RETIREMENT PLAN FOR EMPLOYEES OF JOB SERVICE NORTH DAKOTA

ACTUARIAL VALUATION AND REVIEW AS OF JULY 1, 2015

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October 20, 2015

Board Members
North Dakota Public Employees Retirement System
Bismarck, North Dakota

Members of the Board:

We are pleased to submit this Actuarial Valuation and Review as of July 1, 2015 for the Retirement Plan for Employees of Job Service North Dakota. It summarizes the actuarial data used in the valuation, establishes the "scheduled contribution" for the 2015-2016 plan year, and analyzes the preceding year's experience.

The census and financial information on which our calculations are based were provided by the Retirement Office staff. That assistance is gratefully acknowledged. The actuarial calculations were completed under the supervision of Tammy F. Dixon, FSA, MAAA, EA.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Certain assumptions, including interest rates, mortality tables and others identified in this report are prescribed by the Board and, in our opinion, are reasonably related to the experience of and the expectations for the Plan. The Board is also responsible for selecting the scheduled contribution, actuarial cost method and asset valuation method.

We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We would be pleased to answer any questions you may have regarding the report.

Sincerely,

Brad Ramirez, FSA, MAAA, FCA, EA Vice President & Consulting Actuary	Tammy F. Dixon, FSA, MAAA, EA Vice President & Actuary

Laura L. Mitchell, MAAA, EA
Vice President & Consulting Actuary

cc: Sparb Collins

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Table of Contents

Introduction and Summary

This report presents the results of the actuarial valuation of the Retirement Plan for Employees of Job Service North Dakota as of July 1, 2015.

The following table is a summary of significant results of this year's valuation compared with the results of the last valuation.

Valuation Results	July 1, 2015	July 1, 2014
Scheduled contribution at end of year	$0	$0
Contribution as a percentage of payroll	0.00%	0.00%
Projected payroll of employees included in cost calculations	$697,420	$790,649
Outstanding balance of frozen initial liability	$0	$0
Amortization of frozen initial liability	$0	$0
Normal cost	$0	$0
Actuarial present value of projected benefits	$63,623,299	$65,479,120
Actuarial value of assets	$79,196,686	$78,157,302
Market value of assets	$96,282,892	$97,696,628

Effective July 1, 1999, the "scheduled contribution" will be zero as long as the plan's actuarial value of assets exceeds the actuarial present value of projected benefits. If, in the future, the liabilities of the plan exceed its assets, a "scheduled contribution" will be determined based on the funding policy adopted by the Board.

As of July 1, 2015, the market value of assets is 151.3% of the actuarial present value of projected benefits. While there is no contribution due at this time, the Board should be prepared to consider funding policy options in the event that there are actuarial losses in the future. The measurements in this valuation are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligation.

Since the Plan is overfunded on a market value basis, the Board may wish to consider asset strategies to immunize the liabilities in order to reduce the risk of future contributions being required.

There were no changes to the plan provisions since the prior valuation. However, the Board of Trustees elected to change the rate of return on assets/discount rate assumption from 8% to 7% per year.

The actuarial valuation report as of July 1, 2015 is based on financial and demographic information as of that date. Changes subsequent to that date are not reflected and could affect future actuarial costs of the Plan. We are prepared to work with the Board to analyze the effects of any subsequent developments.

The Governmental Accounting Standards Boards (GASB) approved two new Statements, 67 and 68. It is important to note that the new GASB rules only redefine liabilities and pension expense for financial reporting purposes, and do not apply to contribution amounts for funding purposes. The information required by GASB Statements 67 and 68 will be provided in a separate report. We have included the GASB 27 information for comparison purposes.

Valuation Results

The valuation was made with respect to the following data supplied to us by the Retirement Office staff.

