TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
(A Component Unit of the City of Tucson, Arizona)

Annual Comprehensive Financial Report
Fiscal Year Ended June 30, 2022

Issued by the City of Tucson, Retirement Division

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Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

**Tucson Supplemental Retirement System
Arizona**

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

June 30, 2021

Christopher P. Morrill

Executive Director/CEO

CITY OF
TUCSON
BUSINESS SERVICES

December 22, 2022

To the Chairman and Members of the Retirement Board,
Tucson Supplemental Retirement System

The Annual Comprehensive Financial Report (ACFR) of the Tucson Supplemental Retirement System ("TSRS" or the "System") for the year ended June 30, 2022, is herewith submitted. Responsibility for both the accuracy of the data and the completeness and fairness of the presentation rests with the management of TSRS. A narrative introduction to financial statement highlights, overview and analysis for fiscal year 2022 can be found in the Management's Discussion and Analysis beginning on page 3 of the Financial Section.

The Tucson Supplemental Retirement System was established in 1953 to provide a monthly retirement supplement to social security benefits and to the personal retirement savings of its members. The benefits provided to members are supported by payroll contributions made by active members, City contributions and investment returns from the retirement system asset portfolio.

The System acts as a fiduciary of the assets held in trust for the payment of pension benefits. As a fiduciary, the System invests in a variety of assets, many of which were impacted by significant market fluctuations during the fiscal year. However, as investments are allocated strategically, with the understanding that there will be volatility in the market, the investments of the System remained consistent throughout and the overall portfolio lost 11.5%.

The TSRS Board of Trustees (the "Board") has recommended changes during the past several years specifically aimed at improving the financial sustainability of the System. In FY 2022, the Board continued this process and updated the actuarial assumptions used to project future liabilities to provide a more conservative estimate. The Board reduced the assumed investment rate of return from 7.00% to 6.75% which reduces the risk of not meeting the assumed rate of return. The Board adopted a closed, layered amortization period for unfunded liabilities, meaning the amount which is unfunded as of June 30, 2022 will be fully funded in 20 years, and next year's liability (or excess) will be a new layer which has a new 20 year amortization period.

Record keeping is the responsibility of the Business Services Department, Employee Benefits and Retirement Section. Preparation of financial statements and control over investment responsibilities for TSRS are performed by Retirement staff in conjunction with the City's Business Services Department. TSRS uses the accrual basis of accounting. This ACFR was prepared in conformance with principles of governmental accounting and reporting set forth by the Governmental Accounting Standards Board (GASB). Internal control is the responsibility of management, with an objective that they are responsible for an accounting of their stewardship of the resources entrusted to their care. Internal accounting controls provide reasonable, but not absolute, assurance that the financial statements are free of any material misstatements because the cost of a control should not exceed the benefits to be derived, the objective is to provide reasonable, rather than absolute assurance the financial statements are free of any material misstatement.

Annually, the budget for the System must be approved by the Board. The budget is also included in the City of Tucson annual budget which is recommended by the City Manager for adoption by the Mayor and Council.

Provisions of the Tucson City Code require unanimous approval of all System expenses by the Board. The Board reviews the TSRS expenses and ratifies all retirements at their monthly meetings.

Contributions to the System are based on the recommendations of an independent actuary; which utilize the principles of level-cost financing with current service financed as a level percent of payroll on a current basis and prior service amortized as a level percent of payroll over a fixed period of twenty years beginning July 1, 2014.

Funding Status

The funded status of the System is presented as a percentage, and it represents assets divided by liabilities. Using the actuarial methods to estimate funding ratio, the System has a funded ratio of 76.5% as of June 30, 2022. This means that the System currently has 76.5 cents of assets for each dollar of liabilities. This is an increase from last year when the funded ratio was 76.1%. Another way to evaluate the funded ratio is by looking at dollars; the unfunded actuarial accrued liability increased from $282.5 million last year to $285.3 million in the current year. The improvement in percentage is a function of the smoothed investment returns from the prior five years. This type of improvement is supported by the City's long-term commitment to a funding policy. Based on this policy, the City of Tucson contributes additional monies to the plan, and with the additional contributions, the System is expected to reach full funding in 2034.

The City's management demonstrates commitment to achieving full funding status for the pension and continues to provide contributions in excess of the minimum required by the actuary. In this year, the required contribution rate was 24.1% of payroll, and the City contributed 27.5%. In addition, City management made an additional lump sum contribution at the end of the year of $4.1 million.

Investment Activities

Net investment income resulted in a loss of $119 million. The net investment income is comprised of bond interest, dividend income, real estate income, security lending income, investment expenses and realized and unrealized gains and losses on securities. The rate of return, on a money-weighted basis, for the total fund for the year was -11% (net of fees). For the last three and five years, the System had annualized returns of positive 5.5% and 6.3%, respectively.

TSRS asset allocation targets are 34% U.S. equities, 24% foreign equities, 12% real estate, 25% fixed income and 5% infrastructure. These percentages reflect the current diversification posture as of June 30, 2022 and represent the Board's prudent judgment in the pursuit of maximum returns at acceptable levels of risk.

In accordance with current investment policy, the System's asset classes were rebalanced throughout the fiscal year. Certain investments had to be liquidated and the cash was utilized throughout the fiscal year to make up the shortfall between pension contributions and distributions. This movement of monies had a "self-balancing" effect between equities and fixed income, however due to market factors real estate and infrastructure have generated positive returns without generating cash flow and are therefore overweight compared to the strategic policy. In accordance with our investment agreements, reducing the investment in real estate or infrastructure requires a 6 month delay between the date the liquidation order is given and the date it is fulfilled. We continue to monitor economic forecasts and market expectations and work with investment professionals to determine the best time to rebalance real estate and infrastructure assets.

Professional Services

The Retirement Board retains money managers and other professionals to prudently discharge its fiduciary responsibility for the proper administration of the System. Opinions of the independent auditors and the actuary are included in this report. The professionals retained by the Board are listed on page 10 of this report.

Acknowledgments

This report is intended to provide information as a means for making management decisions, complying with statutory provisions, and demonstrating responsible stewardship for assets of the System. The preparation of this report reflects the combined efforts of TSRS staff, the City of Tucson Business Services Department, and others that have worked diligently to assure the successful operation of TSRS. The effort and commitment of the Board of Trustees who volunteer their time and expertise is greatly appreciated. In addition, the ongoing support of the Mayor and Council to support TSRS and specifically to provide financial support to the Board's funding plan is highly valued and a tangible support to the membership.

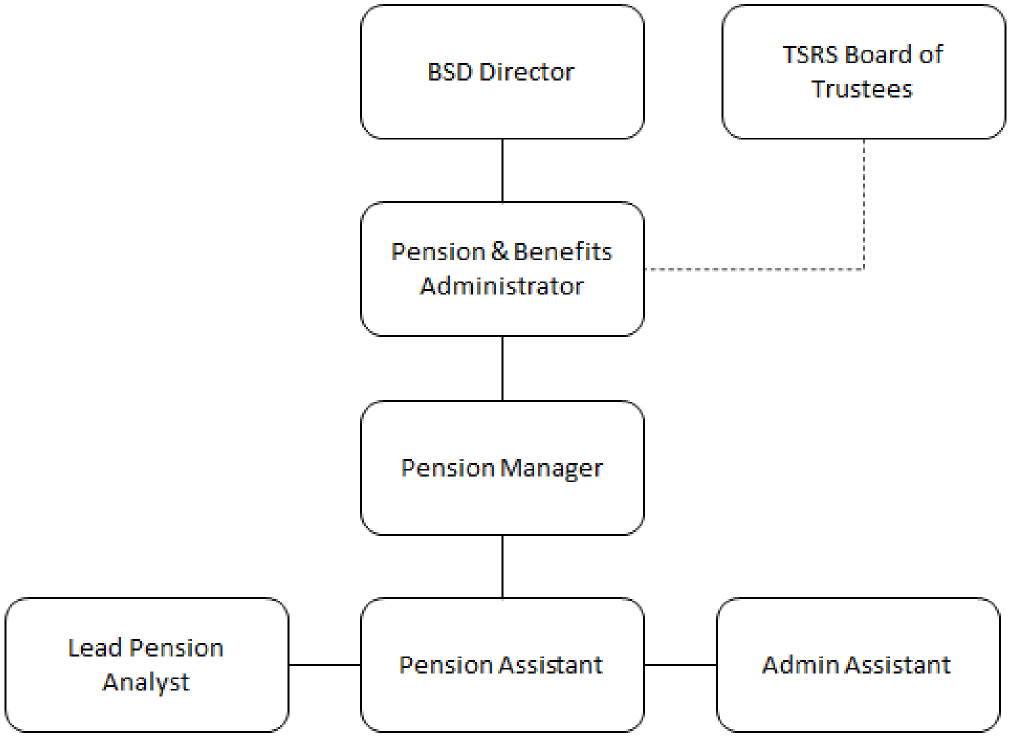
The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Tucson Supplemental Retirement System for its annual financial report for the fiscal year ended June 30, 2021. This was the 25th consecutive year that the Tucson Supplemental Retirement System has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current annual financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

Respectfully submitted,

Art Cuaron, MBA
Pension & Benefits Administrator
Tucson Supplemental Retirement System

Organization Chart



Administrative Organization

BOARD OF TRUSTEES
Mark Rubin
Chairman

Kevin Larson
City Manager's Appointee

Vivian Newsheller
Deputy Director/Controller;
Business Services Department

Elsa Quijada
Interim Director;
Human Resources Department

Jorge Hernández
Employee Representative

Jeffrey Whiting
Employee Representative

James Wysocki
Retiree Representative

RETIREMENT STAFF
Art Cuaron, MBA
Pension & Benefits Administrator

Pete Saxton
Pension Manager

Dawn Davis
Lead Pension Analyst

Ernestina Gamez
Pension Assistant

Noemi Gonzalez
Administrative Assistant

Administrative Organization

TREASURY DIVISION STAFF
Marcela Ceballos
Treasury Administrator

Jay Nordstrom
Finance Manager

ACCOUNTING
Emilia Eveningred
Accounting Manager

LEGAL
Gioia Sanderson
Principal Assistant City Attorney

EXTERNAL COUNSEL
Yoder & Langford, P.C.
Phoenix, AZ

ACTUARY
Gabriel, Roeder, Smith & Company
Denver, CO

AUDITOR
Heinfeld & Meech
Tucson, AZ

INVESTMENT CONSULTANT
Callan Associates, Inc.
San Francisco, CA

CUSTODIAN BANK
BNY Mellon – New York, NY

INVESTMENT MANAGERS
Schedule of Fees see page 58,
Schedule of Commissions see page 59

Aberdeen Asset Management
Philadelphia, PA

Alliance Capital Management Corporation
New York, NY

American Century Investments
Kansas City, MO

BlackRock Institutional Trust Company, N.A.
San Francisco, CA

Causeway Capital Management
Los Angeles, CA

Fidelity Investments
Smithfield, RI

JP Morgan Asset Management
San Francisco, CA

Pacific Investment Management Company
Newport Beach, CA

Champlain Investment Partners
Burlington, VT

Macquarie Capital (USA), Inc.
New York, NY

IFM
New York, NY

T. Rowe Price Associates
Baltimore, MD

CITY OF
TUCSON
BUSINESS SERVICES

FINANCIAL SECTION

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Independent Auditor's Report

Board of Trustees
Tucson Supplemental Retirement System

Report on the Financial Statements

Opinion

We have audited the financial statements of the Tucson Supplemental Retirement System (System), a pension trust fund of the City of Tucson, Arizona, which comprise the Statement of Fiduciary Net Position as of June 30, 2022, and the related Statement of Changes in Fiduciary Net Position for the year then ended, and the related notes to the financial statements.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are required to be independent of the Tucson Supplemental Retirement System, a pension trust fund of the City of Tucson, Arizona, and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for one year beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements
Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements. In performing an audit in accordance with generally accepted auditing standards and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Other Matters
Required Supplementary Information
Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis and the Required Supplementary Information, as listed in the table of contents, be presented to supplement the financial statements. Such information is the responsibility of management and, although not a part of the financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the System's financial statements. The Other Supplemental Information, as listed in the table of contents, is presented for purposes of additional analysis and are not a required part of the financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. Such information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Other Supplemental Information is fairly stated, in all material respects, in relation to the financial statements as a whole.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the Introductory Section, Investment Section, Actuarial Section and Statistical Section but does not include the financial statements and our auditor's report thereon. Our opinion on the financial statements does not cover the other information and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the financial statements, or the other information otherwise appears to be materially misstated. If, based on other work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated December 21, 2022, on our consideration of the Tucson Supplemental Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to solely describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Tucson Supplemental Retirement System's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Tucson Supplemental Retirement System's internal control over financial reporting and compliance.

Heinfeld Meech & Co. PC

Heinfeld, Meech & Co., P.C.
Tucson, Arizona
December 21, 2022

Management's Discussion and Analysis

We are pleased to provide this overview and analysis of the financial activities of the Tucson Supplemental Retirement System (TSRS) for the plan year ended June 30, 2022. We encourage readers to consider the information presented here in conjunction with additional information that we have furnished in our Letter of Transmittal, which begins on page 6 of this report.

Financial Highlights

- The net position of TSRS as of the close of the plan year ended June 30, 2022 was $863,064,038 (net position restricted for pensions). The net position is available to meet TSRS's ongoing obligations to plan participants and their beneficiaries.

- The decrease in total net position restricted for pension benefits was -$150,316,266. The decrease of 14.8% over the prior year was primarily a result of investment losses.

- TSRS's funding objective is to establish and receive contributions, which will remain approximately level from year to year and thereby minimize inter-generational cost transfers. As of June 30, 2022, the date of our last actuarial valuation, the funded ratio for TSRS was 76.5% on an actuarial basis, 71.08% using the fair value basis.

- Revenues (Additions to Plan Net Position) for the year were negative, -$68,093,097. There were positive flows for member and employer contributions plus transfers from other systems and contributions from other sources totaling $51,252,472, as well as, realized investment gains from interest, dividends and securities lending of $11,024,430. However, this was out weighted by and a net loss in fair value of investments of -$125,240,577 further reduced by investment expenses of $5,129,422.

- Expenses (Deductions from Plan Net Position) for the year totaled $82,223,169. This includes payments to participants totaling $79,494,496; Refunds and rollovers of $2,026,724; and administrative expenses of $701,949.

Overview of the Financial Statements

The following discussion and analysis is intended to serve as an introduction to TSRS's financial statements, which are comprised of these components:

1. Statement of Fiduciary Net Position
2. Statement of Changes in Fiduciary Net Position
3. Notes to the Financial Statements

Please note that this report also contains other supplementary information in addition to the basic financial statements themselves, including details of the system's investments, actuarial analysis, and various statistical information found in sections under those names.

Management's Discussion and Analysis

The Statement of Fiduciary Net Position is a snapshot of account balances at year-end. It indicates the assets available for future payments to retirees and any current liabilities that are owed at this time.

The Statement of Changes in Fiduciary Net Position, on the other hand, provides a view of current year additions to and deductions from the plan.

Both statements comply with applicable Governmental Accounting Standards Board (GASB) Statements. These pronouncements require certain disclosures and require state and local governments to report using the full accrual method of accounting. TSRS complies with all material requirements of these pronouncements.

The Statement of Fiduciary Net Position and the Statement of Changes in Fiduciary Net Position report information about TSRS's activities. These statements include all assets, deferred outflows, liabilities and deferred inflows, using the full accrual basis of accounting, which is similar to the accounting used by most private-sector companies. All of the current year's revenues and expenses were taken into account regardless of when cash is received or paid. All investment gains and losses are shown at trade date, not settlement date. In addition, both realized and unrealized gains and losses are shown on investments, and all capital assets (fixed assets) are depreciated over their useful lives.

TSRS's net position restricted for pensions is displayed on the Statement of Fiduciary Net Position as the difference between assets and liabilities. Over time, increases and decreases in TSRS's net position is one indicator of whether its financial condition is improving or deteriorating. (See TSRS's financial statements on pages 21 and 22 of this report).

Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the financial statements. (See Notes to Financial Statements on pages 23-38 of this report).

The Required Supplementary Information that follows immediately after the notes to financial statements provides new information and schedules due to the GASB 67 implementation in fiscal year 2014. These schedules started with one year as of June 30, 2014, but eventually will build up to ten years of information.

Financial Analysis

As previously noted, net position may serve over time as a useful indication of TSRS's financial position (see table which follows). The total assets of TSRS exceeded its liabilities at the close of the plan year ended June 30, 2022 with $863,064,038 in net position held in trust for payment of ongoing obligations to plan participants and their beneficiaries.

Management's Discussion and Analysis

Net Position of the Plan

Assets	June 30, 2021	June 30, 2022	Change
Cash, cash equivalents, and receivables	$ 34,609,848	$ 33,797,095	-2.3%
Investments	978,782,890	829,349,176	-15.3%
Securities lending cash collateral	6,238,045	5,731,510	-8.1%
Other Assets	32,935	0	-100.0%
Total assets	1,019,663,718	868,877,781	-14.8%
Liabilities			
Accounts payable and other payables	45,367	82,233	81.3%
Due to securities lending borrowers	6,238,047	5,731,510	-8.1%
Total liabilities	6,283,414	5,813,743	-7.5%
Total net position	$1,013,380,304	$ 863,064,038	-14.8%

At June 30, 2022, cash, cash equivalents and receivables was similar to the prior year. Investments have decreased by -15.3% due to negative investment returns, which were common throughout the world. The securities lending cash collateral and the due to securities lending borrowers changed a small amount compared to the prior year, and this change was based on the amount of securities lending in effect on June 30 which was collateralized by cash. The line item, other assets, was a prepayment of actuarial software, which has been fully recognized in the current year. The accounts payable and other payables remained similar to the prior year in terms of absolute value. Finally, the total net position restricted for pension of $863,064,038 was available for payment of pension benefits, as shown in the Statement of Plan Net Position on page 21. This amount represents a decrease of -14.8% from June 30, 2021.

