Retirement Plan for Employees of North Texas Municipal Water District

ACTUARIAL AUDIT OF THE JANUARY 1, 2022 ACTUARIAL VALUATION

FINAL VERSION
DECEMBER 9, 2025

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Via Electronic Delivery
December 9, 2025

Ms. Jeanne Chipperfield
Assistant General Manager – Chief Financial Officer
North Texas Municipal Water District
501 E. Brown Street
Wylie, Texas 75098

Re: 2022 Plan Year Actuarial Audit

Dear Ms. Chipperfield:

Pursuant to North Texas Municipal Water District's (the District) request, we have prepared a report of our audit of the actuarial valuation of the Retirement Plan for Employees of North Texas Municipal Water District (the Retirement Plan) for the plan year ending December 31, 2022. Rudd and Wisdom, Inc. was selected for this project to provide an actuarial audit as an independent actuary. This actuarial audit was conducted to comply with the requirements of Section 802.1012 of the Texas Government Code.

In 2022, the actuarial services for the Retirement Plan were provided by Milliman, Inc. (Milliman). This report includes a discussion of our review of the methods, assumptions and communications that were involved in actuarial services provided by Milliman for the Retirement Plan. The Executive Summary contains the scope of our actuarial review, a summary of our key findings, and a summary of our key recommendations.

On October 31, 2025, we issued a preliminary report in order to give the District an opportunity to review the results of our findings. This is the final report, and Appendix A of this final report reproduces the response to the preliminary report provided by the District.

Our recommendations in this report include suggestions for improving valuation services for the Retirement Plan. The District's response indicates that the District concurs with our findings and that the District incorporated each of our Key Recommendations in the 2023 plan year valuation.

Note: This report may be provided to third parties only if distributed in its entirety.

Action Items

The following list contains certain action items for the District:

1. Review the Executive Summary (Section II) of this report.

2. Review the remainder of this report for additional details regarding the items addressed in the Executive Summary.

Thank you for the opportunity to serve the District through this actuarial audit. If you have any questions concerning this report, please do not hesitate to call or write.

Respectfully submitted,

RUDD AND WISDOM, INC.

Christopher S. Johnson, F.S.A.

Brandon L. Fuller, F.S.A.

CSJ/BLF:nm
Enclosures

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ACTUARIAL AUDIT

OF THE

JANUARY 1, 2022 ACTUARIAL VALUATION

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Section I – Certification of Actuarial Audit as of January 1, 2022

At the request of North Texas Municipal Water District (the District), we have performed an actuarial audit of the actuarial valuation of the Retirement Plan for Employees of North Texas Municipal Water District for the plan year ending December 31, 2022 in order to review the methods, assumptions and communications of that valuation and to provide suggestions for improving the valuations going forward.

We have based our audit on current employee, former employee and retiree data as of January 1, 2022 provided by Milliman, Inc. ("Milliman") and the District, asset information as of January 1, 2022 provided by Milliman, the methods and assumptions described in the valuation report prepared by Milliman and the plan provisions as outlined in the legal plan document.

To the best of our knowledge, all current employees eligible to participate in the plan as of the valuation date and all other individuals who have a remaining vested benefit or a remaining nonvested benefit under the plan have been included in the Milliman valuation.

We have not audited the data provided by Milliman. We hereby certify that we are members of the American Academy of Actuaries who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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Section II – Executive Summary

A. Purpose of an Actuarial Audit

Plan Sponsors and fiduciaries of pension plans should exercise due diligence in selecting *Consulting Actuaries* and monitoring the work of the actuarial service providers. An actuarial audit provides Plan Sponsors and fiduciaries with information that assists in monitoring such work. The actuarial audit is performed by an outside actuary (i.e., an actuary independent from the actuary and actuarial firm providing direct services to the pension plan). Such an outside actuary is referred to as the *Reviewing Actuary*. The Government Finance Officers Association (GFOA) advises that actuarial audits are helpful for the following reasons[1]:

1. Actuarial audits enhance the credibility of the actuarial valuation process by providing independent assurance that the valuation was performed in accordance with Actuarial Standards of Practice (ASOPs).

2. Actuarial audits increase public trust in pension plan governance.

3. Actuarial audits assist plan fiduciaries in the assessment that a pension plan is meeting its funding objectives.

4. Actuarial audits provide opportunities to correct any errors discovered in the audit process which might otherwise go undiscovered.

5. Actuarial audits provide opportunities to recommend improvements to the actuarial valuation process, including updates to assumptions and methods as well as suggestions for improving the presentation and communication of actuarial information.

The GFOA recommends that public plan pension fiduciaries[1]:

1. Understand the different types (or levels) of actuarial audits (see Section B. below),

2. Engage with a Reviewing Actuary to perform an actuarial audit at least once every five years, and

3. Determine the appropriate level of an actuarial audit if a problem arises, including:

    a. Changes in actuarially determined contribution rates without an adequate explanation,

    b. Use of actuarial methods and assumptions that are not consistent with the methods and assumptions approved by the plan's Board,

    c. Use of actuarial methods and assumptions that are inconsistent with funding objectives of the plan, or

    d. Material and unanticipated changes in liability trends or the plan's funded ratio.

Texas Government Code Section 802.1012 requires a public retirement system with a book value of assets of at least $100 million as of the last day of the preceding fiscal year to perform an actuarial audit every five years. This Retirement Plan has assets with a book value in excess of this requirement and must have such an actuarial audit performed.

[1] Per GFOA Best Practices on Actuarial Audits as published on the GFOA website: https://www.gfoa.org/materials/actuarial-audits

B. Types of Actuarial Audits

The GFOA defines three different levels of actuarial audits[1] based upon the types of services performed by the Reviewing Actuary as follows:

1. **Level One** - A Level One audit is also referred to as a full-scope actuarial audit, where the Reviewing Actuary fully replicates the original actuarial valuation, based on the same census data, assumptions, and actuarial methods used by the plan's Consulting Actuary. In addition, the Reviewing Actuary examines the Consulting Actuary's methods and assumptions for reasonableness and internal consistency.

