

VILLAGE OF ARLINGTON HEIGHTS REGULAR
GASB STATEMENT NO. 68 EMPLOYER REPORTING
ACCOUNTING SCHEDULES
DECEMBER 31, 2016

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April 17, 2017

Village of Arlington Heights
Illinois Municipal Retirement Fund

Ladies and Gentlemen:

The accounting schedules submitted in this report are required under the Governmental Accounting Standards Board (GASB) Statement No. 68 "Accounting and Financial Reporting for Pensions."

Our calculations for this report were prepared for the purpose of complying with the requirements of GASB Statement No. 68. These calculations have been made on a basis that is consistent with our understanding of these accounting standards. These results are subject to review by the fund's auditor and may be revised.


Our calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement No. 68. The Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the Village of Arlington Heights only in its entirety and only with the permission of Village of Arlington Heights.

This report is based upon information, furnished to us by IMRF, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. If your understanding of this information is different than ours, please let us know and do not use or distribute this report until those differences have been resolved to your satisfaction. This information was checked for internal consistency, but it was not audited.


Please see the actuarial valuation report for the Illinois Municipal Retirement Fund as of December 31, 2016 for additional discussions of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, the information contained in this report is accurate, and fairly represents the GASB 68 information related to Village of Arlington Heights. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board. Mark Buis and Francois Pieterse are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the Academy of Actuaries to render the actuarial opinions herein. The signing actuaries are independent of the plan sponsor.

Respectfully submitted,

By 

Mark Buis
FSA, EA, MAAA

By 

Francois Pieterse
ASA, MAAA

SECTION A

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY
AS OF DECEMBER 31, 2016

Actuarial Valuation Date	December 31, 2016
Measurement Date of the Net Pension Liability	December 31, 2016
Fiscal Year End	April 30, 2017

Membership

Number of	
- Retirees and Beneficiaries	440
- Inactive, Non-Retired Members	180
- Active Members	381
- Total	1,001
Covered Valuation Payroll ⁽¹⁾	\$ 24,924,034

Net Pension Liability

Total Pension Liability/(Asset)	\$ 174,675,661
Plan Fiduciary Net Position	150,840,376
Net Pension Liability/(Asset)	\$ 23,835,285
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	86.35%
Net Pension Liability as a Percentage of Covered Valuation Payroll	95.63%

Development of the Single Discount Rate as of December 31, 2016

Long-Term Expected Rate of Investment Return	7.50%
Long-Term Municipal Bond Rate ⁽²⁾	3.78%
Last year ending December 31 in the 2017 to 2116 projection period for which projected benefit payments are fully funded	2116
Resulting Single Discount Rate based on the above development	7.50%

Single Discount Rate calculated using December 31, 2015 Measurement Date 7.47%

Total Pension Expense/(Income) \$ 4,910,630

Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 1,195,675	\$ 300,075
Changes in assumptions	182,730	446,007
Net difference between projected and actual earnings on pension plan investments	6,722,901	0
Total	\$ 8,101,306	\$ 746,082

⁽¹⁾ Does not necessarily represent Covered Employee Payroll as defined in GASB Statement Nos. 67-68.

⁽²⁾ Source: "20-Bond GO Index" is the Bond Buyer Index, general obligation, 20 years to maturity, mixed quality. In describing this index, the Bond Buyer notes that the bonds' average credit quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.'s AA. The rate shown is as of December 29, 2016, the most recent date available on or before the measurement date.

DISCUSSION

Accounting Standard

For state and local government employers (as well as certain non-employers) that contribute to a Defined Benefit (DB) pension plan administered through a trust or equivalent arrangement, Governmental Accounting Standards Board (GASB) Statement No. 68 establishes standards for pension accounting and financial reporting. Under GASB Statement No. 68, the employer must account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information is not included in this report if it is not actuarial in nature, such as the notes to the financial statements regarding accounting policies and investments. As a result, the retirement fund and/or plan sponsor is responsible for preparing and disclosing the non-actuarial information needed to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state and local government employers that contribute to DB pension plans to recognize the net pension liability and the pension expense on their financial statements, along with the related deferred outflows of resources and deferred inflows of resources. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 says, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to IMRF subsequent to the measurement date of December 31, 2016.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the certain changes in the liability and investment experience.

Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows of resources and inflows of resources related to pensions.

In addition, GASB Statement No. 68 requires the notes of the financial statements for the employers to include certain additional information, including (page numbers refer to page numbers from this report unless specified otherwise):

- a description of the types of benefits provided by the plan, as well as automatic or ad hoc COLAs (please see pages B-1 - B-5 of the December 31, 2016 Annual Actuarial Valuation report dated March 22, 2017);
- the number and classes of employees covered by the benefit terms (page 1);
- for the current year, sources of changes in the net pension liability (page 10);
- significant assumptions and methods used to calculate the total pension liability (page 15);
- inputs to the single discount rate (page 16);
- certain information about mortality assumptions and the dates of experience studies (page 13 and page 15);
- the date of the valuation used to determine the total pension liability (page 1);
- information about changes of assumptions or other inputs and benefit terms (pages 13 and 15);
- the basis for determining contributions to the plan, including a description of the plan's funding policy, as well as member and employer contribution requirements (please see page A-3, B-5 and Section D of the December 31, 2016 Annual Actuarial Valuation report dated March 22, 2017, as well as page 13);
- the total pension liability, fiduciary net position, net pension liability, and the pension plan's fiduciary net position as a percentage of the total pension liability (page 10);
- the net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes (page 10); and
- a description of the fund that administers the pension plan (to be provided by IMRF).

Required Supplementary Information

The financial statements of employers also include required supplementary information showing the 10-year fiscal history of:

- sources of changes in the net pension liability (page 11);
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll (page 11); and
- comparison of actual employer contributions to the actuarially determined contributions based on the plan's funding policy (page 12).