Additions to Plan Net Position

	June 30, 2021	June 30, 2022	Change
Employer contributions	$ 34,821,399	$ 42,789,191	22.9%
Employee contributions	7,836,090	8,328,834	6.3%
Net gain (loss) in fair value of investments	212,240,155	-125,240,577	-159.0%
Investments and securities lending income (net)	5,564,384	6,029,455	8.4%
Total additions	$ 260,462,028	-$ 68,093,097	-126.1%

Management's Discussion and Analysis

Employer contributions were higher due to a lump sum contribution of additional funds from the City. Employee contributions to the retirement system increased from the prior year based on the increased payroll for covered members. Net loss in fair value of investments decreased by -159.0% compared to the prior year. This is due to market variability and general market decline for the period. It is important to note this is not expected to repeat next year and the actual returns will be variable. The TSRS board of trustees evaluates the investment strategy over multiple years (as seen on page 41). Finally, income from investment and securities lending increased by 8.4%. This change is due to normal variability in income from investments.

Deductions from Plan Net Position

The principal purpose for which the System was created was to provide supplemental retirement annuities, survivor benefits, and total and permanent disability benefits to qualified members and their beneficiaries. The costs of such programs include recurring benefit payments as required by the plan design, refunds of contributions to terminated employees, the cost of administering the System and expenses incurred in the investment of the Systems assets.

	June 30, 2021	June 30, 2022	Change
Payments to participants	$ 77,754,958	$ 79,494,496	2.2%
Refunds and transfers to other plans	1,813,331	2,026,724	11.8%
Administrative expense	684,967	701,949	2.5%
Total deductions	$ 80,253,256	$ 82,223,169	2.5%

Total deductions for fiscal year 2022 increased by 2.5% from the prior year. An increase in the payment of retirement benefits of 2.2%, was the largest factor contributing to the increase in deductions. This is an expected outcome as the employee population continues to become retirement eligible with higher average benefit payments. The payment of refunds and transfers was higher than in prior years and it is based on the number of employees voluntarily deciding to leave service and remove their monies from the system. The increase in administrative expenses was primarily due to the salary increases.

Reserves

Within net position, the System internally places an amount into a separate reserve for employee contributions for all amounts contributed by members. Deductions are made from this account when the member retires, transfers balances to other retirement systems, or when a member terminates employment and requests a refund. As of the plan year ended June 30, 2022, the balance in this reserve account decreased by -$4,642,207 to $127,764,745. This occurs as members enter retirement and their individual contributions are moved to the reserve for retirement benefits.

Upon retirement, the system places an amount in reserves for retirement benefits equivalent to the present value of the actuarially determined benefit due to the member. Each year thereafter, the total is adjusted to reflect the present value of future benefit payments. As a result of this activity, the reserve increased for the plan year ended June 30, 2022 by $29,167,251 to $820,981,063.

Management's Discussion and Analysis

The impact of gains or losses recognized during the plan year ended June 30, 2022 affects the amount remaining in the unreserved net position. Employer funding is added to the unreserved net position. At retirement, amounts needed to fully fund retirement benefits are transferred from the unreserved net position to the reserves for retirement benefits. As a result of the change in fair values of the system's assets and the recognition of the amount reserved to pay benefits, the unreserved net position decreased by -$174,841,310 to a negative ending balance of -$85,681,770.

TSRS's Fiduciary Responsibilities

TSRS's Board of Trustees and management staff are fiduciaries of the pension trust fund. Under the City of Tucson Code the assets can only be used for the benefit of plan participants and their beneficiaries.

Requests for Information

This financial report is designed to provide the Retirement Board of Trustees, our membership, taxpayers, investment managers and other interested parties with a general overview of TSRS's finances and to account for the money it receives. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to:

Tucson Supplemental Retirement System
Attention: TSRS Pension Administrator
City Hall, 3rd floor
255 West Alameda Street
Tucson, Arizona 85701
(520) 791-4598

Statement of Fiduciary Net Position

Assets:	
Cash	$ 4,149,771
Interest & Dividends Receivable	3,651
Short Term Investments	29,643,673
Securities Lending Cash Collateral	5,731,510
U.S. Treasuries, Agencies & Other Governmental Bonds	118,504,253
Bonds and Other Fixed Income	79,917,323
U.S. Equities	273,598,097
International Equity & Commingled Equity Funds	188,339,518
Real Estate & Commingled Real Estate Funds	123,907,338
Infrastructure Investment Funds	45,082,647
Total Assets:	868,877,781
Liabilities:	
Accounts Payable	466
Accrued Payroll Liabilities	81,767
Due to Securities Borrowers	5,731,510
Total Liabilities:	5,813,743
Net Position:	
Restricted for Pensions	$ 863,064,038

See accompanying notes to financial statements

Statement of Changes in Fiduciary Net Position

Additions:	
Employer Contributions	$ 42,789,191
Employee Contributions	8,328,834
Net Increase (Decrease) in Fair Value of Investments	(125,240,577)
Interest, Dividends and Other Income	10,915,392
Securities Lending Income	145,524
Less: Investment Activity Expense	(5,129,422)
Less: Securities Lending Expense	(36,486)
Miscellaneous Additions	134,447
Total additions:	(68,093,097)
Deductions:	
Payments to Participants	79,494,496
Refunds and Transfers to Other Plans	2,026,724
Administrative Expense	701,949
Total deductions:	82,223,169
Changes in net position:	(150,316,266)
Net position, beginning of year	1,013,380,304
Net position, end of year	$ 863,064,038

See accompanying notes to financial statements

Notes to Financial Statements

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND DISCUSSION OF PLAN NET POSITION

A. Reporting Entity – The Tucson Supplemental Retirement System (the System) is a single-employer defined benefit plan established by the City and administered by a seven-member Board of Trustees. Although the system is a separate legal entity, its sole purpose is to provide services exclusively for the benefit of the City; therefore, it is included as a blended component unit of the City, identified as the Pension Trust Fund in the City's Annual Comprehensive Financial Report.

B. Basis of Accounting - The System's financial statements are prepared using the accrual basis of accounting and economic resources measurement focus. Employee and employer contributions are recognized when due, pursuant to formal commitments. Benefits and refunds are recognized when due and payable in accordance with the plan provisions.

C. Investments - Investments are reported at fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. The fair value of real estate investments is based on independent appraisals. Investments that do not have an established market are reported at estimated fair value, which is determined by the System custodian in consultation with the System's investment managers.

The cost of common stock sold is determined on the average cost method. Realized and unrealized gains or losses are reflected in revenues.

D. Cash and Cash Equivalents – Amounts reported as cash and cash equivalents represent the System's proportionate share of the City's Investment Pool Account.

E. Deposits - In accordance with the City Charter and state statutes, the System is authorized to deposit money in certificates of deposit and interest-bearing accounts provided that deposits in excess of the insured amount are collateralized. State statutes require collateral pledged for deposits to be held in the System's name by a bank other than the pledging bank or by the pledging bank's trust department.

F. Capital Assets – Capital assets of the System currently include moveable equipment items and the capitalized cost of pension administration software, stated at historical cost net of accumulated depreciation. The straight-line method of depreciation for capitalized equipment and software is used over an estimated useful life of 6 years. The capitalization threshold is $5,000. The capital assets were fully depreciated as of June 30, 2022.

G. Administrative Costs - All costs of administering the plan are financed by the employer and member contributions made, based upon recommended contribution rates in effect for the year, applied on active member covered payroll.

Notes to Financial Statements

H. Net Pension Liability – The components of the net pension liability as of June 30, 2022 are as follows:

Total Pension Liability	$	1,214,166,436
Plan's Fiduciary Net Position		863,064,038
Net Pension Liability		351,102,398
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		71.08
Covered Payroll	$	140,476,216
Net Pension Liability as a Percentage of Covered Payroll		249.94%

I. Tax Status of the Plan – The System applied for an IRS determination letter in January 2015, and received a favorable determination (qualified status) from the IRS on January 11, 2017.

2. DESCRIPTION OF THE PLAN

A. *Authorization, Purpose, and Administration of the System* - The Tucson Supplemental Retirement System (the "System" or "TSRS") is a single-employer defined benefit plan for City of Tucson, Arizona ("City") employees. It was established in the City Charter to provide its members with a supplement to the retirement and disability benefits of the social security system. The System is governed by a seven member Board of Trustees: a chairman who is appointed by the Mayor and Council, the City's directors of human resources and of finance, two members elected by the membership of the System, a retired member elected by the System's retirees, and one member appointed by the City Manager. Benefit provisions and changes in benefits or funding are recommended by the Board of Trustees and must be approved by Mayor and Council.

B. *Plan Membership* - The System covers substantially all City of Tucson, Arizona, employees, except for appointed officials and staff who may elect not to join, commissioned police and fire personnel, and elected officials, who are covered under other plans. Employees participate in the System immediately upon beginning employment with the City. Employee membership data as of June 30, 2022 is as follows:

Membership – number of:	
Retirees and Beneficiaries	3,177
Inactive, Non-retired Members (282 non vested)	617
Active plan participants	2,605
Total Membership	6,399

Notes to Financial Statements

C. *Plan Benefits*

1. *Retirement Benefits*:

   Tier I benefit plan: Any employee hired prior to July 1, 2011, who has attained the earlier of age 62, or a combination of the employee's age and years of creditable service equaling the sum of 80, is entitled to receive monthly retirement benefits calculated at 2.25% of average final monthly compensation multiplied by the number of years of creditable service. Employees hired after July 1, 2009 receive the same benefit, but are required to have a minimum of five years accrued service. Average final monthly compensation is defined as the highest compensation of 36 consecutive months during the 120 months immediately preceding retirement. Accrued unused sick leave and vacation leave at the final salary is included in the member's service period and is substituted for an equal number of hours at the beginning of the 36 month period for determining the average final salary calculation.

   Tier II benefit plan: Any employee hired after June 30, 2011, who has attained the minimum retirement age of age 60, and who also has a combination of employee age and years of service equaling the sum of 85, is entitled to receive monthly retirement benefits calculated at 2.00% of average final monthly compensation multiplied by the number of years of creditable service. Average final monthly compensation is defined as the highest compensation of 60 consecutive months during the 120 months immediately preceding retirement. Accrued unused sick leave and vacation leave at the final salary is not included for member service credits or as a substitution for an equal number of hours at the beginning of the 60 month period final average salary calculation.

   An employee who retires after attaining age 55 with 20 or more years of creditable service under Tier I; or after attaining age 60 with 20 or more years of credited service under Tier II, is entitled to early retirement benefits reduced to the actuarial equivalent of the amount to which the employee would have been entitled upon attaining normal retirement.

   An employee is always fully vested in his/her individual contributions. Upon termination of employment for reasons other than retirement, employees having five or more years of creditable service (terminated vested participants) may leave their contributions in the System as a deferred retirement, and begin drawing a retirement allowance when they reach either their normal or early retirement eligibility date.

2. *Disability Benefits* - Employees with ten or more years of accrued service, who are not yet eligible to retire and who have a total and permanent disability may apply for disability retirement.

Notes to Financial Statements

3. *Death Benefits* - The beneficiary of an employee who pre-selected a retirement option and died while eligible to retire, shall receive a benefit based upon the selected option if the member has made such an election by June 30, 2009.

   The spousal beneficiary of an employee who died while eligible to receive benefits but who had not pre-selected a benefit option by June 30, 2009, may choose to receive a benefit equal to a 100% joint and survivor annuity based on the member's years of credited service and average final monthly compensation at the time of the member's death, or may elect to receive a lump sum payment of twice the members account balance plus interest, measured on the date of death.

   The named beneficiary of an employee who is other than the spouse of the employee who died while eligible to receive benefits but who had not pre-selected a benefit option by June 30, 2009, may choose to receive a benefit equal to a 15 year term certain benefit to the named beneficiary, or the beneficiary may elect to receive a lump sum payment of twice the members account balance plus interest, measured on the date of death.

   Multiple designated beneficiaries of an employee who died while eligible to receive benefits but who had not pre-selected a benefit option by June 30, 2009, receive a lump sum payment of twice the member's account balance plus interest, measured on the date of death.

   The beneficiary of an employee who was not eligible for any retirement benefits, but had more than five years of creditable service, may receive a lump sum payment of twice the member account balance plus interest, measured on the date of death.

3. CONTRIBUTIONS AND RESERVES

A. Funding Requirements

1. *Employee Contributions* - Employee contributions are fixed for all employees hired prior to June 30, 2006. The rate is fixed at 5% of active member covered payroll. Employees hired after June 30, 2006 are contributing at a variable rate based on the normal cost of retirement as determined annually by the system Actuary. All member contributions are made by payroll deductions applied to regular pay, based on the appropriate contribution rates established by the system Actuary, applied as a percent of payroll. There are no long-term contracts for employee contributions to the plan, and all contributions are made on a bi-weekly basis.

Notes to Financial Statements

2. *Employer Contributions* – Employer contributions are based on the annual required contribution rate determined by the Actuary and are equal to the difference between the recommended total contribution rate and the employee rates, based on a level percentage of payroll method. The contribution rate is determined by the actuary at a level necessary to finance employee participation in the System and to fund the costs of administering the System. The annual rate determined by the Actuary is recommended to the Board of Trustees and considered for approval and adoption by Mayor and Council. There are no long-term contracts for employer contributions to the plan, and all contributions are made on a bi-weekly basis.

Effective July 1, 2013, the City adopted a funding policy to enhance the funded status of the retirement system. The policy is applied to both the employee rates and the employer rates. For employees subject to variable contribution rates (those employees hired after June 30, 2006); the policy requires a contribution rate that is equal to a range of between 50% and 100% of the normal cost of the members' benefit Tier, and this cost will be rounded up to the nearest 0.25%. For the employer, the policy sets a minimum contribution rate of 27.50%.

Effective July 1, 2021, The City determined that the contribution rates for employees and the City would remain the same as the prior year. The employees are contributing less than the actuarial rate and the City is continuing to contribute more than the actuarial rate.

Tier	Actuarial Rate	Adopted Employee Rate	Difference	Actuarial Employer Rate	Adopted Employer Rate	Difference
Tier 1 (prior to June 30, 2006)	5.00%	5.00%	None	21.45%	27.50%	6.05%
Tier 1 Variable (between June 30, 2006 and July 1, 2011)	7.19%	6.75%	-0.20%	19.26%	27.50%	8.24%
Tier 2 (hired after July 1, 2011)	5.59%	5.25%	-0.08%	20.86%	27.50%	6.64%

Notes to Financial Statements

B. Net Position

Two general types of net position reserves are maintained within the System. The Reserve for Employee Contributions contains the employee contributions for all contributing members of the System, plus allocated interest earnings. At the time an employee retires or defers retirement, the actuarial value of the individual's retirement benefits is transferred to the Reserve for Retirement Benefits, which is decreased by payments to retirees and increased by investment earnings. The reserves for employee contributions and retirement benefits are fully funded.

Earnings of the System are allocated semi-annually (at June 30 and December 31) to the reserves which comprise net position. For the year ended June 30, 2022, allocations were based on rates of return of 3.00% per annum. Any unallocated earnings remain in unreserved net position.

The net position at June 30, 2022, consisted of the following components:

Reserved for employee contributions	$ 127,764,745
Reserved for retirement benefits	820,981,063
Unreserved net position (deficit)	(85,681,770)
Net Position	$863,064,038

4. INVESTMENTS

The System is governed by a Board of Trustees. The Board of Trustees is required by City Code, in making investment decisions, to exercise the judgment and care under the circumstances then prevailing which persons of ordinary prudence, discretion and intelligence exercise in management of their own affairs, not in regard to speculation, but in regard to the permanent disposition of their funds, considering the probable income there from, as well as the probable safety of the capital. Investments of the System are held and managed by investment professionals separately from those of other City funds. Quoted market prices have been used to value investments as of June 30, 2022.

For those investments that do not have established market exchanges, the fair value is estimated as objectively as possible by third party appraisals. Real Estate and Infrastructure investment managers utilize third party appraisals to determine fair value of assets under investment. Infrastructure investments pertain to forms of "real" property used for general public purposes that typically involve partnerships between governmental and private entities. Examples of infrastructure investments are toll roads, bridges, pipelines, airports, shipping ports, etc. The System currently participates in one pooled infrastructure fund as well as two real estate funds.

Notes to Financial Statements

The System's investments at June 30, 2022 are listed below. These investments are either held by the System or its agent in the System's name and are insured, registered or collateralized. A portion of these investments are subject to credit risk (including custodial credit risk and concentrations of credit risk), interest rate risk and/or foreign currency risk. The Government Accounting Standards Board (GASB) Statement No. 40 requires the System to disclose such risks which are all discussed in the sections that follow.

All System investments are reflected in the following schedule at fair value net of accruals with the exception of amounts held in the City's investment pool account. The City maintains an investment pool account for City funds. Bi-weekly contributions for the Tucson Supplemental Retirement System are held in the City's investment pool account and are used to pay recurring expenditures. At June 30, 2022, the system had no cash in the City investment pool account. The System's investment in the City's investment pool would represent a proportionate interest in the pool's portfolio; however, the System's portion is not identified with specific investments and is not subject to custodial credit risk.

Investments in infrastructure are measured at fair value on a recurring basis, do not have a readily determinable fair value, and have a Net Asset Value per share calculated for reporting purposes. The fair value of the investment in Macquarie European Infrastructure Fund III was measured on March 31, 2022 at $113,284, with no unfunded commitment. This is a closed-end fund which is in the final distribution of capital to partners. The fair value of the investment in IFM Global Infrastructure (US), was measured on June 30, 2022 at $44,969,363, with no unfunded commitment. This is a partnership, investing in infrastructure assets located globally. Investment in this partnership is open ended and can be redeemed by the System with an appropriate notification period.

