North Dakota Teachers' Fund For Retirement

NDTFFR Board Meeting AGENDA

Thursday, April 23, 2020 – 1:00 p.m.

Due to public health considerations and in accordance with Executive Order 2020-16, a meeting room will not be available to the public.

Conference Call: 328.7950 Participant Code: 696855

1. **Call to Order and Approval of Agenda** – Pres. Lech (Action)
2. **Approval of Minutes of January 23, 2020 Board Meeting** – Pres. Lech (Action) 5 min.
3. **2019 Experience Study Report –** Segal (Action) 60 min.
4. **Investment and Economic Update –** Dave Hunter (Information) 30 min.
5. **Asset Liability Study Planning** – Fay Kopp (Action) 15 min.
6. **2021 Legislative Planning** – Fay Kopp (Information) 5 min.
7. **TFFR Program Operations (COVID-19) –** Fay Kopp (Information) 10 min.
8. **Board Governance Policies, 1ST Reading –** Fay Kopp and Cody Mickelson (Action) 20 min.
9. **TFFR Pension Admin. System Project Update –** Rich Nagel and Fay Kopp (Information) 5 min.
10. **Retiree Benefit Payment Incident** – Fay Kopp (Information) 5 min.
11. **Annual Pension Plan Comparison Report** – Fay Kopp (Action) 5 min.
12. **Annual Retirement Ends & Statistics Report** – Fay Kopp (Action) 5 min.
13. **Annual Retirement Trends Report –** Fay Kopp (Action) 5 min.
14. **Consent Agenda – Disability #2020-3D -** Fay Kopp (Action) 5 min.
    **Executive Session possible if Board discusses confidential information pursuant to NDCC 15-39.1-30.*
15. **2020-21 Board Meeting Schedule** – Fay Kopp (Information) 5 min.
16. **RIO Staffing Update –** Dave Hunter (Information) 10 min.
17. **Other Business**
18. **Adjournment**

Any individual requiring an auxiliary aid or service should contact the Retirement and Investment Office (RIO) at 701-328-9885 at least three (3) days prior to the scheduled meeting.

North Dakota Teachers' Fund For Retirement

EXECUTIVE SUMMARY

TFFR Board Meeting

April 23, 2020 – 1 pm

- The **April Board Meeting will be held via video conference.** The board member video link is included in the calendar invite for the meeting. There will be a call-in number for the public since the RIO office is not open to the public.

- Segal will present the results of the **2014-2019 Experience Review**. Segal recommendations would reduce TFFR's inflation assumption from 2.75% to 2.30%; reduce the investment return assumption from 7.75% to 7.25%; adopt new public teacher mortality tables; and make minor changes to salary scale assumption, and retirement, termination, and disability rates. Overall, the actuarial assumption changes recommended by Segal would increase TFFR plan costs by about $53 million. TFFR's funding level would decrease by less than 1% from 66.0% to 65.1%. TFFR Plan Management Policy Score would increase from 6 to 7. The Board will have to decide whether to adopt all, none, or some of Segal's recommendations.

- Dave will provide an **Investment and Economic Update**. He will also comment on the potential impact the stock market financial crisis is having on TFFR's investment portfolio. TFFR's estimated fiscal year-to-date performance is about -4% as of 4.15.20 with significant market volatility. Between the coronavirus pandemic, decline in oil prices, and economic meltdown, TFFR (like other investors) should expect challenging times ahead.

- TFFR's 5- year **Asset Liability Study** is scheduled for 2020. By law, TFFR is required to use RIO staff and consultants to conduct the study. The Board will need to discuss selection of the consultant to perform the study.

- Based on discussion at the January meeting, the Board did not submit any legislative proposals for interim study by the Legislative Employee Benefits Programs Committee for the **2021 legislative session**.

- Fay will provide a brief update on **TFFR program operations and COVID-19.** Retirement operations are fully functional with retiree payroll, claims processing activities, and member and employer services being the highest priority.

- After nearly a year of work by the TFFR Governance and Policy Review Committee, Cody Mickelson and Fay Kopp will provide a brief Introduction and 1st Reading of the **revised TFFR Board Governance Policies** which are intended to replace, clarify and enhance existing governance practices.

- **TFFR Pension Administration System Modernization Project** planning meetings continue with emphasis on the large IT project procurement process and development of an RFP for a business consultant to assist with business process reengineering, procurement and implementation of the software solution. Executive Steering Committee meetings have been scheduled, and Rich Nagel will replace Fay Kopp as TFFR Project Sponsor until a new Deputy Executive Director-Chief Retirement Officer is hired.

- Fay will briefly comment on the **Annual Pension Plan Comparison Report**, **Annual TFFR Ends and Statistics Report** and **Annual TFFR Retirement Trends and Projections Report.** The reports will not be presented in full this year, although questions and comments are welcome.

- The Board may wish to consider scheduling another **Board meeting in May or June 2020**, as the next regular meeting is not until July 23, 2020.

- Dave will give a **RIO Staffing Update** providing the current status of the vacant **Deputy Executive Director – Chief Retirement Officer** position resulting from Fay Kopp's retirement on April 30, and the vacant **TFFR Retirement Programs Specialist** position resulting from the promotion of Denise Weeks to **TFFR Retirement Program Manager** after Shelly Schumacher's retirement earlier this year.

NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT
MINUTES OF THE
JANUARY 23, 2020, BOARD MEETING & RETREAT

BOARD MEMBERS PRESENT:	Rob Lech, President Mike Burton, Vice President Toni Gumeringer, Trustee Cody Mickelson, Trustee Mel Olson, Trustee Kelly Schmidt, State Treasurer
BOARD MEMBER ABSENT:	Kirsten Baesler, State Supt. DPI
STAFF PRESENT:	David Hunter, ED/CIO Fay Kopp, Deputy ED/CRO Missy Kopp, Retirement Assistant Sara Sauter, Internal Audit Supvr Shelly Schumacher, Retirement Program Mgr Dottie Thorsen, Internal Auditor
OTHERS PRESENT:	Donna Fishbeck, DPI Nici Meyer, Attorney General's Office Matt Strom, Segal (Tlcf)

CALL TO ORDER:

Dr. Rob Lech, President of the Teachers' Fund for Retirement (TFFR) Board of Trustees, called the meeting to order at 8:30 a.m. on Thursday, January 23, 2020, at the Radisson Hotel, Renoir Russell Room, Bismarck, ND.

THE FOLLOWING MEMBERS WERE PRESENT REPRESENTING A QUORUM: MR. BURTON, MS. GUMERINGER, PRES. LECH, MR. MICKELSON, MR. OLSON AND TREASURER SCHMIDT.

ACCEPTANCE OF AGENDA:

The Board considered the agenda for the January 23, 2020, meeting.

IT WAS MOVED BY MR. OLSON AND SECONDED BY MS. GUMERINGER AND CARRIED BY A VOICE VOTE TO APPROVE THE AGENDA AS DISTRIBUTED.

AYES: TREASURER SCHMIDT, MR. BURTON, MR. MICKELSON, MS. GUMERINGER, MR. OLSON, AND PRES. LECH
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

MINUTES:

The Board considered the minutes of the October 24, 2019, meeting.

IT WAS MOVED BY MS. GUMERINGER AND SECONDED BY MR. MICKELSON AND CARRIED BY A VOICE VOTE TO APPROVE THE OCTOBER 24, 2019, MINUTES AS DISTRIBUTED.

AYES: MR. MICKELSON, MR. OLSON, TREASURER SCHMIDT, MR. BURTON, MS. GUMERINGER, AND PRES. LECH
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

2019 GASB 67 & 68 REPORT:

Mr. Matt Strom, Segal, reviewed the Governmental Accounting Standards Board (GASB) 67 and 68 report as of June 30, 2019. The GASB report is used by TFFR participating employers and their auditors to fulfill certain accounting and disclosure requirements for their financial statements.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. OLSON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE 2019 GASB 67 & 68 REPORT.

AYES: TREASURER SCHMIDT, MS. GUMERINGER, MR. OLSON, MR. BURTON, MR. MICKELSON, AND PRES. LECH
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

2019 PLAN MANAGEMENT POLICY REPORT:

Mr. Strom reviewed the 2019 Plan Management Policy Report. The composite summary score is equal to 6 which means the Board should continue to monitor the plan. The summary score has not changed from last year's valuation results. However, the summary score will be updated based on the results of the experience study currently in progress.

The July 1, 2019 Policy Score is determined on the basis of the June 30, 2019 valuation and the Horizon Actuarial Services, LLC *Survey of Capital Market Assumptions (CMAs) (2019 Edition).* Investment simulation based on CMAs show long-term geometric return slightly lower than the current assumption (7.5% versus 7.75%).

For the most part, the probabilities on which the scoring is based remained similar to the prior analysis.

Board discussion followed.

IT WAS MOVED BY MR. OLSON AND SECONDED BY MR. BURTON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE 2019 PLAN MANAGEMENT POLICY REPORT.

AYES: MS. GUMERINGER, MR. BURTON, MR. MICKELSON, MR. OLSON, TREASURER SCHMIDT, AND PRES. LECH
NAYS: NONE

MOTION CARRIED
ABSENT: SUPT. BAESLER

PLAN MANAGEMENT POLICY CORRECTION:

Ms. Kopp provided information on a correction to the Plan Management Policy (PMP). At the September 2019 meeting (1st reading), the Board reviewed a draft PMP which included Section VII, Outside Factors. For the October 2019 meeting (2nd reading and final approval), an earlier version was inadvertently used which did not include Section VII, Outside Factors. Ms. Kopp requested the policy, which was approved in October, be corrected.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MS. GUMERINGER AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE CORRECTED PLAN MANAGEMENT POLICY.

AYES: MR. OLSON, MR. MICKELSON, MS. GUMERINGER, TREASURER SCHMIDT, MR. BURTON, AND PRES. LECH
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

BENEFIT APPEAL #2019-1A:

Pres. Lech stated that Benefit Appeal 2019-1A must be discussed in Executive Session. The purpose of the Executive Session is to discuss confidential member information and for attorney consultation to review and approve a proposed order regarding the appeal. The legal authority for closing this portion of the meeting is NDCC 15-39.1-30, NDCC 44-04-19.1 and NDCC 44-04-19.2.

Executive Session began at 9:05 a.m. and ended at 9:22 a.m. It was attended by the TFFR Board, RIO staff members, and TFFR legal counsel Nici Meyer.

IT WAS MOVED BY MR. OLSON AND SECONDED BY MS. GUMERINGER AND CARRIED BY A ROLL CALL VOTE TO ADOPT THE AMENDED RECOMMENDED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER FOR TFFR BENEFIT APPEAL 2019-1A.

AYES: MR. BURTON, MS. GUMERINGER, MR. OLSON, TREASURER SCHMIDT, MR. MICKELSON, AND PRES. LECH
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

INVESTMENT UPDATE:

Mr. Hunter provided an interim investment update for the periods ending September 30 and November 30, 2019. TFFR earned a net investment return of 15.9% for the 11 months ended November 30, 2019, largely due to favorable capital market and economic conditions in 2019.

TFFR underperformed its Policy Benchmark in Fiscal 2019. Despite this, TFFR’s net returns for the 3, 5, and 10-years ended June 30, 2019, generally exceeded its Policy Benchmark by over 0.50%.

Board discussion followed regarding ways to simplify investment presentations, communicate that TFFR is a long-term investor, and explain the difference between personal and institutional investment programs. The Board recessed at 10:40 a.m. and reconvened at 11:00 a.m.

BOARD EDUCATION – RETIREE REEMPLOYMENT:

Ms. Schumacher provided education on retiree reemployment, including the general rule, critical shortage, and benefit suspension and recalculation options. Board discussion followed.

2018-19 REEMPLOYED RETIREE REPORT:

Ms. Schumacher reviewed the 2018-19 Reemployed Retiree Report. The total number of reemployed retirees was 336 out of a total of 8,918 retirees or 4%. 132 of 213 employers employed TFFR retirees. Total salaries earned by reemployed retirees was $8.6 million or about $26,025 per retiree.

Board discussion followed.

IT WAS MOVED BY MR. BURTON AND SECONDED BY MR. MICKELSON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE 2018-19 REEMPLOYED RETIREE REPORT.

AYES: MS. GUMERINGER, MR. MICKELSON, TREASURER SCHMIDT, MR. BURTON, MR. OLSON, AND PRES. LECH
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

LEGISLATIVE PLANNING:

Ms. Kopp reviewed the 2021 legislative planning timeline, TFFR member statistics, tier membership, contribution rates, investment performance, and funding background information. The Plan Management Policy that is now in place will help the Board better determine if changes need to be made to the plan. Based on the current score, the Board should continue to closely monitor TFFR funding.

Ms. Kopp presented potential legislative topics for discussion including contribution changes, benefit changes, retiree benefit increase, retiree reemployment provisions, and other plan design or administrative changes. Ms. Kopp noted that no Internal Revenue Code compliance changes are required in 2021, however changes will be required in 2023 to comply with a federal law change (SECURE Act approved in December 2019) that increases the required minimum distribution age from age 70.5 to age 72. Additional IRS guidance is expected to assist plans in complying with these new rules.

Board discussion followed. At this time, the Board does not intend to submit any proposed legislative changes for the 2021 legislative session.

PENSION ADMINISTRATION SYSTEM (PAS) PROJECT CHARTER:

Ms. Kopp provided an update on the PAS Executive Steering Committee (ESC) meeting held on January 21, 2020. During the meeting, the ESC discussed their roles and responsibilities and approved the project charter.

IT WAS MOVED BY MR. MICKELSON AND SECONDED BY MR. BURTON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE PAS PROJECT CHARTER.

AYES: MR. BURTON, MS. GUMERINGER, MR. OLSON, TREASURER SCHMIDT, MR. MICKELSON, AND PRES. LECH
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

CORE VALUES APPROVAL:

In October, a core values survey was sent to Board members and Retirement and Investment Office (RIO) staff to gather their perspective regarding the values that guide TFFR.

Using survey feedback, two variations of the core values were developed and considered by the Board. After discussion,

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. OLSON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE FOLLOWING TFFR CORE VALUES STATEMENT:

"Customer Satisfaction and Commitment to Excellence which is demonstrated by our trustworthiness, accountability, and respectfulness.

Strong Governance and Operational Effectiveness through our strategic leadership, fiduciary responsibility, ethical practices, and transparency."

AYES: MR. BURTON, MR. MICKELSON, MR. OLSON, TREASURER SCHMIDT, AND PRES. LECH
NAYS: MS. GUMERINGER
MOTION CARRIED
ABSENT: SUPT. BAESLER

2019 CAFR, PPCC AWARD, & TFFR FAST FACTS:

Ms. Kopp informed the Board that the 2019 RIO Comprehensive Annual Financial Report (CAFR) has been completed. RIO has been awarded a Certificate of Achievement for Excellence in Financial Reporting for the past 21 years from the Government Finance Officers Association (GFOA).

Ms. Kopp noted that TFFR has also received the Public Pension Coordinating Council (PPCC) 2019 Public Pension Standards Award for administration. TFFR has received the award for administration and/or funding from PPCC since 1992.

The 2019 TFFR Fast Facts infographic has been updated and is available on the RIO website. The one-page summary provides key actuarial, financial, and investment details about the TFFR plan.

Ms. Kopp thanked Ms. Connie Flanagan, Ms. Schumacher and other staff for their efforts.

AUDIT SERVICES UPDATE:

Ms. Sauter provided an update of audit activities for the first quarter, July 1, 2019 – September 30, 2019. Internal Audit (IA) has completed the Executive Limitation Audit and Investment Due Diligence Audit. IA provided support to CliftonLarsonAllen (CLA) during the GASB 68 Census Data Audits. The Administrative Expense Audit is currently in progress. For the retirement program, there are three completed Employer audits with one in progress. The audit fieldwork for the File Maintenance Audit has been completed and a report will be issued.

RIO STAFFING UPDATE:

Mr. Hunter provided an update on staffing at RIO. Ms. Kopp previously announced her retirement effective on March 31, 2020. Ms. Schumacher, Retirement Program Manager, has announced her retirement effective February 29, 2020. RIO management and SIB and TFFR leadership met to discuss the best ways to move forward. The Deputy Executive Director/Chief Retirement Officer position was posted externally on January 9 and there have been several applications to this point. The Retirement Program Manager position was posted internally on January 10 and there was one applicant. An interview with that internal candidate will be conducted by January 30, 2020.

The new Investment and Compliance Officer will start on February 3, 2020. The vacant Investment Accountant position has been reposted. Board discussion followed.

2020-21 BOARD CALENDAR:

Ms. Kopp presented a draft board meeting schedule for 2020-21.

IT WAS MOVED BY MR. BURTON AND SECONDED BY MR. OLSON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE 2020-21 BOARD CALENDAR.

AYES: TREASURER SCHMIDT, MR. OLSON, MR. BURTON, MR. MICKELSON, MS. GUMERINGER, AND PRES. LECH.
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

<u>CONSENT AGENDA</u>:

Pres. Lech declared that there was a possible conflict of interest for himself on the Jamestown Public Schools Employer Reporting Review.

IT WAS MOVED BY TREASURER SCHMIDT AND SECONDED BY MR. BURTON AND CARRIED BY A ROLL CALL VOTE TO ALLOW PRES. LECH TO VOTE ON THE JAMESTOWN PUBLIC SCHOOL EMPLOYER REPORTING REVIEW REPORT.

AYES: MR. MICKELSON, TREASURER SCHMIDT, MR. BURTON, MS. GUMERINGER, AND MR. OLSON
NAYS: NONE
ABSTAIN: PRES. LECH
MOTION CARRIED
ABSENT: SUPT. BAESLER

IT WAS MOVED BY MR. BURTON AND SECONDED BY MR. OLSON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE CONSENT AGENDA WHICH INCLUDES EMPLOYER REPORTING REVIEWS (WILTON & JAMESTOWN), DISABILITY #2020-1 AND #2020-2 AND QDRO #2020-1 AND #2020-2.

AYES: MR. OLSON, MS. GUMERINGER, MR. MICKELSON, TREASURER SCHMIDT, MR. BURTON, AND PRES. LECH
NAYS: NONE
MOTION CARRIED
ABSENT: SUPT. BAESLER

The board recessed for lunch at 12:36 p.m. and reconvened at 1:34 p.m.

<u>RETREAT INTRODUCTION AND PURPOSE</u>:

Pres. Lech explained that the purpose for the retreat is to offer an opportunity for Board members to discuss ideas and better understand certain topics in a less formal setting.

<u>REVIEW OF MISSION, VISION, AND VALUE STATEMENTS</u>:

Pres. Lech informed the Board that this agenda item would be covered during the review of the revised governance manual.

PERSPECTIVES – DECISION-MAKING EXERCISE:

Pres. Lech presented information on examining multiple perspectives through the Four-Frame Model. The Four-Frame model provides a framework for decision-makers to reframe an issue to allow a better understanding of all perspectives. The Four Frames are: Structural, Human Resource, Political, and Symbolic. Board members and staff discussed the different frames and the need to be aware and respectful of all frames when making decisions.

REVISED BOARD GOVERNANCE MANUAL HIGHLIGHTS:

Mr. Mickelson, chair of the TFFR Governance and Policy Review Committee, presented highlights from the revised TFFR Board Governance Manual. Additional time will be scheduled for the March 26 Board meeting which will comprise the Introduction and 1st Reading of the Board policies. Prior to that time, the revised manual will be submitted to the Attorney General's Office for legal review. Board discussion followed.

BOARD EDUCATION COMPETENCIES:

Pres. Lech led the Board members through an exercise to examine the six Board education competencies: Contextual, Educational, Interpersonal, Analytical, Political, and Strategic. Board members discussed possible Board education topics within each competency area to consider for future Board meetings.

TFFR IMAGE – COMMUNICATION IDEAS:

Mr. Olson presented information about a way to change the image of the Fund. Mr. Olson shared that there is a common misconception that TFFR is a state funded retirement program, when in reality, the Fund is made up of a portion of educators' wage packages and investment earnings. Mr. Olson suggested using messaging to communicate this on different publications and other communications. Board discussion followed.

ADJOURNMENT:

With no further business to come before the Board, President Lech adjourned the meeting at 4:11 p.m.

Respectfully Submitted:

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Dr. Rob Lech, President
Teachers' Fund for Retirement Board

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Missy Kopp
Reporting Secretary

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board

FROM: Fay Kopp

DATE: April 16, 2020

SUBJ: Actuarial Experience Review
July 1, 2014 – June 30, 2019

Experience Study Overview

An Experience Study is the process by which actuaries develop new assumptions and/or adjust existing assumptions. Actuarial assumptions include economic assumptions like inflation, investment return, salary increase and payroll growth. Demographic assumptions include death, retirement, termination and disability. The Experience Study reviews the plan's actuarial assumptions to see how well they compare to actual experience. In addition to the review of historical data, the Experience Study also considers emerging trends and future expectations.

An Experience Study for TFFR is required by ND state statute and TFFR Board policy every five years. The last one was for the 2009-14 time period (presented in April 2015); this one covers the 2014-19 time frame (presented in April 2020).

Based on the results of the Experience Review and the Actuary's best estimate:

- Segal will recommend revised actuarial assumptions to the Board.
- TFFR Board must decide whether to adopt all, none, or some of Segal's recommendations.

Matt Strom, Kim Nicholl, and Noel Johnson, Segal, will be at the April TFFR Board meeting via video conference to present the results of the 2014-19 Experience Study, review their recommendations and cost impact, and answer questions related to the Experience Review.

Summary of Experience Study Recommendations and Cost Impact

Enclosed are the results of the TFFR Experience Review conducted by Segal for the 2014-2019 time frame. **The actuary's recommendations would reduce TFFR's inflation assumption from 2.75% to 2.30%; reduce the investment return assumption from 7.75% to 7.25%; slightly change the salary scale assumption related to the merit and seniority portion of salary increases; adopt new public teacher mortality tables with 2019 generational mortality improvement scale; and make other minor changes to retirement, termination, and disability rates.**

Overall, the actuarial assumption changes recommended by Segal would increase TFFR plan costs. Please note that some recommendations would result in cost decreases (i.e. adopt new public pension mortality tables with 2019 mortality improvement scale), while other recommendations would result in cost increases (i.e. reduce investment return assumption from 7.75% to 7.25%).

Based on the 2019 valuation, **IF** the TFFR Board adopts **ALL** demographic and economic assumption recommendations, **TFFR's funding level would decrease by less than 1%** (from 66.0% to 65.1%); **unfunded actuarial accrued liability (UAAL) would increase by $53.5 million** (from $1.358 billion to $1.411 billion); **actuarially determined contribution rate (ADC) would increase by 0.40%** (from 12.84% to 13.24%); and **effective amortization period would be extended about 2 more years** (from 24 years to 26 years). TFFR would then be projected to be 100% funded in approximately 2045 instead of 2043 if all assumptions were met. Additionally, TFFR's **Plan Management Policy Score would increase from 6 to 7** under the proposed assumptions.

IF all recommended assumptions are adopted by the Board, the revised assumptions would be used in the July 1, 2020 valuation report. The new assumptions would also need to be incorporated into all affected member calculations including, but not limited to, election of optional forms of benefit payment at retirement, service credit purchases and purchase payment schedules. TFFR's pension administration system (CPAS) will need to be updated to calculate benefit options and service purchases using new assumptions. Staff will work with Segal to calculate member impact and update actuarial tables and computer systems appropriately. Administrative rules will also need to be promulgated with updated actuarial assumptions, and changes will need to be communicated to members and employers.

BOARD ACTION:

Board Motion to adopt all, none, or some (be specific) of Segal's recommended assumptions presented in the 2014-19 TFFR Experience Review.

Segal will also comment on current market conditions and potential impact on TFFR funding.

North Dakota Teachers’ Fund for Retirement

Experience Review

July 1, 2014 through June 30, 2019

March 2020 / Matt Strom, FSA, MAAA, EA / Noel Johnson, FSA, MAAA, EA

Segal

Agenda

Overview

Economic Assumptions

Demographic Assumptions

Cost Impact

Overview: Purpose of an Experience Study

An experience study provides the basis for developing recommended assumptions to be used in the annual actuarial valuation

- Performed on a periodic basis, typically every five years
- Last TFFR experience study was conducted in 2015 for the 5-year period ending June 30, 2014
- Current study is based on the period July 1, 2014 through June 30, 2019

Actuarial Standards of Practice #27 and #35 provide guidance on best practices for performing assumption-setting analysis

- Each assumption should be "reasonable"

Segal's role is to make appropriate recommendations to the Board for each assumption

- The assumptions are the Board's assumptions and the Board can adopt all, none, or some of the recommendations of the actuary

Overview: How Assumptions Are Set

Review past experience (“actual”) and compare with assumptions (“expected”)

Determine trends – make judgments about the future

Develop component parts of each assumption

- Maintain linkage with investments
- Maintain internal consistency

Keep in mind:

- No “right” answer
- Assumptions are long-term

Overview: Actuarial Assumptions

Economic

- Inflation
- Investment return
- Salary increase
- Payroll growth

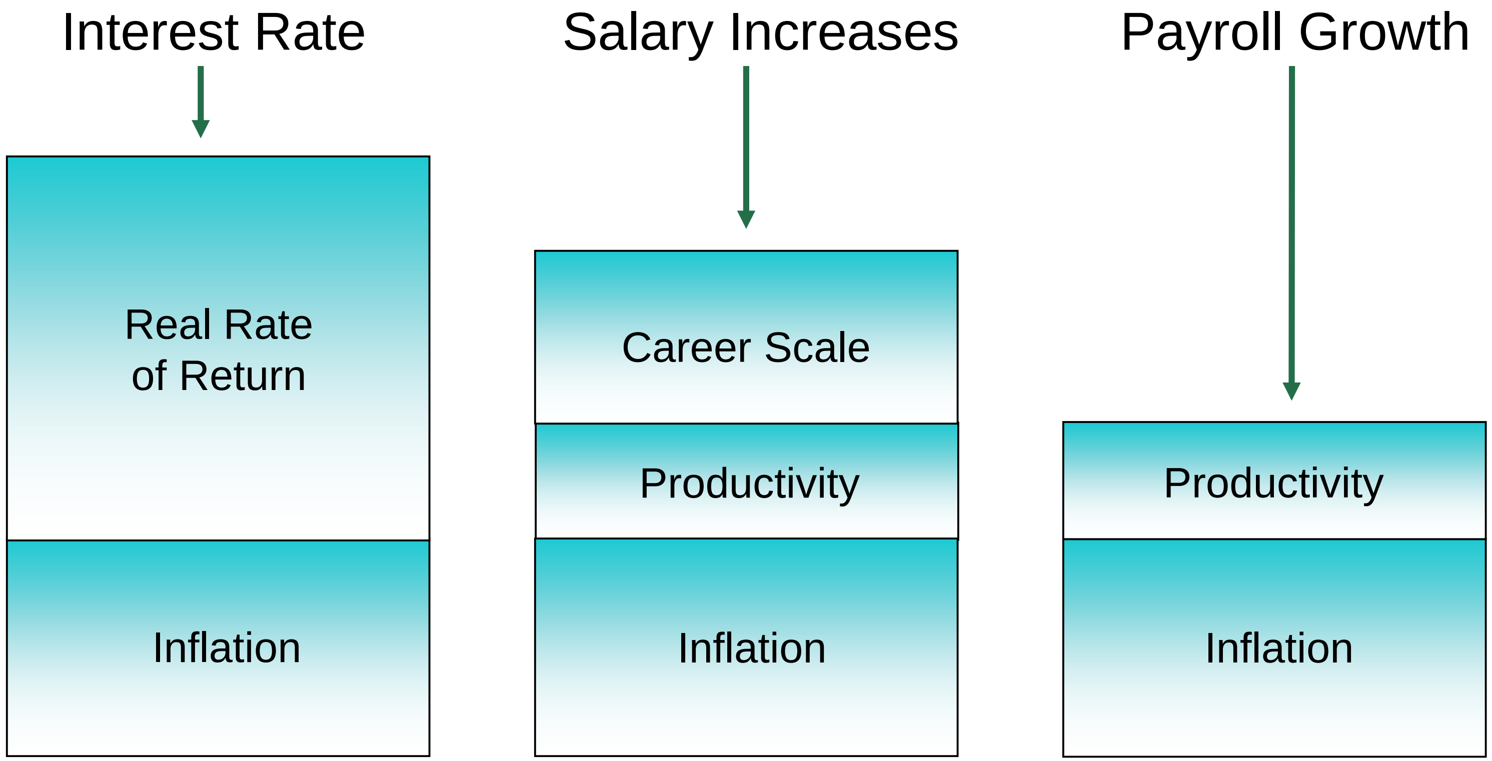
Demographic

- Death after retirement
- Death in active service
- Retirement
- Termination
- Disability

Actuaries make assumptions as to when and why a member will leave active service and estimate the amount, duration and present value of the pension benefits paid.

Basis for Setting Economic Assumptions

Each economic assumption has 2 or 3 components



Each component should be consistent across all economic assumptions, but may be adjusted for conservatism.

Assumed Rate of Inflation

Inflation represents the annual increase in the cost of living

The inflation assumption, currently 2.75%, indirectly affects the valuation

- Inflation is a component of the following economic assumptions:
  - Investment return
  - Payroll growth
  - Individual salary increases

Segal's recommendation is to lower the assumption from 2.75% to 2.30%, based on:

- The average 20-year inflation assumption from the Horizon Survey of Capital Market Expectations is 2.29%;
- The market's expectation of inflation is similar over 20-year and 30-year time horizons; and
- The Philadelphia Federal Reserve Bank Survey of Professional Forecasters 10-year outlook (2.20%) is consistent with the 10-year average from the Horizon Survey (2.21%).

Assumed Rate of Inflation *(continued)*

As of June 30, 2019, the historical national inflation (CPI-U) averages are:

Period	Average
5	1.45%
10	1.73%
20	2.19%
30	2.44%

5-year Average

The most recent 5-year average increase in CPI-U is 1.45%

10-year Average

The most recent 10-year average increase in CPI-U is 1.73%

20-year Average

The most recent 20-year average increase in CPI-U is 2.19%

30-year Average

The most recent 30-year average increase in CPI-U is 2.44%

Assumed Rate of Inflation *(continued)*

In addition to historical inflation, other metrics to consider are current market expectations and estimates from professional forecasters and economists

By observing the difference between the yields on US Treasury bonds with and without inflation indexing, we can calculate the rate of inflation that investors expect. As of June 2019, the yields on 10-year, 20-year, and 30-year Treasury bonds were as follows:

	10-Year	20-Year	30-Year
Non-inflation indexed:	2.07%	2.36%	2.57%
Inflation indexed:	0.37%	0.59%	0.79%
Delta:	1.70%	1.77%	1.78%

- The differences ranging between 1.70% to 1.78% represent the financial market’s current expectations of inflation over the next 10 to 30 years

Assumed Rate of Inflation *(continued)*

Source	10-Year	20-Year
Federal Reserve Bank of Philadelphia Fourth Quarter 2019 Survey of Professional Forecasters	2.20%	
2019 Horizon Survey of Capital Market Expectations	2.21%	2.29%
Callan	2.25%	
Segal Marco Advisors	2.00%	2.00%

We recommend that the Board lower the inflation assumption from 2.75% to 2.30%

Assumed Rate of Investment Return

The investment return is a principal assumption used in any actuarial valuation and is used to discount future expected benefit payments to the valuation date in order to determine the liabilities of the plan

The current investment return assumption of 7.75% consists of two components:

- Inflation: 2.75%
- Real rate of return: 5.61%, net of 0.50% for investment expenses
- Adjustment for conservatism: 0.11%

Our approach is to analyze inflation and real return separately

Assumed Rate of Investment Return *(continued)*

We have based our analysis of the expected real rate of return on the Horizon Survey of Capital Market Assumptions (2019 Edition)

- This survey compiles and averages the capital market assumptions of 34 investment consultants (including Callan and Segal Marco Advisors)
  - 16 respondents provided assumptions for “long term”, or 20 years
- Expected arithmetic returns are used to determine the expected returns by asset class
- The 20-year expected geometric portfolio real rate of return was generated from the 50th percentile of 5,000 simulated portfolio return trials

Assumed Rate of Investment Return *(continued)*

	Asset Class	20-Year Horizon Annual Arithmetic Real Return	Target Allocation	Weighted Real Return
Fixed/Alternative	US Core	2.17%	16%	0.35%
	Real Estate	5.65%	10%	0.57%
	High Yield	4.09%	7%	0.29%
	Commodities/Timber	4.00%	2%	0.08%
	Infrastructure	6.17%	6%	0.37%
	Cash	0.78%	1%	0.01%
Equity	US Large Cap	6.05%	24%	1.45%
	US Small Cap	7.23%	7%	0.50%
	International Developed	7.01%	17%	1.19%
	Emerging Markets	9.38%	4%	0.37%
	Private Equity	10.53%	6%	0.63%
	Total		**100%**	**5.81%**
	Adjustment to Geometric			(0.63%)
	Geometric Real Rate of Return			**5.18%**

Assumed Rate of Investment Return *(continued)*

Over a 20-year period, the Fund is expected to earn an annual real rate of return of at least 5.18% half of the time

- Lowering the expected real rate of return to 4.95% will increase the likelihood of meeting the expectation over a 20-year period to 53%

Component	Current	Recommended	50/50	7.50%
Inflation	2.75%	2.30%	2.30%	2.30%
Real Rate of Return	5.11%	5.18%	5.18%	5.18%
Adjustment for Adverse Deviation	(0.11%)	(0.23%)	(0.00%)	0.02%
Total	7.75%	7.25%	7.48%	7.50%
Confidence Level	N/A	53.2%	50.0%	49.8%

We recommend that the Board lower the return assumption from 7.75% to 7.25%

Assumed Rate of Individual Salary Increase

In order to project future benefits, salaries are projected forward over the expected career for each active member

Individual member salary increase components:

- Inflation
- Productivity
- Merit and seniority increases

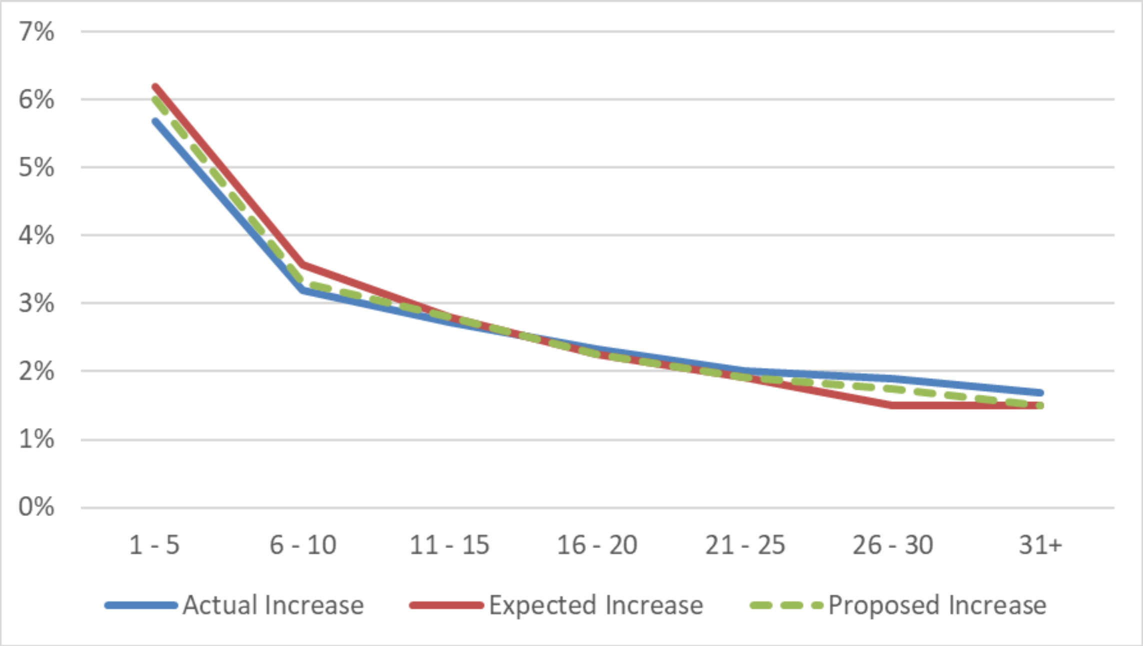
Since merit and seniority increases are unique to each retirement system, it is appropriate to base this assumption on recent experience

- We study the merit and seniority increases (plus productivity) separately from inflation
- Between 2014 and 2019, inflation averaged 1.5%

Assumed Rates of Salary Increase *(continued)*

The following table compares the actual and expected individual salary increases over the past 5 years, adjusted to remove actual annual inflation of about 1.5% over the experience period:

Years From Hire	Actual Increase	Expected Increase	Proposed Increase
1 – 5	5.68%	6.19%	6.00%
6 – 10	3.20%	3.57%	3.31%
11 – 15	2.73%	2.81%	2.81%
16 – 20	2.32%	2.25%	2.25%
21 – 25	2.02%	1.91%	1.91%
26 – 30	1.89%	1.50%	1.75%
31+	1.68%	1.50%	1.50%
Total	**3.28%**	**3.42%**	**3.35%**



Based on this experience, we recommend minor changes to the merit and seniority (and productivity) portion of individual salary increases for those within 10 years of hire and those more than 26 to 30 years since date of hire

Segal

Assumed Rates of Salary Increase *(continued)*

The following tables show the total current and proposed individual salary increase assumption by years since date of hire, adjusted to reflect the proposed inflation assumption of 2.30%:

Years From Hire	Current Total Salary Increase Rate	Proposed Total Salary Increase Rate
1	14.50%	14.80%
2	7.75%	6.80%
3	7.50%	6.55%
4	7.25%	6.30%
5	7.00%	6.30%
6	6.75%	5.80%
7	6.50%	5.80%
8	6.25%	5.55%
9	6.00%	5.55%

Years From Hire	Current Total Salary Increase Rate	Proposed Total Salary Increase Rate
10	6.00%	5.30%
11 – 12	5.75%	5.30%
13 – 14	5.50%	5.05%
15 – 16	5.25%	4.80%
17 – 19	5.00%	4.55%
20 – 23	4.75%	4.30%
24 – 25	4.50%	4.05%
26 – 30	4.25%	4.05%
31+	4.25%	3.80%

Assumed Rate of Payroll Growth

The amortization of the unfunded actuarial accrued liability (UAAL) is calculated as a level percentage of payroll over a closed period of time

The amortization amount is expected to increase each year as payroll increases (i.e., amortization payments are back loaded)

A lower payroll growth assumption is more conservative

- A lower assumption results in larger amortization payments (e.g., 0% would equate to level dollar)

The current payroll growth assumption of 3.25% consists of the following components:

Inflation:	2.75%
Productivity:	1.50%
Adjustment for conservatism:	-1.00%

Assumed Rate of Payroll Growth *(continued)*

As the recommended inflation component is 2.30%, we need to examine the productivity component

Productivity can be measured as the excess of the increase in the National Average Wage over inflation. As of June 2019:

- The 20-year average of the National Average Wage is 3.0%
- The 20-year average inflation is 2.2%
- Therefore, productivity has averaged about 0.8% over the last 20 years
- We expect productivity in North Dakota to continue to be greater than the national average due to its overall strong economy

We recommend a slight decrease of 0.2% to the productivity component (from 1.5% to 1.3%), which is consistent with the change in national productivity since the prior study (1.0% versus 0.8%)

Assumed Rate of Payroll Growth *(continued)*

The following table summarizes the Fund's historical payroll and active population growth:

Year Ended June 30	Annualized Payroll ($ in Millions)	Active Members
2019	$680.5	11,175
2014	557.2	10,305
2009	440.0	9,707
2004	376.5	9,826
1999	314.6	10,046
• 5-year average:	4.1%	1.6%
• 10-year average:	4.5%	1.4%
• 15-year average:	4.0%	0.9%
• 20-year average:	3.9%	0.5%

Assumed Rate of Payroll Growth *(continued)*

The following table summarizes the components of the current and recommended payroll growth assumption:

Component	Current	Recommended
Inflation	2.75%	2.30%
Productivity	1.50%	1.30%
Adjustment for Conservatism	-1.00%	-0.35%
Total	3.25%	3.25%

We recommend no change to the 3.25% payroll growth assumption and to maintain the conservative approach

Overview: How Mortality Assumption Is Set

Review past experience

Compare past experience (“actual”) with assumptions (“expected”)

- Examine both headcounts and benefit-weighted experience

Determine appropriate standardized table as basis for new assumption

Assess credibility of data set and calculate weighting factor

- Actual experience can be the assumption basis for fully-credible data
- Partially-credible data is blended with standardized table
- Typically, we assume 1,082 deaths needed in a subgroup to be considered fully-credible
  - 90% confident that results are within a range of 5% around the mean

Death After Retirement

Our analysis uses a benefit-weighted approach, which weights the probability of death with each annuitant's pension benefit

- This methodology takes into consideration any correlation between the health of the annuitant and the size of the benefit

In 2019, the Society of Actuaries published a series of mortality tables derived from public plan experience

- Three broad classifications based on teachers, public safety, and general employees
- Contingent annuitant mortality studied separately from retiree mortality
  - Contingent annuitant mortality generally worse than retirees
- Separate mortality tables for "healthy" annuitants and those members retiring with a disability pension

For purposes of comparing actual experience to expected, PubT-2010 mortality rates have been projected to 2016, the mid-point of the experience period

Death After Retirement *(continued)*

Over the experience period, there were more actual deaths than expected for both males and females

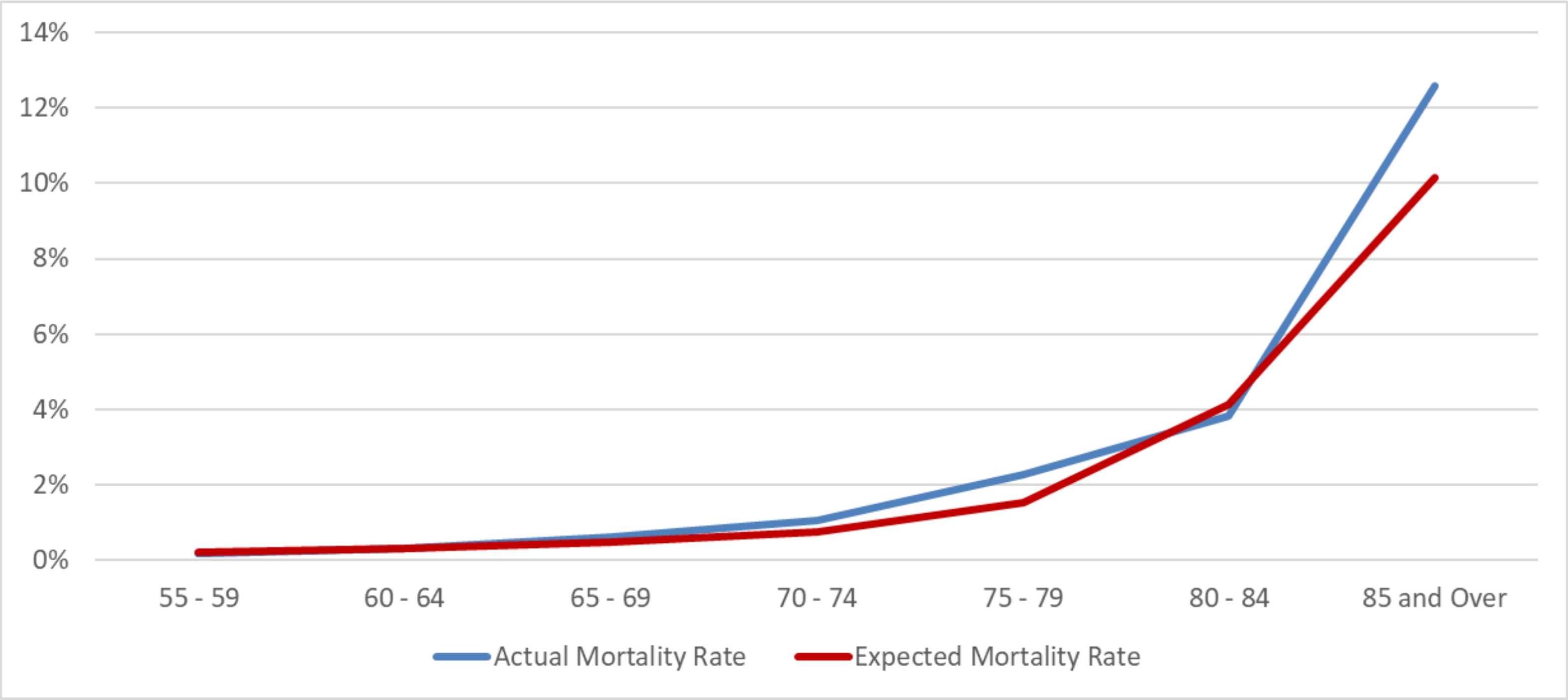
Recommend updating base tables to appropriate Pub-2010 mortality tables, with adjustments for TFFR-specific experience where “credible” data exists

- PubT-2010 Retiree Table based on teacher dataset ages 55 through 120
- PubT-2010 Employee Table based on teacher dataset ages 18 through 80
- PubNS-2010 Non-Safety Disabled Retiree Table based on teacher and general employee dataset
- Pub-2010 Contingent Survivor Table based on entire dataset of contingent annuitants

Recommend reflecting future mortality improvement by applying Projection Scale MP-2019 on a generational basis

Analysis – Healthy Retiree Mortality (Unisex)

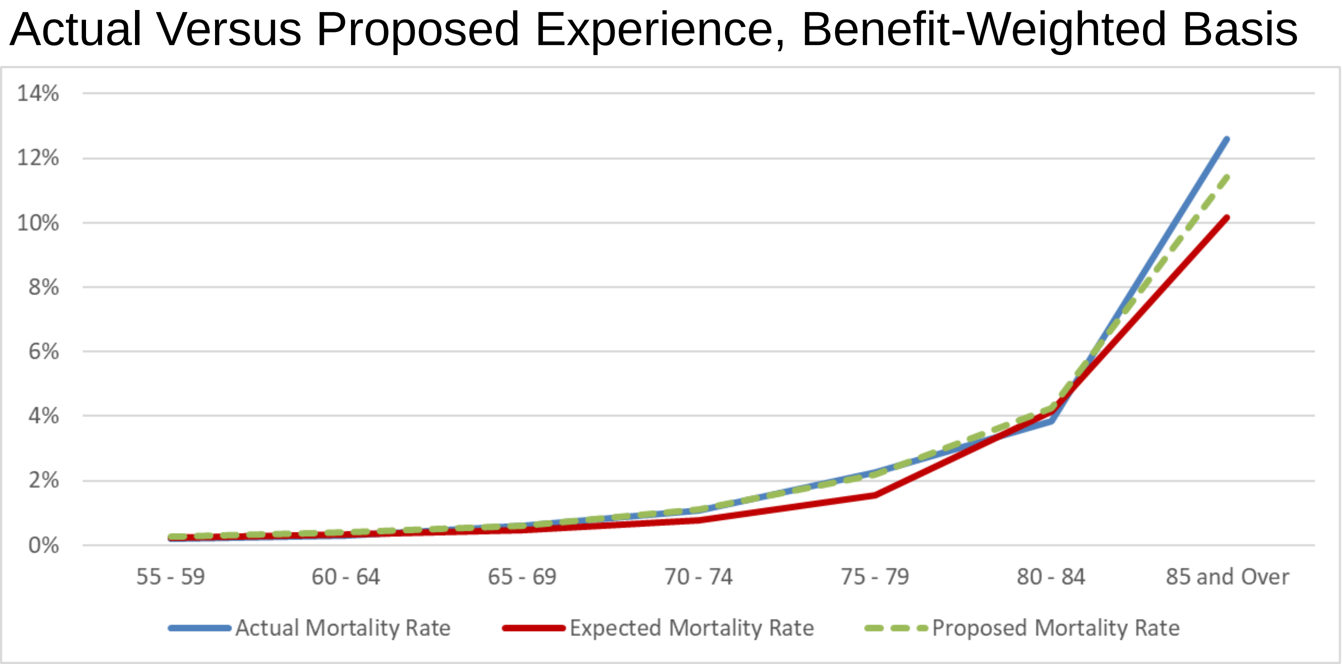
Actual Versus Expected Experience, Benefit-Weighted Basis



Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected
Counts	37,213	849*	694	122%
Benefits	882,224**	13,149	10,844	121%

* 849 actual deaths in the observation period yields partial credibility of 89%
** Based on annual benefits in thousands of dollars

Analysis – Healthy Retiree Mortality (Unisex)



Unadjusted PubT-2010 Retiree Table results in 12,601 proposed deaths

- Credibility-weighted adjustment (89%) results in 13,048 proposed deaths

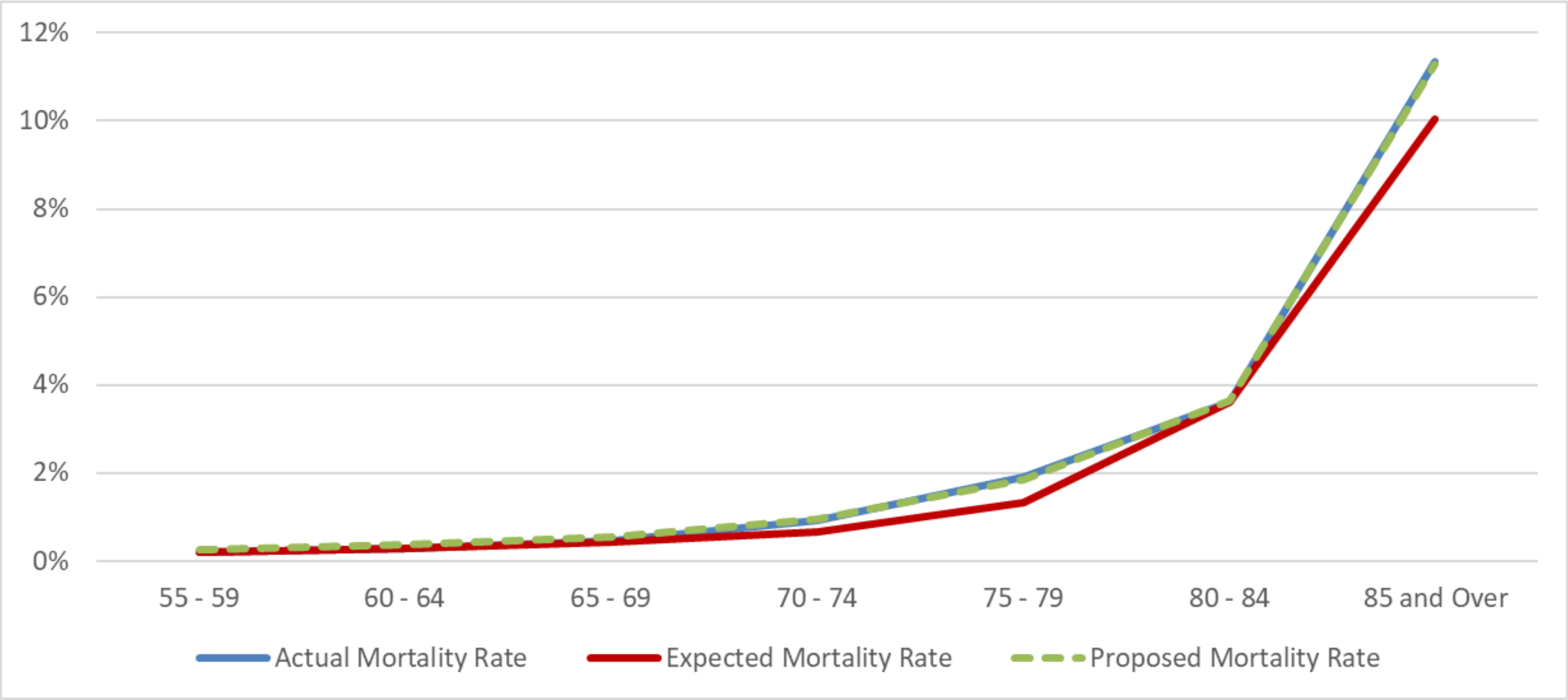
Recommend 104% of PubT-2010 Retiree Table, which results in 13,105 proposed deaths

Basis	Exposures	Actual Deaths	Proposed Deaths	Actual to Proposed
Benefits	882,224*	13,149	13,105	100%

* Based on annual benefits in thousands of dollars

Analysis – Healthy Retiree Mortality (Female)