These tables may be built prospectively as the information becomes available.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. For the employer's financial reporting purposes, the net pension liability and pension expense should be measured as of the employer's "measurement date" which may not be earlier than the employer's prior fiscal year-end date. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of December 31, 2016 and a measurement date of December 31, 2016.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a single discount rate that reflects: (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the plan's projected fiduciary net position is not sufficient to pay benefits).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.50%; the municipal bond rate is 3.78% (based on the weekly rate closest to but not later than the measurement date of the "20-Bond Go Index" described on page 1 and the resulting Single Discount Rate is 7.50%.

OTHER OBSERVATIONS

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.50% on the actuarial value of assets), it is expected that:

- (1) The employer normal cost as a percentage of pay will decrease to the level of Tier 2 normal cost as time passes as the majority of the active population will consist of Tier 2 members.
- (2) The unfunded liability will increase in dollar amount for several years before it begins to decrease.
- (3) The funded status of the plan will increase gradually towards a 100% funded ratio.

This funding policy results in a crossover date in 2116 and a discount rate of 7.5%. The projections in this report are strictly for the purposes of determining the GASB discount rate and are different from a funding projection for the ongoing plan.

Limitations of Assets as a Percent of Total Pension Liability Measurements

This report includes a measure of the plan fiduciary net position as a percent of total pension liability. Unless otherwise indicated, with regard to any such measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.
- (2) The measurement is inappropriate for assessing the need for or amount of future employer contributions.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded ratio measurement presented in this report is based upon the actuarial accrued liability and the market value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, in other words of transferring the obligations to a unrelated third party in an arm's length market value type transaction.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amount of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon actuarial assumptions. A funded ratio measurement in this report of 100% is not synonymous with no required future contributions. If the funded ratio were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).

Limitation of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

SECTION B

FINANCIAL STATEMENTS

PENSION EXPENSE/(INCOME) UNDER GASB STATEMENT NO. 68
CALENDAR YEAR ENDED DECEMBER 31, 2016

A. Expense/(Income)

1. Service Cost	\$ 2,639,543
2. Interest on the Total Pension Liability	12,281,628
3. Current-Period Benefit Changes	0
4. Employee Contributions (made negative for addition here)	(1,145,096)
5. Projected Earnings on Plan Investments (made negative for addition here)	(10,709,640)
6. Other Changes in Plan Fiduciary Net Position	(555,713)
7. Recognition of Outflow (Inflow) of Resources due to Liabilities	210,716
8. Recognition of Outflow (Inflow) of Resources due to Assets	2,189,192
9. Total Pension Expense/(Income)	\$ 4,910,630

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT REPORTING
PERIOD
CALENDAR YEAR ENDED DECEMBER 31, 2016**

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 1,640,544
2. Assumption Changes (gains) or losses	\$ (611,951)
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	3.6877
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the Difference between expected and actual experience of the Total Pension Liability	\$ 444,869
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ (165,944)
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	<u>\$ 278,925</u>
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the Difference between expected and actual experience of the Total Pension Liability	\$ 1,195,675
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ (446,007)
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	<u>\$ 749,668</u>

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ 776,629
2. Recognition period for Assets {in years}	5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	\$ 155,326
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ 621,303

* *Please note that employer contributions made after the measurement date have not been reported as deferred outflows of resources. These employer contributions must be separately accounted for by the employer.*

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR
REPORTING PERIODS
CALENDAR YEAR ENDED DECEMBER 31, 2016**

A. Outflows and Inflows of Resources due to Liabilities and Assets to be recognized in Current Pension Expense

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Due to Liabilities	\$ 551,082	\$ 340,366	\$ 210,716
2. Due to Assets	2,189,192	0	2,189,192
3. Total	\$ 2,740,274	\$ 340,366	\$ 2,399,908

B. Outflows and Inflows of Resources by Source to be recognized in Current Pension Expense

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Differences between expected and actual experience	\$ 444,869	\$ 174,422	\$ 270,447
2. Assumption changes	106,213	165,944	\$ (59,731)
3. Net difference between projected and actual earnings on pension plan investments	2,189,192	0	2,189,192
4. Total	\$ 2,740,274	\$ 340,366	\$ 2,399,908

C. Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>	<u>Net Deferred Outflows of Resources</u>
1. Differences between expected and actual experience	\$ 1,195,675	\$ 300,075	\$ 895,600
2. Assumption changes	182,730	446,007	\$ (263,277)
3. Net difference between projected and actual earnings on pension plan investments	6,722,901	0	6,722,901
4. Total	\$ 8,101,306	\$ 746,082	\$ 7,355,224

D. Deferred Outflows and Deferred Inflows of Resources by Year to be recognized in Future Pension Expenses

<u>Year Ending December 31</u>	<u>Net Deferred Outflows of Resources</u>
2017	\$ 2,399,908
2018	2,418,981
2019	2,381,010
2020	155,325
2021	0
Thereafter	0
Total	\$ 7,355,224

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
CURRENT PERIOD
CALENDAR YEAR ENDED DECEMBER 31, 2016

A. Total pension liability	
1. Service Cost	\$ 2,639,543
2. Interest on the Total Pension Liability	12,281,628
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the Total Pension Liability	1,640,544
5. Changes of assumptions	(611,951)
6. Benefit payments, including refunds of employee contributions	(8,734,040)
7. Net change in total pension liability	\$ 7,215,724
8. Total pension liability – beginning	167,459,937
9. Total pension liability – ending	<u><u>\$ 174,675,661</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 3,257,572
2. Contributions – employee	1,145,096
3. Net investment income	9,933,011
4. Benefit payments, including refunds of employee contributions	(8,734,040)
5. Other (Net Transfer)	555,713
6. Net change in plan fiduciary net position	\$ 6,157,352
7. Plan fiduciary net position – beginning	144,683,024
8. Plan fiduciary net position – ending	<u><u>\$ 150,840,376</u></u>
C. Net pension liability/(asset)	<u><u>\$ 23,835,285</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	86.35%
E. Covered Valuation payroll	\$ 24,924,034
F. Net pension liability as a percentage of covered valuation payroll	95.63%