2. **Level Two** - A Level Two actuarial audit does not involve a replication of the Consulting Actuary's valuation. Instead, the Reviewing Actuary uses a sampling of the plan's participant data to test the results of the valuation. The Reviewing Actuary also examines the Consulting Actuary's methods and assumptions for reasonableness and internal consistency.

3. **Level Three** - A Level Three actuarial audit does not include any actuarial calculations by the Reviewing Actuary. Instead, the Reviewing Actuary examines the Consulting Actuary's methods and assumptions for reasonableness and internal consistency.

C. Scope of Actuarial Audit

Rudd and Wisdom, Inc. (R&W) has performed a Level Three actuarial audit of the January 1, 2022 valuation of the Retirement Plan (as performed by the plan's Consulting Actuary in 2022, Milliman). The scope of work includes:

1. a review of the appropriateness of the actuarial cost method used to calculate the normal cost and actuarial accrued liability of the Retirement Plan,

2. a review of the appropriateness of the method used to develop the actuarial value of assets for the Retirement Plan,

3. a review of the appropriateness of the assumptions used in the actuarial valuation,

4. a review of the completeness of the valuation report for the plan year ending December 31, 2022 and a recommendation of any additional items which R&W, as the Reviewing Actuary, believes should be included in future valuation reports,

5. a review of the reasonableness of the calculation of the annual required employer contribution relative to the Retirement Plan's funding practice,

6. a determination as to whether the valuation meets the requirements of the Texas Pension Review Board (PRB) *Pension Funding Guidelines* and relevant Actuarial Standards Board Standards of Practice, and

7. other general observations encountered during the process of performing the actuarial audit.

This audit is intended to comply with Texas Government Code Section 802.1012.

[1] Per GFOA Best Practices on Actuarial Audits as published on the GFOA website: https://www.gfoa.org/materials/actuarial-audits

D. Statement of Key Findings

Based upon our review of Milliman's January 1, 2022 actuarial valuation and the actuarial assumptions and methods used in the valuation, we provide the following key findings:

1. The use of the Entry Age actuarial cost method to determine the Retirement Plan normal cost and accrued liability is appropriate.

2. The use of the market value of assets is an appropriate method for the Actuarial Value of Assets, but this method produces unnecessary volatility in the annual employer contribution. Our recommendations offer a method to reduce this volatility.

3. The actuarial assumptions that we can independently assess that were utilized in the January 1, 2022 valuation report are reasonable. The appropriateness of several assumptions could not be evaluated due to the lack of a formal experience study.

4. The results presented in the January 1, 2022 valuation report are clear and appropriate.

5. The amortization method used to determine the employer contribution reflects the Retirement Plan's funding practice in effect in 2022. This amortization method is reasonable and comports with guidance issued by the Texas Pension Review Board. Our recommendations offer an alternative method to reduce volatility in the annual employer contribution created by use of the funding practice in effect in 2022.

6. The actuarial valuation comports with the Texas PRB *Pension Funding Guidelines* and the relevant Actuarial Standards of Practice in most cases.

E. Statement of Key Recommendations

The key recommendations resulting from our review are summarized below. More detail is provided in later sections of this report.

1. We recommend that the District consider modifying the Asset Valuation Method from market value of assets (MVA) to a five-year smoothed actuarial value of assets (AVA) with a 20% corridor. See Section III.A.2. of this report for details.

2. We recommend that the District consider modifying the amortization method in the Retirement Plan funding practice to use the multiple-layer amortization by source approach instead of the single-layer amortization method. See Section III.A.3. of this report for details.

3. We recommend that the District perform a formal experience study to compare the demographic assumptions (e.g., withdrawal rates, retirement rates, earnings progression, etc.) used in the valuation against actual recent experience for the plan. It is our understanding that no such experience study has been completed for the plan in the past. See Section III.B.2. of this report for details.

4. We recommend that the District consider reducing the Investment Return assumption to a lower value. See Section III.B.2.g. of this report for details.

5. We recommend that the inflation and Social Security Taxable Wage Base increase assumptions be explicitly disclosed in future valuation reports. See Section III.B.2.h. of this report for details.

6. We recommend that future valuation reports include the rationale for assumptions, where applicable, as required under ASOP Nos. 27 and 35. See Section III.B.2.h.3. of this report for details.

7. We recommend that more detail be added to the description of the Plan Provisions in future valuations. See Section III.C.2. of this report for details.

8. We recommend that future valuation reports include written discussion of the results that are presented in tabular format. See Section IV.B. of this report for details.

9. We recommend that future valuation reports include the risk disclosures as required under ASOP No. 51. See Section IV.B. of this report for details.

The remainder of this report includes a more detailed discussion of our review of the methods, assumptions and communications that were involved in Milliman's actuarial work for the Retirement Plan.

Section III – Detailed Audit Results

A. Review of Actuarial Methods

A Funding Policy describes the manner in which plan liabilities and assets are measured for purposes of determining the annual employer contributions to the Retirement Plan and explains the method used to develop the level of the annual employer contributions. Typically, funding policies require the annual Normal Cost (i.e., the present value of the current year benefit accruals) to be fully funded each year plus a portion of the Unfunded Accrued Liability (UAL) (i.e., the excess of Actuarial Accrued Liability over Plan Assets) to be funded via an amortization payment.

It is our understanding that no formal written funding policy existed during the 2022 plan year. However, based on our review of the 2022 and prior actuarial valuation reports, the plan's funding practice in 2022 is described as follows:

- **Cost Method** - Plan Liabilities are determined using the **Entry Age Normal** actuarial cost method. This method funds each individual's benefits over their career as a level percent of pay. This is the cost method required for GASB No. 67/68 purposes and is generally considered best practice for ongoing public pension plans in the actuarial community.

- **Asset Valuation Method** – Plan Assets are valued as the **market value** as of the valuation date.

- **UAL Amortization Method** – The UAL is amortized in a **single layer as a level dollar amount over a 30-year closed period beginning January 1, 2014**. The amortization period as of January 1, 2022 is 22 years.