Actual Versus Proposed Experience, Benefit-Weighted Basis

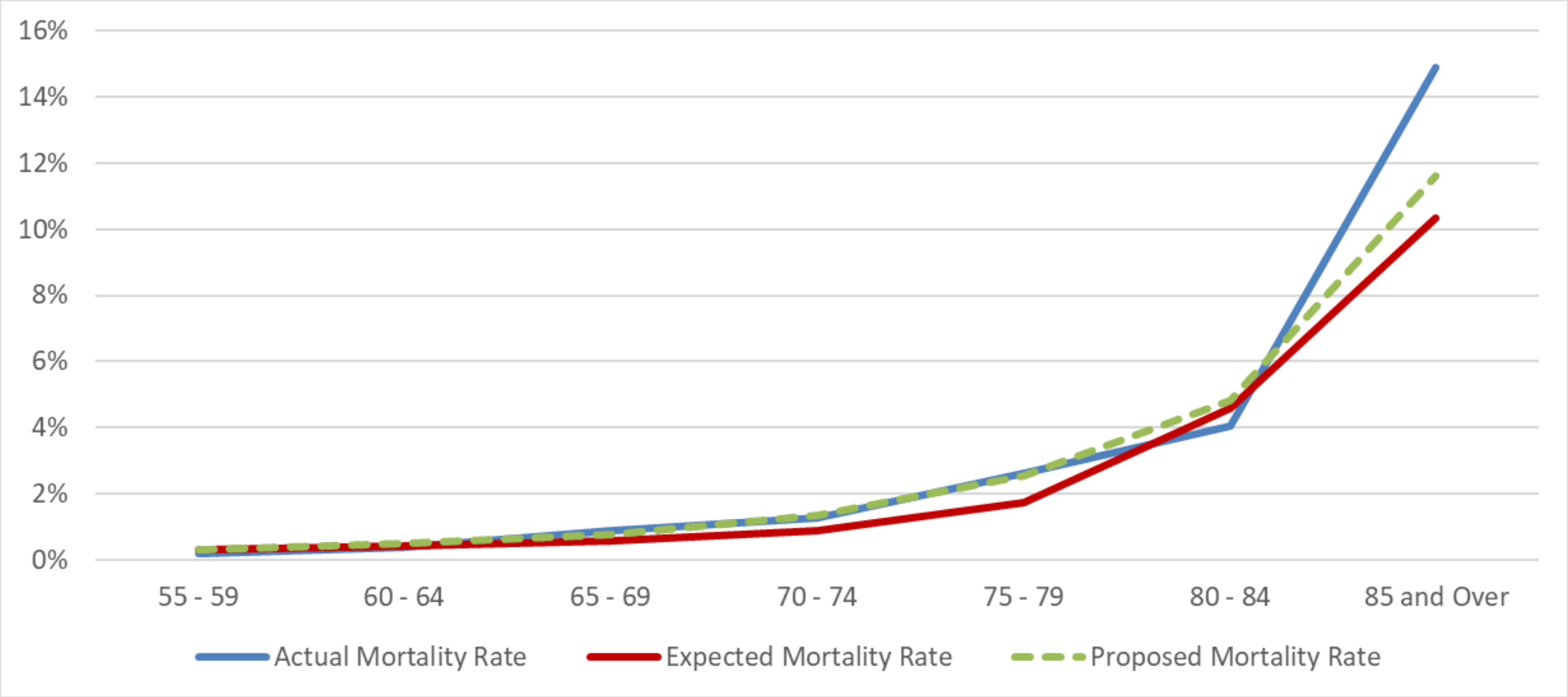


Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	24,894	521	451	115%		
Benefits	555,846*	6,882	5,939	116%	7,093	97%

* Based on annual benefits in thousands of dollars

Analysis – Healthy Retiree Mortality (Male)

Actual Versus Proposed Experience, Benefit-Weighted Basis

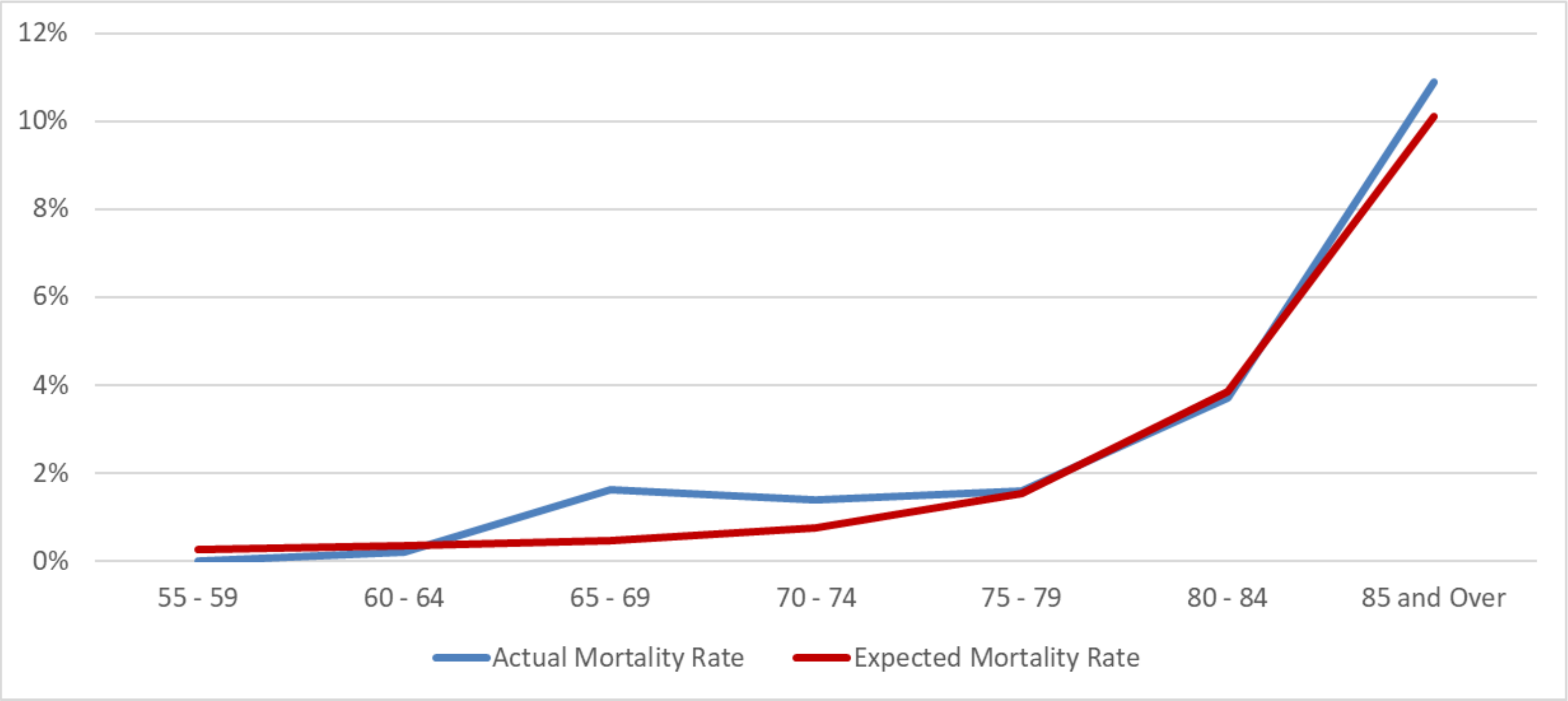


Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	12,319	328	243	135%		
Benefits	326,378*	6,267	4,905	128%	6,012	104%

* Based on annual benefits in thousands of dollars

Analysis – Beneficiary Mortality (Unisex)

Actual Versus Expected Experience, Benefit-Weighted Basis

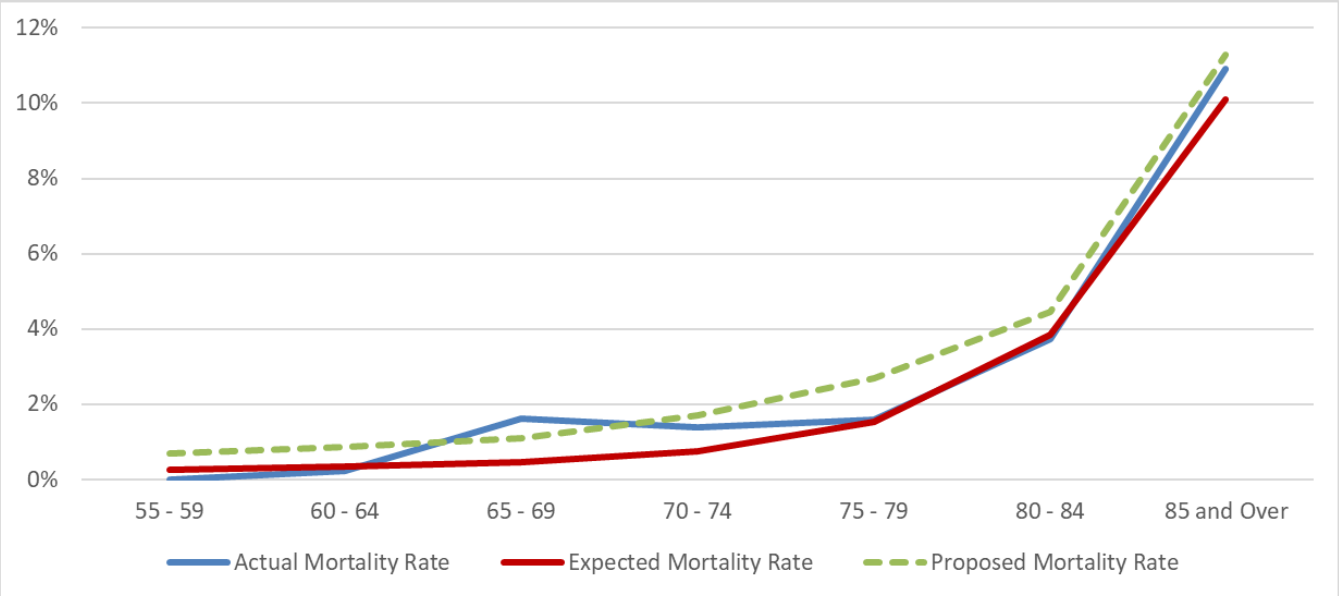


Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected
Counts	3,326	130*	112	116%
Benefits	48,000**	1,630	1,423	115%

* 130 actual deaths in the observation period yields partial credibility of 35%
** Based on annual benefits in thousands of dollars

Analysis – Beneficiary Mortality (Unisex)

Actual Versus Proposed Experience, Benefit-Weighted Basis



Unadjusted Pub-2010 Contingent Survivor Table results in 1,928 proposed deaths

- Credibility-weighted adjustment (35%) results in 1,828 proposed deaths

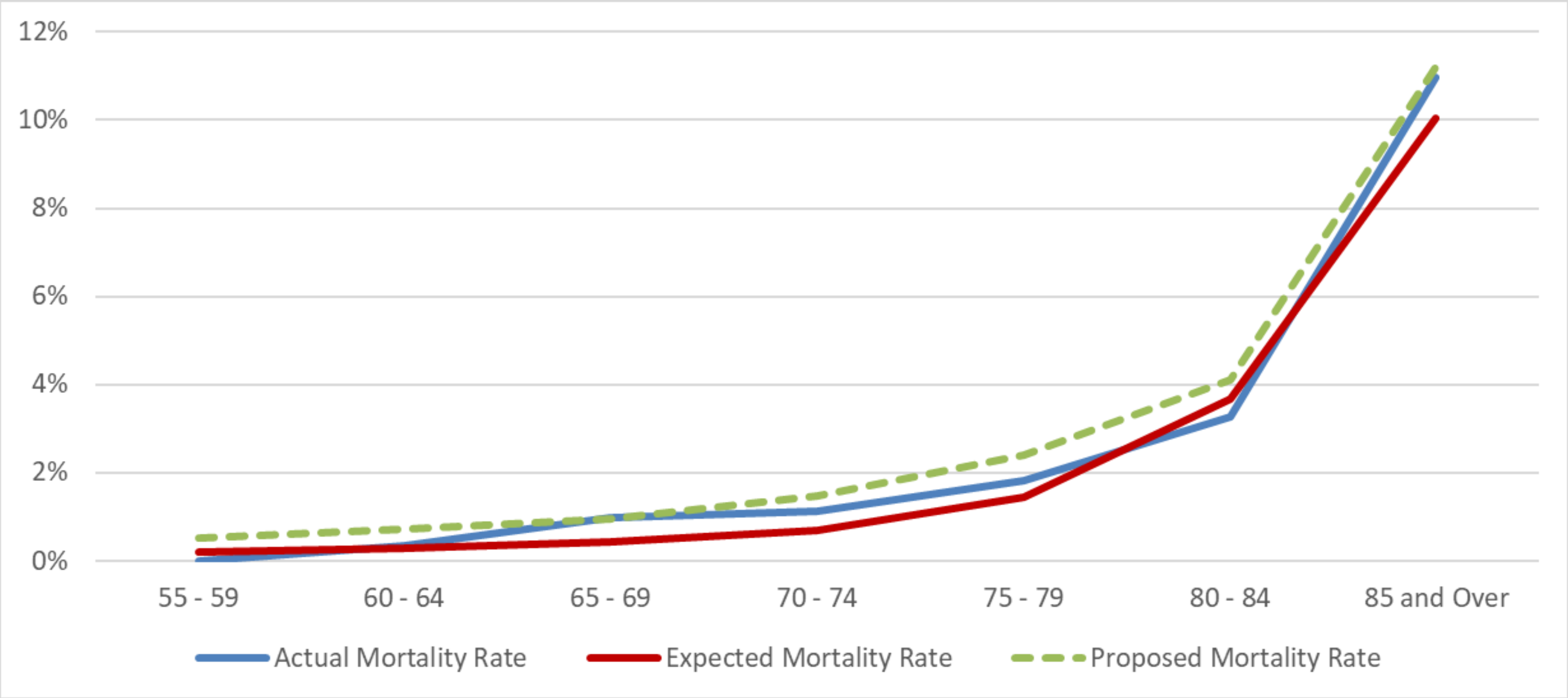
Recommend 95% of Pub-2010 Contingent Survivor Table, which results in 1,832 proposed deaths

Basis	Exposures	Actual Deaths	Proposed Deaths	Actual to Proposed
Benefits	48,000*	1,630	1,832	89%

* Based on annual benefits in thousands of dollars

Analysis – Beneficiary Mortality (Female)

Actual Versus Proposed Experience, Benefit-Weighted Basis

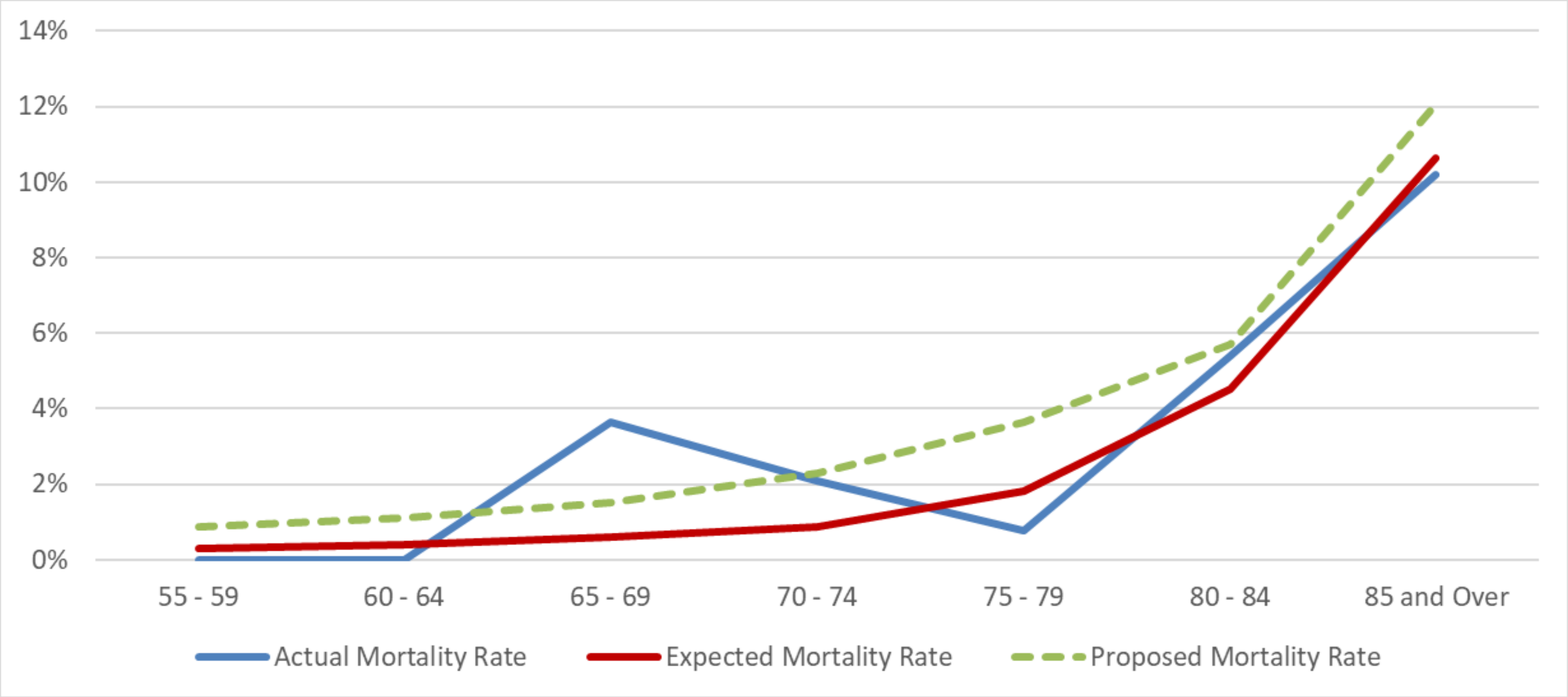


Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	2,458	104	92	113%		
Benefits	36,201*	1,326	1,192	111%	1,468	90%

* Based on annual benefits in thousands of dollars

Analysis – Beneficiary Mortality (Male)

Actual Versus Proposed Experience, Benefit-Weighted Basis



Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	868	26	19	135%		
Benefits	11,799*	304	230	132%	364	83%

* Based on annual benefits in thousands of dollars

Segal

Death After Retirement (Disabled)

Mortality experience for disabled annuitants has been consistent with the current assumption

- The ratio of actual to expected deaths on a benefit-weighted basis is 92%

However, we recommend updating to the "non-safety" version of the Pub-2010 mortality table for disabled retirees

- The limited actual experience is insufficient to warrant making an adjustment to the published table

Recommend accounting for future mortality improvement by applying Projection Scale MP-2019 on a generational basis

Actual Versus Proposed Experience, Benefits-Weighted Basis, Unisex

Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	638	18	20	90%		
Benefits	9,373*	250	272	92%	229	109%

* Based on annual benefits in thousands of dollars

Death While In Active Service

Mortality rates applied to active members

- Very few members die in active service
  - Liability associated with active death is a small percentage of the total liability
  - Plan experience is insufficient to set assumption

The current assumptions include separate mortality tables for active and retired members

- Since we are using the new PubT-2010 Retiree Table for retired lives, we recommend using the PubT-2010 Employee Table for active members
  - No adjustment to the published table, given the limited credibility of the group
- This table includes adjustments at ages where the employee and retiree tables overlap to reflect the fact that those members are actively employed and demonstrate lower mortality

Retirement Eligibilities

Eligibility criteria for retirement differs by tier

- Tier 1: Hired before July 1, 2008
  - Grandfathered: As of June 30, 2013, either at least age 55 and at least 3 years of service or age plus service is at least 65
  - Non-grandfathered: As of June 30, 2013, does not meet the requirements to be grandfathered
- Tier 2: Hired after June 30, 2008

Eligibility for reduced benefits:

- For all Tier 1 members, age 55 and 3 years of service
- For Tier 2 members, age 55 and 5 years of service

Retirement Eligibilities *(continued)*

Eligibility for unreduced benefits:

- For Tier 1 members, the earlier of:
  - Age 65 and 3 years of service
  - If grandfathered, age plus service is at least 85
  - If non-grandfathered, age plus service is at least 90 with a minimum age of 60
- For Tier 2 members, the earlier of:
  - Age 65 and 5 years of service
  - Age plus service is at least 90 with a minimum age of 60

Active Member Retirements

Current rates:

- Vary based on member's age and gender
- Vary depending on whether the member is eligible for a reduced or unreduced benefit
- In the first year that the member becomes eligible for an unreduced benefit, the unreduced retirement rate is increased by 10%

We have analyzed retirement experience on a benefit-weighted basis for the following groups:

- Eligible for a reduced benefit
- Eligible for an unreduced benefit in the first year only
- Eligible for an unreduced benefit in all other years

There is little Tier 2 retirement experience and grandfathered versus non-grandfathered experience to analyze at this point

However, the retirement rates take into account each individual's eligibility requirements

Active Member Retirements – Summary of Experience

Reduced benefits:

- There were slightly more retirements than expected
  - We recommend minor modifications at a few ages
- There were insufficient actual retirements to justify gender distinct rates, so we recommend unisex rates of retirement

First year of eligibility for unreduced benefits:

- In the first year of being eligible for unreduced benefits, members retired at an average rate of 35% per year
- After the first year of being eligible for unreduced benefits, members retired at an average rate of 20% per year
- Therefore, we recommend changing the current assumption of a 10% increase in retirement rates for the first year of eligibility for unreduced benefits to 12.5%

After the first year of eligibility for unreduced benefits:

- There were less retirements than expected, more so for female members than for male members
  - We recommend minor revisions to the rates

Active Retirements – Reduced Benefits

Exposures	Actual Retirements	Expected Retirements	Actual to Expected	Proposed Retirements	Actual to Proposed
87,178*	4,173	3,278	127%	3,738	112%

* Based on annual benefits in thousands of dollars

Active Retirements – Unreduced (Female)

Exposures	Actual Retirements	Expected Retirements	Actual to Expected	Proposed Retirements	Actual to Proposed
128,576*	24,905	30,922	81%	28,430	88%

* Based on annual benefits in thousands of dollars

Active Retirements – Unreduced (Male)

Exposures	Actual Retirements	Expected Retirements	Actual to Expected	Proposed Retirements	Actual to Proposed
55,138*	10,880	12,196	89%	11,687	93%

* Based on annual benefits in thousands of dollars

Inactive Vested Retirements

The current assumption is that 5% of inactive vested members will retire at each early retirement age prior to normal retirement and that 100% of remaining inactive vested members retire at normal retirement age

From 2014 to 2019, of the 2,373 inactive vested members eligible to commence benefits early with reduced benefits, 154 elected to retire

- A rate of about 6.5%

We recommend maintaining the current 5% assumption at each age prior to normal retirement age

- Additional refinement is not necessary at this time

Exposures (Counts)	Actual Retirements	Expected Retirements	Actual to Expected	Proposed Retirements	Actual to Proposed
2,373	154	119	130%	119	130%

Termination

Experience continues to show that fewer active members are terminating prior to retirement than expected

The experience is closer to expected for males

Current rates are gender distinct, based on years since date of hire, and are net of rehires

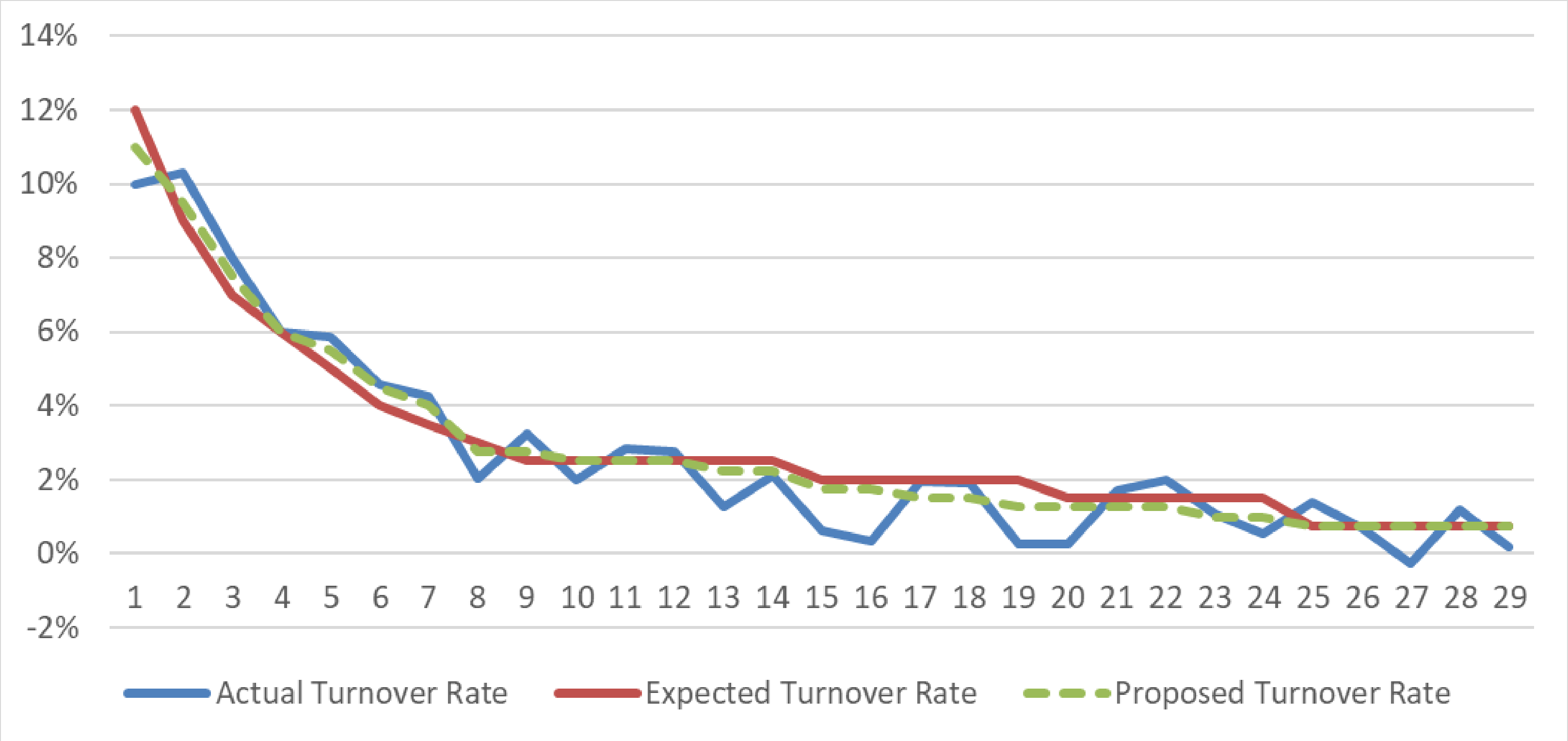
- We believe this assumption format is still the best fit

We studied termination experience on a benefit-weighted basis

We recommend minor changes (primarily decreases) to rates of termination

The graphs on the following pages show the actual, expected, and proposed termination rates based on years since hire

Termination – Females

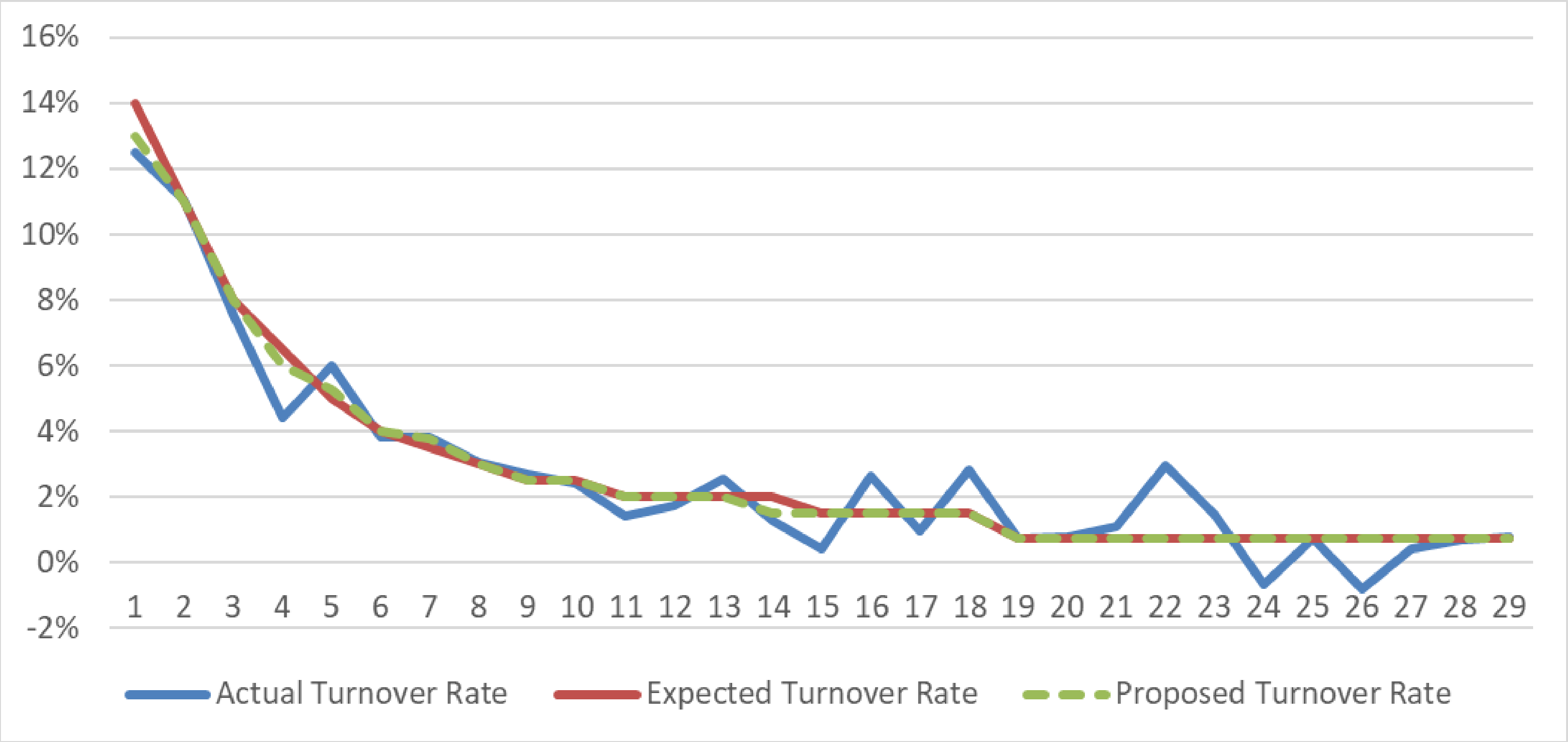


Exposures	Actual Terminations	Expected Terminations	Actual to Expected	Proposed Terminations	Actual to Proposed
338,406*	6,839	7,854	87%	7,364	93%

* Based on annual benefits in thousands of dollars

Segal

Termination – Males



Exposures	Actual Terminations	Expected Terminations	Actual to Expected	Proposed Terminations	Actual to Proposed
156,525*	2,707	2,745	99%	2,712	100%

* Based on annual benefits in thousands of dollars

Disability Retirement

Experience over the prior five years shows that fewer active members retired under a disability pension than expected

From 2014 to 2019:

- 41 members were expected to start receiving a disability pension; and
- 15 members actually started receiving a disability pension

In the prior experience study period (from 2009 to 2014), the actual number was 46 disability pensions and prior to that (from 2004 to 2009) the actual number was 40

- 80% actual to expected ratio over the 15-year period

We recommend a 20% decrease to current rates related to disability retirement

Spouse Information

Current assumptions:

- 75% of members are married
- Male spouses are three years older than female spouses
- 100% of spouses are opposite gender

We have limited data on spouse information

However, these assumptions are reasonable and consistent with similar plans

In addition, all optional forms of payment are actuarially equivalent, so these assumptions are not materially relevant

Therefore, we recommend no change to these assumptions

Summary of Economic Assumptions

Assumption	Current	Proposed
Inflation	2.75%	2.30%
Investment Return	7.75%	7.25%
Salary Scale	Merit/seniority rates (including productivity) based on years since date of hire plus inflation	Minor changes to the merit and seniority (and productivity) portion of individual salary increases for less than 10 years since hire and for between 26 and 30 years since hire
Payroll Growth	3.25%	No change

Summary of Demographic Assumptions

Assumption	Current	Proposed
Healthy Mortality	RP-2014 Healthy Annuitant Table set back one year, multiplied by 50% for ages under 75 and grading up to 100% by age 80 with generational mortality improvement using scale MP-2014	104% of the PubT-2010 Retiree Table and 95% of the Pub-2010 Contingent Survivor Table with generational mortality improvement using scale MP-2019
Disabled Mortality	RP-2014 Disabled Mortality Table set forward four years	PubNS-2010 Non-Safety Disabled Mortality Table with generational mortality improvement using scale MP-2019
Active Mortality	RP-2014 Employee Mortality Table with generational mortality improvement using scale MP-2014	PubT-2010 Employee Table with generational mortality improvement using scale MP-2019

Summary of Demographic Assumptions

Assumption	Current	Proposed
Active Retirement	For reduced retirement, unisex rates based on age that range from 2% at age 55 to 12% at age 54. For unreduced retirement, gender distinct rates that range from 15% at age 50 to 100% at age 75. In the first year that members become eligible for unreduced benefits, the unreduced retirement benefit is increased 10%.	For reduced retirement, minor changes to the unisex rates. For unreduced retirement, retirement rates are lowered. In the first year that members become eligible for unreduced benefits, the unreduced retirement benefit is increased from 10% to 12.5%.
Inactive Retirement	5% at each early retirement age prior to normal retirement and 100% at normal retirement age	No change
Termination	Gender distinct rates based on years since date of hire	Minor modifications resulting in generally lower termination rates
Disability Retirement	Age-based rates	Decrease current rates by 20%
Spouse Information	75% married, male spouses are three years older than female spouses, and 100% of spouses are opposite gender	No changes

Cost Impact (Based on the July 1, 2019 Actuarial Valuation)

Description	Current Assumptions	Proposed Mortality Assumptions	Proposed Mortality and Retirement Assumptions	Proposed Mortality, Retirement, and Term./Disability Assumptions
Actuarial Accrued Liability	$3,993.4M	$3,882.0M -111.4M	$3,868.6M -13.4M	$3,870.2M +1.6M
Actuarial Value of Assets	$2,635.5M	$2,635.5M	$2,635.5M	$2,635.5M
Unfunded Actuarial Accrued Liability	$1,357.9M	$1,246.4M	$1,233.1M	$1,234.7M
Funded Percentage	66.0%	67.9% +1.9%	68.1% +0.2%	68.1% -0.0%
Normal Cost	$86.0M	$84.5M	$83.9M	$84.1M
Actuarially Determined Contribution Rate	12.84%	11.60% -1.24%	11.38% -0.22%	11.43% +0.05%
Margin / (Deficit)	(0.09%)	1.15%	1.37%	1.32%
Effective Amortization Period	24 years	21 years -3 years	20 years -1 year	20 years +0 years

Segal

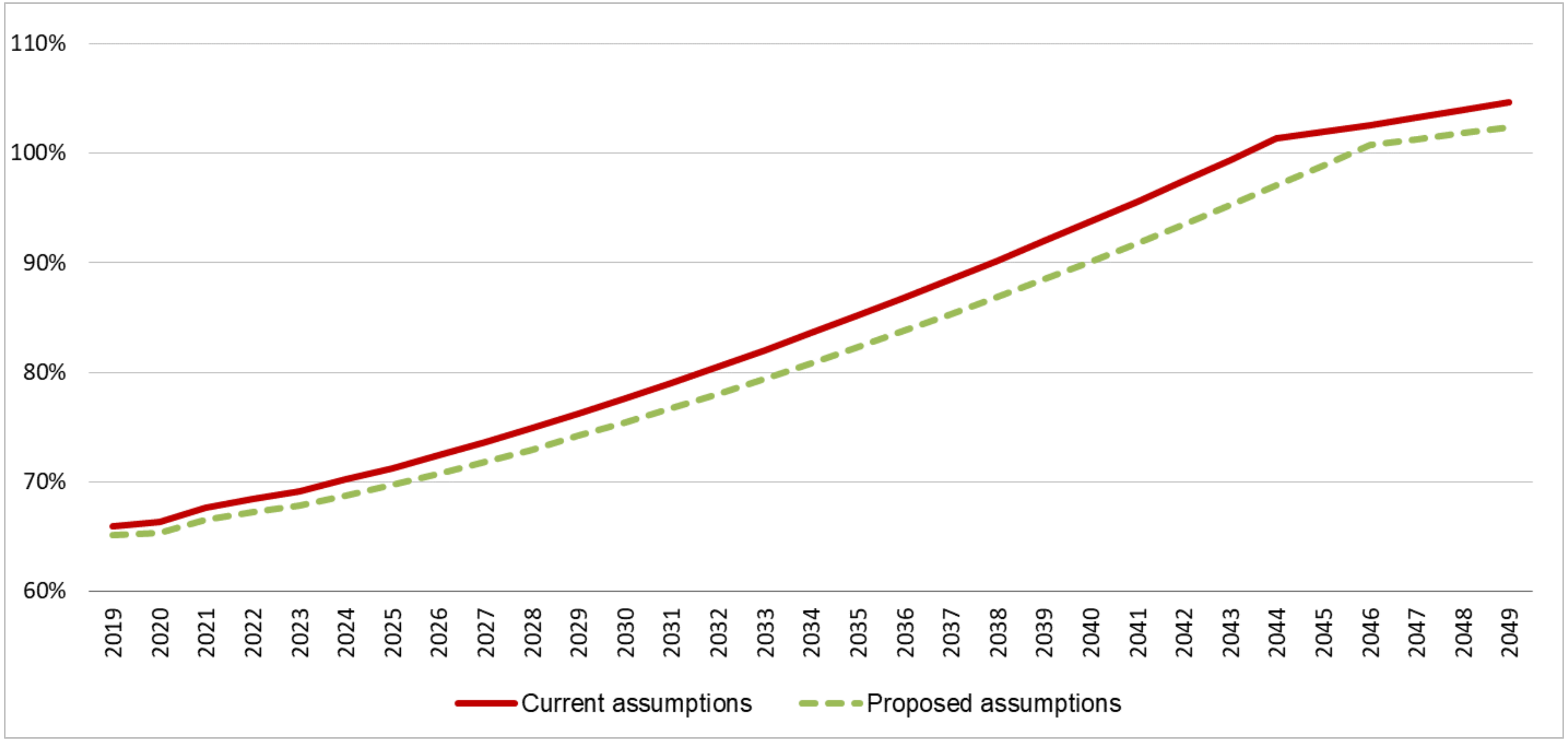
Cost Impact (Based on the July 1, 2019 Actuarial Valuation)

Description	Proposed Demographic and Current Economic Assumptions	Proposed Demographic Assumptions and 7.25% Investment Return	Proposed Demographic Assumptions, 7.25% Investment Return, Salary Increase, and Inflation
Actuarial Accrued Liability	$3,870.2M	$4,087.5M +217.3M	$4,046.9M -40.6M
Actuarial Value of Assets	$2,635.5M	$2,635.5M	$2,635.5M
Unfunded Actuarial Accrued Liability	$1,234.7M	$1,451.9M	$1,411.4M
Funded Percentage	68.1%	64.5% -3.6%	65.1% +0.6%
Normal Cost	$84.1M	$93.8M	$88.7M
Actuarially Determined Contribution Rate	11.43%	14.17% +2.74%	13.24% -0.93%
Margin / (Deficit)	1.32%	(1.42%)	(0.49%)
Effective Amortization Period	20 years	29 years +9 years	26 years -3 years

Cost Impact (Based on the July 1, 2019 Actuarial Valuation)

Description	Current Assumptions	Proposed Assumptions	Change
Actuarial Accrued Liability	$3,993.4M	$4,046.9M	+$53.5M
Actuarial Value of Assets	$2,635.5M	$2,635.5M	$0.0M
Unfunded Actuarial Accrued Liability	$1,357.9M	$1,411.4M	+$53.5M
Funded Percentage	66.0%	65.1%	(0.9%)
Normal Cost	$86.0M	$88.7M	+$2.7M
Actuarially Determined Contribution Rate	12.84%	13.24%	+0.40%
Margin / (Deficit)	(0.09%)	(0.49%)	(0.40%)
Effective Amortization Period	24 years	26 years	+2 years

Projected Funded Ratios (AVA basis)



Impact on Policy Scoring

Criteria	Scoring	Proposed Assumptions	Current Assumptions
Criteria 1	**Current year funded ratio is 65%** • If current ratio is 90% or higher: **+3** • If current ratio is between 80% to 90%: **+2** • If current ratio is between 70% to 80%: **+1** • If current ratio is less than 70%: **+0**	+0	+0
Criteria 2	**34% probability of funded ratio <65% in 2030** • Under 65% funded ratio with less than 20% probability: **+3** • Under 65% funded ratio with less than 30% probability: **+2** • Under 65% funded ratio with less than 40% probability: **+1** • Under 65% funded ratio with more than 40% probability: **+0**	+1	+1
Criteria 3	**52% probability of funded ratio >85% in 2040** • 85% or higher with more than 50% probability: **+4** (52% probability) • 80% or higher with more than 50% probability: **+3** (57% probability) • 75% or higher with more than 50% probability: **+2** (61% probability) • 70% or higher with more than 50% probability: **+1** (65% probability) • Not more than 70% with more than 50% probability: **+0**	+4	+3
Criteria 4	**59% probability of improvement over 10 years** • Funded ratio improves by +5% over 10 years with 66% probability: **+2** • Funded ratio improves by +5% over 10 years with 50% probability: **+1** • Ratio does not improve by +5% over 10 years with 50% probability: **+0**	+1	+1
Criteria 5	**44% probability of recovering from market downturn*** • Funded ratio after downturn improves by +5% over 10 years with 50% probability: **+2** • Funded ratio after downturn improves by +5% over 10 years with 33% probability: **+1** • Ratio after downturn does not improve by +5% over 10 years with 33% probability: **+0**	+1	+1
		+7	+6

* 892 scenarios contain -10% average or worse over 2 years (in the first 10 years), 387 of which "recover"

Segal

Impact on Policy Scoring *(continued)*

Based on the current methodology, the Policy Score improves from +6 to +7 under the proposed assumptions

- Driven by Criteria 3, which is based on the projected funded ratio in 2040

Higher rates of mortality and lower inflation/salary scale result in lower projected benefit payments

- Lower inflation and salary scale also lead to lower contribution amounts, but in many cases there is a delay to when the sunset provision kicks in

Investment simulations continue to be based on the 2019 Horizon Survey, which have a mean geometric average return of 7.48% over 20 years

Segal Marco Advisors' 2020 capital market assumptions show a 20-25 basis point decrease in expected return for a portfolio like TFFR, relative to 2019

- Simulated returns with a mean geometric average closer to 7.25% (or below) would adversely impact the Policy Score

North Dakota Teachers' Fund for Retirement

ACTUARIAL EXPERIENCE REVIEW

Analysis of Actuarial Experience During the Period July 1, 2014 through June 30, 2019

March 19, 2020 / Matthew Strom, FSA, MAAA, EA / Tanya Dybal, FSA, MAAA, EA / Kim Nicholl, FSA, MAAA, EA, FCA

Segal

101 North Wacker
Suite 400
Chicago, IL 60606
segalco.com

Via Email

March 19, 2020

Board of Trustees
North Dakota Teachers' Fund for Retirement
3442 East Century Avenue
Bismarck, ND 58507-7100

Re: Actuarial Experience Review for the Period July 1, 2014 through June 30, 2019

Dear Trustees:

This report presents the results of the actuarial experience review of the demographic and economic experience of the North Dakota Teachers' Fund for Retirement (TFFR) for the period July 1, 2014 to June 30, 2019.

All current actuarial assumptions were reviewed as part of this study. This study is the basis for our recommendation of the assumptions to be used in the July 1, 2020 valuation.

In preparing the results presented in this report, we have relied upon data provided by TFFR regarding the membership census data and financial information. While the scope of our engagement did not call for us to perform an audit or independent verification of this information, we have reviewed it for reasonableness. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information.

This review recommends assumptions to be used in the valuation to measure the Fund's financial condition as of a single date. Future actuarial measurements may differ significantly from the current measurements presented in this report due to other assumption sets. This report does not include an analysis of the potential range of such future measurements.

Our analysis was conducted in accordance with generally accepted actuarial principles as prescribed by the Actuarial Standards Board (ASB) and the American Academy of Actuaries. Additionally, the development of all assumptions contained herein is in accordance with ASB Actuarial Standard of Practice (ASOP) No. 27 (*Selection of Economic Assumptions for Measuring Pension Obligations*) and ASOP No. 35 (*Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations*).

The undersigned are independent. They are Fellows of the Society of Actuaries, Enrolled Actuaries, and members of the American Academy of Actuaries and are experienced in performing experience studies for large public retirement systems. They meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Respectively submitted,

Matthew A. Strom, FSA, MAAA, EA
Senior Vice President and Consulting Actuary

Kim Nicholl, FSA, MAAA, EA, FCA
Senior Vice President and Consulting Actuary

Tanya Dybal, FSA, MAAA, EA
Senior Consultant and Actuary

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North Dakota Teachers' Fund for Retirement

Experience Review for the Period July 1, 2014 through June 30, 2019

I. Executive Summary

A. Introduction

Actuarial valuations are prepared annually to determine whether the employer contributions are sufficient to fund the North Dakota Teachers' Fund for Retirement ("TFFR") on an actuarial reserve basis. Each actuarial valuation involves a projection of the benefits expected to be paid in the future to all members of TFFR. The projection of expected future benefit payments is based on the characteristics of members as of the valuation date, the benefit provisions in effect on that date, and assumptions of future events and conditions.

The assumptions used in actuarial valuations can be grouped in two categories: (1) economic assumptions – the assumed long-term rates of investment return, salary increases, and payroll growth, and (2) non-economic or demographic assumptions – the assumed rates of termination, disability, retirement, and mortality. Demographic assumptions are primarily selected on the basis of recent experience (although a change in plan design or the employment environment may suggest otherwise), while economic assumptions rely more on a long-term perspective of expected future trends.

In order to determine the probability of an event occurring, we examine the "decrements" and "exposures" of that event. Using termination from active employment, for example, we compare the number of employees who actually terminate in a certain age and/or service category (i.e., the number of "decrements") with those "who could have terminated" (i.e., the number of "exposures"). For example, if there were 500 active employees in the 20-24 age group at the beginning of the year and 50 of them terminate during the year, we would say the probability of termination in that age group is 50 ÷ 500 or 10%.

When setting the demographic assumptions (other than mortality), we typically develop proposed assumption rates by taking the midpoint of the current assumption rate and the rate that the experience shows for that particular decrement. For example, if the probability of termination in the 20-24 age group is currently 8%, and the experience during the study period shows that 10% of eligible members actually terminated, we would propose adjusting the termination rate to 9%. We choose the midpoint in order to smooth any changes in actual experience in case the experience during the study period is an anomaly.

For the demographic assumptions, we have reviewed the experience during the study period on both a headcount basis and on a benefit-weighted basis in order to determine the appropriate recommendation. For example, a member who is eligible to retire at any retirement age with a large pension may be more likely to retire than a member of the same age with a smaller benefit. Based on our analysis, we have determined that the benefit-weighted approach is the better approach.

If actual experience exactly matches the expected experience, the actual annual cost of TFFR will equal the annual cost determined by the actuarial valuation. However, this result is virtually never achieved, due to the long-term nature of the benefit projections and the numerous assumptions used in actuarial valuations. TFFR recognizes actuarial gains or actuarial losses each year, reflecting the net difference between actual experience and anticipated experience. Determination of the funded status is updated in connection with each actuarial valuation to reflect the net gain or loss. A pattern of gains or losses with respect to one or more assumptions is the basis for recommended changes to the assumptions. Each valuation measures the effectiveness of each assumption and allows for the monitoring of the assumptions.

Actuarial experience studies are undertaken periodically and serve as the basis for recommended changes in actuarial assumptions and methods. A change in assumptions is recommended when it is demonstrated that the current assumptions do not accurately reflect the current trend determined from analysis of the data or anticipated future trends based upon reasonable expectations. The data analyzed include actual experience for demographic assumptions and economic forecasts for economic assumptions. The Actuarial Standards Board (ASB) provides actuaries with standards of practice that provide guidance and recommendations on acceptable methods and techniques to be used in developing both economic and demographic assumptions. Specifically, these are the ASB Actuarial Standard of Practice (ASOP) No. 27 (*Selection of Economic Assumptions for Measuring Pension Obligations*) and ASOP No. 35 (*Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations*).

This study reviews the actuarial experience of TFFR for the five-year period beginning July 1, 2014 and ending June 30, 2019, compares this experience to the current actuarial assumptions, and recommends changes to the assumptions as necessary. Economic assumption recommendations were primarily developed based on inputs related to economic forecasts and capital market expectations.

A summary of the key points of our review and our recommendations follows.

B. Recommendations

The experience review provides an opportunity for the Board, staff, and actuary to consider how specific assumptions or methods affect the funding of TFFR, including the funded status and the adequacy of contributions made by members and employers (as compared to the actuarially determined contribution). We have reviewed both economic and demographic experience of the Fund as it relates to the expected actuarial experience based on the current plan assumptions. Included are recommendations for changes in assumptions that we believe will more accurately reflect the future experience of TFFR.

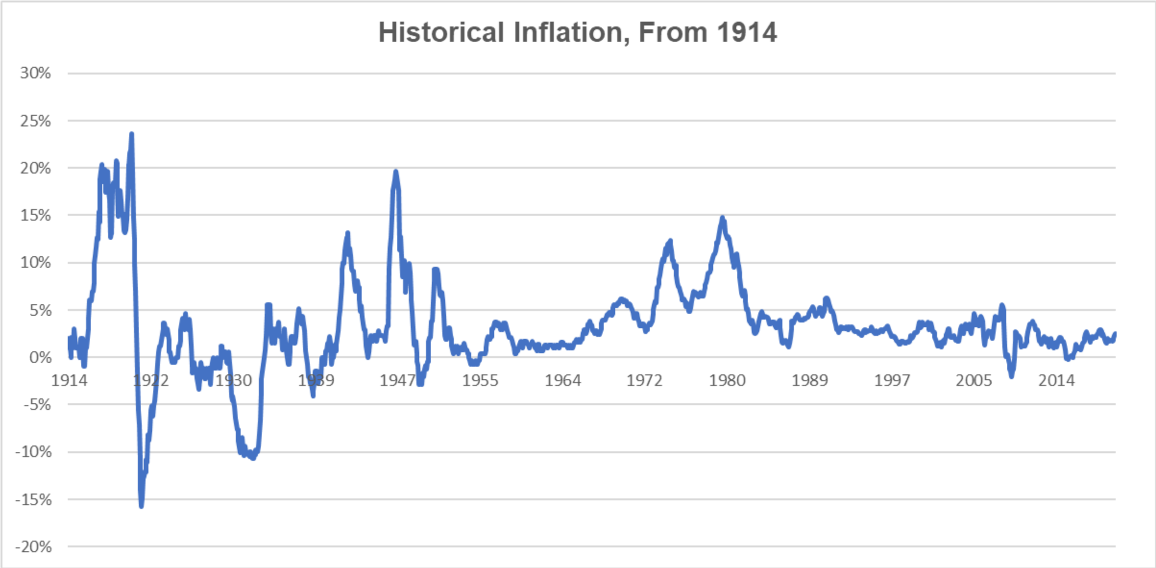
The detailed analysis of each individual assumption is discussed later in this report.

Economic Assumptions

Economic assumptions include inflation, investment rate of return (or discount rate), rate of individual salary increases, and payroll growth.

Inflation

Inflation continues at relatively low levels from a historical perspective, as shown in the graph below.



The current inflation assumption is 2.75% per annum. The outlook for inflation remains slightly less than 2.3%, over a 20 year time horizon according to the Horizon Survey of Capital Market Assumptions (2019 Edition) and other professional forecasters. In light of all sources of inflation expectations reviewed in our study, we recommend lowering the inflation assumption from 2.75% to 2.30%.

The other economic assumptions have an underlying inflation component. The investment return assumption is comprised of inflation and the real rate of return for each asset class. The assumed rates of individual salary increases are comprised of inflation, productivity, and merit and seniority increases. The payroll growth assumption is comprised of inflation and productivity.

Investment Return

The Fund has averaged investment returns of 9.4% and 5.6% over the last 10 years and 20 years, respectfully. The current assumption is 7.75%.

Based on the Fund's target allocation and the 20-year Capital Market Assumptions (CMA) provided in the Horizon Survey of Capital Market Assumptions (2019 Edition), the net expected real rate of investment return (net of investment expenses) is 5.18%, compared to the current assumption of 5.11%. Since we recommend that the inflation assumption be reduced to 2.30%, and the investment return assumption is the combination of expected inflation plus expected real rate of return, the 50th percentile expected return over the next 20 years is 7.48%. We recommend lowering the investment return assumption from 7.75% to 7.25%, which represents a 53% likelihood of achieving 7.25% over the long term.

Rates of Individual Salary Increases

We study the merit and seniority increases (plus productivity) separately from inflation. Analysis of the distribution of merit and seniority increases by years since date of hire during the study period shows that these increases were less than expected for members with less than 10 years since hire date and more than expected for those between 26 and 30 years since hire date. Based on experience, we recommend minor changes to the merit and seniority (and productivity) portion of individual salary increases (full rates in the appendix).

Payroll Growth Rate

The payroll growth rate is used for determining the effective amortization period and to determine the amortization payment of the unfunded actuarial accrued liability when the actuarially determined contribution rate is determined as a level percent-of-payroll. Based upon our analysis, we recommend no change to the current payroll growth assumption of 3.25%.

Demographic Assumptions

The demographic assumptions include mortality, retirement, termination, disability incidence, percent married, and spouse age difference.

Mortality

The current mortality table for the healthy annuitant lives is the RP-2014 Healthy Annuitant Mortality Table (sex distinct) set back one year, multiplied by 50% for ages under 75 and grading up to 100% by age 80, projected generationally using MP-2014 for both males and females. The actual rate of mortality for both males and females was more than expected.