SENSITIVITY OF NET PENSION LIABILITY/(ASSET) TO THE SINGLE DISCOUNT RATE ASSUMPTION

	1% Decrease	Current Single Discount Rate Assumption	1% Increase
	<u>6.50%</u>	<u>7.50%</u>	<u>8.50%</u>
Total Pension Liability	\$ 196,625,691	\$ 174,675,661	\$ 156,470,267
Plan Fiduciary Net Position	150,840,376	150,840,376	150,840,376
Net Pension Liability/(Asset)	\$ 45,785,315	\$ 23,835,285	\$ 5,629,891

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION
MULTIYEAR SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Calendar Years

(schedule to be built prospectively from 2014)

Calendar year ending December 31,	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Total Pension Liability										
Service Cost	\$ 2,639,543	\$ 2,640,660								
Interest on the Total Pension Liability	12,281,628	11,869,028								
Benefit Changes	0	0								
Difference between Expected and Actual Experience	1,640,544	(648,919)								
Assumption Changes	(611,951)	395,156								
Benefit Payments and Refunds	(8,734,040)	(7,881,295)								
Net Change in Total Pension Liability	7,215,724	6,374,630								
Total Pension Liability - Beginning	167,459,937	161,085,307								
Total Pension Liability - Ending (a)	\$ 174,675,661	\$ 167,459,937								
Plan Fiduciary Net Position										
Employer Contributions	\$ 3,257,572	\$ 3,168,474								
Employee Contributions	1,145,096	1,182,657								
Pension Plan Net Investment Income	9,933,011	723,795								
Benefit Payments and Refunds	(8,734,040)	(7,881,295)								
Other	555,713	965,300								
Net Change in Plan Fiduciary Net Position	6,157,352	(1,841,069)								
Plan Fiduciary Net Position - Beginning	144,683,024	146,524,093								
Plan Fiduciary Net Position - Ending (b)	\$ 150,840,376	\$ 144,683,024								
Net Pension Liability/(Asset) - Ending (a) - (b)	23,835,285	22,776,913								
Plan Fiduciary Net Position as a Percentage										
of Total Pension Liability	86.35%	86.40 %								
Covered Valuation Payroll	\$ 24,924,034	\$ 24,380,386								
Net Pension Liability as a Percentage										
of Covered Valuation Payroll	95.63%	93.42 %								

MULTIYEAR SCHEDULE OF CONTRIBUTIONS

Last 10 Calendar Years

Calendar Year Ending December 31,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Valuation Payroll	Actual Contribution as a % of Covered Valuation Payroll
2015	\$ 3,159,698	\$ 3,168,474	\$ (8,776)	\$ 24,380,386	13.00%
2016	3,257,571 *	3,257,572	(1)	24,924,034	13.07%

* Estimated based on contribution rate of 13.07% and covered valuation payroll of \$24,924,034.
This number should be verified by the auditor.

NOTES TO SCHEDULE OF CONTRIBUTIONS

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS USED IN THE CALCULATION OF THE 2016 CONTRIBUTION RATE*

Valuation Date:

Notes Actuarially determined contribution rates are calculated as of December 31 each year, which is 12 months prior to the beginning of the fiscal year in which contributions are reported.

Methods and Assumptions Used to Determine 2016 Contribution Rates:

Actuarial Cost Method	Aggregate Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	Non-Taxing bodies: 10-year rolling period. Taxing bodies (Regular, SLEP and ECO groups): 27-year closed period until remaining period reaches 15 years (then 15-year rolling period). Early Retirement Incentive Plan liabilities: a period up to 10 years selected by the Employer upon adoption of ERI. SLEP supplemental liabilities attributable to Public Act 94-712 were financed over 22 years for most employers (two employers were financed over 31 years).
Asset Valuation Method	5-Year smoothed market; 20% corridor
Wage growth	3.50%
Price Inflation	2.75% -- approximate; No explicit price inflation assumption is used in this valuation.
Salary Increases	3.75% to 14.50% including inflation
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2014 valuation pursuant to an experience study of the period 2011-2013.
Mortality	For non-disabled retirees, an IMRF specific mortality table was used with fully generational projection scale MP-2014 (base year 2012). The IMRF specific rates were developed from the RP-2014 Blue Collar Health Annuitant Mortality Table with adjustments to match current IMRF experience. For disabled retirees, an IMRF specific mortality table was used with fully generational projection scale MP-2014 (base year 2012). The IMRF specific rates were developed from the RP-2014 Disabled Retirees Mortality Table applying the same adjustment that were applied for non-disabled lives. For active members, an IMRF specific mortality table was used with fully generational projection scale MP-2014 (base year 2012). The IMRF specific rates were developed from the RP-2014 Employee Mortality Table with adjustments to match current IMRF experience.

Other Information:

Notes There were no benefit changes during the year.

* Based on Valuation Assumptions used in the December 31, 2014 actuarial valuation

DEVELOPMENT OF MARKET VALUE OF ASSETS

Market Value of Assets as of December 31, 2016

1. Employee Contribution Reserve (MDF Assets from IMRF)	\$	26,637,742
2. Employer Contribution Reserve (EAF assets from IMRF)		31,530,083
3. Annuitant Reserve		92,362,848
4. Miscellaneous Adjustment*		309,703
5. Net Market Value	\$	150,840,376

* Includes an adjustment factor of .002057409 on Items 1 through 4 to ensure that Market Value of Assets for all employers balances to the total Market Value of IMRF. Miscellaneous adjustments are due to various items such as suspended annuity reserve, disability benefit reserve, death benefit reserve, supplemental benefit reserve, employers with no assets, etc.