- **Actuarially Determined Contribution (ADC)** – The ADC is equal to the plan's Normal Cost plus the 22-year (as of January 1, 2022) amortization amount of the UAL.

We reviewed the actuarial cost method, the actuarial asset valuation method, and the amortization methods listed above which were used by Milliman in the January 1, 2022 actuarial valuation.

Published guidance by the following entities has been considered in reviewing the funding practice used in the Milliman valuation report:

- **Texas Pension Review Board (the PRB) "Guidance for Developing a Funding Policy" originally adopted on October 17, 2019**[1] – This guidance is intended to assist public entities in Texas in developing a policy that meets the requirements of Texas Government Code §802.2011;

- **Conference of Consulting Actuaries Public Plans Community (CCA PPC) "Actuarial Funding Policies and Practices for Public Pension Plans"**[2] – This publication is a "white paper" that develops principal elements and parameters of actuarial funding policy for U.S. public pension plans. The guidance offered in the white paper "is not intended to supplant or replace the applicable Actuarial Standards of Practice (ASOPs)" and is "nonbinding and advisory only", but it is intended as advice to actuaries and retirement boards in setting funding policy. The white paper develops a Level Cost Allocation Model that recommends actuarial funding methods for measuring both plan liabilities and plan assets, as well as recommends amortization periods for funding the UAL; and

- **Government Finance Officers Association's (the GFOA) Best Practice "Sustainable Funding Practices for Defined Benefit Pensions and Other Postemployment Benefits" approved by the GFOA's Executive Board in January 2016** – This paper includes recommendations for best practices for adopting a funding policy and incorporates by reference the GFOAs' Best Practice "Core Elements of Funding Policy" published in 2013 which also recommends parameters for a funding policy.

[1] Subsequent to the January 1, 2022 actuarial valuation, the PRB "Guidance for Developing a Funding Policy" was updated on July 25, 2024 and "PRB Pension Funding Guidelines" was adopted July 25, 2024.
[2] Subsequent to the January 1, 2022 actuarial valuation, the Second Edition of this publication was issued in August 2024.

1. Actuarial Cost Method

The actuarial cost method used by Milliman is the Entry Age (Level Percent of Pay) actuarial cost method. It is the most common method used by public employee retirement systems in the United States. It has the advantage of more stability from year to year in the normal cost contribution rate than with any other acceptable actuarial cost method. The PRB, the CCA PPC and the GFOA all recommend that plan liabilities be determined using the Entry Age Normal (Level Percent of Pay) actuarial cost method for plans with pay-related benefits.

We believe that the Entry Age (Level Percent of Pay) actuarial cost method is reasonable, acceptable, and appropriate for the Retirement Plan's benefit design and funding practice. Furthermore, this cost method follows the recommendations of the PRB, CCA PPC and the GFOA.

2. Actuarial Asset Valuation Method

The Actuarial Value of Assets (AVA) used by Milliman is consistent with the method described in the funding practice. The AVA is set equal to the Market Value of Assets (MVA). **We believe that the AVA method is reasonable and acceptable.**

However, **we recommend that the District consider modifying the Asset Valuation Method from market value of assets (MVA) to a five-year smoothed actuarial value of assets (AVA) with a 20% corridor**. The purpose of an AVA smoothing method is to dampen the effects of market volatility on the determination of the annual employer contribution. Thus, an asset smoothing method reduces the effect of short-term volatility while still tracking the overall movement of the market value of assets. Under this method, the AVA is equal to the MVA adjusted by deferred recognition of asset gains and losses over a five-year period. The asset gains/(losses) are equal to the excess/(shortfall) of the actual market value over/(under) the expected market value determined using the assumed investment return. The asset gains/(losses) are determined at the end of the year in which they occur. These gains/(losses) are recognized one-fifth (1/5) each year over the next five (5) years beginning in the year in which the gain or loss occurs. The AVA is subject to a 20% corridor such that the MVA adjusted by the deferred asset gains and losses will not be less than 80% nor greater than 120% of the MVA.

The PRB, the CCA PPC and the GFOA have various recommended ranges for the length of the period over which assets should be smoothed, but all three entities indicate that a 5-year smoothing period is reasonable. Furthermore, the CCA PPC and GFOA neither recommend nor discourage a corridor for a 5-year smoothing period (but they do recommend corridors for smoothing periods in excess of 5 years), while the PRB does not state a position on this matter. Therefore, this suggested AVA method comports with the recommendations of the PRB, CCA PPC and the GFOA.

3. Amortization Methods for the Unfunded Actuarial Accrued Liability

A funding policy should target funding 100% of the Actuarial Accrued Liability (AAL) over an actuarially sound period of time (i.e., generally a period of 30 years or less). Thus, a funding policy should require the total annual contribution to a plan to be sufficient to fund the Normal Cost (i.e., the present value of the current year's accruals for active employee members) plus an amortization payment of the Unfunded Actuarial Accrued Liability (UAL), which is equal to the AAL minus the AVA, over such reasonable period of time.

The UAL can be amortized as a Level Dollar amount whereby the amortization amount is the same each year, or as a Level Percent whereby the amortization amount increases each year as the plan population's compensation increases.

The UAL can be amortized over an Open Period whereby each year the amortization period remains the same and does not decline, or over a Closed Period whereby the amortization period decreases each year so that the full UAL is amortized by the end of the Closed Period.

There are two different layered approaches to amortizing the UAL: the Single Layer method and the Layered Amortization method. Under the Single Layer method, the full amount of the UAL is amortized over a single period each year. Under the Layered Amortization method, different amortization layers of the UAL are established at each actuarial valuation, and the sum of the layers is equal to the full UAL. In addition, within a single valuation, multiple layers of UAL can be established for different sources of changes in the UAL. The Layered Amortization method requires that a new amortization base (or layer) be created each year for Actuarial Experience Gains/Losses that occur during the year. In addition, new amortization layers are created in years in which actuarial assumptions or methods are changed and in years in which plan amendments are enacted.