1.	Employees active as of July 1, 2015	
	a. Fully vested	11
	b. Not vested	0
	c. Total	11
2.	Employees inactive as of July 1, 2015 with vested rights	1
3.	Pensioners (including disabled's), one former spouse, and beneficiaries as of July 1, 2015	142
4.	Pensioners and beneficiaries receiving annuities from The Travelers as of July 1, 2015	64
5.	Total Plan participants as of July 1, 2015	218

The actuarial liabilities as of the valuation date are as follows:

1.	Present value of benefits:	
	a. Active employees	$7,367,184
	b. Inactive vested employees not in pay status	11,011
	c. Pensioners (including disabled's) and beneficiaries*	56,245,104
	d. Total	$63,623,299
2.	Actuarial value of assets ($96,282,892 at market value)	79,196,686
3.	Outstanding balance as of July 1, 2015 of frozen initial liability	0
4.	Actuarial present value of future normal costs (item 1 – item 2 – item 3, not less than $0)	$0
5.	Actuarial present value of future salaries	$1,398,693
6.	Normal cost percentage (item 4 divided by item 5)	0.00%
7.	Projected payroll of employees included in cost calculations	$697,420
8.	Normal cost (item 6 x item 7)	$0

* *Includes value of Cost-of-Living adjustments (COLAs) for pensioners with annuities from The Travelers.*

Actuarial Experience

Since July 1, 2014, there was a net actuarial gain, primarily due to a demographic gain of $2.2 million as a result of a lower than expected cost-of-living adjustment and salary increases lower than expected. An analysis of experience in key areas for the year ended June 30, 2015 follows.

Mortality Experience

Mortality experience (fewer or more than expected deaths) yields actuarial gains or losses. The actual number of deaths for pensioners and beneficiaries was 10 (8 Travelers annuitants and 2 Non-Travelers pensioners) compared to expected deaths of 9.8 (6.3 Travelers annuitants and 3.5 Non-Travelers pensioners).

Retirement Experience

Retirement experience (later or earlier than expected) yields actuarial gains or losses. Our analysis of actual retirements indicate more than expected number of active and inactive vested participants have been retiring. The number of actual retirements was 2 compared to 1 expected retirement.

Salary Increases

The average salary increase for participants as of July 1, 2015 who were included in the last valuation was 3.3% compared to the 5.0% salary scale assumption.

Post-Retirement Cost-of-Living Adjustment (COLA)

There was a COLA increase of 1.7% granted to retirees and beneficiaries compared to the 5.0% COLA assumption.

Rate of Return

The investment rate of return on an actuarial basis was 7.49% for the year ended June 30, 2015, net of both investment and administrative expenses (7.53% net of investment expenses). This return is lower than the assumed rate of return of 8.0%, prior to the assumption change, resulting in an actuarial loss. The rate of return on a market value basis was 3.42%, net of both investment and administrative expenses (3.39% net of investment expenses). The assumed rate of return on assets/discount rate was been changed to 7.0% for the 2015 valuation

Table 1 summarizes demographic characteristics of plan participants.

Table 2 presents a distribution of active participants by age and credited service.

Table 3 presents a reconciliation of participant data.

Table 4 summarizes the changes in plan net assets.

Table 5 summarizes the plan assets on a market basis.

Table 6 shows the determination of the actuarial value of assets.

Table 7 shows the development of the NPO and ARC pursuant to GASB 27.

Table 8 shows a Schedule of Funding Progress.

TABLE 1

Plan Coverage and Selected Data
This Year and Preceding Year

Category	July 1, 2015	July 1, 2014	Percent Change
Active participants			
› Number	11	13	(15.4)%
› Average age	61.2	60.4	N/A
› Average service	38.9	37.6	N/A
› Projected compensation	$697,420	$790,649	(10.5)
› Average pay	$63,402	$60,819	5.8
Inactive participants with rights to immediate or deferred pension	1	1	0.0
Pensioners (including disabled's) and beneficiaries:			
› Number paid by retirement plan	142	140	1.4
• Total annual benefit	$4,022,351	$3,963,150	1.5
• Average annual benefit	$28,326	$28,308	0.1
› Number of Travelers annuitants	64	73	(12.3)
• Total annual benefits paid by retirement plan (COLAs)	$591,112	$662,727	(10.8)
• Average annual benefit paid by retirement plan (COLAs)	$9,236	$9,078	1.7