SCHEDULE OF CONTRIBUTIONS

Total Contributions

1. Employer

a.) Wage Reporting	\$	3,257,572
b.) Accelerated payments and Reserve Payments		-
	\$	3,257,572

2. Member

a.) Wage Reporting	\$	1,121,582
b.) Member Payments (i.e. ERI, Pension Payments)		23,514
Sub-total (Amount used for valuation on Schedule of Changes Page 10)	\$	1,145,096

c.) Voluntary Additional Plan	\$	93,746
Total Member Contributions (a+b+c)	\$	1,238,842

Total Employer and Member Contributions (1+2)	\$	4,496,414
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SECTION C

CALCULATION OF THE SINGLE DISCOUNT RATE

CALCULATION OF THE SINGLE DISCOUNT RATE

GASB Statement No. 68 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a “risk-free” rate is required, as described in the following paragraph.

The *Single Discount Rate* (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Federal Reserve) as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.50%; the municipal bond rate is 3.78%; and the resulting single discount rate is 7.50%.

The tables in this section provide background for the development of the single discount rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

Expected Contributions are developed based on the following:

- Member Contributions for current members
- Normal Cost contributions for current members
- Unfunded Liability contributions for current and future members.

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

**SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF CONTRIBUTIONS**

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost Contributions	UAL Contributions	Total Contributions
0	\$ 24,924,034				
1	24,809,666	\$ 1,116,435	\$ 1,762,648	\$ 1,179,151	\$ 4,058,234
2	23,638,159	1,063,717	1,646,452	1,352,271	4,062,439
3	22,575,749	1,015,909	1,561,208	1,426,037	4,003,154
4	21,544,807	969,516	1,489,914	1,505,128	3,964,558
5	20,521,225	923,455	1,417,085	1,590,070	3,930,611
6	19,519,710	878,387	1,345,982	1,644,712	3,869,081
7	18,506,027	832,771	1,274,240	1,702,277	3,809,288
8	17,500,953	787,543	1,201,548	1,761,857	3,750,948
9	16,557,075	745,068	1,133,447	1,823,522	3,702,037
10	15,678,609	705,537	1,070,186	1,887,345	3,663,069
11	14,835,230	667,585	1,009,663	1,953,402	3,630,651
12	14,050,145	632,257	953,433	2,021,772	3,607,461
13	13,271,432	597,214	897,946	2,092,534	3,587,694
14	12,493,252	562,196	842,805	2,165,772	3,570,774
15	11,719,434	527,375	787,101	2,241,574	3,556,050
16	10,964,472	493,401	733,119	2,320,030	3,546,550
17	10,273,612	462,313	684,879	2,401,231	3,548,423
18	9,580,140	431,106	635,787	2,485,274	3,552,167
19	8,857,223	398,575	585,164	2,572,258	3,555,997
20	8,118,337	365,325	533,114	2,662,287	3,560,726
21	7,380,924	332,142	481,748	2,755,467	3,569,357
22	6,709,682	301,936	434,595	2,851,909	3,588,439
23	6,118,183	275,318	392,626	2,951,725	3,619,670
24	5,562,984	250,334	353,672	3,055,036	3,659,042
25	5,019,570	225,881	315,624	3,161,962	3,703,467
26	4,497,593	202,392	279,667	3,272,630	3,754,689
27	3,997,477	179,887	245,782	0	425,668
28	3,523,660	158,565	213,841	0	372,406
29	3,108,049	139,862	185,833	(0)	325,695
30	2,731,627	122,923	160,605	(0)	283,528
31	2,312,312	104,054	134,109	0	238,163
32	1,915,715	86,207	110,153	0	196,360
33	1,591,630	71,623	90,884	0	162,508
34	1,274,489	57,352	72,267	0	129,619
35	995,275	44,787	56,435	(0)	101,222
36	750,613	33,778	42,786	(0)	76,564
37	553,664	24,915	31,891	0	56,806
38	374,211	16,839	21,890	0	38,729
39	219,791	9,891	13,339	0	23,229
40	142,784	6,425	9,391	0	15,816
41	107,469	4,836	7,539	(0)	12,375
42	84,290	3,793	6,064	(0)	9,857
43	62,800	2,826	4,556	0	7,382
44	44,275	1,992	3,221	0	5,213
45	31,199	1,404	2,276	0	3,680
46	20,540	924	1,492	0	2,416
47	14,455	650	1,053	(0)	1,703
48	10,354	466	753	(0)	1,219
49	6,849	308	498	0	806
50	3,803	171	275	0	446

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

**SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF CONTRIBUTIONS (CONCLUDED)**

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost Contributions	UAL Contributions	Total Contributions
51	\$ 2,471	\$ 111	\$ 180	\$ 0	291
52	1,526	69	112	0	180
53	410	18	29	(0)	48
54	0	0	0	0	0
55	0	0	0	0	0
56	0	0	0	0	0
57	0	0	0	0	0
58	0	0	0	0	0
59	0	0	0	0	0
60	0	0	0	0	0
61	0	0	0	0	0
62	0	0	0	0	0
63	0	0	0	0	0
64	0	0	0	0	0
65	0	0	0	0	0
66	0	0	0	0	0
67	0	0	0	0	0
68	0	0	0	0	0
69	0	0	0	0	0
70	0	0	0	0	0
71	0	0	0	0	0
72	0	0	0	0	0
73	0	0	0	0	0
74	0	0	0	0	0
75	0	0	0	0	0
76	0	0	0	0	0
77	0	0	0	0	0
78	0	0	0	0	0
79	0	0	0	0	0
80	0	0	0	0	0
81	0	0	0	0	0
82	0	0	0	0	0
83	0	0	0	0	0
84	0	0	0	0	0
85	0	0	0	0	0
86	0	0	0	0	0
87	0	0	0	0	0
88	0	0	0	0	0
89	0	0	0	0	0
90	0	0	0	0	0
91	0	0	0	0	0
92	0	0	0	0	0
93	0	0	0	0	0
94	0	0	0	0	0
95	0	0	0	0	0
96	0	0	0	0	0
97	0	0	0	0	0
98	0	0	0	0	0
99	0	0	0	0	0
100	0	0	0	0	0