In 2019, the Society of Actuaries published a series of mortality tables derived from public plan experience, called Pub-2010. The published mortality tables are based on three broad categories: teachers, public safety, and general employees. In addition, contingent annuitant tables were published. For purposes of comparing actual experience to expected, the PubT-2010 (the teacher table) have been projected to 2016, the mid-point of the experience study.

We recommend updating the base tables to the appropriate Pub-2010 mortality tables, with adjustments for TFFR-specific experience where credible data exists. In order to reflect future improvements in mortality, we recommend updating the mortality projection scale to MP-2019.

The current mortality table for disabled lives is the RP-2014 Disabled Mortality Table set forward four years. This table was intended to have sufficient margin for future improvements in mortality. Experience for disabled annuitants has been consistent with the current assumptions. However, we recommend updating the base table to the non-safety version of the Pub-2010 mortality table for disabled retirees. In order to reflect future improvements in mortality, we recommend using the MP-2019 mortality projection scale.

The current mortality table for beneficiary lives is the same as the current healthy annuitant lives mortality table. We recommend updating the base tables to the Pub-2010 Contingent Survivor Table and updating the mortality projection scale to MP-2019.

The current mortality table for active members is the RP-2014 Employee Mortality Table, projected generationally using Scale MP-2014. Very few members die in active service and the liability associated with active deaths is a small percentage of the total liability. Since plan experience is insufficient to set the assumption, we recommend using the PubT-2010 Employee Table for active members and applying a generational projection using Scale MP-2019.

Retirement

The eligibility criteria for retirement differs by Tier. Tier 1 members are those hired prior to July 1, 2008. Grandfathered Tier 1 members are those who either were at least age 55 with at least years of service or whose age plus service was at least 65 as of June 30, 2013. Non-grandfathered Tier 1 members are those who do not meet these criteria as of June 30, 2013. Tier 2 members are those hired after June 30, 2008.

Eligibility for unreduced retirement benefits is as follows:

- Tier 1 members are eligible at the earlier of:
  - Age 65 with three years of service
  - If grandfathered, age plus service is at least 85
  - If non-grandfathered, age plus service is at least 90 with a minimum age of 60

- Tier 2 members are eligible at the earlier of:
  - Age 65 with five years of service
  - Age plus service is at least 90 with a minimum of age 60

Eligibility for reduced benefits is as follows:

- For all Tier 1 members, age 55 with three years of service
- For Tier 2 members, age 55 with five years of service.

The current retirement rates vary based on a member's age and gender as well as whether the member is eligible for a reduced or unreduced benefit. In the first year that the member becomes eligible for an unreduced benefit, the unreduced retirement rate is increased by 10%.

We have analyzed retirement experience for the following groups:

- Eligible for a reduced benefit.
- Eligible for an unreduced benefit in the first year only
- Eligible for an unreduced benefit in all other years

There is little Tier 2 retirement experience and grandfathered versus non-grandfathered experience to analyze. However, the retirement rates take into account each member's eligibility requirements.

For reduced benefits, there were slightly more retirements than expected. We recommend minor modifications to rates at a few ages. In addition, because the number of retirements were insufficient to justify gender distinct retirement rates, we recommend use of unisex rates of retirement for reduced benefits.

For unreduced benefits in the first year of eligibility, members retired at an average rate of 35%. After the first year of being eligible for unreduced benefits, members retired at an average rate of 20%. Therefore, we recommend changing the current assumption of a 10% increase in retirement rates for the first year of eligibility for unreduced benefits to 12.5%.

For unreduced benefits after the first year of eligibility, there were fewer retirements than expected. The lower-than-expected actual retirement experience was more prominent for female members than for male members. Therefore, we recommend minor (primarily downward) revisions to the retirement rates.

For inactive vested retirements, the current assumption is that 5% will retire at each early retirement age prior to normal retirement and that 100% of the remaining inactive vested members will retire at normal retirement age. During the experience period, an average of 6.5% of those retired at each early retirement age prior to normal retirement. Therefore, we recommend maintaining the current 5% assumption at each early retirement age prior to normal retirement age.

Termination

The current termination assumptions are gender distinct and based on years since date of hire. Similar to the prior experience review, fewer active members are terminating prior to retirement than expected. For male members, the experience is closer to expected than it is for female members. We recommend that the termination rates be modified (primarily downward) to move towards recent actual experience.

Disability Retirement

The current disability incidence rates are based on age and are unisex. The experience for the period July 1, 2014 to June 30, 2019 shows that approximately one-third of those expected retired with a disability benefit. The prior two experience studies showed that actual disability retirements were close to the expected number. Over the last 15-year period, 80% of those expected retired with a disability benefit. Therefore, we recommend a 20% decrease to the current disability retirement rates.

Spouse Information

Spouse information assumptions affect the valuation and include the percentage of members married and the age difference of spouses. The current assumptions are:

- 75% of members are married
- Male spouses are three years older than female spouses
- 100% of spouses are of the opposite gender

We have limited data on spouse information. However, the current assumptions are reasonable and consistent with assumptions used for similar plans. In addition, all optional forms of payment are actuarially equivalent, so these assumptions do not have a material effect on the valuation results. Therefore, we recommend no change to the current assumptions.

Summary of Actuarial Experience

For the five-year period under review, the Fund has experienced actuarial gains and actuarial losses. Investment returns on the market value of assets has averaged 9.4% and 5.6% over the last 10 and 20 years, respectfully. During the five-year study period, the imputed return on the actuarial value of assets has averaged 7.9%. Experience for all other assumptions has varied between producing gains and losses on a year-by-year basis over the study period, but net experience over the entire period has generally produced actuarial gains. A summary of the historical gains and losses is shown below.

Valuation Date Beginning	Actuarial Accrued Liability (AAL)	Total Actuarial Gain/(Loss)		Investment Gain/(Loss)		Non-Investment Gain/(Loss)	
		Amount	% of AAL	Amount	% of AAL	Amount	% of AAL
July 1, 2019	$3,993,424,160	($10,741,695)	-0.27%	($34,821,389)	-0.87%	$24,079,694	0.60%
July 1, 2018	3,863,515,726	33,266,442	0.86%	4,586,416	0.12%	$28,680,026	0.74%
July 1, 2017	3,734,016,828	20,560,351	0.55%	9,464,023	0.25%	$11,096,328	0.30%
July 1, 2016	3,589,393,851	(41,196,887)	-1.15%	(33,588,108)	-0.94%	(7,608,779)	-0.21%
July 1, 2015	3,449,775,982	48,249,394	1.40%	51,873,093	1.50%	(3,623,699)	-0.11%

Summary of Assumptions and Recommended Changes

The following table summarizes the actuarial assumptions and methods used in the valuation and the changes recommended in this report.

Description	Current	Proposed
Economic Assumptions		
Inflation	2.75%	2.30%
Investment Return	7.75%	7.25%
Salary Scale	Merit/seniority rates (including productivity) based on years since date of hire plus inflation	Minor changes to the merit and seniority (and productivity) portion of individual salary increases for less than 10 years since hire and for between 26 and 30 years since hire
Payroll Growth	3.25%	No change
Demographic Assumptions		
Healthy Mortality	RP-2014 Healthy Annuitant Table, set back one year, multiplied by 50% for ages under 75 and grading up to 100% by age 80 with generational mortality improvement using MP-2014	104% of the PubT-2010 Retiree Table and 95% of the Pub-2010 Contingent Survivor Table with generational mortality improvement using MP-2019
Disabled Mortality	RP-2014 Disabled Mortality Table set forward four years	PubNS-2010 Non-Safety Disabled Mortality Table with generational mortality improvement using MP-2019
Active Mortality	RP-2014 Employee Mortality Table with generational mortality improvement using scale MP-2014	PubT-2010 Employee Table with generational mortality improvement using MP-2019
Active Retirement	For reduced retirement, unisex rates based on age that range from 2% at age 55 to 12% at age 54. For unreduced retirement, gender distinct rates that range from 15% at age 50 to 100% at age 75. In the first year that members become eligible for unreduced benefits, the unreduced retirement benefit is increased 10%.	For reduced retirement, minor changes to the unisex rates. For unreduced retirement, retirement rates are lowered. In the first year that members become eligible for unreduced benefits, the unreduced retirement benefit is increased from 10% to 12.5%.
Inactive Vested Retirement	5% at each early retirement age prior to normal retirement and 100% at normal retirement age.	No change
Termination	Gender distinct rates based on years of service	Minor modifications resulting in generally lower termination rates
Disability Retirement	Age based rates	Decrease current rates by 20%
Spouse Information	75% of members are assumed to be married, male spouses are three years younger than female spouses, and 100% of spouses are the opposite gender	No change

Impact of Assumption and Method Changes on Valuation Results

The following tables detail the impact of recommended assumption changes, using the July 1, 2019 actuarial valuation results for illustrative purposes.

Description ($ in millions)	Current Assumptions	Proposed Mortality Assumptions	Proposed Mortality and Retirement Assumptions	Proposed Mortality, Retirement, Termination and Disability Assumptions
Actuarial Accrued Liability	$3,993.4	$3,882.0	$3,868.6	$3,870.2
Actuarial Value of Assets	2,635.5	2,635.5	2,635.5	2,635.5
Unfunded Actuarial Accrued Liability	1,357.9	1,246.4	1,233.1	1,234.7
Funded Percentage	66.0%	67.9%	68.1%	68.1%
Normal Cost	$86.0	$84.5	$83.9	$84.1
Actuarially Determined Contribution Rate	12.84%	11.60%	11.38%	11.43%
Margin / (Deficit)	(0.09%)	1.15%	1.37%	1.32%
Effective Amortization Period	24 years	21 years	20 years	20 years

Description ($ in millions)	Proposed Demographic and Current Economic Assumptions	Proposed Demographic Assumptions and 7.25% Investment Return	Proposed Demographic Assumptions, 7.25% Investment Return, Salary Increase, and Inflation
Actuarial Accrued Liability	$3,870.2	$4,087.5	$4,046.9
Actuarial Value of Assets	2,635.5	2,635.5	2,635.5
Unfunded Actuarial Accrued Liability	1,234.7	1,451.9	1,411.4
Funded Percentage	68.1%	64.5%	65.1%
Normal Cost	$84.1	$93.8	$88.7
Actuarially Determined Contribution Rate	11.43%	14.17%	13.24%
Margin / (Deficit)	1.32%	(1.42%)	(0.49%)
Effective Amortization Period	20 years	29 years	26 years

The net effect of the recommended demographic assumption changes, using the July 1, 2019 actuarial valuation for illustrative purposes, would have decreased the actuarial accrued liability by approximately $123 million, or 3.1%. The primary driver of the decrease in the actuarial accrued liability is modifying the mortality tables and projection scale, which generally project less improvement in future mortality than MP-2014.

The net effect of the recommended economic assumption changes would have increased the actuarial accrued liability by approximately $177 million, or 4.6%. The primary driver of the increase in the actuarial accrued liability is the lowering of the investment return assumption from 7.75% to 7.25%.

Overall, the recommended demographic and economic changes would increase the actuarial accrued liability by $54 million, or 1.3%, increase the normal cost by $2.7 million, or 3.1%, increase the actuarially determined contribution rate by 0.40% and increase the effective amortization period by two years.

II. Economic Assumptions

The economic assumptions have a significant impact on the development of plan liabilities. Changes to these assumptions can substantially alter the results determined by the actuary. The goal of an experience study is to produce a consistent set of economic assumptions that appropriately reflect expected future economic trends.

The primary economic assumptions that affect TFFR's funding are:

- Inflation;
- Investment Rate of Return;
- Individual Salary Increases; and
- Payroll Growth

The Actuarial Standards Board (ASB) has adopted Actuarial Standard of Practice No. 27 (ASOP 27 - *Selection of Economic Assumptions for Measuring Pension Obligations*) to provide actuaries guidance in developing economic assumptions.

The inflation component is included in all economic assumptions, and therefore is key to developing a consistent set of actuarial assumptions. The investment rate of return assumption includes an inflation component and a real rate of return component. The components of the salary increase assumption are inflation, productivity, and merit and seniority increases. The components of the payroll growth assumption include inflation and productivity.

A. Inflation

In developing the recommendation for the assumed inflation component, actuarial standards of practice suggest the actuary review appropriate inflation data. This data may include consumer price indexes, the implicit price deflator, forecasts of inflation, and yields on government securities of various maturities. For this study, we referred to commonly referenced historical measures of inflation via the National Consumer Price Index for all urban consumers (CPI-U).

The table below shows that recent inflation experience continues at a low rate.

Historical Consumer Price Index – Averages (U.S. City Average - All Urban Consumers)

Average Annual Change as of June 30, 2019	CPI-U
5-Year Average	1.45%
10-Year Average	1.73%
20-Year Average	2.19%
30-Year Average	2.44%

As can be seen in the table on the prior page, the average annual inflation rates have gradually declined over the last 30 years due to a relatively low inflationary period over the past two decades. Historical trend is a less important consideration for the assumed rate of inflation, but assists in determining the reasonable bounds of expected inflation.

Since 2012, Horizon Actuarial Services, LLC has published survey results that summarize the capital market assumptions of various investment firms. Based on the survey results from the 2019 Edition of the Survey of Capital Market Assumptions, the average 10-year inflation assumption across 34 survey respondents was 2.21% and the average 20-year inflation assumption across a subset of 16 survey respondents was 2.29%.

The table below compares the 2019 Horizon Survey results to other sources.

Source	10-Year	20-Year
Federal Reserve Bank of Philadelphia Fourth Quarter 2019 Survey of Professional Forecasters	2.20%	
Callan	2.25%	
Segal Marco Advisors	2.00%	2.00%
2019 Horizon Survey of Capital Market Assumptions	2.21%	2.29%

Next, we consider the measure of future inflation expectation. An indication of future expectation is a market-based forecast. Treasury Inflation Protection Securities (TIPS) are government bonds, which, in addition to a fixed yield, add the actual percentage change in CPI to the principal value. Therefore, the spread between the TIPS and the Conventional Treasury note/bond of the same maturity is an indication of the market's forecast for inflation.

The following table compares the yields on US Treasury Bonds as of June 30, 2019, with and without inflation indexing.

US Treasury Bonds as of June 30, 2019	10-Year Yield	20-Year Yield	30-Year Yield
Non-Inflation Indexed	2.07%	2.36%	2.57%
Inflation Indexed	0.37%	0.59%	0.79%
Difference	1.70%	1.77%	1.78%

Because of the inflation protection, TIPS' yields are considerably lower than those of regular Treasury securities of similar maturities. As of June 30, 2019, 30-year Treasuries yielded 2.57% while 30-year TIPS yielded 0.79%. In order for 30-year TIPS to match the return of the conventional 30-year Treasury for a buy-and-hold income investor, inflation would have to measure 1.78% per year over the next 30 years. The market's expectation of inflation alone is not a definitive basis for an inflation assumption, but is useful as one indicator of future trend. In addition, it is also important to note that the market's view of inflation over 20 years is essentially the same as over 30 years.

Lastly, we referred to the 2019 report on the financial status of the Social Security program[1]. The projected average increase in price inflation over the next 75 years under the intermediate cost assumptions used in that report was 2.60%. The price inflation measure used in this report is the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W)[2]. Besides projecting the results under the intermediate cost assumptions using an inflation assumption of 2.60%, alternative projections were also made using a lower and a higher inflation assumption of 2.00% and 3.20%, respectively.

The Philadelphia Federal Reserve Bank Survey of Professional Forecasters indicates inflation expectations of a 10-year period of 2.20%. This is consistent with the 10-year projections contained in the Horizon Survey. The 20-year projections in the Horizon Survey indicate inflation of 2.29%. In addition, the market's expectation of inflation over 30 years is consistent with expectations over 20 years. Considering all of this information, we recommend that the assumption be lowered to 2.30%.

[1] Source: Social Security Administration – The 2019 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

[2] The CPI-W is a more specialized index relative to CPI-U and seeks to track retail prices as they affect urban hourly wage earners and clerical workers. It encompasses about 32 percent of the United States' population and is a subset of the CPI-U group. The CPI-W places a slightly higher weight on food, apparel, transportation, and other goods and services. It places a slightly lower weight on housing, medical care, and recreation. The CPI-U is a more general index and seeks to track retail prices as they affect all urban consumers. It encompasses about 87 percent of the United States' population.

B. Investment Rate of Return

The investment rate of return is used to determine the present value of expected future plan payments. The selection of an investment return assumption considers capital market outlook, the Fund's portfolio mix, and, to a lesser extent, historical returns.

The current investment return assumption is 7.75%, which is comprised of the following components:

- Inflation: 2.75%
- Real rate of return: 5.61%, net of 0.50% for investment expenses
- Adjustment for conservatism: 0.11%

The table below shows the Fund's actual investment returns on a market value basis as well as an actuarial value basis.

Average Annual Return as of June 30, 2019	Market Value of Assets	Actuarial Value of Assets
Past 10 Years	9.4%	5.3%
Past 15 Years	6.6%	6.1%
Past 20 Years	5.6%	5.9%
Past 30 Years	7.5%	7.1%

Investment returns have been less than the 7.75% return assumption on an actuarial value of assets basis. The investment return on the market value of assets basis has been above the current assumption for the past 10 years, but lower than the assumption for other periods. Historical trend is a less important consideration for the assumed rate of investment return, but assists in determining the reasonable bounds of expected investment return,

We based our analysis of the expected real rate of return on the Horizon Survey of Capital Market Assumptions (2019 Edition). This survey compiles and averages the capital market assumptions of 34 investment consultants (including Callan and Segal Marco Advisors). All investment consultants provided assumptions for a 10-year period and 16 respondents provided assumptions for 20-year periods. The expected arithmetic returns are used to determine the expected return by asset class. The 20-year expected geometric real rate of return was generated from the 50^{th} percentile of 5,000 simulated portfolio return trials.

The real return assumptions for the asset classes and the portfolio's expected real return are shown below.

Horizon Study Asset Classes	Horizon Study 20-Year Annual Arithmetic Real Return	Target Allocation	Weighted Real Return
US Core	2.17%	16%	0.35%
Real Estate	5.65%	10%	0.57%
High Yield	4.09%	7%	0.29%
Commodities/Timber	4.00%	2%	0.08%
Infrastructure	6.17%	6%	0.37%
Cash	0.78%	1%	0.01%
US Large Cap	6.05%	24%	1.45%
US Small Cap	7.23%	7%	0.50%
International Developed	7.01%	17%	1.19%
Emerging Markets	9.38%	4%	0.37%
Private Equity	10.53%	6%	0.63%
Total		**100%**	**5.81%**
Adjustment to Geometric			(0.63%)
Geometric Real Rate of Return			**5.18%**

Using the Fund's target asset allocation and the capital market assumptions provided in the 2019 Horizon Survey, the expected real return is 5.18%. This means that over a 20-year period, the Fund is expected to earn an annual rate of return of at least 5.18% half of the time. An expected real rate of return of 4.95% will increase the likelihood of meeting the expectation over a 20-year period to 53%. The following table summarizes the components of the current and proposed investment return assumption.

Assumption Component	Current Assumption	Proposed Assumption
Inflation	2.75%	2.30%
Real Rate of Return	5.11%	5.18%
Adjustment for Adverse Deviation	(0.11%)	(0.23%)
Total Expected Rate of Return	**7.75%**	**7.25%**
Confidence Level	N/A	53.2%

The purpose of the adjustment for adverse deviation is to increase the likelihood of achieving the expected investment return. For example, the 23 basis point reduction in the recommended assumption increases the likelihood of meeting the expectation to 53.2%.

Based on this analysis, we recommend lowering the investment return assumption from 7.75% to 7.25%.

C. Salary Scale

The rate of individual salary increase scale is used to determine members' benefits provided by the Fund. Generally, a member's salary will change over the long term in accordance with inflation, productivity, and merit and seniority scale. The actuary should review available compensation data when selecting this assumption, including the school districts' current compensation practices and any anticipated changes, historical compensation increases and practices of the school districts and other employers in the same industry or geographic area, and historical national wage and productivity growth.

The estimated rate of individual salary increases consists of the following components:

- Inflation
- Productivity
- Merit and seniority increases

The inflation and productivity components are combined to produce the assumed rate of wage inflation. The productivity assumption is currently 1.5%. As described in the next section, we recommend a decrease in the productivity assumption to 1.3%. The inflation and productivity components represents the "across the board" average annual increase in salaries shown in the experience data. The merit component includes the additional increases in salary due to performance, seniority, promotions, etc.

Since merit and seniority increases are unique to each retirement system, it is appropriate to base this assumption on recent experience. We study the merit and seniority increases separately from inflation.

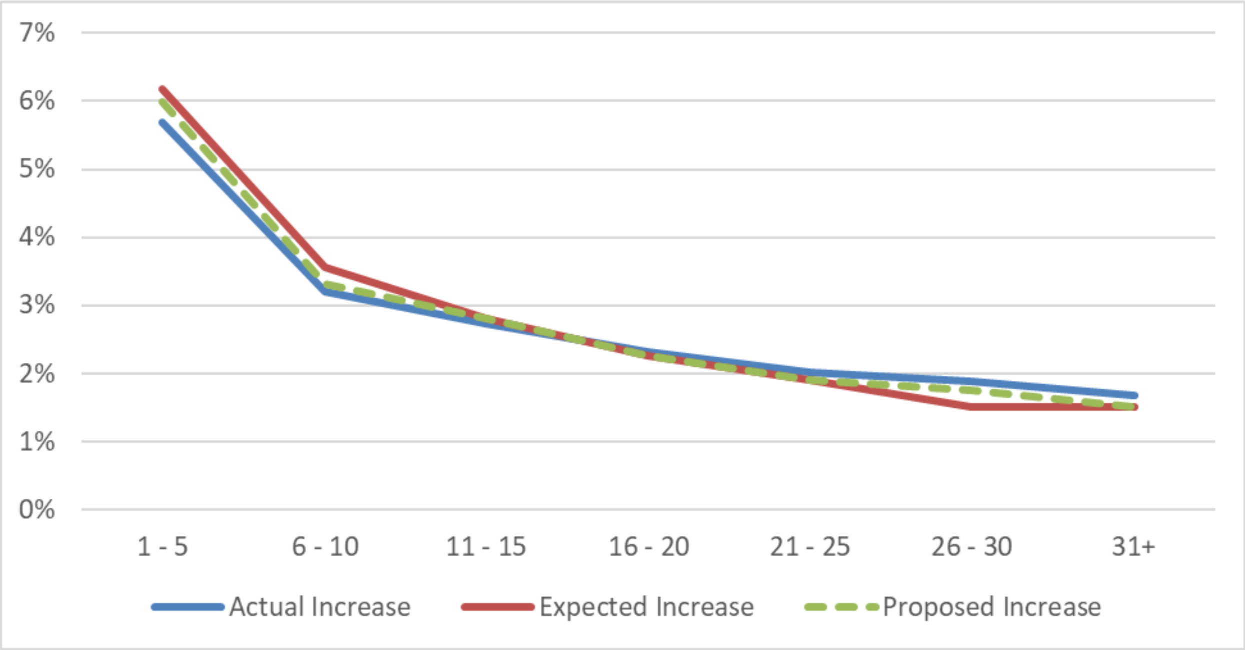
The current salary scale assumption is a table based on years since date of hire. The individual salary increase assumption (including inflation and productivity) ranges from 14.5% during the first year to 4.25% at 26 or more years of service. The historical compensation data, adjusted by approximately 1.5% to account for actual inflation during the study period, was evaluated based on age and years since date of hire age. The strongest relationship continues to be based on members' years since date of hire.

The actual historical compensation data for the experience period (shown in the tables that follow) have been adjusted by approximately 1.5% to account for actual inflation during the study period. The expected salary increase rates have been adjusted by 2.75% to account for our prior assumed rate of inflation. The proposed increase rates are based on ages as of the valuation date and do not reflect any underlying assumptions for inflation, while the proposed increase rates plus inflation reflect our newly proposed assumption for inflation of 2.30%.

The following table and graph shows the actual salary increase experience compared to the current and proposed assumptions. Experience has been adjusted to remove actual inflation over the experience period, which averaged approximately 1.5%.

Years from Hire	Prior Year Salaries (in $000s)	Actual Salaries[3] (in $000s)	Actual Salary Increase	Expected Salary Increases (in $000s)	Expected Salary Increase Rate	Proposed Salary Increase Rate
1 – 5	731,565	773,141	5.68%	776,824	6.19%	6.00%
6 – 10	519,638	536,265	3.20%	538,166	3.57%	3.31%
11 – 15	413,223	424,490	2.73%	424,824	2.81%	2.81%
16 – 20	404,524	413,927	2.32%	413,639	2.25%	2.25%
21 – 25	307,546	313,747	2.02%	313,407	1.91%	1.91%
26 – 30	244,914	249,546	1.89%	248,588	1.50%	1.75%
31+	226,542	230,358	1.68%	229,940	1.50%	1.50%
Total	**2,847,953**	**2,941,473**	**3.28%**	**2,946,389**	**3.42%**	**3.35%**

Graph 1
Salary Increase Experience



[3] Adjusted for actual average inflation of approximately 1.5% during the experience period.

D. Payroll Growth

The payroll growth assumption represents the expected annual increase in total covered payroll from one year to the next. This assumption is used to determine the amortization of unfunded actuarial accrued liability (in the actuarially determined contribution) as a level percentage of payroll. The current assumption for payroll growth is 3.25% per year and consists of the following components:

Component	Current Assumption
Inflation	2.75%
Productivity	1.50%
Adjustment for conservatism	-1.00%
Total	3.25%

Productivity can be measured as the excess of the increase in the National Average Wage over inflation. As of June 2019:

- The 20-year average of the National Average Wage is 3.0%
- The 20-year average inflation is 2.2%

The 0.8% difference between these figures represents the average productivity over the last 20 years. We expect productivity in North Dakota to continue to be greater than the national average, due to its overall strong economy. Therefore, we recommend decreasing the productivity component from 1.5% to 1.3%, which is consistent with the change in national productivity since the prior study (1.0% versus 0.8%)

A lower payroll growth assumption is more conservative. To the extent that actual payroll increases were more than 3.25%, more dollars have gone toward paying off the unfunded liability than anticipated and future amortization payments are lower.

The following table summarizes the Fund's historical payroll and active population growth:

Year Ended June 30	Total Payroll ($ in millions)	Number of Active Members
2019	$680.5	11,175
2014	557.2	10,305
2009	440.0	9,707
2004	376.5	9,826
1999	314.6	10,046

The average increase in covered payroll and active members is shown below:

Period	Increase in Total Payroll	Increase in Active Members
5-year average	4.1%	1.6%
10-year average	4.5%	1.4%
15-year average	4.0%	0.9%
20-year average	3.9%	0.5%

Based on a 30-year open group projection, assuming a level active population and that all recommended demographic assumptions herein are adopted, projected total payroll is expected to increase by 3.0% year, on average, over the long-term and 3.25% over the first ten years.

The following table summarizes the components of the current and recommended payroll growth assumption:

Component	Current	Recommended
Inflation	2.75%	2.30%
Productivity	1.50%	1.30%
Adjustment for Conservatism	-1.00%	-0.35%
Total	3.25%	3.25%

III. Demographic Assumptions

The demographic assumptions used to value TFFR reflect the expected occurrences of various events among members of the Plan. The assumptions should reflect specific characteristics of the Plan and produce reasonable results. A reasonable assumption is one that is expected to model the contingency being measured and not expected to produce significant gains and losses. The types of demographic assumptions used to measure pension obligations include, but are not limited to the following:

- Mortality;
- Retirement;
- Termination;
- Disability incidence; and
- Other assumptions such as percent married and age difference between spouses

The Actuarial Standards Board (ASB) has adopted Actuarial Standard of Practice No. 35 (ASOP 35 – *Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations*) to provide actuaries guidance in developing demographic assumptions. The standard recommends the actuary follow a general process for selecting demographic assumptions. The first step of the general procedure is to identify the types of assumptions to use. The actuary should consider relevant plan provisions that will affect timing and value of any potential benefit payments, all contingencies that give rise to benefits or loss of benefits and the characteristics of the covered group. The next step is to identify the relevant assumption universe. The assumption universe may include prior experience studies or general studies of trends relevant to the type of demographic assumption in addition to plan experience to the extent that it is credible. The third step is to consider the assumption format. The format may include different tables for different segments of the covered population (i.e., different termination rate tables for males/females). The final step is the select the specific assumption and evaluate the reasonableness of each assumption. The specific experience of the Plan should be incorporated but not given undue weight to past experience if recent experience is attributable to a phenomenon that is unlikely to continue. For example, if recent rates of termination were due to a one-time reduction in workforce it may be unreasonable to assume that such rates will continue.

A. Mortality Rates

One of the most significant actuarial assumptions is the probability of death. The mortality assumption takes the form of a mortality table that contains for each age in the table a probability of a person dying between that age and the next. TFFR currently uses three different mortality tables for its members: post-retirement mortality, disabled mortality and pre-retirement mortality.

In 2019, the Society of Actuaries published a series of mortality tables derived from public plan experience, called Pub-2010. The published mortality tables are based on three broad categories: teachers, public safety, and general employees. In addition, the study concluded that surviving annuitants demonstrated worse mortality than the primary annuitants. As a result, separate contingent survivor tables were developed. For purposes of comparing actual experience to expected, the PubT-2010 (the teacher table) have been projected to 2016, the mid-point of the experience study.

We analyzed the experience two ways: one way is solely by number of annuitants while the other way is by weighting the probability of death with each annuitant's pension benefit amount. This methodology takes into consideration the correlation between the annuitant mortality and the level of benefit.

In 2008, the SOA published an article recommending that mortality assumptions include an adjustment for credibility. Under this approach, the number of deaths in a sub-group needed for full credibility for a headcount-weighted mortality table is 1,082. Full credibility in this context means 90% confidence that the actual experience will be within 5% of the expected value.

When reviewing the actual experience under each of the three categories below, we compared the actual experience with the current mortality table and with the applicable Pub-2010 mortality table. After thoroughly reviewing the results, we can conclude that the Pub-2010 mortality tables are more consistent with the actual experience than the prior RP-2014 mortality tables. We recommend updating the base tables to the appropriate Pub-2010 mortality tables, with adjustments for TFFR-specific experience where credible data exists. We also recommend the use of the Pub-2010 Contingent Survivor Mortality Table. In order to reflect future improvements in mortality, we recommend updating the mortality projection scale to MP-2019.

Post-Retirement Healthy Mortality

The mortality experience among retirees and beneficiaries determines the durations over which retirement benefits are paid. Lower mortality rates mean longer benefit payment periods and, therefore, higher benefit costs.

Currently, TFFR uses healthy post-retirement mortality rates based on the RP-2014 Healthy Annuitant Mortality Table (sex distinct) set back one year, multiplied by 50% for ages under 75 and grading up to 100% by age 80, projected generationally using MP-2014 for both males and females.

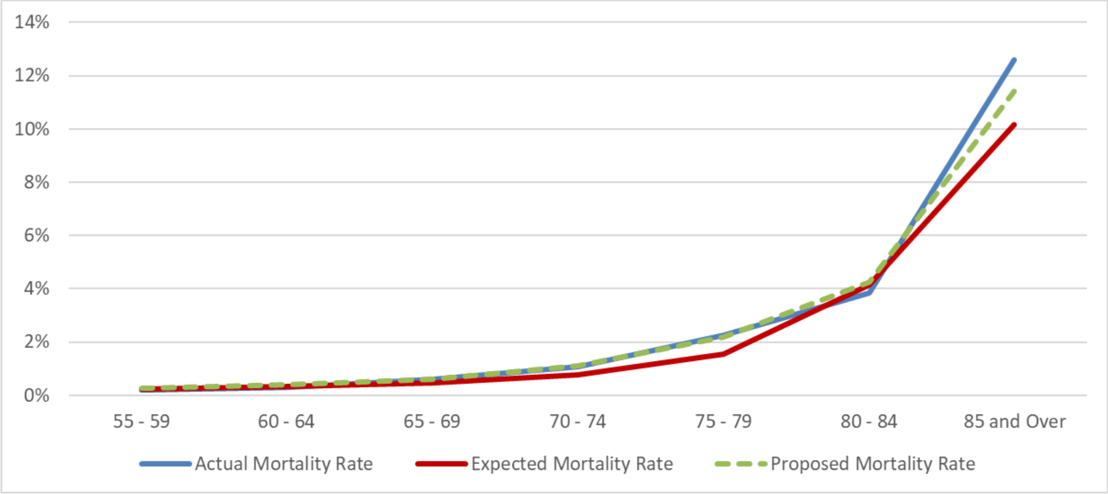
The experience during the study period shows that, in total, more members in pay status have died than expected. On a benefit-weighted basis, the actual number of deaths was 21% greater than expected. The actual rate of death for females was 16% greater than expected. For males, the actual rate of death was 28% greater than expected. During the experience study period, there were 849 actual deaths, resulting in partial credibility of 89%. We used the 89% credibility adjustment to develop the recommended mortality assumptions.

The following table provides a summary of mortality experience for annuitants by basis and gender for the study period:

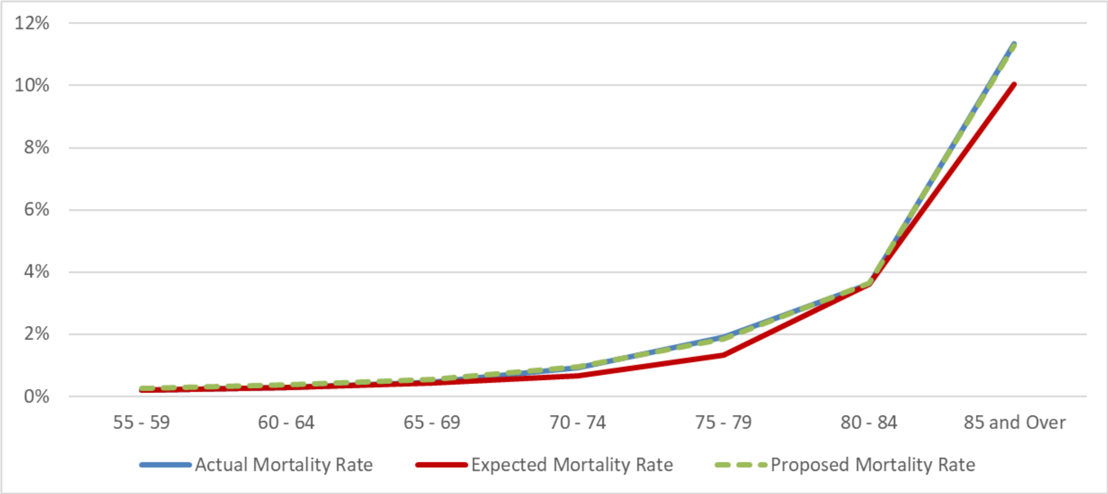
Gender	Exposures	Actual Deaths	Expected Deaths	Ratio of Actual to Expected
Basis – Counts				
Female	24,894	521	451	115%
Male	12,319	328	243	135%
Total	**37,213**	**849**	**694**	**122%**
Basis – Benefits (in 000's)				
Female	555,846	6,882	5,939	116%
Male	326,378	6,267	4,905	128%
Total	**882,244**	**13,149**	**10,844**	**121%**

The total number of deaths on a benefit-weighted basis was 13,149. Applying the TFFR exposures to the unadjusted PubT-2010 Retiree Table would result in 12,601 proposed deaths. Applying the credibility-weighted adjustment of 89% would result in 13,048 proposed deaths (a blend of actual experience and unadjusted PubT-2010). Therefore, we recommend that the mortality table be updated to 104% of the PubT-2010 Retiree Table, which would result in 13,105 deaths and is close to the number of credibility-weighted deaths during the study period. The following graphs show the actual mortality rate, expected mortality rate, and proposed mortality rate by total, female, and male.

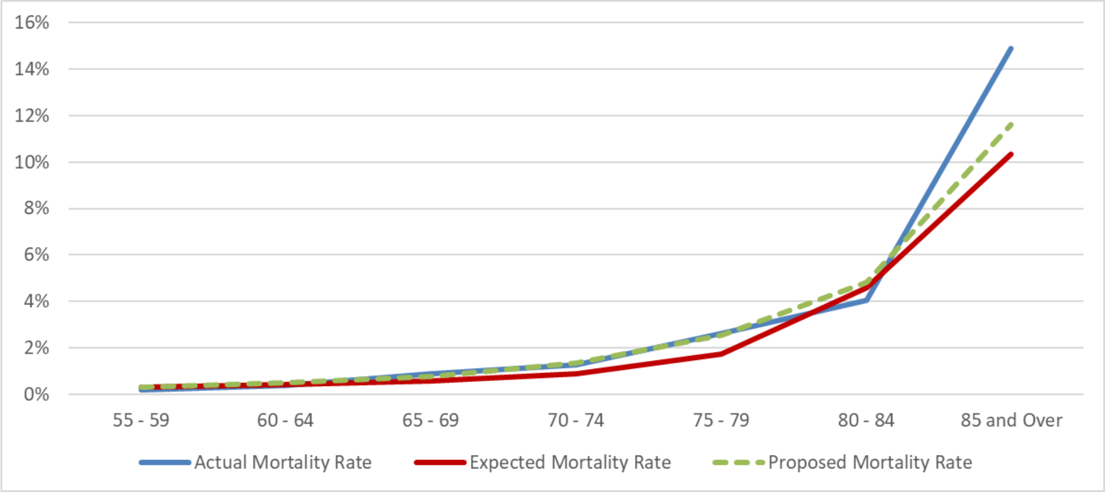
Graph 2
Actual Versus Proposed Experience, Benefit-Weighted Basis
Healthy Retiree Mortality – **Total**



Graph 3
Actual Versus Proposed Experience, Benefit-Weighted Basis
Healthy Retiree Mortality – **Female**



Graph 4
Actual Versus Proposed Experience, Benefit-Weighted Basis
Healthy Retiree Mortality – **Male**



The following table compares the experience during the study period of the actual annuitant deaths to the current assumption and the proposed assumption.

Gender	Exposures	Actual Deaths	Expected Deaths	Ratio of Actual to Expected	Proposed Deaths	Ratio of Actual to Proposed
Basis – Benefits (in 000's)						
Female	555,846	6,882	5,939	116%	7,093	97%
Male	326,378	6,267	4,905	128%	6,012	104%
Total	**882,244**	**13,149**	**10,844**	**121%**	**13,105**	**100%**

Beneficiary Mortality

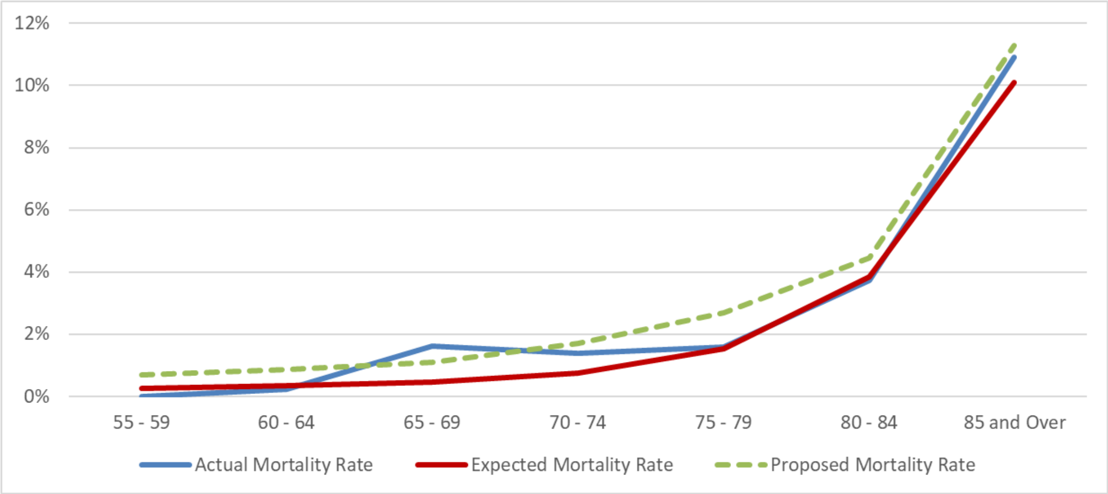
Currently, TFFR uses the same mortality table for beneficiaries that is used for healthy annuitants. The beneficiary experience during the study period shows that, in total, more beneficiaries have died than expected. On a benefit-weighted basis, the rate of death in total was 15% greater than expected. The actual rate of death for females was 11% greater than expected. For males, the actual rate of death was 32% greater than expected. During the experience study period, there were 130 actual deaths, resulting in partial credibility of 35%. We used the 35% credibility adjustment to develop the recommended mortality assumptions.

The following table provides a summary of mortality experience for beneficiaries by basis and gender for the study period:

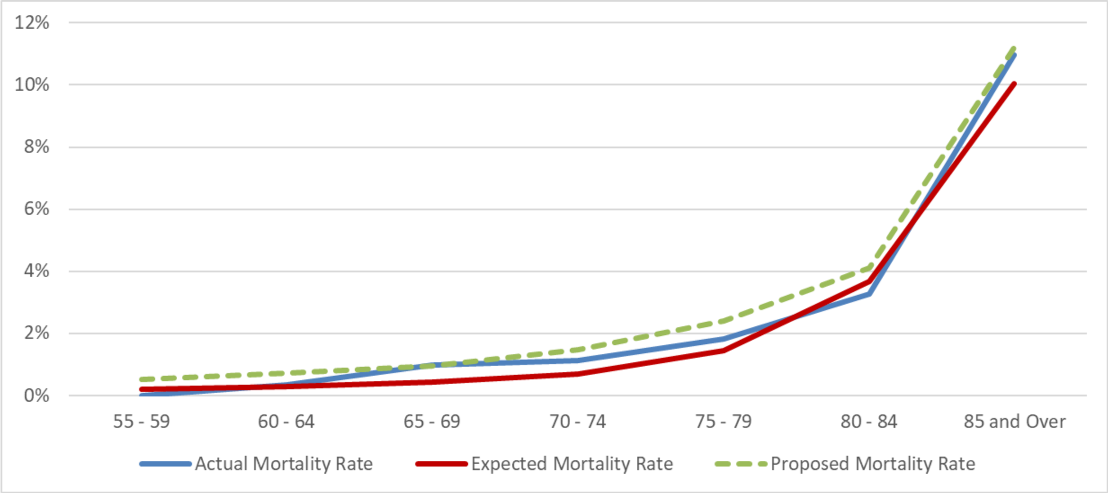
Gender	Exposures	Actual Deaths	Expected Deaths	Ratio of Actual to Expected
Basis – Counts				
Female	2,458	104	92	113%
Male	868	26	19	135%
Total	**3,326**	**130**	**112**	**116%**
Basis – Benefits (in 000's)				
Female	36,201	1,326	1,192	111%
Male	11,799	304	230	132%
Total	**48,000**	**1,630**	**1,423**	**115%**

The total number of beneficiary deaths on a benefit-weighted basis was 1,630. Applying the TFFR exposures to the unadjusted Pub-2010 Contingent Survivor Table would result in 1,928 proposed deaths. Applying the credibility-weighted adjustment of 35% would result in 1,828 proposed deaths (a blend of actual experience and unadjusted Pub-2010 Contingent Survivor). Therefore, we recommend that the mortality table be updated to 95% of the Pub-2010 Contingent Survivor Table, which would result in 1,832 deaths and is close to the number of credibility-weighted deaths during the study period. The following graphs show the actual mortality rate, expected mortality rate, and proposed mortality rate by total, female, and male.

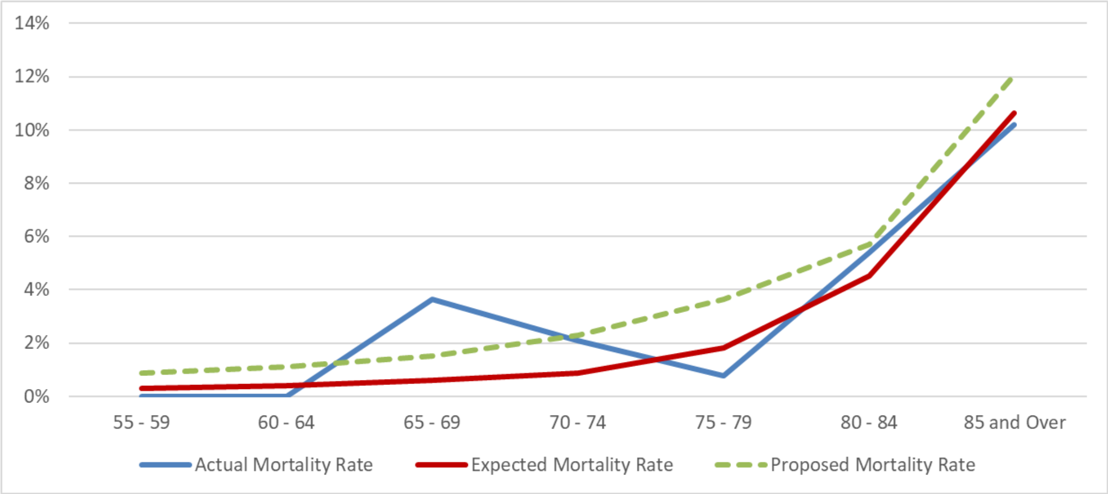
Graph 5
Actual Versus Proposed Experience, Benefit-Weighted Basis
Beneficiary Mortality – **Total**



Graph 6
Actual Versus Proposed Experience, Benefit-Weighted Basis
Beneficiary Mortality – **Female**



Graph 7
Actual Versus Proposed Experience, Benefit-Weighted Basis
Beneficiary Mortality – **Male**



The following table compares the experience during the study period of the actual beneficiary deaths to the current assumption and the proposed assumption.

Gender	Exposures	Actual Deaths	Expected Deaths	Ratio of Actual to Expected	Proposed Deaths	Ratio of Actual to Proposed
Basis – Benefits (in 000's)						
Female	36,201	1,326	1,192	111%	1,468	90%
Male	11,799	304	230	132%	364	83%
Total	**48,000**	**1,630**	**1,423**	**115%**	**1,832**	**89%**

Disabled Mortality

The current mortality table for disabled lives is the RP-2014 Disabled Mortality Table set forward four years. Experience for disabled annuitants has been consistent with the current assumptions as the ratio of actual to expected deaths on a benefits weighted basis is 92%. However, we recommend updating the base table to the Pub-2010 Non-Safety Disabled Retiree Table. The limited number of actual deaths is insufficient to warrant making an adjustment to the published table. In order to reflect future improvements in mortality, rather than using a static table with margin, we recommend applying generational improvement using Scale MP-2019.

The following table provides a summary of disabled mortality experience by basis in total for the study period:

Exposures	Actual Deaths	Expected Deaths	Ratio of Actual to Expected	Proposed Deaths	Ratio of Actual to Proposed
Basis – Counts					
638	18	20	90%		
Basis – Benefits (in 000's)					
9,373	250	272	92%	229	109%

Pre-Retirement Mortality

First, in combination with withdrawal and disability rates, the pre-retirement mortality table enables the actuary to estimate the number of individuals who will eventually be eligible for a service retirement benefit, and thereby estimate the liability for those individuals. In addition, the death of a member before retirement may result in a benefit payable to a beneficiary, and the liability for these benefits must be taken into account in the valuation.

The current mortality table for active members is the RP-2014 Employee Mortality Table, projected generationally using Scale MP-2014. Very few members die in active service and the liability associated with active deaths is a small percentage of the total liability. Since plan experience is insufficient to set the assumption, we recommend using the PubT-2010 Employee Table for active members and applying a generational projection using Scale MP-2019. The mortality experience of active and terminated vested members is important for several reasons.

B. Retirement Rates

Active Retirement

The eligibility criteria for retirement differs by Tier. Tier 1 members are those hired prior to July 1, 2008. Grandfathered Tier 1 members are those who either were at least age 55 with at least three years of service or whose age plus service was at least 65 as of June 30, 2013. Non-grandfathered Tier 1 members are those who do not meet these criteria as of June 30, 2013. Tier 2 members are those hired after June 30, 2008.

Eligibility for unreduced retirement benefits is as follows:

- Tier 1 members are eligible at the earlier of:
  - Age 65 with three years of service
  - If grandfathered, age plus service is at least 85
  - If non-grandfathered, age plus service is at least 90 with a minimum age of 60
- Tier 2 members are eligible at the earlier of:
  - Age 65 with five years of service
  - Age plus service is at least 90 with a minimum of age 60

Eligibility for reduced benefits is as follows:

- For all Tier 1 members, age 55 with three years of service
- For Tier 2 members, age 55 with five years of service.

The current retirement rates vary based on a member's age and gender as well as whether the member is eligible for a reduced or unreduced benefit. In the first year that the member becomes eligible for an unreduced benefit, the unreduced retirement rate is increased by 10%.

We have analyzed retirement experience on a benefit-weighted basis for the following groups:

- Eligible for a reduced benefit.
- Eligible for an unreduced benefit in the first year only
- Eligible for an unreduced benefit in all other years

There is little Tier 2 retirement experience and grandfathered versus non-grandfathered experience to analyze. However, the retirement rates take into account each member's eligibility requirements.

Reduced Retirement Benefit

The experience showed that there were slightly more retirements than expected. We recommend minor modifications at a few ages. In addition, because the number of retirements were insufficient to justify gender distinct retirement rates, we recommend continued use of unisex rates of retirement for reduced benefits.

The following table compares the experience during the study period of the rate of reduced retirements to the current assumption and the proposed assumption.

Gender	Exposures	Actual Retirements	Expected Retirements	Ratio of Actual to Expected	Proposed Retirements	Ratio of Actual to Proposed
Basis – Benefits (in 000's)						
Total	87,178	4,173	3,278	127%	3,738	112%

The following table and graph shows the actual reduced retirement experience compared to the current and proposed assumptions.

Age	Exposures	Actual Retirements	Actual Retirement Rate	Expected Retirements	Assumed Retirement Rate	Ratio of Actual Rate to Expected Rate	Proposed Retirement Rate
Basis – Benefits (in 000's)							
55	17,281	293	1.70%	346	2.00%	85%	2.00%
56	14,057	330	2.34%	281	2.00%	117%	2.00%
57	12,723	576	4.53%	254	2.00%	226%	3.00%
58	10,256	386	3.76%	308	3.00%	125%	3.50%
59	9,161	408	4.45%	321	3.50%	127%	4.00%
60	7,748	398	5.14%	310	4.00%	128%	5.00%
61	6,014	722	12.01%	391	6.50%	185%	9.00%
62	4,173	448	10.73%	376	9.00%	119%	10.00%
63	3,326	262	7.88%	399	12.00%	66%	11.00%
64	2,440	350	14.36%	293	12.00%	120%	12.00%
Total	**87,178**	**4,173**	**4.79%**	**3,278**	**3.76%**	**127%**	**4.29%**

Graph 8
Actual Versus Proposed Experience, Benefit-Weighted Basis
Reduced Retirement – **Total**

Unreduced Retirement Benefit in the First Year of Eligibility

The experience shows that male and female members who retired in the first year of eligibility for an unreduced benefit retired an average rate of 35%. After the first year of being eligible for unreduced benefits, members retired at an average rate of 20%. Therefore, we recommend changing the current assumption of a 10% increase in retirement rates for the first year of eligibility for unreduced benefits to 12.5%.

Unreduced Retirement Benefit after the First Year of Eligibility

The experience shows that there were fewer retirements than expected. The reduction in retirements was greater for female members than for male members. Therefore, we recommend minor revisions to the retirement rates.

As shown in the table below, the actual number of retirements that occurred after the first year of eligibility for unreduced benefits was 19% less than expected for females and 11% less than expected for males.

Gender	Exposures	Actual Retirements	Expected Retirements	Ratio of Actual to Expected
Basis – Benefits (in 000's)				
Female	128,576	24,905	30,922	81%
Male	55,138	10,880	12,196	89%
Total	**183,714**	**35,785**	**43,118**	**83%**

The following tables and graphs shows the actual unreduced retirement experience compared to the current and proposed assumptions.

