



Cavanaugh Macdonald
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METROPOLITAN
UTILITIES DISTRICT

**The Retirement Plan for Employees
of
The Metropolitan Utilities District
of Omaha**

**Actuarial Valuation as of
January 1, 2020**





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

March 26, 2020

Board of Directors
Metropolitan Utilities District
7350 World Communications Dr.
Omaha, NE 68122-4041

Members of the Board:

In accordance with your request, we have completed an actuarial valuation of the Retirement Plan for Employees of the Metropolitan Utilities District of Omaha as of January 1, 2020 for the plan year ending December 31, 2020. The major findings of the valuation are contained in this report. There have been no changes to the actuarial assumptions and methods since the prior valuation, with one exception. The investment return assumption has been reduced from 7.00% to 6.90% as the result of action taken at the October 2019 Board meeting. The reduction was based on the recommendation of the Insurance and Pensions Committee of the Board and supported by the Plan's investment consultant, Vanguard Institutional Advisory, and the Plan's actuary, Cavanaugh Macdonald Consulting. The assumption change increased both the unfunded actuarial liability and the total actuarial contribution.

This valuation also reflects the scheduled increase in the employee contribution rate from 7.0% in 2019 to 7.5% in 2020, as provided by the collective bargaining agreement approved by the Board in March, 2018. There are additional increases to the employee pension contribution rate scheduled, effective January 1 of each year: 8.0% in 2021, 8.5% in 2022 and 9.0% in 2023. The employee contribution rate for non-bargaining employees aligns with the rates stated in the collective bargaining agreement through 2023. Future scheduled contribution increases will reduce the District's portion of the actuarial contribution rate as they are recognized over the next three years.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the District's staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information provided in prior years. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.



Board of Directors
March 26, 2020
Page 2

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our report, we did not perform an analysis of the potential range of future measurements.

Actuarial computations presented in this report are for purposes of determining the actuarial contribution amount for funding the Plan and have been made on a basis consistent with our understanding of the Plan's funding policy and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. For example, actuarial computations for purposes of fulfilling financial accounting requirements for the Plan under Governmental Accounting Standards No. 67 and No. 68 are provided in a separate report.

The consultants who worked on this assignment are pension actuaries. CMC's advice is not intended to be a substitute for qualified legal or accounting counsel.

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries and meet the qualification standards to render the actuarial opinion contained herein. We further certify that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement plan and on actuarial assumptions that are internally consistent and reasonable based on the actual experience of the Plan. The Board of Directors has the final decision regarding the appropriateness of the actuarial assumptions used in the valuation and adopted those disclosed in Appendix B.

We respectfully submit the following report and look forward to discussing it with you.

Sincerely,

A handwritten signature in blue ink that reads 'Patrice Beckham' in a cursive script.

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Bryan K. Hoge' in a cursive script.

Bryan K. Hoge FSA, EA, FCA, MAAA
Consulting Actuary



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EXECUTIVE SUMMARY

This report presents the results of the January 1, 2020 actuarial valuation of the Retirement Plan for Employees of the Metropolitan Utilities District of Omaha. The primary purposes of performing the valuation are:

- to estimate the liabilities for the future benefits expected to be provided by the Plan;
- to determine the recommended contribution amount, based on the District's funding policy;
- to measure and disclose various asset and liability measures;
- to assess and disclose the key risks associated with funding the System;
- to monitor any deviation between actual plan experience and experience predicted by the actuarial assumptions, so that recommendations for assumption changes can be made when appropriate;
- to analyze and report on any significant trends in contributions, assets and liabilities over the past several years.

There have been no changes to the actuarial assumptions and methods since the prior valuation, with one exception. The investment return assumption has been reduced from 7.00% to 6.90% as a result of action taken at the October 2019 Board meeting. The reduction was based on the recommendation of the Insurance and Pensions Committee of the Board and supported by the Plan's investment consultant, Vanguard Institutional Advisory. The Plan's actuary, Cavanaugh Macdonald, also agreed with the change which provides for more conservatism in the investment return assumption. The change in the assumption increased the actuarial liability by \$5.1 million and the total contribution rate by 1.08% of pay, or \$720,000.

This valuation also reflects the scheduled increase in the employee contribution rate from 7.0% to 7.5%, as provided by the collective bargaining agreement approved by the Board in March, 2018 (effective for April 1, 2018 through March 31, 2023). There are additional increases to the employee pension contribution rate, effective January 1 of each year: 8.0% in 2021, 8.5% in 2022 and 9.0% in 2023. The employee contribution rate for those not covered by the collective bargaining agreement aligns with the rates stated in the collective bargaining agreement through 2023. The increase in the employee contribution rate for 2020 decreased the District's contribution by about \$330,000. Future scheduled increases in the employee contribution rate will reduce the District's portion of the total actuarial contribution rate as they are recognized over the next three years.

The actuarial valuation results provide a "snapshot" view of the Plan's financial condition on January 1, 2020 which reflects net favorable experience for the past plan year as demonstrated by an unfunded actuarial liability (UAL) that was lower than expected. The rate of return on the actuarial value of assets was higher than the expected return, which resulted in an actuarial gain on assets of \$6.5 million. There was also favorable experience on the plan liabilities for the past plan year, largely due to more deaths than expected and lower COLAs than expected, based on the assumptions. The net liability experience from all demographic assumptions was an actuarial gain of \$8.3 million. The aggregate experience for the 2019 plan year, on both actuarial assets and actuarial liabilities, was a gain of \$14.8 million.

The valuation uses an asset smoothing method to mitigate the impact of the volatility of investment experience on the funding results. As a result, the plan's funded status and the actuarially determined contribution are based on the actuarial (smoothed) value of assets, not the pure market value. The money-weighted rate of return on the market value of assets during 2019 was 21.0%, as reported by Vanguard, which was considerably higher than the assumption of 7.0% for 2019 (6.9% applies prospectively from January 1, 2020). However, as a result of the deferred (unrecognized) investment experience due to the asset smoothing method, the rate of return on the actuarial value of assets was 8.6%. The strong return on



EXECUTIVE SUMMARY

the market value of assets for 2019 created a \$19.6 million of deferred investment gain in the 2020 valuation compared to a deferred investment loss of \$24.3 million in the January 1, 2019 valuation. Actual returns over the next few years will determine if, and when, the \$19.6 million of deferred investment gain will be recognized. For example, a return of approximately 2% on the market value of assets in 2020 would result in the actuarial value of assets being equal to the market value of assets at January 1, 2021, eliminating the deferred investment gain and avoiding an actuarial gain/loss for the 2020 plan year.

The change in the assets, liabilities, and contributions of the Plan over the last year are discussed in more detail in the following pages.

Assets

As of January 1, 2020, the Plan had total funds of \$452.1 million, when measured on a market value basis. This was an increase of \$73.9 million from the prior year, and represents a 21.0% rate of return for the 2019 plan year.

The market value of assets is not used directly in the actuarial calculation of the Plan's funded status and the District's recommended contribution. An asset valuation method is used to smooth the effects of market fluctuations. The actuarial value of assets is equal to the expected asset value (based on last year's actuarial value of assets, net cash flows and a rate of return equal to the actuarial assumed rate (7.0% for 2019 and 6.9% for 2020 and beyond) plus 25% of the difference between the actual market value and the expected asset value. See Exhibit 2 for the detailed development of the actuarial value of assets as of January 1, 2020. The rate of return on the actuarial value of assets was 8.6% (higher than the 7.0% assumption) which generated an actuarial gain of \$6.5 million.

The components of the change in the market value and actuarial value of assets are shown below:

	Market Value (\$M)	Actuarial Value (\$M)
Net Assets, January 1, 2019	\$ 378.2	\$ 402.5
• District and Member Contributions	+ 16.7	+ 16.7
• Benefit Payments, Refunds and Administrative Expenses	- 21.3	- 21.3
• Net Investment Return	+ 78.5	+ 34.6
Net Assets, January 1, 2020	\$ 452.1	\$ 432.5
Rate of Return	21.0%	8.6%

The deferred investment gain (market value less actuarial value of assets) as of January 1, 2020 is \$19.6 million, compared to a \$24.3 million deferred loss in last year's valuation. This unrecognized investment gain will flow through the asset smoothing method over the next few years, to the extent it is not offset by investment experience that is lower than the assumed rate of return. If the assets earn the assumed rate of investment return of 6.9% per year (net of investment expenses) on a market value basis, it will result in actuarial gains on the actuarial value of assets for the next few years.

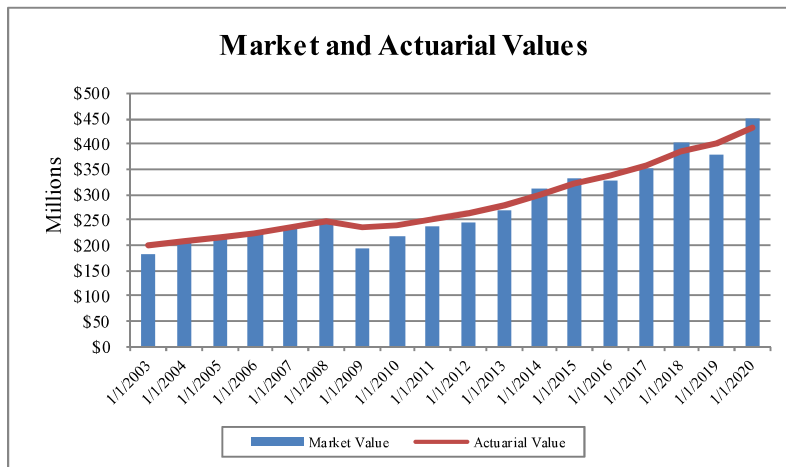


EXECUTIVE SUMMARY

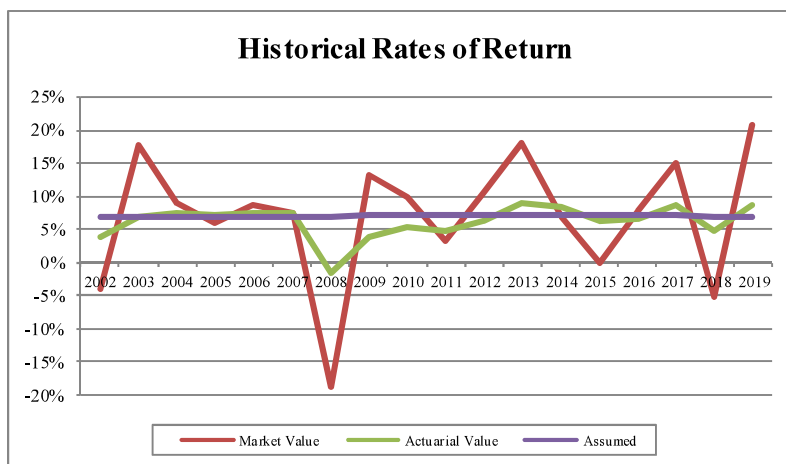
If the deferred investment gain was recognized immediately in the actuarial value assets, the unfunded actuarial liability would decrease by \$19.6 million to \$32.5 million, the funded percentage would increase from 89.3% to 93.3% and the actuarially determined contribution would decrease from \$11.0M to \$9.7M.

A comparison of asset values on both a market and actuarial basis for the last six years is shown below.

	January 1 (\$M)					
	2015	2016	2017	2018	2019	2020
Actuarial Value of Assets	322	339	359	387	403	432
Market Value of Assets	333	329	353	403	378	452
Actuarial Value/Market Value	97%	103%	102%	96%	106%	96%



An asset smoothing method is used to mitigate the volatility in the market value of assets. By using a smoothing method, the actuarial (or smoothed) value can be, and actually should be, either above or below the pure market value.



The rate of return on the actuarial value of assets has been less volatile than the return on market value, which is the reason for using a smoothing method. However, during this time period, the rate of return on actuarial assets has been at or below the assumed rate of return for much of the period.

Liabilities

The first step in determining the contribution for the Plan is to calculate the liabilities for all expected future benefit payments. These liabilities represent the present value of future benefits (PVFB) expected to be paid to the current Plan members, assuming that all actuarial assumptions are realized. Thus, the



EXECUTIVE SUMMARY

PVFB reflects future service and salary increases for active members that are expected to occur before a benefit becomes payable. The components of the PVFB can be found in the liabilities portion of the valuation balance sheet (see Exhibit 3). The other critical measurement of plan liabilities in the valuation process is the actuarial liability (AL). The PVFB is funded over each employees' expected working career and the portion of the PVFB that is allocated to prior service periods is called the actuarial liability.

The following chart compares the Present Value of Future Benefits (PVFB), the Actuarial Liability (AL) and plan assets for the current and prior valuation.

	As of January 1	
	2020	2019
Present Value of Future Benefits (PVFB)	\$605,016,424	\$573,466,823
Actuarial Liability (AL)	\$484,575,088	\$465,369,852
Assets at Actuarial Value	\$432,489,879	\$402,503,121
Funded Ratio (Actuarial Value)	89.3%	86.5%
Assets at Market Value	\$452,080,699	\$378,210,890
Funded Ratio (Market Value)	93.3%	81.3%

The calculation of the unfunded actuarial liability for the Plan as of January 1, 2020 is shown below:

Actuarial Liability	\$484,575,088
Actuarial Value of Assets	<u>432,489,879</u>
Unfunded Actuarial Liability	\$ 52,085,209

Actuarial gains (or losses) result from actual experience that is more (or less) favorable than anticipated based on the actuarial assumptions. These "experience" (or actuarial) gains or losses are reflected in the unfunded actuarial liability and are measured as the difference between the expected unfunded actuarial liability and the actual unfunded actuarial liability, taking into account any changes due to assumption or benefit provision changes. The Plan experience, in total, was favorable (a lower unfunded actuarial liability than expected). There was an actuarial gain of \$8.3 million on liabilities and an actuarial gain of \$6.5 million on the actuarial value of assets, resulting in an aggregate gain of \$14.8 million.