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

**SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION**

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
1	\$ 150,840,376	\$ 4,058,234	\$ 8,974,794	\$ 11,131,990	\$ 157,055,806
2	157,055,806	4,062,439	9,345,534	11,584,651	163,357,362
3	163,357,362	4,003,154	9,782,763	12,038,985	169,616,737
4	169,616,737	3,964,558	10,379,370	12,485,049	175,686,974
5	175,686,974	3,930,611	10,978,080	12,917,021	181,556,525
6	181,556,525	3,869,081	11,616,081	13,331,479	187,141,004
7	187,141,004	3,809,288	12,267,417	13,724,130	192,407,005
8	192,407,005	3,750,948	12,970,112	14,091,057	197,278,898
9	197,278,898	3,702,037	13,632,876	14,430,243	201,778,303
10	201,778,303	3,663,069	14,288,169	14,742,135	205,895,337
11	205,895,337	3,630,651	14,923,806	15,026,313	209,628,496
12	209,628,496	3,607,461	15,559,344	15,282,044	212,958,657
13	212,958,657	3,587,694	16,169,639	15,508,606	215,885,318
14	215,885,318	3,570,774	16,734,611	15,706,679	218,428,160
15	218,428,160	3,556,050	17,250,790	15,877,843	220,611,263
16	220,611,263	3,546,550	17,729,998	16,023,581	222,451,396
17	222,451,396	3,548,423	18,161,214	16,145,782	223,984,386
18	223,984,386	3,552,167	18,633,258	16,243,512	225,146,807
19	225,146,807	3,555,997	19,136,319	16,312,311	225,878,796
20	225,878,796	3,560,726	19,573,367	16,351,291	226,217,446
21	226,217,446	3,569,357	20,013,323	16,360,808	226,134,288
22	226,134,288	3,588,439	20,312,467	16,344,258	225,754,519
23	225,754,519	3,619,670	20,547,055	16,308,288	225,135,422
24	225,135,422	3,659,042	20,760,830	16,255,433	224,289,068
25	224,289,068	3,703,467	20,903,869	16,188,326	223,276,991
26	223,276,991	3,754,689	20,979,400	16,111,525	222,163,805
27	222,163,805	425,668	20,996,820	15,904,813	217,497,466
28	217,497,466	372,406	20,961,854	15,554,164	212,462,182
29	212,462,182	325,695	20,862,695	15,178,449	207,103,631
30	207,103,631	283,528	20,711,209	14,780,583	201,456,533
31	201,456,533	238,163	20,568,279	14,360,643	195,487,060
32	195,487,060	196,360	20,347,057	13,919,539	189,255,902
33	189,255,902	162,508	20,084,429	13,460,626	182,794,607
34	182,794,607	129,619	19,819,688	12,984,567	176,089,105
35	176,089,105	101,222	19,515,402	12,491,813	169,166,738
36	169,166,738	76,564	19,165,502	11,984,611	162,062,411
37	162,062,411	56,806	18,739,333	11,466,752	154,846,635
38	154,846,635	38,729	18,309,206	10,940,741	147,516,899
39	147,516,899	23,229	17,821,797	10,408,387	140,126,719
40	140,126,719	15,816	17,233,505	9,875,513	132,784,543
41	132,784,543	12,375	16,606,945	9,347,794	125,537,767
42	125,537,767	9,857	15,965,537	8,827,811	118,409,898
43	118,409,898	7,382	15,322,697	8,316,801	111,411,384
44	111,411,384	5,213	14,671,556	7,815,809	104,560,849
45	104,560,849	3,680	14,015,455	7,326,121	97,875,195
46	97,875,195	2,416	13,355,448	6,848,953	91,371,116
47	91,371,116	1,703	12,694,711	6,385,451	85,063,560
48	85,063,560	1,219	12,037,149	5,936,579	78,964,209
49	78,964,209	806	11,386,463	5,503,072	73,081,624
50	73,081,624	446	10,743,532	5,085,539	67,424,078