TABLE 2

Active Employees Included in the July 1, 2015 Valuation by Age and Credited Service

		Years of Credited Service				
Age	**Total**	**0 - 24**	**25 - 29**	**30 - 34**	**35 - 39**	**40 and Over**
Total	11	-	-	-	6	5
55 – 59	5	-	-	-	3	2
60 - 64	5	-	-	-	3	2
65 & over	1	-	-	-	-	1

TABLE 3

Reconciliation of Participant Data

	Active Participants	Inactive Vested Participants	Pay Status Participants Paid From Plan Assets	Pay Status Participants Paid From The Travelers	Total
Number as of July 1, 2014	13	1	140	73	227
Vested Termination	-	-	-	-	-
Retirements	(2)	-	2	-	-
New Beneficiaries	-	-	1	-	1
Certain period expired	-	-	-	-	-
New former spouse	-	-	-	-	-
Died with beneficiary	-	-	(1)	-	(1)
Died without beneficiary	-	-	(1)	(8)	(9)
Lump sum payouts	-	-	-	-	-
Data adjustments	-	-	1	(1)	-
Number as of July 1, 2015	11	1	142[1]	64	218

[1] Includes 1 former spouse in pay status.

TABLE 4

Summary Statement of Income and Disbursements (Market Value)

	July 1, 2015	July 1, 2014
1. Additions:		
Contributions	$50,142	$55,748
Investment Income:		
Interest and Dividends	$1,721,361	$1,725,637
Net Appreciation/(Depreciation)	1,818,431	10,466,656
Total Investment Income	$3,539,792	$12,192,293
Less Investment Expenses	(279,285)	(304,453)
Net Investment Income	$3,260,507	$11,887,840
Total Additions	$3,310,649	$11,943,588
2. Deductions:		
Benefit Payments	$(4,694,171)	$(4,594,462)
Administrative Expenses	(30,214)	(31,455)
Total Deductions	$(4,724,385)	$(4,625,917)
3. Net Increase	$(1,413,736)	$7,317,617
4. Net Assets		
(a) Beginning of Year	$97,696,628	$90,378,957
(b) End of Year	$96,282,892	$97,696,628

TABLE 5

Summary Statement of Plan Net Assets (Market Value)

	July 1, 2015	July 1, 2014
1. Assets:		
Cash and Cash Equivalents	$572,926	$404,257
Receivables:		
Contributions	$3,931	$4,393
Interest	106,664	96,697
Due from fiduciary funds	1,878	596
Total Receivables	$112,473	$101,686
Investments:		
Equities	$37,726,351	$38,686,267
Fixed Income	57,998,983	58,655,436
Total Investments	$95,725,334	$97,341,703
Total Assets	$96,410,733	$97,847,646
2. Liabilities:		
Accounts Payable	$(127,280)	$(148,693)
Due to Fiduciary Funds	(561)	(2,325)
Total Liabilities	$(127,841)	$(151,018)
3. Net Assets for Pension Benefits	$96,282,892	$97,696,628

TABLE 6

Determination of the Actuarial Value of Assets as of July 1, 2015

1. Actuarial Value of Assets as of July 1, 2014	$78,157,302
2. Contributions	$50,142
3. Decreases During the Year:	
Benefit Payments	$(4,694,171)
Administrative Expenses	(30,214)
Investment Expenses	(279,285)
Total Decreases During the Year	$(5,003,670)
4. Interest and Dividends	$1,721,361
5. Preliminary Actuarial Value at End of Year [(1) + (2) + (3) + (4)]	$74,925,135
6. Market Value at End of Year	$96,282,892
7. Adjustment Toward Market Value (20% of [(6) – (5)])	$4,271,551
8. Adjustment to be Within 20% of Market Value	$0
9. Actuarial Value of Assets as of July 1, 2015 [(5) + (7) + (8)]	$79,196,686
10. Actuarial Value as a Percentage of Market Value [(9) / (6)]	82.3%