The change in the unfunded actuarial liability between January 1, 2019 and 2020 is shown below (in millions):

Unfunded Actuarial Liability, January 1, 2019	\$	62.9
· Expected change in UAL	+	0.4
· Contributions in excess of the actuarial amount	-	1.1
· Investment experience	-	6.5
· Demographic experience	-	8.3
· Impact of assumption change	+	5.1
· Other experience	-	0.4
Unfunded Actuarial Liability, January 1, 2020	\$	52.1



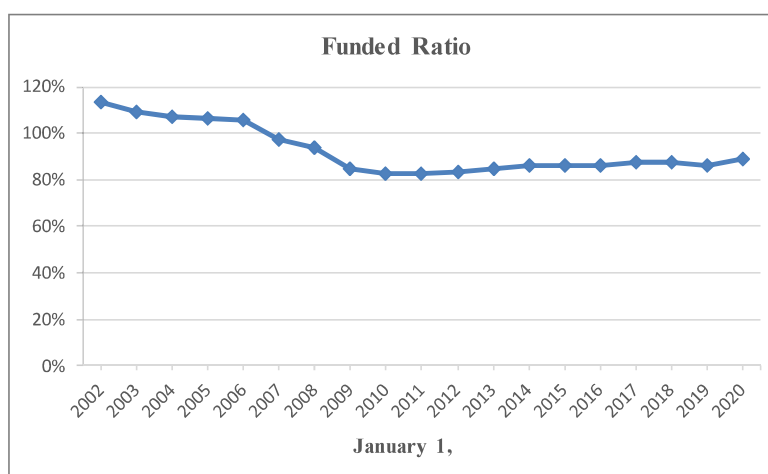
EXECUTIVE SUMMARY

A number of factors impact the funded ratio from year to year. The major drivers of the increase in the funded ratio from the January 1, 2019 to the January 1, 2020 valuation are shown in the following table.

	Actuarial Value of Assets	Market Value of Assets
January 1, 2019 Funded Ratio	86.49%	81.27%
· Expected change	0.63%	0.52%
· Excess contributions	0.22%	0.22%
· Investment experience	1.34%	10.68%
· Demographic experience	1.53%	1.60%
· Impact of assumption change	<u>(0.96%)</u>	<u>(1.00%)</u>
· Total Change	2.76%	12.02%
January 1, 2020 Funded Ratio	89.25%	93.29%

Note that the funded ratio, as a standalone measurement, does not indicate whether or not the Plan has sufficient funds to settle all current obligations, nor is it necessarily indicative of the need or amount of future funding.

An evaluation of the unfunded actuarial liability on a pure dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both large numbers) is reflected. Another way to evaluate the progress made in funding the Plan is to track the funded ratio, the ratio of actuarial assets to actuarial liability. The historical funded ratio of the Plan since 2002 is shown in the following graph:



The large reduction in the funded ratio from 2006 to 2010 is attributable to the benefit improvement granted in 2007 (change in the benefit formula) and the impact of the actual investment return in 2008. The funded ratio has increased moderately over the last ten years. Given the Plan's funding policy, which



EXECUTIVE SUMMARY

includes amortizing the legacy unfunded actuarial liability over 30 years beginning in 2014, we would not expect the funded ratio to reach 100% until 2044. If contributions above the actuarial contribution are made in the future and/or actual experience, especially investment return, is better than anticipated by the assumptions, the Plan may reach fully funded status more rapidly.

Contribution Levels

The Plan is funded by contributions from both the District and employees who contribute a fixed percentage of their payroll. The District is responsible for contributing the remaining amount required to fund the Plan on an actuarial basis. For calendar year 2020, each member will contribute 7.5% of pensionable earnings, as provided by the collective bargaining agreement. There are additional scheduled increases to the employee pension contribution rate, effective January 1 of each year: 8.0% in 2021, 8.5% in 2022 and 9.0% in 2023. The contribution rate for employees not covered by the collective bargaining agreement aligns with the rates stated in the collective bargaining agreement through 2023.

The scheduled increase in the employee contribution rate from 7.0% to 7.5%, effective January 1, 2020, reduced the District's 2020 actuarial contribution by more than \$300,000. As the scheduled increases occur in the future, they will have a significant cumulative impact on the amount of the District's contribution, especially in 2023 and beyond.

The actuarial contribution to the Plan is composed of three parts:

- (1) Normal cost (which is the allocation of benefit costs to the current year of service),
- (2) Administrative expense, and
- (3) Amortization payment on the Unfunded Actuarial Liability.

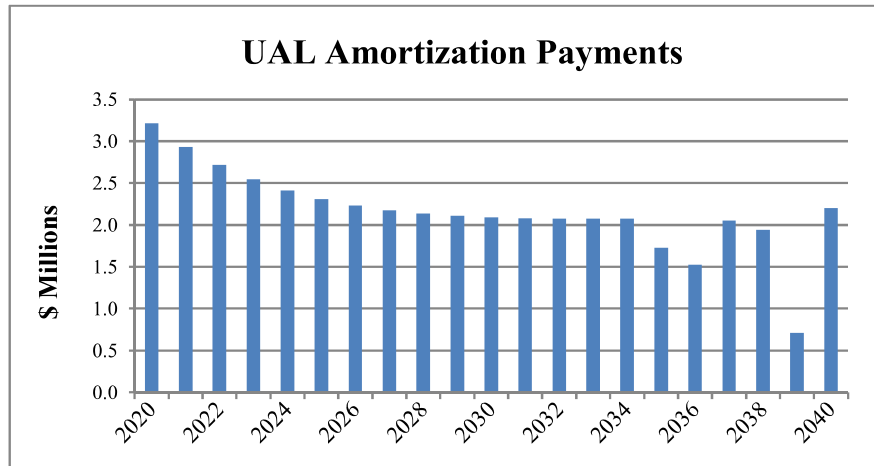
The normal cost rate is independent of the Plan's funded status and represents the cost, as a percent of payroll, of the benefits provided by the Plan which is allocated to the current year of service. The total normal cost for the Plan is 19.13% of pay. When offset by the employee contribution rate of 7.50% during 2020, the employer portion of the normal cost is 11.63% of pay. The normal cost represents the long-term cost of the benefit structure in the Plan, based on the current actuarial assumptions. The Plan's administrative expenses are funded using an explicit assumption that is based on the actual administrative expenses in the prior year. The administrative expense component for the 2020 plan year is 0.11% of expected payroll.

Currently, the actuarial value of assets is less than the actuarial liability, so there is an unfunded actuarial liability of \$52.1 million. Under the current amortization method, the unfunded actuarial liability as of January 1, 2014 is treated as a separate amortization base that is amortized, on a level-percent of payroll basis, over a closed 30-year period beginning January 1, 2014 (24 payments remaining in this valuation). Additionally, every year a new amortization base is calculated reflecting the actual plan experience in the immediately preceding plan year, as well as any change in the unfunded actuarial liability due to assumption changes or plan amendments. Each new base is amortized, with payments developed as a level-percent of payroll, over a closed 20-year period that begins on the valuation date when the new base is established. Using this methodology, referred to as "layered amortization", the resulting UAL amortization payment for 2020 is 4.83% of pay.



EXECUTIVE SUMMARY

As mentioned earlier, the UAL is amortized with payments that are developed to be level as a percentage of total covered payroll, but there are various amortization bases with different payments and periods. The following graph shows the net UAL amortization payments each year until full funding is reached, assuming all actuarial assumptions are met in the future.



The total actuarial contribution rate for 2020 is:

$$\begin{array}{r}
 19.13\% \text{ (normal cost)} \\
 0.11\% \text{ (administrative expense)} \\
 \underline{4.83\% \text{ (UAL amortization payment)}} \\
 24.07\%
 \end{array}$$

Given the employee contribution rate of 7.50%, the District’s share of the total contribution rate is 16.57% of expected payroll in 2020, or \$11.0 million.

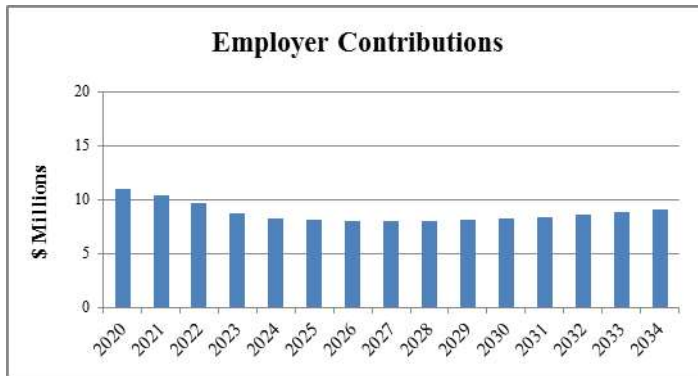
The primary components of the change in the actuarial required contribution rate are shown in the following table:

Total Actuarial Required Contribution Rate, January 1, 2019	24.62%
· Change in normal cost rate and administrative expense	0.11%
· Contributions in excess of the actuarial amount	(0.11%)
· Investment experience	(0.68%)
· Demographic experience	(0.87%)
· Payroll increase greater than expected	(0.03%)
· Impact of assumption change	1.08%
· Other experience	(0.05%)
Total Actuarial Required Contribution Rate, January 1, 2020	<u>24.07%</u>



EXECUTIVE SUMMARY

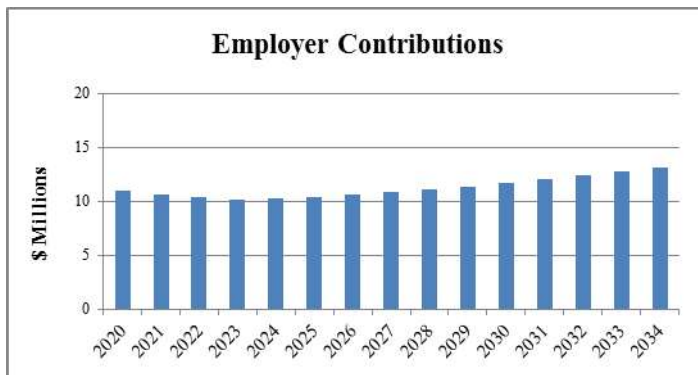
To illustrate the importance of investment returns on the contribution level, we have included graphs of the estimated employer contributions based on three different scenarios for the rate of return on the market value of assets in 2020, 2021 and 2022. The projections reflect the scheduled increases in the employee contribution rate over the next three years and assume that all other actuarial assumptions are met (including a 6.90% assumed rate of return on the market value of assets in 2022 and later) and that the full actuarial contribution will be made each year in the future:



OPTIMISTIC

(10% return on market value for 2020-2022)

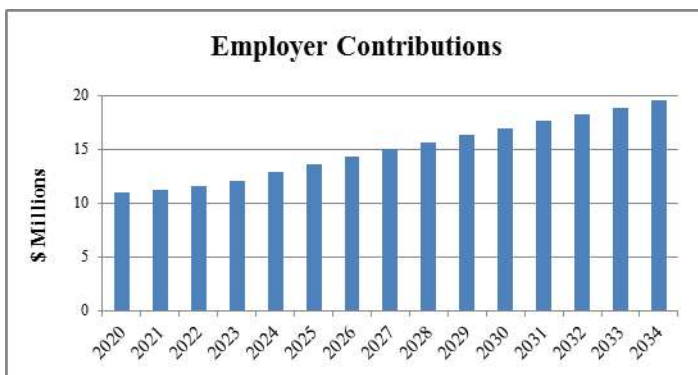
Under this scenario, the current deferred investment gain is recognized and additional actuarial gains occur. The overall impact is an initial decline in the contribution amount and then a stable contribution amount over most of the time period.



INTERMEDIATE

(6.90% return on market value for 2020-2022)

If the assumed rate of return is earned on the market value of assets, the deferred investment gain will be recognized in the smoothing method. However, contribution amounts still increase over time due to increases in the amount of covered payroll.



PESSIMISTIC

(0% return for 2020, 4% for 2021-2022)

If this scenario occurs, investment losses occur and initially offset the current deferred gain. Despite the scheduled increases in the employee contribution rate in the next three years, the investment losses, coupled with increases in payroll, will cause the District's contributions to increase significantly.



EXECUTIVE SUMMARY

Under the funding methodology adopted by the Board, contributions by the District (exclusive of employee contributions) in the following amount will satisfy the actuarially determined contribution for the 2020 plan year:

Actuarially Determined Contribution:	
Normal Cost	\$12,745,888
Administrative Expenses	70,123
Amortization of UAL	3,215,607
Expected Employee Contributions	<u>(4,995,311)</u>
Total	\$11,036,307

The resulting contribution for the District (net of expected employee contributions) is \$11,036,307, which is 16.57% of expected covered payroll for 2020.

In recent years we have recommended that the District contribute an amount at least equal to the amount of the contribution made in the prior year, if greater than the current actuarially determined contribution. The District has followed this recommendation in setting the budgeted contributions. This contribution policy was implemented to reflect several goals:

- (1) to pay off the UAL more rapidly,
- (2) to improve the Plan's funded status more quickly, and
- (3) to mitigate some of the volatility in the District's contribution level.

MUD staff has informed us that the budgeted amount for 2020 is \$13,558,075 which is \$2.6 million higher than the actuarially determined contribution of \$11.0 million for the 2020 plan year. While it would strengthen the Plan's funding if the budgeted amount for 2020 is contributed, it is also reasonable to contribute the same amount as in 2019 (\$12.3 million), which still exceeds the actuarial contribution by \$1.3 million.