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

**SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION (CONCLUDED)**

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)=(a)+(b)-(c)+(d)
51	\$ 67,424,078	\$ 291	\$ 10,108,913	\$ 4,684,585	\$ 62,000,041
52	62,000,041	180	9,486,165	4,300,710	56,814,766
53	56,814,766	48	8,876,186	3,934,270	51,872,897
54	51,872,897	0	8,279,362	3,585,604	47,179,139
55	47,179,139	0	7,697,270	3,255,006	42,736,875
56	42,736,875	0	7,131,298	2,942,677	38,548,254
57	38,548,254	0	6,582,650	2,648,732	34,614,336
58	34,614,336	0	6,052,638	2,373,205	30,934,903
59	30,934,903	0	5,542,435	2,116,034	27,508,501
60	27,508,501	0	5,052,908	1,877,079	24,332,672
61	24,332,672	0	4,584,970	1,656,122	21,403,825
62	21,403,825	0	4,139,490	1,452,862	18,717,197
63	18,717,197	0	3,717,311	1,266,911	16,266,798
64	16,266,798	0	3,319,248	1,097,788	14,045,338
65	14,045,338	0	2,945,921	944,925	12,044,342
66	12,044,342	0	2,597,831	807,668	10,254,179
67	10,254,179	0	2,275,396	685,279	8,664,061
68	8,664,061	0	1,978,798	576,941	7,262,205
69	7,262,205	0	1,707,968	481,774	6,036,011
70	6,036,011	0	1,462,563	398,846	4,972,295
71	4,972,295	0	1,241,954	327,191	4,057,532
72	4,057,532	0	1,045,302	265,825	3,278,055
73	3,278,055	0	871,568	213,761	2,620,248
74	2,620,248	0	719,495	170,025	2,070,778
75	2,070,778	0	587,642	133,670	1,616,807
76	1,616,807	0	474,476	103,789	1,246,119
77	1,246,119	0	378,436	79,524	947,208
78	947,208	0	297,879	60,072	709,401
79	709,401	0	231,145	44,694	522,950
80	522,950	0	176,630	32,717	379,037
81	379,037	0	132,785	23,538	269,790
82	269,790	0	98,081	16,623	188,332
83	188,332	0	71,076	11,508	128,763
84	128,763	0	50,460	7,799	86,102
85	86,102	0	35,053	5,167	56,216
86	56,216	0	23,781	3,341	35,776
87	35,776	0	15,731	2,104	22,149
88	22,149	0	10,129	1,288	13,307
89	13,307	0	6,331	765	7,741
90	7,741	0	3,832	439	4,349
91	4,349	0	2,240	244	2,352
92	2,352	0	1,258	130	1,224
93	1,224	0	677	67	614
94	614	0	351	33	296
95	296	0	176	16	135
96	135	0	85	7	57
97	57	0	38	3	22
98	22	0	17	1	6
99	6	0	6	0	1
100	1	0	1	0	0

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

**SINGLE DISCOUNT RATE DEVELOPMENT
PRESENT VALUES OF PROJECTED BENEFITS**

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^a ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+sdr)) ^a (a-.5)
1	\$ 150,840,376	\$ 8,974,794	\$ 8,974,794	\$ 0	\$ 8,656,060	\$ 0	\$ 8,656,060
2	157,055,806	9,345,534	9,345,534	0	8,384,776	0	8,384,776
3	163,357,362	9,782,763	9,782,763	0	8,164,703	0	8,164,703
4	169,616,737	10,379,370	10,379,370	0	8,058,261	0	8,058,261
5	175,686,974	10,978,080	10,978,080	0	7,928,450	0	7,928,450
6	181,556,525	11,616,081	11,616,081	0	7,803,925	0	7,803,925
7	187,141,004	12,267,417	12,267,417	0	7,666,517	0	7,666,517
8	192,407,005	12,970,112	12,970,112	0	7,540,154	0	7,540,154
9	197,278,898	13,632,876	13,632,876	0	7,372,513	0	7,372,513
10	201,778,303	14,288,169	14,288,169	0	7,187,803	0	7,187,803
11	205,895,337	14,923,806	14,923,806	0	6,983,783	0	6,983,783
12	209,628,496	15,559,344	15,559,344	0	6,773,201	0	6,773,201
13	212,958,657	16,169,639	16,169,639	0	6,547,787	0	6,547,787
14	215,885,318	16,734,611	16,734,611	0	6,303,784	0	6,303,784
15	218,428,160	17,250,790	17,250,790	0	6,044,860	0	6,044,860
16	220,611,263	17,729,998	17,729,998	0	5,779,330	0	5,779,330
17	222,451,396	18,161,214	18,161,214	0	5,506,875	0	5,506,875
18	223,984,386	18,633,258	18,633,258	0	5,255,822	0	5,255,822
19	225,146,807	19,136,319	19,136,319	0	5,021,134	0	5,021,134
20	225,878,796	19,573,367	19,573,367	0	4,777,498	0	4,777,498
21	226,217,446	20,013,323	20,013,323	0	4,544,077	0	4,544,077
22	226,134,288	20,312,467	20,312,467	0	4,290,231	0	4,290,231
23	225,754,519	20,547,055	20,547,055	0	4,037,004	0	4,037,004
24	225,135,422	20,760,830	20,760,830	0	3,794,424	0	3,794,424
25	224,289,068	20,903,869	20,903,869	0	3,554,015	0	3,554,015
26	223,276,991	20,979,400	20,979,400	0	3,318,007	0	3,318,007
27	222,163,805	20,996,820	20,996,820	0	3,089,080	0	3,089,080
28	217,497,466	20,961,854	20,961,854	0	2,868,778	0	2,868,778
29	212,462,182	20,862,695	20,862,695	0	2,656,007	0	2,656,007
30	207,103,631	20,711,209	20,711,209	0	2,452,764	0	2,452,764
31	201,456,533	20,568,279	20,568,279	0	2,265,895	0	2,265,895
32	195,487,060	20,347,057	20,347,057	0	2,085,139	0	2,085,139
33	189,255,902	20,084,429	20,084,429	0	1,914,628	0	1,914,628
34	182,794,607	19,819,688	19,819,688	0	1,757,573	0	1,757,573
35	176,089,105	19,515,402	19,515,402	0	1,609,850	0	1,609,850
36	169,166,738	19,165,502	19,165,502	0	1,470,685	0	1,470,685
37	162,062,411	18,739,333	18,739,333	0	1,337,658	0	1,337,658
38	154,846,635	18,309,206	18,309,206	0	1,215,772	0	1,215,772
39	147,516,899	17,821,797	17,821,797	0	1,100,844	0	1,100,844
40	140,126,719	17,233,505	17,233,505	0	990,237	0	990,237
41	132,784,543	16,606,945	16,606,945	0	887,661	0	887,661
42	125,537,767	15,965,537	15,965,537	0	793,839	0	793,839
43	118,409,898	15,322,697	15,322,697	0	708,721	0	708,721
44	111,411,384	14,671,556	14,671,556	0	631,260	0	631,260
45	104,560,849	14,015,455	14,015,455	0	560,958	0	560,958
46	97,875,195	13,355,448	13,355,448	0	497,248	0	497,248
47	91,371,116	12,694,711	12,694,711	0	439,672	0	439,672
48	85,063,560	12,037,149	12,037,149	0	387,812	0	387,812
49	78,964,209	11,386,463	11,386,463	0	341,254	0	341,254
50	73,081,624	10,743,532	10,743,532	0	299,522	0	299,522