Creating a new amortization layer for each year reduces the volatility of the amortization of the UAL relative to the Single Amortization method, particularly as the amortization period becomes shorter if a Closed Period amortization method is used. In addition, the use of different amortization periods for different types of layers (e.g., changes in actuarial assumptions or methods, plan amendments) allows the funding of each layer to be better aligned with an appropriate amortization period.

As shown in the tables below, the PRB, CCA PPC and GFOA all recommend a Layered Amortization approach with Closed Periods but with different amortization periods and different recommendations for Level Dollar versus Level Percent.

Method	Amortization Methodology		
	PRB	CCA PPC	GFOA
Closed Period vs. Open Period	Closed Period	Closed Period	Closed Period
Level Dollar vs. Level Percent	Level Dollar[1]	Level Percent[2]	Either
Single vs. Layered	Layered	Layered	Layered

Source of Amortization Layers	Amortization Period		
	PRB[1]	CCA PPC[2]	GFOA
Actuarial Experience Gain/Loss	< 30 years	15 to 20 years	15 to 25 years[5]
Assumption and Method Changes	<30 years	15 to 25 years	15 to 25 years[5]
Plan Amendments	<30 years	10 to 15 years[3]	15 to 25 years[5]
Transition to New Policy	Not discussed	Up to 30 years[4]	Not discussed

[1] The PRB indicates that "level dollar amounts are preferable unless payroll is expected to decrease in the future". The PRB gives examples for amortizing Actuarial Experience Gains/Losses over 5 years, Assumption Changes over 10 years and Plan Amendments over "as short of a period as possible" but does not recommend specific periods for each layer. However, the PRB states that the amortization layers should not have amortization periods that exceed 30 years.

[2] The white paper indicates that "level dollar may be appropriate for sponsors and plans that are particularly averse to future cost increases, e.g., utilities setting rates for current rate payers." Furthermore, the white paper states "level dollar pays off more of the unfunded liability in earlier years and less in later years than level percent of pay with the same amortization period."

[3] The white paper recommends that Plan Amendments be amortized over the actual remaining active future service for amendments affecting active members (where 15 years can be used as an approximation) or over actual remaining retiree life expectancy for amendments affecting inactive members (where 10 years can be used as an approximation).

[4] The white paper indicates that transition policies would allow current fixed period amortization layers with periods not to exceed 30 years to continue with new amortization layers subject to recommended guidelines.

[5] GFOA states that amortization periods should "ideally fall in the 15-20 year range" but "never exceed 25 years".

The Retirement Plan funding practice states that the employer should contribute the Normal Cost plus a single-layer level dollar amortization of the UAL, where such amortization period is closed and ends on December 31, 2043. As of January 1, 2022, 22 years remain in this closed amortization period.

We believe that the amortization method under the Retirement Plan's funding practice, which Milliman uses in its valuation, is acceptable for the January 1, 2022 valuation since 22 years remain in the amortization period. However, for future valuations, the single layer, fixed period amortization method is not a stable policy since the impact of gains/losses on the actuarially determined contribution is magnified as the amortization period shortens and the period would need to be restarted when the remaining period gets too short. This can be addressed using a multiple layer, fixed period amortization by source approach described on the prior page. Therefore, **we recommend that the District consider modifying the amortization method to use the multiple-layer amortization by source approach**. Such an amortization method would follow the methods recommended by the PRB, CCA PPC and the GFOA.

B. Review of Actuarial Assumptions

1. Review Process

Actuaries have different opinions and different preferences for setting, reviewing, and adjusting actuarial assumptions, which generally have a range of reasonable alternatives. Actuarial Standards of Practice (ASOPs) provide guidance to actuaries about the process and considerations for setting, reviewing, and adjusting actuarial assumptions, not about the actual assumptions themselves. The two ASOPs for selecting actuarial assumptions, ASOP Nos. 27 and 35, first became effective in 1997 and 2001, respectively. One of the principles included in both of these ASOPs is that for each valuation the actuary should consider whether the selected assumptions continue to be reasonable. The actuary is not required to do a complete assumption study for each valuation, but a review for reasonableness should be a part of each valuation. (See Sec. 3.13 of ASOP No. 27 and Sec. 3.7 of ASOP No. 35.)

With that background in the applicable ASOPs, periodic experience studies should occur at least every five years to meet the PRB's requirements. It is our understanding that no formal experience study has been performed in the past to meet this requirement. **We recommend that the District implement a policy to perform an experience study at least every five years to meet the requirements set forth by the PRB.** Under an experience study, actuaries have the opportunity to thoroughly review and study the most important of the assumptions and to recommend adjustments to the assumptions, based on the underlying experience, their interpretation of the experience, any trends that are suggested by the experience, and their expectations about the future experience. Ideally, the actuarial assumptions currently being utilized will continue to be reasonable and appropriate until the next experience study is performed. However, the actuary is still required, for each annual actuarial valuation, to consider whether the selected assumptions continue to be reasonable.

2. Findings

The summary conclusions of our review of the actuarial assumptions are that the assumptions that we are able to independently assess appear to be reasonable but updated assumptions should be considered in many cases as outlined below.

a. Withdrawal (Termination) Rates Assumption

Retirement Plan members must become vested in order to be eligible for employer-provided benefits upon their retirement. The Retirement Plan vesting schedule is as follows:

Years of Service	Vesting Percent
Less than 5	0%
5 or more	100%

Participants who terminate prior to becoming 100% vested receive a distribution of their accumulated contributions from the Retirement Plan.

The withdrawal assumption uses a schedule of assumed termination rates to recognize that some of the employees will terminate before they are eligible to receive retirement benefits.

Application of the withdrawal rates to the employee population in a Retirement Plan valuation allows the actuary to calculate the actuarial present value of the benefit payments which will be made to those employees who will eventually qualify for death, disability or retirement benefits at a later date provided that they are vested at the time of termination.