Future contribution levels will continue to depend heavily on investment returns in future years, as illustrated in the graphs on the prior pages. However, it should be noted that even if the actuarial contribution rate were to hold steady, the dollar amount of total contributions is expected to increase as covered payroll increases over time. Overall, the scheduled increases in the employee contribution rate (ultimately reaching 9.0% in 2023) will tend to reduce the District's contributions compared to the amount that would otherwise be due.

A typical retirement plan faces many different risks. The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. Actuarial Standard of Practice Number 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions. Risk evaluation is an important part of managing a defined benefit plan. Please see Section III of this report for an in-depth discussion of the specific risks facing the Retirement Plan for Employees of the Metropolitan Utilities District of Omaha.



EXECUTIVE SUMMARY

**METROPOLITAN UTILITIES DISTRICT OF OMAHA
RETIREMENT PLAN FOR EMPLOYEES**

PRINCIPAL VALUATION RESULTS

	January 1, 2020	January 1, 2019	% Chg
MEMBERSHIP			
1. Active Membership			
- Number of Members	808	792	2.0
- Projected Payroll for Upcoming Fiscal Year	\$66.6M	\$64.0M	4.1
- Average Projected Salary	\$82,431	\$80,757	2.1
- Average Attained Age	48.0	48.3	(0.6)
- Average Entry Age	33.7	33.6	0.3
2. Inactive Membership			
- LTD and Inactive Vesteds	72	64	12.5
- Inactive Non-vested	1	4	(75.0)
- Number of Retirees / Beneficiaries	655	656	(0.2)
- Average Retiree/Beneficiary Annual Benefit	\$32,522	\$31,817	2.2
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value	\$452M	\$378M	19.6
- Actuarial Value	432M	403M	7.2
2. Projected Liabilities			
- Retired Members	\$247M	\$238M	3.8
- Inactive Members	13M	11M	18.2
- Active Members	<u>345M</u>	<u>324M</u>	6.5
- Total Liability	\$605M	\$573M	5.6
3. Actuarial Liability	\$485M	\$465M	4.3
4. Unfunded Actuarial Liability (UAL)	\$52M	\$63M	(17.5)
5. Funded Ratios			
Actuarial Value Assets / Actuarial Liability	89.25%	86.49%	3.2
Market Value Assets / Actuarial Liability	93.29%	81.27%	14.8
CONTRIBUTIONS			
1. Normal Cost Rate	19.13%	18.39%	4.0
2. Administrative Expense	0.11%	0.15%	(26.7)
3. UAL Contribution Rate	<u>4.83%</u>	<u>6.08%</u>	(20.6)
4. Total Contribution Rate (1) + (2) + (3)	24.07%	24.62%	(2.2)
5. Less Employee Contribution Rate	<u>(7.50%)</u>	<u>(7.00%)</u>	7.1
6. District Contribution Rate (4) + (5)	16.57%	17.62%	(6.0)
7. District Annual Contribution	\$11.0M	\$11.3M	(2.7)

Note: numbers may not add due to rounding.



SECTION I – VALUATION RESULTS

EXHIBIT 1

**SUMMARY OF FUND ACTIVITY
(Market Value Basis)**

For Year Ended December 31, 2019

1. Market Value of Assets as of January 1, 2019	\$	378,210,890
2. a. Contributions - District	\$	12,300,000
b. Contributions - Employees		4,413,137
c. Total		<u>16,713,137</u>
3. Benefit payments and refunds	\$	(21,204,786)
4. Administrative expenses	\$	(70,123)
5. Investment income, net of investment expenses	\$	78,431,581
6. Market Value of Assets as of December 31, 2019	\$	452,080,699
7. Rate of Return on Market Value of Assets*		21.0%

*Annual money-weighted rate of return, net of investment expenses, as reported by Vanguard



SECTION I – VALUATION RESULTS

EXHIBIT 2

DETERMINATION OF ACTUARIAL VALUE OF ASSETS

The actuarial value of assets is used to minimize the impact of annual fluctuations in the market value of investments on the contribution rate. The current asset valuation method is called the “Expected Value + 25% Method” and has been used since 1998.

The “expected value” of assets is determined by applying the investment return assumption to last year’s actuarial value of assets and the net difference of receipts and disbursements for the year. The actual market value is compared to the expected value and 25% of the difference (positive or negative) is added to the expected value to arrive at the actuarial value of assets for the current year.

1. Actuarial Value of Assets as of January 1, 2019	\$402,503,121
2. a. Contributions during 2019	16,713,137
b. Benefit payments and refunds during 2019	21,204,786
c. Administrative expenses during 2019	70,123
3. Expected Value of Assets as of December 31, 2019 $(1) \times 1.07 + [(2a) - (2b) - (2c)] \times 1.07^{1/2}$	425,959,606
4. Market Value of Assets as of December 31, 2019	452,080,699
5. Excess of Market Value over Expected Value as of December 31, 2019	26,121,093
6. Actuarial Value of Assets as of December 31, 2019 $(3) + 0.25 \times (5)$	432,489,879
7. Corridor for Actuarial Value of Assets	
a. 80% of (4)	361,664,559
b. 120% of (4)	542,496,839
8. Final Actuarial Value of Assets as of December 31, 2019 (6) but not < (7a) nor > (7b)	\$432,489,879
9. Estimated Rate of Return on Actuarial Value of Assets*	8.6%

*Net of investment expenses.

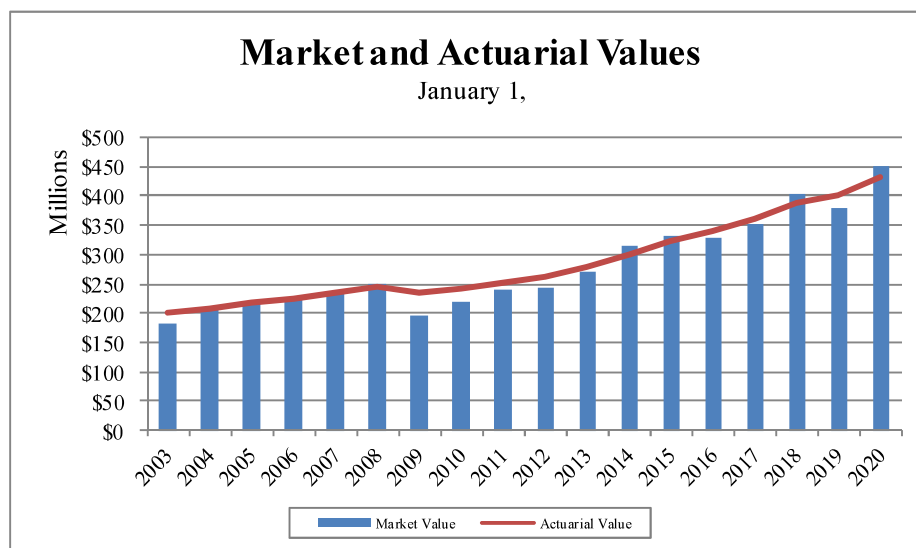


SECTION I – VALUATION RESULTS

EXHIBIT 2 (continued)

A historical comparison of the market and actuarial value of assets is shown below:

Date	Market Value of Assets (MVA)	Actuarial Value of Assets (AVA)	AVA / MVA
1/1/2003	\$182,802,988	\$201,266,877	110.10%
1/1/2004	208,097,692	208,282,032	100.09%
1/1/2005	219,605,615	216,654,583	98.66%
1/1/2006	225,161,798	224,761,515	99.82%
1/1/2007	237,959,892	234,707,113	98.63%
1/1/2008	249,095,495	245,760,175	98.66%
1/1/2009	196,124,538	235,349,446	120.00%
1/1/2010	218,042,907	241,024,751	110.54%
1/1/2011	238,265,999	252,420,193	105.94%
1/1/2012	244,777,760	263,114,155	107.49%
1/1/2013	268,895,003	277,702,452	103.28%
1/1/2014	314,630,091	300,065,992	95.37%
1/1/2015	333,135,690	322,199,383	96.72%
1/1/2016	329,261,948	339,057,547	102.98%
1/1/2017	352,513,865	358,959,262	101.83%
1/1/2018	402,738,799	387,412,491	96.19%
1/1/2019	378,210,890	402,503,121	106.42%
1/1/2020	452,080,699	432,489,879	95.67%





SECTION I – VALUATION RESULTS

EXHIBIT 3

ACTUARIAL BALANCE SHEET

An actuarial statement of the status of the plan in balance sheet form as of January 1, 2020 is as follows:

Assets

Current assets (actuarial value)	\$	432,489,879
Present value of future normal costs		120,441,336
Present value of future employer contributions to fund unfunded actuarial liability		<u>52,085,209</u>
Total Assets	\$	<u>605,016,424</u>

Liabilities

Present value of future retirement benefits for:

Active employees	\$	331,433,064
Retired employees, contingent annuitants and spouses receiving benefits		247,490,777
Deferred vested employees		6,695,923
Inactive employees – disabled		<u>6,575,574</u>
Total	\$	592,195,338
Inactive non-vested employees – refund due		688
Present value of future death benefits payable upon death of active members		6,530,992
Present value of future benefits payable upon termination of active members		<u>6,289,406</u>
Total Liabilities	\$	<u>605,016,424</u>



EXHIBIT 4

UNFUNDED ACTUARIAL LIABILITY

As of January 1, 2020

The actuarial liability is the portion of the present value of future benefits which will not be paid by future normal costs. The actuarial value of assets is subtracted from the actuarial liability to determine the unfunded actuarial liability.

1. Present Value of Future Benefits	\$	605,016,424
2. Present Value of Future Normal Costs		120,441,336
3. Actuarial Liability (1) – (2)		484,575,088
4. Actuarial Value of Assets		432,489,879
5. Unfunded Actuarial Liability (3) – (4)	\$	52,085,209
6. Funded Ratio (4) / (3)		89.25%



SECTION I – VALUATION RESULTS

EXHIBIT 5

AMORTIZATION SCHEDULE OF THE UNFUNDED ACTUARIAL LIABILITY BASES

Amortization Bases	Original Amount	January 1, 2020 Remaining Payments	Date of Last Payment	Outstanding Balance as of January 1, 2020	Annual Contribution*
2014 UAL Base	\$ 49,110,413	24	1/1/2044	\$ 53,416,937	\$ 3,255,142
2015 Assumption Change Base	\$ 9,846,943	15	1/1/2035	\$ 9,564,586	\$ 818,651
2015 Experience Base	\$ (7,281,065)	15	1/1/2035	\$ (7,072,284)	\$ (605,330)
2016 Experience Base	\$ 1,395,779	16	1/1/2036	\$ 1,370,922	\$ 111,648
2017 Experience Base	\$ (3,897,186)	17	1/1/2037	\$ (3,855,784)	\$ (299,930)
2018 Assumption Change Base	\$ 9,057,593	18	1/1/2038	\$ 8,996,392	\$ 670,677
2018 Experience Base	\$ (8,192,496)	18	1/1/2038	\$ (8,137,141)	\$ (606,620)
2019 Experience Base	\$ 8,980,430	19	1/1/2039	\$ 8,962,056	\$ 642,236
2020 Assumption Change Base	\$ 5,133,619	20	1/1/2040	\$ 5,133,619	\$ 354,585
2020 Experience Base	\$ (16,294,094)	20	1/1/2040	\$ (16,294,094)	\$ (1,125,452)
Total				\$ 52,085,209	\$ 3,215,607

* Contribution amount reflects mid-year timing.

- 1. Total UAL Amortization Payments \$ 3,215,607
- 2. Projected Payroll for FY 2020 \$ 66,604,146
- 3. UAL Amortization Payment Rate 4.83%



SECTION I – VALUATION RESULTS

EXHIBIT 6

DEVELOPMENT OF 2020 ACTUARIAL DETERMINED CONTRIBUTION

The actuarial cost method used to determine the required level of annual contributions to support the expected benefits is the Entry Age Normal Cost Method. Under this method, the total cost is comprised of the normal cost rate, the administrative expense and the unfunded actuarial liability (UAL) payment. The Plan is financed by contributions from the employees and the District.

1.	(a) Normal Cost	\$	11,897,490
	(b) Expected Payroll in 2020 for Current Actives	\$	62,204,165
	(c) Normal Cost Rate		19.13%
	(a) / (b)		
2.	Administrative Expense		0.11%
3.	Unfunded Actuarial Liability Payment as Percent of Pay		4.83%
4.	Total Actuarial Contribution Rate		24.07%
	(1c) + (2) + (3)		
5.	Employee Contribution Rate*		7.50%
6.	District Actuarial Contribution Rate		16.57%
	(4) – (5)		
7.	Expected Payroll for 2020	\$	66,604,146
8.	Total Annual District Actuarial Contribution	\$	11,036,307
	(6) x (7)		
9.	Monthly District Actuarial Contribution	\$	919,692

* Reflects increase to 7.50% effective January 1, 2020.