Female

Age	Exposures	Actual Retirements	Actual Retirement Rate	Expected Retirements	Expected Retirement Rate	Ratio of Actual to Expected	Proposed Retirement Rate
Basis – Benefits (in 000's)							
<55	2,145	598	27.88%	322	15.00%	186%	15.00%
55	6,566	1,529	23.29%	985	15.00%	155%	15.00%
56	9,022	1,321	14.64%	1,353	15.00%	98%	15.00%
57	10,169	1,241	12.20%	1,525	15.00%	81%	15.00%
58	11,395	1,986	17.43%	1,709	15.00%	116%	15.00%
59	13,302	2,007	15.09%	1,995	15.00%	101%	15.00%
60	14,628	2,207	15.09%	2,194	15.00%	101%	15.00%
61	13,909	3,356	24.13%	3,477	25.00%	97%	25.00%
62	13,064	4,156	31.81%	4,573	35.00%	91%	30.00%
63	10,237	2,177	21.27%	3,071	30.00%	71%	30.00%
64	8,460	3,257	38.50%	3,384	40.00%	96%	40.00%
65	6,855	624	9.10%	3,427	50.00%	18%	35.00%
66	3,306	146	4.41%	1,322	40.00%	11%	30.00%
67	2,371	216	9.12%	711	30.00%	30%	20.00%
68	924	46	5.03%	277	30.00%	17%	20.00%
69	777	8	0.97%	233	30.00%	3%	20.00%
70-74	1,445	31	2.13%	361	25.00%	9%	20.00%
Total	**128,576**	**24,905**	**19.37%**	**30,922**	**24.05%**	**81%**	**22.11%**

Graph 9
Actual Versus Proposed Experience, Benefit-Weighted Basis
Reduced Retirement – **Female**

Male

Age	Exposures	Actual Retirements	Actual Retirement Rate	Expected Retirements	Expected Retirement Rate	Ratio of Actual to Expected	Proposed Retirement Rate
Basis – Benefits (in 000's)							
<55	649	154	23.74%	97	15.00%	158%	15.00%
55	2,381	393	16.49%	357	15.00%	110%	15.00%
56	4,216	679	16.11%	632	15.00%	107%	15.00%
57	5,265	969	18.40%	790	15.00%	123%	15.00%
58	5,453	669	12.26%	818	15.00%	82%	15.00%
59	5,873	1,130	19.25%	881	15.00%	128%	15.00%
60	5,557	1,021	18.38%	834	15.00%	123%	15.00%
61	5,524	2,033	36.81%	1,381	25.00%	147%	30.00%
62	4,205	1,062	25.24%	1,472	35.00%	72%	30.00%
63	4,128	1,021	24.74%	1,032	25.00%	99%	25.00%
64	3,323	1,197	36.00%	1,163	35.00%	103%	35.00%
65	2,935	159	5.40%	1,174	40.00%	14%	30.00%
66	1,911	216	11.30%	573	30.00%	38%	25.00%
67	1,236	67	5.42%	371	30.00%	18%	25.00%
68	624	47	7.53%	156	25.00%	30%	20.00%
69	642	27	4.18%	161	25.00%	17%	20.00%
70-74	1,215	37	3.05%	304	25.00%	12%	20.00%
Total	**55,138**	**10,880**	**19.73%**	**12,196**	**22.12%**	**89%**	**21.20%**

Graph 10
Actual Versus Proposed Experience, Benefit-Weighted Basis
Reduced Retirement – **Male**

Inactive Vested Retirement

The current assumption is that 5% of inactive members will retire at each early retirement age prior to normal retirement and that 100% of the remaining inactive vested members will retire at normal retirement age. During the experience study period, an average of 6.5% of eligible inactive vested members retired at each early retirement age prior to normal retirement. Therefore, we recommend maintaining the current 5% assumption at each early retirement age prior to normal retirement age.

The following table compares the experience during the study period of the rate of inactive vested retirements to the current assumption and the proposed assumption.

Exposures	Actual Retirements	Expected Retirements	Ratio of Actual to Expected	Proposed Retirements	Ratio of Actual to Proposed
Basis – Counts					
2,373	154	119	130%	119	130%

C. Termination

The termination rates used in annual actuarial valuations project the percentage of employees at each age or service duration that will terminate membership before retirement. These rates take account of possible terminations for all causes other than retirement, death, or disability. They include both voluntary and involuntary withdrawals from service.

Terminations before retirement give rise to some benefit rights, but may also involve the forfeiture of a portion of previously accrued benefits. Forfeitures resulting from turnover are anticipated in advance and help finance benefits that become payable to other members.

The termination experience studied includes all terminations of active employment for members not vested at termination (since such members are not eligible for other benefits, termination of employment will, most likely, result in a withdrawal of employee contributions), and terminations of membership for members who were vested and either withdrew their contributions or are eligible for future benefits. Rehired members offset these terminations in order to determine the net terminations for each year.

As shown in the table below, the total rate of terminations (on a benefit-weighted basis) are about 10% less than expected.

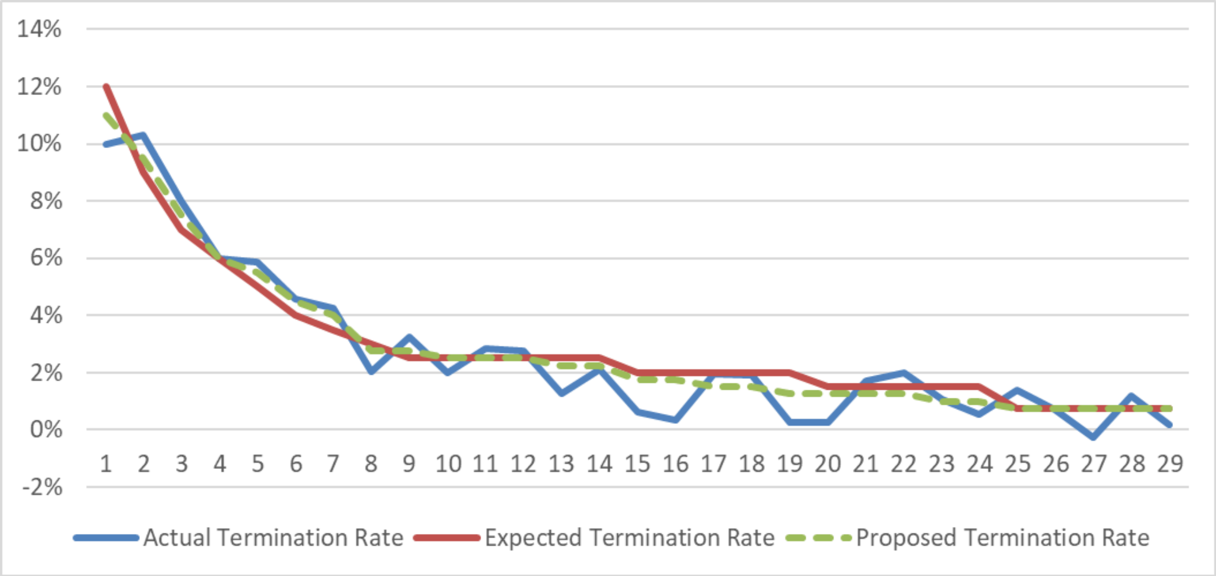
Gender	Exposures	Actual Terminations	Expected Terminations	Ratio of Actual to Expected
Basis – Benefits (in 000's)				
Female	338,406	6,839	7,854	87%
Male	156,525	2,707	2,745	99%
Total	**494,931**	**9,546**	**10,599**	**90%**

The current termination assumptions are sex distinct and based on service. We recommend minor changes (primarily decreases) to the rates of termination. The following tables and graphs show the actual, expected, and proposed termination rates based on years since hire.

Female

Years Since Hire	Exposures	Actual Terminations[4]	Actual Termination Rate	Expected Terminations	Expected Termination Rate	Ratio of Actual to Expected	Proposed Termination Rate
Basis – Benefits (in 000's)							
1	2,517	251	9.98%	302	12.00%	83%	11.00%
2	4,914	506	10.29%	442	9.00%	114%	9.50%
3	6,573	527	8.02%	460	7.00%	115%	7.50%
4	7,470	448	6.00%	448	6.00%	100%	6.00%
5	7,643	449	5.88%	382	5.00%	118%	5.50%
6	8,451	387	4.57%	338	4.00%	114%	4.50%
7	9,320	395	4.24%	326	3.50%	121%	4.00%
8	10,201	208	2.04%	306	3.00%	68%	2.75%
9	10,970	356	3.24%	274	2.50%	130%	2.75%
10	11,764	233	1.98%	294	2.50%	79%	2.50%
11	12,296	349	2.84%	307	2.50%	114%	2.50%
12	12,164	337	2.77%	304	2.50%	111%	2.50%
13	12,059	152	1.26%	301	2.50%	50%	2.25%
14	13,280	278	2.09%	332	2.50%	84%	2.25%
15-19	75,251	779	1.04%	1,505	2.00%	52%	1.54%
20-24	70,488	776	1.10%	1,057	1.50%	73%	1.15%
25-29	63,045	407	0.65%	473	0.75%	86%	0.75%
Total	**338,406**	**6,839**	**2.02%**	**7,854**	**2.32%**	**87%**	**2.18%**

Graph 11
Actual Versus Proposed Experience, Benefit-Weighted Basis
Termination Before Retirement – **Female**

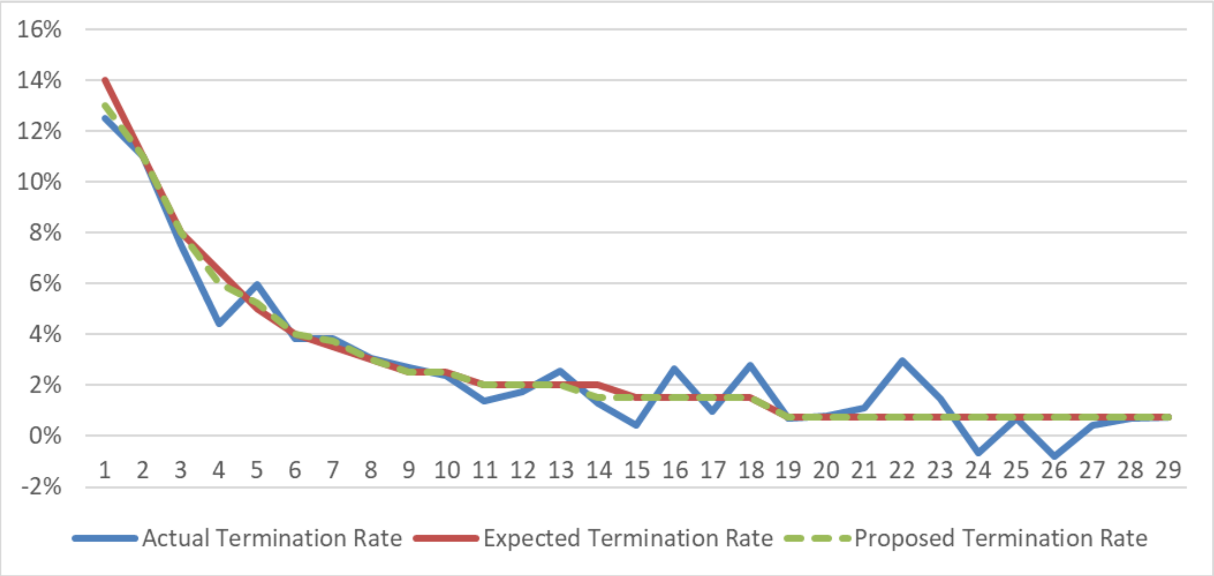


[4] Actual terminations as shown in the table are net of rehired employees.

Male

Years Since Hire	Exposures	Actual Terminations[5]	Actual Termination Rate	Expected Terminations	Expected Termination Rate	Ratio of Actual to Expected	Proposed Termination Rate
Basis – Benefits (in 000's)							
1	852	106	12.50%	119	14.00%	89%	13.00%
2	1,639	181	11.03%	180	11.00%	100%	11.00%
3	2,162	163	7.52%	173	8.00%	94%	8.00%
4	2,473	109	4.41%	161	6.50%	68%	6.00%
5	2,529	151	5.97%	126	5.00%	119%	5.25%
6	2,848	109	3.81%	114	4.00%	95%	4.00%
7	3,211	123	3.84%	112	3.50%	110%	3.75%
8	3,963	121	3.06%	119	3.00%	102%	3.00%
9	4,468	120	2.68%	112	2.50%	107%	2.50%
10	4,767	114	2.40%	119	2.50%	96%	2.50%
11	4,995	70	1.40%	100	2.00%	70%	2.00%
12	5,229	90	1.73%	105	2.00%	86%	2.00%
13	5,149	131	2.55%	103	2.00%	128%	2.00%
14	5,275	68	1.28%	105	2.00%	64%	1.50%
15-19	34,028	523	1.54%	450	1.32%	116%	1.32%
20-24	37,129	410	1.11%	278	0.75%	147%	0.75%
25-29	35,809	117	0.33%	269	0.75%	44%	0.75%
Total	**156,525**	**2,707**	**1.73%**	**2,745**	**1.75%**	**99%**	**1.73%**

Graph 12
Actual Versus Proposed Experience, Benefit-Weighted Basis
Termination Before Retirement – **Male**



The schedule of termination rates also include a rate in the first year (i.e., 0 years from hire), which is used in the development of Entry Age Normal cost calculations and is currently 20% for both males and females. Since the census data often does not include members at plan entry, there is insufficient data on which to base this assumption. However, after reviewing the actual experience for members with less than five years since date of hire and extrapolating, we recommend lowering the termination rate in the first year from 20% to 15%.

[5] Actual terminations as shown in the table are net of rehired employees.

D. Disability Retirement

Disability incidence rates function in the same way as retirement rate tables. The rate at each age indicates the probability of becoming disabled before the next age. Disability rates add liability for the value of disability benefits, but lessen the value of retirement benefits ultimately payable, since anyone who becomes disabled is not projected to receive retirement benefits other than the disability benefit.

The current disability rates are based on age and are unisex. The experience for the period July 1, 2014 to June 30, 2019 shows that approximately one-third of those expected retired with a disability benefit. During the study period, there were 15 members who received a disability benefit compared to 41 members who were expected to receive a disability benefit. The prior two experience studies showed that actual disability retirements were close to the expected number. Over the last 15-year period, 80% of those expected retired with a disability benefit. Therefore, we recommend a 20% decrease to the current disability retirement rates.

E. Spouse Information

Spouse information assumptions that affect the valuation include the percentage of members married and the age difference of spouses. The current assumptions are:

- 75% of members are married
- Male spouses are three years older than female spouses
- 100% of spouses are of the opposite gender

We have limited data on spouse information. However, the current assumptions are reasonable and consistent with assumptions used for similar plans. In addition, all optional forms of payment are actuarially equivalent, so these assumptions do not have a material effect on the valuation results. Therefore, we recommend no changes to the current assumptions.

IV. Appendix

Appendix A: Proposed Salary Scale (Service-based Rates, Inclusive of Proposed Inflation)

Years from Hire	Current Total Salary Increase Rate	Proposed Total Salary Increase Rate
1	14.50%	14.80%
2	7.75%	6.80%
3	7.50%	6.55%
4	7.25%	6.30%
5	7.00%	6.30%
6	6.75%	5.80%
7	6.50%	5.80%
8	6.25%	5.55%
9	6.00%	5.55%
10	6.00%	5.30%
11	5.75%	5.30%
12	5.75%	5.30%
13	5.50%	5.05%
14	5.50%	5.05%
15	5.25%	4.80%
16	5.25%	4.80%
17	5.00%	4.55%
18	5.00%	4.55%
19	5.00%	4.55%
20	4.75%	4.30%
21	4.75%	4.30%
22	4.75%	4.30%
23	4.75%	4.30%
24	4.50%	4.05%
25	4.50%	4.05%
26	4.25%	4.05%
27	4.25%	4.05%
28	4.25%	4.05%
29	4.25%	4.05%
30	4.25%	4.05%
31 and over	4.25%	3.80%

Appendix B: Proposed Retirement Rates (Age-based Rates)

Age	Unreduced Retirement[6]				Reduced Retirement	
	Female		Male		Unisex	
	Current Rate	Proposed Rate	Current Rate	Proposed Rate	Current Rate	Proposed Rate
<55	15.0%	15.0%	15.0%	15.0%		
55	15.0%	15.0%	15.0%	15.0%	2.0%	2.0%
56	15.0%	15.0%	15.0%	15.0%	2.0%	2.0%
57	15.0%	15.0%	15.0%	15.0%	2.0%	3.0%
58	15.0%	15.0%	15.0%	15.0%	3.0%	3.5%
59	15.0%	15.0%	15.0%	15.0%	3.5%	4.0%
60	15.0%	15.0%	15.0%	15.0%	4.0%	5.0%
61	25.0%	25.0%	25.0%	30.0%	6.5%	9.0%
62	35.0%	30.0%	35.0%	30.0%	9.0%	10.0%
63	30.0%	30.0%	25.0%	25.0%	12.0%	11.0%
64	40.0%	40.0%	35.0%	35.0%	12.0%	12.0%
65	50.0%	35.0%	40.0%	30.0%		
66	40.0%	30.0%	30.0%	25.0%		
67	30.0%	20.0%	30.0%	25.0%		
68	30.0%	20.0%	25.0%	20.0%		
69	30.0%	20.0%	25.0%	20.0%		
70	25.0%	20.0%	25.0%	20.0%		
71	25.0%	20.0%	25.0%	20.0%		
72	25.0%	20.0%	25.0%	20.0%		
73	25.0%	20.0%	25.0%	20.0%		
74	25.0%	20.0%	25.0%	20.0%		
75	100.0%	100.0%	100.0%	100.0%		

[6] If a member reaches eligibility for unreduced retirement before age 65 under the rule of 85 (Grandfathered Tier 1) or the Rule of 90/Age 60 (Non-grandfathered Tier 1 and Tier 2), [10.0% current / 12.5% proposed] is added to the rate at the age (and only this age) the member becomes first eligible for an unreduced retirement benefit

Appendix C: Proposed Termination Rates (Service-based Rates)

	Female		Male	
Years from Hire	Current Rate of Termination	Proposed Rate of Termination	Current Rate of Termination	Proposed Rate of Termination
0	20.00%	15.00%	20.00%	15.00%
1	12.00%	11.00%	14.00%	13.00%
2	9.00%	9.50%	11.00%	11.00%
3	7.00%	7.50%	8.00%	8.00%
4	6.00%	6.00%	6.50%	6.00%
5	5.00%	5.50%	5.00%	5.25%
6	4.00%	4.50%	4.00%	4.00%
7	3.50%	4.00%	3.50%	3.75%
8	3.00%	2.75%	3.00%	3.00%
9	2.50%	2.75%	2.50%	2.50%
10	2.50%	2.50%	2.50%	2.50%
11	2.50%	2.50%	2.00%	2.00%
12	2.50%	2.50%	2.00%	2.00%
13	2.50%	2.25%	2.00%	2.00%
14	2.50%	2.25%	2.00%	1.50%
15	2.00%	1.75%	1.50%	1.50%
16	2.00%	1.75%	1.50%	1.50%
17	2.00%	1.50%	1.50%	1.50%
18	2.00%	1.50%	1.50%	1.50%
19	2.00%	1.25%	0.75%	0.75%
20	1.50%	1.25%	0.75%	0.75%
21	1.50%	1.25%	0.75%	0.75%
22	1.50%	1.25%	0.75%	0.75%
23	1.50%	1.00%	0.75%	0.75%
24	1.50%	1.00%	0.75%	0.75%
25	0.75%	0.75%	0.75%	0.75%
26	0.75%	0.75%	0.75%	0.75%
27	0.75%	0.75%	0.75%	0.75%
28	0.75%	0.75%	0.75%	0.75%
29	0.75%	0.75%	0.75%	0.75%

END OF REPORT

TFFR Interim Investment Report

For the Periods Ended December 31, 2019 and February 29, 2020

Preliminary Indicative Return Estimates as of April 15, 2020

April 17, 2020

Note: This document contains unaudited data which is deemed to be materially accurate, but is unaudited and subject to change.

Dave Hunter, Executive Director/CIO

Fay Kopp, Deputy Executive Director / Chief Retirement Officer

Darren Schulz, Deputy Chief Investment Officer

Connie Flanagan, Chief Financial Officer

Eric Chin, Chief Risk Officer

ND Retirement & Investment Office (RIO)

State Investment Board (SIB)

TFFR Investment Ends – December 31, 2019

Returns in 2019 far exceeded long-term expectations at nearly 18%

SIB clients should receive net investment returns consistent with their written investment policies and market variables. This "End" is evaluated based on comparison of each client's (a) actual net investment return, (b) standard deviation and (c) risk adjusted excess return, to the client's policy benchmark over 5 years.

	1 Yr Ended 12/31/2019	3 Yrs Ended 12/31/2019	5 Yrs Ended 12/31/2019	Risk 5 Yrs Ended 12/31/2019	Risk Adj Excess Return 5 Yrs Ended 12/31/2019
Total Fund Return - Net	17.97%	9.81%	7.35%	6.71%	0.16%
Policy Benchmark Return	17.62%	9.12%	6.83%	6.32%	
Total Relative Return	0.35%	0.69%	0.52%	106%	

Key: TFFR investments have averaged over $2 billion the last 5-years and Excess Return has generally exceeded **0.50%** per annum. **TFFR's use of active management has enhanced Net Returns by $50 million for the 5-years ended December 31, 2019** (or $2 billion x **0.50%** = $10 million per year x 5 years = **$50 million**). **These returns were achieved while adhering to prescribed Risk limits (e.g. 106% versus a policy limit of 115%).**

5-Yr. Returns Dec. 31, 2019	Asset Allocation	Benchmark Return	Allocation x Return
Asset Class	*a*	*b*	*a x b*
Equity	58%	8.4%	4.87%
Fixed Income	23%	4.0%	0.92%
Real Assets	18%	5.7%	1.03%
Cash	1%	0.5%	0.01%
Policy Benchmark Return (5-years)			6.83%

Current Policy Benchmark: 58% Equity (31% U.S., 21% Non-U.S., 6% Private); **23% Fixed Income** (16% Investment Grade, 7% High Yield); **18% Real Assets** (10% Real Estate; 6% Infrastructure; 2% Timber); and **1% Cash.**

Note: Amounts are unaudited and subject to change.

Investment returns quickly fell far below long-term expectations in early-2020

TFFR Fiscal Year To Date (FYTD) Returns through Feb, 29, 2020 approximate 1.56%
TFFR Indicative Estimated FYTD Returns through April 15, 2020 approximate -4%

SIB Interim Investment Returns Fiscal Year To Date April 15, 2020 15-Apr-20	9/30/2019	12/31/2019	1/31/2020	2/29/2020	Reported Results Fiscal YTD 2/29/2020	*Indicative Estimates* 3/1/2020 to 4/15/2020	*Indicative Estimates* Fiscal YTD 4/15/2020
TFFR	**0.40%**	**5.62%**	**-0.18%**	**-4.05%**	**1.56%**	***-5%***	***-4%***
Policy Benchmark	*0.64%*	*4.98%*	*-0.24%*	*-4.08%*	**1.10%**	***n.m.***	***n.m.***
Excess Return	-0.24%	0.64%	0.06%	0.03%	**0.46%**	***n.m.***	***n.m.***

Note: All data as of February 29, 2020, is preliminary, unaudited and subject to change. Indicative return estimates from March 1, 2020 to April 15, 2020, are based on underlying benchmark data, not actual returns, and subject to material change and uncertainty.

Interim Investment Overview for the Fiscal Year To Date as of April 15, 2020

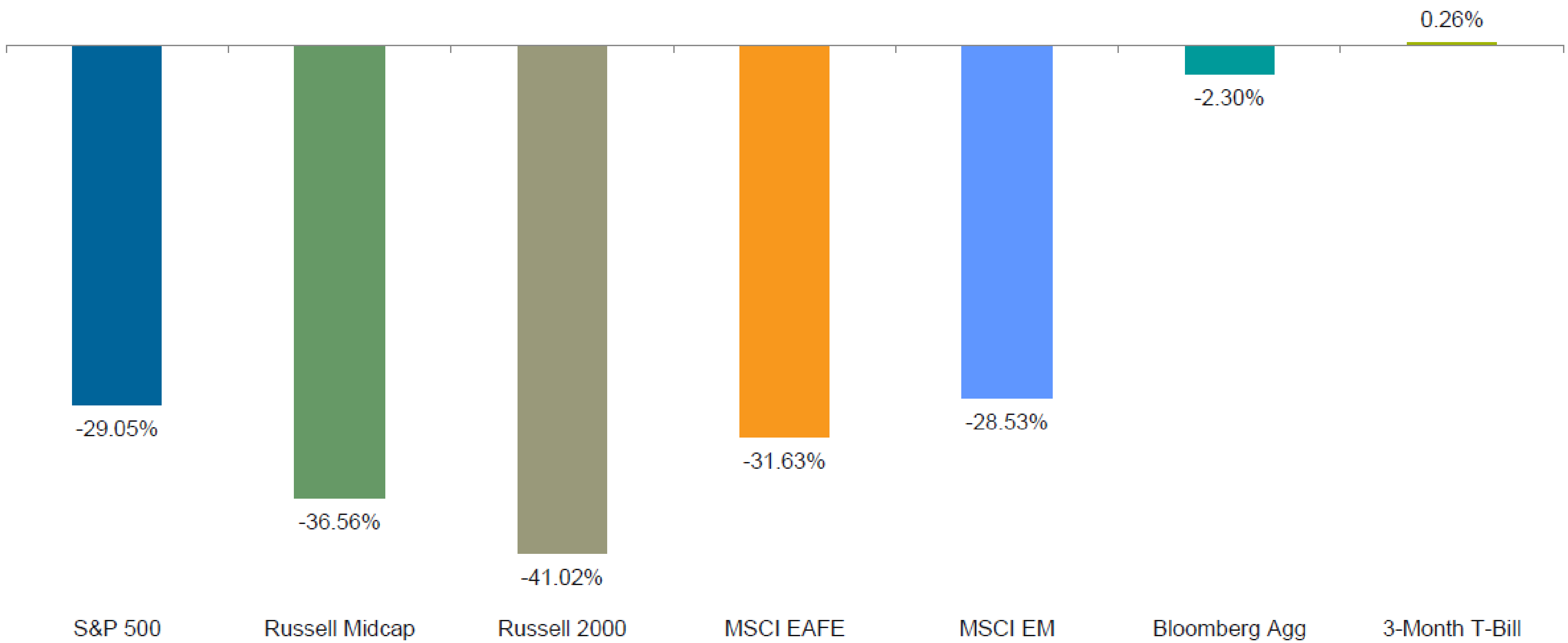
1. **TFFR investments peaked in mid-February of 2020 given strong capital market and economic conditions including $410 million of net investment income in 2019 including a net investment return of nearly 18% (as noted on slide # 2).**
2. **TFFR earned 6% for the six months ended Dec. 31, 2019, which approximated $153 million of net investment income.**
3. **Based on preliminary market data, TFFR returns declined by 9% from January 1 to April 15, 2020 including a 4% decline in February and 8% decline in March, prior to experiencing a 3% recovery during the first half of April.**
4. **Based on preliminary market data which is unaudited and subject to material change, TFFR returns are roughly estimated to approximate -4% on a fiscal year to date basis as of April 15, 2020. SIB client returns are assumed to be largely consistent with their underlying asset allocation benchmarks in March and April.**
5. **SIB clients are long-term investors who understand asset allocation is the # 1 driver of investment returns and diversifying investments in fixed income and real assets serve to moderate return volatility inherent in the equity markets. During the last 5-years, most SIB clients have also benefitted from the prudent and successful use of active management to generate net investment returns which exceed underlying benchmark indices by 0.46% or more.**

U.S. and Global Equities Fell by Over 30% in One Month

(from February 19, 2020 to March 18, 2020)

Returns of Market Benchmarks

From S&P 500 Peak: February 19, 2020 Through March 18, 2020



Callan

Nearly All Major Asset Classes Were Impacted

Asset Class Performance

Surging Volatility and Turbulent Financial Markets

Callan

Trailing Periods Ended February 29, 2020

	YTD (as of 3/18/20)	Feb 2020	Jan 2020	4Q 2019	1 Year	5 Years	10 Years	20 Years
Best	3 Month T-Bill 0.47%	Bbg:Agg 1.80%	Bbg:Agg 1.92%	MSCI:EM Gross 11.93%	Bbg:Agg 11.68%	S&P:500 11.70%	S&P:500 13.56%	Russell:2000 7.59%
	Bbg:Agg -0.35%	3 Month T-Bill 0.15%	3 Month T-Bill 0.13%	Russell:2000 9.94%	S&P:500 8.19%	Russell:2000 8.23%	Russell:2000 11.83%	MSCI:EM Gross 7.03%
	S&P:500 -25.45%	MSCI:EM Gross -5.27%	S&P:500 -0.04%	S&P:500 9.07%	3 Month T-Bill 2.18%	MSCI:EM Gross 6.01%	MSCI:EAFE 5.50%	S&P:500 6.06%
	MSCI:EM Gross -29.19%	S&P:500 -8.23%	MSCI:EAFE -2.09%	MSCI:EAFE 8.17%	MSCI:EAFE -0.57%	MSCI:EAFE 5.67%	MSCI:EM Gross 4.04%	Bbg:Agg 5.03%
	MSCI:EAFE -32.17%	Russell:2000 -8.42%	Russell:2000 -3.21%	3 Month T-Bill 0.46%	MSCI:EM Gross -1.51%	Bbg:Agg 3.05%	Bbg:Agg 3.75%	MSCI:EAFE 3.32%
Worst	Russell:2000 -40.42%	MSCI:EAFE -9.04%	MSCI:EM Gross -4.66%	Bbg:Agg 0.18%	Russell:2000 -4.92%	3 Month T-Bill 1.07%	3 Month T-Bill 0.58%	3 Month T-Bill 1.78%

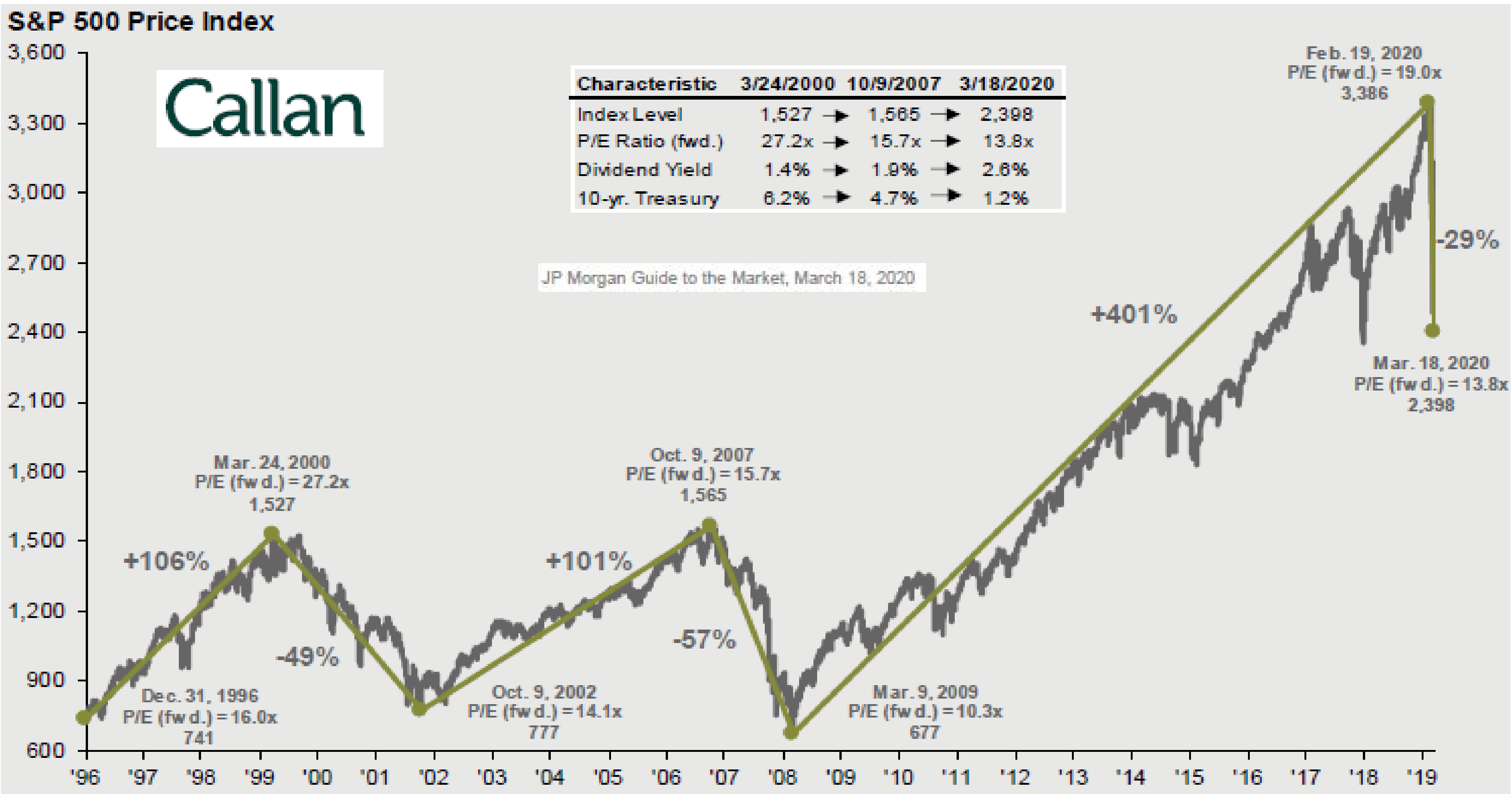
Asset Allocation is the Main Driver of Investment Returns

Long-Term Investors have benefitted from an Asset Allocation to Equity over the last 5, 10 and 20 Years, however, Cash was King and Equities fell over 25% in the 1st quarter of 2020 in a "Risk Off" environment.

The Speed of the S&P 500 Index Decline is Unprecedented

How Far we Came, How Fast we Fell

Through March 18, 2020



Characteristic	3/24/2000	10/9/2007	3/18/2020
Index Level	1,527 →	1,565 →	2,398
P/E Ratio (fwd.)	27.2x →	15.7x →	13.8x
Dividend Yield	1.4% →	1.9% →	2.6%
10-yr. Treasury	6.2% →	4.7% →	1.2%

The Speed of the Current Decline was Faster than 1987 or 1929

Putting Capital Market Performance in Historical Context

Recent stock market declines have been steep and fast

The fastest bear market correction (-20% from prior peak) follows the longest bull market expansion in history (11 years)

The S&P 500 Index went from being overvalued by one standard deviation to undervalued by one standard deviation in one month from February 19 to March 18

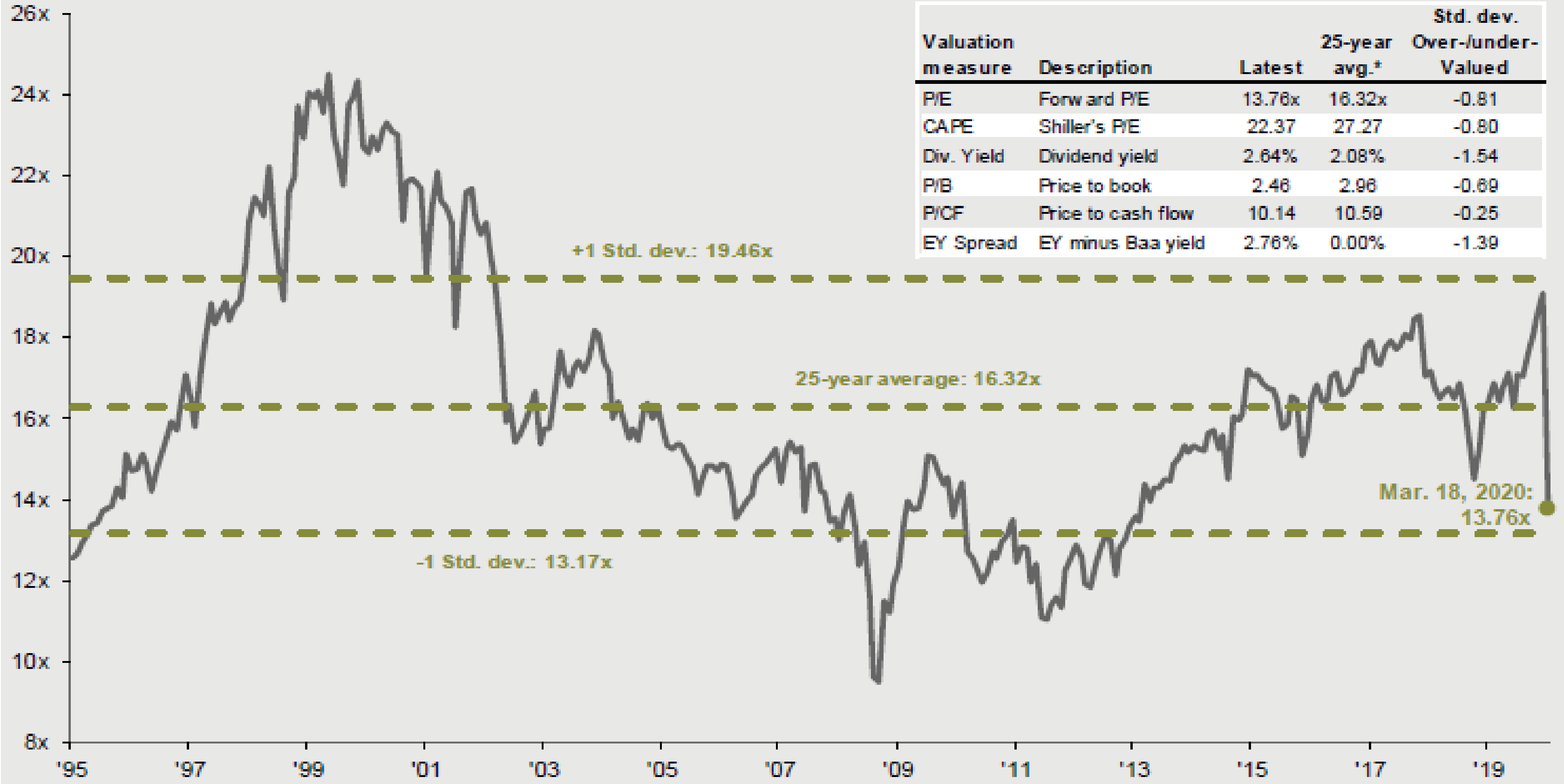
Overvalued to Undervalued in a Month

Callan

JP Morgan Guide to the Market, March 18, 2020

S&P 500 Index: Forward P/E ratio

Valuation measure	Description	Latest	25-year avg.*	Std. dev. Over-/under-Valued
P/E	Forward P/E	13.76x	16.32x	-0.81
CAPE	Shiller's P/E	22.37	27.27	-0.80
Div. Yield	Dividend yield	2.64%	2.08%	-1.54
P/B	Price to book	2.46	2.96	-0.69
P/CF	Price to cash flow	10.14	10.59	-0.25
EY Spread	EY minus Baa yield	2.76%	0.00%	-1.39



Asset Allocation is the Main Driver of Investment Returns

In 2018 and 1st Quarter of 2020, "U.S. Fixed Income" was the Top Performer (Risk Off)

In 2019, U.S. "Large Cap Equity" (S&P 500) was the Top Performer (Risk On)

	Annual Returns									Monthly Returns			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	Jan 2020	Feb 2020	Mar 2020	YTD 2020
Best	U.S. Fixed Income 7.84%	Real Estate 27.73%	Small Cap Equity 38.82%	Real Estate 15.02%	Large Cap Equity 1.38%	Small Cap Equity 21.31%	Emerging Market Equity 37.28%	U.S. Fixed Income 0.01%	Large Cap Equity 31.49%	U.S. Fixed Income 1.92%	U.S. Fixed Income 1.80%	U.S. Fixed Income -0.59%	U.S. Fixed Income 3.15%
	High Yield 4.98%	Emerging Market Equity 18.23%	Large Cap Equity 32.39%	Large Cap Equity 13.69%	U.S. Fixed Income 0.55%	High Yield 17.13%	Dev ex-U.S. Equity 24.21%	High Yield -2.08%	Small Cap Equity 25.52%	Real Estate 0.84%	Global ex-U.S. Fixed Income -0.20%	Global ex-U.S. Fixed Income -3.22%	Global ex-U.S. Fixed Income -2.68%
	Global ex-U.S. Fixed Income 4.36%	Dev ex-U.S. Equity 16.41%	Dev ex-U.S. Equity 21.02%	U.S. Fixed Income 5.97%	Real Estate -0.79%	Large Cap Equity 11.96%	Large Cap Equity 21.83%	Global ex-U.S. Fixed Income -2.15%	Dev ex-U.S. Equity 22.49%	Global ex-U.S. Fixed Income 0.76%	High Yield -1.41%	High Yield -11.46%	High Yield -12.68%
	Large Cap Equity 2.11%	Small Cap Equity 16.35%	High Yield 7.44%	Small Cap Equity 4.89%	Dev ex-U.S. Equity -3.04%	Emerging Market Equity 11.19%	Small Cap Equity 14.65%	Large Cap Equity -4.38%	Real Estate 21.91%	High Yield 0.03%	Emerging Market Equity -5.27%	Large Cap Equity -12.35%	Large Cap Equity -19.60%
	Small Cap Equity -4.18%	Large Cap Equity 16.00%	Real Estate 3.67%	High Yield 2.45%	Small Cap Equity -4.41%	Real Estate 4.06%	Global ex-U.S. Fixed Income 10.51%	Real Estate -5.63%	Emerging Market Equity 18.44%	Large Cap Equity -0.04%	Large Cap Equity -8.23%	Dev ex-U.S. Equity -14.12%	Dev ex-U.S. Equity -23.26%
	Real Estate -6.46%	High Yield 15.81%	U.S. Fixed Income -2.02%	Emerging Market Equity -2.19%	High Yield -4.47%	Dev ex-U.S. Equity 2.75%	Real Estate 10.36%	Small Cap Equity -11.01%	High Yield 14.32%	Dev ex-U.S. Equity -1.94%	Real Estate -8.24%	Emerging Market Equity -15.40%	Emerging Market Equity -23.60%
	Dev ex-U.S. Equity -12.21%	U.S. Fixed Income 4.21%	Emerging Market Equity -2.60%	Global ex-U.S. Fixed Income -3.08%	Global ex-U.S. Fixed Income -6.02%	U.S. Fixed Income 2.65%	High Yield 7.50%	Dev ex-U.S. Equity -14.09%	U.S. Fixed Income 8.72%	Small Cap Equity -3.21%	Small Cap Equity -8.42%	Small Cap Equity -21.73%	Real Estate -28.53%
Worst	Emerging Market Equity -18.42%	Global ex-U.S. Fixed Income 4.09%	Global ex-U.S. Fixed Income -3.08%	Dev ex-U.S. Equity -4.32%	Emerging Market Equity -14.92%	Global ex-U.S. Fixed Income 1.49%	U.S. Fixed Income 3.54%	Emerging Market Equity -14.57%	Global ex-U.S. Fixed Income 5.09%	Emerging Market Equity -4.66%	Dev ex-U.S. Equity -8.88%	Real Estate -22.76%	Small Cap Equity -30.61%

Sources: ● Bloomberg Barclays Aggregate ● Bloomberg Barclays Corp High Yield ● Bloomberg Barclays Global Aggregate ex US ● FTSE EPRA Nareit Developed ● MSCI World ex USA ● MSCI Emerging Markets ● Russell 2000 ● S&P 500

Callan Institute

Callan Periodic Table of Investment Returns

The S&P 500 has experienced significant market rebounds following the last seven major market downturns since Black Monday in 1987

Focus on the Long Term

Market rebounds can be swift and powerful

History shows that financial markets tend to go up over time. Only by staying invested can investors participate in the full breadth of the ensuing recovery.

12-month performance following major declines

S&P 500 biggest declines	Black Monday 8/25/87-12/4/87	Gulf War 7/16/90-10/11/90	Asia Crisis 7/17/98-9/31/98	Tech Bubble 3/27/00-10/9/02	Financial Crisis 10/9/07 -3/9/09	US Credit Downgrade 3/10/11-10/3/11	Trade War 10/3/18-12/24/18
% decline	-33.5%	-19.9%	-19.3%	-49.0%	-56.8%	-19.0%	-19.6%
Next 12 months	+21.4%	+29.1%	+37.9%	+33.7%	+68.6%	+32.0%	+37.1%

Source: BlackRock; March 12, 2020

Source: Morningstar as of 2/28/20. Returns are principal only not including dividends. U.S. stocks represented by the S&P 500 Index. Past performance does not guarantee or indicate future results. Index performance is for illustrative purposes only. You can't invest directly in an index.

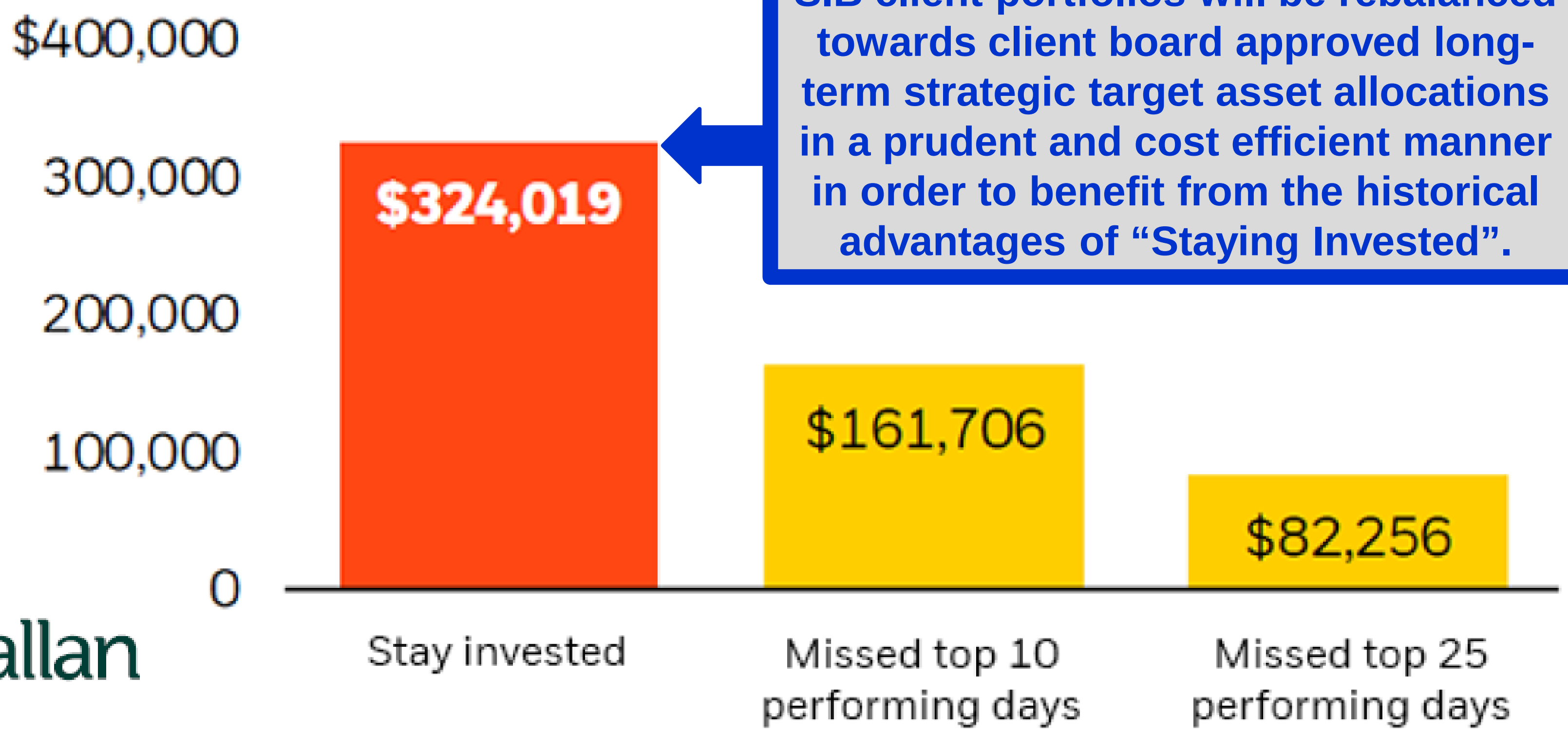
The Impact of “Missing the Top Ten Days” the last 20-years is over 50%
Action: RIO will rebalance our SIB client portfolios to “Stay Invested”

Focus on the Long Term

Timing market cycles is nearly impossible to do with any consistency

Hypothetical return of $100,000 invested in the S&P 500 Index over a 20-year period (March 2000 to March 2020), versus the return if the 10 and 25 top-performing days were missed.

SIB client portfolios will be rebalanced towards client board approved long-term strategic target asset allocations in a prudent and cost efficient manner in order to benefit from the historical advantages of “Staying Invested”.



Callan

Source: BlackRock; March 12, 2020

SIB Approved Actions post Bear Market Correction in Early-2020

Given the sharp sell-off in equities during the 1st quarter of 2020, SIB investment pools experienced variances from target equity allocations. Given liquidity challenges in the global bond markets, the cost to transact in physical bonds became abnormally expensive, impacting the all-in cost of using bonds as a source of funds to efficiently rebalance into public equities. **Given these conditions, the SIB approved a RIO recommendation to engage Parametric (an existing manager) to implement an equity overlay strategy using futures contracts in a liquid and relatively inexpensive manner to access public market exposure synthetically.** This action was last undertaken by the SIB during the depths of the Global Financial Crisis. RIO implemented this synthetic rebalancing strategy during the first half of April. The interim results of this rebalancing activity is summarized in the table below as of April 15, 2020.

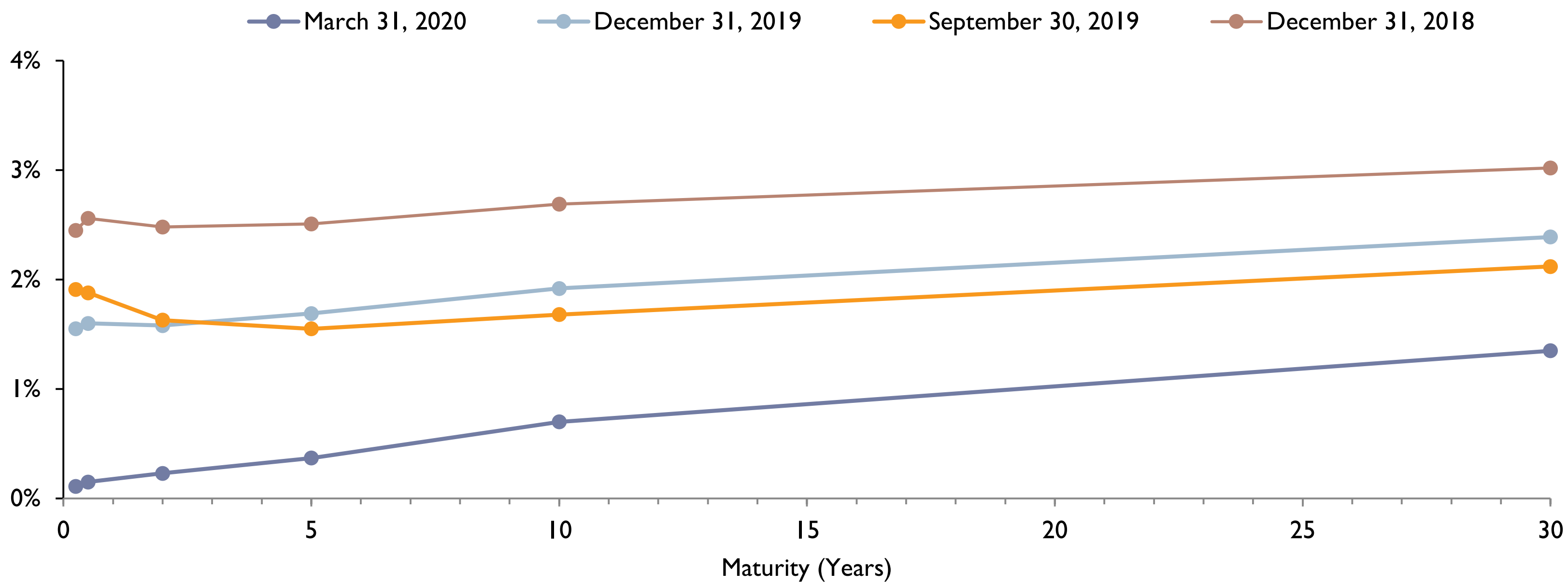
ND Pension Pool Asset Allocation	Min	Max	Target	Actual (as of 4/15/20)	Difference from Target
Total Domestic Equity (S&P 500)	25.2%	37.5%	31.3%	30.5%	0.9%
Total Int'l Equity (EAFE)	16.0%	23.9%	19.9%	19.5%	0.5%
Private Equity			6.5%	5.0%	1.5%
Total Fixed Income (USTrsy-Agg)	18.5%	28.0%	23.3%	23.1%	0.1%
Real Assets			18.6%	20.3%	-1.7%
Cash			0.4%	1.7%	-1.2%
			100.0%	100.0%	

As of April 15, Pension Trust clients were within 1% to 2% of target asset allocations with U.S. Equities within 0.9%, International Equities within 0.5% and Fixed Income within 0.1%. Pension Trust clients were overweight Cash by 1.2% at April 15 in advance of upcoming benefit distributions and intended physical re-balancing activity to further reduce target variances.

SIB client portfolios were rebalanced towards client board approved long-term strategic target asset allocations in a prudent and cost efficient manner in order to benefit from the historical advantages of "Staying Invested".