The System categorizes its fair value measurements within the fair value hierarchy established by Generally Accepted Accounting Principles. The hierarchy is based on the valuation inputs used to measure the fair value of assets. The fair value hierarchy, which as three levels, is based on the valuation inputs used to measure an asset's fair value: Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs. The System has the following recurring fair value measurements as of June 30, 2022:

Notes to Financial Statements

Investments	Fair Value	Level 1	Level 2	Level 3
U.S. Issues not on Securities Loan:				
U.S. Treasuries, Agencies, Governmental Bonds & Commingled U.S. Debt	$ 118,504,253	$ -	$ -	$118,504,253
Bonds & Other Fixed Income	77,609,396	6,975	52,017,180	25,585,241
U.S. Equities	270,607,839	174,347,408	987,316	95,273,115
International Equity & Commingled Equity Funds	188,339,518	79,819,138	-	108,520,380
Subtotal	655,061,006	254,173,521	53,004,496	347,882,989
Investments Held by Broker-Dealers Under Securities Loans with Cash Collateral:				
Bonds & Other Fixed Income	2,307,927	-	2,307,927	-
U.S. Equity	2,990,258	2,990,258	-	-
Subtotal	5,298,185	2,990,258	2,307,927	-
Other Investments:				
Securities Lending Cash Collateral Short-Term-Investment-Pool	5,731,510	3,108,876	2,622,634	-
Money Market Funds/Short-Term Investments	29,542,883	-	3,678,599	25,864,284
Real Estate & Commingled Real Estate Funds	123,907,338	-	-	123,907,338
Infrastructure Investment Funds	45,082,647	-	-	45,082,647
Subtotal	204,264,378	3,108,876	6,301,233	194,854,269
Total Deposits and Investments	$ 864,623,569	$260,272,655	$61,613,656	$542,737,258

U.S. treasuries, agencies, money market, and equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for identical securities.

Governmental bonds, corporate bonds, other fixed income instruments, and international bonds classified in Level 2 of the fair value hierarchy are valued based on significant other observable inputs, which may include, but are not limited to, quoted prices for similar assets or liabilities in markets that are active, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the assets or liabilities (such as interest rates, yield curves, volatilities, prepayment speeds, loss severities, credit risks and default rates) or other market corroborated inputs.

Securities valued at Level 3 are based on significant unobservable outputs based on all information available in the circumstances to the extent observable outputs are not available. The fair value of comingled U.S. debt, comingled equity funds, and related short-term investments classified in level 3 represent the value of unit positions in funds that are not publicly traded on an exchange. Fair value of these securities can be impacted by redemption restrictions imposed by the fund managers. Real estate, comingled real estate funds, and infrastructure investment funds are valued using discounted cash flow techniques.

Notes to Financial Statements

Investment Policy – TSRS Investment Policy and asset class allocations are established by the TSRS Board of Trustees and may be amended by majority vote of its members. The TSRS Board establishes investment policies to pursue an investment strategy that reduces risk through prudent diversification of the portfolio across a broad selection of distinct asset classes.

Long-term Expected Return on Plan Assets - Expected rates of return are determined using a building-block method in which best-estimated ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return were adopted by the Plan's trustees after considering input from the Plan's investment consultant and actuary. For each major asset class that is included in the Plan's adopted target asset allocation as of June 30, 2022, these best estimates are summarized in the table shown below:

Asset Class	Target Allocation	Expected Arithmetic Returns
U.S. Equities	34%	8.0%
International Equities	24%	8.7%
Fixed Income	25%	2.9%
Real Estate	12%	6.6%
Infrastructure	5%	7.0%
Total	100%	
Weighted Average Arithmetic Returns, in proportion to asset allocation		6.7%

Concentrations – TSRS did not hold investments (other than those explicitly guaranteed by the U.S. Government in any one organization that represents 5 percent or more of the Plan's fiduciary net position at June 30, 2022.

Notes to Financial Statements

Rate of Return – For the year ended June 30, 2022, the annual money-weighted rate of return on the Plan's investments, net of pension plan investment expenses, was -11.68%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

Below is a table providing the sensitivity of the net pension liability to changes in the discount rate. In particular, the table presents the plan's net pension liability, if it were calculated using a single discount rate that is 1 percentage-point lower or 1 percentage-point higher than the single discount rate:

1% Decrease 5.75%	Current single discount rate assumption 6.75%	1% Increase 7.75%
$ 481,352,020	$ 351,102,398	$ 240,945,203

Credit Risk – As defined by GASB Statement No. 40, credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. Associated with credit risk is concentration of credit risk and custodial credit risk. Concentration of credit risk is the risk of loss attributed to the magnitude of a government's investment in a single issuer. Custodial credit risk for deposits and investments is the risk that, in the event of the failure of a depository financial institution or the counterparty to a transaction, a government will not be able to recover deposits or will not be able to recover collateral securities that are in the possession of an outside party.

The System presently maintains two externally managed fixed income (bond) accounts which are exposed to some form of credit risk. The assets in the first account are actively managed while the assets in the second account are invested in a commingled bond index fund (passively managed).

The TSRS Board has given the actively managed account manager discretion to invest in a broad array of public and private asset classes, instruments and investment vehicles in order to meet or exceed the agreed upon investment return custom benchmark. However, the following specific investment policy guidelines pertain to this manager:

- The maximum position in a single issuer (excluding obligations of U.S. Government and its Agencies) should not exceed 5% of the portfolio's assets at current fair value
- The portfolio should maintain an average quality of at least "BB+"
- Money market instruments must be rated in one of the two highest categories by a nationally recognized rating agency
- The minimum rating of individual issues should be CCC (based on fair value) as rated by Moody's, Standard & Poor's or Fitch

Notes to Financial Statements

The passive fund is expected to replicate, as close as possible, the characteristics, quality and performance of its underlying index, the BC Aggregate Bond Index.

The System currently does not have a policy regarding custodial credit risk for deposits or investments as defined in the Credit Risk section above.

The System had the following credit risk structure as of June 30, 2022:

			Ratings by Moody's			
Investment Type	**Not rated**	**C**	**B3 - Ba1**	**Baa3-A1**	**Aa3 - Aaa**	**Total**
Short term:						
Cash & cash equivalents	$ 29,443,100			$ 99,783		$ 29,542,883
US agencies & other government bonds	118,504,253					118,504,253
Bonds & other fixed income	29,802,207	$1,439,954	$ 24,608,214	22,513,111	$ 1,553,837	79,917,323
Totals	$177,749,561	$1,439,954	$ 24,608,214	$22,612,894	$ 1,553,837	$227,964,460

Footnotes

(1) Per Moody's Investors Service, Inc. (Moody's)

Interest Rate Risk – As defined by the Government Accounting Standards Board (GASB) in Statement 40, interest rate risk is the risk that changes in interest rates will adversely affect the fair value of investments. For fixed income securities, there is an inverse relationship between the change in interest rates and their fair value. For example, in a rising interest rate environment the value of fixed income securities will tend to fall by varying degrees depending on the length of their maturities. In general, the value of fixed income securities with a longer duration will tend to decrease more than shorter duration securities in a rising interest rate environment.

The System's investment policy regarding interest rate risk for the actively managed fixed income account, is to limit duration to within 30% of the custom benchmark which is defined as 25% BC Mortgage Index, 25% BC Credit Index, 25% BC High Yield Index and 25% JPM EMBI Global Index. The passive fund should match, as close as possible, the maturity structure and duration of the BC Aggregate Bond Index.

Notes to Financial Statements

The System had the following maturity structure as of June 30, 2022:

Investment Type	Less than 1 year	1 - 5 Years	6 - 10 Years	More than 10 years	Total
Cash & Short Term Investments	$ 29,542,883				$ 29,542,883
US Agency & Other Gov't Obligations			$ 118,504,253		118,504,253
US Corporate & Other Fixed Income	27,041,053	$ 19,728,546	18,384,808	$ 14,762,916	79,917,323
	$ 56,583,936	$ 19,728,546	$ 136,889,061	$ 14,762,916	$227,964,459

Effective Duration of Passive Account: 8.82 years

Foreign Currency Risk – As defined by the Governmental Accounting Standards Board (GASB) in Statement 40, foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit.

The TSRS Board has given the System's international equity managers discretion to invest in a broad array of common and preferred stocks, convertibles and warrants of companies headquartered outside of the United States in order to meet or exceed their agreed upon investment return benchmarks. However, the following specific investment policy guidelines pertain to these managers:

- Investments in any single country market should not exceed more than 4 times the weight of the country in the benchmark index or 50% of portfolio assets, whichever is lower
- If a country has a greater than 50% weight in the index, the maximum exposure to that country in the portfolio may be as high as its weight in the index
- No more than 35% of each manager's portfolio should be invested in "emerging markets" (i.e., markets that are not included in the Morgan Stanley Capital International Europe, Australia and Far East Index)
- Managers are permitted to enter into hedging strategies, including cross-currency hedges, using forward currency exchange contracts and currency options
- Derivatives should not be used for the purpose of speculation or for leveraging the portfolio

Notes to Financial Statements

The TSRS fund had the following foreign currency risk exposure as of June 30, 2022:

Currency of:	Cash	Fixed Income	Equity	Real Estate	Infra-structure	Total Value	%
ARGENTINA PESO	558	-	-	-	-	558	0.0%
AUSTRALIAN DOLLAR	1,038,310	-	-	-	-	1,038,310	0.1%
BRAZIL REAL	504,001	-	-	-	-	504,001	0.1%
CANADIAN DOLLAR	86,098	-	1,749,737	-	-	1,835,835	0.2%
CHINESE YUAN RENMINBI	(1,065,538)	-	-	-	-	(1,065,538)	-0.1%
DANISH KRONE	(3,031,147)	3,002,820	-	-	-	(28,327)	0.0%
EURO CURRENCY UNIT	(11,639,913)	10,176,044	28,224,850	-	113,284	26,874,264	3.1%
INDONESIAN RUPIAH	(2,897)	-	-	-	-	(2,897)	0.0%
JAPANESE YEN	178,900	67,925	4,878,177	-	-	5,125,003	0.6%
MEXICAN PESO	16,088	-	-	-	-	16,088	0.0%
NORWEGIAN KRONE	1,056,363	-	-	-	-	1,056,363	0.1%
POLISH ZLOTY	222	-	-	-	-	222	0.0%
POUND STERLING	(3,933,712)	3,877,402	15,777,744	-	-	15,721,434	1.8%
SINGAPORE DOLLAR	1,596	-	-	-	-	1,596	0.0%
SOUTH AFRICAN RAND	531,647	-	-	-	-	531,647	0.1%
SWEDISH KRONA	30,596	-	898,857	-	-	929,453	0.1%
SWISS FRANC	285,067	-	5,050,049	-	-	5,335,116	0.6%
TURKISH LIRA	7	-	-	-	-	7	0.0%
U.S. DOLLAR	45,486,637	181,297,386	405,358,202	123,907,338	44,969,363	801,018,926	93.3%
TOTAL	29,542,883	198,421,577	461,937,616	123,907,338	45,082,647	858,892,060	

Notes to Financial Statements

5. SECURITIES LENDING

The Board of Trustees for the Tucson Supplemental Retirement System permits the custodian bank, BNY Mellon, to lend securities to broker-dealers and other entities. Each loan is executed with a simultaneous agreement to return the collateral for the same securities in the future. The custodian bank lends U.S. securities for collateral initially valued at 102% of the fair value of the securities plus any accrued interest. Non-U.S. securities are loaned for collateral initially valued at 105% of the fair value of the securities plus any accrued interest. Collateral consists of cash, US fixed income securities and US equities, and is marked-to-market daily. As of June 30, 2022, the carrying amount and fair value of securities on loan was $12,859,596. If the fair value of the pledged collateral falls below the specified levels, additional collateral is required to be pledged by the close of the next business day.

In the event of a borrower's default, the custodian bank is obligated to indemnify the lender if, and to the extent that, the fair value of the collateral is insufficient to replace the loaned securities. BNY Mellon's responsibilities include performing appropriate borrower and collateral investment credit analysis, demanding adequate types and levels of collateral, and complying with applicable Department of Labor and Federal Financial Institutions Examination Council regulations covering securities lending.

Although the average term of the security loans is one week, each loan can be terminated at will by either the lender or the borrower. Cash collateral is invested in a short-term investment pool, which on average had a weighted maturity of 30 days. The relationship between the maturities of the investment pool and the security loans are affected by the maturities of the loans made by other entities that use the agent's pool.

The lender cannot pledge or sell collateral securities received until, and unless, a borrower defaults. There were no significant violations of legal or contractual provisions and no borrower or lending agent default losses known to the securities lending agent during the fiscal year. As of June 30, 2022, the lenders had no credit risk exposure to borrowers because the fair value of collateral held exceeded the fair value of securities loaned.

6. DERIVATIVES

The Tucson Supplemental Retirement System permits the limited use of derivatives by its international equity and external fixed income managers. Examples of derivative instruments permitted, but not limited to, are forward foreign currency exchange contracts, financial futures, options, swaps and swaptions. All derivative instruments utilized are considered "Investment Derivative Instruments" as defined in GASB 53 "Accounting and Financial Reporting for Derivative Instruments." The statement addresses the recognition, measurement, and disclosure regarding derivative instruments entered into by the System.

The following table is a summary of the various derivative instruments utilized by the System's external fixed income manager as of June 30, 2022. Changes in Fair Value are included as part of the overall Increase (Decrease) in Fair Value of Investments in the Statement of Changes in Plan Net Position. Fair Value is included as part of investments listed under Corporate Bonds & Other Fixed Income Instruments in the Statement of Plan Net Position.

Notes to Financial Statements

Investment Derivative Instrument	Notional Amount (1)	Changes in Fair Value	Fair Value (2)	Principal Risk
Foreign Exchange	(48,397,168)	608,600	608,600	Foreign Currency
Options	(31,249)	3,281	(32,075)	Credit Risk
Swaps	8,390,484	(1,637,027)	803,375	Interest Rate Risk
Futures	193	6,975	6,975	Interest Rate Risk

(1) The Notional Amount is the number of currency units (stated in local currencies), shares or other units specified in the derivative instrument. It is a stated amount on which payments depend.
(2) The notional fair value of the underlying securities is reported in this schedule. Fair market value as reported in the financial statements is presented net of long and short positions.

Whenever possible, the investment manager bases the valuation of derivatives on market information; however, where market quotes are not readily available, an independent third party pricing vendor is utilized. Exchange traded derivatives are an example of derivatives where market quotes are available, whereas over-the counter (OTC) derivatives are not traded over standardized markets.

In addition to the principal risks noted above, Swaps and Futures are also subject to counterparty risk. In general, counterparty risk is the risk of loss of an amount expected to be delivered under an agreement in the event of the default or bankruptcy of the counterparty. Generally, counterparty risk is controlled through dealing with a number of different counterparties reasonably deemed to be creditworthy by the investment manager and using agreements with counterparties that permit netting of obligations. Counterparty risk with swaps is limited by execution under standardized International Swap and Derivatives Association Agreements. These contracts allow for the mutual exchange of collateral should an overall unsecured fair value exceed a certain threshold (e.g., $250,000).

Credit, interest rate and foreign currency risks are addressed in previous sections of Note 4. These risks, applicable to other fixed income and foreign investments, are not substantially different from principal risks associated with derivative instruments.

Notes to Financial Statements

7. ACTUARIAL METHODS AND ASSUMPTIONS

The total pension liability was determined by an actuarial valuation with a measurement date and report date of June 30, 2022, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.50%
Salary increases	3.00% to 6.00% including inflation
Investment Rate of Return	6.75%

Mortality rates were based on the RP-2014 Employee Mortality Table for males and females, projected with the ultimate rates of the MP-2018 projection scale. The actuarial assumptions used in the June 30, 2022 valuation were based on the results of an actuarial experience study in 2019.

Additional Details: In the June 30, 2022 actuarial valuation, the normal cost was calculated using Entry Age Normal method, and the unfunded accrued liability is amortized over a closed 20-year period as a level percentage of pay, this was a change implemented June 30, 2022. The assumptions do not include post-retirement benefit increases or benefit inflation assumptions, because the plan does not prescribe these benefits.

The projection of benefits for financial accounting purposes also does not explicitly incorporate the potential effects of legal or contractual funding limitations, since they do not apply. The actuarial value of assets was determined using techniques that spread the effects of short term volatility in the fair value of assets over a five-year smoothing period, which was first adopted for the plan year ended June 30, 2009. There were no benefit changes during the year ended June 30, 2022.

The assumptions are selected based upon the recommendation of the plan's actuary and adopted by the Board of Trustees.

Measurement of Net Pension Liability: The net pension liability is measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the fair value of assets not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirements.

A single discount rate of 6.75% was used to measure the total pension liability, which was 0.25% lower than the prior year. This single discount rate was based on the expected rate of return on pension plan investments of 6.75%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investment was applied to all period of projected benefit payments to determine the total pension liability.

Required Supplementary Information

Schedule of changes in net pension liability*

	2022	2021	2020	2019
Total pension liability				
Service cost	$ 16,270,543	$ 14,966,928	$ 14,648,214	$ 14,130,993
Interest on total pension liability	80,461,062	78,164,082	76,836,667	75,605,853
Difference between expected and actual experience of the total pension liability	(12,186,371)	19,575,935	6,252,324	5,030,045
Changes of assumptions	29,073,338			57,324,201
Benefit payments, including refunds of employee contributions	(81,521,219)	(79,568,289)	(78,298,677)	(76,586,216)
Net change in total pension liability	32,097,353	33,138,656	19,438,528	75,504,876
Total pension liability - beginning	1,182,069,084	1,148,930,428	1,129,491,900	1,053,987,024
Total pension liability - ending	$1,214,166,437	$ 1,182,069,084	$ 1,148,930,428	$ 1,129,491,900
Plan fiduciary net position				
Contributions - employer	$ 42,789,191	$ 34,821,399	$ 34,830,264	$ 32,589,204
Contributions - member	8,328,834	7,836,090	7,791,910	7,779,477
Net investment income	(119,211,124	217,804,541	32,909,415	49,819,110
Benefit payments, including refunds of member contributions	(81,521,219)	(79,568,289)	(78,298,677)	(76,586,216)
Administrative expense	(701,949)	(684,967)	(644,408)	(652,065)
Other	-	0	0	0
Net change in plan fiduciary net position	(150,316,267)	180,208,774	(3,411,496)	12,949,510
Plan fiduciary net position - beginning	1,013,380,306	833,171,532	836,583,028	823,633,518
Plan fiduciary net position - ending	$ 863,064,039	$1,013,380,306	$ 833,171,532	$ 836,583,028
Net pension Liability - ending	$ 351,102,398	$ 168,688,778	$ 315,758,896	$ 292,908,872

*Schedule is presented on a prospective basis from FY 2014 and will eventually include 10 years of data.