EXHIBIT 7

CALCULATION OF ACTUARIAL (GAIN)/LOSS
For Plan Year Ending December 31, 2019

Liabilities

1. Actuarial liability as of January 1, 2019	\$ 465,369,852
2. Normal cost as of January 1, 2019	10,944,681
3. Interest at 7.00% on (1) and (2) to December 31, 2019	33,342,017
4. Benefit payments during 2019	(21,204,786)
5. Interest on benefit payments	(729,615)
6. Assumption Change	<u>5,133,619</u>
7. Expected actuarial liability as of December 31, 2019	\$ 492,855,768
8. Actuarial liability as of December 31, 2019	\$ 484,575,088

Assets

9. Actuarial value of assets as of January 1, 2019	\$ 402,503,121
10. Contributions during 2019	16,713,137
11. Benefit payments and administrative expenses during 2019	(21,274,909)
12. Interest on items (9), (10) and (11)	<u>28,018,257</u>
13. Expected actuarial value of assets as of December 31, 2019	\$ 425,959,606
14. Actual actuarial value of assets as of December 31, 2019	\$ 432,489,879

(Gain) / Loss

15. Expected unfunded actuarial liability (7) – (13)	\$ 66,896,162
16. Actual unfunded actuarial liability (8) – (14)	\$ 52,085,209
17. Actuarial (Gain) / Loss (16) – (15)	\$ (14,810,953)
18. Actuarial (Gain) / Loss on Actuarial Assets (13) – (14)	\$ (6,530,273)
19. Actuarial (Gain) / Loss on Actuarial Liability (8) – (7)	\$ (8,280,680)



EXHIBIT 8

ANALYSIS OF EXPERIENCE

The purpose of conducting an actuarial valuation of a retirement plan is to estimate the costs and liabilities for the benefits expected to be paid from the plan, to determine the annual level of contribution for the current plan year that should be made to support these benefits and, finally, to analyze the plan’s experience. The costs and liabilities of this retirement plan depend not only upon the benefit formula and plan provisions but also upon factors such as the investment return on plan assets, mortality rates among active and retired members, withdrawal and retirement rates among active members, rates at which salaries increase and the rate at which the cost of living increases.

The actuarial assumptions employed as to these and other contingencies in the current valuation are set forth in Appendix B of this report.

Since the overall results of the valuation will reflect the choice of assumptions made, periodic studies of the various components comprising the plan’s experience are conducted in which the experience for each component is analyzed in relation to the assumption used for that component (experience study). This summary is not intended to be an actual “experience study”, but rather an analysis of sources of gain and loss in the past plan year.

(Gain)/Loss By Source

The Plan experienced a net actuarial gain on liabilities of \$8,281,000 during the plan year ended December 31, 2019, as well as an actuarial gain on assets of \$6,530,000. The overall actuarial gain was \$14,811,000. The major components of this net actuarial experience (gain)/loss are shown below:

Liability Sources	<u>(Gain)/Loss</u>
Salary Increases	\$ (1,402,000)
Mortality	(4,416,000)
Terminations	(90,000)
Retirements	(117,000)
Disability	(293,000)
New Entrants/Rehires	385,000
COLA	(2,405,000)
Miscellaneous	57,000
Total Liability (Gain)/Loss	\$ (8,281,000)
Asset (Gain)/Loss	\$ (6,530,000)
Net Actuarial (Gain)/Loss*	\$ (14,811,000)

*May not add due to rounding.



SECTION II – OTHER INFORMATION

SECTION II OTHER INFORMATION

In this section, we provide some historical information regarding the funding progress of the Plan. These exhibits retain some of the information that used to be required for accounting purposes and are included because they provide relevant information on the Plan's historical funding. An exhibit showing the expected future benefit payments for the Plan is also included.



EXHIBIT 9

ESTIMATED BENEFIT PAYMENTS*

Year End	Current In-Pay	Current Not-In-Pay	Total
2020	\$21,338,000	\$ 922,000	\$22,260,000
2021	21,405,000	2,352,000	23,757,000
2022	21,404,000	3,891,000	25,295,000
2023	21,477,000	5,577,000	27,054,000
2024	21,457,000	7,374,000	28,831,000
2025	21,456,000	9,222,000	30,678,000
2026	21,356,000	11,199,000	32,555,000
2027	21,258,000	13,255,000	34,513,000
2028	21,153,000	15,324,000	36,477,000
2029	20,968,000	17,439,000	38,407,000
2030	20,737,000	19,525,000	40,262,000
2031	20,531,000	21,595,000	42,126,000
2032	20,214,000	23,637,000	43,851,000
2033	19,880,000	25,683,000	45,563,000
2034	19,466,000	27,783,000	47,249,000

*Amounts shown are the cash flows for current members only, based on the current benefit structure and assuming that all actuarial assumptions are met in each year. To the extent that actual experience deviates from that expected, results will vary. Amounts are shown in future nominal dollars and have not been discounted to the valuation date.



SECTION II – OTHER INFORMATION

EXHIBIT 10

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Actuarial Valuation Date	Fiscal Year Ending	Actuarial Determined Contribution (ADC) (a)	Total Employer Contribution (b)	Percentage of ADC Contributed (b / a)
1/1/2002	12/31/2002	\$ 873,502	\$ 873,502	100.00%
1/1/2003	12/31/2003	1,012,910	1,012,910	100.00%
1/1/2004	12/31/2004	543,249	1,251,442	230.36%
1/1/2005	12/31/2005	1,454,070	1,905,277	131.03%
1/1/2006	12/31/2006	1,723,353	2,144,188	124.42%
1/1/2007	12/31/2007	2,602,505	2,885,080	110.73%
1/1/2008	12/31/2008	5,965,250	3,200,004	53.64%
1/1/2009	12/31/2009	7,688,825	6,200,004	80.64%
1/1/2010	12/31/2010	8,587,857	8,637,518	100.58%
1/1/2011	12/31/2011	9,235,199	9,300,000	100.70%
1/1/2012	12/31/2012	9,231,058	10,311,552	111.70%
1/1/2013	12/31/2013	8,995,793	10,299,996	114.50%
1/1/2014	12/31/2014	8,987,679	10,299,996	114.60%
1/1/2015	12/31/2015	9,956,157	10,301,268	103.47%
1/1/2016	12/31/2016	10,214,549	10,300,000	100.84%
1/1/2017	12/31/2017	10,273,167	11,193,821	108.96%
1/1/2018	12/31/2018	11,198,244	11,606,179	103.64%
1/1/2019	12/31/2019	11,269,603	12,300,000	109.14%
1/1/2020	12/31/2020	11,036,307		



EXHIBIT 11

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Liability (AL) (b)	Unfunded AL (UAL) (b-a)	Funded Ratio (a / b)	Covered Payroll (P / R) (c)	UAL as a Percentage of Covered P / R [(b-a) / c]
1/1/2002	\$200,022,238	\$176,355,329	(\$23,666,909)	113.4%	\$33,641,638	(70.4%)
1/1/2003	201,266,877	184,584,823	(16,682,054)	109.0%	35,393,305	(47.1%)
1/1/2004	208,282,032	194,491,079	(13,790,953)	107.1%	36,756,986	(37.5%)
1/1/2005	216,654,583	203,355,807	(13,298,776)	106.5%	38,256,948	(34.8%)
1/1/2006	224,761,515	212,358,261	(12,403,254)	105.8%	38,706,810	(32.0%)
1/1/2007	234,707,113	241,171,731	6,464,618	97.3%	40,945,335	15.8%
1/1/2008	245,760,175	262,626,673	16,866,498	93.6%	43,105,294	39.1%
1/1/2009	235,349,446	277,523,938	42,174,492	84.8%	46,428,438	90.8%
1/1/2010	241,024,751	291,186,530	50,161,779	82.8%	50,781,583	98.8%
1/1/2011	252,420,193	304,163,301	51,743,108	83.0%	51,484,227	100.5%
1/1/2012	263,114,155	315,121,772	52,007,617	83.5%	51,868,957	100.3%
1/1/2013	277,702,452	328,044,761	50,342,309	84.7%	51,031,067	98.7%
1/1/2014	300,065,992	349,176,405	49,110,413	85.9%	55,847,203	87.9%
1/1/2015	322,199,383	374,788,099	52,588,716	86.0%	59,332,362	88.6%
1/1/2016	339,057,547	393,919,275	54,861,728	86.1%	63,384,548	86.6%
1/1/2017	358,959,262	410,749,711	51,790,449	87.4%	61,064,398	84.8%
1/1/2018	387,412,491	440,820,801	53,408,310	87.9%	62,624,066	85.3%
1/1/2019	402,503,121	465,369,852	62,866,731	86.5%	62,865,829	100.0%
1/1/2020	432,489,879	484,575,088	52,085,209	89.3%	63,272,421	82.3%



SECTION III

RISK CONSIDERATIONS

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In November, 2018, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, was first applicable for the January 1, 2019 actuarial valuation for MUD's Retirement Plan.

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become “pay as you go”. The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk is translated into uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given plan can have a significant impact – good or bad – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

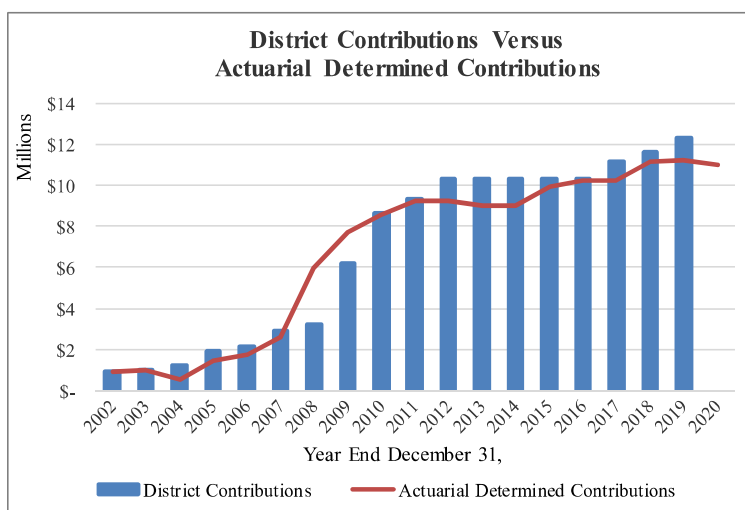
- economic risks, such as investment return and inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contributions to become too high for the plan sponsor/employer to pay and
- external risks such as the regulatory and political environment.

Note that the last two items are not risks that the actuary must address under ASOP 51.

There is a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution each year. As the following graph shows, the District has contributed an amount equal to or greater than the actuarial contribution in all but two of the last 18 years, including every year for the past ten years.



SECTION III – RISK CONSIDERATIONS



One of the strongest factors regarding the funding of the MUD Retirement Plan is the District's commitment to make contributions that are at least equal to the actuarially determined contribution. In more recent years, the District's practice has been to contribute an amount that is at least equal to the contribution in the prior year, if larger than the actuarial contribution. The higher contribution amount serves to reduce the UAL more quickly while producing greater stability in the contribution amounts.

The most significant risk factor is investment return because of the volatility of returns and the size of plan assets compared to payroll (see Exhibit 12). A perusal of historical returns over 10-20 years reveals that the actual return each year is rarely close to the average return for the same period. This is an expected result given the underlying capital market assumptions and the plan's asset allocation. Please see the three investment return scenarios that were illustrated on page 7 in the executive summary as another indication of the investment risk and its impact on the actuarial contribution amount.

A key demographic risk for all retirement systems, including MUD, is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience and these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.

Finally, the unfunded actuarial liability is amortized as a level percentage of payroll. The underlying assumption used in developing the payment schedule assumes an increasing payroll over time which is dependent on a stable employment level, i.e., active member count remains the same. When payroll does not grow as expected, the UAL contribution rate will be higher than expected even if the dollar amount of the payment is as scheduled. The growth in the covered payroll is a lower risk for the MUD Plan because the District contributes a dollar amount, not a rate of pay.

The following exhibits summarize some historical information that helps indicate how certain key risk metrics have changed over time.



EXHIBIT 12

HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the System is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the System. The higher this ratio, the more sensitive a plan's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions.

Actuarial Valuation Date	Market Value of Assets	Covered Payroll	Asset Volatility Ratio	Increase in ACR with a Return 10% Lower than Assumed*
1/1/2002	\$196,917,301	\$33,641,638	5.85	4.04%
1/1/2003	182,802,988	35,393,305	5.16	3.56%
1/1/2004	208,097,692	36,756,986	5.66	3.91%
1/1/2005	219,605,615	38,256,948	5.74	3.96%
1/1/2006	225,161,798	38,706,810	5.82	4.02%
1/1/2007	237,959,892	40,945,335	5.81	4.01%
1/1/2008	249,095,495	43,105,294	5.78	3.99%
1/1/2009	196,124,538	46,428,438	4.22	2.91%
1/1/2010	218,042,907	50,781,583	4.29	2.96%
1/1/2011	238,265,999	51,484,227	4.63	3.20%
1/1/2012	244,777,760	51,868,957	4.72	3.26%
1/1/2013	268,895,003	51,031,067	5.27	3.64%
1/1/2014	314,630,091	55,847,203	5.63	3.89%
1/1/2015	333,135,690	59,332,362	5.61	3.87%
1/1/2016	329,261,948	63,384,548	5.19	3.58%
1/1/2017	352,513,865	61,064,398	5.77	3.99%
1/1/2018	402,738,799	62,624,066	6.43	4.44%
1/1/2019	378,210,890	62,865,829	6.02	4.16%
1/1/2020	452,080,699	63,272,421	7.14	4.93%

*The impact of asset smoothing is not reflected in the impact on the Actuarial Contribution Rate (ACR). Current year assumptions are used for all years shown.

The assets at January 1, 2020 are 714% of payroll so underperforming the investment return assumption by 10% (i.e., earn -2.1% for one year) is equivalent to 71.4% of payroll. While the actual impact in the first year is mitigated by the asset smoothing method and amortization of the UAL, this illustrates the risk associated with volatile investment returns.