U.S. Treasury Yield Curves

U.S. Treasury Yield Curves



	1 Mo	2 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr	20 Yr	30 Yr
12/31/2019	1.48	1.51	1.55	1.6	1.59	1.58	1.62	1.69	1.83	1.92	2.25	2.39
03/31/2020	0.05	0.12	0.11	0.15	0.17	0.23	0.29	0.37	0.55	0.70	1.15	1.35
Difference	(1.43)	(1.39)	(1.44)	(1.45)	(1.42)	(1.35)	(-1.33)	(-1.32)	(-1.28)	(-1.22)	(-1.10)	(-1.04)

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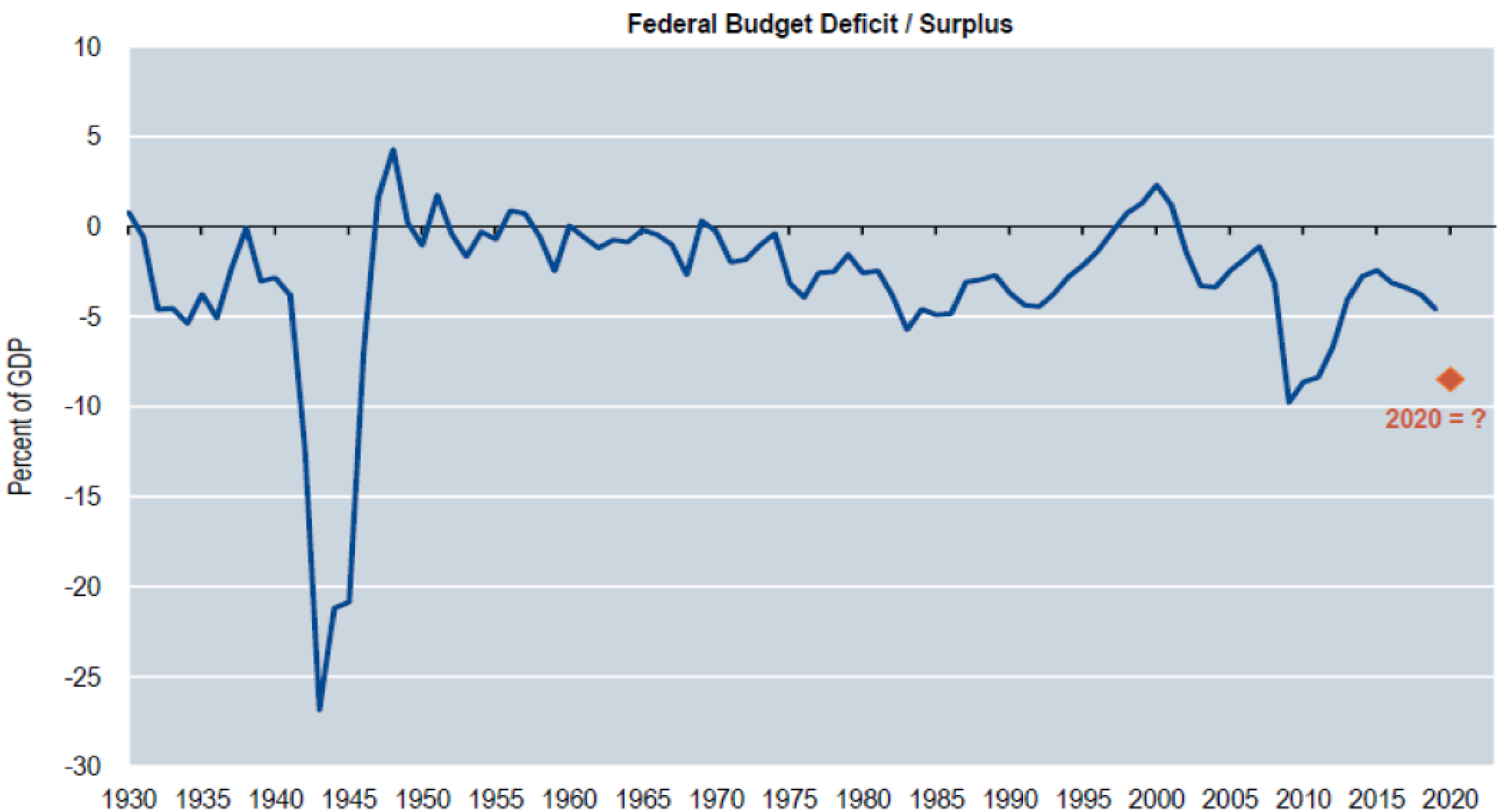
Government Response: Fiscal Policy

Fiscal Policy is gearing up to support a displaced workforce with sizable stimulus proposals

Sizing of stimulus expected to be approximately $850bn (equivalent to 4% of GDP). May go higher - $1tn?



Source: Western Asset; March 18, 2020.

Fiscal Policy Response – CARES Act

Signed into law on March 27, 2020

Coronavirus Aid, Relief, and Economic Security Act

Amount ($ bn)	Measure
$290	One-time stimulus checks amounting to $1,200 per adult and $500 per child up to certain income limits
$260	Enhanced, expanded and extended unemployment benefits, adding $600 per week to every unemployment check for 4 months, expanding program to cover contractors and self-employed and extending program to 39 weeks from 26 weeks
$510	Loans to distressed businesses, cities and states. Includes $29 billion for airlines, $17 billion for firms deemed important for national security and $454 billion as backstop for loans to other businesses, cities and states
$377	Small business relief, largely in the form of "forgivable loans" for spending on payroll, rent and utilities
$150	Direct aid to state and municipal governments
$180	Health-related spending
$516	Other spending and tax breaks
$2.283 trillion	**~10.8% of GDP**

JP Morgan, "2Q 2020 Guide to the Markets"; March 31, 2020

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Dramatic Decline in Oil Prices

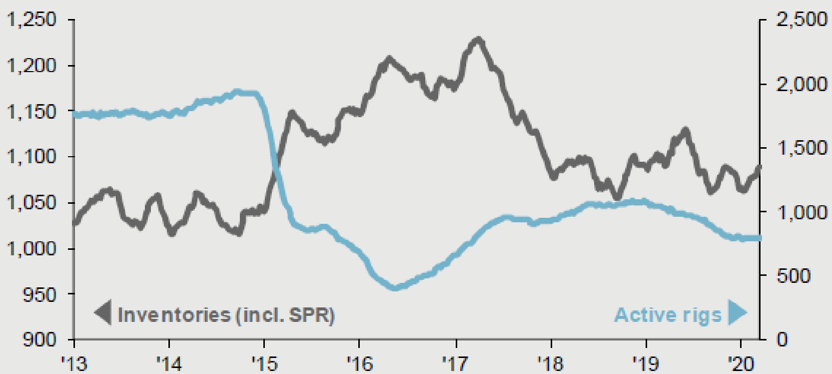
Change in production and consumption of liquid fuels

Production, consumption and inventories, millions of barrels per day

Production	2017	2018	2019	2020*	2021*	Growth since '17
U.S.	15.7	17.9	19.5	20.9	20.8	32.8%
OPEC	37.4	37.3	35.2	34.2	34.5	-7.8%
Russia	11.2	11.4	11.5	11.6	11.5	2.8%
Global	**98.1**	**100.8**	**100.6**	**102.1**	**102.4**	**4.4%**
Consumption						
U.S.	20.0	20.5	20.5	20.5	20.7	3.8%
China	13.6	14.0	14.5	14.6	15.4	13.4%
Global	**98.7**	**100.0**	**100.8**	**101.1**	**102.9**	**4.2%**
Inventory Change	-0.6	0.8	-0.2	1.0	-0.4	

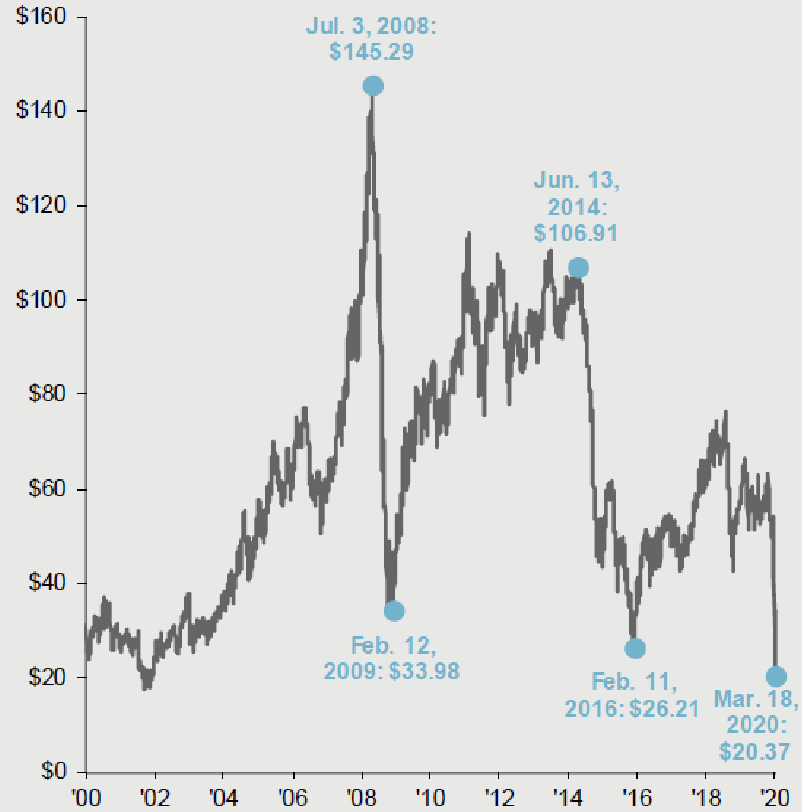
U.S. crude oil inventories and rig count**

Million barrels, number of active rigs



Price of oil

WTI crude, nominal prices, USD/barrel



JP Morgan Guide to the Market, March 18, 2020

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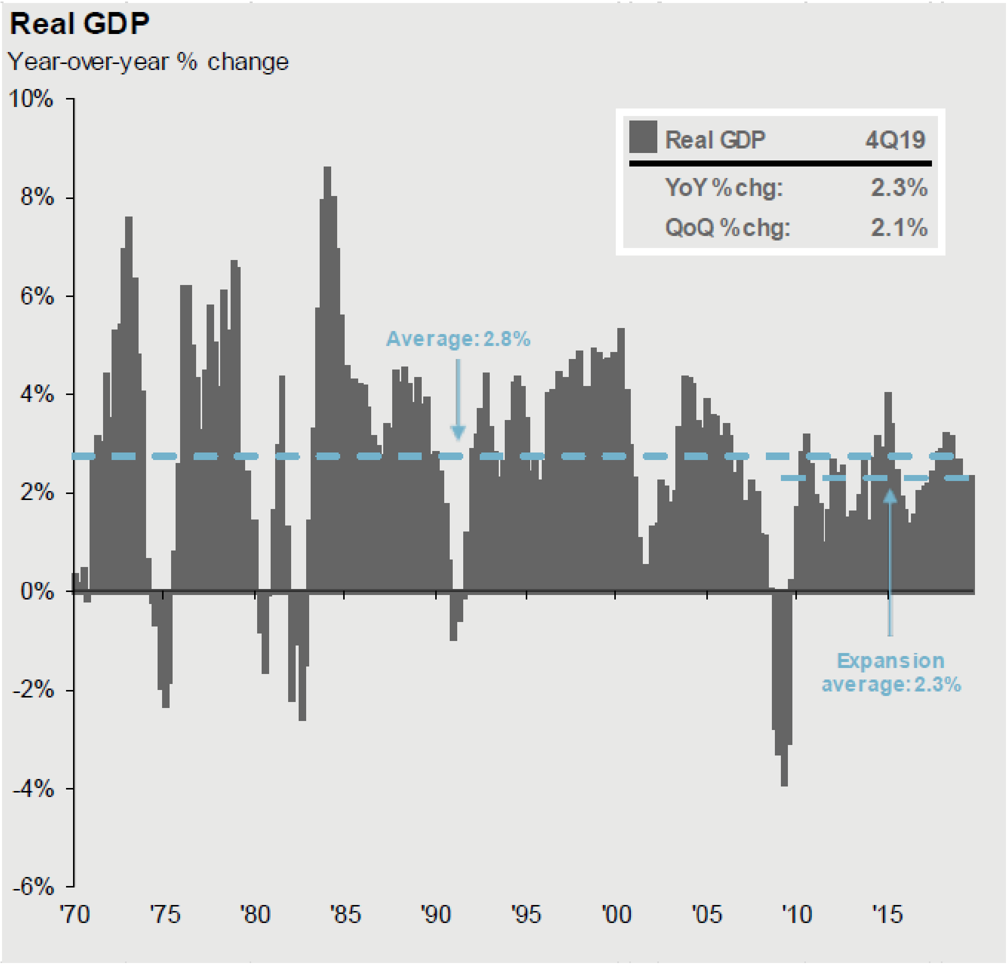
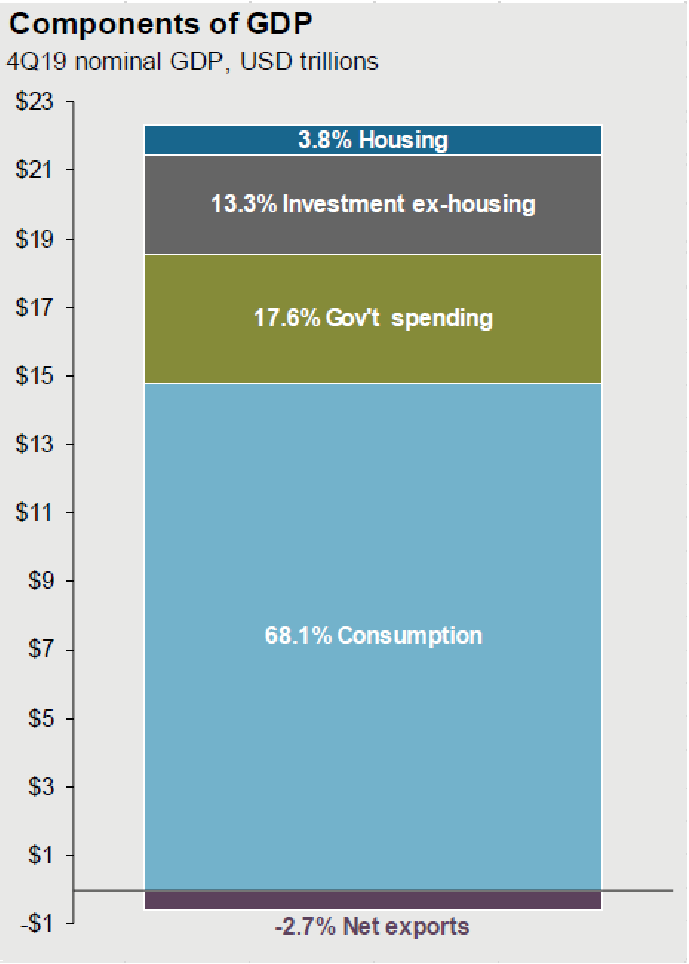
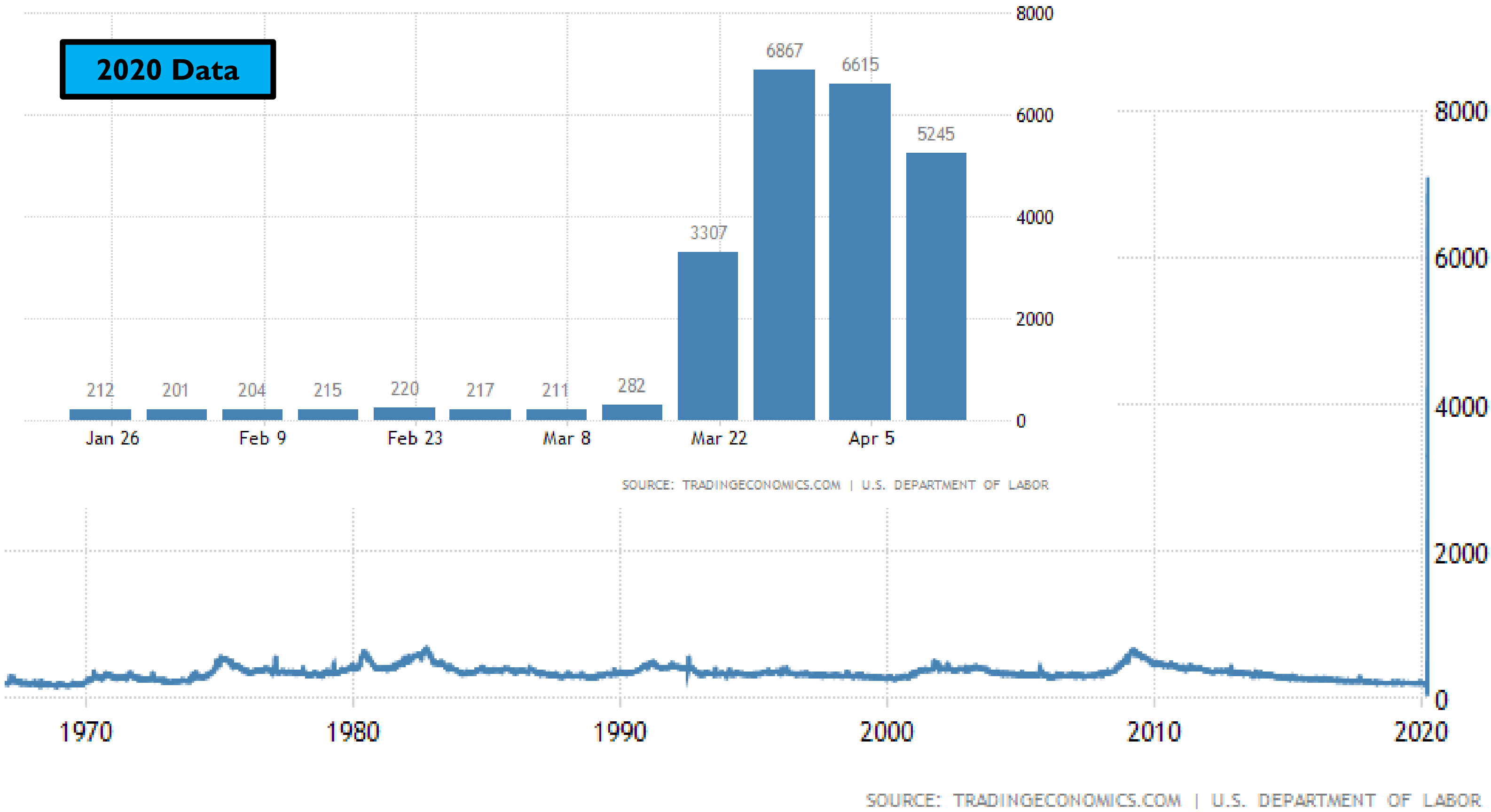
GDP and the Role of the Consumer





JP Morgan Guide to the Market, March 18, 2020

Unemployment Claims Spiked After Social Distancing Imposed



The number of Americans filling for unemployment benefits was 5.245 million in the week ended April 11, down from the previous week's 6.615 million and compared to market expectations of 5.105 million. The latest figure brought the total reported over the past month to 22 million, as the coronavirus pandemic swept across the US. The 4-week moving average, which removes week-to-week volatility, jumped to an all-time high of 5.509 million, while continuing jobless claims hit a record 11.976 million in the week ended April 4.

April 2020

Client Insight Unit

BlackRock®

North Dakota Retirement and Investment Office

Recent Market Volatility & Scenario Analysis

Designed scenarios are for illustration purposes only; this information does not constitute a BlackRock projection and does not reflect any specific account or portfolio.

Overview & Methodology

Client
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Unit

We analyzed ~70 US Public Pensions asset exposures to estimate the impact of recent market volatility on asset portfolios and funded status. We further assessed the stressed asset allocations using potential future market scenarios to help determine the effects of rebalancing to original weights versus letting portfolios drift with markets.

The analysis leverages the Aladdin® risk model to estimate the portfolio's ex -ante risk factor decomposition and estimated PnL in stress scenarios.

Model Public Pension Allocations on the Aladdin® platform
Partner with Pensions & Investments (P&I) to aggregate investment data of 69 US Public Pensions; map fund exposures to public index and private market proxies

Analyze Asset Class and Portfolio Risk and Stress
Measure impact on current portfolio exposure

Estimate impact on funded status
Imply actuarial asset changes from portfolio asset losses stress while assuming liabilities remain constant

Determine 'stressed' portfolio allocations
Calculate new portfolio exposure based on asset class PnL

Assess implications of rebalancing vs. drifting with the market
Evaluate impact of different shaped recoveries on investment portfolio and funded status under different rebalancing methodologies

Designed scenarios are for illustration purposes only; this information does not constitute a BlackRock projection and does not reflect any specific account or portfolio.

US Public Pension Universe

Client Insight Unit

Alaska Retirement Management Board | Arkansas Public Employees Retirement System | Arkansas Teachers Retirement System | Austin City Employees' Retirement System | Boston Retirement System | California State Teachers' Retirement System | Chicago Teachers Pension Fund | City & County of San Francisco Employees' Retirement System | City of Dallas Employee Retirement Fund | City of Los Angeles Department of Fire & Police Pensions | City of Milwaukee Employees' Retirement System | City of Orlando | Commonwealth of Pennsylvania State Employees' Retirement System | Contra Costa County Employees' Retirement Association | Dallas Police & Fire Pension System | District of Columbia Retirement Board | Employees' Retirement System of Rhode Island | Employees Retirement System of Texas | Employees' Retirement System of the State of Hawaii | Fairfax County | Fort Worth City Employees' Retirement Fund | Fresno County Employees' Retirement Association | Houston Municipal Employees Pension System |

69 plans	\$2.1 trillion+	\$30.3 billion	~72 percent
included in our universe	assets modeled and analyzed on Aladdin®	average market value of plan assets *ranging from \$1.2B to \$214.9B with a median of \$15.6B*	average funded status of plans *ranging from 33% to 108% with a median of 76%*

Houston Police Officers' Pension System | Illinois Municipal Retirement Fund | Illinois State Board of Investment | Illinois State Universities Retirement System | Indiana Public Retirement System | Iowa Public Employees' Retirement System | Kansas Public Employees Retirement System | Kentucky Retirement Systems | Los Angeles City Employees' Retirement System | Los Angeles County Employees Retirement Association | Los Angeles Water & Power Employees' Retirement Plan | MA Pension Reserves IMB | Maryland State Retirement & Pension System | Minnesota State Board of Investment | Montana Board of Investments | Montgomery County Public Schools Retirement System Trust | New Hampshire Retirement System | New Mexico Educational Retirement Board | New York City Retirement System | New York State Common Retirement Fund | New York State Teachers' Retirement System | North Dakota State Investment Board | Ohio Police & Fire Pension Fund | Ohio Public Employees Retirement System | Oklahoma Public Employees Retirement System | Orange County Employees Retirement System | Philadelphia Public Employees Retirement System | Public Employees Retirement Association of New Mexico | Public Employees' Retirement System of Nevada | Public Employees' Retirement System of Mississippi | Sacramento County Employees' Retirement System | San Bernardino County Employees' Retirement Association | San Diego City Employees' Retirement System | San Diego County Employees Retirement Association | San Mateo County Employees' Retirement Association | Santa Barbara County Employees' Retirement System | School Employees Retirement System of Ohio | South Carolina Retirement System | South Dakota Investment Council | State of Michigan Retirement Systems | Teachers' Retirement System of Louisiana | Teachers' Retirement System of Oklahoma | Teachers' Retirement System of the State of Illinois | Texas County & District Retirement System | Texas Municipal Retirement System | Ventura County Employees' Retirement Association

Designed scenarios are for illustration purposes only; this information does not constitute a BlackRock projection and does not reflect any specific account or portfolio.

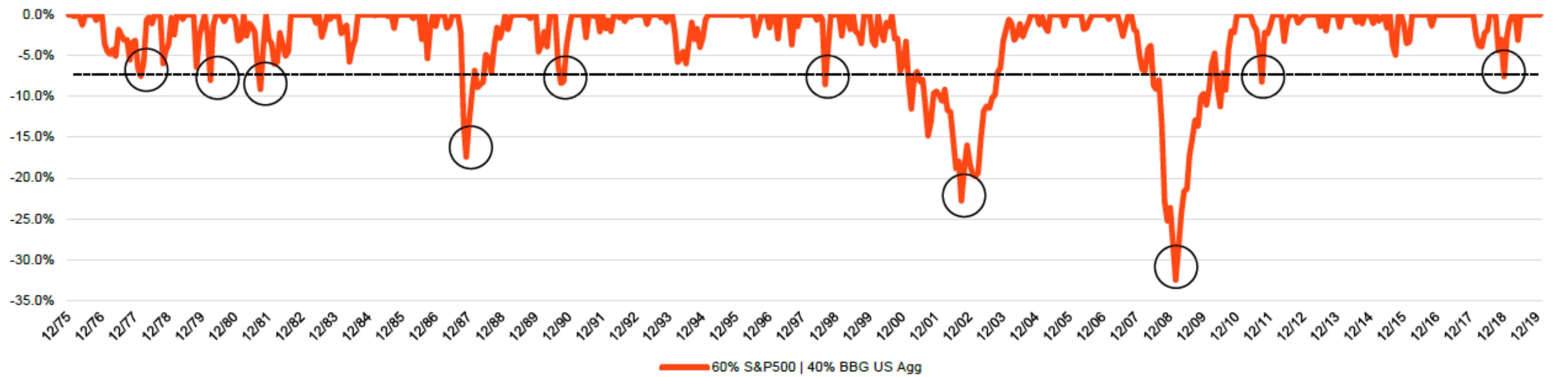
NDRIO Point: A 100% Recovery will occur, the question is not "if", but "when".

Historical Drawdowns & Recoveries

Over the last 40+ years, the average drawdown of a hypothetical 60%/40% portfolio occurred over a period of ~8 months and recovered over the following ~8 months

Client Insight Unit

Historical Drawdowns (%)



Drawdown Information (Drawdowns greater than 7.5%)

Max Drawdown Period	Average	Jan-77 Feb-78	Feb-80 Mar-80	Apr-81 Sep-81	Sep-87 Nov-87	Aug-90 Sep-90	Jul-98 Aug-98	Sep-00 Sep-02	Nov-07 Feb-09	May-11 Sep-11	Oct-18 Dec-18
Max Drawdown Return, %	-13.02	-7.55	-8.03	-9.15	-17.42	-8.39	-8.53	-22.81	-32.53	-8.23	-7.56
Max Drawdown Duration (Month)	7.8	14	2	6	3	2	2	25	16	5	3
Recovery Period	NA	Mar-78 Jul-78	Apr-80 May-80	Oct-81 Nov-81	Dec-87 Jan-89	Oct-90 Jan-91	Sep-98 Oct-98	Oct-02 Oct-04	Mar-09 Dec-10	Oct-11 Jan-12	Jan-19 Mar-19
Recovery Percent, %	100	100	100	100	100	100	100	100	100	100	100
Recovery Duration (Month)	8.3	5	2	2	14	4	2	25	22	4	3

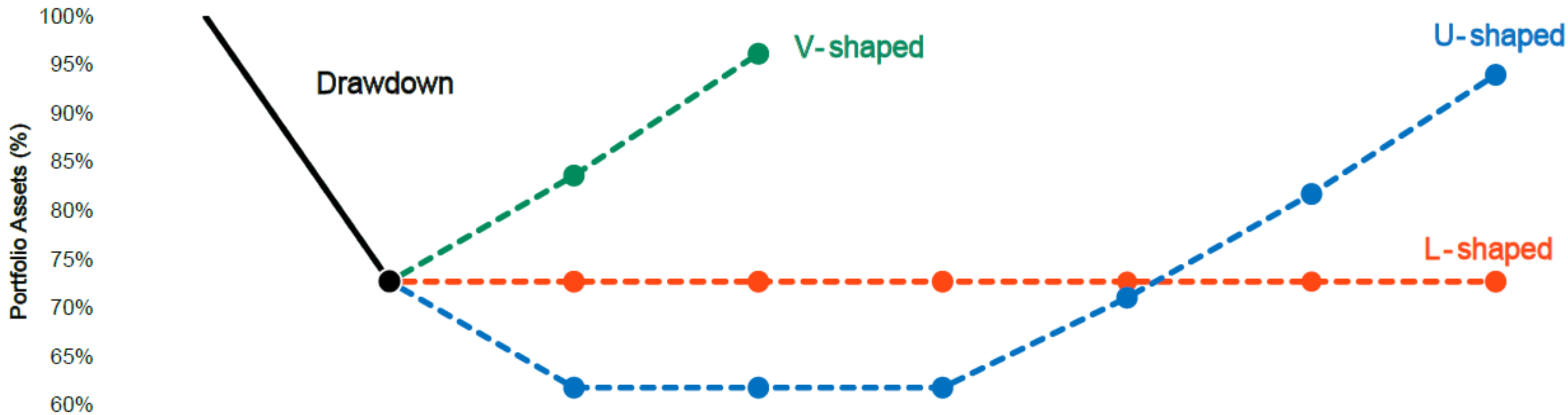
Designed scenarios are for illustration purposes only; this information does not constitute a BlackRock projection and does not reflect any specific account or portfolio.

NDRIO Point: A 100% Recovery will occur, the question is not "if", but "when".

Recovery Scenarios

Client
Insight
Unit

Recovery Shapes and Sizes



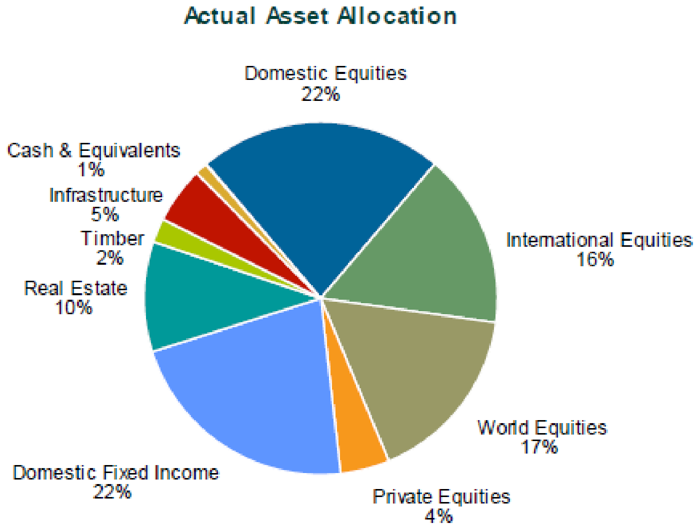
Recovery Shape	Jan '20	March '20	+6 Months	+12 Months	+18 Months	+24 Months	+30 Months	+36 Months
L	-	-27.3%	0%	0%	0%	0%	0%	0%
U	-	-27.3%	-15%	0%	0%	15%	15%	15%
V	-	-27.3%	+15%	+15%	-	-	-	-

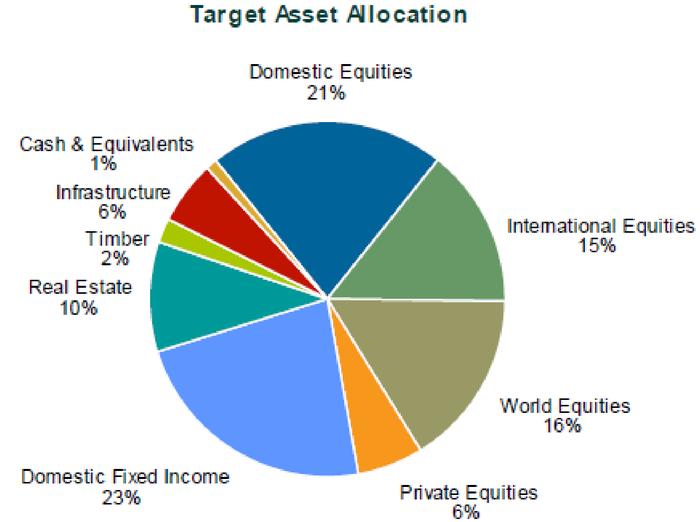
Designed scenarios are for illustration purposes only; this information does not constitute a BlackRock projection and does not reflect any specific account or portfolio.

TFFR Allocation

As of December 31, 2019

TFFR's Actual Asset Allocations are within 2% of Target noting the Private Equity Underweight of 1.5% is offset by an Overweight allocation to Domestic Equities of 0.9%, and International Equities of 1.5%.



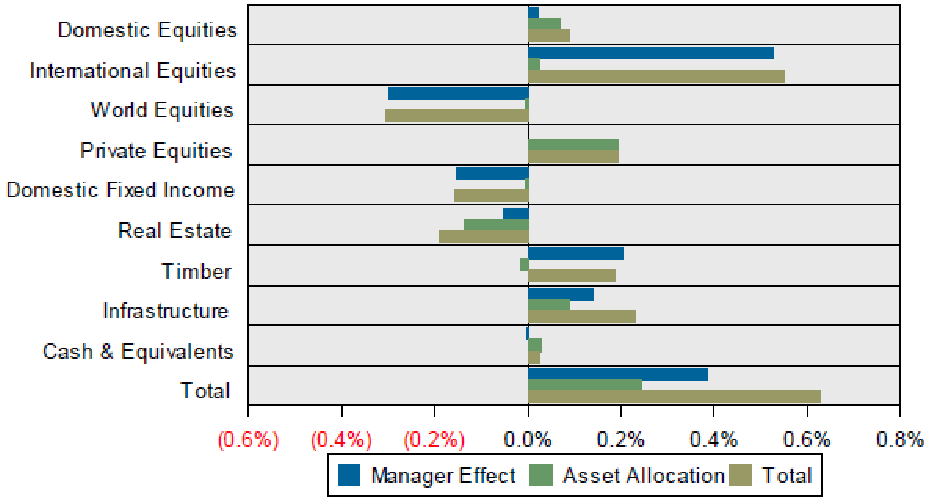


Asset Class	$000s Actual	Weight Actual	Target	Percent Difference	$000s Difference
Domestic Equities	601,366	22.4%	21.5%	0.9%	24,641
International Equities	430,470	16.0%	14.5%	1.5%	39,786
World Equities	444,577	16.5%	16.0%	0.5%	14,617
Private Equities	120,097	4.5%	6.0%	(1.5%)	(41,138)
Domestic Fixed Income	589,172	21.9%	23.0%	(1.1%)	(28,896)
Real Estate	271,827	10.1%	10.0%	0.1%	3,102
Timber	59,278	2.2%	2.2%	0.0%	0
Infrastructure	140,471	5.2%	5.8%	(0.6%)	(15,232)
Cash & Equivalents	29,993	1.1%	1.0%	0.1%	3,120
Total	2,687,250	100.0%	100.0%		

TFFR Performance and Attribution

As of December 31, 2019

One Year Relative Attribution Effects



Returns for 1 Year Ended 12/31/2019

Return Type	Return (%)
Gross	18.24%
Net of fees	17.97%
Target	17.61%
Net added	0.36%

One Year Relative Attribution Effects

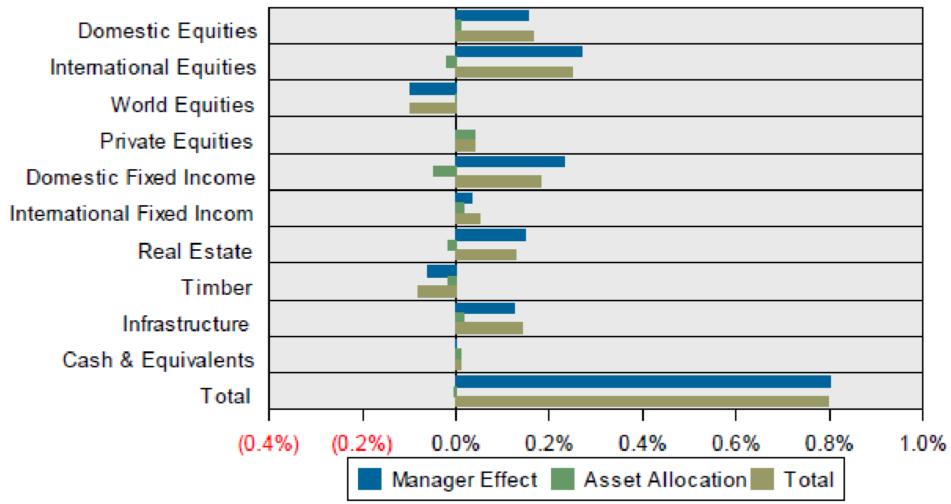
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	22%	21%	30.26%	30.11%	0.02%	0.07%	0.09%
International Equities	16%	15%	25.22%	21.75%	0.53%	0.03%	0.55%
World Equities	16%	16%	25.74%	27.67%	(0.30%)	(0.01%)	(0.30%)
Private Equities	4%	6%	7.04%	7.04%	0.00%	0.19%	0.19%
Domestic Fixed Income	23%	23%	9.77%	10.44%	(0.15%)	(0.01%)	(0.16%)
Real Estate	11%	10%	5.98%	6.42%	(0.05%)	(0.14%)	(0.19%)
Timber	2%	2%	9.39%	1.30%	0.20%	(0.01%)	0.19%
Infrastructure	5%	6%	6.02%	3.43%	0.14%	0.09%	0.23%
Cash & Equivalents	1%	1%	2.22%	2.28%	(0.00%)	0.03%	0.03%
Total			**18.24% =**	**17.61% +**	**0.39% +**	**0.24%**	**0.63%**

Callan | Knowledge. Experience. Integrity.

TFFR Performance and Attribution

As of December 31, 2019

Five Year Annualized Relative Attribution Effects



Returns for 5 Year Ended 12/31/2019

Return Type	Return (%)
Gross	7.63%
Net of fees	7.35%
Target	6.83%
Net added	0.52%

Five Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equities	23%	21%	11.51%	10.80%	0.15%	0.01%	0.16%
International Equities	15%	15%	7.34%	5.66%	0.27%	(0.02%)	0.25%
World Equities	16%	16%	8.07%	8.74%	(0.10%)	0.00%	(0.10%)
Private Equities	4%	6%	2.22%	2.22%	0.00%	0.04%	0.04%
Domestic Fixed Income	20%	19%	5.03%	3.81%	0.23%	(0.05%)	0.18%
International Fixed Incom	3%	3%	-	-	0.03%	0.02%	0.05%
Real Estate	10%	10%	9.73%	8.25%	0.15%	(0.02%)	0.13%
Timber	3%	3%	1.18%	3.13%	(0.06%)	(0.02%)	(0.08%)
Infrastructure	5%	5%	5.12%	2.51%	0.12%	0.02%	0.14%
Cash & Equivalents	1%	1%	1.17%	1.07%	0.00%	0.01%	0.01%
Total			**7.63% =**	**6.83% +**	**0.80% +**	**(0.00%)**	**0.80%**

Global Equity, Fixed Income and Real Asset Valuations

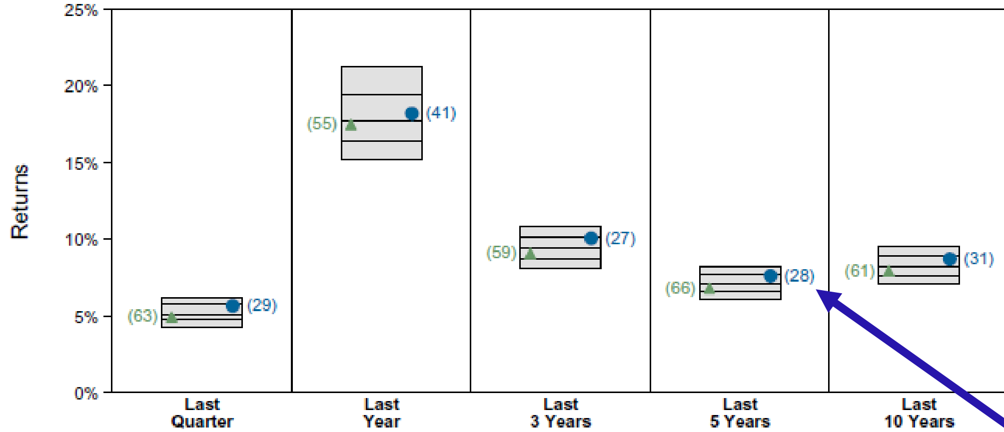
Asset Class Allocation

	December 31, 2019				September 30, 2019	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Global Equities	**$1,596,510,157**	**59.41%**	**$(23,247,707)**	**$130,218,708**	**$1,489,539,156**	**58.21%**
Public Equities	**$1,476,413,325**	**54.94%**	**$(30,750,724)**	**$130,120,550**	**$1,377,043,499**	**53.81%**
World Equities	**$444,577,009**	**16.54%**	**$(3,878,237)**	**$40,433,096**	**$408,022,150**	**15.95%**
Domestic Equities	**$601,366,032**	**22.38%**	**$(19,761,745)**	**$49,927,418**	**$571,200,359**	**22.32%**
Large Cap	464,505,628	17.29%	(19,176,609)	40,312,616	443,369,621	17.33%
Small Cap	136,860,404	5.09%	(585,136)	9,614,803	127,830,738	5.00%
International Equities	**$430,470,284**	**16.02%**	**$(7,110,742)**	**$39,760,036**	**$397,820,989**	**15.55%**
Developed	341,912,532	12.72%	(7,350,742)	30,434,875	318,828,399	12.46%
Emerging Markets	88,557,752	3.30%	240,000	9,325,162	78,992,590	3.09%
Private Equities	**$120,096,832**	**4.47%**	**$7,503,017**	**$98,158**	**$112,495,657**	**4.40%**
Global Fixed Income	**$589,171,790**	**21.92%**	**$(11,449,250)**	**$4,520,746**	**$596,100,294**	**23.30%**
Domestic Fixed Income	**$589,171,790**	**21.92%**	**$(11,449,250)**	**$4,520,746**	**$596,100,294**	**23.30%**
Investment Grade	415,913,211	15.48%	1,093,829	209,914	414,609,468	16.20%
Below Investment Grade	173,258,579	6.45%	(12,543,079)	4,310,832	181,490,826	7.09%
Global Real Assets	**$471,574,972**	**17.55%**	**$(3,103,997)**	**$10,056,943**	**$464,622,027**	**18.16%**
Real Estate	**$271,826,557**	**10.12%**	**$(8,938,811)**	**$5,730,318**	**$275,035,050**	**10.75%**
Other Real Assets	**$199,748,415**	**7.43%**	**$5,834,814**	**$4,326,624**	**$189,586,977**	**7.41%**
Infrastructure	140,470,612	5.23%	6,246,485	569,949	133,654,178	5.22%
Timber	59,277,803	2.21%	(411,671)	3,756,676	55,932,798	2.19%
Cash	**$29,992,847**	**1.12%**	**$21,245,810**	**$117,570**	**$8,629,467**	**0.34%**
Securities Lending Income	**$0**	**0.00%**	**$(39,673)**	**$39,673**	**-**	**-**
Total Fund	**$2,687,249,766**	**100.0%**	**$(16,594,817)**	**$144,953,639**	**$2,558,890,943**	**100.0%**

Net Investment Income increased TFFR pension assets by nearly $145 million in the fourth calendar quarter of 2019.

Note: The above table is unaudited and subject to change, but deemed to be materially accurate.

Callan Public Fund Sponsor Database



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	6.22	21.27	10.83	8.25	9.51
25th Percentile	5.79	19.41	10.16	7.69	8.96
Median	5.13	17.75	9.40	7.11	8.25
75th Percentile	4.75	16.45	8.75	6.66	7.65
90th Percentile	4.26	15.16	8.08	6.10	7.15
Total Fund ●	5.68	18.21	10.08	7.63	8.73
Policy Target ▲	4.94	17.47	9.09	6.83	7.96

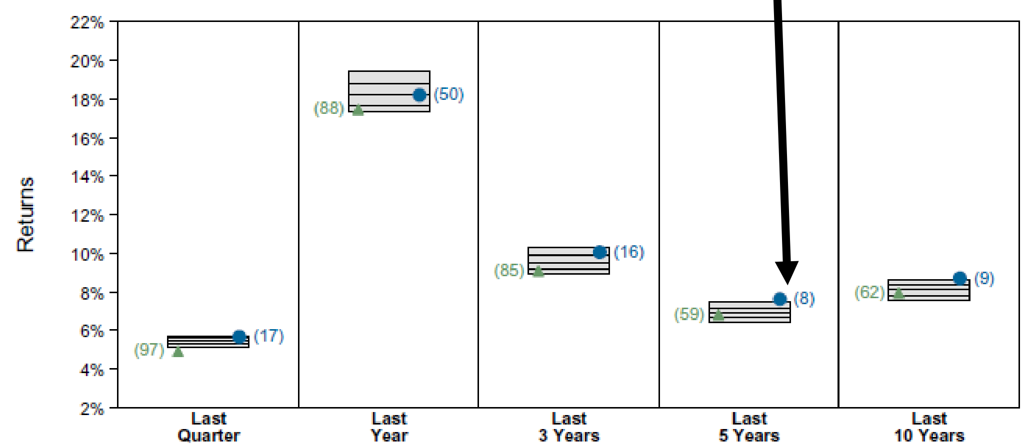
Callan – NDSIB Pension Trust Fund Ranking

The **Callan** charts show the ranking of the **Total Fund** (SIB Pension Trust) performance relative to that of the Callan Public Fund Sponsor Database for periods ended Dec. 31, 2019.

The top chart is a standard unadjusted ranking. In the bottom chart each fund in the database is adjusted to have the same historical asset allocation as that of the **Total Fund**.

The NDSIB Pension Trust was ranked in the 28TH percentile over the last 5 years on an "Unadjusted Basis" (and **8th percentile** on an "Asset Allocation Adjusted Basis").

Asset Allocation Adjusted Ranking



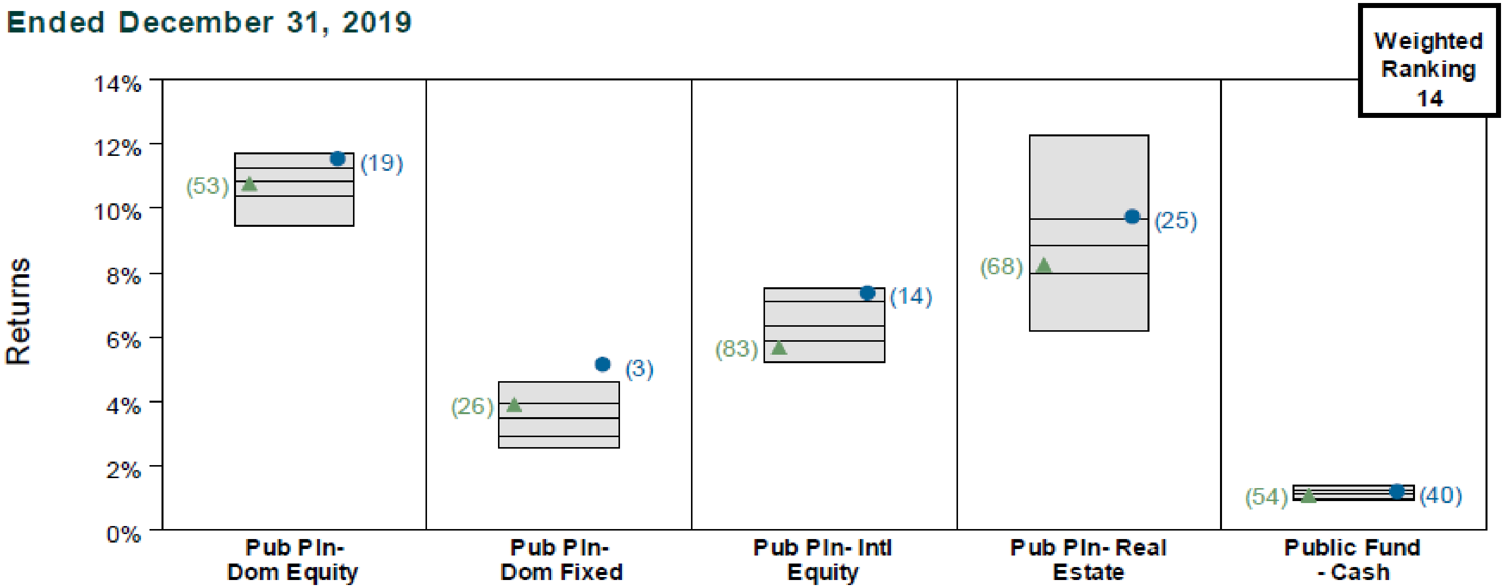
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	5.70	19.48	10.34	7.50	8.66
25th Percentile	5.61	18.78	9.88	7.19	8.37
Median	5.46	18.21	9.54	6.93	8.11
75th Percentile	5.33	17.70	9.21	6.71	7.84
90th Percentile	5.13	17.33	8.94	6.44	7.60
Total Fund ●	5.68	18.21	10.08	7.63	8.73
Policy Target ▲	4.94	17.47	9.09	6.83	7.96

Key Point on Gross versus Net Returns: Callan's Public Fund Sponsor Database uses "Gross Returns". RIO believes PERS and TFFR "Net Investment Returns" rank in the top quartile for the 3, 5 and 10 year periods ended December 31, 2019.

Asset Class Composite Results

Consolidated Pension Trust Asset Class Results vs. Other Public Pension Funds

Total Asset Class Performance
Five Years Ended December 31, 2019

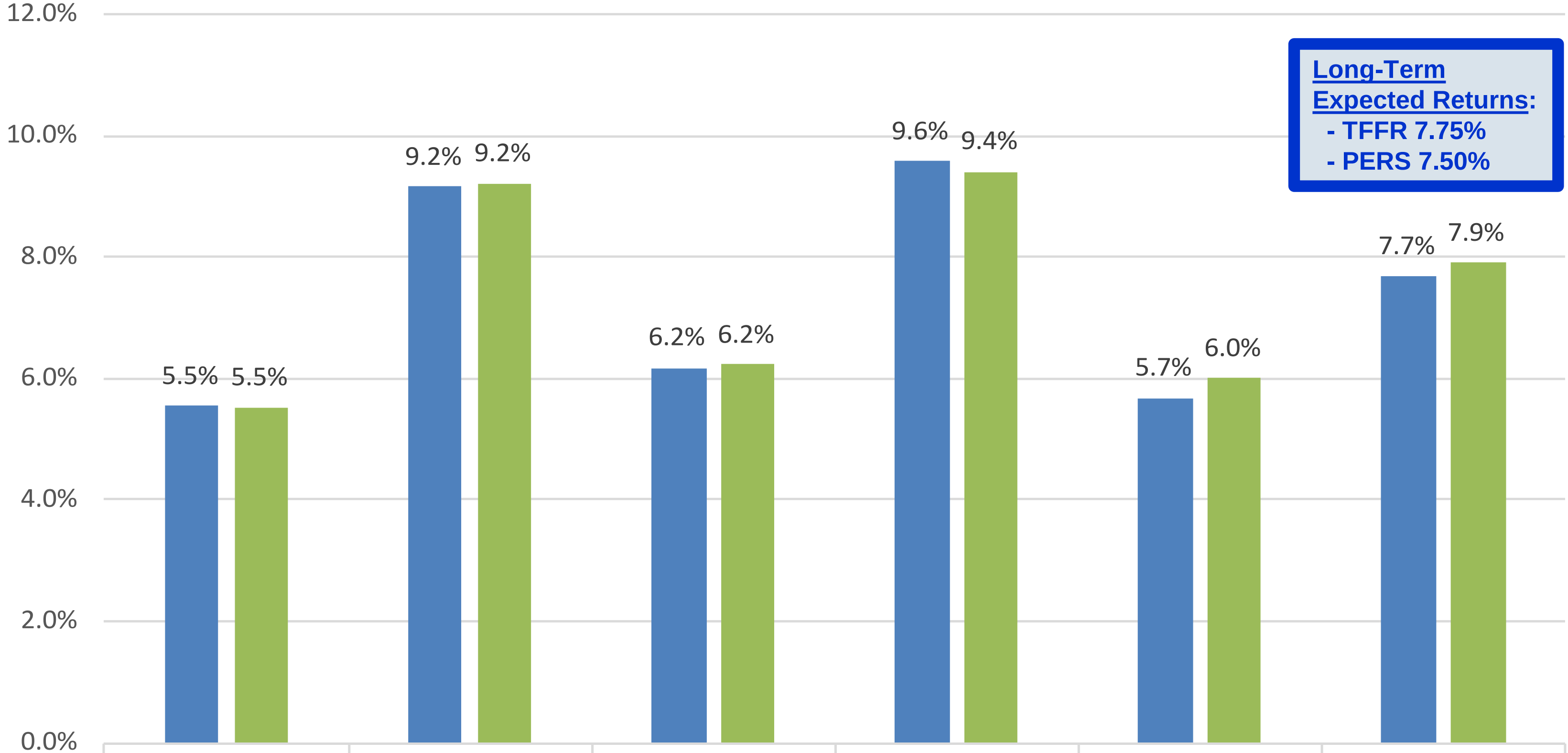


	Pub Pln- Dom Equity	Pub Pln- Dom Fixed	Pub Pln- Intl Equity	Pub Pln- Real Estate	Public Fund - Cash
10th Percentile	11.73	4.59	7.54	12.26	1.36
25th Percentile	11.26	3.93	7.11	9.69	1.24
Median	10.83	3.50	6.33	8.84	1.10
75th Percentile	10.36	2.94	5.90	7.96	0.97
90th Percentile	9.48	2.56	5.19	6.20	0.91
Asset Class Composite ●	11.49	5.09	7.32	9.69	1.15
Composite Benchmark ▲	10.78	3.90	5.67	8.25	1.07

- All asset classes outperformed their respective benchmarks over the trailing five years.
- All asset classes, with the exception of cash, ranked in the top quartile over the trailing five years.

TFFR and PERS Returns have approximated their actuarial return assumptions the last 30 years.

Net Investment Returns for Periods Ended June 30, 2019



	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years
TFFR	5.5%	9.2%	6.2%	9.6%	5.7%	7.7%
PERS	5.5%	9.2%	6.2%	9.4%	6.0%	7.9%

TFFR PERS

Note: Investment returns are deemed to be materially accurate, but are unaudited and subject to change.