Required Supplementary Information

Schedule of changes in net pension liability*

	2018	2017	2016	2015	2014
Total pension liability					
Service cost	$ 13,104,720	$ 13,130,902	$ 14,279,065	$ 15,753,944	$ 14,825,019
Interest on total pension liability	72,893,717	72,547,402	72,013,831	70,688,775	66,915,612
Difference between expected and actual experience of the total pension liability	6,919,468	(6,472,776)	(6,529,764)	(7,815,270)	325,889
Changes of assumptions				(31,210,057)	76,945,563
Benefit payments, including refunds of employee contributions	(75,618,198)	(73,213,157)	(70,445,750)	(67,612,351)	(66,002,013)
Net change in total pension liability	17,299,707	5,992,371	9,317,382	(20,194,959)	93,010,070
Total pension liability - beginning	1,036,687,317	1,030,694,946	1,021,377,564	1,041,572,523	948,562,453
Total pension liability - ending	$1,053,987,024	$1,036,687,317	$ 1,030,694,946	$1,021,377,564	$1,041,572,523
Plan fiduciary net position					
Contributions - employer	$ 31,795,197	$ 31,823,694	$ 33,175,307	$ 33,985,523	$ 34,189,288
Contributions - member	8,561,747	7,439,065	7,083,385	7,531,845	7,338,543
Net investment income	69,447,542	97,535,597	17,820,325	30,684,188	119,729,154
Benefit payments, including refunds of member contributions	(75,618,198)	(73,213,157)	(70,445,750)	(67,612,351)	(66,002,013)
Administrative expense	(745,753)	(756,268)	(786,028)	(650,405)	(735,739)
Other	250,046	331,127	142,093	118,247	171,077
Net change in plan fiduciary net position	33,690,581	63,160,058	(13,010,668)	4,057,047	94,690,310
Plan fiduciary net position - beginning	789,942,937	726,782,879	739,793,547	735,736,500	641,046,190
Plan fiduciary net position - ending	$ 823,633,518	$ 789,942,937	$ 726,782,879	$ 739,793,547	$ 735,736,500
Net pension Liability - ending	$ 230,353,506	$ 246,744,380	$ 303,912,067	$ 281,584,017	$ 305,836,023

*Schedule is presented on a prospective basis from FY 2014 and will eventually include 10 years of data.

Required Supplementary Information

Schedule of net pension liability last nine years*

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of total pension liability	Covered payroll	Net Pension liability as a % of covered payroll
2014	1,041,572,523	735,736,500	305,836,023	70.64%	126,206,305	242.33%
2015	1,021,377,564	739,793,547	281,584,017	72.43%	123,583,720	227.85%
2016	1,030,694,946	726,782,879	303,912,067	70.51%	120,637,480	251.92%
2017	1,036,687,317	789,942,937	246,744,380	76.20%	115,722,524	213.22%
2018	1,053,987,024	823,633,518	230,353,506	78.14%	115,618,898	199.24%
2019	1,129,491,900	836,583,028	292,908,872	74.07%	123,822,602	236.56%
2020	1,148,930,428	833,171,532	315,758,896	72.52%	127,378,110	247.89%
2021	1,182,069,084	1,013,380,306	168,688,778	85.73%	139,661,315	120.78%
2022	1,214,166,437	863,064,039	351,102,398	71.08%	140,476,216	249.94%

Schedule of Pension Investment Returns*

FY	Annual Money-Weighted Rate of Return, Net of Investment Expense
2014	19.17%
2015	4.17%
2016	2.38%
2017	14.26%
2018	8.85%
2019	6.06%
2020	4.20%
2021	27.34%
2022	-11.49%

*Schedules are presented on a prospective basis from FY 2014 and will eventually include 10 years of data.

Required Supplementary Information

Schedule of Contributions

Fiscal Year End June 30,	Actuarially Determined Contribution (ADC)		Actual Contribution		Contribution Deficiency (Excess)	Covered Payroll	Actual contributions in relation to ADC expressed as a % of covered payroll
	Dollars	% of pay	Dollars	% of pay			
2013	34,523,315	28.77%	34,523,315	28.77%	n/a	1 7,619	n/a
2014	34,189,288	27.09%	34,189,288	27.09%	n/a	1 6,305	n/a
2015	33,305,813	26.95%	33,985,523	27.50%	(679, 10)	123,583,720	100.5%
2016	32,608,311	27.04%	33,175,307	27.50%	(566, 96)	120,637,480	100.5%
2017	29,532,388	25.52%	31,823,694	27.50%	(2,291, 06)	115,722,524	102.0%
2018	29,806,552	25.78%	31,795,197	27.50%	(1,988, 45)	115,618,898	101.7%
2019	27,825,255	23.48%	32,589,204	27.50%	(4,763, 49)	118,506,196	104.0%
2020	27,851,546	21.99%	34,830,264	27.50%	(6,978, 18)	127,378,110	105.5%
2021	31,288,610	24.71%	34,821,399	27.50%	(3,532, 89)	139,661,315	102.5%
2022	33,854,768	21.25%	42,789,191	30.46%	(8,934,423)	140,476,216	106.4%

Required Supplementary Information

Notes to Schedule of Contributions

Summary of actuarial methods and assumptions

Valuation Date:	June 30, 2020
Notes	Actuarially determined contribution rates are calculated for the fiscal year beginning one year after the valuation date (one year lag). The actuarial valuation as of June 30, 2020 determines the contribution for fiscal year ending June 30, 2022.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Open
Remaining Amortization Period	20 years
Asset Valuation Method	5 Year smoothed market
Inflation	2.50%
Salary Increases	3.00% to 6.00% including inflation
Investment Rate of Return	7.00%
Retirement Age	Age-based table of rates that are specific to the type of eligibility condition. Last updated for the 2019 valuation pursuant to an experience study of the period 2014 – 2019
Mortality	Pre and Post -retirement: RP-2014 projected, with the ultimate rates of the MP-2018 projection scale. Disabled retirement: RP-2014 projected, with the ultimate rates of the MP-2018 projection scale. Mortality rates were adjusted to include margin for future mortality improvement as described in the tabled named above.

Other Supplemental Information

Schedule of administrative expenses		
Personal services		
Staff salaries	$	307,540
Fringe benefits		150,612
Total personal services		458,152
Professional services		
Actuarial services		30,800
Audit services		18,881
Legal services		28,822
Total professional services		78,503
Other administrative expenses		
Computer software maintenance & hosting		71,049
Insurance		53,218
Other administrative expenses		21,891
Postage		4,507
Printing and supplies		8,047
Professional development		6,583
Total other administrative expenses		165,295
Total administrative expenses	$	701,949

Investment services expenses		
Trust and custody	$	320,945
Investment consultant		167,187
Carried interest cost		2,532
Investment management		4,638,758
Total investment expenses	$	5,129,422

INVESTMENT SECTION

Callan LLC
1900 16th Street
Suite 1175
Denver, CO 80202

December 2, 2022

The Board of Trustees
Tucson Supplemental Retirement System
255 W. Alameda Street
Tucson, AZ 85701

Dear Board Members,

This letter reviews the general economic environment, capital markets, and investment performance of the Tucson Supplemental Retirement System (TSRS) for the fiscal year ended June 30, 2022.

Economic Overview as of June 30, 2022

The fiscal year ending June 30, 2022 was divided into two distinct market environments, delineated by the Federal Reserve's (Fed) mid-year "pivot" in monetary policy rhetoric. The first half of the fiscal year was characterized by the Goldilocks market conditions of the post-pandemic recovery and the transition to the inflationary environment that followed. Low interest rates, pent up demand, and healthy consumer balance sheets spurred economic activity in the first half. However, expansionary fiscal and monetary policy implemented during the heart of the COVID-19 pandemic sparked an inflationary environment that gained momentum in the first half of the 2022 fiscal year.

At first, the Federal Reserve viewed rising inflation as "transitory," primarily attributing the phenomenon to COVID-related supply chain issues. The Federal Funds rate remained suppressed at 0.00% – 0.25% throughout the first half of the fiscal year and the Fed continued quantitative easing. As the prices for goods and services escalated, it became gradually more apparent that inflation was more pervasive than initially expected. The Consumer Price Index (CPI) grew by 5.4% in the twelve months ending July 2021. That number climbed to 7.0% by December before peaking at 9.1% in June 2022. The Fed's first action to combat inflation was to announce the wind down of quantitative easing or the purchase of fixed income securities. By March of 2022, the Fed implemented its first rate hike of 25 basis points (bps). May and June each witnessed escalating rate hikes from the Fed of 50bps and 75bps, respectively. By the end of the fiscal year, the Federal Funds Target Rate had risen to a range of 1.50% - 1.75%. Treasury yields also climbed during the year, which challenged fixed income market returns. The yield on the 10-year treasury more than doubled from 1.45% at the start of the fiscal year to 2.98% by June 30, 2022.

Risk assets generally performed well in the first half of the fiscal year before reversing fortunes in the second half. Financial markets were initially resilient to the threat of inflation, optimistically expecting it to abate without the intervention of more aggressive monetary policy. U.S. gross domestic product (GDP) expanded in each of the first two quarters of the fiscal year. A surge in private inventory investment drove real GDP 2.2% and 7.0% higher (annualized) in the first and second fiscal quarters, respectively. The housing market also remained strong, with low mortgage rates fueling demand. However, escalating inflation and the Fed's pivot to more hawkish rhetoric quickly deflated financial asset prices. U.S. GDP fell in both the third and fourth fiscal quarters, satisfying a common but not technically sufficient definition of recession.

International markets underperformed the U.S. in the face of a rising dollar and a myriad of geopolitical issues. In the second fiscal quarter, parts of Northern Europe experienced a surge in COVID-related hospitalizations and subsequently reintroduced economic restrictions to curb the virus. The broader region also faced a natural gas shortage that was only exacerbated by the Russia/Ukraine conflict in the second half of the fiscal year. News out of China shook investor confidence, with concerns surfacing over the solvency of indebted property developer, China Evergrande. The company fell behind on payments to debt holders in the first fiscal quarter which sparked fears of broader market contagion. China's zero-COVID policy also restricted the country's growth as waves of infections surfaced throughout the year.

Commodities proved resilient, with the Bloomberg Commodity Price Index appreciating 23.8% in the fiscal year. Energy prices benefited from both strong demand and supply constraints. WTI crude oil prices climbed from roughly $75/bbl at the start of the year to over $120/bbl in June 2022. The prolonged conflict in Ukraine also contributed significantly to higher energy, food, and materials prices, in addition to further congesting global supply chains.

The U.S. job market was an economic stalwart and source of stability throughout the year. Job openings remained elevated as employers struggled to fill vacancies. The unemployment rate trended consistently lower from 5.9% in June 2021 to end the year at 3.6% in June 2022.

Total Fund Review

In the fiscal year 2022, TSRS declined 11.3% before investment management fees, which ranked in the 76th percentile versus other public defined benefit plans. TSRS produced a -11.5% net of fee return for the fiscal year, which trailed the benchmark return of -8.2%. TSRS uses a time-weighted rate of return methodology. Returns are calculated by an independent third party using data provided by the custodian.

Domestic Equity Overview

The S&P 1500 Index, a broad market indicator for the U.S. stock market, gained 11.1% in the first half of the fiscal year, but lost 19.9% in the second. The Index ended the year with an 11.0% loss. U.S. equities were challenged by inflation, rising interest rates, and waning consumer sentiment in the second half. The Conference Board's Consumer Confidence Index hit a 16-month low in June 2022 and the University of Michigan's consumer sentiment survey indicated levels of pessimism nearing those reached during the Global Financial Crisis of 2008-2009. The small cap index (S&P 600) declined by 16.8% during the year, trailing the S&P 500 large cap index (-10.6%). The Russell 3000 Value Index fell by 7.5%, but significantly outperformed the -19.8% return of the Russell 3000 Growth Index. During the fiscal year ended Juned 30, 2022 the TSRS domestic equity portfolio declined 16.0% net of fees.

International Equity Overview

International equities trailed their domestic counterparts. Developed market equities, as measured by the MSCI EAFE Index, declined 17.8% during the fiscal year. As in the U.S., value outperformed growth in international developed markets. The MSCI EAFE Value Index declined by 12.0%, while the MSCI EAFE Growth Index fell by 23.8% during the fiscal year. In the 2022 fiscal year the U.S. Dollar Index (DXY) rose by 14.0%, which contributed to the MSCI EM Index's 25.3% decline; emerging markets are generally more sensitive to a rising U.S. dollar. China was a significant laggard as a result of COVID lockdowns. For the fiscal year of 2022, the international equity asset class lost 24.6%, net of fees, for TSRS.

Domestic Fixed Income Overview

After 10-year Treasury yields doubled in the 2021 fiscal year, they continued their ascent in 2022 to double again. The yield curve also flattened during the year, as shorter-dated yields increased more than those of longer-maturity Treasuries. Given the higher interest rate sensitivity of longer-dated bonds, the Bloomberg Government Long Index was particularly challenged in the 2022 fiscal year, falling 18.4%. Credit spreads widened, which led the Bloomberg Credit Index to fall by 13.6% and the Bloomberg Corporate High Yield Index (-12.8%) to underperform the Bloomberg Aggregate Index (-10.3%). For the fiscal year 2022, TSRS' domestic fixed income portfolio returned -12.7% net of fees.

Real Estate Overview

Private Real Estate was one of the few asset classes to generate positive results during the 2022 fiscal year. The NCREIF Property Index, a measure of the domestic direct private real estate market, appreciated 21.5% during the year. During the year ended June 30, 2022 TSRS's real estate portfolio returned 28.9% net of fees.

Infrastructure Overview

By definition, infrastructure assets are essential to the economic health and productivity of civilized society. They include the basic facilities, services, and installations needed for the functioning of a community, such as transit and communication systems, both potable and sewage water lines; and electrical access. They also include such public entities as schools, post offices, and incarceration facilities. Most of these facilities have traditionally been owned and regulated by municipalities and states. Over the trailing 12-month period ended June 30, 2022, the infrastructure program for TSRS returned 9.3% net of fees.

Cordially,

Gordon Weightman, CFA
Senior Vice President

Craig Chaikin, CFA
Senior Vice President

Outline of Investment Policies

The asset allocation policy includes a 58% allocation to equity securities: 27% to large U.S. stocks; split among S&P 500 index, enhanced index, large capitalization growth and value accounts; 7% to mid-cap and small-cap U.S. stock accounts; and 24% to foreign stock accounts. There is also an allocation of 25% to fixed income, 12% to equity real estate and 5% to infrastructure.

The Board has set an asset allocation target range on each asset class, sub-class, and manager. The Board of Trustees has adopted a policy of rebalancing the portfolio when the actual allocation falls above or below the target range.

Over the long term, asset allocation policy will be the primary determinant of the returns generated by the TSRS pension fund and the associated volatility of returns. In particular, the level of equity exposure is the key element within the TSRS pension investment policies.

In developing asset allocation policies for its pension plan, the Board examined asset and liability projections to evaluate possible results over the next ten years. These projections examined the risk/return tradeoffs of alternative asset classes, as well as alternative levels of equity exposure. Through incorporating the results of these projections with its risk posture, as well as considering typical practices and practical investment issues, the Board has developed the following asset mix guidelines:

	Percent of Total Pension Fund		
	Minimum	Target	Maximum
Equities			
Large capitalization	22%	27%	32%
Small capitalization	4%	7%	10%
International	19%	24%	29%
Total equities	**54%**	**58%**	**64%**
Fixed income	**21%**	**25%**	**29%**
Real estate	**9%**	**12%**	**15%**
Infrastructure	**3%**	**5%**	**7%**
Cash	**0%**	**0%**	**0%**
Total		**100%**	

Separate target ranges are also set for each investment manager within an asset class and are monitored in conjunction with the overall asset allocation. TSRS monitors its asset mix and rebalances its portfolio mix at any time that a primary asset class (i.e., equities, fixed-income, and real estate), secondary asset class (i.e., domestic equities, international equities), portfolio style, or manager reaches the minimum or maximum allocation specified. Staff is authorized to direct rebalancing and report to the Board.

Investment Objectives

Total Pension Fund Performance Objectives:

The TSRS Pension Fund's return will be, in part, a function of the capital market environment in which the plan's investment managers operate. Therefore, regardless of whether or not the market environment permits the achievement of substantial real returns, the TSRS expects any active investment managers that it retains to produce results that are above average relative to other actively-managed funds and relative to passive alternatives. Investment managers should cover the fees paid and provide a return increment that justifies the risk assumed in active management.