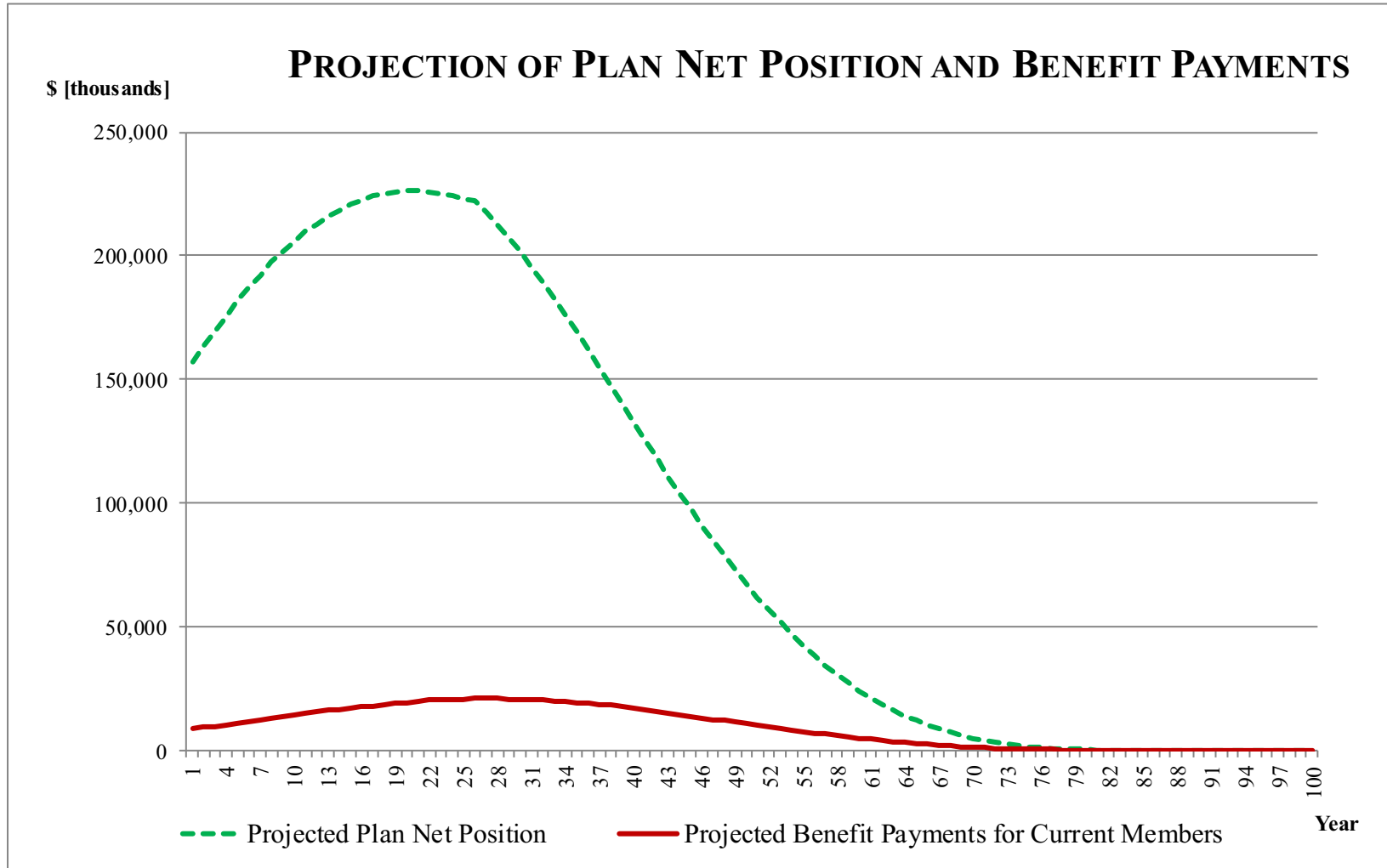
The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