TABLE 7

Development of the Net Pension Obligation (NPO) and the Annual Required Contribution (ARC) Pursuant to GASB 27

Year Ended	Employer Annual Required Contribution (a)	Employer Amount Contributed (b)	Interest on NPO (h) x 7.5%* (c)	ARC Adjustment (h) / (e) (d)	Amortization Factor* (e)	Pension Cost (a) + (c) – (d) (f)	Change in NPO (f) – (b) (g)	NPO Balance NPO + (g) (h)
06/30/2006	-	-	$(133,186)	$(136,928)	12.1584	$3,742	$3,742	$(1,661,084)
06/30/2007	-	-	(124,581)	(130,833)	12.6962	6,252	6,252	(1,654,832)
06/30/2008	-	-	(124,112)	(130,341)	12.6962	6,229	6,229	(1,648,603)
06/30/2009	-	-	(123,645)	(129,850)	12.6962	6,205	6,205	(1,642,398)
06/30/2010	-	-	(123,180)	(129,361)	12.6962	6,181	6,181	(1,636,217)
06/30/2011	-	-	(122,716)	(128,875)	12.6962	6,159	6,159	(1,630,058)
06/30/2012	-	-	(122,254)	(128,389)	12.6962	6,135	6,135	(1,623,923)
06/30/2013	-	-	(121,794)	(127,906)	12.6962	6,112	6,112	(1,617,811)
06/30/2014	-	-	(129,425)	(133,061)	12.1584	3,636	3,636	(1,614,175)
06/30/2015	-	-	(129,134)	(132,762)	12.1584	3,628	3,628	(1,610,547)

**Based on 8% interest through June 30, 2006, 7.5% for July 1, 2007- June 30, 2012, and 8% for July 1, 2013 – June 30, 2015. Amortization period is 30 years open with level dollar payments.*

TABLE 8

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) – (a)	Funded Ratio (a) / (b)	Projected Compensation (c)	UAAL as a Percentage of Covered Payroll** [(b) – (a)] / (c)
07/01/2007	$75,749,846	$70,740,512	$(5,009,334)	107.08%	$1,843,140	0.0%
07/01/2008	77,020,934	70,804,863	(6,216,071)	108.78%	1,762,644	0.0%
07/01/2009	74,472,806	71,105,891	(3,366,915)	104.74%	1,709,424	0.0%
07/01/2010	73,458,863	70,094,204	(3,364,659)	104.80%	1,611,216	0.0%
07/01/2011	74,190,381	67,444,219	(6,746,162)	110.00%	1,200,792	0.0%
07/01/2012	75,117,973	71,402,002	(3,715,971)	105.20%	1,042,957	0.0%
07/01/2013	76,325,451	66,049,664	(10,275,787)	115.56%	842,601	0.0%
07/01/2014	78,157,302	65,190,192	(12,967,110)	119.89%	790,649	0.0%
07/01/2015	79,196,686	63,623,299	(15,573,387)	124.48%	697,420	0.0%

* *Starting in 2007, the funded ratio is required to be calculated using liabilities determined under the entry age normal cost method.*

** *Not less than zero.*

Actuarial Methods and Actuarial Assumptions

Actuarial Cost Method

There are a variety of funding methods that are considered acceptable by the actuarial profession. The Frozen Initial Liability Actuarial Cost Method is the method currently used for the Retirement Plan for Employees of Job Service North Dakota.

The “annual contribution” under this method is the normal cost plus the payment required to amortize the unfunded initial actuarial accrued liability over a selected period of years. The normal cost is determined by calculating the total value of all future benefits, subtracting the outstanding balance (if any) of the unfunded initial actuarial accrued liability, subtracting the actuarial value of assets, and determining payments (not less than zero) that are a level percent of pay over the future working lifetime of all participants. In the absence of an unfunded initial actuarial accrued liability, the Frozen Initial Liability Actuarial Cost Method is the same as the Aggregate Cost Method.

The “scheduled contribution” will be determined when the plan is not in surplus and will be based on a funding policy adopted by the Employer.