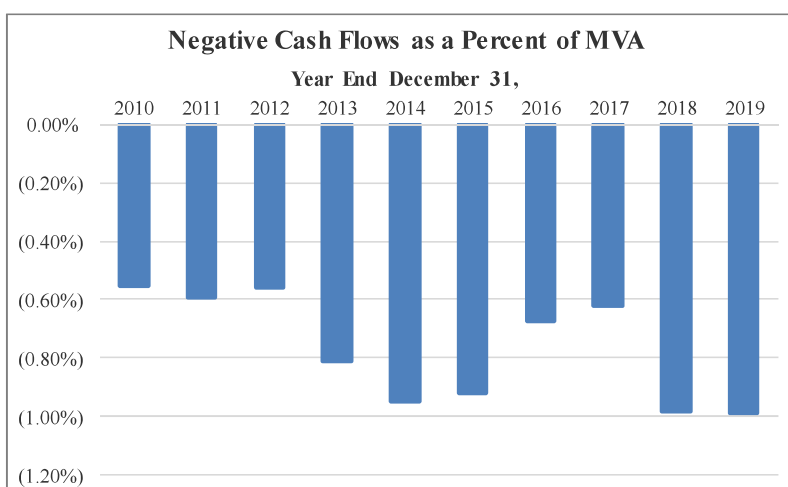
SECTION III – RISK CONSIDERATIONS

EXHIBIT 13

HISTORICAL CASH FLOWS

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the System has negative cash flows and then experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, it is typically a negative cash flow greater than expected dividends and interest that cause greater concerns. While this is not a concern for MUD at this time, it is important to monitor this metric so that any trends can be identified.

Year End	Market Value of Assets (MVA)	Contributions	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
12/31/2010	\$238,265,999	\$10,512,622	\$11,826,611	(\$1,313,989)	(0.55%)
12/31/2011	244,777,760	11,186,401	12,629,378	(1,442,977)	(0.59%)
12/31/2012	268,895,003	12,214,990	13,713,290	(1,498,300)	(0.56%)
12/31/2013	314,630,091	12,197,069	14,731,395	(2,534,326)	(0.81%)
12/31/2014	333,135,690	12,412,137	15,566,617	(3,154,480)	(0.95%)
12/31/2015	329,261,948	13,121,864	16,154,414	(3,032,550)	(0.92%)
12/31/2016	352,513,865	14,195,899	16,555,144	(2,359,245)	(0.67%)
12/31/2017	402,738,799	14,951,265	17,445,020	(2,493,755)	(0.62%)
12/31/2018	378,210,890	15,411,552	19,116,693	(3,705,141)	(0.98%)
12/31/2019	452,080,699	16,713,137	21,204,786	(4,491,649)	(0.99%)





SECTION III – RISK CONSIDERATIONS

EXHIBIT 14

LIABILITY MATURITY MEASUREMENTS

Most public sector retirement systems have been in operation for many years. As a result, they have aging plan populations indicated by an increasing ratio of retirees to active members and a growing percentage of retiree liability. The retirement of the remaining baby boomers over the next decade is expected to further exacerbate the aging of the retirement system population. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the system since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs.

Projections provide the most effective way of analyzing the impact of these changes on future funding measures, but studying several key metrics from the valuation can also provide some valuable insight.

Valuation Date	Retiree Liability (a)	Total Actuarial Liability (b)	Retiree Percentage (a / b)
1/1/2011	\$124,451,572	\$304,163,301	40.9%
1/1/2012	132,413,950	315,121,772	42.0%
1/1/2013	149,277,461	328,044,761	45.5%
1/1/2014	164,136,287	349,176,405	47.0%
1/1/2015	170,780,555	374,788,099	45.6%
1/1/2016	177,342,511	393,919,275	45.0%
1/1/2017	181,213,617	410,749,711	44.1%
1/1/2018	196,060,508	440,820,801	44.5%
1/1/2019	238,188,848	465,369,852	51.2%
1/1/2020	247,490,777	484,575,088	51.1%

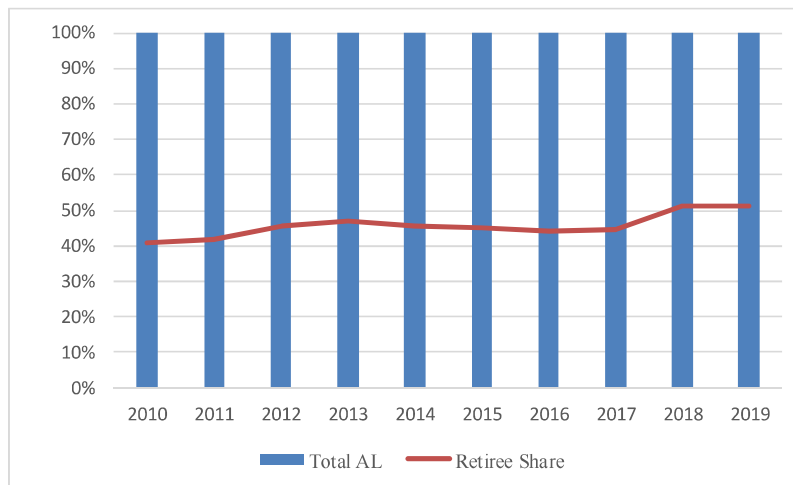




EXHIBIT 15

COMPARISON OF VALUATION RESULTS UNDER ALTERNATE INVESTMENT RETURN ASSUMPTIONS

This exhibit compares the key January 1, 2020 valuation results under five (5) different investment return assumptions to illustrate the impact of different assumptions on the funding of the System. Note that only the investment return assumption is changed, as identified in the heading below. All other assumptions are unchanged for purposes of this analysis.

Investment Return Assumption	6.00%	6.50%	6.90%	7.50%	8.00%
Contributions					
Normal Cost Rate	23.77%	21.05%	19.13%	16.60%	14.79%
Administrative Expense	0.11%	0.11%	0.11%	0.11%	0.11%
UAL Contribution Rate	9.83%	7.04%	4.83%	1.54%	(0.49%)
Total Contribution Rate	33.71%	28.20%	24.07%	18.25%	14.41%
Employee Contribution Rate	(7.50%)	(7.50%)	(7.50%)	(7.50%)	(7.50%)
District Contribution Rate	26.21%	20.70%	16.57%	10.75%	6.91%
District Contribution Amount (\$ in thousands)	\$17,457	\$13,787	\$11,036	\$7,160	\$4,602
Actuarial Liability					
Actuarial Value of Assets	\$540,918	\$508,466	\$484,575	\$451,823	\$427,062
Unfunded Actuarial Liability*	432,490	432,490	432,490	432,490	432,490
	\$108,428	\$75,976	\$52,085	\$19,333	(\$5,427)
Funded Ratio	80.0%	85.1%	89.3%	95.7%	101.3%

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.
 *Numbers may not add due to rounding.



APPENDIX A

SUMMARY OF PLAN PROVISIONS

The Retirement Plan for Employees of the Metropolitan Utilities District was established on October 1, 1944, using a conventional group annuity contract with Metropolitan Life Insurance Company (MLI) as the vehicle for funding the retirement benefits under the plan. Effective December 31, 1967, the plan was amended which brought about changes in the benefit and contribution formulas and added a spouse's benefit.

As of December 31, 1967 the MLI Group Annuity Contract was amended to discontinue further purchases of annuities. However, under contractual rights, annuities purchased prior to December 31, 1967 continue to be guaranteed under the provisions of such contract. Further amendments modified the pre-existing contract from a conventional group annuity contract to an Immediate Participation Guaranteed (IPG) group annuity contract (effective December 31, 1967). Investments are being managed by Vanguard Institutional Advisory Services pursuant to the provisions of the Investment Policy Statement.

The following summary of plan provisions reflects the plan as in effect on the date of the valuation.

<u>Effective Date:</u>	December 31, 1967
<u>Participation:</u>	<ul style="list-style-type: none"> (a) Each Employee on the Effective Date, provided he was employed before his 60th birthday, became a participant on the Effective Date (b) Each person who becomes an employee after the Effective Date becomes a participant on his employment date.
<u>Final Average Salary:</u>	The average of the salaries for the highest paid 24 consecutive months out of the last 120 months before retirement (high 36 months prior to 3/1/06).
<u>Age and Service Requirements for Benefits:</u>	
Normal Retirement	First day of the month next following the 60 th birthday
Early Retirement	Age 55 with at least five years of service.
Deferred Vested Benefit	Separate service before age 55 with at least five years of service.
Spouse's Benefit	Upon death of employee in active service with at least five years of service and married at least one year prior to the date of death. Payable based on employee's age according to early or normal retirement provisions.



APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Retirement Benefits:

Normal & Late Retirement	<p>A monthly amount which equals</p> <p>(a) percentage of Final Average Salary based on years of continuous service, beginning at 2.15% for each of the first 25 years of service (2.00% prior to 3/1/06) plus 1.00% for the next 10 years, plus .5% for each year of service after 35 years.</p> <p>(b) any monthly normal retirement annuity purchased under the MLI contract up to December 31, 1967.</p>
Minimal Normal	<p>A monthly amount which, together with the annuity under the MLI contract, if any, equals \$6 for each year of service, beginning with \$30 for five years of service and grading up to \$120 for 20 or more years of service.</p>
Early Retirement	<p>A monthly amount which equals (1) times (2)</p> <p>(1) An amount determined in the same manner as the normal retirement benefit, based on:</p> <p>(a) Years of continuous service and Final Average Salary on the early retirement date, and</p> <p>(b) Any monthly annuity, payable at age 65, to which the employee may be entitled under the MLI contract,</p> <p>(2) A percentage factor equal to 100% at age 60 and above, with reductions of 0.25% a month for each month of early retirement (from age 60 to age 55)</p>
<u>Form of Annuity:</u>	
Normal	<p>Monthly payments for life with refund at death of excess, if any, of the employee's contributions over payments received.</p>
Optional	<p>Contingent annuitant options are provided in the plan (a "pop-up" feature applies to any Contingent Annuitant Option if the employee's spouse is the Contingent Annuitant and the spouse predeceases the employee). Prior to 3/1/06, the pop up provision applied only to the Joint and 50% Contingent Annuitant option.</p>



APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Termination Benefits:

Less than 5 years of service	A refund of the employee’s contributions under the plan with interest to date of termination.
Before age 55 with 5 or more years of service	At the employee’s election either: (1) refund of the employee’s contributions under the plan with interest to date of termination, or (2) a deferred retirement income based on years of service and Final Average Salary at termination date.

Spouse’s Benefit:

Effective 3/1/06:

- (1) if death occurs before age 55, the spouse is eligible for a survivor benefit at the member’s earliest retirement age. The amount received is the member’s accrued benefit adjusted for early commencement, if applicable, and conversion to a joint 100% survivor form of payment.
- (2) if death occurs after age 55, the spouse is eligible for a survivor benefit immediately. The amount is adjusted for early commencement, if applicable, and conversion to a joint and 100% survivor form of payment.

Single Sum Death Benefits:

Before Retirement (if no spouse eligible for spouse’s benefit)	To designated beneficiary or estate of employee – the employee’s contributions under the plan with interest to date of death
Vested Terminated Employee (before retirement income payments commence)	Same as above.
After Retirement (if normal form benefit)	To designated beneficiary or estate of employee – the excess, if any, of the lump sum death benefit that would have been payable at date of retirement over the retirement income payments to date of death.



APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Surviving Spouse
(receiving spouse’s benefit) To designated beneficiary or estate of the spouse, the excess, if any, of the employee’s contributions under the plan with interest to the date of the employee’s death over the payments made to the date of the spouse’s death.

Contingent Annuitant
(if retirement income payments have commenced) To designated beneficiary or estate of the last survivor as between the retired employee and the contingent annuitant – the excess, if any, of the lump sum death benefit that would have been payable at date of retirement over the retirement income payments to the retired employee and the contingent annuitant to the date of death of the last survivor.

Employee Under MLI Contract Contributions under MLI contract payable subject to provisions of MLI contract.

Cost of Living Adjustments: To retired employees, spouses and contingent annuitants – the supplemental pension payments based on the change in the Consumer Price Index, not less than 0% and not more than 3% a year. Adjustments are made twice a year on January 1 and July 1.

Disability Benefits: If a participant becomes totally and permanently disabled, he/she is deemed to remain active for plan purposes, at his/her salary at the time of disability, until recovery or retirement. No employee contributions are required during the period of disability.

Source of Funds:

Employee Contributions	<u>Year</u>	<u>Contribution Rate</u>
	2020	7.50%
	2021	8.00%
	2022	8.50%
	2023 +	9.00%

District Contributions The remaining amount required to fund the benefit on an actuarially sound basis.



APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Methods

Liability Method

Valuations of the plan use the “*entry age-normal*” cost method. Under this actuarial method, the value of future costs attributable to future employment of participants is determined. This is called present value of future normal costs. The following steps indicate how this is determined for benefits expected to be paid upon normal retirement.

The expected pension benefit at normal retirement is determined for each participant.

A normal cost, as a level-percent of pay, is determined for each participant assuming that such a level percent is paid from the employee’s entry age into employment to his normal retirement. This normal cost is determined so that its accumulated value at normal retirement is sufficient to provide the expected pension benefits.

The sum of the normal costs for all participants for one year determines the total normal cost of the plan for one year.

The value of future payments of normal cost in future years is determined for each participant based on his years of service to normal retirement age.

The sum of the value of future payments of normal cost for all participants determines the present value of future normal costs.

The value of future costs attributable to past employment of participants, which is called the accrued liability, is equal to the present value of benefits less the present value of future normal costs.

As experience develops with the plan, actuarial gains and actuarial losses result. These actuarial gains and losses indicate the extent to which actual experience is deviating from that expected on the basis of the actuarial assumptions. In each year, as they occur, actuarial gains and losses are recognized in the unfunded accrued liability as of the valuation date.