On a rolling five-year basis, the annualized total return of the portfolio should exceed the annualized total return of the following custom index:

S&P 500 Index	27%
Russell 2500 Index	7%
MSCI ACWI ex U.S. IMI	24%
BC Aggregate Bond Index	25%
NFI-ODCE	12%
CPI + 4%	5%
Total	100%

Individual Managers Performance Objectives

On a shorter-term basis, managers will be measured in relation to an appropriate style index and peer group. Each manager will be measured again the median return of a previously agreed-upon peer group with similar investment styles. Long-term performance will be measured on a rolling five-year basis in relation to a broad market index or indices as follows:

Investment Category	Market Index	Callan Style Group
Total Domestic Equity	Russell 3000 Index	Domestic Equity
Passive Large-Cap Equities	S&P 500 Index	Large Cap Style
Large Cap Value Equities	Russell 1000 Value Index	Large Cap Value Style
Large Cap Growth Equities	Russell 1000 Growth Index	Large Cap Growth Style
Mid Cap Core Equity	Russell Midcap Index	Mid Cap Style
Small Cap Core Equity	Russell 2000 Index	Small Cap Style
Total Non-U.S Equity	MSCI ACWI ex U.S.	IMI International Equity
Core Non-U.S. Equity	MSCI ACWI ex U.S.	Non-U.S. Equity Style
Non-U.S. Equity Small Cap	MSCI ACWI ex U.S. Small Cap	Non-U.S. Equity Small Cap
Fixed Income	Bloomberg Barclays Aggregate Index	Domestic Fixed
Real Estate	NFI-ODCE	Open-End Real Estate
Infrastructure	CPI+4%	NA

Investment Results by Year
Last Ten Fiscal Years Ended June 30, 2022

Year Ended	Annual Return	3-Year Annualized Return	5-Year Annualized Return	10-Year Annualized Return
6/30/22	-11.3%	5.5%	6.3%	8.4%
6/30/21	27.3%	12.2%	11.90%	9.94%
6/30/20	4.2%	6.4%	7.0%	9.5%
6/30/19	6.2%	9.7%	7.0%	10.2%
6/30/18	9.9%	8.9%	10.1%	7.5%
6/30/17	14.8%	7.1%	11.0%	6.0%
6/30/16	2.4%	8.1%	8.0%	5.7%
6/30/15	4.6%	12.9%	12.6%	7.1%
6/30/14	19.6%	12.1%	14.1%	7.5%
6/30/13	14.8%	13.2%	5.0%	7.4%

Schedule of Investment Results

	One Year	Annualized Returns Three Years	Five Years
TOTAL PORTFOLIO			
TSRS	-11.3%	5.7%	8.9%
Custom Benchmark [(1)]	-9.5%	5.9%	7.9%
EQUITY FUNDS			
Alliance S&P Index	-10.6%	10.6%	11.3%
PIMCO Stocks Plus	-12.7%	10.0%	10.9%
S & P 500 Index	-10.6%	10.6%	11.3%
BlackRock Russell 1000 Value Index	-6.8%	7.0%	7.3%
Russell 1000 Value Index	-6.8%	6.9%	7.2%
T. Rowe Price Large Cap Growth	-29.8%	8.0%	12.6%
Russell 1000 Growth Index	-18.8%	12.6%	14.3%
Champlain Investment Partners	-20.3%	8.3%	11.9%
Russell Mid Cap Index	-17.3%	6.6%	8.0%
Fidelity Institutional Asset Management Small Cap	-20.0%	7.1%	8.3%
Russell 2000 Index	-25.2%	4.2%	5.2%
Causeway International Value Equity	-16.7%	2.1%	2.2%
ACWI ex-US (Net)	-19.4%	1.6%	2.5%
Aberdeen EAFE Plus Equity	-28.0%	0.3%	1.4%
MSCI All Country World ex-U.S. Index (Net)	-19.4%	1.6%	2.5%
American Century Non U.S. Small Cap	-30.6%	2.4%	3.9%
MSCI All Country World ex-U.S. Small Cap	-22.5%	2.9%	2.6%
FIXED INCOME FUNDS			
BlackRock U.S. Debt Fund	-10.2%	-0.9%	1.0%
Bloomberg Aggregate Bond Index	-10.3%	-0.9%	0.9%
PIMCO Custom Fixed Income	-15.2%	-1.8%	1.2%
Custom Index [(2)]	-15.8%	-2.4%	0.2%
REAL ESTATE FUNDS			
JP Morgan Strategic Property Fund	28.7%	12.0%	9.65
JP Morgan Income and Growth Fund	33.3%	12.3%	9.7%
NFI-ODCE Equal Weight Net	29.5%	12.7%	10.5%

Note: All data provided by independent investment consultant, Callan Associates Inc.
(1) Custom Benchmark = 27.0% S&P 500 Index, 25.0% Blmbg Aggregate, 24.0% MSCI ACWI ex US IMI, 12.0% NCREIF NFI-ODCE Val Wt Gr, 7.0% Russell 2500 Index and 5.0% CPI-W+4.0%.
(2) The custom index is composed of 25% Bloomberg Barclays Mortgage, 25% Bloomberg Barclays Credit, 25% Bloomberg Barclays High Yield, and 25% JP Morgan EMBI Global.

Rate of Return – TSRS uses a money-weighted rate of return on the Plan's investments, net of pension plan investment expenses. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Schedule of Investment Results
(Continued)

	One Year	Annualized Returns: Three Years	Annualized Returns: Five Years
INFRASTRUCTURE FUNDS			
IFM Global Infrastructure	n/a	n/a	n/a
CPI + 4%	13.8%	9.4%	8.2%
Cash Composite	0.1%	0.5%	0.9%

Note: All data provided by independent investment consultant, Callan Associates Inc.

Rate of Return – TSRS uses a money-weighted rate of return on the Plan's investments, net of pension plan investment expenses. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Asset Summary

By Manager and Type of Investment (in thousands)

Manager	Style	Large U.S. Stocks	Small/Mid U.S. Stocks	Foreign Stocks	Fixed Income	Real Estate	Infra-structure	Short Term	Total
Alliance Capital	S & P 500 Index	$ 70,280	$ -	$ -	$ -	$ -	$ -	$ 107	$ 70,387
T. Rowe Price	Large Cap Growth	51,662						643	52,305
BlackRock Russell Value	Large Cap Value Index	60,040						1	60,041
PIMCO StocksPlus	Enhanced Index	35,106							35,106
Champlain Investments	Mid-Cap Core		26,090					527	26,617
Fidelity Institutional Asset Mgmt.	Small-Cap Core		29,338					502	29,840
Causeway Capital	Foreign Stocks-Value			79,935				2,755	82,690
Aberdeen Asset Mgmt	Foreign Stocks-Core			72,503					72,503
American Century Investments	Foreign Stocks-Small Cap			35,902					35,902
BlackRock U.S. Debt	U.S. Govt/Credit Bonds				118,504			3	118,507
PIMCO Custom Fixed Income	U.S. & Foreign Bonds	1,083			79,917			24,898	105,898
JPM Strategic Property Fund	Core Real Estate					94,386		1	94,387
JPM Income & Growth Fund	Value Added Real Estate					29,521		2	29,522
Macquarie (MEIF3)	European Infrastructure						113		113
IFM	Global Infrastructure						44,969		44,969
Liquidity Fund	Cash & Cash Equivalents							104	104
	TOTAL	$ 218,171	$ 55,428	$188,340	$198,421	$123,907	$ 45,082	$29,543	$858,891

Notes:

(1) The Asset Summary does not include the City pooled investment account.

(2) Assets are reflected on a trade date basis.

(3) Short-term investments have been adjusted for the net impact of unsettled transactions in order to report on a trade date basis.

(4) Each asset class includes receivables and payables.

Manager and Asset Diversification (in thousands)

	Actual		Target	
Manager	**Amount**	**Percentage**	**Amount**	**Percentage**
T Rowe Price	$ 52,305	6.1%	$ 62,270	7.3%
BlackRock - Russell Value Index	60,041	7.0%	62,270	7.3%
Alliance (S&P 500)	70,386	8.2%	71,288	8.3%
PIMCO Stocks Plus	35,106	4.1%	36,073	4.2%
Large US Stocks	**217,838**	**25.4%**	231,901	**27.0%**
Pyramis (Fidelity)	29,840	3.5%	30,061	3.5%
Champlain Investment Partners	26,617	3.1%	30,061	3.5%
Small/Mid-Cap Stocks	**56,457**	**6.6%**	60,122	**7.0%**
Causeway Capital Mgmt	82,690	9.6%	82,454	9.6%
Aberdeen Asset Management	72,503	8.4%	82,454	9.6%
American Century	35,902	4.2%	41,227	4.8%
International Stocks	**191,095**	**22.2%**	206,134	**24.0%**
Total Stocks	***465,391***	***54.2%***	***498,157***	***58.0%***
PIMCO	105,898	12.3%	107,361	12.5%
BlackRock US Debt	118,507	13.8%	107,361	12.5%
US Bonds	**224,406**	**26.1%**	214,723	**25.0%**
Total Bonds	***224,406***	***26.1%***	***214,723***	***25.0%***
JPM Strategic Prop	94,387	11.0%	68,711	8.0%
JPM RE - I&G Fund	29,522	3.4%	34,356	4.0%
Total Real Estate	***123,909***	***14.4%***	***103,067***	***12.0%***
Macquarie	113	0.0%	-	0.0%
IFM	44,969	0.0%	42,945	5.0%
Total Infrastructure	**45,083**	**5.2%**	**42,945**	**5.0%**
Liquidity Account	**104**	***0.0%***	**-**	***0.0%***
TOTAL	**858,891**	***100.0%***	***858,891***	***100.0%***

Asset Allocation by Asset Class
Last Five Fiscal Years

Asset Class	2022	2021	2020	2019	2018
U.S. Stocks	32%	38%	35%	35%	36%
Foreign (International) Stocks	22%	27%	26%	24%	25%
Total Equities	54%	65%	61%	59%	61%
Fixed Income (Bonds)	26%	26%	28%	27%	26%
Real Estate	15%	8%	9%	9%	9%
Infrastructure	5%	0%	0%	5%	4%
Cash	0%	1%	2%	0%	0%
Total Assets	100%	100%	100%	100%	100%

Ten Largest Bond Holdings
(By Fair Value)

(dollars in thousands)

Par Value	Bond	Coupon Rate	Due	Rating (1)	Fair Value
$ 1,753	PIMCO FDS PAC INVT MGMT SER	0.000%	N/A	NR	$ 15,528
623	PIMCO FDS PAC INVT MGMT SER	0.000%	N/A	NR	7,352
15,706	REALKREDIT DANMARK A/S REGS	1.000%	10/01/53	NR	1,609
1,700	TALLGRASS ENERGY PARTNERS 144A	5.500%	01/15/28	B1	1,448
1,800	PETROLEOS MEXICANOS	6.625%	06/15/35	Ba3	1,229
1,000	DAE FUNDING LLC 144A	1.550%	08/01/24	Baa3	937
827	ALLY FINANCIAL INC	8.000%	11/01/31	Baa3	922
900	FORD MOTOR CREDIT CO LLC	Variable	12/01/24	Ba2	874
900	NATWEST GROUP PLC	Variable	05/18/29	Baa1	874
850	UBS AG/STAMFORD CT	7.625%	08/17/22	Baa1	852

(1) Per Moody's Investors Service, Inc.

Ten Largest Stock Holdings
(By Fair Value)

(dollars in thousands)

Shares	Stock	Fair Value
40,725	MICROSOFT CORP	10,459
60,141	APPLE INC	8,222
61,356	AMAZON.COM INC	6,517
2,723	ALPHABET INC	5,934
6,726	UNITEDHEALTH GROUP INC	3,455
1,279	ALPHABET INC	2,798
2,311,320	ROLLS-ROYCE HOLDINGS PLC	2,328
226,823	UNICREDIT SPA	2,150
5,194	INTUIT INC	2,002
156,812	PRUDENTIAL PLC	1,935

A complete list of portfolio holdings is available by contacting:
City of Tucson Supplemental Retirement System,
255 W. Alameda Street, 3rd floor, Tucson, AZ 85701-1303

Schedule of Fees

Investment manager fees:	Assets under management	Fees
Fixed income managers		
BlackRock U.S. Debt	$ 118,504,254	$ 87,784
PIMCO (Custom fixed income)	105,898,402	427,125
Total fixed Income	224,402,656	514,909
Equity Managers		
Alliance Capital Management	70,386,441	33,500
BlackRock Russell Value Index	60,043,818	38,567
T. Rowe Price	52,305,073	356,734
Causeway Capital Management	82,690,072	299,318
Fidelity Institutional Asset Management	29,840,021	264,720
Aberdeen Asset Management	72,502,699	623,105
American Century Investments	35,902,257	504,936
PIMCO Stock Plus	35,105,829	141,594
Champlain Investment Partners	26,617,103	266,366
Total Equity	465,393,313	2,528,840
Liquidity Account	113,284	
Real Estate Managers		
JP Morgan Strategic Property Fund	94,386,625	635,763
JP Morgan Income & Growth Fund	29,523,171	294,547
Total Real Estate	123,909,796	930,310
Infrastructure Managers		
Macquarie (MEIF3)	113,284	223
IFM international infrastructure	44,969,363	372,876
Total Infrastructure	45,082,647	373,099
Total assets		
Total investment management fees	$ 858,892,060	$ 4,347,158

Other investment service fees		
Carried interest, Macquarie (MEIF3)		2,735
Carried interest, SteelRiver (IFNA)		(203)
Partnership Adjustments, SteelRiver (IFNA)		6,683
Partnership Adjustments, Macquarie (MEIF3)		898
Trust & custodian fees, BNY Mellon		568,477
Security lending - Bank & Administration Fees, BNY Mellon		36,486
Consulting & performance management, Callan Associates Inc.		167,187
Total Other investment service fees		$ 782,263

Schedule of Commissions

Broker Description	Shares	Commissions	Commissions Per Share
MERRILL LYNCH INTL LONDON EQUITIES	27,724	348	0.01254
MERRILL LYNCH INTL LONDON EQUITIES	14,462	326	0.02251
J P MORGAN SECS LTD, LONDON	1,300	256	0.19728
GOLDMAN SACHS & CO, NY	657	254	0.38735
UBS AG LONDON BRANCH, LONDON	4,024	253	0.06293
JEFFERIES & CO INC, NEW YORK	10,000	250	0.02500
MORGAN STANLEY AND CO., LLC, NEW YORK	4,428	230	0.05199
J P MORGAN SECS LTD, LONDON	4,294	228	0.05306
BARCLAYS CAPITAL, LONDON (BARCGB33)	10,131	221	0.02179
EXANE, PARIS (EXANFRPP)	1,319	214	0.16245
J P MORGAN SECS LTD, LONDON	2,288	208	0.09106
MORGAN STANLEY AND CO., LLC, NEW YORK	18,454	202	0.01095
CREDIT LYONNAIS SECS, SINGAPORE	1,000	197	0.19709
J P MORGAN SECS LTD, LONDON	1,704	195	0.11450
UBS EQUITIES, LONDON	13,059	194	0.01485
CITIGROUP GLOBAL MARKETS EURO, FRANKFURT	12,129	194	0.01596
MORGAN STANLEY AND CO., LLC, NEW YORK	1,725	193	0.11209
J P MORGAN SECS LTD, LONDON	1,704	192	0.11294
HSBC BANK PLC (MIDLAND BK)(JAC), LONDON	496	191	0.38544
MORGAN STANLEY AND CO., LLC, NEW YORK	1,453	191	0.13112
MERRILL LYNCH INTL LONDON EQUITIES	3,422	189	0.05526
INSTINET EUROPE LIMITED, LONDON	481	186	0.38746
MERRILL LYNCH INTL LONDON EQUITIES	491	184	0.37436
CITIGROUP GLOBAL MARKETS LTD, LONDON	491	182	0.37018
JEFFERIES & CO INC, NEW YORK	783	176	0.22540
MORGAN STANLEY AND CO., LLC, NEW YORK	1,644	176	0.10689
MERRILL LYNCH INTL LONDON EQUITIES	2,992	175	0.05865
UBS AG LONDON BRANCH, LONDON	2,682	175	0.06537
WELLS FARGO SECURITIES LLC, CHARLOTTE	8,440	165	0.01950
Remaining activity	5,897,056	80,059	
TOTAL	**6,050,833**	**$ 86,204**	
AVERAGE COMMISSION RATE			**$0.0142**

ACTUARIAL SECTION

P: 720.274.7270 | www.grsconsulting.com

November 28, 2022

The Board of Trustees
Tucson Supplemental Retirement System
Tucson, Arizona

Re: June 30, 2022 Actuarial Valuation and ACFR Information

Dear Board Members:

The purpose of this letter is to provide the certification related to materials presented in the Annual Comprehensive Financial Report (ACFR) for the City of Tucson Supplemental Retirement System (TSRS).

Actuarial Valuation Used for Funding Purposes

The valuation report presents the results of the June 30, 2022 actuarial valuation of the Tucson Supplemental Retirement System. The report describes the current actuarial condition of the Tucson Supplemental Retirement System, determines recommended annual employer and employee contribution rates, and analyzes changes in these required rates. This report should not be relied on for any purpose other than the purpose described in the primary communication. Please refer to that report for any information concerning the funding, assumptions and methods of the TSRS.

Certification

We prepared the following exhibits which provide further related information necessary to complete your annual financial report:

- Summary of Actuarial Assumption and Methods
- Schedule of Active Members Counts by Age and Service
- Schedule of Funding Progress
- Schedule of Employer Contributions
- Solvency Test
- Comparative Schedule of Annual Pension Benefits Paid
- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Summary of Benefit Provisions
- Schedule of Active Member Average Salary By Age and Service
- Analysis of Plan Experience (Plan Experience for Fiscal Year 2022)

The Schedules which are required to contain 10 years/ worth of information will be completed with each passing year.

We certify that the information included herein and contained in the June 30, 2022 Actuarial Valuation Report is accurate and fairly presents the actuarial position of the Tucson Supplemental Retirement System as of the valuation date.

7900 East Union Avenue | Suite 650 | Denver, Colorado 80237-2746

The TSRS Board is responsible for establishing the funding policy, and an outline of that policy can be found in the appendix of the June 30, 2022 actuarial valuation report. The actuarial methods and assumptions used in the valuation are adopted by the TSRS Board based upon the experience studies and in consideration of the recommendations of the TSRS' actuary. The actuarial assumptions and methods employed in the funding valuation are the same as those used for financial reporting purposes under GASB 67 and GASB 68.

Contribution Rates

There are no recommended changes to the contribution rates for FY 2022 for the employer rate or the employee rate for those hired prior to July 1, 2006. Based on the TSRS funding policy, the recommended employer rate will remain at 27.5%, and the recommended employee rates will remain at 5.00% for the members hired prior to July 1, 2006.