Asset Valuation Method

The asset value indicates the portion of the benefits already funded. The method used to determine this value is called the actuarial asset valuation method. The actuarial asset valuation method is as follows:

Adjusted market value that immediately recognizes interest and dividends. The procedure recognizes 20% of each year’s total appreciation (depreciation) beginning with the year of occurrence. After five years, the appreciation (depreciation) is fully recognized. A characteristic of this asset valuation method is that, over time, it is more likely than not to produce an actuarial value of assets that is less than the market value of assets, if the investment return attributable to net interest and dividends is less than the assumed rate of return.

Actuarial Assumptions

The information and analysis is used in selecting each assumption that has a significant effect on this actuarial valuation is shown in our report titled Experience Review: July 2009 – June 2014, issued in May 2015.

1. Mortality Tables:

- Healthy: RP-2000 Combined Healthy, setback 2 years for males and 3 years for females, projected generationally using SSA 2014 Intermediate Cost scale from 2014.
- Disabled: RP-2000 Disabled Mortality Table set back one year for males (no setback for females) multiplied by 125%.

These underlying tables with generational projection to the ages of participants as of the measurement date reasonably reflect the mortality experience as of the measurement date.

2. Disability Incidence Rates:

Sample rates shown below.

	Rates (%)			
	Mortality		Disability	
Age	Male	Female	Male	Female
20	0.03	0.02	0.01	0.01
25	0.04	0.02	0.02	0.01
30	0.04	0.02	0.02	0.01
35	0.06	0.04	0.03	0.01
40	0.10	0.06	0.04	0.02
45	0.13	0.09	0.07	0.04
50	0.19	0.13	0.12	0.06
55	0.29	0.20	0.20	0.10
60	0.53	0.35	0.33	0.16

3. Retirement Rates:

The following annual rates apply for non-retired participants:

Age	Rate
50-64	15%
65	100%

Actuarial Assumptions (Continued)

4. **Rate of Return on Assets/Discount Rate:**

   7.0% per year, compounded annually, net of investment expenses.

5. **Administrative Expenses:**

   Prior year expenses, adjusted for inflation

6. **Salary Scale:**

   3.50% per year.

7. **Post-retirement Cost-of-Living Adjustment:**

   3.00% per year.

8. **Future Benefit Accruals:**

   One year of credited service per year per active employee included in the valuation.

9. **Percent Married and Age of Spouse:**

   85% of all active and inactive vested participants are assumed to be married. Females are assumed to be four years younger than males. All spouses are assumed to be the opposite gender as the participant. The relatively low rate of same-gender spouses is not actuarially significant at this time.

10. **Benefit Election:**

    55% of participants are assumed to elect the Single Life Annuity with 120 month guarantee, and 45% are assumed to elect the 55% Contingent Annuitant Option.

Changes in Actuarial Assumptions or Cost Method

There were no changes in cost method. Based on the results of the Actuarial Experience Study completed in May, 2015, the Board approved changes to the following actuarial assumptions. Previously, these assumptions were as follows:

1. **Mortality Tables:**

   Healthy: 1994 Group Annuity Mortality Table.

   Disabled: 1983 Railroad Retirement Board Disabled Life Mortality Table.

2. **Disability Incidence Rates:**

   Sample rates were as follows:

Age	Rate
20	0.06%
25	0.09
30	0.11
35	0.15
40	0.22
45	0.36
50	0.61
55	1.01
60	1.63

3. **Withdrawal Rates:**

Age	Rate
20	5.44%
25	5.29
30	5.07
35	4.70
40	4.19
45	3.54
50	2.48
55	0.94
60	0.09

EXHIBIT III (Continued)

4. Retirement Rates:

75% of active participants were assumed to retire when first eligible for optional retirement, and the remaining participants retire at normal retirement. If older than first eligible optional retirement age, retirement was assumed to occur at normal retirement, or current age, if older.

100% of inactive vested participants were assumed to retire at first optional retirement age.

5. Rate of Return of Assets/Discount Rate:

8.0% per year, compounded annually, net of investment and administrative expenses.

6. Salary Scale:

5.0% per year.