Asset Valuation Method

The actuarial value of assets is determined based on a method that smoothes the effects of short-term volatility in the market value investments. The actuarial value is equal to the expected value, based on the assumed rate of return, plus 25% of the difference between market and expected values. A corridor of 80% to 120% of market value is also applied.



APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS

**Actuarial Methods
(continued)**

UAL Amortization Method

Under the current amortization method, the unfunded actuarial liability as of January 1, 2014 is treated as a separate base that will be amortized on a level-percent of pay basis over a closed 30-year period beginning January 1, 2014. Additionally, each year a new base will be calculated reflecting the Plan experience in the immediately preceding Plan year, changes in plan provisions or actuarial assumptions. Each new base will be amortized on a level-percent of pay basis over a closed 20-year period that begins on the valuation date when the new base is calculated. Changes in plan provisions or actuarial assumptions may be amortized over a longer period if the Retirement Committee elects to do so.



APPENDIX B

ACTUARIAL ASSUMPTIONS
(continued)

In addition to depending upon the actuarial methods used, actuarial cost estimates depend to an important degree on the assumptions made relative to various occurrences, such as rate of expected investment earnings by the fund, rates of mortality among active and retired employees and rates of termination from employment. In the current valuation, the actuarial assumptions made in the calculation of costs and liabilities are as follows:

Investment Return: (revised 2020) 6.90% per annum, compounded annually

Payroll Growth: (revised 2018) 3.50% per year

Inflation: (revised 2018) 2.60% per year

Mortality Rates: (revised 2018)

Active RP-2014 Adjusted to 2006 Total Dataset Mortality Table with Female Rates Set Forward One Year – Generational with Projected Improvements under Scale MP-2016

Retired RP-2014 Adjusted to 2006 Total Dataset Mortality Table with Female Rates Set Forward One Year – Generational with Projected Improvements under Scale MP-2016

On Long Term Disability RP-2014 Adjusted to 2006 Disabled Retiree Mortality Table with Female Rates Set Forward One Year – Generational with Improvements under Scale MP-2016

Withdrawal Rates: (revised 2018)

<u>Years of Service</u>	<u>Annual Rate</u>	
	<u>Male</u>	<u>Female</u>
1	10.00%	8.00%
5	2.00%	4.00%
10	1.05%	3.00%
15	1.05%	2.50%
20	1.05%	2.50%
25	0.00%	1.50%
30	0.00%	0.00%



APPENDIX B

ACTUARIAL ASSUMPTIONS
(continued)

Retirement Rates: (revised 2018)

<u>Age</u>	<u>Annual Rate</u>
55 to 58	3%
59	13%
60	30%
61	30%
62	40%
63	20%
64	20%
65	60%
66-69	30%
70	100%

Retirement benefits are assumed to commence at age 58 for vested terminated members and age 62 for disabled members.

Salary Scale: (revised 2018)

Salaries of the employees are assumed to increase according to the following schedule:

<u>Years of Service</u>	<u>Annual Percentage Increase</u>
1	11.00%
5	7.00%
10	5.00%
15	4.50%
20	4.50%
25	4.25%
30	4.25%
35	4.00%

Note: Includes salary inflation at 3.50%

Spouse's Benefit: (revised 2015)

It is assumed that 90% of employees are married, with wives three years younger than husbands.



APPENDIX B

ACTUARIAL ASSUMPTIONS
(continued)

Probability of Refund:	<u>Service</u>	<u>Refund</u>
	5	40%
	10	40
	15	40
	20	0

Cost of Living Adjustment: Retirement benefits are assumed to increase at 2.60% per year
(revised 2018)

Administrative Expense: Component of contribution rate, based on the prior year's
(implemented 2015) actual administrative expenses.

Decrement Timing: Middle of year

Other: Active liabilities for withdrawal and retirement benefits are loaded 0.50% for those members expected to elect a Joint and Contingent Annuitant form of payment that has a pop-up feature.

For those who elect a Joint and Contingent Annuitant form of payment that has a pop-up feature, the assumed pop-up factors for retirees are shown below:

<u>Joint Percentage</u>	<u>Pop-up Factor</u>
25%	1.0870
50%	1.1628
75%	1.2195
100%	1.2821

The lump sum death benefit (a return of contributions with interest) for vested terminated members is assumed to equal three times the annual benefit amount.

The salary amounts used as an input for valuation purposes represent pensionable compensation for the 12-month period immediately preceding the valuation date. These amounts are calculated by using the employees' contribution amounts for the 12-month period immediately preceding the valuation date, as provided to us by the client.



APPENDIX C

HISTORICAL SUMMARY OF MEMBERSHIP

The following table displays selected historical data as available.

Date January 1	Valuation		Number	Active Members						Number			
	Total Count	Annual Pay (\$)		Age	Entry Age	Service	Pay Increase	Disabled	Vested Inactive	Non-Vested Inactive	Retired/Benef		
												Age	Service
2001	1,300		778	44.6	29.6	15.0	42,647	2.65%	15	18		489	
2002	1,318		794	44.6	30.3	14.3	44,180	3.59%	17	18		489	
2003	1,338		803	44.8	30.7	14.1	45,875	3.84%	20	19		496	
2004	1,333		793	44.8	30.7	14.1	47,913	4.44%	24	18		498	
2005	1,345		786	45.5	31.2	14.3	49,637	3.60%	26	27		506	
2006	1,352		782	45.8	31.4	14.4	50,184	1.10%	25	35		510	
2007	1,371		793	46.1	31.6	14.5	53,104	5.82%	26	37		515	
2008	1,401		814	46.1	31.8	14.3	54,730	3.06%	28	38		521	
2009	1,413		831	46.7	31.9	14.8	57,576	5.20%	27	38		517	
2010	1,429		851	47.1	32.1	15.0	59,997	4.20%	26	38		514	
2011	1,434		852	47.5	32.3	15.2	62,082	3.48%	28	40		514	
2012	1,436		846	48.0	32.7	15.3	62,458	0.61%	29	44		517	
2013	1,409		815	48.6	32.9	15.6	62,822	0.58%	21	34		539	
2014	1,446		821	48.3	33.1	15.2	65,631	4.47%	22	35		568	
2015	1,491		856	48.0	33.2	14.8	66,999	2.08%	20	38		577	
2016	1,492		851	48.3	33.2	15.1	69,168	3.24%	20	34	1	586	
2017	1,484		836	48.8	33.3	15.5	72,200	4.38%	24	34	1	589	
2018	1,489		824	49.0	33.4	15.6	75,567	4.66%	21	40	2	602	
2019	1,516		792	48.3	33.6	14.7	76,528	1.27%	22	42	4	656	
2020	1,536		808	48.0	33.7	14.3	78,026	1.96%	23	49	1	655	



MEMBERSHIP DATA FOR VALUATION

The summary of employee characteristics presented below covers the employee group as of January 1, 2020. The schedules at the end of the report show the distribution of the various employee groups by present age along with other pertinent data.

Total number of employees in valuation:

(a) Active employees	808
(b) Inactive vested employees	
Terminated*	49
Disability	23
(c) Inactive non-vested employees	1
(d) Retirees and beneficiaries	<u>655</u>
(e) Total	1,536

Average age of employees in valuation:

(a) Active employees:	
Attained age	48.0
Entry age	33.7
(b) Inactive vested employees:	
Termination*	48.7
Disability	56.3
(c) Retired employees	71.9
(d) Beneficiaries	76

Active employees eligible for vested benefits as of January 1, 2020

(a) Employees under age 55 with 5 or more years of service - eligible for deferred vested benefits	386
(b) Employees age 55 and over with 5 or more years of service - eligible for early or normal retirement benefits	245
(c) Employees eligible for refund of contributions only	<u>177</u>
(d) Total	808

*Includes 2 beneficiaries who are not yet receiving benefits.



APPENDICES

MEMBERSHIP DATA RECONCILIATION

January 1, 2019 to January 1, 2020

The number of members included in the valuation, as summarized in the table below, is in accordance with the data submitted by the District for eligible employees as of the valuation date.

	<u>Active Participants</u>	<u>Long-Term Disability</u>	<u>Retirees</u>	<u>Terminated Vested*</u>	<u>Terminated Non-Vested</u>	<u>Beneficiaries</u>	<u>Total</u>
Participants as of 1/1/2019	792	22	527	42	4	129	1,516
New Participants	60	0	0	0	0	5	65
Moved to Full-Time	2	0	0	0	0	0	2
Moved to Part-Time	0	0	0	0	0	0	0
Terminations							
Refunded	(9)	0	0	0	(4)	0	(13)
Refund-Due	(1)	0	0	0	1	0	0
Deferred Vested	(6)	0	0	6	0	0	0
Disabilities	(4)	4	0	0	0	0	0
Retirements	(25)	0	26	(1)	0	0	0
Deaths							
With Beneficiary	(1)	(1)	(11)	2	0	11	0
Without Beneficiary	0	(1)	(25)	0	0	(7)	(33)
Data Corrections	0	(1)	0	0	0	0	(1)
Total Participants 1/1/2020	808	23	517	49	1	138	1,536

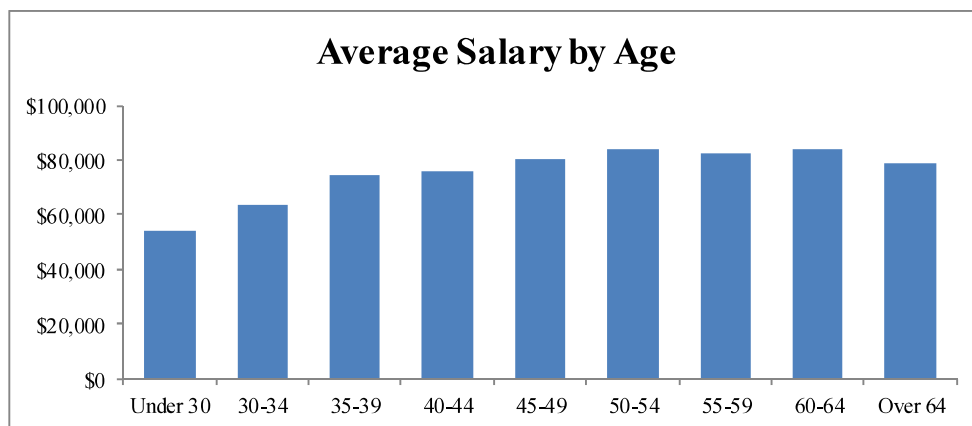
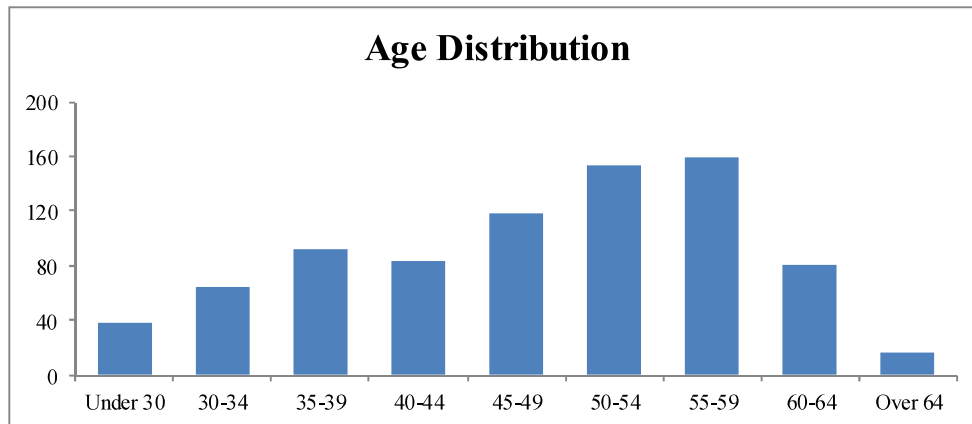
*Includes beneficiaries who are not yet receiving benefits.