SINGLE DISCOUNT RATE DEVELOPMENT

PRESENT VALUES OF PROJECTED BENEFITS (CONCLUDED)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^{((a)-.5)}	(g)=(e)*vf ^{((a)-.5)}	(h)=(c)/(1+sdr) ^{((a)-.5)}
51	\$ 67,424,078	\$ 10,108,913	\$ 10,108,913	\$ 0	\$ 262,166	\$ 0	\$ 262,166
52	62,000,041	9,486,165	9,486,165	0	228,852	0	228,852
53	56,814,766	8,876,186	8,876,186	0	199,197	0	199,197
54	51,872,897	8,279,362	8,279,362	0	172,840	0	172,840
55	47,179,139	7,697,270	7,697,270	0	149,477	0	149,477
56	42,736,875	7,131,298	7,131,298	0	128,825	0	128,825
57	38,548,254	6,582,650	6,582,650	0	110,617	0	110,617
58	34,614,336	6,052,638	6,052,638	0	94,615	0	94,615
59	30,934,903	5,542,435	5,542,435	0	80,595	0	80,595
60	27,508,501	5,052,908	5,052,908	0	68,350	0	68,350
61	24,332,672	4,584,970	4,584,970	0	57,693	0	57,693
62	21,403,825	4,139,490	4,139,490	0	48,454	0	48,454
63	18,717,197	3,717,311	3,717,311	0	40,476	0	40,476
64	16,266,798	3,319,248	3,319,248	0	33,620	0	33,620
65	14,045,338	2,945,921	2,945,921	0	27,757	0	27,757
66	12,044,342	2,597,831	2,597,831	0	22,770	0	22,770
67	10,254,179	2,275,396	2,275,396	0	18,552	0	18,552
68	8,664,061	1,978,798	1,978,798	0	15,008	0	15,008
69	7,262,205	1,707,968	1,707,968	0	12,050	0	12,050
70	6,036,011	1,462,563	1,462,563	0	9,599	0	9,599
71	4,972,295	1,241,954	1,241,954	0	7,582	0	7,582
72	4,057,532	1,045,302	1,045,302	0	5,937	0	5,937
73	3,278,055	871,568	871,568	0	4,605	0	4,605
74	2,620,248	719,495	719,495	0	3,536	0	3,536
75	2,070,778	587,642	587,642	0	2,686	0	2,686
76	1,616,807	474,476	474,476	0	2,018	0	2,018
77	1,246,119	378,436	378,436	0	1,497	0	1,497
78	947,208	297,879	297,879	0	1,096	0	1,096
79	709,401	231,145	231,145	0	791	0	791
80	522,950	176,630	176,630	0	562	0	562
81	379,037	132,785	132,785	0	393	0	393
82	269,790	98,081	98,081	0	270	0	270
83	188,332	71,076	71,076	0	182	0	182
84	128,763	50,460	50,460	0	120	0	120
85	86,102	35,053	35,053	0	78	0	78
86	56,216	23,781	23,781	0	49	0	49
87	35,776	15,731	15,731	0	30	0	30
88	22,149	10,129	10,129	0	18	0	18
89	13,307	6,331	6,331	0	11	0	11
90	7,741	3,832	3,832	0	6	0	6
91	4,349	2,240	2,240	0	3	0	3
92	2,352	1,258	1,258	0	2	0	2
93	1,224	677	677	0	1	0	1
94	614	351	351	0	0	0	0
95	296	176	176	0	0	0	0
96	135	85	85	0	0	0	0
97	57	38	38	0	0	0	0
98	22	17	17	0	0	0	0
99	6	6	6	0	0	0	0
100	1	1	1	0	0	0	0
Totals	\$ 195,470,839	\$ -	\$ 195,470,839		\$ -	\$ -	\$ 195,470,839

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.



SECTION D

GLOSSARY OF TERMS

GLOSSARY OF TERMS

<i>Actuarial Accrued Liability (AAL)</i>	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
<i>Actuarial Assumptions</i>	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
<i>Accrued Service</i>	Service credited under the fund which was rendered before the date of the actuarial valuation.
<i>Actuarial Equivalent</i>	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
<i>Actuarial Cost Method</i>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
<i>Actuarial Gain (Loss)</i>	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
<i>Actuarial Present Value (APV)</i>	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
<i>Actuarial Valuation</i>	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
<i>Actuarial Valuation Date</i>	The date as of which an actuarial valuation is performed.
<i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</i>	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

GLOSSARY OF TERMS (CONTINUED)

<i>Amortization Payment</i>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<i>Amortization Method</i>	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
<i>Cost-of-Living Adjustments</i>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<i>Covered Valuation Payroll</i>	The earnings of covered employees for the year ended on the valuation date, which is typically only the pensionable pay and does not include pay above any pay cap. It is not necessarily the same as payroll actually paid because it excludes all pay for people who exited during the year.
<i>Deferred Inflows and Outflows</i>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<i>Discount Rate</i>	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: <ol style="list-style-type: none"> 1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.
<i>Entry Age Actuarial Cost Method (EAN)</i>	The EAN is a funding method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.

GLOSSARY OF TERMS (CONTINUED)

<i>GASB</i>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<i>Fiduciary Net Position</i>	The fiduciary net position is the value of the assets of the trust.
<i>Long-Term Expected Rate of Return</i>	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
<i>Money-Weighted Rate of Return</i>	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 68, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
<i>Multiple-Employer Defined Benefit Pension Plan</i>	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
<i>Municipal Bond Rate</i>	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
<i>Net Pension Liability (NPL)</i>	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.
<i>Non-Employer Contribution Entities</i>	Non-employer contribution entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB Accounting statement plan members are not considered non-employer contribution entities.
<i>Normal Cost</i>	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method.
<i>Other Postemployment Benefits (OPEB)</i>	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
<i>Real Rate of Return</i>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<i>Service Cost</i>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

GLOSSARY OF TERMS (CONCLUDED)

<i>Total Pension Expense</i>	<p>The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year:</p> <ol style="list-style-type: none">1. Service Cost;2. Interest on the Total Pension Liability;3. Current-Period Benefit Changes;4. Employee Contributions (made negative for addition here);5. Projected Earnings on Plan Investments (made negative for addition here);6. Pension Plan Administrative Expense;7. Other Changes in Plan Fiduciary Net Position;8. Recognition of Outflow (Inflow) of Resources due to Liabilities; and9. Recognition of Outflow (Inflow) of Resources due to Assets.
<i>Total Pension Liability (TPL)</i>	<p>The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.</p>
<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	<p>The UAAL is the difference between actuarial accrued liability and valuation assets.</p>
<i>Valuation Assets</i>	<p>The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of the GASB Statement No. 68, the valuation asset is equal to the market value of assets.</p>