If the assumed termination rates are too low, it will be assumed that more employees will work until retirement eligibility and will qualify for benefits than will actually be the case, and the normal cost and the actuarial liability will be overstated. Conversely, if the assumed termination rates are too high, the normal cost and the actuarial liability will be understated since it will be assumed that fewer employees will qualify for retirement benefits than will actually be the case.

The assumed withdrawal rates used in the January 1, 2022 valuation are derived from a published age-graded actuarial table (i.e., Sarason T-7) issued in the 1950s (see Table 1 below).

Table 1: ***Current Termination Rates Assumption***

Rate of Decrement Due to Termination Per 100 Members					
Age	Years of Service				
	0-2	3	4	5	6+
<21	19.89	17.40	14.92	12.43	9.94
25	19.36	16.94	14.52	12.10	9.68
30	18.62	16.30	13.97	11.64	9.31
35	17.44	15.26	13.08	10.90	8.72
40	15.54	13.60	11.65	9.71	7.77
45	12.75	11.16	9.57	7.97	6.38
50	8.50	7.44	6.38	5.32	4.25
55	3.13	2.74	2.35	1.96	1.57
60	0.30	0.26	0.22	0.19	0.15
63+	0.00	0.00	0.00	0.00	0.00

It is our understanding that an experience study has never been performed for this plan, so, based on the limited scope of this audit, we are unable to assess the appropriateness and reasonableness of this assumption. Therefore, **we recommend that the District perform a formal experience study to compare the assumed withdrawal rates used in the valuation against actual recent experience for the plan.**

b. **Retirement Rates Assumption**

Under the current provisions of the Retirement Plan, participants may elect to terminate employment and begin receiving retirement benefits provided they meet one of the following three eligibility criteria:

Eligibility for Retirement Benefits			
Eligibility Criteria Description	**Age**	**Service**	**Age + Service**
a) Normal Retirement	65	5 years	n/a
b) Early Retirement	55	20 years	n/a
c) Rule of 80 Retirement	n/a	n/a	80 years

Unreduced Early Retirement benefits equal to the full amount of the Accrued Retirement Benefit under the Retirement Plan are available if the participant meets the Rule of 80.

For those who meet the eligibility criteria for retirement but are not eligible for Unreduced Early Retirement, Reduced Early Retirement benefits are equal to the Vested Accrued Retirement Benefit determined at the Early Retirement Date reduced 5% for each year the participant's Early Retirement Date precedes their Normal Retirement Date.

The schedule of Retirement Rates assumed for the January 1, 2022 Retirement Plan actuarial valuation varies by age beginning with 4% at age 55 with 100% of eligible participants assumed to retire at age 70 (see Table 2 below).

Table 2: ***Current Retirement Rates Assumption***

Age	Annual Rate
55	0.04
56	0.03
57	0.10
58	0.07
59	0.02
60	0.05
61-62	0.10
63	0.03
64	0.11
65	0.42
66	0.38
67	0.27
68	0.12
69	0.33
70	1.00

To our knowledge, these assumed rates were not based on a formal experience study. Based on the limited scope of this audit, we are unable to assess the appropriateness and reasonableness of this assumption. Therefore, **we recommend that the District perform a formal experience study to compare the assumed retirement rates used in the valuation against actual recent experience for the plan.**

c. Earnings Progression (Compensation Increases) Assumption

When the actuarial cost method for a pension plan requires projection of future retirement benefits that are a function of future earnings, it is necessary to project the current earnings of the individual plan participants for each future year in which they will accrue benefit credits to be financed by the employer. In the actuarial valuation for the Retirement Plan, the Entry Age Normal actuarial cost method requires such a projection of future earnings. Salaries are projected through a compensation increase assumption that ideally should reflect the anticipated effect of (1) merit, promotion, and longevity increases and (2) general wage increases, which consist of price inflation increases and increases in excess of price inflation generally referred to as productivity increases.

The general wage increase assumption is typically the larger part of each annual increase assumed at most ages. The exceptions are for the first few years of employment especially at younger ages. While the actual general wage increase for any year will vary from employer to employer, the average annual general wage increase for the long-term future should be influenced by competitive pressures from other employers in the region. The Merit, Promotion, and Longevity (MPL) component is usually the smaller part of each annual increase assumed. The actual MPL increases will vary from employee to employee; so, the assumed MPL increases are expected averages over a working career for each age.

The earnings progression assumption used in the January 1, 2022 Retirement Plan valuation is a flat 4% per annum, for all ages, compounded annually. The valuation report does not describe the components of this assumption. Based on the limited scope of this audit, we are unable to assess the appropriateness and reasonableness of this assumption. Therefore, **we recommend that the District perform a formal experience study to compare the assumed earnings progression used in the valuation against actual recent experience for the plan.**

d. Mortality Rates Assumption

The mortality assumption is used to project the expected lifetime for each participant to determine the period over which retirement benefits are expected to be paid.

In order for a plan to develop a mortality table based solely on the plan's own experience it must be large enough to have at least 1,000 deaths at each age and gender. Thus, the Retirement Plan is not large enough for its actual mortality experience to be the basis of the mortality assumption.

For a plan of this size, it is standard practice to use a published mortality table that is considered appropriate for a retirement plan. Through the years there have been a number of major mortality studies for the purpose of developing a published mortality table or set of mortality tables. One of the common findings of these studies is that mortality rates in the United States have gradually become lower over extended periods of time, often referred to as improvement in mortality (i.e., people are living longer). Therefore, a newer set of mortality tables is usually considered more appropriate for valuing a pension plan than an older set of tables.

In January of 2019, the Society of Actuaries (SOA) published the Pub-2010 Public Retirement Plans Mortality Tables Report. This report is the result of a comprehensive study of the mortality experience of public pension systems across the United States, where such experience comes from calendar years 2008-2013. The report published mortality tables for three different classes of employees, Teachers, Public Safety and General Employees, as well as tables for Retirees, Disabled Retirees and Contingent Survivors. Each of the Employee tables are subdivided into Above-Median Income, Below-Median Income and a Total Dataset, and further subdivided into amount-weighted tables or headcount-weighted tables, where amount-weighted should be used when the benefits are tied to compensation. Similarly, the Retiree tables are divided into Above and Below Median based on benefit amount. The report indicates that the mortality tables should be projected with an appropriate mortality improvement projection scale.