SCHEDULE I

ACTIVE EMPLOYEES AS OF JANUARY 1, 2020

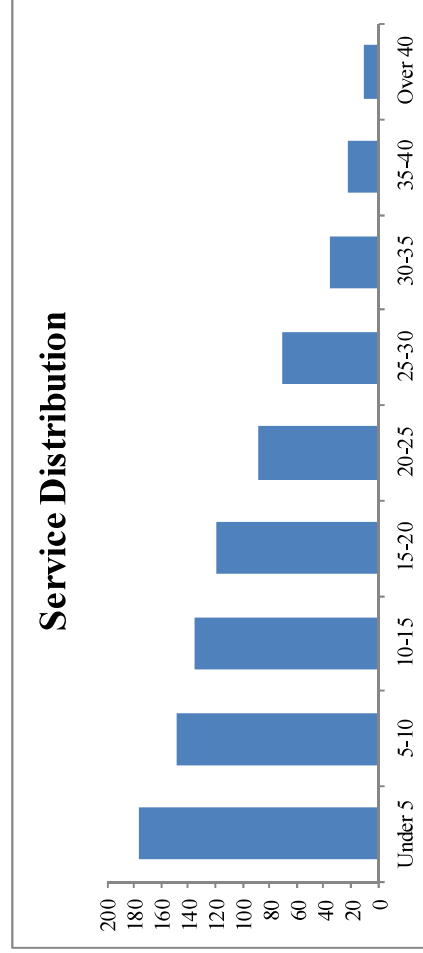
<u>Age</u>	<u>Count of Members</u>			<u>2019 Pensionable Pay of Members</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 30	35	3	38	\$ 1,879,578	\$ 168,657	\$ 2,048,235
30-34	53	11	64	3,376,392	692,743	4,069,135
35-39	71	21	92	5,281,787	1,545,742	6,827,529
40-44	66	18	84	5,122,701	1,250,978	6,373,679
45-49	92	27	119	7,531,756	2,040,372	9,572,128
50-54	114	40	154	9,810,254	3,142,923	12,953,177
55-59	119	40	159	10,194,236	2,882,919	13,077,155
60-64	50	31	81	4,452,205	2,335,123	6,787,328
Over 64	10	7	17	888,271	448,504	1,336,775
Total	610	198	808	\$48,537,180	\$14,507,961	\$63,045,141





SCHEDULE I (continued)
ACTIVE EMPLOYEES AS OF JANUARY 1, 2020

Age	Service										Total
	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40		
Under 30	32	6	0	0	0	0	0	0	0	0	38
30-34	41	21	2	0	0	0	0	0	0	0	64
35-39	39	30	20	3	0	0	0	0	0	0	92
40-44	24	19	28	13	0	0	0	0	0	0	84
45-49	17	19	25	31	24	3	0	0	0	0	119
50-54	12	27	26	32	32	18	7	0	0	0	154
55-59	9	12	21	24	26	32	23	12	0	0	159
60-64	2	11	11	13	6	16	5	9	8	0	81
Over 64	1	4	2	3	1	2	1	1	2	0	17
Total	177	149	135	119	89	71	36	22	10	0	808

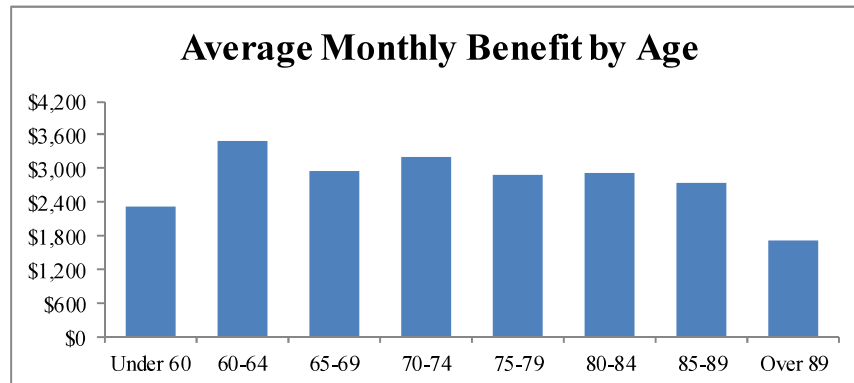
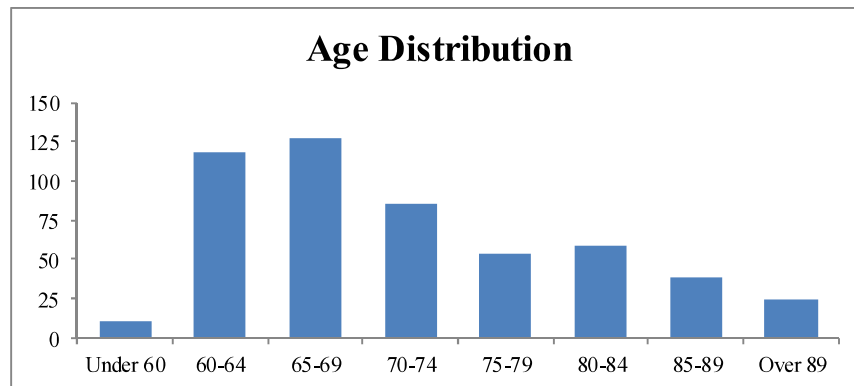




SCHEDULE II

RETIRED PARTICIPANTS AS OF JANUARY 1, 2020

<u>Age</u>	<u>Count of Retirees</u>			<u>Current Monthly Benefits</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 60	9	2	11	\$ 20,722	\$ 4,958	\$ 25,680
60-64	82	37	119	311,275	103,920	415,195
65-69	81	46	127	249,430	124,378	373,808
70-74	62	24	86	221,911	54,295	276,206
75-79	42	11	53	128,814	23,772	152,586
80-84	50	9	59	148,869	24,410	173,279
85-89	31	7	38	96,227	8,732	104,959
Over 89	18	6	24	35,967	5,409	41,376
Total	375	142	517	\$1,213,215	\$349,874	\$1,563,089

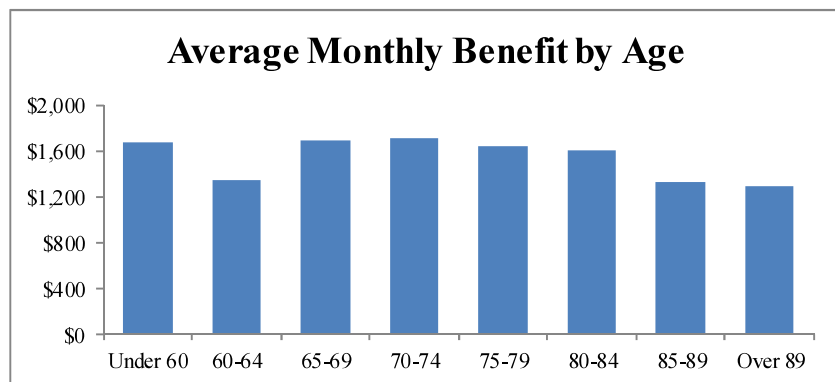
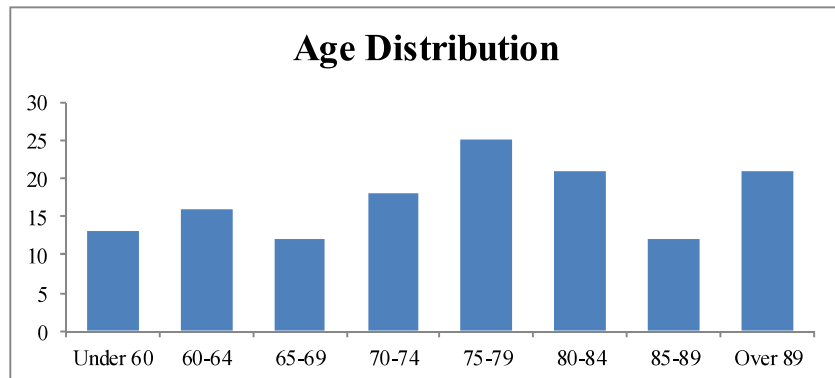




SCHEDULE III

BENEFICIARIES RECEIVING BENEFITS AS OF JANUARY 1, 2020

<u>Age</u>	<u>Count of Beneficiaries</u>			<u>Current Monthly Benefits</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 60	1	12	13	\$2,641	\$ 19,187	\$ 21,828
60-64	2	14	16	2,249	19,217	21,466
65-69	1	11	12	555	19,807	20,362
70-74	2	16	18	2,308	28,424	30,732
75-79	0	25	25	0	40,968	40,968
80-84	1	20	21	2,011	31,751	33,762
85-89	0	12	12	0	15,839	15,839
Over 89	0	21	21	0	27,117	27,117
Total	7	131	138	\$9,764	\$202,310	\$212,074





SCHEDULE IV

TERMINATED VESTED FORMER EMPLOYEES AS OF JANUARY 1, 2020

<u>Age</u>	<u>Count of Members</u>			<u>Expected Monthly Benefit</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	6	2	8	6,496	2,362	8,858
40-44	4	1	5	5,373	1,643	7,016
45-49	9	4	13	12,019	4,638	16,657
50-54	8	6	14	11,131	12,871	24,002
55-59	3	3	6	2,196	5,553	7,749
Over 59	1	2	3	858	554	1,412
Total	31	18	49	\$38,073	\$27,621	\$65,694

Note: Includes 2 beneficiaries who are not yet receiving benefits.



SCHEDULE V

DISABLED VESTED FORMER EMPLOYEES AS OF JANUARY 1, 2020

<u>Age</u>	<u>Count of Members</u>			<u>Expected Monthly Benefit</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	2	0	2	5,547	0	5,547
40-44	0	1	1	0	3,219	3,219
45-49	1	0	1	3,247	0	3,247
50-54	3	0	3	9,754	0	9,754
55-59	5	1	6	17,030	1,357	18,387
Over 59	8	2	10	21,661	3,429	25,090
Total	19	4	23	\$57,239	\$8,005	\$65,244

METROPOLITAN UTILITIES DISTRICT

Minutes of Committee Meetings

April 16, 2020

(rescheduled from original meeting date of April 2, 2020)

Introduction

Chairperson Gwen Howard called the Committee Meetings to order at 8:15 a.m. and announced that the regular Board Meeting would be handled ‘virtually’ due to the health and safety threats and challenges presented by the COVID-19 virus pandemic. Federal, state and local officials have advised the public to not congregate in groups greater than 10 members and maintain social distancing. It is the Board’s intention to fully comply with those recommendations while carrying out its duties and responsibilities delegated by statute.

Chairperson Howard reviewed the modifications to the Board Meeting protocol in view of the fact that each Board Member and presenters were participating remotely. She noted that compliance with the Open Meetings Act was ensured by providing public and media access to the meeting’s proceedings via telephone located in the lobby of the District’s former headquarters at 1723 Harney Street. Copies of the agendas and all pertinent documents presented at the Committee and Board Meetings were available in the lobby for review by members of the public and the media. Board Member Jim Begley participated remotely from the Board Room at 1723 Harney Street to ensure compliance with the Open Meetings Act. The audio/video recording of the meeting was uploaded to the District’s website shortly after the conclusion of the meeting.

Chairperson Howard invited Senior Vice-President and General Counsel Mark Mendenhall to provide introductory comments. Mr. Mendenhall explained that the day’s virtual Board Meeting was M.U.D.’s first undertaking and outlined the steps that had been taken to remain in compliance with the requirements of the Open Meetings Act. He thanked Douglas County officials for allowing the District to extend its lease at the downtown building during the pandemic.

Safety Briefing

Vice-President of Safety and Security Shane Hunter provided a modified safety briefing reiterating the key points advocated by health and governmental officials’ directives and restrictions aimed at mitigating the risks posed by the COVID-19 virus.

Chairperson Howard noted for the record that a Legislative Report would not be presented at the Committee or Board Meetings due to the decision on March 17, 2020 by the Nebraska Legislature to suspend the 2020 Legislative Session until further notice due to the COVID-19 pandemic.

Roll Call

On a roll call vote, the following Board Members acknowledged their attendance:

Tim Cavanaugh
Jim Begley
Tanya Cook
Dave Friend
Jack Frost
Mike McGowan
Gwen Howard

Open Meetings Act Notice

Compliance with the Open Meetings Act was previously addressed by Chairperson Howard in her introductory remarks.

Construction and Operations – Friend, Frost, Cavanaugh

Senior Vice-President and Chief Operations Officer Dave DeBoer reviewed the proposed ratification to relocate gas and water mains at 168th Street from Poppleton Avenue to West Center Road. The cost of this project is \$845,000 and is the initial phase of a two-phase project. The work is to support the City of Omaha's road widening and improvement project. Board approval at the originally scheduled April 2, 2020 Board Meeting was delayed due to the pandemic. The cost for the second phase will include capital expenditures for construction and design and will be presented to the Board at a future date.

Mr. DeBoer reviewed the proposed acceptance of contracts and payment of final estimates as outlined in his letter to the Committee dated March 31, 2020. Due to the pandemic and the delay in convening the April 2020 Board Meeting, ratification was requested because Management chose not to defer timely payments when contractors had completed work on projects previously approved by the Board.

Director of Purchasing Jon Zellars presented the bids for materials and contracts as outlined in his letter to the Committee dated April 6, 2020. Two proposed capital expenditures totaling \$11,952,327.00 had previously been presented to the Board with the latest presented in February 2020 that included approval to authorize the President to enter into a contract for renovation of the new headquarters. Ratification was requested for this item for the record and for purposes of transparency.

Services and Extensions - Friend, Begley, Howard

Vice-President of Engineering and Construction Cory O'Brien reviewed the proposed main extensions as outlined in his letter to the Committee dated March 25, 2020.

Personnel - Begley, Frost Friend

Vice-President of Human Resources Bonnie Savine reviewed the proposed wage and/or salary increases and ratifications as outlined in her letter to the Committee dated April 2, 2020.

Chairperson Howard requested an update regarding the current status of the District's Summer Student Work Program in light of the pandemic. Ms. Savine reported that the fifty-plus applicants have been notified that the program is presently on hold but that Human Resources (HR) would maintain communication with them when more information becomes available. Ms. Savine indicated that HR is making necessary adjustments in its hiring and onboarding protocol where possible, such as utilizing videoconferencing technology to conduct interviews remotely.

Insurance and Pensions – Howard, McGowan, Begley

Senior Vice-President and Chief Financial Officer Joseph Schaffart referenced three reports in reviewing the status of the District's employee retirement plan: (1) the Retirement Plan for Employees of the Metropolitan Utilities District of Omaha – Actuarial Valuation as of January 1, 2020; (2) GASB Statements No. 67 and 68 Report for the Retirement Plan for Employees of the Metropolitan Utilities District of Omaha – Measurement Date: December 31, 2019; and (3) Cavanaugh Macdonald Consulting – Retirement Plan for Employees of MUD – Summary Presentation of the Highlights of the Actuarial Valuation Results. Mr. Schaffart pointed out in his letter to the Committee dated April 6, 2020 that the plan's funded ratio was 89.3% (actuarial value) as of January 1, 2020, whereas by comparison, the funded ratio as of January 1, 2019 was 86.5% (actuarial value). Management recommended the pension contribution of \$12.3 million. Mr. Schaffart reiterated the importance of the Board's ongoing commitment to ensuring the financial sustainability of the District's Retirement Plan.