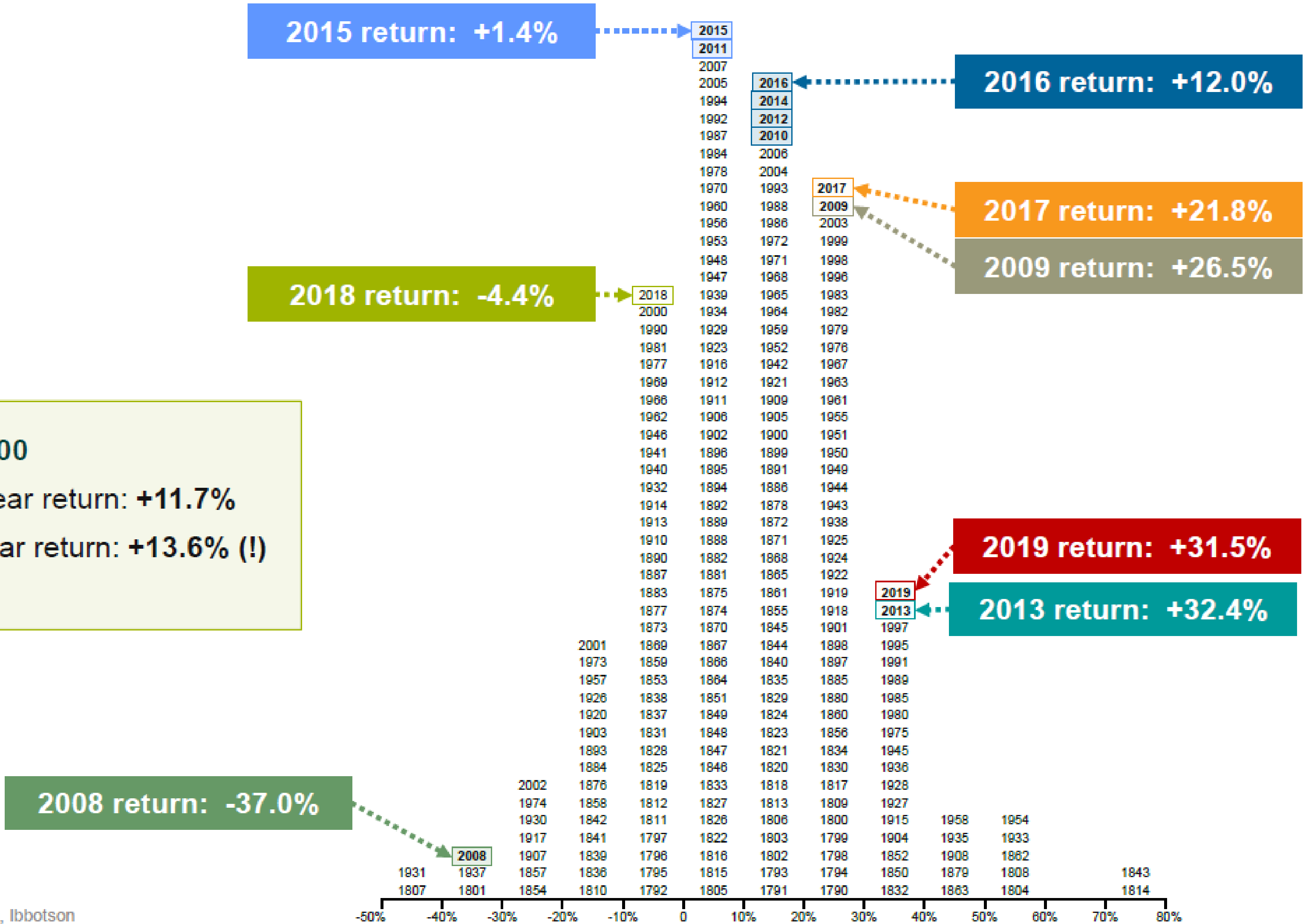
Stock Market Returns by Calendar Year

2019 performance in perspective: History of the U.S. stock market (230 years of returns)

S&P 500

Five-year return: **+11.7%**

Ten-year return: **+13.6% (!)**



Sources: Callan, Ibbotson

15 Years of Annual Asset Class Performance

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Best	Emerging Market Equity 34.00%	Real Estate 42.12%	Emerging Market Equity 39.38%	U.S. Fixed Income 5.24%	Emerging Market Equity 78.51%	Small Cap Equity 26.85%	U.S. Fixed Income 7.84%	Real Estate 27.73%	Small Cap Equity 38.82%	Real Estate 15.02%	Large Cap Equity 1.38%	Small Cap Equity 21.31%	Emerging Market Equity 37.28%	Cash Equivalent 1.87%	Large Cap Equity 31.49%
	Real Estate 15.35%	Emerging Market Equity 32.17%	Dev ex-U.S. Equity 12.44%	Glbl ex-U.S. Fixed 4.39%	High Yield 58.21%	Real Estate 19.63%	High Yield 4.98%	Emerging Market Equity 18.23%	Large Cap Equity 32.39%	Large Cap Equity 13.69%	U.S. Fixed Income 0.55%	High Yield 17.13%	Dev ex-U.S. Equity 24.21%	U.S. Fixed Income 0.01%	Small Cap Equity 25.52%
	Dev ex-U.S. Equity 14.47%	Dev ex-U.S. Equity 25.71%	Glbl ex-U.S. Fixed 11.03%	Cash Equivalent 2.06%	Real Estate 37.13%	Emerging Market Equity 18.88%	Glbl ex-U.S. Fixed 4.36%	Dev ex-U.S. Equity 16.41%	Dev ex-U.S. Equity 21.02%	U.S. Fixed Income 5.97%	Cash Equivalent 0.05%	Large Cap Equity 11.96%	Large Cap Equity 21.83%	High Yield -2.08%	Dev ex-U.S. Equity 22.49%
	Large Cap Equity 4.91%	Small Cap Equity 18.37%	U.S. Fixed Income 6.97%	High Yield -26.16%	Dev ex-U.S. Equity 33.67%	High Yield 15.12%	Large Cap Equity 2.11%	Small Cap Equity 16.35%	High Yield 7.44%	Small Cap Equity 4.89%	Real Estate -0.79%	Emerging Market Equity 11.19%	Small Cap Equity 14.65%	Glbl ex-U.S. Fixed -2.15%	Real Estate 21.91%
	Small Cap Equity 4.55%	Large Cap Equity 15.79%	Large Cap Equity 5.49%	Small Cap Equity -33.79%	Small Cap Equity 27.17%	Large Cap Equity 15.06%	Cash Equivalent 0.10%	Large Cap Equity 16.00%	Real Estate 3.67%	High Yield 2.45%	Dev ex-U.S. Equity -3.04%	Real Estate 4.06%	Glbl ex-U.S. Fixed 10.51%	Large Cap Equity -4.38%	Emerging Market Equity 18.44%
	Cash Equivalent 3.07%	High Yield 11.85%	Cash Equivalent 5.00%	Large Cap Equity -37.00%	Large Cap Equity 26.47%	Dev ex-U.S. Equity 8.95%	Small Cap Equity -4.18%	High Yield 15.81%	Cash Equivalent 0.07%	Cash Equivalent 0.03%	Small Cap Equity -4.41%	Dev ex-U.S. Equity 2.75%	Real Estate 10.36%	Real Estate -5.63%	High Yield 14.32%
	High Yield 2.74%	Glbl ex-U.S. Fixed 8.16%	High Yield 1.87%	Dev ex-U.S. Equity -43.56%	Glbl ex-U.S. Fixed 7.53%	U.S. Fixed Income 6.54%	Real Estate -6.46%	U.S. Fixed Income 4.21%	U.S. Fixed Income -2.02%	Emerging Market Equity -2.19%	High Yield -4.47%	U.S. Fixed Income 2.65%	High Yield 7.50%	Small Cap Equity -11.01%	U.S. Fixed Income 8.72%
	U.S. Fixed Income 2.43%	Cash Equivalent 4.85%	Small Cap Equity -1.57%	Real Estate -48.21%	U.S. Fixed Income 5.93%	Glbl ex-U.S. Fixed 4.95%	Dev ex-U.S. Equity -12.21%	Glbl ex-U.S. Fixed 4.09%	Emerging Market Equity -2.60%	Glbl ex-U.S. Fixed -3.09%	Glbl ex-U.S. Fixed -6.02%	Glbl ex-U.S. Fixed 1.49%	U.S. Fixed Income 3.54%	Dev ex-U.S. Equity -14.09%	Glbl ex-U.S. Fixed 5.09%
Worst	Glbl ex-U.S. Fixed -8.65%	U.S. Fixed Income 4.33%	Real Estate -7.39%	Emerging Market Equity -53.33%	Cash Equivalent 0.21%	Cash Equivalent 0.13%	Emerging Market Equity -18.42%	Cash Equivalent 0.11%	Glbl ex-U.S. Fixed -3.08%	Dev ex-U.S. Equity -4.32%	Emerging Market Equity -14.92%	Cash Equivalent 0.33%	Cash Equivalent 0.86%	Emerging Market Equity -14.57%	Cash Equivalent 2.28%

- On an annual basis, asset class relative performance shows a lot of variation
- Asset allocation seeks to control the inherent risk of year to year asset class over and underperformance

NDSIB Consolidated Gross Performance Summary

As of December 31, 2019

	Last Quarter	Last Year	Last 5 Years
Consolidated Pension Trust	5.68%	18.21%	7.63%
Consolidated Pension Trust Target	*4.94%*	*17.47%*	*6.83%*
Relative Performance vs. Target	0.74%	0.74%	0.80%
PERS Total Fund	5.74%	18.26%	7.67%
NDSIB PERS Total Fund Target	*4.93%*	*17.41%*	*6.85%*
Relative Performance vs. Target	0.81%	0.85%	0.82%
TFFR Total Fund	5.67%	18.24%	7.63%
NDSIB TFFR Total Fund Target	*4.98%*	*17.61%*	*6.83%*
Relative Performance vs. Target	0.69%	0.63%	0.80%
WSI Total Fund	2.66%	13.76%	6.27%
NDSIB WSI Total Fund Target	*2.14%*	*12.23%*	*4.92%*
Relative Performance vs. Target	0.52%	1.53%	1.35%
Legacy - Total Fund	5.21%	18.35%	7.18%
NDSIB Legacy - Total Fund Target	*4.52%*	*17.47%*	*6.24%*
Relative Performance vs. Target	0.69%	0.88%	0.94%
Budget - Total Fund	0.77%	4.85%	2.24%
NDSIB Budget - Total Fund Target	*0.59%*	*3.99%*	*1.63%*
Relative Performance vs. Target	0.18%	0.86%	0.61%

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board
FROM: Fay Kopp
DATE: April 16, 2020
SUBJ: Asset Allocation and Liability Modeling Study

An Asset Allocation and Liability Modeling Study is a useful tool in helping TFFR assess whether its asset allocation strategy remains a successful and appropriate one, or if changes are desired. The Study will also help to assess potential risks and rewards in an objective and quantitative framework.

For TFFR, an Asset Liability Study must be performed at least every 5 years, and the next one is scheduled to be done in 2020. Additionally, studies are often done following a significant market event that might leave a plan's funded status greatly changed, and so it is also timely to conduct such a study this year.

Selecting and monitoring the investment consultant to perform the Asset Allocation and Liability Modeling Study is an important Board responsibility. Board policy and state law guide the Board in this process.

TFFR Board Policy B-9:

> *"An asset liability study must be performed on TFFR every five years. The study should identify the optimal distribution of TFFR funds among the various asset classes that offers the highest probability of consistently achieving investment objectives within the confines of a predetermined level of risk."*

NDCC 15-39.1-05.2 (TFFR statutes)

> *"The TFFR Board shall establish investment policy for the trust fund under section 21-10-02.1. The investment policy must include acceptable rates of return, liquidity, and levels of risk, and long-range asset allocation targets."*

NDCC 21-10-02.1 (SIB statutes)

1. *"The governing body of each fund enumerated in section 21-10-06 shall establish policies on investment goals and objectives and asset allocation for each respective fund….*

2. *The asset allocation and any subsequent allocation changes for each fund must be approved by the governing body of that fund and the state investment board.* ***The governing body of each fund shall use the staff and consultants of the retirement and investment office in developing asset allocation and investment policies."***

Presently the consultants who work with the Retirement and Investment Office that could perform an Asset Liability Study are Callan (SIB general consultant), Segal (TFFR actuarial consultant – Segal Marco Advisors is the investment consulting arm of Segal Company), and SEI.

The last two asset liability studies for TFFR were done by Callan (2010-11 and 2015-16). (Note: PERS has also contracted with Callan to perform asset liability studies in the past, and Callan is scheduled to conduct the PERS asset liability study this summer.)

Options for TFFR Board consideration include:

- Request proposal from Callan for presentation and Board approval at next Board meeting.

- Request proposals from all three RIO consultants – Callan, Segal Marco Advisors, and SEI – for presentation and Board consideration at next Board meeting.

Dave Hunter, SIB Chief Investment Officer, may also have some comments related to the asset liability study.

BOARD ACTION:

Decide how to proceed with selecting an investment consultant to perform the 2020 TFFR Asset Liability Study.

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board

FROM: Fay Kopp

DATE: April 16, 2020

SUBJ: 2021 Legislative Planning

Based on the TFFR Board's discussion at the January 2020 meeting, it was decided that the Board **will not** submit any legislative proposals for interim study by the Legislative Employee Benefits Programs Committee (LEBPC) for the **2021 legislative session**. I have notified Legislative Council that the TFFR Board is not submitting any proposed legislation at this time.

The LEBPC met on April 15, 2020 to receive an update on the status of state investments (Dave Hunter), and to review and take jurisdiction over legislative proposals regarding the state's retirement and health programs (PERS). A copy of the meeting agenda is attached.

BOARD INFORMATION AND DISCUSSION.

NORTH DAKOTA LEGISLATIVE MANAGEMENT

Tentative Agenda

EMPLOYEE BENEFITS PROGRAMS COMMITTEE

Wednesday, April 15, 2020

Due to public health considerations and in accordance with Executive Order 2020-16, a meeting room will not be available to the public for this meeting. A live stream of the meeting will be available at: http://video.legis.nd.gov. Written comments regarding the committee's agenda topics may be submitted to jclark@nd.gov.

9:00 a.m.	Call to order Roll call Consideration of the minutes of the January 15, 2020, meeting

RETIREMENT AND INVESTMENT OFFICE

9:05 a.m.	Presentation by Mr. David J. Hunter, Executive Director and Chief Investment Officer, Retirement and Investment Office, regarding the status of state investments Committee discussion and directives

CHANGES IN FEDERAL RETIREMENT LAW

9:20 a.m.	Presentation by Mr. Scott Miller, Executive Director, Public Employees Retirement System, requesting approval of terminology adopted by the Public Employees Retirement System (PERS) Board to comply with federal requirements pursuant to North Dakota Century Code Section 54-52-23 Committee discussion and directives

ACTUARIAL REVIEW OF BILL DRAFT

9:30 a.m.	Committee consideration and receipt of technical comments and actuarial information relating to Bill Draft No. 20 [21.0020.01000], over which the committee took jurisdiction, which affects, actuarially or otherwise, the retirement programs of state employees or employees of any political subdivision, and health and retiree health plans of state employees or employees of any political subdivision pursuant to Section 54-35-02.4 Committee discussion and directives

JURISDICTION OF BILL DRAFTS

Committee consideration of the following bill drafts to determine whether the bill drafts affect, actuarially or otherwise, the retirement programs of state employees or employees of any political subdivision, and health and retiree health plans of state employees or employees of any political subdivision pursuant to Section 54-35-02.4:

9:45 a.m.	Bill Draft No. 55 [21.0055.01000] provides a health insurance policy that covers an annual physical examination must allow for a physical examination that meets the requirements for a federal Department of Transportation physical examination
9:55 a.m.	Bill Draft No. 68 [21.0068.01000] provides PERS prescription drug benefits coverage must include certain drugs imported from Canada
10:05 a.m.	Bill Draft No. 87 [21.0087.01000] provides a 1.95 percent increase in the employer contribution for the PERS retirement plans
10:15 a.m.	Bill Draft No. 88 [21.0088.01000] provides a 2 percent increase in the employer and employee contribution for the PERS retirement plans
10:25 a.m.	Bill Draft No. 89 [21.0089.01000] provides a 5.12 percent increase in the employer and employee contribution for the PERS retirement plans
10:35 a.m.	Bill Draft No. 90 [21.0090.01000] provides an increase in the employer contribution for the Highway Patrolmen's retirement system

10:45 a.m.	Bill Draft No. 91 [21.0091.01000] provides a penalty for late payments or failures to follow required PERS processes
10:55 a.m.	Bill Draft No. 92 [21.0092.01000] provides for technical corrections and updates to PERS laws
11:05 a.m.	Bill Draft No. 93 [21.0093.01000] provides an exception for PERS Medicare part D pharmacy benefits requirements
11:15 a.m.	Bill Draft No. 94 [21.0094.01000] provides for the assessment of administrative expenses for the PERS deferred compensation plan
11:25 a.m.	Bill Draft No. 95 [21.0095.01000] provides a 1 percent increase in the employer and employee contribution for the PERS retirement plans
11:35 a.m.	Committee discussion and directives regarding future meetings
11:45 a.m.	Adjourn

Committee Members

Representatives: Mike Lefor (Chairman), Jason Dockter, LaurieBeth Hager, Craig Johnson, Vernon Laning, Matthew Ruby, Austen Schauer

Senators: Howard C. Anderson, Jr., Brad Bekkedahl, Dick Dever, Karen K. Krebsbach, Richard Marcellais, Kristin Roers

Staff Contact: Jennifer S. N. Clark, Counsel

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board

FROM: Fay Kopp

DATE: April 23, 2020

SUBJ: Required Minimum Distribution Legislative Change

At the January 2020 board meeting, I informed the Board that Congress passed the SECURE Act in December 2019. One provision of the SECURE Act increased the age at which required minimum distributions from a qualified public pension plan must begin from age 70.5 to age 72. The new required minimum distribution age of 72 applies to members who turn age 70.5 after December 31, 2019.

Plans have until the last day of the first plan year beginning on or after January 1, 2024 to adopt amendments to their governing plan documents to reflect the changes to the required beginning date. Therefore, statutory changes could be made in 2021 or 2023, but no later than 2025. Since TFFR did not submit any legislative proposals to the Legislative Employee Benefits Programs Committee for interim study by the April 1, 2020 deadline, TFFR should plan to submit this technical change in 2023, along with any other IRC provision changes that may be passed in the next few years.

Although TFFR is not required to make the change in statutes immediately, TFFR must begin administering the change to the required minimum distribution age requirement as soon as possible in order to be in operational compliance. In order to do so, state law requires that TFFR receive approval from the Legislative Employee Benefits Programs Committee. See statutory references below.

15-39.1-34. Internal Revenue Code compliance.

The board shall administer the plan in compliance with section 415, section 401(a) (9), section 401(a) (17), and section 401(a) (31) of the Internal Revenue Code, as amended, and regulations adopted pursuant to those provisions as they apply to governmental plans.

15-39.1-35. Savings clause – Plan modifications.

If the board determines that any section of this chapter does not comply with applicable federal statutes or rules, the board shall adopt appropriate terminology with respect to that section as will comply with those federal statutes or rules, subject to the approval of the employee benefits programs committee. Any plan modifications made by the board pursuant to this section are effective until the effective date of any measure enacted by the legislative assembly providing the necessary amendments to this chapter to ensure compliance with the federal statutes or rules.

Here is the suggested change to state statutes related to increasing the required minimum distribution age from age 70.5 to age 72.

15-39.1-10. Eligibility for normal retirement benefits.

4. ~~Retirement benefits must begin~~ <u>For a member who attains age seventy and one-half prior to January 1, 2020, the member's required beginning date is</u> no later than April first of the calendar year following the year the member attains age seventy and one-half or April first of the calendar year following the year the member terminates covered employment, whichever is later. <u>For a member who attains seventy and one-half after December 31, 2019, the member's required beginning date is no later than April first of the calendar year following the year the member attains age seventy- two or April first of the calendar year following the year the member terminates covered employment, whichever is later.</u> Payments must be made over a period of time which does not exceed the life expectancy of the member or the joint life expectancy of the member and the beneficiary. Payment of minimum distributions must be made in accordance with section 401(a)(9) of the Internal Revenue Code, as amended, and the regulations issued under that section, as applicable to governmental plans.

The TFFR Board will need to adopt the above language change to NDCC 15-39.1-10, submit the change to the Legislative Employee Benefits Programs Committee for interim approval, and finally submit the change to a future Legislative Assembly for final approval.

BOARD MOTION to adopt the suggested language change to NDCC 15-39.1-10 related to required minimum distribution age and submit to the Legislative Employee Benefits Programs Committee for interim approval.

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board

FROM: Fay Kopp

DATE: April 16, 2020

SUBJ: COVID-19 and Retirement Program Operations

General Observations:

NDTFFR, like other governmental pension plans around the country, is responding to the impact of COVID-19 and protecting the health and safety of plan members, retirees, and employees while ensuring continuity of retirement program operations.

Financial markets have also been on a rollercoaster ride. Public pension plans are experiencing significant investment losses as a result of the pandemic. This puts increased pressure on underfunded public pension plans that were already facing stress before the crisis. While it is too early to assess the potential impact on the long-term financial health of the NDTFFR plan, it will begin to show up after June 30. Fiscal year-end investment performance numbers will be finalized in September, and the annual actuarial valuation report will be completed in late October.

The outbreak has also triggered widespread job losses and business closures that threaten to further hurt the economy and lead to global recession. State and local governments are expected to experience lower revenues, while their costs associated with providing healthcare and other emergency services are expected to steadily increase.

The coronavirus outbreak could test the nature of pension programs in ways that even the 2008 Great Financial Crisis did not. As funding levels begin to decline in the future, NDTFFR may need to re-engage in complicated and difficult discussions about potential changes to plan design, benefits, and contributions.

TFFR Retirement Program Operations:

- Our agency is following CDC, Governor's Office, and State recommendations in an effort to reduce the spread of the coronavirus.

- The RIO office is closed to the public. Many staff members are working remotely primarily communicating via phone and email. IT staff have done a wonderful job supporting this transition. Our dedicated staff -- both in-office and remote – continue to provide excellent customer service to members and employers. Patience, flexibility, and communication have been key.

- TFFR member and employer services are functional, and are primarily being delivered by electronic means. We continue to administer critical retirement program operations including member claims processing, employer reporting, and retiree payroll functions. Staff is processing retirements, refunds, deaths, and other high priority claims and requests. We currently have retirement applications or documentation for 240 prospective retirees this spring, and we expect more applications to come in.

- Monthly TFFR benefit payments to almost 9,000 retirees and beneficiaries went out on April 1, and will continue to go out every month as promised. TFFR can meet its financial obligation to retirees, despite the economic downturn.

- We have developed various COVID-19 related communications for active and retired members and employers which are available on the RIO website and have been emailed or otherwise distributed to members and employers.

  - Top 5 Things TFFR wants Active Members, Retirees and Employers to Know
  - Top 5 Things TFFR wants Retired Members to Know
  - TFFR Employer Reporting Frequently Asked Questions

- As COVID-19 related questions come from members and employers, we are doing our best to promptly research and respond in a timely manner.

- We greatly appreciate the support provided by DPI, ESPB, and member and employer stakeholder groups including NDCEL, ND United, NDRTA, NDSBA, and NDASBO. They are valuable partners as we seek feedback and information.

- As of April 15, estimated TFFR fiscal year-to-date return was about -4%. Dave will provide additional commentary on financial market conditions at the April meeting.

BOARD INFORMATION AND DISCUSSION

Top 5 Things TFFR wants Active Members, Retirees, and Employers to Know

With all the concerns today regarding the COVID-19 pandemic and its impact on public health, the last thing ND teachers and administrators should have to worry about is their pension plan. **During these uncertain times, TFFR wants you to know we remain committed to providing excellent customer service to our valued members and employers.**

1) **TFFR program operations are fully functional.**
Our office is closed to the public and many of our staff are working remotely. Retirement administration functions will primarily be delivered by electronic means through email (rio@nd.gov) or phone (800-952-2970 or 701-328-9885). We will continue to administer critical retirement program operations, claims processing, account maintenance, employer reporting, and retiree payroll functions. No in-person member appointments or outreach programs are being scheduled until further notice. Please sign up for TFFR Member Online to view your personal member account information.

2) **Retiree benefits will be paid as scheduled.**
Monthly TFFR retirement benefit payments to almost 9,000 retirees and beneficiaries will go out on April 1, and every month thereafter as promised. Nearly all of TFFR monthly benefit payments are directly deposited into retiree bank accounts. The few paper checks that go out each month will be mailed as scheduled. TFFR will continue to be able to meet its obligation to retirees, despite the economic downturn.

3) **New retirement claims are being processed.**
If you haven't done so already, teachers and administrators retiring in 2020 should submit your TFFR retirement application and documentation. Please be reminded that TFFR is a defined benefit pension plan which means your benefit is based on a formula defined in state law. Your benefit will be paid to you and/or your beneficiary for life depending on the option you select. It will not be reduced as a result of the market downturn.

   TFFR continues to process spring 2020 retirement applications. However, if your last date of employment will be different than what you have previously provided our office, please let us know (email or phone). If processing delays occur, benefits will be paid retroactive to a member's retirement date. Priority will be given to members who plan to retire this spring; other requests for information will be responded to as time permits.

4) **School districts should continue submitting TFFR reports and payments.**
Employers should continue monthly reporting of member salaries, contributions, and hours employed to ensure accurate retirement records and benefit calculations. However, due to COVID-19 school closings and reduced staffing capabilities, TFFR penalties for late employer reporting will be waived. Please communicate with our office as needed (email or phone).

5) **TFFR is a long term investor.**
A long term focus is important in financing pensions. Although the financial markets are in turmoil, TFFR's investment portfolio is professionally managed and highly diversified to help mitigate significant market downturns and extreme volatility. With that said, TFFR's estimated fiscal year-to-date net investment return is approximately -10% as of this date (7.1.19 – 3.24.20). Unfortunately, it is too early to assess the potential impact of the COVID-19 pandemic on the long-term financial health of the plan. Please be assured our investment team is closely monitoring the financial markets and TFFR's investment portfolio.

Thank you for your patience. Please contact TFFR if you have any questions.
Email rio@nd.gov or Phone 800-952-2970 or 701-328-9885.

North Dakota Teachers' Fund For Retirement

Top 5 Things TFFR wants Retired Members to Know
April 7, 2020

With all the concerns today regarding the COVID-19 pandemic and its impact on public health, the last thing ND retired educators should have to worry about is their TFFR pension plan. During these uncertain times, TFFR wants you to know:

1) **We remain committed to providing excellent customer service to our valued retirees.** While we can't meet or work together in person right now, our focus is still on our members. We will do our best to serve you, and greatly appreciate your patience and understanding. Please stay safe.

2) **TFFR program operations are fully functional.**
Our office is currently closed to the public and many of our staff are working remotely. Retirement administration functions will primarily be delivered by electronic means through email (rio@nd.gov) or phone (800-952-2970 or 701-328-9885). We will continue to administer critical retirement program operations, claims processing, account maintenance, and retiree payroll functions. No in-person member appointments or outreach programs are being scheduled until further notice. Please sign up for TFFR Member Online to view your personal member account information.

3) **Retiree benefits are safe and will be paid as scheduled.**
Monthly TFFR retirement benefit payments to almost 9,000 retirees and beneficiaries went out on April 1, and will be paid every month thereafter as promised. Nearly all of TFFR monthly benefit payments are directly deposited into retiree bank accounts. The few paper checks that go out each month will be mailed as scheduled. TFFR will continue to be able to meet its obligation to retirees, despite the economic downturn. This is our #1 priority.

4) **TFFR pension benefits will be paid for life.**
TFFR is a DEFINED BENEFIT pension plan which will provide retirees with a guaranteed lifetime income. Regardless of how long you live and what happens in the stock market before, during, or after your retirement, you can count on a predictable retirement benefit payment each month for the rest of your life.

5) **TFFR is a long term investor.**
A long term focus is important in financing pensions. Although the financial markets are in turmoil, TFFR's investment portfolio is professionally managed and highly diversified to help mitigate significant market downturns and extreme volatility. With that said, TFFR's estimated fiscal year-to-date net investment return is approximately -6% as of this date (7.1.19 – 4.7.20). Unfortunately, it is too early to assess the potential impact of the coronavirus outbreak on the long-term financial health of the TFFR plan. Please be assured our investment team is closely monitoring the financial markets and TFFR's investment portfolio.

Please contact TFFR if you have any questions.
Email rio@nd.gov or Phone 800-952-2970 or 701-328-9885.

TFFR Employer Reporting
Frequently Asked Questions: COVID-19
April 2, 2020

As school districts address public health issues related to the COVID-19 pandemic and delivery of distance education services to ND students, we understand you have some questions about TFFR reporting. Please be assured that during these uncertain times, TFFR remains committed to providing excellent customer service to our members and employers.

Q. 1 Is TFFR still able to accept employer reports and payments when state offices are closed?

Yes. TFFR program operations are fully functional. Our office is closed to the public and many of our staff are working remotely. During this time, retirement administration functions will primarily be delivered by electronic means through email (tvolkert@nd.gov or rio@nd.gov) or phone (800-952-2970 or 701-328-9885). We continue to administer critical retirement program operations, claims processing, account maintenance, employer reporting, and retiree payroll functions. Employers should continue to submit monthly payments and reports of member salaries, contributions, and hours employed.

Q. 2 With all the issues our school district has been dealing with to address the COVID-19 pandemic and to develop and implement distance education plans, things have been pretty hectic. Unfortunately, I haven't had time to submit my TFFR employer report and payment by the due date. What should I do?

Monthly employer reports and payments are due on the 15th of each month, but TFFR understands the challenges school districts are facing during this difficult time. Please communicate with TFFR and submit your monthly report and payment as soon as you are able to do so. It is important for business managers to work with TFFR if delays arise.

Q. 3 I have uploaded my TFFR employer report, but am unable to meet with the School Board president to sign the check so I can mail the payment. What should I do?

This is a good opportunity for the school to begin using ACH to electronically submit your monthly TFFR payment. That way you don't have to worry about tracking someone down to sign the check – your monthly payment can be sent electronically from your bank account to TFFR. It's safe, simple and fast! Contact our office today and we will send you the necessary form to take to your financial institution.

Q. 4 Our school district decided to pay teachers for the days that schools were closed in response to the COVID-19 pandemic. Should TFFR contributions also be paid?

Yes. Pay decisions are made by the local school administrators and school boards. However, if the school district pays TFFR members their full contracted salary during the school closure period, school districts should report the full salary amount as eligible TFFR retirement salary and retirement contributions should be paid.

Q. 5 What about extra-curricular duty pay? If our school pays coaches for extra-curricular sports seasons which may not occur this year, should we report the coaching salary to TFFR?

Yes. We understand that spring sports and other extra-curricular activities may not occur this year. However, we also understand that other activities might happen instead, for example remote individual coaching in sports or fine arts, leadership development, etc. If licensed and contracted TFFR members are paid for extra-curricular duties, the pay should be reported as eligible TFFR retirement salary and retirement contributions should be paid.

Q. 6 There is a teacher from my school district retiring this year. How do I complete the Salary Verification form, or if I have already completed it, do I need to make any changes?

The TFFR Salary Verification form for a pending retiree should be completed as you have done in the past. Please provide your best estimate of the member's annual salary, additional salary, number of compensated hours, and last day of work/covered employment for the school year. This should also include salary payments made or expected to be made during the COVID-19 pandemic. The last day of covered employment is very important for members who are planning to retire, so please pay close attention to that date. If you have already submitted a Salary Verification form for a pending retiree and corrections need to be made, please contact TFFR as soon as possible.

See TFFR Employer Guide for detailed instructions on TFFR reporting.

Please contact TFFR if you have any questions.
Email tvolkert@nd.gov or rio@nd.gov OR Phone 800-952-2970 or 701-328-9885.

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board of Trustees
FROM: Fay Kopp and Cody Mickelson
DATE: April 16, 2020
SUBJ: Board Governance Policies
Introduction and 1st Reading

Governance plays an important role in the long term performance of a public retirement system. Public pension plans are established under state statutes, and are subject to fiduciary, investment, and administrative laws, which both grant authority to, and place restrictions on, entities responsible for key areas of plan governance. Every public retirement system is unique and should be measured in the context of its individual governance framework. NDTFFR is particularly unique because of its relationship to the Retirement and Investment Office (RIO) and the State Investment Board (SIB).

The TFFR Board developed a TFFR Board Program Manual in 1995. This Manual is the basis for the TFFR Board's current governance structure as part of RIO. The current governance structure was developed during the same time frame that the State Investment Board developed its SIB Governance Manual utilizing the Carver Model of Policy Governance.

While there have been new policies and updates to current TFFR Board policies since that time, in April 2019, the Board appointed a **TFFR Governance and Policy Review Committee** (GPR) to conduct a comprehensive review of TFFR bylaws and board governance policies. The Committee consists of Cody Mickelson, Committee Chair; Rob Lech, Board President; and Mike Burton, Board Vice President.

Attached is an **updated TFFR Board Program Manual** which contains **Section I: TFFR Board Governance Policies** which the TFFR GPR Committee has developed over the last year. Committee Chair Cody Mickelson highlighted the proposed updated board governance policies at the TFFR Board Retreat in January. Since that time, Mary Kae Kelsch, Director of State & Local Divisions in the Attorney General's Office, has reviewed the proposed updated board governance policies, and made a few minor suggestions which have also been reviewed by the Committee.

At the April Board meeting, Committee Chair Mickelson will provide a brief explanation of the proposed board governance policies contained in the updated TFFR Board Program Manual as part of the **Policy Introduction and 1st Reading**. These proposed board governance policies are being introduced for Board consideration, and are intended to replace current TFFR by-laws and certain other Board policies relating to board governance from the current TFFR Board Program Manual.

Here are the TFFR Ends Policies, Program Policies, and By-Laws which the Committee recommends be repealed and replaced with the updated TFFR Board Program Manual Board Governance policies.

Introduction and Ends Policies

A-1	Introduction
B-1	Mission
B-2	Goals
B-I	Exhibit – Plan Characteristics
B-II	Exhibit – TFFR Responsibilities
B-III	Exhibit – SIB Responsibilities

Program Policies

C-I	Board Agenda
C-2	Board Meetings
C-3	Board Members Code of Conduct
C-18	Board Travel
C-21	Board Appeals
C-22	Board Communications
C-23	Board Policy Introduction/Amendment/Passage

By-Laws (All)

D-1	Authority
D-2	Board of Trustees
D-3	Officers and Duties
D-4	Meetings
D-5	Committees
D-6	Rules of Order
D-7	Administrative Office
D-8	Amendments

BOARD ACTION

Board motion to approve Introduction and 1st Reading of Section I: Board Governance Policies included in updated TFFR Board Program Manual and to repeal certain current TFFR ends and program policies and by-laws listed above.

Upon approval of the Introduction and 1st Reading, the updated Board Governance Policies should be placed on the agenda of the **next scheduled Board meeting for 2nd reading and Final Adoption** in compliance with the TFFR Board Policy Approval process. The Board should also repeal the TFFR ends policies, program policies, and by-laws listed above and replace with updated Board Governance Policies.

North Dakota Teachers' Fund For Retirement

Board Program Manual

ND TEACHERS' FUND FOR RETIREMENT (NDTFFR) BOARD PROGRAM MANUAL

Table of Contents

ND TEACHERS' FUND FOR RETIREMENT (NDTFFR) BOARD PROGRAM MANUAL

SECTION I: TFFR GOVERNANCE POLICIES

A. Introduction and Purpose

The ND Teachers' Fund for Retirement (TFFR) Board of Trustees is dedicated to ethically serving the members and stakeholders of the TFFR pension plan, and ensuring that the plan is effectively managed. The Board is committed to excellence in Board governance. An effective governance structure is essential to fulfilling fiduciary duties and Board responsibilities in accordance with the highest standards of professional responsibility, accountability, and transparency.

The Board developed and adopted this TFFR Board Program Manual to establish the framework within which the Board intends to set governance and oversight policy.

The purpose of the Manual is to:

1. Provide orientation material and exhibits for new TFFR trustees and executive staff as to the roles, responsibilities, policies, procedures, and activities in the governance and oversight of the TFFR plan.

2. Serve as an ongoing reference manual for current trustees and staff.

3. Describe the roles and responsibilities of the Board of Trustees as a Board, individual Trustees, Committees, Staff, and Service Providers.

4. Describe the relationship between the TFFR Board, the State Investment Board (SIB), and the Retirement and Investment Office (RIO) as it relates to the administration of the TFFR plan.

5. Establish a Board meeting protocol that outlines the manner in which the Board will conduct itself to enable the Board to carry out its responsibilities as effectively and efficiently as possible, and in accordance with state and federal law.

6. Facilitate the organized, efficient, and cohesive functioning of the Board.

7. Facilitate effective communication among the Trustees, staff, plan members, employers, and other external parties.

8. Define responsibility and accountability for hiring and monitoring outside service providers.

9. Document the method by which the Board will conduct a Board self- assessment.

10. Document Board governance and program policies, administrative rules, and state statutes governing the plan.

The TFFR Board Program Manual is an evolving set of documents that reflect the Board's current governance practices. The Manual will be reviewed by the Board on an annual basis. Board trustees, the Deputy Executive Director-Chief Retirement Officer, and/or legal counsel may recommend modifications for Board consideration and approval.

The contents of the TFFR Board Program Manual are intended to be consistent with state and federal laws, rules, and regulations. If there is any conflict between the provisions included in this Manual and state or federal law, the law prevails.

B. TFFR Program Overview

1. History

The ND Teachers' Fund for Retirement (NDTFFR) (formerly the ND Teachers' Insurance and Retirement Fund or NDTIRF) was created by the ND Legislature in 1913. The defined benefit plan provides lifetime retirement, disability and survivor benefits for ND public school educators.

Membership participation, benefits provided, contribution requirements, and plan provisions are described in State Law and the TFFR Member Handbook.

2. Legal Framework

ND Century Code (NDCC) Chapter 15-39.1 contains the legal authority and statutory language governing the TFFR plan, and is supplemented by ND Administrative Code Title 82. TFFR is a qualified (tax exempt) defined benefit public pension plan covered under Section 401(a) of the Internal Revenue Code (IRC).

C. TFFR Mission, Vision, and Values

1. Our Mission

To administer a comprehensive retirement program that provides North Dakota public educators with a foundation for retirement security.

2. Our Vision

To be a trusted leader in the administration of a financially sound retirement program for North Dakota educators by providing exceptional customer service, professional plan management, and organizational effectiveness by adhering to the principles of good governance, transparency, and accountability.

3. Our Core Values

- Customer Satisfaction and Commitment to Excellence which are demonstrated by our trustworthiness, accountability, and respectfulness.
- Strong Governance and Operational Effectiveness through our strategic leadership, fiduciary responsibility, ethical practices, and transparency.

D. TFFR Board Authority, Composition, Appointment, Terms

1. Board Authority

TFFR is governed by a 7-member TFFR Board of Trustees who are charged with oversight, policy making, and administration of the TFFR retirement program as provided under NDCC 15-39.1-05. The trustees are fiduciaries, and as such have the highest standard of law placed on them.

2. Board Composition

The Board is composed of seven trustees consisting of:

Two elected state officials:

- State Treasurer (ex officio)
- State Superintendent of Public Instruction (ex officio)

Five members appointed by the Governor:

- Two board members who are actively employed as elementary or secondary teachers in full-time positions not classified as school administrators. The appointment is made from a list of three nominees submitted to the Governor by ND United (NDU).
- One board member who is actively employed as a full-time school administrator. The appointment is made from a list of three nominees submitted to the Governor by the ND Council of Educational Leaders (NDCEL).
- Two board members who are retired members of the Fund. The appointment is made from a list of three nominees submitted to the Governor by the ND Retired Teachers Association (NDRTA).

3. Board Trustee Desired Attributes

Board trustees should possess or develop the following desired attributes in order to become an effective board trustee.

a. Unwaveringly ethical

b. Perpetually inquisitive

c. Knowledgeable about the membership

d. Ability to understand complex actuarial, financial, and investment concepts

e. Committed to strong board governance practices

f. Diligent and willing to spend time to learn best pension practices

g. Professional, respectful, and courteous demeanor

h. Proactive and responsive approach to member needs

i. Committed and engaged

j. Active listening and communication skills

k. Critical thinking skills

l. Ability to make fair and timely decisions

m. Open and accountable to stakeholders

4. Board Appointment Process

When a TFFR Board trustee term expires or vacancy occurs, the Chief Retirement Officer will notify the Governor's Office and the applicable stakeholder group (ND United, ND Council of Educational Leaders, or ND Retired Teachers Association) of the vacancy. Board trustee desired attributes and board responsibilities will be provided to the Governor's Office and applicable stakeholder group to assist them in making board nominee or trustee selection.

NDU, NDCEL, or NDRTA will submit a list of three Board nominees to the Governor's Office, as required by state law. Board nominees must complete the "Application for Boards and Commissions" from the Governor's Office in order to be considered for TFFR Board appointment. This application contains information about the nominee's background, education, experience, financial disclosures, and references.

After reviewing the Board nominee applications, the Governor will make the trustee appointment, and will notify the selected nominee and the Chief Retirement Officer. The Governor's Office will send the newly appointed trustee a Certificate of Appointment which provides formal documentation of appointment to the TFFR Board. The Governor's office will also send an Oath of Office and Statement of Intent which must be signed by the trustee and returned to the Governor's Office. These documents confirm the trustee's appointment is official. Trustees can then carry out their official duties as a Board member and can be paid for authorized expenses.

5. Trustee Terms, Resignations and Vacancies

The State Treasurer is an ex-officio member of the Board, and serves on the Board throughout the term of the State Treasurer's elected position. A lawful Deputy of the State Treasurer (pursuant to NDCC 44-03-01) may act with the full authority of the State Treasurer, and may vote when serving as the State Treasurer's official designee on the Board.

The State Superintendent of Public Instruction is an ex-officio member of the Board, and serves on the Board throughout the term of the State Superintendent's elected position. The State Superintendent may designate an individual to attend and participate in Board meetings, however the designee may not vote since the designee does not have the lawful authority to vote on behalf of the State Superintendent.

Each of the five Governor-appointed trustees are appointed for a term of five years. The terms of office are staggered with the five appointed trustee positions beginning July 1 and expiring on June 30 of each successive year. There is no limit to the number of terms a trustee may serve on the Board. Trustees may remain on the Board until they are reappointed or until their successors are appointed.

Appointed active trustees who terminate employment may not continue to serve on the Board as active teacher representatives. Appointed active and retired trustees may resign from the Board by providing written notice to the Governor and the TFFR Board.

Appointed trustee position vacancies which occur before the expiration of a term will be filled by the Governor, and the new appointee will complete the term for which the original trustee was selected.

E. TFFR Board - Duties and Responsibilities

1. Fiduciary Duties

TFFR trustees are fiduciaries, and as such, have the highest standard of law placed upon them. Trustees are expected to discharge their duties with the utmost honesty and integrity and to act solely in the interest of the members, retirees, and beneficiaries for the exclusive purpose of providing benefits and paying reasonable expenses of administering the TFFR program.

Fiduciary duties include the following:

a. Duty of loyalty. The obligation to act for the exclusive benefit of the plan participants and beneficiaries. Regardless of how trustees are selected, trustees must put the interests of all plan participants and beneficiaries above their own interests or those of any third parties.

b. Duty of care. The responsibility to administer the plan efficiently and properly. The duty of care includes consideration and monitoring of the financial sustainability of funding practices and the effective administration of plan benefits in compliance with applicable laws.

c. Duty of prudence. The obligation to act prudently in exercising power or discretion over the interests that are subject of the fiduciary relationship. A trustee should act in a manner consistent with a reasonably prudent person exercising care, skill, and caution.

2. Board Responsibilities

The TFFR Board of Trustees is responsible for oversight, policy making, and administration of the TFFR plan as provided under NDCC 15-39.1-05.2.

Board responsibilities include:

a. Establish and monitor policies for the administration of the TFFR plan.

b. Set legislative priorities and positions, submit legislative proposals, and monitor legislation affecting the plan.

c. Develop and adopt administrative rules and board policies to administer the plan.

d. Establish and monitor TFFR plan funding policy and progress.

e. Establish and monitor TFFR investment policies and asset allocation under NDCC 21-10-02.1.

f. Select and monitor the performance of consultants, advisors, and service providers for the plan.

g. Select and monitor actuarial consultant(s) to provide actuarial and technical consulting services including: annual actuarial valuations and GASB reports, periodic actuarial experience studies, independent actuarial audits, and other special projects and studies; develop and monitor actuarial funding policy, assumptions, methods, and factors; analyze proposed legislative changes; and advise the Board on actuarial, technical, and administrative issues.

h. Select and monitor medical consultant to conduct disability reviews.

i. Select and monitor investment consultant to perform asset allocation and liability studies.

j. Monitor and pay plan benefits, consulting fees, administrative and investment expenditures.

k. Administer the plan so as to maintain the plan's qualified status under Internal Revenue Code requirements.

l. Review and approve applications for disability retirement, Qualified Domestic Relations Orders (QDROs), and other special benefit payments.

m. Review and decide board appeals.

n. Determine appropriate levels of service and monitor outreach programs provided to members and employers.

o. Monitor RIO budget, expenditures, financial reporting system, and financial audit.

p. Monitor RIO information technology systems, projects, and security.

q. Select TFFR representatives to serve on SIB and monitor investment program activities and fund performance.

r. Select TFFR representative to serve on SIB Audit Committee and monitor audit program activities.

s. Inform the State Investment Board (SIB), which is the administrative board of the Retirement and Investment Office (RIO), of the TFFR program needs, policies, and services expected to be provided through RIO.

t. Participate with the RIO Executive Director in the hiring, evaluation, and termination of the TFFR Chief Retirement Officer – RIO Deputy Executive Director.

F. TFFR Board Trustees and Officers – Duties and Responsibilities

1. TFFR Trustee

Trustees must be willing and able to devote the necessary time to fulfill their duties on the Board. This commitment includes the responsibility to:

a. Act as a member of a seven-member Board of Trustees to provide leadership, oversee plan administration, and set the strategic direction for the TFFR program.

b. Prepare for and attend Board and Committee meetings.

c. Be an informed and active member of the Board, fully participating in the decisions and actions of the Board and its Committees by making independent assessments and reasonable judgments.

d. Acquire and maintain the knowledge and skills necessary to perform trustee duties.

e. Follow Board policies and procedures; applicable state and federal laws and rules.

f. Be accurate when communicating with other trustees, members, beneficiaries, interested parties, the public, and RIO staff.

g. Act collegially with the other trustees and staff in the conduct of TFFR business.

h. Bring to the attention of the Board matters of concern that affect the TFFR plan.

i. Seek the advice of the Chief Retirement Officer, legal advisor, and other trustees when necessary to fulfill their fiduciary duties.

j. Comply with the Board's Code of Conduct and Ethics.

k. Adhere to state law regarding confidentiality of member records and benefits.

l. Adhere to state law regarding Open Meetings and Open Records.

m. Evaluate trustee's individual performance and the Board's performance as a whole.

2. TFFR Board President

The Board President's principal role is to lead the Board in the conduct of Board business by managing the affairs of the Board and ensuring the integrity of the Board's process. The Board President must be willing and able to devote the time necessary to fulfill these special responsibilities. This commitment includes the responsibility to:

a. Convene and preside over all Board meetings in a collegial, fair, and efficient manner following Board policies, procedures, and applicable state laws and rules.

b. Review and approve the agenda for regular and special Board meetings.

c. Ensure proper and timely flow of adequate information to the Board.

d. Solicit input from trustees regarding matters before the Board.

e. Ensure adequate time is provided for effective study and discussion of business.

f. Make Committee assignments.

g. Execute documents and other legal instruments on behalf of TFFR as required by state law, authorized by the Board, or determined in conjunction with the Chief Retirement Officer.

h. Represent the Board to outside parties and organizations.

i. Lead the Board's self-assessment and self-development processes.

j. Perform all other duties identified by the Board.

3. TFFR Board Vice President

The Vice President will perform the duties of the President in the absence of the President.

4. TFFR Representatives to SIB

The TFFR Board selects three trustees to represent TFFR on the SIB. TFFR representatives to the SIB must include one active teacher, one active administrator, and one retired member.

The TFFR representatives to the SIB have the same authority and responsibilities as do other SIB trustees as provided in NDCC 21-10 and outlined in the SIB Governance Manual.

5. Alternate TFFR Representative to SIB

The TFFR Board selects one alternate TFFR representative to serve on the SIB.

The Alternate TFFR representative to the SIB will perform the duties of the regular TFFR representative on the SIB in the absence of that trustee.

6. TFFR Representative to SIB Audit Committee

The TFFR Board selects one TFFR representative on the SIB to serve on the SIB Audit Committee, subject to official appointment by SIB Chair.

The TFFR representative on the SIB Audit Committee has the same authority and responsibilities as do other trustees on the SIB Audit Committee which are outlined in the SIB Audit Committee Charter.

G. State Investment Board

The ND State Investment Board (SIB) is responsible for oversight, policy making, and administration of the SIB investment program as provided under NDCC 21-10. As such, TFFR assets, as well as other state pension, insurance, and other state funds, are invested by the SIB.

The SIB is composed of twelve trustees consisting of:

- Lt. Governor of the State of ND
- State Treasurer
- State Insurance Commissioner
- Director of Workforce Safety & Insurance
- Commissioner of University and School Lands
- **Three TFFR trustees**
- Three PERS trustees
- One Legacy & Budget Stabilization Fund Advisory Board trustee (nonvoting)

Investment of TFFR assets is based on the asset allocation and investment policy statement approved by the TFFR Board and accepted by the SIB. Funds are invested following the "prudent investor rule" and must be invested exclusively for the benefit of TFFR members.

The SIB is also the governing body of the ND Retirement and Investment Office (RIO).

H. Retirement and Investment Office

The ND Retirement and Investment Office (RIO) coordinates the activities of the TFFR retirement program and SIB investment program as provided under NDCC 54-52.5. The governing body of RIO is the SIB, although the TFFR Board and SIB each maintain their legal identities and authority under state law.

RIO is responsible for developing the agency budget, providing the staff, and allocating necessary resources to administer both the TFFR and SIB programs, subject to budget approval by the Legislature. The TFFR Board and SIB provide input to RIO Executive Management to ensure retirement and investment program needs, policies, and services are considered.

RIO Executive Director - Chief Investment Officer is the administrator of RIO and is responsible for the SIB investment program. RIO Deputy Executive Director – Chief Retirement Officer assists in the administration of RIO, and is responsible for the TFFR retirement program.

RIO is an administrative agency of the State of North Dakota and operates from an office located at 3442 East Century Avenue in Bismarck, North Dakota.

I. Delegation to Staff and Organizational Structure

The TFFR Board delegates administration of the TFFR program to the RIO Deputy Executive Director - TFFR Chief Retirement Officer, subject to approval by the RIO Executive Director.

The RIO Deputy Executive Director – TFFR Chief Retirement Officer reports directly to the RIO Executive Director – Chief Investment Officer and functionally to the TFFR Board. *See RIO Organizational Chart (Exhibit 1).*

J. Staff - Duties and Responsibilities

1. Deputy Executive Director – Chief Retirement Officer

The Deputy Executive Director – Chief Retirement Officer is hired by the RIO Executive Director – Chief Investment Officer, serves in an unclassified position, and is paid such salary as the Executive Director determines. The Board delegates responsibility for administering the TFFR program to the Deputy Executive Director – Chief Retirement Officer, subject to approval by the Executive Director. The Board will participate with the Executive Director in the hiring, evaluation, and termination of the Deputy Executive Director-Chief Retirement Officer.

Duties and responsibilities include:

a. Assist the Executive Director in planning, supervising, and directing overall RIO programs in accordance with the SIB governance policies and state laws and rules, and represent the Executive Director in his/her absence.

b. Administer the TFFR retirement program in accordance with governing statutes, rules, and TFFR Board policies and perform related work as assigned by the TFFR Board.

c. Develop annual and long-range plans for the retirement program.

d. Interpret state and federal law which governs the retirement program.

e. Develop administrative rules, policies, and procedures necessary to administer the program.

f. Represent the TFFR Board on retirement program issues.

g. Direct TFFR legislative agenda and process.

h. Maintain effective relationships with TFFR members, beneficiaries, employers, state officials, legislators and legislative committees, member and employer stakeholder groups, the media, and the public at large.

i. Work with actuarial consultant, medical consultant, legal counsel, auditor, investment consultant, and other service providers in administering the plan.

j. Assist in the formulation of RIO's budget, including staffing needs, program costs, operating costs, information technology requirements, and resources to assure that retirement program obligations are met.

k. Develop Board and Committee meeting agendas and materials, attend all Board and Committee meetings, responsible for meeting minutes, required notices, procedures, and applicable rules and regulations of the fund.

l. Provide the Board with relevant, appropriate, and timely information to enable it to properly carry out its oversight responsibilities.

m. Advise the Board on significant issues, problems or developments pertaining to the plan, and provide recommended courses of action as appropriate. regarding Board policy or action.

n. Maintain the data, records, and files of TFFR members, beneficiaries, and employers including membership data, salary, service, contributions, and benefit payments.

o. Ensure the accurate and timely collection of member and employer contributions, maintenance of member accounts, processing of account claims, and payment of pension, disability, death and refund benefits as allowed under state law.

p. In the absence of the Deputy Executive Director-Chief Retirement Officer, the Retirement Program Manager will be responsible for the administration of the TFFR program.