Currently, members hired prior to July 1, 2006 contribute a flat rate, while members hired after June 30, 2006 are subject to variable rates that are 50% of their tiers' normal cost, subject to a floor of 5.0%. These rates are further subject to a 5.00% floor and a roundup policy rounding to the next 0.25% percent. The Tier I and II variable rates based on this policy were 7.00% and 5.50%, respectively, as of the June 30, 2019 through June 30, 2021 valuations and 7.25% and 5.75%, respectively, as of the June 30, 2022 valuation; however due to circumstances related to the COVID-19 pandemic, the City decided to temporarily delay the increase to employee contributions and keep them at 6.75% and 5.25%, respectively, through fiscal year 2023. Based on the Board funding policy, we recommend an increase to the employee rates from 6.75% to 7.25% for the Tier I variable class and from 5.25% to 5.75% for the tier II variable class for fiscal year 2024. Full details of these calculations are in the report.

The contribution rate in the June 30, 2022 actuarial valuation report is determined using the actuarial assumptions and methods disclosed in Section G of the valuation report. The report does not include an assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the System's financial condition.

Financing Objectives

The employer contributions, when combined with the contributions made by members, are intended to cover the Actuarially Determined Contribution (ADC), which is the sum of the Normal Cost plus a percent-of-pay amortization payment of the Unfunded Actuarial Accrued Liability (UAAL). Effective June 30, 2022, the board adopted a change to the amortization period used for the amortization of future actuarial gains and losses. The initial amortization base has been established in this valuation based on the UAAL as of July 1, 2022 and will be amortized as a level percent of pay over a closed 20-year period. The remaining base will be amortized over 19 years as of July 1, 2023, 18 years as of July 1, 2024, etc. A new base will be established each year for any additional gains or losses and each new base will be amortized as a level percent of pay over a closed 20-year period. If the contributions made are equal to the ADC, and if all actuarial assumptions are met, there will not be an unfunded accrued liability at the end of the 20-year period.

The Board has also adopted a funding policy which rounds up the employee and City contribution rates, and in addition, sets a 27.50% minimum on the City contribution rate until full funding is reached. Based on this funding policy, the System is projected to reach full funding in 2034 based on a projection of the Actuarial Value of Assets.

Benefit Provisions

All of the benefit provisions reflected in the June 30, 2022 actuarial valuation are those which were in effect on June 30, 2022. There were no changes to the benefit provisions since the prior valuation. The benefit provisions are summarized in Section D of the valuation Report.

Assumptions and Methods

The Board has sole authority to determine the actuarial assumptions used for the Plan. The assumptions that are based upon the actuary's recommendations are internally consistent and are reasonably based on the actual past experience of the Plan.

The current assumptions were adopted by the Board in 2019 for first use in the June 30, 2019 valuation following a regularly scheduled experience study. The rationale for all of the current assumptions is included in that report, dated January 8, 2019.

The Board voted to lower the discount rate assumption from 7.00% to 6.75% effective with the June 30, 2022 valuation and updated the funding policy to reflect a 20-year closed, layered amortization of the Unfunded Liabilities. There were no other changes in actuarial methods and assumptions since the prior valuation.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

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; changes in 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. The actuarial calculations presented in this Report are intended to provide information for rational decision making.

Data

The valuation was based upon information as of June 30, 2022, furnished by Tucson Supplemental Retirement System staff, concerning Plan benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by Tucson Supplemental Retirement System staff.

Actuarial reports used for GASB 67 and GASB 68 reporting

For the GASB 67 and GASB 68 reporting purposes, the valuation date, measurement date of the Net Pension Liability and the reporting date are all June 30, 2022. Please refer to the Tucson Supplemental Retirement System GASB Statement Nos. 67 and 68 Accounting and financial reporting for pensions - June 30, 2022 report for further information on the financial reporting.

We prepared the following scheduled for inclusion in the Financial Section of the TSRS CAFR:

- Schedule of Changes in Net Pension Liability and Related Ratios
- Sensitivity of Net Pension Liability to the Single Discount Rate Assumption
- Schedule of Contributions

Compliance with ASOPs and Qualification Standards

The assumptions and methods which support our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code, and ERISA.

The signing actuaries are independent of the plan sponsor. Dana Woolfrey is and Enrolled Actuary and both Dana Woolfrey and Paul Wood are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. Finally, both of the undersigned are experiences in performing valuation for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

Dana Woolfrey, FSA, FCA, EA, MAAA
Senior Consultant

Paul Wood, ASA, FCA, MAAA
Team Leader and Senior Consultant

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

I. Valuation Date

The valuation date is July 1st of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal actuarial cost method. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) a rate that will amortize the unfunded actuarial liability.

1. The valuation is prepared on the projected benefit basis. The present value of each participant's expected benefit payable at retirement or termination is determined, based on age, service, sex, compensation, and the interest rate assumed to be earned in the future (6.75%). The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his terminating with a service benefit. Future salary increases are also anticipated. The present value of the expected benefits payable on account of the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Plan on account of the present group of participants and beneficiaries.

2. The employer contributions required to support the benefits of the Plan are determined following a level funding approach, and consist of a normal cost contribution and an accrued liability contribution.

3. The normal contribution is determined using the Entry Age Normal method. Under this method, a calculation is made to determine the average uniform and constant percentage rate of employer contribution which, if applied to the compensation of each new participant during the entire period of his anticipated covered service, would be required in addition to the contributions of the participant to meet the cost of all benefits payable on their behalf. Effective July 1, 2013 the TSRS funding policy requires the computation of normal cost separately for those members in Tier 1 and Tier 2 (the variable rate tiers).

4. The unfunded accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability. Amortization bases are established each year and amortized over closed 20-year periods as a level percentage of pay. It is assumed that payments are made throughout the year.

5. Administrative expenses for the recent year will be added to the employer normal cost in the current valuation and will be reflected in the recommended employer rate for the upcoming fiscal year.

III. Actuarial Value of Assets

The actuarial value of assets is based on recognizing gains and losses over a five-year period where gains and losses are determined by comparing the projected market value return (based on the prior year's market value of assets, cash flows during the year and expected investment returns on those amounts) to the actual market investment return.

IV. Actuarial Assumptions

A. Economic Assumptions

1. Investment return: 6.75% per annum, compounded annually, composed of an assumed 2.50% inflation rate and a 4.25% real rate of return. This rate represents the assumed return, net of all investment expenses.

2. Salary increase rate:

Sample Attained Service	Percentage Increase in Salary with Less than Five Years of Service		
	Merit/ Productivity	Inflation	Total
0	3.50 %	2.50 %	6.00 %
1	3.50	2.50	6.00
2	3.00	2.50	5.50
3	2.75	2.50	5.25
4	2.50	2.50	5.00

Sample Attained Age	Percentage Increase in Salary with Five or More Years of Service		
	Merit/ Productivity	Inflation	Total
25	3.00 %	2.50 %	5.50 %
30	2.75	2.50	5.25
35	2.40	2.50	4.90
40	1.70	2.50	4.20
45	1.10	2.50	3.60
50	0.75	2.50	3.25
55	0.50	2.50	3.00
60	0.50	2.50	3.00
65	0.50	2.50	3.00

3. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 3.00% per year. This increase rate is primarily due to the effect of inflation on salaries, with no allowance for future membership growth.

B. Demographic Assumptions

1. Mortality rates – Healthy Pre-Retirement Mortality RP-2014 Employee Mortality Tables projected with the ultimate rates of the MP-2018 projection scale. Healthy Post-Retirement Mortality RP-2014 Healthy Annnuitant Mortality Tables projected with the ultimate rates of the MP-2018 projection scale. Disabled Mortality RP-2014 Disabled Mortality Tables projected with the ultimate rates of the MP-2018 projection scale. Mortality rates were adjusted to include margin for future mortality improvement as described in the table name above. Sample 2022 rates shown below:

Sample Attained Ages	Probability of Death Pre-Retirement	
	Men	Women
20	0.04 %	0.01 %
25	0.04	0.02
30	0.04	0.02
35	0.05	0.03
40	0.06	0.04
45	0.09	0.06
50	0.16	0.10
55	0.26	0.15
60	0.43	0.23
65	0.76	0.34
70	1.28	0.58
75	2.14	0.99
80	3.58	1.70
85	6.97	4.36
90	12.76	9.58

Sample Attained Ages	Probability of Death Post-Retirement	
	Men	Women
20	0.04 %	0.02 %
25	0.06	0.03
30	0.08	0.06
35	0.11	0.09
40	0.17	0.14
45	0.25	0.20
50	0.38	0.26
55	0.53	0.33
60	0.72	0.48
65	1.02	0.74
70	1.55	1.19
75	2.48	1.93
80	4.13	3.22
85	7.15	5.58
90	12.61	9.94

Sample Attained Ages	Probability of Death Post-Disability	
	Men	Women
20	0.04 %	0.02 %
25	0.19	0.08
30	0.45	0.21
35	0.79	0.39
40	1.17	0.61
45	1.55	0.85
50	1.88	1.10
55	2.16	1.34
60	2.45	1.57
65	2.92	1.92
70	3.72	2.60
75	5.01	3.79
80	7.07	5.63
85	10.46	8.34
90	16.05	12.31

3. Disability rates. Sample rates shown below:

Sample Attained Ages	Probability of Disablement Next Year	
	Men	Women
25	0.01 %	0.01 %
30	0.07	0.07
35	0.09	0.09
40	0.14	0.14
45	0.17	0.17
50	0.25	0.25
55	0.36	0.36
60	0.48	0.48

4. Termination rates (for causes other than death, disability or retirement): Termination rates are based on service and age. Termination rates are not applied after a member becomes eligible for a retirement benefit. Rates are shown:

Sample Attained Age	Years of Credible Service	Probability of Termination
Any	0	19.00 %
	1	14.00
	2	11.00
	3	9.00
	4	9.00
20	5 & over	7.40
25		7.40
30		6.98
35		4.88
40		3.83
45		3.10
50		2.68
55		2.57

5. Forfeiture rates: The percentages below represent the probability that a vested terminated member will take a refund of contributions rather than receive a deferred annuity benefit.

Sample Ages	**% of Vested Terminating Members Choosing Refund at Termination**
Under 30	50 %
30	45
35	40
40	35
45	30
50	25
55	20
60 and Over	0

6. Retirement rates for Tier 1. For those ages 62+, the Rule of 80 retirement rates only applies if the Rule of 80 is attained by age 62.

Attained Age	Tier 1 Members Percentage of Those Eligible Retiring During the Year		
	Rule of 80	Age Based	Early
50-54	24.0 %		
55-59	24.0		6.0 %
60	24.0		
61	24.0		
62	24.0	33.0 %	
63-65	24.0	18.0	
66	24.0	40.0	
67-69	24.0	30.0	
70 & Over	100.0	100.0	

Retirement rates for Tier 2. For those ages 65+, the Rule of 85 retirement rates only applies if the Rule of 85 is attained by age 65.

Attained Age	Tier 2 Members Percentage of Those Eligible Retiring During the Year		
	Rule of 85	Age Based	Early
60	24.0 %		6.0 %
61	24.0		6.0
62	24.0		6.0
63	24.0		6.0
64	24.0		6.0
65	24.0	18.0 %	
66	24.0	40.0	
67-69	24.0	30.0	
70 & Over	100.0	100.0	

Deferred vested members are assumed to retire at age first eligibility for unreduced benefits.

C. Other Assumptions

1. Percent married: 80% of employees are assumed to be married.
2. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
3. Cost of living adjustment: None.
4. Optional forms: Members are assumed to elect the normal form of benefit.
5. Current and future deferred vested participants are assumed to retire at the earlier of age 62 and eligibility for rule of 80 for tier 1 and the earlier of age 65 and eligibility for the rules of 85 (but at least 60) for Tier 2.
6. Administrative expenses: Administrative expenses are added to the employer normal cost , before application of the round up policy.
7. Pay increase timing: End of year.
8. Decrement timing: Decrements of all types are assumed to occur mid-year.

9. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

10. Decrement relativity: Decrement rates are used directly, without adjustment for multiple decrement table effects.

11. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.

12. Benefit and Eligibility Service due to Accrued Sick and Vacation Leave at Retirement and Termination: Tier 1 Members are assumed to have an additional 0.019 years per year of benefit and eligibility service at early or normal retirement and termination due to accrued sick and vacation leave. This assumption was developed using sick and vacation leave and service amounts for active members included in the actuarial valuation as of June 30, 2013.

13. Adjustment to Final Average Pay due to accrued sick leave at retirement and terminationg: For each year of additional service attributable to the prior service assumption, final average pay is assumed to increase 2.6%.

Exhibit E.3
Active Member Counts by Age and Service
as of July 1, 2022

Age	Service							
	0-4	5-9	10-14	15-19	20-24	25-29	Over 30	Total
Under 20	6	0	0	0	0	0	0	6
20-24	96	0	0	0	0	0	0	96
25-29	159	16	0	0	0	0	0	175
30-34	175	58	12	0	0	0	0	245
35-39	135	75	30	12	0	0	0	252
40-44	128	81	39	51	27	1	0	327
45-49	90	68	41	71	43	20	0	333
50-54	96	65	40	76	86	52	7	422
55-59	82	49	30	60	53	56	23	353
60-64	39	54	27	55	48	35	26	284
65-69	10	17	7	16	13	10	11	84
Over 70	2	7	2	7	1	1	8	28
Total	1,018	490	228	348	271	175	75	2,605

Exhibit F.1
Tucson Supplemental Retirement System
Schedule of Funding Progress
$ in thousands

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a Percentage of Covered Payroll
(1)	(2)	(3)	(4)=(3)-(2)	(5)=(2)/(3)	(6)	(7)=(4)/(6)
6/30/1991	$ 164,268	$ 175,537	$ 11,269	93.6%	$86,830	13.0%
6/30/1992	179,570	187,812	8,242	95.6%	86,205	9.6%
6/30/1993	197,282	208,024	10,742	94.8%	92,867	11.6%
6/30/1994	213,541	230,026	16,485	92.8%	94,180	17.5%
6/30/1995	237,713	249,049	11,336	95.4%	99,847	11.4%
6/30/1996	266,740	269,186	2,446	99.1%	105,230	2.3%
6/30/1997	304,684	297,490	(7,194)	102.4%	110,189	-6.5%
6/30/1998	353,057	348,966	(4,090)	101.2%	113,729	-3.6%
6/30/1999	402,875	400,224	(2,651)	100.7%	126,817	-2.1%
6/30/2000	453,954	437,750	(16,204)	103.7%	134,088	-12.1%
6/30/2001[1]	470,672	486,702	16,030	96.7%	145,059	11.1%
6/30/2001[2]	470,672	495,359	24,687	95.0%	145,059	17.0%
6/30/2002	463,102	553,947	90,845	83.6%	153,580	59.2%
6/30/2003	458,857	601,173	142,316	76.3%	143,164	99.4%
6/30/2004	494,987	645,351	150,364	76.7%	149,782	100.4%
6/30/2005	538,789	693,871	155,082	77.6%	162,149	95.6%
6/30/2006[1]	588,228	734,377	146,149	80.1%	155,855	93.8%
6/30/2006[2]	588,228	735,793	147,565	79.9%	155,855	94.7%
6/30/2007[1]	634,763	758,427	123,663	83.7%	159,250	77.7%
6/30/2007[2,3]	634,763	763,539	128,776	83.1%	159,250	80.9%
6/30/2008	650,227	822,205	171,978	79.1%	153,982	111.7%
6/30/2009	665,298	859,485	194,187	77.4%	149,925	129.5%
6/30/2010	641,819	904,480	262,662	71.0%	141,459	185.7%
6/30/2011	624,665	928,609	303,944	67.3%	121,631	249.9%
6/30/2012	597,107	940,939	343,832	63.5%	125,003	275.1%
6/30/2013	600,330	948,562	348,232	63.3%	125,858	276.7%
6/30/2014	655,998	1,012,393	356,396	64.8%	126,639	281.4%
6/30/2015	706,774	1,021,378	314,604	69.2%	123,415	254.9%
6/30/2016	732,927	1,030,695	297,768	71.1%	115,183	258.5%
6/30/2017	767,988	1,036,687	268,699	74.1%	117,006	229.6%
6/30/2018	803,439	1,053,987	250,548	76.2%	118,152	212.1%
6/30/2019	822,835	1,129,492	306,657	72.8%	123,823	247.7%
6/30/2020	842,425	1,148,930	306,506	73.3%	127,378	240.6%
6/30/2021	899,537	1,182,069	282,532	76.1%	139,661	202.3%
6/30/2022	928,893	1,214,166	285,273	76.5%	146,271	195.0%

[1] *Before benefit changes.*
[2] *After benefit changes.*
[3] *Reflects an ad hoc pension increase.*

The funded status measure may be appropriate for assessing the need for future contributions. The funded status is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

Exhibit F.2
Tucson Supplemental Retirement System
Schedule of Employer Contributions

Fiscal Year Ended June 30,	Annual Determined Contribution	Actual City Contribution	Percentage Contributed
1996	8.55 %	8.18 %	95.67 %
1997	8.05	8.38	104.10
1998	8.05	8.38	104.10
1999	7.41	7.91	106.75
2000	6.07	7.35	121.09
2001	6.77	7.35	108.57
2002	6.30	7.35	116.67
2003	8.41	8.41	100.00
2004	11.17	11.17	100.00
2005	14.06	14.06	100.00
2006	14.83	14.83	100.00
2007	15.04	15.04	100.00
2008	15.21	15.21	100.00
2009	14.37	14.37	100.00
2010	16.84	16.84	100.00
2011	18.02	18.02	100.00
2012	23.38	23.38	100.00
2013	28.77	28.77	100.00
2014	27.09	27.09	100.00
2015	26.95	27.50	102.04
2016	27.03	27.50	101.74
2017	25.52	27.50	107.76
2018	25.78	27.50	106.67
2019	23.48	27.50	117.12
2020	21.99	27.50	125.06
2021	24.71	27.50	111.29
2022	24.10	30.46 *	126.39
2023	21.25	N/A	N/A
2024	20.93	N/A	N/A

*City contributed budgeted dollar amounts during fiscal year 2022 which were in excess of the 27.50% funding policy contributions.