The mortality assumption used in the January 1, 2022 Retirement Plan valuation is the Pub-2010 General Tables projected from 2010 with generational mortality improvements using Scale MP-2021. **This assumption reflects the most recent tables issued by the SOA and appears to be reasonable.**

e. **Disability Rates Assumption**

If an active participant incurs a condition which is determined by NTMWD to be a permanent and total disability and the participant has at least two years of service with NTMWD at the time of the disability certification, they shall be entitled to a monthly disability benefit payable from the Retirement Plan beginning six months after their disability certification date. Disability payments continue until one of the following events occurs: (a) the participant recovers, (b) the participant fails to submit proof of continued disability, (c) the participant retires on their normal or early retirement date or (d) the participant dies.

No disability rates were used in the January 1, 2022 Retirement Plan valuation. Based on the data provided, there were only two disabled retirees in the January 1, 2022 participant census. Given the low number of actual disabilities, **this appears to be a reasonable assumption**.

f. **Cost of Living Adjustment (COLA) Increase Assumption**

The annual COLA increase in the Retirement Plan is based on the prior year's inflation as measured by CPI-W but not greater than 3.00%. Because of the 3.00% cap, we would expect the average COLA increase to be lower than the uncapped inflation rate. In Table 3 below, we have summarized the history of CPI-W increases reflecting a 3.00% cap.

Table 3: 55-Year History of the Average Annual Increase in CPI-W from December to December Reflecting a 3.00% Cap

Period	Number of Years in Period	Geometric Average Annual Increase in CPI-W
1968-2022	55	2.47%
1973-2022	50	2.42%
1978-2022	45	2.35%
1983-2022	40	2.27%
1988-2022	35	2.23%
1993-2022	30	2.12%
1998-2022	25	2.05%
2003-2022	20	2.02%
2008-2022	15	1.82%
2013-2022	10	1.79%

As shown in Table 3 above, over the long-term (i.e., 30 to 55 years), the CPI-W has averaged an annual increase (capped at 3%) of 2.12% to 2.47%. However, in recent past experience (i.e., 10 to 25 years), the CPI-W has averaged an annual increase (capped at 3%) of 1.79% to 2.05%. Because the Retirement Plan valuation projects benefit payments over 70 years into the future, long-term expected trends should be emphasized while giving reasonable weight to recent past experience.

The COLA increase assumption used in the January 1, 2022 Retirement Plan valuation was 3.00% for 2023-2025 and 2.00% thereafter. **This assumption appears reasonable.**

g. **Investment Return Assumption**

A building-block method is used to assess the reasonableness of the Investment Return assumption. There are three components to the investment return assumption: (1) the rate of inflation, (2) the real rate of return (net of inflation) and (3) investment-related expenses. Each component represents the annual average rate expected over the long-term future. While this is a theoretical approach, it provides a reasonable basis for the selection and/or analysis of an investment return assumption.

In the building-block method, historical markets are studied and long-term historical relationships between equities and fixed-income are preserved consistent with the widely accepted capital market principle that assets with higher volatility generate a greater return over the long run. The long-term portfolio return is established via a building block approach with proper consideration of diversification and rebalancing. Next, best-estimate ranges of expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. The ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by an asset allocation percentage which is based on the nature and mix of current and expected plan investments. This weighted-return is then increased by expected inflation and reduced by assumed investment expenses.

We believe that the Investment Return assumption of 7.75% used in the January 1, 2022 Retirement Plan valuation is within a range of reasonable assumptions, but, in our opinion, it is near the upper bound of reasonableness. Therefore, **we recommend that the District consider reducing the Investment Return assumption to a lower value**.

h. **Assumptions and Other Information Not Disclosed**

1) Inflation Assumption

Inflation is a building block component of the Earnings Progression assumption, the Social Security Taxable Wage Base increase assumption and the Investment Return assumption. These three economic assumptions should be consistent with each other and contain the same assumed rate of inflation. In addition, the inflation assumption forms the basis for the annual Cost of Living Adjustment (COLA) assumption and is used to project the compensation limit under Internal Revenue Code (IRC) §401(a)(17) and the benefit limitations under IRC §415(b).

There is no Inflation Assumption disclosed in the January 1, 2022 Retirement Plan valuation report so we cannot asses the reasonableness of this assumption. **We recommend that this assumption be explicitly disclosed in future valuation reports.**

2) Social Security Taxable Wage Base Increase Assumption

The Retirement Plan benefit accrual formula grants 3% of a participant's annual earnings plus 1% of a participant's annual earnings in excess of covered compensation. Covered compensation is the average of the Social Security Taxable Wage Bases in effect for each calendar year during the 35-year period ending with the year in which the participant attains Social Security Retirement Age. Thus, for purposes of projecting covered compensation into the future, the Social Security Taxable Wage Base in the Retirement Plan should be projected to increase annually at the assumed annual inflation rate plus national productivity growth.

There is no Social Security Taxable Wage Base Increase Assumption disclosed in the January 1, 2022 Retirement Plan valuation report so we cannot asses the reasonableness of this assumption. **We recommend that this assumption be explicitly disclosed in future valuation reports.**

3) Rationale for Significant Assumptions

Under Actuarial Standards of Practice (ASOP) Nos. 27 and 35:

i. for each assumption that has a significant effect on the measurement and that the actuary has selected, the actuary should disclose the information and analysis used to support the actuary's determination that the assumption is reasonable, and

ii. for each assumption that has a significant effect on the measurement and that the actuary has not selected (other than prescribed assumptions or methods set by law), the actuary should disclose the information and analysis used to support the actuary's determination that the assumption does not significantly conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement.