Audit – McGowan, Howard, Begley

Mr. Schaffart reviewed the District's 2019 Audited Financial Statement, as outlined in his letter to the Committee dated April 6, 2020. He reported that RSM, the external auditors, gave the District an unmodified or "clean" audit opinion. Three pertinent documents were provided to the Board: the Memo from RSM to the Board explaining the responsibilities of the Auditor and Management; the Report on Internal Control over Financial Reporting and on Compliance and Other Matters; and the Management Representation letter.

Chairperson Howard asked whether any Board Member had comments to share. There were none. Chairperson Howard inquired as to whether any member of the public participating by phone at the downtown headquarters building would like to make any comments. There were none.

At 8:54 a.m., Chairperson Howard announced that the Committee Meetings were concluded and the regular Board Meeting would convene in six minutes at 9:00 a.m.



Mark E. Doyle
Secretary and President

MED/mjm

METROPOLITAN UTILITIES DISTRICT
Minutes of Regular Board Meeting
April 16, 2020

(rescheduled from original meeting date of April 2, 2020)

The Board of Directors of the Metropolitan Utilities District of Omaha convened its regular monthly meeting via videoconferencing on April 16, 2020 at 9 a.m. due to the state of emergency declared by federal, state and local officials in response to the COVID-19 public health pandemic.

Advance notice of the meeting was published in the print version of *The Omaha World-Herald* on April 10, 2020 and the online (website) version from April 10, 2020 through April 16, 2020. The notice stated that the meeting would be held virtually using video and telephone conferencing and also specified how members of the public and media could join and participate in the meeting. The notice also provided that the agenda would be posted on the M.U.D. website at www.mudomaha.com and could also be obtained by calling M.U.D. and requesting a copy. Board documents were delivered to Board Members on April 7, 2020 and were posted to the M.U.D. website on April 8, 2020. Copies of the agendas and all pertinent documents presented at the Committee and Board Meetings were available in the lobby at 1723 Harney Street for review by members of the public and the media.

AGENDA NO. 1

ROLL CALL

Chairperson Howard called the meeting to order at 9:00 a.m. On a roll call vote, the following Board Members acknowledged their attendance:

Tim Cavanaugh
Jim Begley
Tanya Cook
Dave Friend
Jack Frost
Mike McGowan
Gwen Howard

AGENDA NO. 2

OPEN MEETINGS ACT NOTICE

Chairperson Howard announced the steps that were taken to ensure compliance with both the Open Meetings Act and the Governor's Executive Order 20-03. A copy of the Open Meetings Act was available in the lobby of the M.U.D. building at 1723 Harney Street. Access for the public and for the media was arranged via telephone in the lobby of the Harney Street location. Board Member Jim Begley participated from the Board Room at 1723 Harney Street to ensure compliance with the Open Meetings Act.

Chairperson Howard reiterated that the recording of today's meeting would become available on the M.U.D. website shortly after the conclusion of the meeting.

AGENDA NO. 3
PLEDGE OF ALLEGIANCE

Chairperson Howard announced that the Pledge of Allegiance would not be recited due to the necessity of having each individual Board Member participate remotely at offsite locations.

AGENDA NO. 4
APPROVAL OF MINUTES FOR COMMITTEE MEETINGS AND REGULAR BOARD MEETING FOR MARCH 5, 2020

Director Cook moved to approve the minutes for the Committee Meetings and regular Board Meeting for March 5, 2020, which was seconded by Director Cavanaugh and carried on a roll call vote.

Voting Yes: Cavanaugh, Begley, Cook, Friend, Frost, McGowan, Howard
Voting No: None

AGENDA NO. 5
CAPITAL EXPENDITURES

Director Friend moved to approve the capital expenditures as outlined in Mr. DeBoer's letter to the Committee dated April 1, 2020, which was seconded by Director Frost and carried on a roll call vote.

Voting Yes: Cavanaugh, Begley, Cook, Friend, Frost, McGowan, Howard
Voting No: None

AGENDA NO. 6
ACCEPTANCE OF CONTRACTS AND PAYMENT OF FINAL ESTIMATES

Director Friend moved to approve the acceptance of contracts and payment of final estimates as outlined in Mr. DeBoer's letter to the Committee dated March 31, 2020. The motion was seconded by Director Frost and carried on a roll call vote.

Voting Yes: Cavanaugh, Begley, Cook, Friend, Frost, McGowan, Howard
Voting No: None

AGENDA NO. 7
BIDS ON MATERIALS AND CONTRACTS

Director Friend moved to approve Management's recommendations regarding the bids on materials and contracts as outlined in Mr. Zellars' letter dated April 6, 2020. The motion was seconded by Director Frost and carried on a roll call vote.

Voting Yes: Cavanaugh, Begley, Cook, Friend, Frost, McGowan, Howard
Voting No: None

AGENDA NO. 8

NOTICE OF PURCHASES BETWEEN \$25,000 AND \$50,000

Director Friend requested that the Notice of Purchases letter from Mr. Zellars dated April 6, 2020 be placed on file.

AGENDA NO. 9

MAIN EXTENSIONS

Director Friend moved to approve the main extensions as outlined in Mr. O'Brien's letter dated March 25, 2020, which was seconded by Director Cook and carried on a roll call vote.

Voting Yes: Cavanaugh, Begley, Cook, Friend, Frost, McGowan, Howard
Voting No: None

AGENDA NO. 10

WAGE AND/OR SALARY INCREASES AND RATIFICATIONS

Director Begley moved to approve the wage and/or salary increases and ratifications as outlined in Ms. Savine's letter to the Committee dated April 2, 2020. The motion was seconded by Director Frost and carried on a roll call vote.

Voting Yes: Cavanaugh, Begley, Cook, Friend, Frost, McGowan, Howard
Voting No: None

AGENDA NO. 11

ACTUARIAL VALUATION REPORT ON THE RETIREMENT PLAN

Director McGowan requested that the Actuarial Report and the GASB 67 & 68 Report as provided to the Board be placed on file, and moved to approve the contribution to the pension plan consistent with Management's recommendation as outlined in Mr. Schaffart's letter to the Committee dated April 6th, 2020. The motion was seconded by Director Cook and carried on a roll call vote.

Voting Yes: Cavanaugh, Begley, Cook, Friend, Frost, McGowan, Howard
Voting No: None

AGENDA NO. 12
2019 AUDITED FINANCIAL STATEMENT

Director McGowan moved to place on file the 2019 Audited Financial Statement as provided to the Board and as outlined in Mr. Schaffart's letter to the Committee dated April 6th, 2020.

AGENDA NO. 13
OTHER MATTERS OF DISTRICT BUSINESS FOR DISCUSSION

Chairperson Howard asked if any Board Members or others had any comments to share.

Mr. Doyle requested that the Board consider moving the State of the District presentation to the month of June. He noted that the Bylaws require that it be presented during the first half of the calendar year, and should not need to be scheduled later despite the current pandemic situation. Director Begley indicated he would support a suspension of the Bylaws in order for the presentation to take place at a later date if necessary. Mr. Doyle also reported that 80% of the District's workforce is working remotely and it is going well. He urged Board Members to continue to communicate their concerns or their need for further information because of the importance of remaining current and connected.

Mr. Doyle asked Senior Vice-President of Safety, Security and Field Operations Steve Ausdemore to report on how the Field Service Department is continuing to manage its functions while maintaining compliance with social distancing parameters. Mr. Ausdemore reported that some day-to-day functions are being deferred due to safety concerns, while some modifications have been instituted such as requiring field technicians to use emergency protective equipment (PPE) when entry to homes or businesses is required, and in such cases they will operate under the guidance of a foreman.

Chairperson Howard asked if any member of the public participating by conference phone at the downtown headquarters building would like to make any comments, and if so, to please state their name and address. There were none.

Director Friend moved to adjourn the regular Board Meeting which was seconded by Director Cook and carried on a roll call vote.

Voting Yes: Cavanaugh, Begley, Cook, Friend, Frost, McGowan, Howard

Voting No: None

The regular Board Meeting was adjourned at 9:17 a.m.



Mark E. Doyle
Secretary and President

MED/mjm

PUBLIC EMPLOYER RETIREMENT PLAN ANNUAL REPORT

Public Employer: Metropolitan Utilities District

Type of Retirement Plan: Defined Benefit Plan Year: Jan-Dec
(e.g. Jan.-Dec., July-June)

Plan year covered by this report: January-December 2019
Active Employees 808, Inactive Vested Employees: Terminated Number of plan participants:
49, Disability 23, Non-Vested Inactive 1, Retirees and beneficiaries 655, Total 1,536

Contribution Rates: Employee: 7.0%

Employer: Balance of Annual Required Contribution

Plan Assets: \$432,489,879 (Actuarial Value), \$452,080,699 (Market Value)

Plan Liabilities: \$484,575,088 (Actuarial Liability)

Names and Positions of persons administering the plan:

Bonnie Savine, V.P. Human Resources

MetLife Insurance Disburses Pension Benefit Checks on our Behalf

Names and Positions of persons investing plan assets:

Insurance and Pension Committee of the Board, as of 12/31/18, comprised of:

Mike McGowan-Board Member Jim Begley-Board Member

Gwen Howard-Board Member Mark Doyle, President, M.U.D.

Joseph Schaffart, SVP & CFO, M.U.D. Mark Myers, VP Accounting, M.U.D.

Mark Mendenhall, SVP & General Counsel, M.U.D.

Investment Consultant: Vanguard Institutional Advisory Services

Form and Nature of Investments:

As prescribed by Investment Policy Statement; excerpt from Investment Policy Statement
attached

If a defined contribution plan, full description of investment policies and options available to plan participants:

N/A

If a defined benefit plan, the number of members who are eligible for a benefit and the total present value and level of such members' benefits, as well as the funding sources which will pay for such benefits:

Inactive Membership:

Active Membership:

LTD & Inactive Vested: 72

Number of Members: 808

Retirees/Beneficiaries: 655

A) Present Value of Future Benefits \$605,016,424

B) Present Value of Future Normal Costs \$120,441,336

A) – B) Actuarial Liability \$484,575,088

Actuarial Value of Assets \$432,489,879

Market Value of Assets \$452,080,699

Signature _____ Date _____

Printed Name and Title/Position Joseph J. Schaffart, Sr. Vice President, CFO

Mailing Address 7350 World Communications Drive

Omaha, NE 68122-4041

Telephone Number 402-504-7111

c. Commodities

d. Asset backed money market funds

3. Prohibited Transactions

Unless expressly authorized by the Committee, the Portfolio and its investment funds are prohibited from:

- a. Purchasing securities on margin, or executing short sales.
- b. Pledging or hypothecating securities, except for loans of securities that are fully collateralized.
- c. Purchasing or selling derivative securities for speculation or leverage.
- d. Engaging in investment strategies that have the potential to amplify or distort the risk of loss beyond a level that is reasonably expected given the objectives of their portfolios

4. Diversification Policy

Diversification across and within asset classes is the primary means by which the Committee expects the Portfolio to avoid undue risk of large losses over long time periods. To protect the Portfolio against unfavorable outcomes within an asset class due to the assumption of large risks, the Committee will take reasonable precautions to avoid excessive investment concentrations. Specifically, the following guidelines will be in place:

- a. With the exception of fixed income investments explicitly guaranteed by the U.S. government, no single investment security shall represent more than 5% of total Portfolio assets.
- b. With the exception of passively managed investment vehicles seeking to match the returns on a broadly diversified market index, no single investment pool or investment company (mutual fund) shall comprise more than 20% of total Portfolio assets.
- c. With respect to fixed income investments, the minimum average credit quality of these investments shall be investment grade (Standard & Poor's BBB or Moody's Baa or higher).

F. Asset Allocation Guidelines for the Plan

Asset Class	Sub-Asset Class	Target Allocation
Equity		60%
	Domestic (U.S.) Equities	36%
	International (Non-U.S.) Equities	24%
Fixed Income		32%
	U.S. Aggregate Bonds	15%
	International Bonds	3%
	Intermediate Term Credit	11%
	Short Term Credit	3%
	Intermediate Terms TIPS	0%
REITS		8%

Total		100%
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The Portfolio will be rebalanced to the target asset allocation described above as follows:

1. Utilizing incoming cash flow (contributions) or outgoing money movements (disbursements) to realign the current weightings closer to the target asset allocation of the Portfolio on an ongoing basis.
2. Reviewing the Portfolio quarterly (March 31, June 30, September 30, and December 31) to identify any deviation(s) from target weightings and acting within a reasonable period of time under the following circumstances:
 - a. If any asset class (equity, fixed income, alternatives or cash) within the Portfolio is +/- 5 percentage points from its target weighting, the Portfolio will be rebalanced.
 - b. If any fund within the Portfolio has increased or decreased by greater than 20% of its target weighting, the Portfolio may be rebalanced.
 - c. Rebalancing the Portfolio at any other time if the Investment Advisor in its discretion deems it appropriate to do so.

G. Performance Measurement

Performance will be monitored quarterly. The Investment Advisor will provide investment return data for each quarter, year-to-date, last twelve months, three year and five year periods; and since inception of the Advisor's engagement. Actions may be taken at any time to replace an investment if the Insurance and Pension Committee deems it appropriate for performance or other reasons.

The Management Pension Committee shall report quarterly to the Board on the actual performance of the Plan compared to goals, objectives and Benchmarks.

H. Review and Amendment

The Insurance and Pension Committee will review this Policy at least annually in order to ascertain whether there have been any changes in the needs of the Plan and/or major changes in the structure of the capital markets, which require this Policy to be amended. The Committee will recommend changes to the Policy whenever it is deemed necessary to the Board for approval.

I. Approval of Investment Policy

Approval shall be documented by attaching a copy of the Minutes from the Board Meeting.