2. Executive Director - Chief Investment Officer

The Executive Director – Chief Investment officer (ED-CIO) is hired by the SIB, serves in an unclassified position at the SIB's pleasure, and is paid such salary as the SIB determines.

Duties and Responsibilities include:

a. Oversee planning, supervising, and directing overall RIO programs in accordance with SIB governance policies and state laws and rules.

b. Administer the investment program of RIO and perform related work as assigned by the SIB.

c. Direct the preparation and execution of the RIO budget and legislative agenda and evaluates and monitors financial and operational programs.

d. Represent RIO, promote RIO programs, and has the authority and responsibility to carry out the day-to-day administrative duties for RIO.

e. Attend all meetings of the SIB and TFFR Board.

f. Hire staff as necessary to carry out the responsibilities of RIO.

g. The TFFR Board will participate with the Executive Director in the hiring, evaluation, and termination of the Deputy Executive Director-Chief Retirement Officer.

K. Service Providers – Duties and Responsibilities

1. Actuary

The TFFR Board is responsible for selecting and monitoring the actuarial consultant for the plan.

Duties and responsibilities include:

a. Provide actuarial and technical consulting services for the plan.
b. Prepare annual actuarial valuation and GASB reports, periodic actuarial experience studies, and other special projects and reports.
c. Develop and monitor actuarial funding policy, assumptions, methods, factors, etc.
d. Analyze proposed legislative changes.
e. Advise the Board on actuarial, technical, and administrative issues.

The Board utilizes a request for proposal (RFP) process to periodically select and approve the plan's consulting actuary. It is the Board's intent to issue RFP's every 6 to 10 years, however the timing may be adjusted at the Board's discretion.

The Board monitors actuarial costs and services, and may extend the actuarial consulting service contract for 2 year terms, as approved by the TFFR Board.

The Board also hires an independent actuary to periodically perform an actuarial audit of the plan's consulting actuary. The Board utilizes an RFP process to select and approve the plan's actuarial auditor.

2. Medical Consultant

The TFFR Board is responsible for selecting and monitoring a medical consultant for the plan to conduct disability reviews, disability re-certifications, and perform other medical reviews as necessary.

The Board monitors medical consulting costs and services, and may extend the medical consulting contract for 2 year terms, as approved by the TFFR Board. The Board may delegate this responsibility to the Chief Retirement Officer.

3. Legal Counsel

The ND Attorney General's Office (AGO) provides legal services to the TFFR Board and staff. The AGO assigns an assistant attorney general to advise the Board on legal issues related to plan administration.

Duties and Responsibilities include:

a. Represent the Board and staff in all legal matters.
b. Draft proposed legislation, administrative rules, and other legal documents.
c. Review and advise on retirement program issues.
d. Research and interpret state statutes and federal regulations.
e. Review Board policies, procedural issues, contracts, and other legal documents.
f. Respond to legal questions from staff, members, employers, and other individuals.

g. Advise and educate the Board and staff on legal matters that relate to the administration of the retirement system including Board appeals, fiduciary duties, ethics, open records and meetings, potential litigation, and other legal issues.
h. Work with staff from the AGO in representing the retirement plan in administrative hearings, litigation, and other matters involving the AGO.
i. Work with outside legal counsel on application of Internal Revenue Code technical requirements and plan qualification issues.

4. Auditor (External financial)

The ND State Auditor's Office selects the external financial auditor for RIO, with input from the SIB Audit Committee.

Duties and Responsibilities include:

a. Perform annual audit of RIO's financial statements.
b. Perform annual audit of TFFR's GASB 68 schedules.
c. Provide report on internal controls and compliance.
d. Provide required written communications.

Results of the annual financial audit are reported directly to SIB Audit Committee, and communicated to the TFFR Board in conjunction with annual audit services report.

5. Investment Consultant, Managers, and Advisors

The SIB is responsible for investment of TFFR trust fund assets, and selects the investment consultant, managers, custodian, and advisors for the SIB program.

The governing body of each fund invested by the SIB is required to use RIO staff and consultants in developing asset allocation and investment policies. The TFFR Board has contracted with the SIB investment consultant to perform asset allocation and liability modeling studies in the past.

L. Election of TFFR Board Officers and SIB trustee positions

1. Board Officers

The TFFR Board will elect the following Board officers each year. Any trustee may serve as a TFFR Board officer.

- Board President
- Board Vice President

The TFFR Board will select the following representatives to the SIB each year. Any trustee may serve as a TFFR representative to the SIB, except the State Treasurer is required to be an ex officio member of both the TFFR Board and SIB so may not be selected as a TFFR representative to the SIB.

- Three TFFR representatives to SIB (representatives must include one active teacher, one active administrator, and one retired member)
- One TFFR alternate representative to SIB
- One TFFR representative to SIB Audit Committee (from SIB)

2. Election Procedure

The TFFR Board will elect the Board officers and TFFR representatives to the SIB at the first regular Board meeting immediately following July 1 of each year. There must be a quorum of four board members in attendance to elect officers.

Four affirmative votes are required to elect Board officers and TFFR representatives to the SIB.

3. Term

Board officers and TFFR representatives to SIB will hold office for one year, or until their successors are elected.

There is no limit to the number of years a trustee may hold office.

4. Vacancies

A Board officer or TFFR representative to the SIB may resign from their position by providing written notice to the Board and Chief Retirement Officer.

Board officer or TFFR representative to the SIB vacancies that occur before the expiration of a term will be filled by the Board at the next regular meeting of the Board following the vacancy.

M. Board and Committee Meetings

1. Open Meetings

All Board and Committee meetings are open to the public in accordance with ND Open Meetings laws pursuant to NDCC 44-04-17.1.

Meetings include any gathering of a quorum of the members of the Board (four members constitute a quorum for TFFR Board) regarding public business, and includes committees, subcommittees, informal gatherings or work sessions, and discussions where a quorum of members are participating by phone or any other electronic communication (either at the same time or in a series of individual contacts).

Emails or text messages between Board members regarding public business may constitute a meeting and violate open meeting laws even if done on personal devices.

Training seminars and purely social gatherings attended by a quorum of the Board or Committee are not meetings, however, as soon as the members discuss any public business, it becomes a meeting.

2. Rules of Order

All Board and Committee meeting will be conducted in accordance with Robert's Rules of Order Newly Revised, except as superseded by state law and Board governance policies.

3. Meeting Schedule

The Board will hold meetings as often as necessary for the transaction of business, but will conduct a minimum of six Board meetings each year.

The Board will approve an annual Board meeting schedule identifying the time, date, and location of regular Board meetings. Board meetings will generally be scheduled for the Thursday afternoon preceding SIB meetings beginning in July of each year, unless a different day is determined. (Note: SIB meetings are generally scheduled for the 4th Friday of each month.) The Board or Board President may modify this schedule, if needed. This schedule must be filed annually with the Secretary of State's office.

The Board President, or any two members of the Board, may call for special or emergency Board meetings.

At the July Board meeting each year, the Board will elect officers, review governance and program policies, and develop the annual board agenda and education plan.

The Board may hold an annual offsite Board retreat to focus on board development, strategic planning, legislative planning, developments in public pension administration, and other topics as determined by the Board. A Board Retreat must also be noticed as a meeting of the Board.

4. Meeting Notice

Public notice of all Board and Committee meetings is made in accordance with state law pursuant to [NDCC 44-04-20.]

Meeting notices are posted on the Secretary of State website, RIO public website, RIO office, and the meeting location.

5. Meeting Agendas

An annual schedule of agenda topics, reports, and education items for each regular board meeting will be developed by the Chief Retirement Officer and approved by the Board. The annual schedule will also include review of the Board Governance Manual over several meetings.

Board meeting agendas will be prepared by the Chief Retirement Officer and approved by the Board President using the annual schedule as a basis for topics to be included on each regular meeting agenda. Additional topics may be added by the Chief Retirement Officer, Board President, and Board trustees subject to approval by the Board President.

The meeting agenda should contain enough detail so trustees, members, interested parties, and the general public can understand the nature of each agenda item.

Any individual or organization who desires to appear on the agenda of a Board or Committee meeting must notify the Chief Retirement Officer in writing at least ten working days prior to the meeting date. The request must include the reason or topic to be discussed with the Board. Subject to approval by the Board President, the individual will be placed on a Board meeting agenda.

Regular Board meeting agendas may be added to or altered at the time of the meeting. For special or emergency meetings, only the specific topics included in the meeting notice may be discussed.

The meeting agenda will identify if the item requires Board action, information only, consent agenda, or executive session. The agenda will also note the estimated amount of time expected for each topic.

- **Action** items on the agenda contain information that require Board discussion and vote (annual reports, policy changes, benefit determinations, legislative positions, etc.)

- **Information** only items contain information that it is important for the Board to know, but do not require Board action or a Board vote (project updates, status reports, education, etc.)

- **Consent agenda** items will primarily consist of approval of disability applications, QDROs, employer reviews, or other routine administrative matters that require Board action as recommended by staff, but which typically do not require Board discussion. Trustees may request any item to be removed from the Consent agenda to allow for Board discussion and action.

- If an **Executive session** is required or anticipated, the Executive session must be listed as an agenda item (i.e. confidential member information, attorney consultation, etc.)

6. Meeting Materials

The Chief Retirement Officer will coordinate the preparation of Board meeting materials and develop an Executive Summary.

Meeting materials will generally be sent to trustees 5-7 days before the meeting, unless otherwise indicated.

Materials will be posted on the public RIO website, except for Executive Session or confidential items which will be sent via secure email to the trustees only.

7. Meeting Attendance and Quorum

Attendance at Board meetings is an essential element of a trustee's fiduciary responsibility. Therefore, Board members are expected to attend all Board and applicable Committee meetings.

Board members may attend meetings in person, by telephone or video conference.

A quorum of four members must be present for the Board to conduct business.

Board members should come to meetings having read the materials prepared and circulated by staff and/or consultants.

Board members should be inquisitive, and should appropriately question staff, advisors, and fellow trustees as circumstances require.

Board members should conduct themselves with integrity and dignity, maintaining the highest ethical conduct at all times.

Board members should make every effort to engage in collegial deliberations and to maintain an atmosphere in which trustees can speak freely and explore ideas before becoming committed to positions.

8. Voting

Voting on matters before the Board will be by roll call vote, except for procedural matters.

Board members have a duty to vote unless there is an applicable statute that would require or permit abstention.

Each Board member is entitled to one vote. Proxy voting is not allowed.

Four members constitutes a quorum.

Four votes are required for resolution or action by the Board.

Board minutes will show the recorded vote of each Board member.

9. Public Access and Comment

All Board and Committee meetings are open to the public and all persons who wish to attend may do so in accordance with ND Open Meeting laws, NDCC 44-04-17.1.

Public participation or comments during Board meetings may be allowed and limited to reasonable time limits at the discretion of the Board president as follows:

1. By written request to appear on a Board meeting agenda.
2. By written request to speak on a specific Board meeting agenda topic.
3. By written request to speak on any TFFR related topic which is not on a regular Board meeting agenda.
4. By submitting a letter or written document for distribution to the Board.

See TFFR Board Public Participation Guidelines (Exhibit 2).

10. Executive Sessions

The Board or Committee may conduct business in Executive Session only as permitted by state law, NDCC 44-04-19.2. Executive sessions shall be presided over by the Board President or Committee Chair.

Only the portions of a public meeting that are specifically confidential or exempt from the Open Meetings law may be closed to the public and held in Executive Session. The remainder of the meeting must be open to the public.

Reasons a meeting may not be open to the public includes Board discussion of:

- Confidential member records or information under NDCC 15-39.1-30 (examples include member benefit appeals, benefit determinations, disability applications, QDROs, etc.)

- Attorney's advice regarding a "pending or reasonably predictable" lawsuit involving TFFR.

- Attorney's assessment of the risks, strengths or weaknesses of an action of the TFFR Board or negotiating strategy if holding the discussion in an open meeting would have an adverse effect on the bargaining or litigating position of the Board.

11. Closed Meeting Procedures

State law specifies the following general procedure for holding an executive session.

a. Convene meeting in an open session preceded by public notice.

b. Announce during the open portion of the meeting the topics to be considered during the Executive Session and the legal authority for holding an Executive Session on those topics.

c. Pass a motion to hold an Executive session, unless motion is unnecessary because a confidential meeting is required to discuss confidential information.
d. Record the Executive Session electronically.

e. Limit the topics considered during the Executive Session to the announced, authorized topics.

f. Take final action on the topics considered in the Executive Session during the open portion of a meeting.

g. All substantive votes must be recorded by roll call.

12. Meeting Minutes and Records

Minutes will be taken at all Board and Committee meetings, and presented for approval at the next regular meeting. The Board President or Committee Chair will sign the minutes after Board approval.

At a minimum, minutes must include:

a. The names of the members attending the meeting;
b. The date and time the meeting was called to order and adjourned;
c. A list of topics discussed regarding public business;
d. A description of each motion made at the meeting and whether the motion was seconded;
e. The results of every vote taken at the meeting; and
f. The vote of each member on every recorded roll call vote.

Approved meeting minutes will be made available on the RIO-TFFR website, or upon request. Meeting minutes and records of the Board and Committee activities and actions will be maintained as required by state law.

13. Meeting Payment and Travel Expense Reimbursement

Board members, excluding ex-officio members, will receive compensation and travel expenses for attending Board and Committee meetings as provided in state law, NDCC 15-39.1-08.

Board members will be paid $148 for each Board or Committee meeting attended. Board members will be paid the full amount for each meeting attended that lasts for two or more hours. Meetings lasting less than two hours will be paid at one half the amount. Mileage and travel expense reimbursement will be paid as provided in state law.

Board members may not lose regular salary, vacation pay, vacation or any personal leave, or be denied attendance by the state or political subdivision while serving on official business of TFFR.

To receive meeting payment, Board members must complete a travel expense form and submit it to RIO. *See RIO Board Meeting In-State Travel Expense Voucher (Exhibit 3).*

N. Committees

1. Standing Committees

The TFFR Board may establish permanent standing committees. The Board currently has no standing committees.

2. Special Committees

The Board may establish special ad hoc committees as needed to carry out duties specified by the Board.

The Board President will appoint the Committee Chair and Committee members for special committees.

Committee Chairs are responsible for organizing the work of the Committee. In fulfilling this function, Committee Chairs:

a. Schedule Committee meetings as often as necessary.
b. Consult with the Chief Retirement Officer in setting the meeting agenda in accordance with the Committee's delegated responsibilities.
c. Conduct Committee meetings in a collegial, fair, and efficient manner following Board policies, procedures, and applicable state law such as the open meetings law.
d. Ensure the Committee operates to assist the Board consistent with its delegation.
e. Provide Committee updates and reports to the Board.

When the Committee's duties are completed, the Committee automatically ceases to exist.

3. Audit Committee

The SIB Audit Committee also functions as the Audit Committee for the TFFR Board since the SIB is the governing body of the RIO agency and RIO administers both the TFFR retirement program and SIB investment program.

The TFFR Board selects one TFFR representative on the SIB to serve on the SIB Audit Committee, subject to official appointment by SIB Chair. This representative will act as the TFFR Board's liaison to the SIB Audit Committee.

The TFFR Board's representative on the SIB Audit Committee and/or the Audit Supervisor, will provide Audit Committee updates and monitoring reports to the Board.

O. Board Appeals

Any member, beneficiary, employer, or affected individual may appeal a determination made by the Chief Retirement Officer regarding TFFR eligibility, benefits, or other plan provisions with which the individual does not agree.

The affected individual must file a written request for Board review within thirty days after notice of the determination of the Chief Retirement Officer has been mailed to the affected individual. If a request for Board review is not filed within the thirty-day period, the decision of the Chief Retirement Officer is final. The request for Board review must include the decision being appealed, the reason(s) the individual believes the decision should be reversed or modified, and any relevant documentation.

To review the matter, an appeal hearing will be scheduled as part of a regularly scheduled Board meeting. A summary of the relevant facts and documentation will be presented. The affected individual and/or designee may attend and speak at the hearing. After review of the facts, documentation, and testimony, the Board will make its decision. The Board's decision will be communicated in writing to the affected individual within 30 days of the decision.

Any individual aggrieved by a decision of the Board may initiate a formal administrative action against the Board in accordance with ND Administrative Code Chapter 82-10 and ND Century Code Chap. 28-32.

P. Board Communications

The TFFR Board President and Chief Retirement Officer are authorized to represent the Board on retirement program issues and in announcing Board positions and decisions, unless otherwise determined by the Board.

Board members may respond to general inquiries about the TFFR retirement program, however specific questions from members, beneficiaries, employers, and the public should be referred to the Chief Retirement Officer or the Retirement and Investment Office staff to provide more detailed information about the retirement program.

Q. Trustee Orientation and Education Program

Trustees are responsible for making policy decisions affecting all major aspects of TFFR plan administration. Therefore, trustees should acquire and maintain an appropriate level of knowledge that provides and improves core competencies necessary to govern a large, complex pension fund.

1. Board Member Core Competencies

Board members should develop and maintain their knowledge and understanding of the issues involved in the prudent management of the retirement plan. Specific areas include:

a. Public pension plan governance
b. Asset allocation and investment management
c. Actuarial principles and funding policies
d. Financial reporting, controls and audits
e. Benefits administration
f. Open meeting and open records laws
g. Fiduciary responsibilities
h. Ethics and conflicts of interest

2. Board Member Education

To permit Board members to develop core competencies, discharge their fiduciary duties, and ensure Board members have a full understanding of the issues facing the TFFR plan, the Board encourages trustee education including:

a. New trustee orientation
b. Mentoring program
c. Educational conferences, workshops, and other training programs
d. In-house education sessions
e. Fiduciary education and ethics training
f. Open meeting and open records training
g. Webinars, Reports, and Studies

Board members should identify areas in which they might benefit from additional education, and work with the Chief Retirement Officer to find or develop educational opportunities to best address those needs.

Board members must annually report trustee education received each year. *See TFFR Board Education Report Form (Exhibit 4).*

3. New Trustee Orientation

Each new Board member should attend a new trustee orientation session(s) as soon as possible after appointed to the Board or elected to office. The orientation sessions will be developed by the Chief Retirement Officer, and will include, at minimum, review of the following topics and materials:

a. Introduction to RIO staff
b. Tour of RIO office
c. Board Governance Manual
d. Board duties and responsibilities
e. History and overview of the plan
f. Overview of TFFR-SIB-RIO organizational structure
g. Laws, rules, and board policies governing the plan
h. Benefit structure, administration, outreach services
i. Fiduciary responsibilities, conflict of interests, and ethics
j. Open meetings and open records
k. Board meeting schedule and protocol
l. Board meeting minutes and materials
m. Actuarial valuation report, assumptions, methods, and funding policy
n. Actuarial experience report
o. Actuarial audit report
p. Annual financial report
q. Investment program, investment policy statement, asset allocation, and performance
r. RIO website – TFFR and SIB sections
s. Legislative issues
t. List of educational conferences and training sessions
u. Other relevant information or materials deemed appropriate

4. Mentoring Program

The Board President will assign each new trustee an experienced Board mentor to assist the new trustee in becoming familiar with Board responsibilities. The Board mentor should have at least two years of experience on the Board.

The Board mentor should contact the new Board member periodically outside of regularly scheduled Board meetings for consultation or discussion related to Board member duties and responsibilities. The new Board member should contact the Board mentor as often as necessary.

Appointment of a Board mentor does not constitute appointment of a Committee and does not implicate open meeting notice requirements.

5. Educational Conferences, Workshops, and other Training Programs

The Chief Retirement Officer will maintain a list of educational conferences, workshops, and other training programs appropriate for Board members to attend. The list will be provided at least annually to Board members. Board members may attend such conferences or others deemed to be appropriate by the Chief Retirement Officer.
Subject to budget availability, Board members may attend at least one out of state educational conference each year. New trustees, or trustees with investment or other specialized Board responsibilities, may attend additional educational training sessions to help develop core competencies and become proficient in performing their duties.

The Chief Retirement Officer will review conference agendas and materials to ensure they are geared toward trustee education, and subject to budget availability, will approve Board travel requests. Board travel outside of the continental United States must be approved by the Board President and Chief Retirement Officer.

Any Board member who attends a conference, workshop, or other training program will present an oral report to the Board.

The Chief Retirement Officer will inform the Board of educational conferences, workshops, or other training programs attended by trustees on an annual basis.

6. In-House Education Sessions

Based on the education needs identified by Board members, the Chief Retirement Officer will arrange for staff or outside service providers to conduct educational sessions at regularly scheduled Board meetings. Topics may include pension board governance, actuarial and funding issues, investments, retirement operations and benefits, workforce demographics and shortages, and other topics determined by the Board.

7.Fiduciary Education and Ethics Training

At least every two years, a fiduciary education and ethics training session will be conducted at a regularly scheduled Board meeting. The session will review and update trustees regarding fiduciary issues and ethical conduct affecting their service on the Board.

8.Open Meetings and Open Records Training

At least every two years, an open meetings and open records training session will be conducted at a regularly scheduled Board meeting. The session will review and update trustees regarding open meetings and open records requirements affecting their service on the Board.

9.Webinars, Reports, and Studies

Board members are encouraged to subscribe to mailing lists and review websites for information about public pension plan conferences, webinars, reports, and studies from pension and investment organizations. Examples include:

- National Council on Teacher Retirement (NCTR)
- National Institute on Retirement Security (NIRS)
- National Education Association-Retired (NEA-R)
- National Retired Teachers Association (NRTA-AARP)
- International Foundation for Employee Benefit Plans (IFEBP)
- Center for State and Local Government Excellence (SLGE)
- Center for Retirement Research at Boston College (CRR)
- Callan Investment Institute (Callan)
- Council of Institutional Investors (CII)

The Chief Retirement Officer will also provide links to recent published reports and studies with Board meeting materials.

10. Reimbursement of Education Expenses

Trustees must request approval for travel to educational conferences or other educational programs. Trustees should notify the Chief Retirement Officer of their interest in attending an educational conference or other program. RIO will complete the travel authorization form which must be signed by the trustee and approved by the Chief Retirement Officer. *See ND Authorization for Out of State Travel (Exhibit 5).*

RIO will make all travel arrangements and pay conference registration fees, unless otherwise agreed to by the Chief Retirement Officer and trustee.

Payment of travel-related expenses for trustee education will be in accordance with state of ND travel policies. Trustees will be reimbursed for travel related expenses including lodging, meals, transportation, etc. In order to receive reimbursement, a trustee must complete an expense form and attach receipts as required. *See RIO Conference Expense Voucher – Board Members (Exhibit 6).*

R. Code of Conduct, Ethics, and Conflicts of Interest

Following is the Code of Conduct, Ethics, and Conflicts of Interest policy for the TFFR Board of Trustees:

1. Board members owe a duty to conduct themselves so as to inspire the confidence, respect, and trust of the TFFR members and to strive to avoid not only professional impropriety, but also the appearance of impropriety.

2. Board members shall perform the duties of their offices impartially and diligently. Board members are expected to fulfill their responsibilities in accord with the intent of all applicable laws and to refrain from any form of dishonest or unethical conduct. Board members shall be unswayed by partisan interest, public sentiment, or fear of criticism.

3. Conflicts of interest and the appearance of impropriety shall be avoided by Board members. Board members shall not allow their family, social, professional, or other relationships to influence their judgment in discharging their responsibilities. Board members shall refrain from financial and business dealings that tend to reflect adversely on their impartiality or interfere with the proper performance of their duties. If a conflict of interest unavoidably arises, the Board member shall immediately disclose the conflict to the Board. The Board must vote on whether the member can vote. Conflicts of interest to be avoided include, but are not limited to: receiving consideration for advice given to a person concerning any matter over which the Board member has any direct or indirect control, acting as an agent or attorney for a person in a transaction involving the Board, and participation in any transaction for which the Board member has acquired information unavailable to the general public, through participation on the Board. "Conflict of interest" means a situation in which a Board member has a direct and substantial personal or financial interest in a matter which also involves the member's fiduciary responsibility.

4. The Board shall not unnecessarily retain consultants. The hiring of consultants shall be based on merit, avoiding nepotism and preference based upon considerations other than merit that may occur for any reason, including prior working relationships. The compensation of such consultants shall not exceed the fair value of services rendered.

5. Board members shall abide by NDCC 21-10-09, which reads: "No member, officer, agent, or employee of the state investment board shall profit in any manner from transactions on behalf of the funds. Any person violating any of the provisions of this section shall be guilty of a class A misdemeanor."

6. Board members shall perform their respective duties in a manner that satisfies their fiduciary responsibilities.

7. Political contributions are regulated under NDCC 16.1-08-03 and are not restricted under this policy.

8. All activities and transactions performed on behalf of public pension funds must be for the exclusive purpose of providing benefits to plan participants and defraying reasonable expenses of administering the plan.

9. Prohibited transactions. Prohibited transactions are those involving self-dealing. Self-dealing refers to the fiduciary's use of plan assets or material, non-public information for personal gain; engaging in transactions on behalf of parties whose interests are averse to the plan; or receiving personal consideration in connection with any planned transaction.

10. Violation of these rules shall result in an official reprimand from the TFFR Board. No reprimand shall be issued until the board member has had the opportunity to be heard by the Board.

11. Board members are required to affirm their understanding of this policy annually, in writing, and must disclose any conflicts of interest that may arise. *See TFFR Code of Conduct Annual Affirmation (Exhibit 7)*

12. RIO Deputy Executive Director- Chief Retirement Officer is required to affirm his/her understanding of RIO Administrative Policy – Code of Conduct for RIO Employees – annually, in writing, and must disclose any conflicts of interest that may arise.

S. Strategic Planning

The Board and Chief Retirement Officer will work collaboratively to develop a long-term strategic plan which may:

1. Identify and prioritize TFFR program issues and initiatives.

2. Assess the strengths, weaknesses, opportunities, and threats for TFFR.

3. Focus resources on high value activities.

4. Develop strategies to address priorities.

5. Monitor the progress and implementation of the strategic plan.

6. Work with RIO to ensure adequate resources are in place to support the successful execution of the plan.

T. Board Policy Approval Process

Board governance and program policies may be adopted or amended from time to time based on the following process.

New policies or policy amendments may be proposed by the Chief Retirement Officer or a Board member. All new policies or amendments must be submitted to the Board's legal counsel at the Attorney General's office for review prior to Board approval.

Upon request of the Chief Retirement Officer or a Board member, a new policy or amendment shall be placed on the Board's agenda for action as follows:

1. Introduction and first reading. A brief explanation or summary of the new policy or amendment shall be presented to the Board. Upon approval of introduction and first reading, the policy shall

be placed on the agenda of the next scheduled meeting of the Board for second reading and adoption. When appropriate, the policy shall be distributed to interested parties.

2. Second reading and adoption. Interested parties and the public shall be allowed an opportunity to comment on the policy or amendment before final action by the Board. The policy shall take effect immediately following second reading and adoption by the Board, unless a different effective date is stated.

3. Amendments. Amendments may be proposed at any time before final adoption of the policy. Upon determination by the Board that adoption of an amendment constitutes a substantive change that significantly changes the meaning or effect of the policy, the Board shall continue consideration of second reading and adoption to the next meeting to permit further review and comment.

4. Emergency measures. Upon determination that an emergency or other circumstances calling for expeditious action exists, the Board may waive the requirement of a second reading and immediately approve the new policy or amendment following introduction and first reading.

Board policies will be reviewed at least annually, or more often as needed.

U. Board Self-Assessment

On an annual basis, the Board will engage in a self-assessment process to evaluate the trustee's individual performance and the Board's overall performance. The Board President is responsible for overseeing implementation of this assessment, with assistance of the Chief Retirement Officer and Supervisor of Audit Services.

Individual Trustee and Overall Board Assessments may contain topics including:

- Board and staff roles
- Board and Committee structure
- Board meetings
- Policy making and reviews
- Financial management practices
- Pension plan administration practices

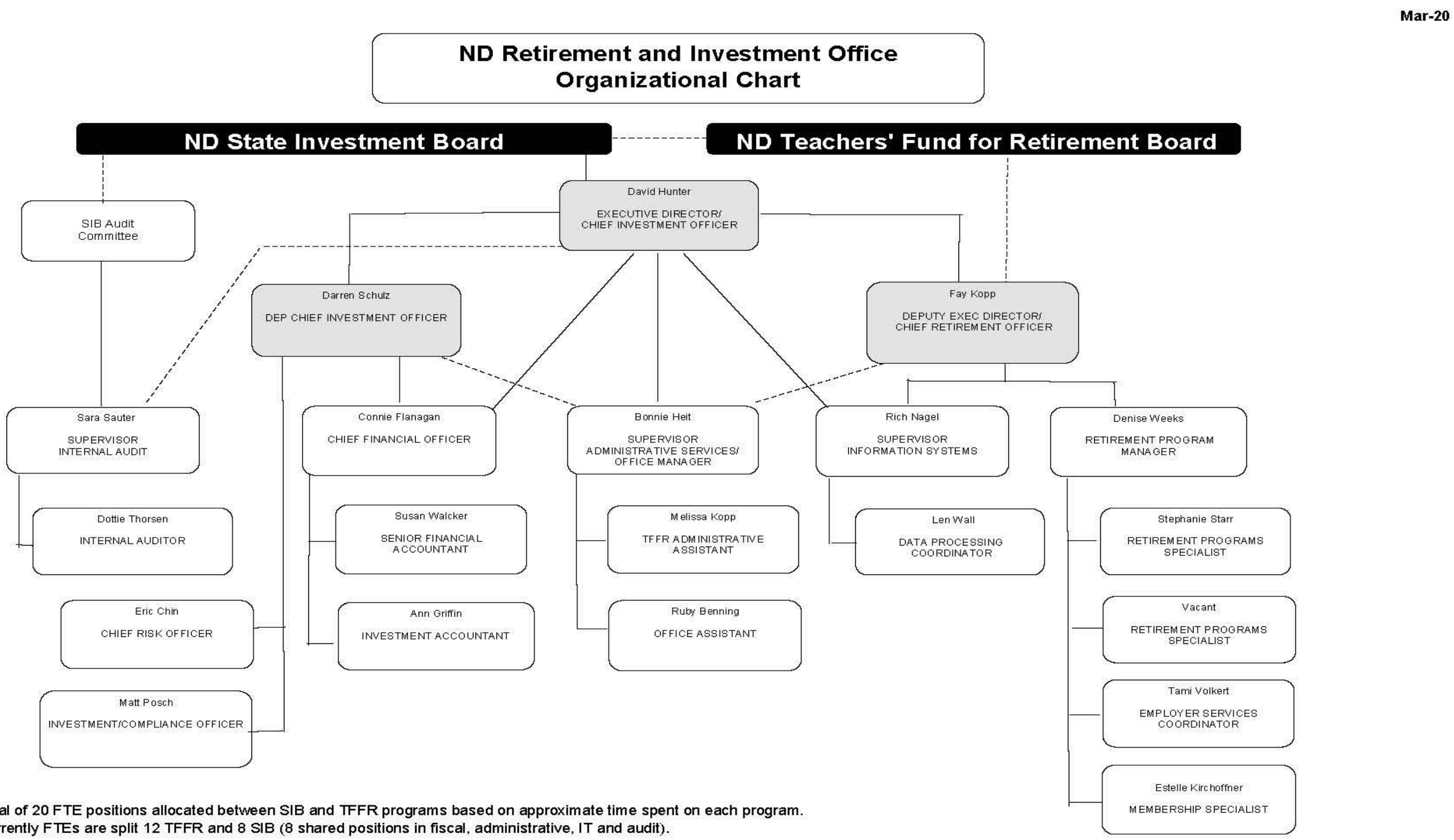
See TFFR Board Self- Assessment (Exhibit 8 Process and Survey To Be Developed).

Board Governance Policies Approved ______________________________
Date

Introduction and 1st Reading 04.23.20

Board Governance Section Exhibits

1. RIO Organizational Chart



Total of 20 FTE positions allocated between SIB and TFFR programs based on approximate time spent on each program.
Currently FTEs are split 12 TFFR and 8 SIB (8 shared positions in fiscal, administrative, IT and audit).

2. TFFR Board Public Participation Guidelines

North Dakota Teachers' Fund For Retirement

TFFR Board Meeting

Public Participation Guidelines

All TFFR Board and Committee meetings are open to the public and all persons who wish to attend may do so in accordance with ND Open Meetings laws, NDCC 44-04-17.1.

The Board is responsible for oversight, policy making, and administration of the TFFR plan. The Board may seek public input to assist in making decisions, but time spent answering routine questions or criticisms must not be taken from Board business. Generally, if an individual has a question or concern about the operation of the TFFR program or a specific member or employer issue, he/she is encouraged to contact the Chief Retirement Officer to get the needed response directly.

Although there is no legal requirement that the public be given an opportunity to speak at TFFR Board meetings, it is the Board's policy that public participation or comments during Board meetings may be allowed and limited to reasonable time limits at the discretion of the Board President. (See TFFR Board and Committee Meetings – Public Access and Comment, Policy M-9.)

Subject to approval of the Board President, public participation or comments may be provided to the Board as follows:

1) **By written request to appear on a Board meeting agenda.** The request must include the topic to be discussed, and must be provided to the Chief Retirement Officer at least ten working days prior to the meeting date.
2) **By written request to speak on a specific Board meeting agenda topic at the meeting.** The request must include the topic to be discussed, and must be provided to the Chief Retirement Officer at least two hours prior to the meeting.
3) **By written request to speak on any TFFR related topic which is not on a regular Board meeting agenda under "Other Business."** The request must include the topic to be discussed, and must be provided to the Chief Retirement Officer at least two hours prior to the meeting.
4) **By submitting a letter or written document** to the Chief Retirement Officer for distribution to the Board.

SPEAKER INFORMATION

- Speaker should stand (if able to do so) and be recognized by the Board President.
- Speaker should state Name and Organization Representing (if applicable).
- Speaker should state agenda number and topic which the speaker will address.
- 5-minute time limit for speaker, unless additional time is allowed by Board President.
- No undue interruption, disorderly conduct or remarks made out of order.
- No charges or complaints against staff will be allowed.
- Questions and comments by the Board and Chief Retirement Officer will be allowed.
- Board or Staff response to the Speaker's remarks will be allowed, but is not required.

TFFR BOARD

PUBLIC PARTICIPATION REQUEST FORM

Date and Time Submitted ____

Name ____

Organization Representing (if applicable) ____

Contact Information (phone number, email, or mailing address) ___________________________

____

____

Topic or Agenda Item ____

____

____

3. RIO Board Meeting In-State Travel Expense Voucher

RETIREMENT AND INVESTMENT OFFICE
Board Meeting Travel Expense Voucher

Name (please print) ______________________________

MEETING ATTENDED:

Meeting	Date	Time	Office Use
☐ TFFR	Date		
☐ SIB	Date		
☐ Audit Committee	Date		
☐ Securities Litigation Committee	Date		
☐ Executive Review Committee	Date		

TRAVEL EXPENSES

MEALS (Reimbursed at state rate effective 8/1/15:

Date	Meal	Rate	Date	Meal	Rate
Date ______	☐ Breakfast (1st Qtr - 6am)	$7.00	Date ______	☐ Breakfast (1st Qtr - 6am)	$7.00
	☐ Lunch (2nd Qtr - Noon)	$10.50		☐ Lunch (2nd Qtr - Noon)	$10.50
	☐ Dinner (3rd Qtr - 6pm)	$17.50		☐ Dinner (3rd Qtr - 6pm)	$17.50
Date ______	☐ Breakfast (1st Qtr - 6am)	$7.00	Date ______	☐ Breakfast (1st Qtr - 6am)	$7.00
	☐ Lunch (2nd Qtr - Noon)	$10.50		☐ Lunch (2nd Qtr - Noon)	$10.50
	☐ Dinner (3rd Qtr - 6pm)	$17.50		☐ Dinner (3rd Qtr - 6pm)	$17.50

MILEAGE (Round trip):

FROM: ______________________

TO: ______________________

Total Miles: ________ @57.5¢/mile Effective 1/1/20

LODGING (Attach Receipts - reimbursed at actual cost up to $86.40/night + tax)
Effective 10/1/19:

Number of Nights: ________

MISCELLANEOUS (Attach Receipts):

Telephone Calls ______________________

Taxi, car rental, etc ______________________

Other ______________________

SIGNATURE:

DATE:

Office Use

521020/521035 Total Meals $	
521030 Total Mileage $	
521015 Total Lodging $	
Total Misc. $	
TOTAL TRAVEL $	

3/11/2020

4. TFFR Board Education Annual Report

North Dakota Teachers' Fund For Retirement

TFFR Board Education Reporting Form

Trustee Name: ______________________________ Fiscal Year: __________________

DATE	COURSE NAME	COURSE SPONSOR NCTR, Callan, Segal, NEA, NIRS, IFEBP, other	TYPE Orientation, Educ. Conf, Workshop, In-house educ, webinar, other	HOURS
			Total Hours	

____

Trustee Name **Date**

5. ND Authorization for Out of State Travel

AUTHORIZATION FOR OUT-OF-STATE TRAVEL
NORTH DAKOTA DEPARTMENT OF HUMAN SERVICES
FISCAL ADMINISTRATION DIVISION
SFN 1775 (1-2014)

Clear Fields

NOTE: Before any plane tickets or other commitments are made, this authorization must be completed and approved.

Person Traveling (Last Name, First Name)		Title	
Division/Program/Institution			Department ID
Destination(s) (City/State)			
Date of Departure from Home	Date to Return Home	Does trip include vacation days? ☐ Yes ☐ No	Number of Vacation Days
Name of Meeting/Purpose of Trip and Explain How Information will be Shared			

Each person traveling needs to complete an authorization request; however, all authorization requests are to be submitted together.

Staff Requesting Authorization	Rationale for More than One Staff Member Attending
Name of Staff	
Name of Staff	
Name of Staff	

☐ Check here if all travel costs will be paid by another entity, with NO cost to the Department. (NO FURTHER COST DATA NEEDED)

Name of Entity

PROJECTED COSTS

DRIVING	☐ State Vehicle	☐ Personal Vehicle	Estimated Number of Miles	Cost per Mile X	Total Driving Cost
AIR TRAVEL AND LODGING	Commercial Air	Baggage Fee	Estimated Number of Nights	Cost per Night X	Total Lodging Cost
MEALS AND OTHER	Total Meals		Registration Fee	Taxi/Parking	Other Costs
				CFO Review	**Total Projected Cost**

Explanation of Other Costs

Signature of Person Traveling	Date
Senior Manager Approval	Date
Executive Director Approval	Date

6. ND Travel Expense Voucher

TRAVEL EXPENSE VOUCHER
STATE OF NORTH DAKOTA
SFN 52785 (03-2015)

Month	Year	Department Name	Official Position

Employee Name	Employee ID	Business Unit	Fiscal Month	Biennium

Day	Points Covered By Travel	Hour (Show AM or PM) Depart	Arrive	Vehicle Miles	Ref	Comm'l Air Trans.	Ref	Taxi & Other Air Trans.	Ref	Misc. Exp.	Meals In State	Meals Out of State	Ref	Lodging In State	Lodging Out of State

Purpose of Travel and Explanation of Expenses:

Lodg. in State	521015	
Lodg. out of State	521075	
Meals in State	521020	
Meals out of State	521080	
IRS Meals-Taxable	521035	
Miscellaneous Expenses		
Other Transportation in State	521025	
Other Transportation out of State	521085	
Air Transportation in State	521010	
Air Transportation out of State	521070	
Vehicle Miles in State ______ X ______	521030	
Vehicle Miles out of State ______ X ______	521090	
Total Expenses		
(Ref. Doc. No. of Advance):	Less Travel Advance	
NET EXPENSES		

Line	Due Date	Dept. ID	Account	Oper. Unit	Class	Fund	Project ID	Activity ID	Resource Type	Resource Category	Amount

I hereby certify that the within itemized statement representing a claim for payment or per diem, mileage or travel expenses or a combination thereof, truthfully and accurately states the days of service and the mileage traveled, and the purpose thereof.

TOTAL

Employee Signature	Date
Departmental Approval	Date

INSTRUCTIONS FOR THE TRAVEL EXPENSE VOUCHER

Be sure to "Tab" from one field to another, rather than using the mouse.

Month – Enter the month of travel.

Year – Enter the year of travel.

Department Name – Enter the name of your Agency.

Official Position – Enter your job title.

Employee Name – Enter your name.

Employee ID – This number is assigned by payroll.

Business Unit – Your agency's 5-digit number.

Fiscal Month – Enter the fiscal month.

Biennium – Enter the biennium.

Day - Enter the day of the month in which the activity occurred.

Points Covered By Travel – Enter the departure/destination points.

Hour – Enter the departures and arrival time for the actual travel day (example: 7:00 am).

Vehicle Miles – Enter the number of vehicle miles traveled. If you have in state and out of state miles, separate them and list them on separate lines.

Ref – Enter an "I" for in-state travel or an "O" for out-of-state travel. **If this is not entered, the form will not calculate correctly.**

Comm'l Air Trans. – Enter the amount of commercial air transportation.

Ref – Enter an "I" for in-state travel or an "O" for out-of-state travel. **If this is not entered, the form will not calculate correctly.**

Taxi & Other Air Trans. – Enter taxi fares and any other air transportation.

Ref – Enter an "I" for in-state travel or an "O" for out-of-state travel. **If this is not entered, the form will not calculate correctly.**

Misc. Exp – Enter your other expenses that do not belong in any other column. Explain these expenses in the "Purpose of

Travel and Explanation of Expenses" section.

Meals In State – Enter the dollar amount of the meals in state.

Meals Out of State – Enter the dollar amount of the meals out-of-state.

Ref – Enter a "T" if your meals are taxable. Meals are taxable if no overnight stay is involved.

Lodging in State – Enter the dollar amount of lodging in state.

Lodging Out of State – Enter the dollar amount of lodging out-of-state.

Purpose of Travel and Explanation of Expenses – Enter the reason for travel and any explanations for your miscellaneous expenses.

The amounts entered in the top section of the form will automatically be totaled and filled in the appropriate fields of the middle section, as long as the correct reference codes were entered and you used the tab key to navigate between fields. The only exceptions are the following two fields:

Vehicle Miles in State – Calculates the total vehicle miles traveled within the state. You will need to enter the current rate. The total will then automatically calculate.

Vehicle Miles out of State – Calculates the total vehicle miles out of state. You will need to enter the current rate. The total will automatically calculate.

Total Expenses – Calculates the total expenses automatically.

Ref. Doc. No. of Advance – Enter the document number if you received a travel advance and the dollar amount.

Net Expenses – Calculates the net expenses automatically.

Print two copies of the Travel Expense Voucher.

Sign one copy, attach all of your receipts, and submit it for approval. Once approved and forwarded to accounting, the bottom fields will be cost-coded and entered. Remember to keep copies of the receipts for yourself as well.

7. TFFR Code of Conduct Annual Affirmation

North Dakota
Retirement & Investment Office
Teachers' Fund for Retirement
State Investment Board

3442 East Century Avenue | P.O. Box 7100 | Bismarck, ND 58507-7100
Telephone: 701-328-9885 | Toll Free: 800-952-2970| Fax: 701-328-9897|www.nd.gov/rio

Memorandum

To: **TFFR Board**

From: **RIO Compliance Officer**

Date:

RE: **Annual Affirmation of Code of Conduct Policy**

The *TFFR Board Members' Code of Conduct and Ethics Policy,* which is attached to this memorandum, details the Code of Ethical Responsibility for the TFFR Board. Item #11 of this policy indicates that each Board Member is required to reaffirm their understanding of this policy annually and disclose any conflicts of interest. Therefore, please read and sign the statement below to comply with this requirement.

"I have read and understand the TFFR Board Members' Code of Conduct and Ethics Policy. I have disclosed any conflicts of interest as required by this policy."

Name (printed) ________________________________

Signature_____________________________________

Date____

Detail of any conflicts of interest (if any):

SECTION II: TFFR Program Policies

(NOTE: All remaining TFFR Program/Ends Policies to be added here. TFFR Program/ Ends Policies should be reviewed after Board Governance Policies are approved.)

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board
FROM: Fay Kopp and Rich Nagel
DATE: April 16, 2020
SUBJ: Pension Administration System Modernization Project Update

In January 2020, the TFFR Pension Administration System (PAS) Modernization Project Charter was approved by both the Executive Steering Committee (ESC) and the TFFR Board.

In early March, RIO staff met with ND Procurement, ND Attorney General's Office and ND Information Technology Project Management staff to begin collaborative discussions regarding the PAS Project. Discussion focused on the large IT project procurement process and the development of two separate RFP's for the TFFR PAS project. The first RFP will be for a business consultant with expertise in pension system solutions to assist with business process reengineering, procurement of the software solution and implementation of the software solution. The second RFP will be for the software solution itself. The TFFR PAS procurement collaboration group is working on developing the business consultant RFP with tentative plans to issue the RFP in late spring.

NDRIO Deputy Executive Director/TFFR Chief Retirement Officer Fay Kopp currently serves as the TFFR PAS Project Sponsor. With Fay's retirement, an interim TFFR PAS Project Sponsor should be named in order to keep the project moving forward. We have discussed this and feel the best transition would be to have Rich fill in as the TFFR PAS Project Sponsor on an interim basis until the Deputy Executive Director/TFFR Chief Retirement Officer position is filled.

TFFR PAS Project Manager, Kris Vollmer, has scheduled monthly ESC meeting for the upcoming year. The April 7, 2020 ESC meeting was cancelled due to COVID-19 situation, but the next one is scheduled for May 7, 2020. Please note these meetings are noticed as special TFFR meetings on the Secretary of State website, as required by law.

We can respond to any questions at the Board meeting.

BOARD INFORMATION AND DISCUSSION

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board
FROM: Fay Kopp
DATE: April 16, 2020
SUBJ: Retiree Benefit Payment Incident

I wanted to make the TFFR Board aware of an incident that recently occurred with a TFFR retiree benefit payment and how it was resolved.

In late January 2020, we were notified by a TFFR retiree that her January TFFR benefit payment was not deposited into her bank account. Through discussions with the retiree and examination of documents previously submitted to TFFR, we determined that someone fraudulently submitted an address change form, and a few weeks later, fraudulently submitted a direct deposit change form which was processed by TFFR following standard procedures. The retiree informed us that she had not moved and had not changed her bank account. Whoever submitted the forms obtained the retiree's SSN outside of TFFR, fraudulently used the information on TFFR forms, and forged the retiree's signature. This resulted in the retiree not receiving her January benefit payment. TFFR contacted the Bank where the payment was deposited to request a return of the funds, but were informed that no funds were available.

After review of the issue with TFFR legal counsel, we suggested that the retiree file a police report, and she did so. After further review of the situation and additional discussion with Legal, TFFR submitted an incident report to the State Risk Management Fund and the retiree submitted a claim. Risk Management approved the claim, the retiree signed the settlement agreement, and Risk Management is reimbursing the retiree for the January TFFR benefit payment.

We have had a number of positive discussions with the retiree over the past few months and she is very thankful for the extra steps taken by TFFR and the State Risk Management Fund to reimburse her.

Retirement Services also undertook a thorough review of address and direct deposit change processing procedures and contacted other state public pension plans. We have added additional procedures in an effort to reduce the likelihood of something like this occurring in the future and to notify members of certain changes made to their account so TFFR can stop payment, or catch potentially fraudulent activities, sooner.

BOARD INFORMATION AND DISCUSSION

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board

FROM: Fay Kopp

DATE: April 16, 2020

SUBJ: Annual Pension Plan Comparison Report – 2018 Public Fund Survey

Attached is the Public Fund Survey for FY 2018 (published December 2019) sponsored by the National Association of State Retirement Administrators (NASRA) with survey data compiled by the Center for Retirement Research at Boston College (CRRBC). This survey provides information on key characteristics of most of the nation's largest public retirement systems.

Please keep in mind that the survey does not include 2019 actuarial and investment information which will be reflected in next year's survey.

I will make a few brief comments comparing TFFR to the Public Fund Survey, and respond to any questions from the Board.

BOARD ACTION:

Board Motion to accept Annual Public Pension Plan Comparison Report.

Public Pension Plan Comparisons

ND TEACHERS' FUND FOR RETIREMENT BOARD

MARCH 26, 2020

2018 Public Fund Survey

- Published December 2019 for FY 2018
  - **Survey results do not include FY 2019 data.**
- Includes key characteristics of 120 large public retirement plans which represents about 85% of entire state and local government (SLG) retirement system community.
- Survey sponsored by NASRA from 2001-2012. Survey data compiled by Center for Retirement Research at Boston College since 2013.
- Annual Public Fund Survey accessible online at www.nasra.org/publicfundsurvey.

Public Pension Plans Overview

- Retirement benefits play an important role in attracting and retaining qualified teachers and employees needed to perform essential public services, promote orderly turnover of workers, and enhance the retirement security of a large segment of the nation's workforce.

- Pension plans provide stable and adequate income replacement in retirement for long-term SLG public employees and teachers, and ancillary benefits related to disability and death before retirement.

- SLG systems generally are funded in advance by investing employee and employer contributions during employees' working years. Benefits are distributed in the form of a lifetime payout in retirement.

Response to Market Decline

- 2008-09 market decline, combined with other factors, increased plan's unfunded liabilities – and the cost of amortizing them - for most public pension plans around the country.
- Since 2009, most public plan sponsors have responded to higher pension costs by:
  - Raising contributions from employers
  - Raising contributions from employees
  - Reducing benefits (primarily for new hires) – higher retirement ages, lower retirement multipliers, increased vesting requirements, etc.
  - Capping benefits or salaries; addressing salary spiking, etc.
  - Offering DC or hybrid plan designs for new employees.
  - Postponing or reducing future retiree COLAs

Actuarial Funding Levels

- Funding ratio is the most recognized measure of plan's financial health.
- Determined by dividing actuarial value of assets by liabilities.
- Both fully funded and underfunded plans rely on future contributions and investment returns.
- Plan's funded status is a snapshot in a long-term, continuous financial and actuarial process.
- Most public pension benefits are prefunded.
  - Significant portion of assets needed to fund liabilities is accumulated during working life of participants.
- Pay-as-you-go is opposite of prefunded.
  - Current pension obligations are paid with current revenues.
  - Much more expensive.

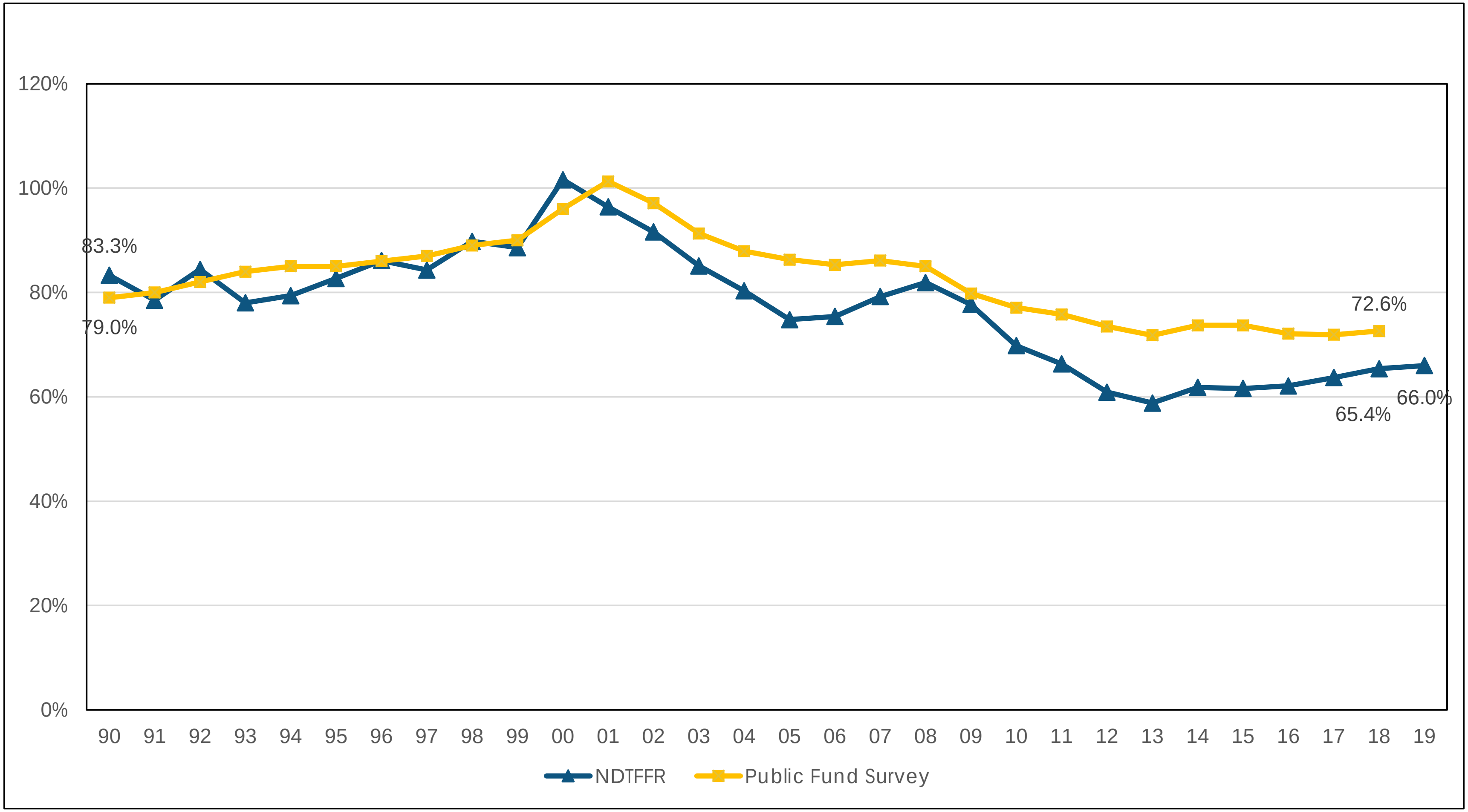
Actuarial Funding Levels

- Investment returns have a substantial effect on a pension plan's funding level.
- The effect of tepid investment returns on funding levels for most plans over the last few years have been outweighed by reductions made by many plans in investment return assumptions and changes to mortality assumptions to reflect longer expected lifespans.
- Other factors which affect a plan's funding level include adequacy of employer and employee contributions, demographic composition, benefit levels, actuarial methods and assumptions (particularly investment return assumption), variations in the plan's experience from what is expected, etc.