The January 1, 2022 Retirement Plan valuation report does not include a rationale for any of the disclosed assumptions. **We recommend that future valuation reports include the rationale for assumptions, where applicable, as required under ASOP Nos. 27 and 35.**

C. Review of Benefit Provisions

1. Review Process

Rudd and Wisdom, Inc. compared the Summary of Principal Plan Provisions presented in Appendix A of the Milliman valuation report as of January 1, 2022 to the provisions of the legal plan document for the Retirement Plan and the Defined Benefit Retirement Plan Summary (as amended January 1, 2020).

2. Findings

The summary conclusions of our review of the Summary of Principal Plan Provisions included in the Milliman actuarial valuation report are as follows:

a. Overall Description

The Summary of Principal Plan Provisions included in the Milliman actuarial valuation report as of January 1, 2022 appears to be a comprehensive outline of all major benefit provisions. However, we believe that some corrections and additional detail would enhance the summary.

b. Recommended Enhancements

We recommend the following updates to the Summary of Principal Plan Provisions included in the January 1, 2022 Actuarial Valuation Report prepared by Milliman.

1) Milliman's description of *Eligible Employee Classification* on page A-1 of their report includes:

   "The Plan covers all employee classifications except Leased Employees".

   We recommend that this description be modified to clarify that the Plan covers all "full-time employee classifications" per Plan Section 1.04.

2) Milliman's description under the *Participation* section on page A-3 of their report includes:

   "An Employee will become a participant in the Plan…the attainment of age 21 and the completion of 2 Years of Eligibility Service".

   We recommend that this description be modified to clarify that the age 21 and 2 years of eligibility service criteria do not apply to employees hired or rehired on or after January 1, 2018.

3) Milliman's description under the *Early Retirement Benefit* subsection of the *Early Retirement* section on page A-4 of their report includes:

   "…there shall be no reduction in the early retirement benefit of a Member whose attained age and total service, when added together, equal 85 at his Early Retirement Date".

   We recommend that this description be modified to add "(80 effective January 1, 2018)" after "equal 85" per Plan Section 2.03.

4) Milliman's description under the *Disability Retirement* section on page A-4 of their report includes:

   "An active participant deemed permanently and totally disabled will receive a monthly disability payment…".

   We recommend that this description be modified to add "who has completed at least two years of service" after "totally disabled" per Plan Section 3.15.

5) Milliman's description under the *Pre-Retirement Death Benefit* section on page A-5 of their report includes:

   "…the greater of (i) the present value of the Participant's Vested Accrued Benefit and (ii) the Participant's current wages multiplied by his vested percentage".

   We recommend that this description be modified to add "annual" after "Participant's current" per Plan Section 6.04.

6) Milliman's description under the *Termination Benefit* section on page A-5 of their report does not include any mention of the benefit available to nonvested terminated members.

   We recommend that this description be modified to add the following per Plan Section 5.07:

   "Participants who terminate prior to becoming 100% vested are entitled to a refund of their employee contributions with accrued interest".

Section IV – Review of Actuarial Communications

A. Review Process

We examined the content of the actuarial communications by reviewing the valuation report as of January 1, 2022 prepared by Milliman. ASOP No. 41 *Actuarial Communications* includes three statements shown below that are relevant to our review.

Section 3.1.1 Form and Content – The actuary should take appropriate steps to ensure that the form and content of each actuarial communication are appropriate to the particular circumstances, taking into account the intended users.

Section 3.1.2 Clarity – The actuary should take appropriate steps to ensure that each actuarial communication is clear and uses language appropriate to the particular circumstances, taking into account the intended users.

Section 3.2 Actuarial Report – The actuary should complete an actuarial report if the actuary intends the actuarial findings to be relied upon by any intended user. The actuary should consider the needs of the intended user in communicating the actuarial findings in the actuarial report.

An actuarial report may comprise one or several documents. The report may be in several different formats (such as formal documents produced on word processing, presentation or publishing software, e-mail, paper, or web sites). Where an actuarial report for a specific intended user comprises multiple documents, the actuary should communicate which documents comprise the report.

In the actuarial report, the actuary should state the actuarial findings, and identify the methods, procedures, assumptions, and data used by the actuary with sufficient clarity that another actuary qualified in the same practice area could make an objective appraisal of the reasonableness of the actuary's work as presented in the actuarial report.

Furthermore, ASOP No. 51 *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions* applies to funding valuations. Below are excerpts from three Sections of ASOP No. 51.

Section 3.2 Identification of Risks to be Assessed —The actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition. Examples of risks include the following: a. investment risk (i.e., the potential that investment returns will be different than expected); b. asset/liability mismatch risk (i.e., the potential that changes in asset values are not matched by changes in the value of liabilities); c. interest rate risk (i.e., the potential that interest rates will be different than expected); d. longevity and other demographic risks (i.e., the potential that mortality or other demographic experience will be different than expected); and e. contribution risk.

This standard does not require the actuary to evaluate the ability or willingness of the plan sponsor or other contributing entity to make contributions to the plan when due. This standard does not require the actuary to assess the likelihood or consequences of potential future changes in applicable law. In addition, the actuary is not expected to provide investment advice.

Section 3.3 Assessment of Risk —The actuary should assess the risks identified by the actuary in accordance with section 3.2, including the potential effects of the identified risks on the plan's future financial condition. The assessment should take into account circumstances specific to the plan (for example, funding policy, investment policy, funded status, or plan demographics). This standard does not require the assessment to be based on numerical calculations.

Section 3.7 Plan Maturity Measures —In addition to the requirements of section 3.3, the actuary should calculate and disclose plan maturity measures that, in the actuary's professional judgment, are significant to understanding the risks associated with the plan. Examples include the following:

a. the ratio of market value of assets to active participant payroll;

b. the ratio of retired life actuarial accrued liability to total actuarial accrued liability;

c. the ratio of a cash flow measure (such as benefit payments, or contributions less benefit payments) to market value of assets;

d. the ratio of benefit payments to contributions; and

e. the duration of the actuarial accrued liability.