Exhibit F.5
Tucson Supplemental Retirement System
Solvency Test

	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Reported Assets		
Valuation Date	(1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active Member (Employer Financed Portion)	Valuation Assets	(1)	(2)	(3)
6/30/1991	$ 44,496,039	$ 72,419,436	$ 86,372,322	$164,268,134	100.0 %	100.0 %	54.8 %
6/30/1992	49,238,019	80,342,604	86,902,648	179,569,858	100.0	100.0	57.5
6/30/1993	55,146,786	85,832,484	98,492,344	197,281,861	100.0	100.0	57.2
6/30/1994	60,424,161	95,449,308	105,838,311	213,540,661	100.0	100.0	54.5
6/30/1995	66,316,408	102,511,728	113,211,848	237,712,863	100.0	100.0	60.8
6/30/1996	72,294,235	109,572,672	118,739,900	266,740,007	100.0	100.0	71.5
6/30/1997	78,991,358	119,508,312	128,878,531	304,684,444	100.0	100.0	82.4
6/30/1998	85,106,175	129,345,816	134,514,294	353,056,577	100.0	100.0	103.0
6/30/1999	92,367,491	139,805,832	168,050,794	402,875,158	100.0	100.0	101.6
6/30/2000	100,413,022	150,527,136	186,809,583	453,953,722	100.0	100.0	108.7
6/30/2001	108,696,394	161,740,968	224,921,223	470,671,667	100.0	100.0	89.0
6/30/2002	118,913,979	187,508,568	247,524,186	463,101,526	100.0	100.0	63.3
6/30/2003	110,195,709	275,193,384	215,784,329	458,856,831	100.0	100.0	34.0
6/30/2004	123,643,527	286,698,084	235,009,321	494,986,798	100.0	100.0	36.0
6/30/2005	135,346,297	298,395,396	260,129,138	538,788,828	100.0	100.0	40.4
6/30/2006	140,387,532	326,828,088	268,577,863	588,227,845	100.0	100.0	45.1
6/30/2007	136,028,896	371,497,680	256,012,354	634,763,193	100.0	100.0	49.7
6/30/2008	125,331,432	473,240,976	223,632,380	650,227,215	100.0	100.0	23.1
6/30/2009	133,633,947	494,923,021	230,928,190	665,298,494	100.0	100.0	15.9
6/30/2010	140,224,998	525,200,232	239,055,106	641,818,551	100.0	95.5	0.0
6/30/2011	119,049,097	614,497,202	195,062,492	624,664,880	100.0	82.3	0.0
6/30/2012	122,240,396	607,450,331	211,247,995	597,106,511	100.0	78.2	0.0
6/30/2013	138,342,388	609,558,963	200,661,102	600,330,066	100.0	75.8	0.0
6/30/2014	142,418,791	647,811,688	222,162,858	655,997,802	100.0	79.3	0.0
6/30/2015	143,648,835	661,292,061	216,436,668	706,773,630	100.0	85.2	0.0
6/30/2016	133,200,540	699,577,704	197,916,702	732,926,710	100.0	85.7	0.0
6/30/2017	133,917,363	706,495,829	196,274,125	767,988,402	100.0	89.7	0.0
6/30/2018	138,420,705	716,751,118	198,815,201	803,439,269	100.0	92.8	0.0
6/30/2019	135,645,102	774,206,327	219,640,471	822,834,629	100.0	88.8	0.0
6/30/2020	132,227,165	784,845,229	231,858,034	842,424,756	100.0	90.5	0.0
6/30/2021	132,406,952	791,813,812	257,848,320	899,536,769	100.0	96.9	0.0
6/30/2022	127,764,745	820,981,063	265,420,629	928,893,285	100.0	97.6	0.0

Exhibit F.4
Tucson Supplemental Retirement System
Comparative Schedule of Annual Pension Benefits Paid

Year Ending June 30	Retired Members	Annual Pensions	% Increase	No. of Active Per Retired	Pensions as % of Active Payroll	Average Pensions	Actuarial Present Value of Pensions	Expected Removals	
								No.	Pensions
1989 [1]	780	$ 5,344,719	17.6 %	4.2 [2]	6.6 %	$ 6,852	$ 46,556,352	26.6	$ 133,860
1990	832	6,488,714	21.4	3.9	7.5	7,799	57,430,128	28.5	150,864
1991 [1]	918	8,111,103	25.0	3.5	9.3	8,836	72,419,436	29.8	172,608
1992	965	9,010,345	11.1	3.3	10.5	9,337	80,342,604	32.3	208,068
1993 [1]	989	9,704,929	7.7	3.3	10.5	9,813	85,832,484	34.3	235,068
1994	1,035	10,612,612	9.4	3.2	11.3	10,254	95,449,308	35.8	263,340
1995 [1]	1,065	11,429,402	7.7	3.1	11.4	10,732	102,511,728	35.8	270,600
1996	1,105	12,236,298	7.1	3.1	11.6	11,074	109,572,672	37.7	302,952
1997 [1]	1,156	13,391,185	9.4	3.0	12.2	11,594	119,508,312	39.4	325,440
1998	1,208	14,479,476	8.1	2.9	12.7	11,986	129,345,816	42.4	370,344
1999 [1]	1,260	15,721,865	8.6	2.8	12.4	12,478	139,805,832	44.2	402,504
2000 [1]	1,301	16,966,042	7.9	2.8	12.7	13,041	150,527,136	46.2	445,464
2001 [1]	1,355	18,505,247	9.1	2.7	12.8	13,657	161,740,968	47.1	484,776
2002 [1]	1,442	21,273,162	15.0	2.5	13.9	14,753	187,508,568	53.3	622,236
2003 [1]	1,742	29,767,500	39.9	1.9	20.8	17,088	275,193,384	58.2	742,908
2004 [1]	1,753	30,491,864	2.4	2.0	20.4	17,394	286,698,084	55.7	717,888
2005 [1]	1,793	32,027,305	5.0	2.0	19.8	17,862	298,395,396	58.3	781,152
2006 [1]	1,878	35,091,468	9.6	1.7	22.5	18,686	326,828,088	61.1	857,760
2007 [1]	2,018	39,883,032	13.7	1.6	25.0	19,764	371,497,680	66.3	977,328
2008	2,307	49,489,643	24.1	1.4	32.1	21,452	473,240,976	74.4	1,134,019
2009	2,365	50,810,927	2.7	1.3	33.9	21,485	494,923,021	63.8	994,553
2010	2,450	53,115,267	4.5	1.2	37.5	21,680	525,200,232	58.9	948,815
2011	2,709	61,710,576	16.2	1.0	50.7	22,780	614,497,202	63.5	1,059,171
2012	2,704	61,737,864	0.0	1.0	49.4	22,832	607,450,331	66.1	1,125,302
2013	2,719	62,548,233	1.3	1.0	49.7	23,004	609,558,963	69.0	1,200,744
2014	2,764	64,275,837	2.8	1.0	50.8	23,255	647,811,688	70.4	1,219,112
2015	2,809	66,133,217	2.9	0.9	53.6	23,543	661,292,061	73.7	1,301,409
2016	2,945	70,256,788	6.2	0.8	61.0	23,856	699,577,704	75.9	1,392,573
2017	2,974	71,524,930	1.8	0.8	61.1	24,050	706,495,829	77.4	1,457,270
2018	3,031	73,325,441	2.5	0.8	62.1	24,192	716,751,118	80.8	1,555,043
2019	3,101	75,540,971	3.0	0.8	61.0	24,360	774,206,327	78.3	1,550,696
2020	3,145	77,124,186	2.1	0.8	60.5	24,523	784,845,229	81.5	1,393,502
2021	3,153	78,332,701	1.6	0.8	56.1	24,844	791,813,812	82.5	1,467,246
2022	3,177	79,875,842	2.0	0.8	54.6	25,142	820,981,063	82.0	1,474,251

[1] *Includes ad-hoc cost-of-living increases.*
[2] *Reflects increase in the number of active members as a result of an amendment which eliminated the one year service requirement for participation in the Retirement System.*

Exhibit F.3
Tucson Supplemental Retirement System
Schedule of Retirees and Beneficiaries Added to and Removed from Rolls

	Added to Rolls		Removed from Rolls		Rolls End of Year			
Fiscal Year	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowance	Average Annual Allowance	Percentage Increase in Allowance
6/30/2005	68	$3,498,948	42	$485,633	1,791	$ 31,990,842	17,796	
6/30/2006	101	$2,335,032	53	$656,383	1,878	$ 35,092,308	18,686	4.61%
6/30/2007	213	$6,055,096	36	$403,347	2,018	$ 39,883,032	19,764	5.77%
6/30/2008	313	$10,001,857	24	$395,246	2,307	$ 49,489,643	21,452	8.54%
6/30/2009	112	$2,005,399	54	$684,115	2,365	$ 50,810,927	21,485	0.15%
6/30/2010	141	$3,089,275	56	$784,935	2,450	$ 53,115,267	21,680	0.91%
6/30/2011	332	$9,880,306	73	$1,284,997	2,709	$ 61,710,576	22,780	5.07%
6/30/2012	64	$1,084,848	69	$1,057,560	2,704	$ 61,737,864	22,832	0.23%
6/30/2013	96	$2,027,292	81	$1,216,923	2,719	$ 62,548,233	23,004	0.75%
6/30/2014	114	$2,635,101	69	$907,497	2,764	$ 64,275,837	23,255	1.09%
6/30/2015	127	$3,157,078	82	$1,299,698	2,809	$ 66,133,217	23,543	1.24%
6/30/2016	214	$5,463,524	78	$1,339,953	2,945	$ 70,256,788	23,856	1.33%
6/30/2017	124	$2,912,641	95	$1,644,499	2,974	$ 71,524,930	24,050	0.81%
6/30/2018	136	$3,062,324	79	$1,261,813	3,031	$ 73,325,441	24,192	0.59%
6/30/2019	149	$3,665,023	79	$1,449,493	3,101	$ 75,540,971	24,360	0.70%
6/30/2020	134	$3,267,094	90	$1,683,879	3,145	$ 77,124,186	24,523	0.67%
6/30/2021	136	$3,662,945	128	$2,454,430	3,153	$ 78,332,701	24,844	1.31%
6/30/2022	155	$4,090,264	131	$2,547,123	3,177	$ 79,875,842	25,142	1.20%

SUMMARY OF BENEFIT PROVISIONS

JUNE 30, 2022

NORMAL RETIREMENT (NO REDUCTION FACTOR)

Eligibility :

Tier 1 – Members hired before July 1, 2011. Age 62, or a combination of age and creditable service equal to 80 (for those hired on or after July 1, 2009, eligibility at age 62 requires a minimum of 5 years of accrued service).

Tier 2 – Members hired on or after July 1, 2011. Age 65 with 5 years of service or a combination of age and creditable service equal to 85 and the attainment of age 60.

Amount - Creditable service times 2.25% of average final compensation for Tier 1 and 2.00% of average final compensation for Tier 2.

Average Final Compensation - The average monthly creditable compensation for the period of 36 consecutive months during which the member's creditable compensation was the highest during the 120 months immediately preceding the date of retirement for Tier 1 and 60 consecutive months during which the member's creditable compensation was the highest during the 120 months immediately preceding the date of retirement for Tier 2. Effective July 1, 2000, accrued unused sick leave at the final salary shall be substituted for an equal number of hours at the beginning of the 36 month period for Tier 1.

EARLY RETIREMENT (REDUCTION FACTOR)

Eligibility - Age 55 with 20 or more years of creditable service for Tier 1 and age 60 with 20 or more years of creditable service tor Tier 2.

Amount - An amount computed as for normal retirement but reduced by 1/2 of 1% per month for each month (6% per year) retirement precedes normal retirement.

DEFERRED RETIREMENT (VESTED TERMINATION)

Eligibility - 5 or more years of accrued service. Deferred retirement benefits for terminated vested employee becomes automatic at age 62 (age 65 for Tier 2) or when a combination of age and creditable service equals 80 (85 with the attainment of age 60 for Tier 2), unless the member elects to withdraw the employee contribution account in lieu of a deferred retirement benefit. In addition to the eligibility listed above, the term-vested member may choose an Early Retirement (minimum age of 55 for Tier 1 and 60 for Tier 2 and minimum service of 20 yrs) subject to the same reduction – reduced by ½ of 1% per month for each month (6% per year) retirement precedes normal retirement eligibility.

Amount - An amount computed as for normal retirement.

DISABILITY RETIREMENT

Eligibility - Eligibility requires 10 or more years of credited service and a disability that is total and permanent.

Amount - An amount computed as for normal retirement. Disability Retirement Benefits are offset, if the combination of all employer-provided benefits exceeds 100% of the members adjusted income base, then members pension benefit from TSRS is reduced so income does not exceed the 100% maximum allowed.

PRE-RETIREMENT SURVIVOR BENEFITS

Eligibility - 5 or more years of accrued service and not eligible to retire.

Amount - Lump sum payment equal to twice the member's contributions, with interest.

Eligibility - After attaining eligibility for retirement, in the event the member dies prior to submitting an application for retirement benefits:

Amount - If the member is married, a default provision allows the member's spouse to elect to receive either a lump sum payment of twice the member's contributions account, or receive a lifetime annuity benefit determined as if the member had elected a joint & last survivor benefit of 100% survivor annuity prior to death. If the member is not married and has named a single non-spousal beneficiary, the beneficiary may elect to receive either a lump sum payment of twice the member's contributions account, or receive a 15 year annuity benefit determined as if the member elected payment of a 15 year term certain annuity. If the member has named multiple designated beneficiaries, a lump sum refund of the member's account balance will be paid to the named beneficiaries.

OTHER TERMINATION BENEFITS

Eligibility - Termination of employment without eligibility for any other benefit.

Amount - Accumulated contributions and interest in members account at time of termination.

EMPLOYEE CONTRIBUTIONS

As of July 1, 2017, interest is credited to member accumulated contributions accounts as compound interest two times per year at an annual interest rate of 3.0%. For those hired prior to July 1, 2006, employee contributions are 5.00% of salary. For those hired between July 1, 2006 and June 30, 2011 (Tier I variable class) and for those hired after July 1, 2011 (Tier II variable class), employee contributions are 50% of the respective Normal Cost for each class, with a floor of 5.0%. The employee contributions for the Tier I and Tier II variable classes for FY 2024 are 7.19% and 5.59%, respectively, before application of the floor or roundup policy.

City Contributions

City Contributions are actuarially determined; which together with employee contributions and investment earnings will fund the obligations of the System in accordance with generally accepted actuarial principles. (please refer to the Funding Policy in Section I of this report).

Post-Retirement Adjustments

The TSRS Board has established formal policies to determine whether the system shall fund an annual supplemental post-retirement benefit payment to retired members and beneficiaries.

Exhibit E.4 Active Member Average Salary by Age and Service as of July 1, 2022								
Age	**Service**							
	0-4	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**Over 30**	**Total**
Under 20	$39,912	*	*	*	*	*	*	$39,912
20-24	$40,508	*	*	*	*	*	*	$40,508
25-29	$43,219	$47,425	*	*	*	*	*	$43,603
30-34	$45,223	$49,989	$44,827	*	*	*	*	$46,332
35-39	$50,397	$57,880	$58,705	$42,316	*	*	*	$53,228
40-44	$56,303	$54,688	$57,009	$60,085	$59,845	*	*	$56,824
45-49	$52,058	$55,615	$60,538	$58,789	$65,828	$60,860	*	$57,570
50-54	$55,001	$60,200	$58,726	$62,702	$64,341	$62,131	$69,739	$60,568
55-59	$52,021	$58,857	$61,151	$58,039	$64,035	$72,634	$71,656	$61,122
60-64	$53,573	$60,998	$51,060	$55,544	$65,028	$68,332	$74,260	$60,776
65-69	$66,229	$61,118	$62,596	$58,747	$63,965	$66,662	$81,770	$65,203
Over 70	*	$75,982	*	$65,562	*	*	$100,480	$75,765
Total	$49,121	56,883	57,667	58,758	64,088	66,625	76,938	$56,150

**Data excluded when cell contains less than five active members.*

Exhibit B.6
Tucson Supplemental Retirement System
Plan Experience for Fiscal Year 2022

	Liabilities	
1.	Actuarial Accrued Liability at June 30, 2021	$ 1,182,069,084
2.	Normal Cost during Fiscal Year 2022	16,270,543
3.	Benefit Payments during Fiscal Year 2022	(81,521,219)
4.	Interest on Items 1-3 to End of Year	80,461,062
5.	Change in Actuarial Accrued Liability Due to Assumption Changes	29,073,338
6.	Change in Actuarial Accrued Liability Due to Provision Changes	0
7.	Expected Actuarial Accrued Liability at June 30, 2022	1,226,352,808
8.	Actual Actuarial Accrued Liability at June 30, 2022	1,214,166,437
9.	Liability Gain/(Loss)	12,186,371
	Assets	
10.	Actuarial Value of Assets at June 30, 2021	$ 899,536,769
11.	Benefit Payments and Administrative Expenses during Fiscal Year 2022	(82,223,168)
12.	Contributions during Fiscal Year 2022	51,118,025
13.	Interest on Items 10-12 to End of Year	61,878,894
14.	Expected Actuarial Value of Assets at June 30, 2022	930,310,520
15.	Actual Actuarial Value of Assets at June 30, 2022	928,893,285
16.	Asset Gain/(Loss)	(1,417,235)
	Total	
17.	Total Gain/(Loss)	**$ 10,769,136**

STATISTICAL SECTION

Discussion of Statistical Section

This section of the Tucson Supplemental Retirement System's comprehensive annual financial report (CAFR) provides detailed financial and non-financial information, often considered relevant to users. The statistical section presents certain information on a trend basis; that is, a summary of information that is provided for each year in a ten-year period. Other non-trend schedules present demographic and participation information for our active and retired membership. Each schedule is defined below with an explanation and an identification of the source of the data.

Statement of Changes in Plan Net Position
This schedule provides the additions and deductions to the plan for the past ten years. The change in net position is provided to illustrate whether or not sufficient resources are available in the current fiscal year to cover plan benefits. This schedule is developed using the Statements of Changes in Plan Net Position for the past ten years.

