292	Interest adjustment = $4.5\% \times (A + B)$
D.	\$6,788	Annual Required Contribution = $A + B + C$

Definitions

GASB 45 defines several unique terms not commonly employed in the funding of pension and retiree health plans. The definitions of the terms used in the GASB actuarial valuations are noted below.

1. **Actuarial Accrued Liability** – That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of plan benefits and expenses which is not provided for by the future Normal Costs.
2. **Actuarial Assumptions** – Assumptions as to the occurrence of future events affecting health care costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided health care benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.
3. **Actuarial Cost Method** – A procedure for determining the Actuarial Present Value of future benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.
4. **Actuarial Present Value** – The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:
 - a) adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, Social Security, marital status, etc.);
 - b) multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned; and
 - c) discounted according to an assumed rate (or rates) of return to reflect the time value of money.
5. **Annual OPEB Cost** – An accrual-basis measure of the periodic cost of an employer's participation in a defined benefit OPEB plan.
6. **Annual Required Contribution (ARC)** – The employer's periodic required contributions to a defined benefit OPEB plan, calculated in accordance with the parameters.
7. **Explicit Subsidy** – The difference between (a) the amounts required to be contributed by the retirees based on the premium rates and (b) actual cash contribution made by the employer.
8. **Funded Ratio** – The actuarial value of assets expressed as a percentage of the actuarial accrued liability.
9. **Healthcare Cost Trend Rate** – The rate of change in the per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

Definitions (continued)

10. **Implicit Subsidy** – In an experience-rated healthcare plan that includes both active employees and retirees with blended premium rates for all plan members, the difference between (a) the age-adjusted premiums approximating claim costs for retirees in the group (which, because of the effect of age on claim costs, generally will be higher than the blended premium rates for all group members) and (b) the amounts required to be contributed by the retirees.
11. **Net OPEB Obligation** – The cumulative difference since the effective date of this Statement between annual OPEB cost and the employer's contributions to the plan, including the OPEB liability (asset) at transition, if any, and excluding (a) short-term differences and (b) unpaid contributions that have been converted to OPEB-related debt.
12. **Normal Cost** – The portion of the Actuarial Present Value of plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.
13. **Pay-as-you-go** – A method of financing a benefit plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.
14. **Per Capita Costs** – The current cost of providing postretirement health care benefits for one year at each age from the youngest age to the oldest age at which plan participants are expected to receive benefits under the plan.
15. **Present Value of Future Benefits** – Total projected benefits include all benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members) as a result of their service through the valuation date and their expected future service. The actuarial present value of total projected benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment. Expressed another way, it is the amount that would have to be invested on the valuation date so that the amount invested plus investment earnings will provide sufficient assets to pay total projected benefits when due.
16. **Select and Ultimate Rates** – Actuarial assumptions that contemplate different rates for successive years. Instead of a single assumed rate with respect to, for example, the investment return assumption, the actuary may apply different rates for the early years of a projection and a single rate for all subsequent years. For example, if an actuary applies an assumed investment return of 8% for year 20W0, then 7.5% for 20W1, and 7% for 20W2 and thereafter, then 8% and 7.5% select rates, and 7% is the ultimate rate.
17. **Substantive Plan** – The terms of an OPEB plan as understood by the employer(s) and plan members.