The actuary also should provide commentary to help the intended user understand the significance of the disclosed plan maturity measures when assessing risk. Since various plan maturity measures may convey similar information about risk, the actuary should use professional judgment in selecting the plan maturity measures, if any, to calculate and disclose.

B. Findings

The summary conclusions of our review of the actuarial communications by Milliman are that the results presented in the report are clear and the results are compared to those presented in the prior year report. However, in our assessment, the report does not include adequate discussion of the results nor does it include the requisite risk assessments described above. Thus, the report includes only some of the information necessary to satisfy the applicable ASOPs.

Therefore, we recommend that future valuation reports include written discussion of the results that are presented in tabular format. For example, the discussion could include: (a) explanations of the reasons for the change in the unfunded liability and the Actuarially Determined Contribution since the prior year and (b) a list of action items for District management.

In addition, we recommend that future valuation reports include the following as required under ASOP No. 51: (a) the identification of various risks that may significantly affect the plan's future financial condition, (b) an assessment of those risks and (c) a list of plan maturity measures that are significant to understanding the risks associated with the plan.

Section V – Glossary of Actuarial Terms

Actuarial Accrued Liability

This is computed differently under different actuarial cost methods. Generally, the Actuarial Accrued Liability represents the portion of the Present Value of Future Benefits attributed to periods of service preceding the valuation date. Also referred to as Entry Age Normal Accrued Liability

Actuarial Gain or Loss

A measure of the difference between actual experience and that expected based on the actuarial assumptions during the period between two actuarial valuation dates, as determined in accordance with the particular actuarial cost method used.

Actuarial Present Value of Accumulated Benefits

The actuarial present value of all accrued benefits (i.e., all benefits attributed by the pension benefit formula to employee service and compensation rendered prior to the valuation date).

Actuarial Value of Assets

The value of Plan Assets used by an actuary for an actuarial valuation.

Entry Age Normal Actuarial Cost Method

An actuarial cost method under which the Present Value of Future Benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to the year of service during the valuation year is called the Normal Cost. The portion of this present value not provided for at a valuation date by the Present Value of Future Normal Costs is called the Actuarial Accrued Liability.

Normal Cost

Computed differently under different actuarial cost methods, the Normal Cost generally represents the portion of the Actuarial Present Value of Future Benefits attributed to the current year of service for active employees.

Open Period vs. Closed Period Amortization

The amortization method determines the manner over which the Unfunded Accrued Liability (UAL) is amortized. The UAL can be amortized over an:

- Open Period, whereby the amortization period is the same each year (e.g., a 30-year Open Period amortization would use a 30-year amortization for the January 1, 20X0 valuation, followed by another 30-year open period on January 1, 20X1 and so on without the 30-year period ever changing), or
- Closed Period, whereby the amortization period reduces each successive period (e.g., a 30-year Closed Period amortization would use a 30-year amortization for the January 1, 20X0 valuation, followed by a 29-year closed period on January 1, 20X1 and so on until the final year of the amortization is reached in the 30th year).

Present Value of Future Benefits

Future benefits include all benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members) as a result of their service through the valuation date and their expected future service. The actuarial Present Value of Future Benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

Present Value of Future Normal Costs	The difference between the Present Value of Future Benefits and the Actuarial Accrued Liability under a given actuarial cost method.
Unfunded Accrued Liability	The excess, if any, of the Actuarial Accrued Liability over the Actuarial Value of Assets.

Appendix A - District's Response to the Preliminary Audit Report

November 20, 2025

Mr. Christopher Johnson
Mr. Brandon Fuller
Rudd and Wisdom, Inc.
9500 Arboretum Blvd., Ste 200
Austin TX 78759

Re: Response to Actuarial Audit Report

Dear Mr. Johnson and Mr. Fuller:

On behalf of the Retirement Plan Committee, I would like to express our appreciation for the draft report, presentation and discussion at our meeting today.

In response to the Key Recommendations included on page II-3 and II-4 of your report, the following status update is provided:

1. Consider modifying the Asset Valuation Method from market value of assets (MVA) to a five-year smoothed actuarial value of assets (AVA) with a 20% corridor to dampen volatility in the annual employer contribution.
Status: 5-year asset smoothing was implemented beginning with the 1-1-2023 Valuation Report

2. Consider modifying the amortization method in the Retirement Plan funding practice to use the multiple-layer amortization by source approach instead of the single-layer amortization method.
Status: The multi-layered amortization method was implemented beginning with the 1-1-2023 Valuation Report

3. Perform a formal experience study to compare the demographic assumptions (e.g., withdrawal rates, retirement rates, earnings progression, etc.) used in the valuation against actual recent experience for the Plan.
Status: An experience study was completed in June 2023 with recommended assumption changes incorporated in the 1-1-2023 Valuation Report.

4. Consider reducing the Investment Return assumption to a lower value than 7.75%.
Status: The Investment Return assumption was reduced to 7.25% beginning with the 1-1-2023 Valuation Report.

5. Explicitly disclose Inflation and Social Security Taxable Wage Base increase assumptions in future valuation reports.
Status: Updated disclosures were included beginning with the 1-1-2023 Valuation Report.

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6. Include rationale for assumptions, where applicable, in future valuation reports as required under ASOP Nos. 27 and 35.
Status: The rationale for assumptions was included beginning with the 1-1-2023 Valuation Report.

7. Make minor clarifications and additions to the description of plan provisions presented in the report.
Status: Recommended clarifications were included beginning with the 1-1-2023 Valuation Report.

8. Include written discussion of key results that are presented in tabular format in future valuation reports.
Status: Written discussion of key results was incorporated beginning with the 1-1-2023 Valuation Report.

9. Include risk disclosures in future valuation reports as required under ASOP No. 51.
Status: Risk disclosures were incorporated beginning with the 1-1-2023 Valuation Report.

Please include our written response with your final report.

Sincerely,

Jeanne Chipperfield

Jeanne Chipperfield
Assistant General Manager – Chief Financial Officer

C: Retirement Plan Committee Members
Jennafer P. Covington, Executive Director/General Manager