Retired Members by Type of Benefit
This schedule provides the number of retired members by type of benefit. The TSRS plan benefits include payments for normal retirement benefits, disability benefits, survivor benefits, and term certain benefits paid to members, beneficiaries and alternate payees. The schedule is developed using TSRS' database.

Average Monthly Benefit Payments to New Retirees
This schedule provides the average monthly benefit payments made to new retirees, using six ranges of years of credited service by year. This information is provided to illustrate changes in benefit payments as the amount of service earned increases and indicates the number of employees retired during each of the last 10 years. This schedule is developed using TSRS' database.

Demographics of Retired and Active Members
This schedule provides the age demographics of all retirees, survivors and beneficiaries of retired members for this year only. Similarly, age demographics for the systems active membership are indicated as well as the relative composition of membership categorized by Tier. This schedule is developed using TSRS' membership database.

Employee and Employer Contribution Rates
This schedule provides the contribution rates paid by the Plan sponsor and by City employees during the past 10 years. This schedule is a historical summary of the actual rates paid.

Benefit and Refund Deductions from Net Position by Type
This schedule provides the benefits paid to all service and disability retirees during each of the last 10 years. In addition, the lump sum payments to members elected to participate in the End of Service program since 2007 and refunds associated with member deaths, separation from service and transfers to other retirement systems are summarized. This schedule is developed using the Statements of Changes in Plan Net Position for the past ten years.

Retiree Benefit by Age and Service Summaries
These schedules indicates average retiree benefits paid to retirees, based on the number of years retired, indicating eight age categories and the years of credited service served. These schedules are developed using TSRS' membership database.

Statement of Changes in Net Plan Position – Last Ten Fiscal Years

For the Fiscal Years Ending June 30,

	2022	2021	2020	2019	2018
Additions					
City Contributions	$ 42,789,191	$34,821,399	$34,830,264	$32,589,204	$ 31,795,197
Employee Contributions	7,437,163	6,701,641	6,693,918	6,249,028	6,075,912
Purchase of Service	891,671	1,134,449	1,097,992	1,530,449	2,485,835
Contributions from Other Sources	-	-	-	-	-
Transfers from Other Systems	-	-	-	-	-
Total Contributions	$ 51,118,025	$42,657,489	$42,622,174	$40,368,681	$ 40,356,944
Investment Income					
Net Gain (Loss) in Fair Value of Investments	$(125,240,577)	$212,240,155	$29,271,833	$40,085,019	$65,251,196
Interest	4,416,770	3,757,169	3,178,952	6,493,541	5,934,621
Dividends	6,498,622	6,274,149	6,528,950	8,023,227	6,913,192
Securities Lending Income	145,524	100,028	171,290	129,014	136,768
Miscellaneous Income	134,445	94,881	65,201	46,065	113,278
Net Income from Investment Activity	$(114,045,216)	$222,466,382	$39,216,226	$54,749,865	$78,349,055
Less Investment Expenses:					
Securities Lending Fees	$ 36,486	$ 39,986	$ 42,781	$ 51,579	$54,675
Investment Services	5,129,422	4,621,857	6,264,030	4,879,176	8,596,792
Total Investment Expense	$ 5,165,908	$ 4,661,843	$ 6,306,811	$ 4,930,755	$8,651,467
Net Investment Gain/(Loss)	$(119,211,124)	$217,804,539	$32,909,415	$49,819,110	$69,697,588
Total Additions	$ (68,093,099)	$260,462,028	$75,311,589	$90,187,791	$110,054,532
Deductions					
Benefits	$ 79,494,496	$77,754,958	$76,471,458	$74,928,771	$72,445,792
Refunds	1,948,749	1,810,139	1,788,219	1,657,445	3,172,406
Transfers to Other Systems	77,974	3,192	39,000	-	-
Administrative Expenses	701,949	684,967	644,408	652,065	745,753
Miscellaneous Deductions	-	-	-	-	-
Total Deductions	$ 82,223,168	$80,253,256	$77,243,093	$77,238,281	$76,363,951
Net Change in Plan Net Position	**$(150,316,267)**	**$180,208,772**	**$(3,411,496)**	**$12,949,510**	**$33,690,581**

Statement of Changes in Net Plan Position – Last Ten Fiscal Years (continued)

	For the Fiscal Years Ending June 30,				
	2017	**2016**	**2015**	**2014**	**2013**
Additions					
City Contributions	$ 31,823,694	$33,175,307	$33,985,523	$34,189,288	$34,523,315
Employee Contributions	6,115,389	6,300,714	6,512,180	6,636,833	9,200,262
Purchase of Service	1,258,421	755,299	1,019,665	701,711	1,014,301
Contributions from Other Sources	-	-	-	-	-
Transfers from Other Systems	65,255	27,372	-	-	-
Total Contributions	$ 39,262,759	$40,258,692	$41,517,368	$41,527,832	$44,737,878
Investment Income					
Net Gain (Loss) in Fair Value of Investments	$89,165,007	$8,758,641	$22,467,139	$111,063,362	$73,705,613
Interest	6,638,087	6,649,353	6,393,666	5,901,539	4,174,559
Dividends	6,050,746	6,408,886	5,915,832	6,786,728	7,158,084
Securities Lending Income	142,453	148,059	163,140	134,036	184,733
Miscellaneous Income	189,575	105,713	20,783	91,630	98,400
Net Income from Investment Activity	$102,185,868	$22,070,652	$34,960,560	$123,977,295	$85,321,389
Less Investment Expenses:					
Securities Lending Fees	$ 56,952	$ 59,201	$ 65,676	$ 54,589	$ 78,604
Investment Services	4,261,291	3,937,354	4,092,449	4,022,476	3,805,861
Total Investment Expense	$ 4,318,243	$ 3,996,555	$ 4,158,125	$ 4,077,065	$ 3,884,465
Net Investment Gain	$ 97,867,625	$ 18,074,097	$30,802,435	$119,900,230	$ 81,436,924
Total Additions	$137,130,384	$ 58,332,789	$72,319,803	$161,428,062	$126,174,802
Deductions					
Benefits	$ 71,059,090	$ 67,910,496	$65,216,458	$63,477,074	$62,191,480
Refunds	2,147,211	2,499,342	2,395,893	2,524,939	2,631,221
Transfers to Other Systems	6,856	35,912	-	-	-
Administrative Expenses	756,268	786,028	650,405	735,739	689,252
Miscellaneous Deductions	901	111,679	-	-	-
Total Deductions	$ 73,970,326	$ 71,343,457	$68,262,756	$66,737,752	$65,511,953
Net Change in Plan Net Position	**$ 63,160,058**	**$(13,010,668)**	**$ 4,057,047**	**$94,690,310**	**$60,662,849**

Retired Members by Type of Benefit

Amount of Monthly Benefit		Number of Retirees	Type of retirement: 1	2	3	4
$ 1	$ 250	42	32	9	1	-
251	500	166	112	31	8	15
501	750	244	159	54	25	6
751	1,000	228	139	61	22	6
1,001	1,250	293	206	61	23	3
1,251	1,500	233	183	36	12	2
1,501	1,750	270	232	24	14	-
1,751	2,000	278	251	19	8	-
2,001	2,250	237	219	13	5	-
2,251	2,500	230	216	11	3	-
2,501	2,750	185	178	6	1	-
2,751	3,000	147	144	2	1	-
3,001	3,250	121	117	4	-	-
3,251	3,500	66	63	3	-	-
3,501	3,750	76	74	2	-	-
3,751	4,000	64	62	2	-	-
4,001	4,250	50	49	1	-	-
4,251	4,500	45	45	-	-	-
4,501	or more	202	199	3	-	-
		3,177	2,680	342	123	32

1 Normal Retirement
2 Beneficiary Payment, normal retirement
3 Disability Retirement
4 Beneficiary Payment, disability retirement

Amount of Monthly Benefit		Number of Retirees	Benefit option selected: 1	2	3	4	5	6	7
$ 1	$ 250	42	28	-	-	1	5	2	6
251	500	166	98	1	1	3	20	8	35
501	750	244	132	-	2	3	45	12	50
751	1,000	228	111	-	2	1	52	18	44
1,001	1,250	293	134	-	-	-	41	35	83
1,251	1,500	233	104	-	1	2	43	33	50
1,501	1,750	270	117	1	1	3	48	31	69
1,751	2,000	278	122	1	2	4	47	41	61
2,001	2,250	237	100	1	5	3	56	27	45
2,251	2,500	230	96	-	-	1	54	23	56
2,501	2,750	185	90	-	2	2	29	16	46
2,751	3,000	147	80	-	1	-	17	17	32
3,001	3,250	121	50	-	-	3	17	10	41
3,251	3,500	66	30	-	1	-	12	8	15
3,501	3,750	76	37	-	-	-	12	7	20
3,751	4,000	64	35	-	-	1	4	5	19
4,001	4,250	50	23	-	-	1	6	6	14
4,251	4,500	45	26	-	1	-	5	4	9
4,501	or more	202	99	1	1	2	27	31	41
		3,177	1,512	5	20	30	540	334	736

1 Lifetime benefit for member only
2 Remainder of 5-Year Term pays beneficiary
3 Remainder of 10-Year Term pays beneficiary
4 Remainder of 15-Year Term pays beneficiary
5 Beneficiary receives 50% for life
6 Beneficiary receives 75% for life
7 Beneficiary receives 100% for life

Average Monthly Payments to New Retirees

Retirement Effective Dates For Fiscal Years Ending June 30:	Years of credited service: <5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	>30
2022							
Avg monthly benefit	n/a	$688	$941	$1,480	$2,286	$3,143	$4,446
Avg monthly final avg comp	n/a	5,227	3,768	3,968	4,735	5,500	6,025
2021							
Avg monthly benefit	n/a	$712	$1,068	$1,707	$2,171	$3,012	$4,534
Avg monthly final avg comp	n/a	5,228	4,217	4,715	4,709	5,377	6,143
2020							
Avg monthly benefit	n/a	$548	$923	$1,720	$2,100	$3,045	$3,851
Avg monthly final avg comp	n/a	3,606	3,608	4,564	4,476	5,242	5,580
2019							
Avg monthly benefit	n/a	$515	$1,117	$1,337	$2,047	$2,902	$3,953
Avg monthly final avg comp	n/a	3,551	3,869	3,558	4,339	4,910	5,683
2018							
Avg monthly benefit	n/a	$543	$929	$1,409	$2,116	$3,431	$3,422
Avg monthly final avg comp	n/a	3,774	3,386	3,919	4,512	5,671	5,290
2017							
Avg monthly benefit	n/a	599	1,184	1,540	2,368	2,812	4,236
Avg monthly final avg comp	n/a	3,747	4,078	4,409	5,164	4,810	6,099
2016							
Avg monthly benefit	n/a	677	1,001	1,439	2,155	2,868	3,854
Avg monthly final avg comp	n/a	3,829	4,076	3,883	4,465	4,977	5,660
2015							
Avg monthly benefit	n/a	803	1,077	1,670	2,202	2,968	3,864
Avg monthly final avg comp	n/a	5,267	3,679	4,698	4,645	5,118	5,506
2014							
Avg monthly benefit	n/a	635	1,024	1,665	2,364	2,693	4,188
Avg monthly final avg comp	n/a	4,040	4,005	4,255	4,870	4,617	6,061
2013							
Avg monthly benefit	507	578	1,275	1,669	2,060	2,956	3,876
Avg monthly final avg comp	5,609	3,077	4,497	4,121	4,041	4,680	5,124

Demographics of Retired and Active Members

Retired Members

	Retirees			Survivor/Beneficiaries		
Ages	Female	Male	Total	Female	Male	Total
<55	20	10	30	9	2	11
55 - 59	65	48	113	7	1	8
60 - 64	187	181	368	24	0	24
65 - 69	297	378	675	43	7	50
70 - 74	260	452	712	54	3	57
75 - 79	175	316	491	56	6	62
80 - 84	91	149	240	76	3	79
85 - 89	42	79	121	50	5	55
90 - 94	17	26	43	19	0	19
95 - 100	4	4	8	7	1	8
101+	0	2	2	1	0	1
Total	1,158	1,645	2,803	346	28	374

Active Members

	Active Members			Percentage Distribution		
Ages	Female	Male	Total	Female	Male	Total
<20	6	6	12	0.23%	0.23%	0.46%
20 - 29	123	119	242	4.72%	4.57%	9.29%
30 - 39	231	261	492	8.87%	10.02%	18.89%
40 - 49	251	397	648	9.64%	15.24%	24.88%
50 - 59	328	450	778	12.59%	17.27%	29.87%
60 - 69	145	257	402	5.57%	9.87%	15.43%
70+	11	20	31	0.42%	0.77%	1.19%
Total	1,095	1,510	2,605	42.03%	57.97%	100.00%

Active Members by Tier

	Members	Payroll	% Payroll
Tier 1 - (Fixed Contribution Rate)	786	50,759,946	34.71%
Tier 1 - (Variable Contribution Rate	215	12,396,904	8.48%
Tier 2 - (Variable Contribution Rate	1,604	83,078,882	56.81%
	2,605	146,235,731	100.00%

Employee and Employer Contribution Rates

Fiscal Year		Employee Rate (percentage)		Employer Rate (percentage)		Total Contribution (percentage)
		Fixed	Variable	Fixed	Variable	
08/09		5.0	7.788	14.47	11.682	19.47
09/10		5.0	8.852	17.13	13.278	22.13
10/11		5.0	9.428	18.57	14.142	23.57
11/12		5.0	11.62	24.05	17.43	29.05
12/13		5.0	13.976	29.94	20.964	34.94
13/14	Tier I	5.0		27.32		32.32
13/14	Tier I		6.715		25.61	32.32
13/14	Tier II		5.06		27.26	32.32
14/15	Tier I	5.0		27.22		32.22
14/15	Tier I		6.67		25.55	32.22
14/15	Tier II		5.14		27.08	32.22
15/16	Tier I	5.0		27.23		32.23
15/16	Tier I		6.62		25.61	32.23
15/16	Tier II		4.91		27.32	32.23
16/17	Tier I	5.0		27.23		30.69
16/17	Tier I		6.6		25.61	30.69
16/17	Tier II		4.89		27.32	30.69
17/18	Tier I	5.0		25.93		30.93
17/18	Tier I		6.55		24.38	30.93
17/18	Tier II		4.89		26.04	30.93
18/19	Tier I	5.0		23.59		28.59
18/19	Tier I		6.50		22.09	28.59
18/19	Tier II		4.85		23.74	28.59
19/20	Tier I	5.0		22.06		27.06
19/20	Tier I		6.42		20.64	27.06
19/20	Tier II		4.78		22.28	27.06
20/21	Tier I	5.0		25.05		30.05
20/21	Tier I		6.95		23.10	30.05
20/21	Tier II		5.33		24.72	30.05
21/22	Tier I	5.0		24.45		29.45
21/22	Tier I		6.91		22.54	29.45
21/22	Tier II		5.33		24.12	29.45

Benefit and Refund Deductions from Net Position by Type

	Fiscal years ending June 30,				
	2022	2021	2020	2019	2018
Type of Benefit					
Service Benefits:					
Retirees	$ 71,599,666	$ 70,477,282	$ 69,469,361	$ 67,849,255	$ 65,869,174
Survivors[1]	5,744,912	5,024,402	4,642,027	4,668,534	4,153,521
Disability Benefits:					
Retirees	1,761,409	1,849,215	1,933,581	1,994,171	2,047,349
Survivors	388,508	404,059	426,490	416,811	375,748
Total Benefits	$ 79,494,495	$ 77,754,958	$ 76,471,458	$ 74,928,772	$ 72,445,792
Type of Refund					
Death	$ 378,955	$ 465,088	$ 447,942	$ -	$ 564,206
Separation	1,569,795	1,345,051	1,340,278	1,657,445	2,519,896
Transfers	77,974	3,192	39,000	-	88,304
Total Refunds	$ 2,026,724	$ 1,813,331	$ 1,827,219	$ 1,657,445	$ 3,172,406

[1] Includes Death in service pension benefits

Source: Budget to Actual Report by Unit.

Benefit and Refund Deductions from Net Position by Type - Continued

	Fiscal years ending June 30,				
	2017	2016	2015	2014	2013
Type of Benefit					
Service Benefits:					
Retirees	$ 64,773,949	$ 61,959,726	$ 59,384,728	$ 57,542,260	$ 56,406,478
Survivors[1]	3,863,588	3,550,465	3,422,222	3,533,539	3,397,302
Disability Benefits:					
Retirees	2,056,530	2,033,977	2,035,754	2,082,396	2,066,746
Survivors	365,023	366,328	373,754	318,879	320,954
Total Benefits	$ 71,059,090	$ 67,910,496	$ 65,216,458	$ 63,477,074	$ 62,191,480
Type of Refund					
Death	$ 231,486	$ 699,603	$ 316,820	$ 212,489	$ 316,495
Separation	1,389,082	1,158,825	1,937,365	1,871,535	2,281,823
Transfers	533,499	676,826	141,708	440,915	32,903
Total Refunds	$ 2,154,067	$ 2,535,254	$ 2,395,893	$ 2,524,939	$ 2,631,221

[1] Includes Death in service pension benefits

Source: Budget to Actual Report by Unit.

Retiree Benefit by Age and Service
Summaries

Total Monthly Benefit	# of Retirees [2]	Age as of June 30, 2021							
		<55	56 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85+
1,180,564	517	29	83	161	185	42	11	2	4
1,244,099	590	5	26	146	210	162	28	7	6
1,757,669	752	6	5	75	218	280	148	18	7
1,452,078	648	-	3	5	88	226	214	94	18
610,177	355	1	3	4	19	54	126	103	45
232,362	171	-	-	1	3	8	18	69	72
176,635	144	-	1	-	2	2	8	26	105
6,653,585	3,177	41	121	392	725	774	553	319	257

Total Monthly	# of Retiree	Years of Credited Service		
		<10	10-19	20+
1,180,564	517	103	105	309
1,244,099	590	179	124	287
1,757,669	752	100	125	532
1,452,078	648	89	112	447
610,177	355	57	89	209
232,362	171	23	35	113
176,635	144	29	28	87
6,653,585	3,177	580	618	1,984