7. Post-retirement Cost-of-Living Adjustment:

5.0% per year.

10. Benefit Election:

All participants were assumed to elect the 10 year Certain and Life Annuity.

Summary of Plan Provisions

This section summarizes the major provisions of the plan as included in the valuation. It is not intended to be, nor should it be, interpreted as a complete description of all plan provisions.

Plan status: Frozen to new entrants as of October 1, 1980.

1. <u>Normal Retirement:</u>

Age requirement:

65.

Service requirement:

None.

Benefit:

Average monthly earnings multiplied by the sum of:

a. 1.50% times credited service up to five years, plus
b. 1.75% times credited service between six and ten years, plus
c. 2.00% times credited service in excess of ten years.

Average monthly earnings - monthly average earnings during the highest three consecutive years of employment.

2. <u>Optional Retirement:</u>

Age and service requirements:

Age 62 with five years of credited service, or
Age 60 with twenty years of credited service, or
Age 55 with thirty years of credited service.

Benefit:

Accrued normal retirement benefit.

3. <u>Early Retirement:</u>

Age requirement:

Ten years before normal or optional retirement age.

Service requirement:

Same as optional retirement.

Benefit:

Accrued normal retirement benefit, reduced if payments begin before normal or optional retirement.

4. Disability Benefit:

Age requirement:

None.

Service requirement:

Five years of credited service.

Benefit**:**

Greater of accrued normal retirement benefit or 40% of average monthly earnings.

5. Deferred Vested Retirement:

Age requirement:

None.

Service requirement:

Five years of credited service.

Benefit:

Accrued normal retirement benefit payable at normal or optional retirement. After attainment of early retirement age, reduced benefits may be paid.

Employees who meet the requirements for a vested benefit may elect to receive a return of their accumulated employee contributions (including interest at 4% per year) in lieu of all other benefits under the plan.

6. Pre-retirement Death Benefits:

(a) Married participants or single participants with eligible children

Surviving spouse's benefit:

Age requirement:

None.

Service requirement:

None.

Benefit:

55% of the greater of (a) or (b).

(a) Accrued normal retirement benefit.

(b) The lesser of (1) or (2).

(1) 40% of average monthly earnings.

(2) Normal retirement benefit based on credited service to age 60.

Children's benefit:

Provided for children under age 18 (age 22 if a full-time student) - note: the actuarial valuation does not consider benefits for expected surviving children.

(b) Single participants with no eligible children

120 payment guarantee:

Age requirement:

None.

Service requirement:

Five years of credited service.

Benefit:

Accrued normal retirement benefit payable for 120 months. Not payable if surviving spouse or children's benefit is payable.

(c) Lump sum benefit

Age requirement:

None.

Service requirement:

None.

Benefit:

Accumulated employee contributions (including interest at 4% per year). Not payable if the surviving spouse, children's benefit or 120 payment guarantee is in effect.

7. **Refund of Member Contributions:**

Employees who do not meet the requirements for a vested benefit will receive a return of their accumulated employee contributions (including interest at 4% per year).

8. **Post-retirement Death Benefits:**

Based on form of payment elected by the pensioner.

9. **Post-retirement Cost-of-Living Adjustment:**

Based on the Consumer Price Index as approved by the Board.

10. **Participation:**

Plan participant before October 1, 1980.

11. **Credited Service:**

Monthly salaried employment in a probationary or permanent status including only: service for which contributions were made (including purchased service), eligible military service and unused sick leave.

12. **Contribution Rate:**

Employee:

7% of average monthly earnings (4% picked up by employer).

Employer:

Remaining scheduled contribution, if any.

13. **Normal and Optional Forms of Payment:**

Single Life Annuity with 120 month guarantee (Normal);
Single Life Annuity with 180 month guarantee;
Single Life Annuity with 240 month guarantee;
55% Contingent Annuitant Option;
75% Contingent Annuitant Option;
100% Contingent Annuitant Option;
Uniform Income Option.

Changes in Plan Provisions

There were no changes made in the plan provisions since the prior valuation.