Actuarial Funding Levels

- According to the 2018 Public Fund Survey, public pension funding levels increased slightly from 71.9% in FY17 to 72.6% in FY18.
- **NDTFFR** funding level also increased slightly from 63.7% in FY17 to 65.4% in FY18 (and to 66.0% in FY19).
- **NDTFFR** ranking, in terms of funding level, improved to 83 of 120 plans in 2018 Survey (31% of plans had lower and 69% of plans had higher funding level than NDTFFR).

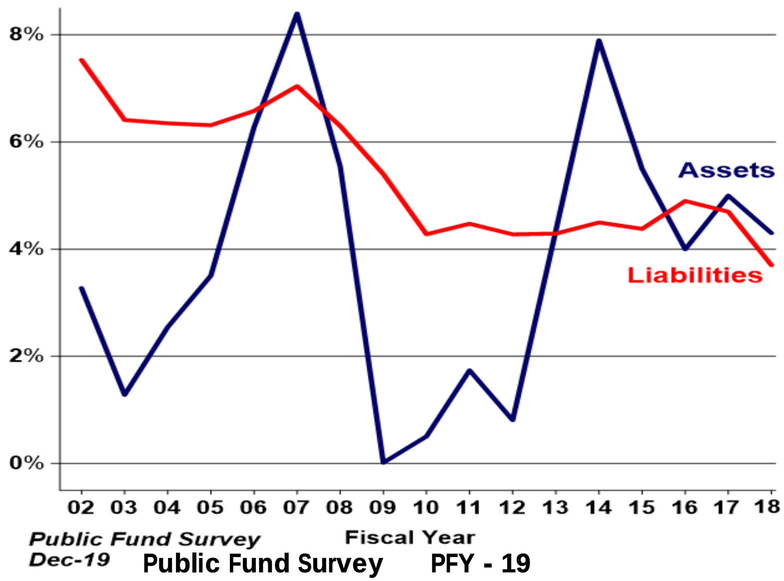
Change in Actuarial Funding Levels

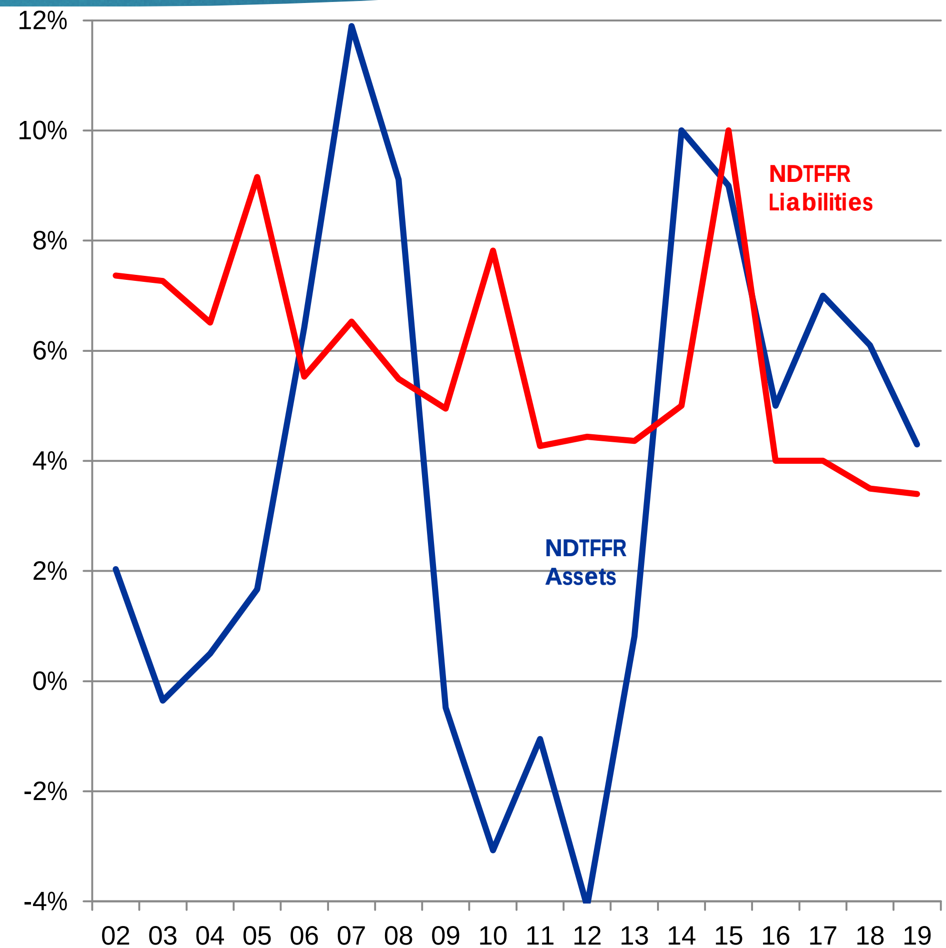


Actuarial Assets and Liabilities

- For a pension plan's funding to improve, its AVA must grow faster than its AVL.
- For most plans in the PFS, **liability growth** remains lower than historical rates, at a median rate of below 4% in 2018.
  - Lower rate of growth in liabilities is due to slow rates of growth in salaries and employment levels and the effects of many reforms (chiefly reductions) in pension benefits enacted in recent years.
  - Rates of liability growth would be lower were many plans not also reducing their investment return assumptions in recent years, which increases a plan's liabilities.
- **NDTFFR** liability growth has generally declined over the past decade, but changes in actuarial assumptions following experience studies in 2005, 2010, and 2015 increased liabilities as expected. Liability growth was 3.5% in FY18 (and 3.4% in FY19).
- Volatility in aggregate changes in **asset values** is muted compared to actual changes in market values of assets because plans phase in investment gains and losses over several years which smooths out market volatility.
- **NDTFFR** asset growth followed similar trends as the PFS, although asset returns were more volatile.

Change in Actuarial Assets & Liabilities





Membership Changes

- PFS shows the median rate of increase in **annuitants** increased in FY 18, following 5 consecutive years of decline.

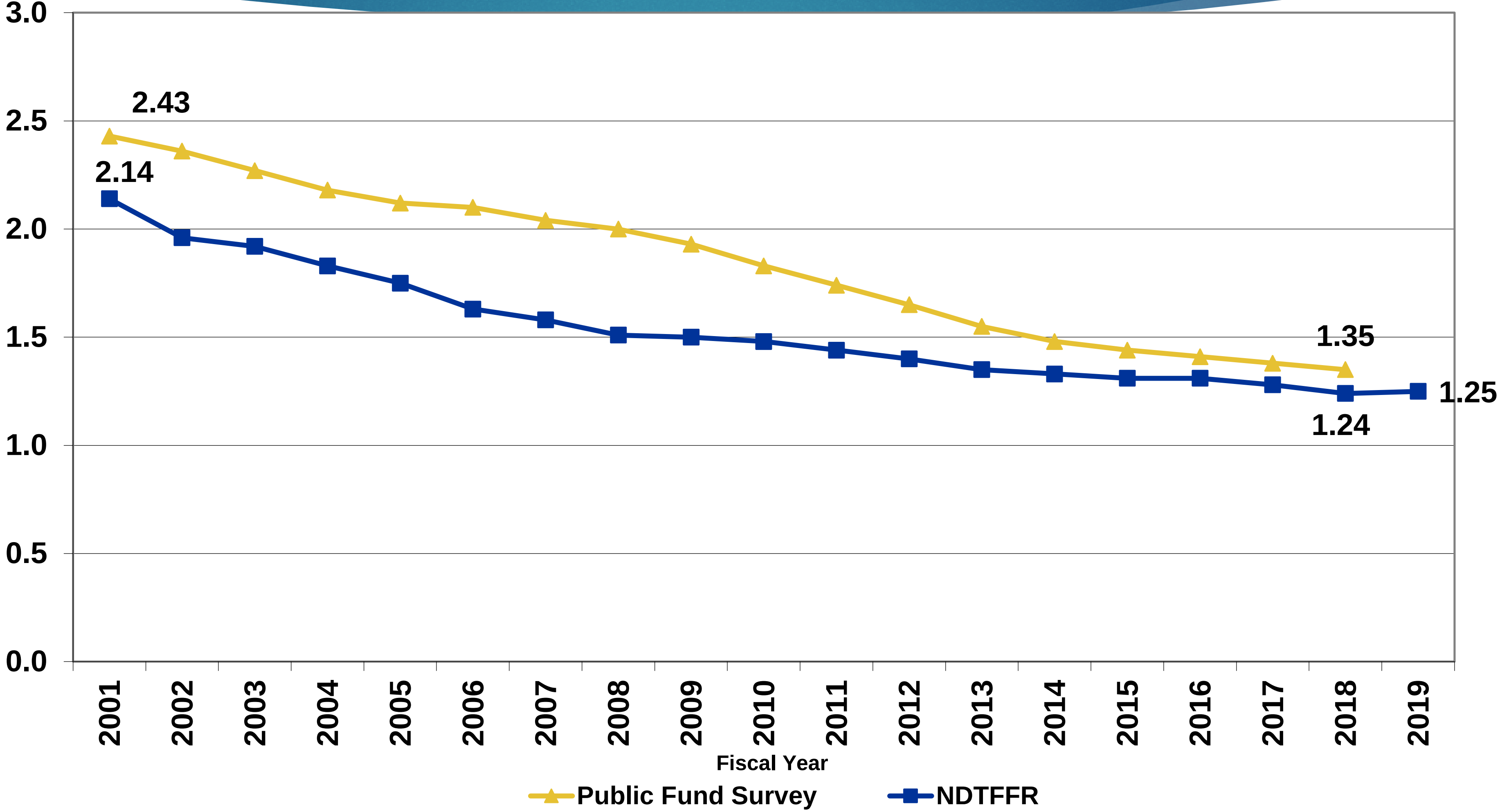
- The number of **active members** grew for the 4th consecutive year in FY 18, following 6 consecutive years of decline.

- The ratio of active members to annuitants is continuing to decline. This ratio dropped from 1.38 in FY17 to 1.35 in FY 18.

- For **NDTFFR** the ratio declined from 1.28 in FY17 to 1.24 in FY18 (and increased slightly to 1.25 in FY19).

- Although a declining active-annuitant ratio does not, by itself, pose an actuarial or financial problem, when combined with a poorly funded plan with a high UAAL, a low or declining ratio of actives to annuitants can result in higher required pension costs (like NDTFFR).

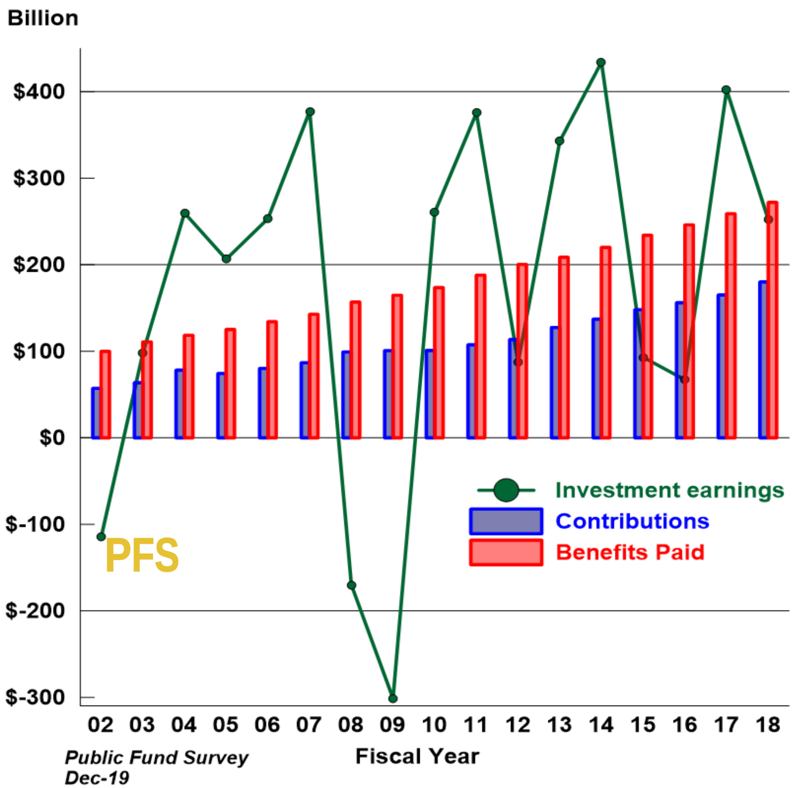
Ratio of Active Members to Annuitants

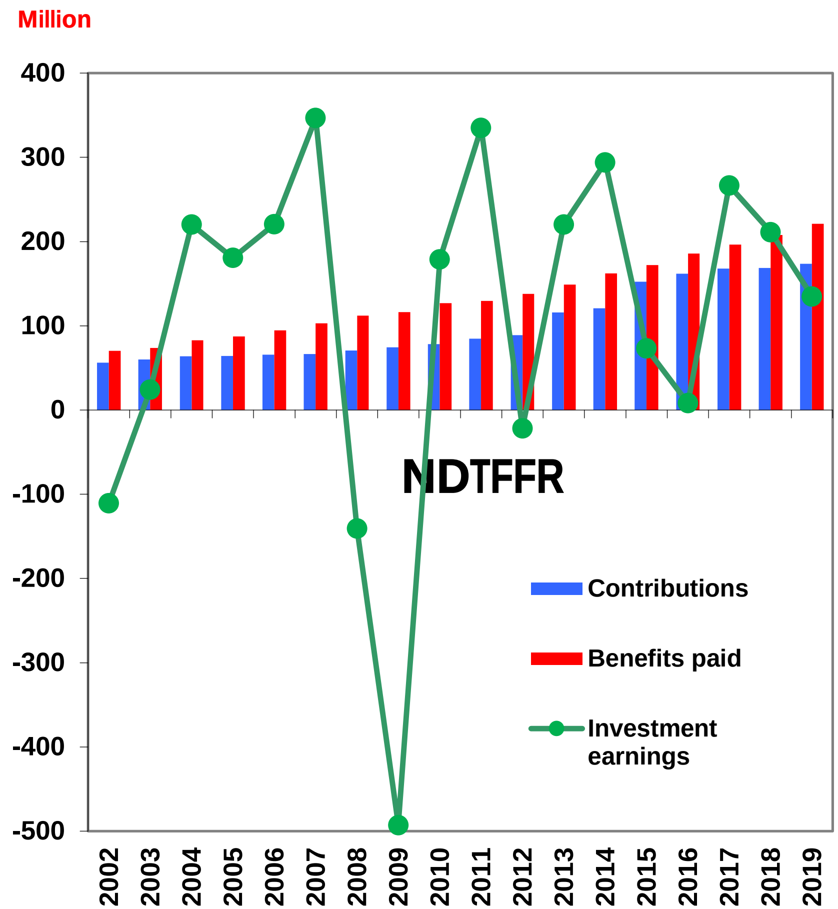


Revenues, Expenditures, and Investments

- Contributions and investment earnings accrue to pension trust funds, established for the sole purpose of paying benefits and funding administrative costs.
- Benefits paid by public retirement systems are paid from trust funds; pension payments are not made from SLG operating budgets or general funds.
- Growth in levels of contributions and benefits is mostly stable and predictable over time.
- Investment earnings, which comprise over 60% of public pension revenues over the past 30 years, vacillate, often appreciably, depending on market performance.

Revenues and Distributions

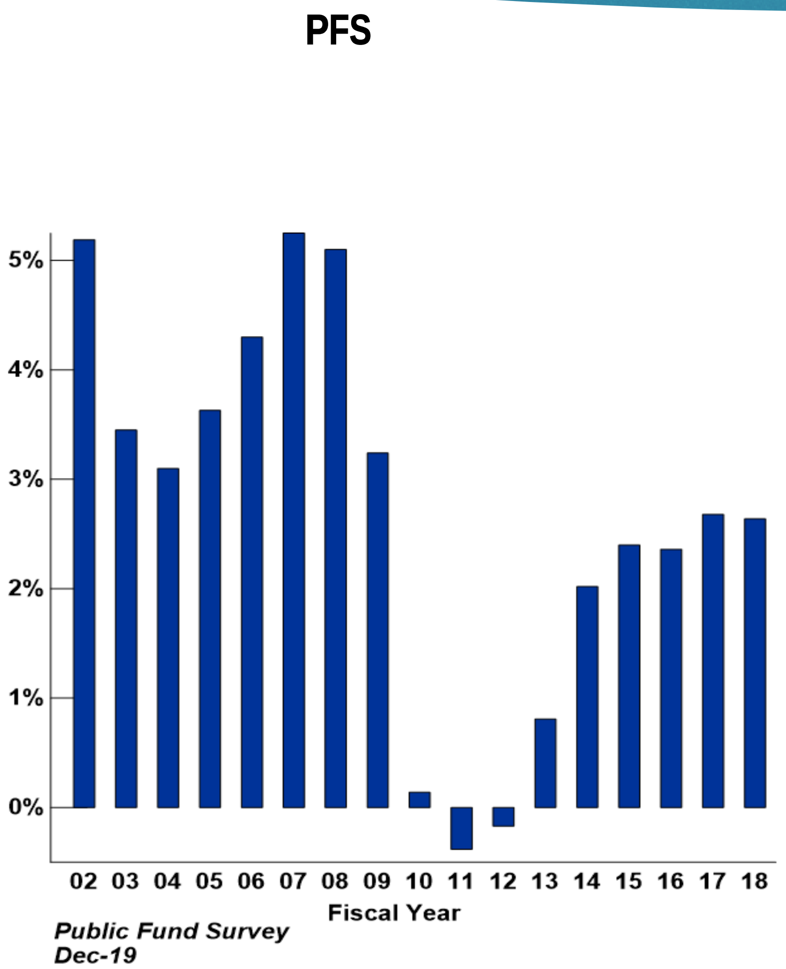


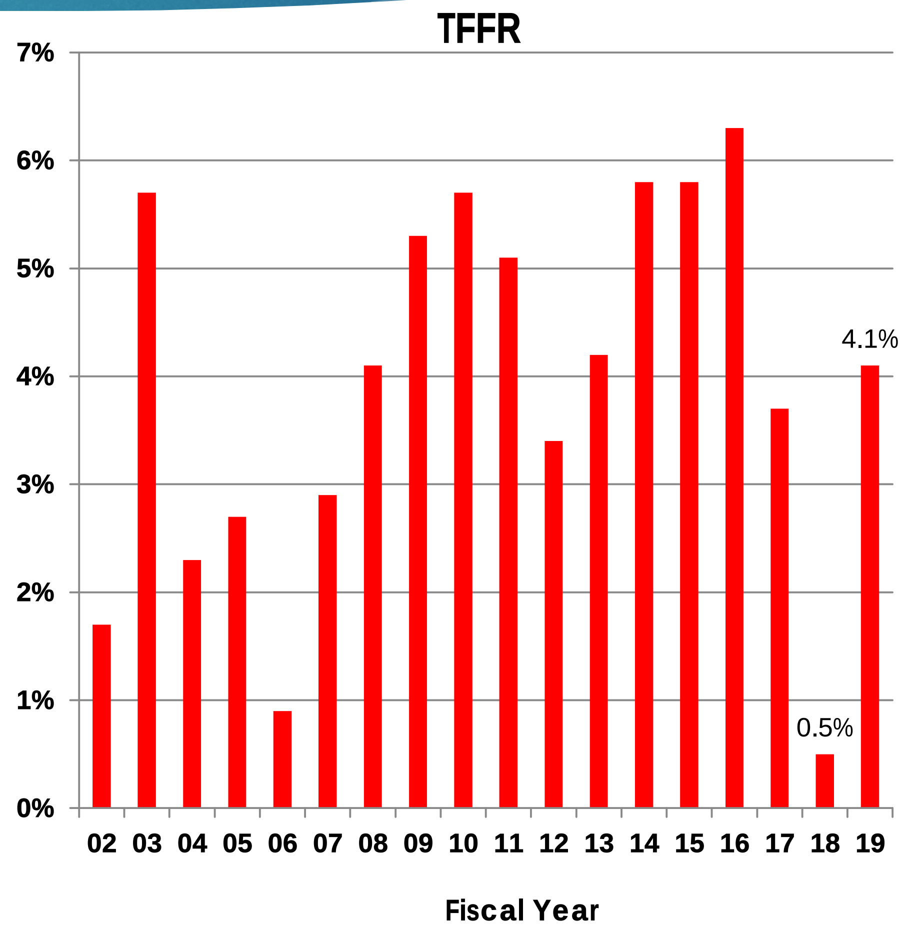


Annual Change in Payroll

- Median change in active member payroll was either negative or in decline from FY08 to FY12, and has increased slowly but steadily in subsequent years which reflects:
  - Stagnant or declining employment levels
  - Modest salary growth for SLG employees
- FY 18 experience marks the 5th consecutive year of median payroll growth at a rate between 2.0 and 2.68%, following 4 consecutive years of growth below 1%.
- **NDTFFR** active payroll growth has not followed the experience of PFS and has generally been higher with the exception of 2018. NDTFFR payroll growth was 3.7% in FY17, but only 0.5% in FY18 (and 4.1% in FY19).

Annual Change in Payroll



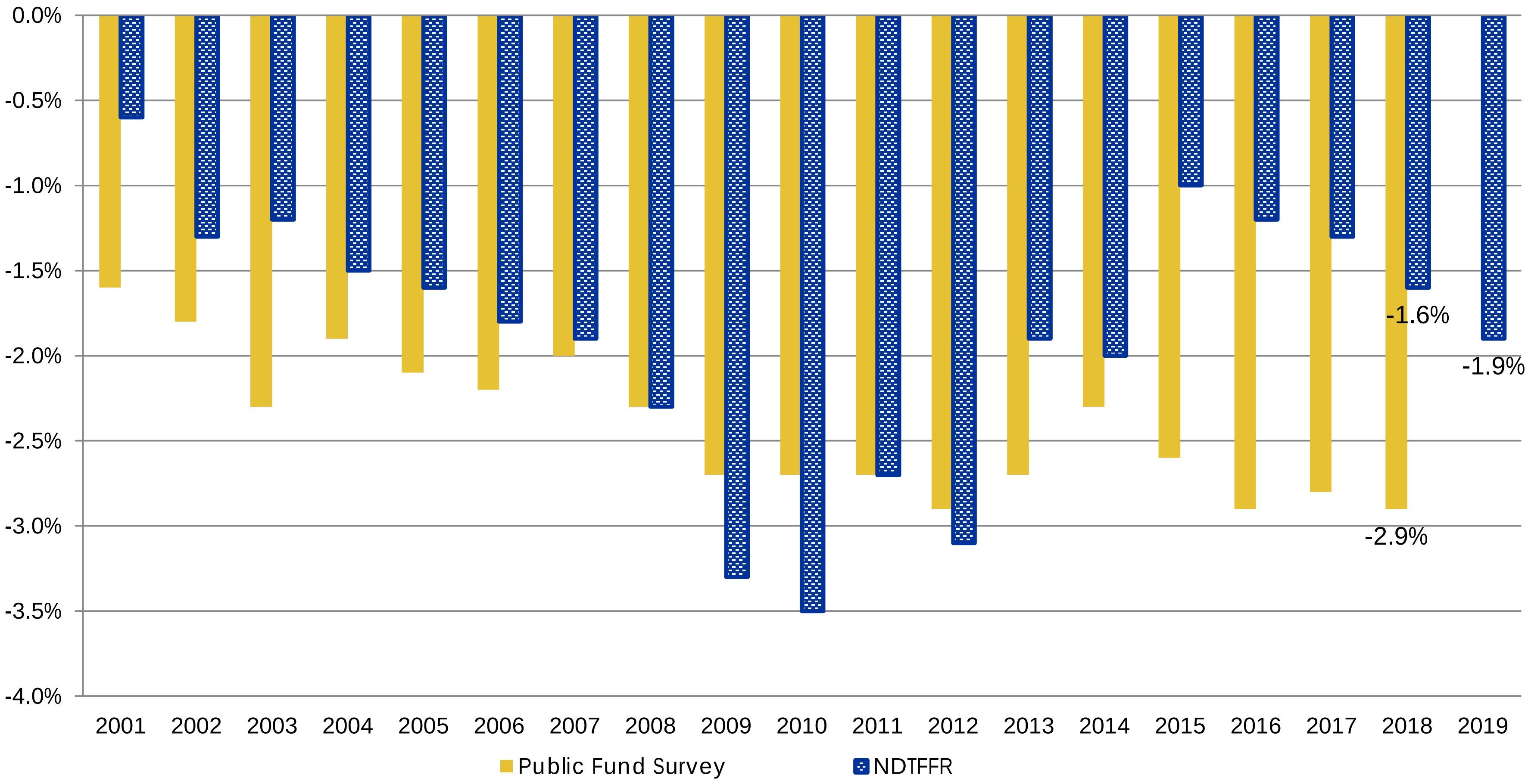


External Cash Flow

- External cash flow is the difference between a system's revenue from contributions and payouts for benefits and administrative expenses, divided into the value of the system's assets. It excludes investment gains and losses.
  - A growing number of annuitants, combined with low or negative rate of growth in active members will result in a reduction in external cash flow.
  - Conversely, a growing asset base will offset a rate of negative cash flow.
  - Contributions made below the actuarially recommended rate can also affect negative cash flow.
- Nearly all systems in PFS have external cash flow that is negative, meaning they pay out more each year than they collect in contributions.
  - By itself, negative cash flow is not an indication of financial or actuarial distress.
  - A lower or more negative cash flow may require the system's assets to be managed more conservatively, with a larger allocation to more liquid assets to meet payroll requirements.
- PFS median external cash flow remained unchanged at -2.9% in FY17and FY18.
- **NDTFFR** external cash flow was -1.3% in FY17, declining to -1.6% in FY18

  (and -1.9% in FY19).

External Cash Flow



Contribution Rates

- Variety of arrangements for payment of employee and employer contribution rates.
  - Employee rates are typically fixed % of pay.
  - Employer rates may be fixed or floating.
  - Rates may be set by statute, actuarial requirements, board, etc.

- Contribution rates differ on basis of Social Security participation.
  - About 30% of employees of SLGs do not participate in Social Security.
  - About 40% of all public school teachers do not participate in Social Security.

- Other considerations include benefit design (benefit multiplier, early retirement eligibility, vesting, automatic retiree COLA provisions); funded status; actuarial assumptions; and demographics

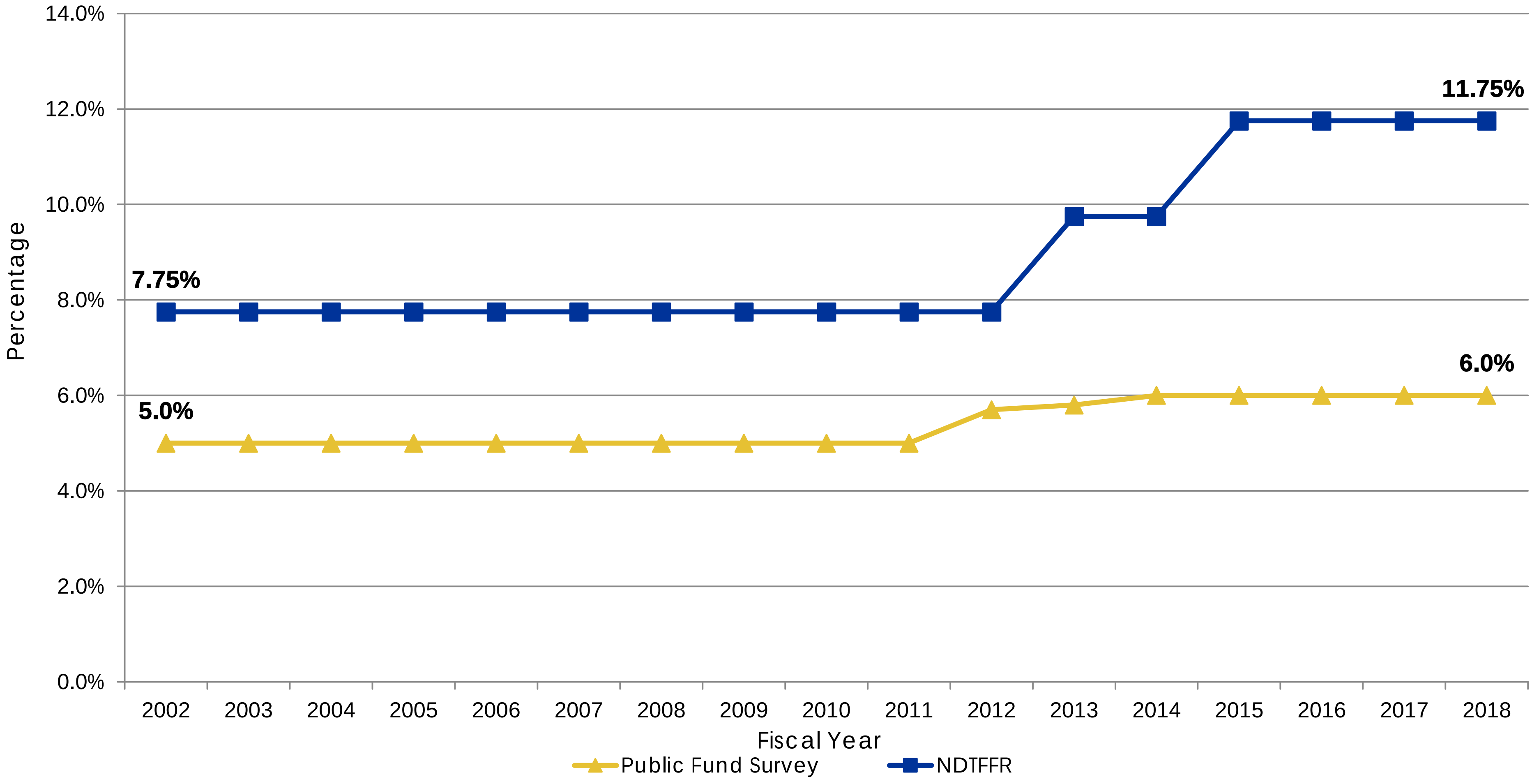
Contribution Rates

- Nearly every state has made changes to its pension plan; since 2009, the most common change has been an increase in required employee and employer contribution rates.

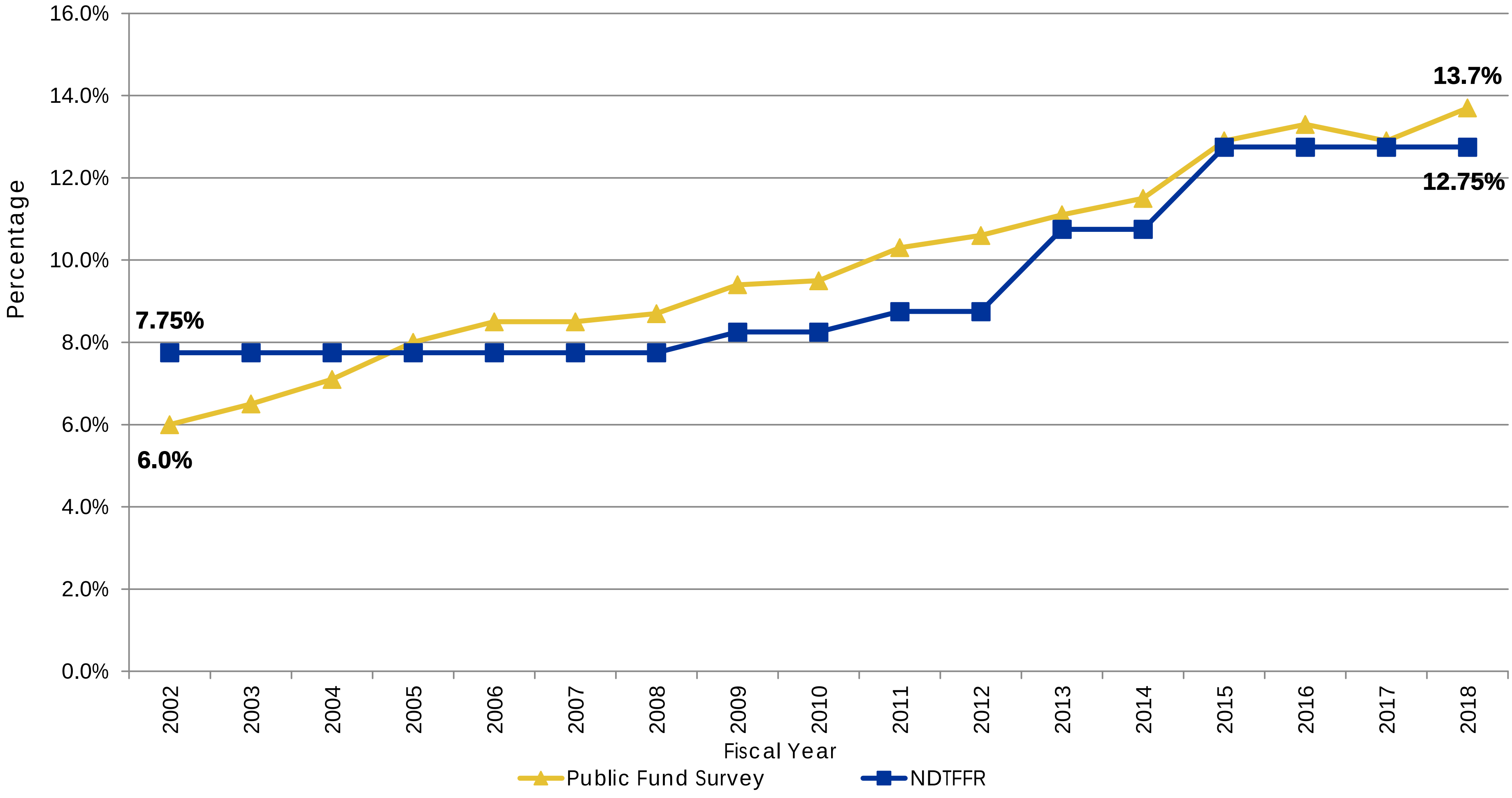
- Median **employee** contribution rate remained at 6.0% in 2018 for Social Security eligible workers.
  - **NDTFFR** employee rate is 11.75% (effective 7/1/14). Rate will be in effect until plan is 100% funded, then reduced to 7.75%.

- Median **employer** contribution rate was 13.7% in 2018 for Social Security eligible workers.
  - **NDTFFR** employer rate is 12.75% (effective 7/1/14). Rate will be in effect until plan is 100% funded, then reduced to 7.75%.

Employee Contribution Rates



Employer Contribution Rates

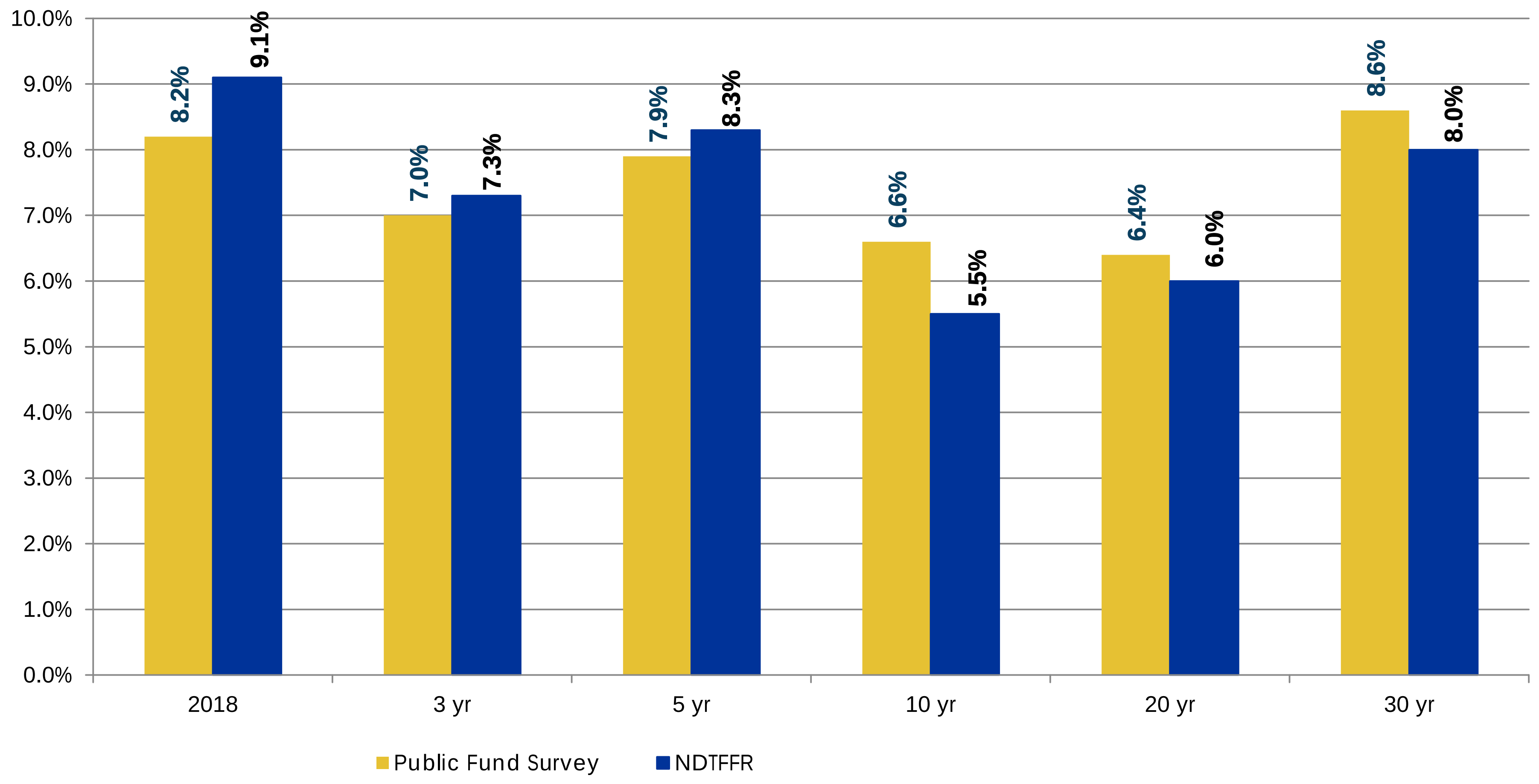


Investment Returns

- Median investment return for plans with FY end date of 6/30/18 (about ¾ of PFS participants), was 8.2%.

- **NDTFFR** return was 9.1% for FY18 (and 5.5% for FY19).

Annual Investment Returns (net)



Actuarial Assumptions

Actuarial valuations contains many assumptions.

- Demographic
  - Retirement rate
  - Mortality rate
  - Turnover rate
  - Disability rate
- Economic
  - Investment return rate
  - Inflation rate
  - Salary increase rate
- Last NDTFFR Experience Study was conducted in 2014-15; revised assumptions approved by the Board became effective 7/1/15. Next Study scheduled for 2019-20 (to be delivered March 2020).

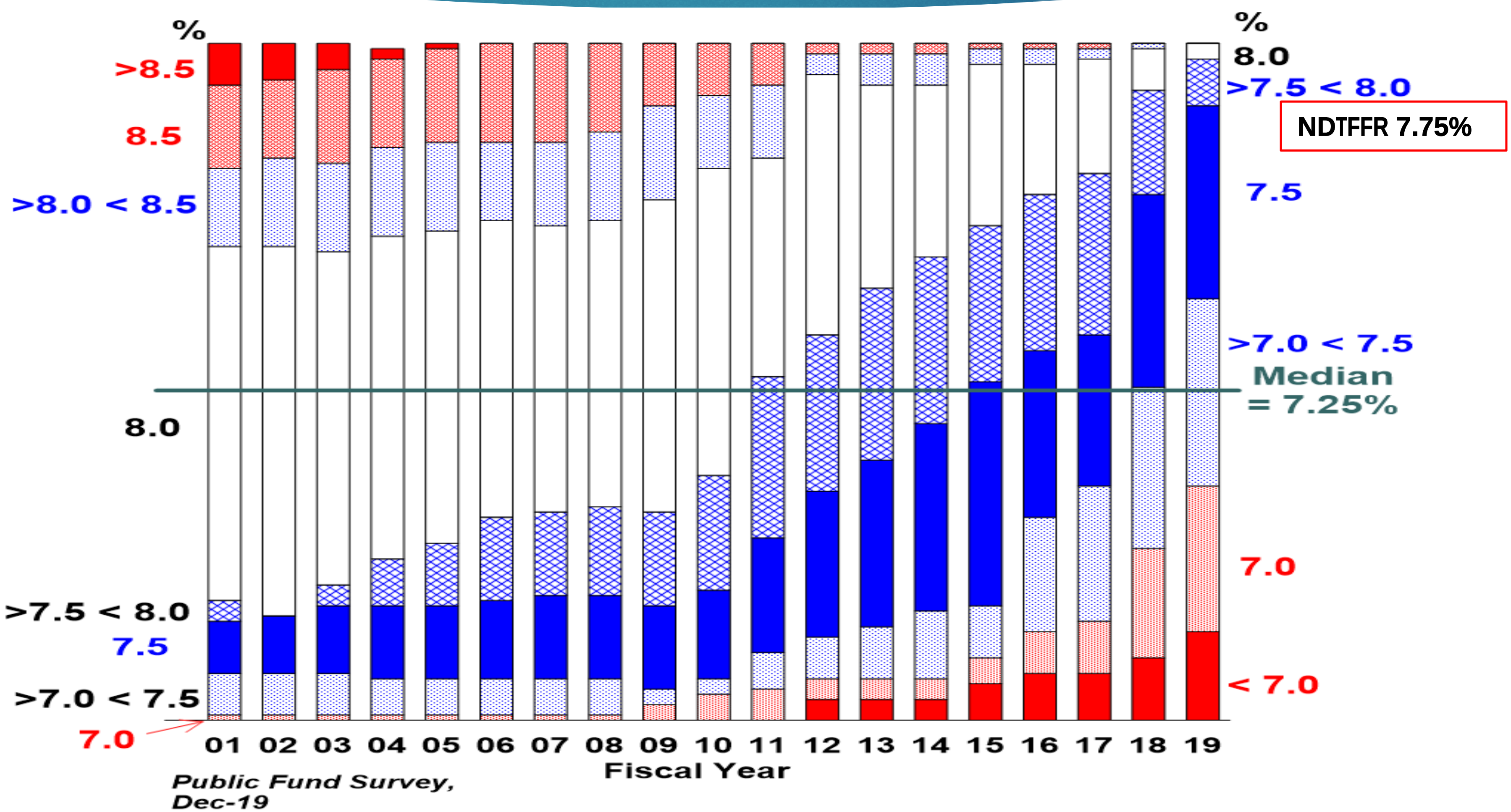
Investment Return Assumption

- Of all assumptions, a public pension plan's investment return assumption has the greatest effect on the long-term cost of the plan.
  - Because a majority of revenues of a typical public pension fund come from investment earnings, even a small change in a plan's investment return assumption can impose a disproportionate impact on a plan's funding level and cost.
- Investment assumption is made up of 2 components
  - Inflation assumption
  - Real return assumption which is investment return net of inflation.

Investment Return Assumption

- Until FY11, the most common investment return assumption used by public pension plans was **8.0%**.
- Since that time, nearly every plan in the survey has reduced their investment return assumption.
- Median investment return assumption is **7.25%**.
- **NDTFFR** investment return assumption was reduced from 8.0% to **7.75%** effective 7/1/15. Further reduction will be considered during the Experience Study scheduled in 2019-20.

Investment Return Assumption



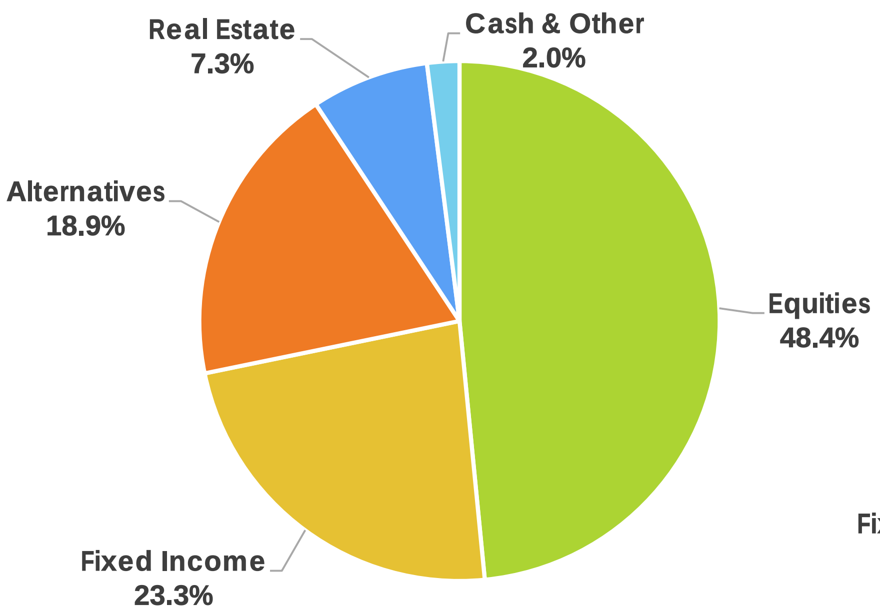
Asset Allocation

There were minor changes to PFS plan's asset allocations.

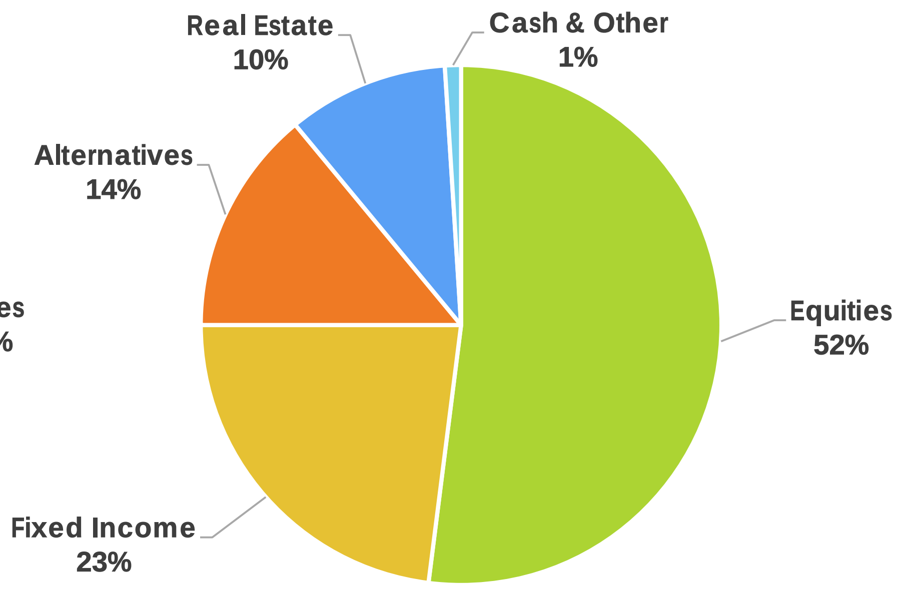
- Public Equities remains over 48%.
- Fixed Income remains at 23%.
- Real Estate has grown steadily and is above 7%.
- Alternatives (composed of primarily private equity and hedge funds) continues to grow steadily and is nearly19%.
- Cash/Other is still about 2%.

- Compared to the 2018 PFS, **NDTFFR** has less in Cash and Alternatives, about the same in Fixed Income, and more in Real Estate and Equities.
  - Last NDTFFR Asset Liability Study (ALS) was conducted in 2015-16, with minor allocation changes effective in 7/1/16. Next ALS scheduled for 2020-21.

Asset Allocation



Public Fund Survey
Fiscal Year 2018



NDTFFR (Target)
2018

Conclusion

- According to the Center for State and Local Government Excellence, there is a continued need for public pension plans to:
- Focus on asset growth in terms of adopting appropriate investment return assumptions for the benefit contribution calculations
- Use shorter amortization periods that do not back-load funding costs
- Ensure the adequacy of public employer and employee contributions, relative to investment returns.

Conclusion

- A very difficult operating environment currently exists featuring volatile investment markets; criticism of public employees, their benefits, and their governing boards; and challenging fiscal conditions facing many state and local governments.

- **Like NDTFFR, most public retirement systems strive to maintain sound investment, funding, and governance practices, and seek opportunities to continuously improve in those areas.**

Until next year's survey….Questions?

Custon

National Association of State Retirement Administrators

MEMBER LOGIN

Username

username

Password

password

Forgot your Credentials ENTER

Tweets by @PensionDialog

Home **Public Fund Survey**

Public Fund Survey

SUMMARY OF FINDINGS FOR FY 2018 **DECEMBER 2019**

ABOUT THE PUBLIC FUND SURVEY

The Public Fund Survey is an online compendium of key characteristics of most of the nation's largest public retirement systems. The Survey is sponsored by the National Association of State Retirement Administrators.

Beginning with fiscal year 2001, the Survey contains data on public retirement systems that provide pension and other benefits for 12.9 million active (working) members and 9.6 million annuitants (those receiving a regular benefit, including retirees, disabilitants and surviving beneficiaries). At the end of fiscal year 2018, systems in the Survey held combined assets of $3.62 trillion. The membership and assets of systems included in the Survey comprise approximately 85 percent of the entire state and local government retirement system community. Since FY 13, much of the survey data has been compiled by the Center for Retirement Research at Boston College as part of Public Plans Data (PPD), an online, interactive resource containing public retirement system information culled chiefly from public retirement system annual financial reports, and also from actuarial valuations, benefits guides, system websites, and input from system representatives. In addition to the Center for Retirement Research at Boston College, the PPD is sponsored by NASRA and the Center for State and Local Government Excellence. This report, focusing on FY 18, uses graphs to illustrate and describe changes in selected elements of the survey.

Some of the information on this page is presented in the context of changes to median, or midpoint, data. Presenting changes based on a median, rather than aggregate (total) basis, reduces the effects of very large plans and plans with extreme or exceptional results, enabling readers to focus on the experience of a more typical plan instead of results that could be skewed by the experience of one or a few outliers.

SUMMARY OF FINDINGS

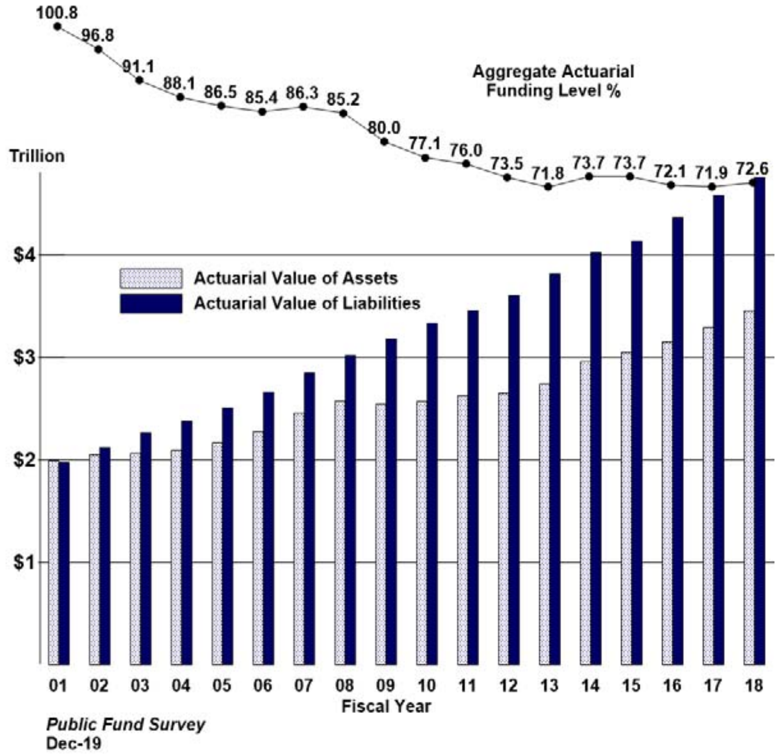
Figure A plots the aggregate actuarial funding level among plans in the Survey since its inception in FY 2001. The funding level in FY 18 was 72.6 percent, up slightly from the prior year. The aggregate actuarial value of assets grew by 6.1 percent, from $3.29 trillion to $3.49 trillion. This value reflects changes based on the timeframes most pension plans use to phase in investment gains and losses, a calculation also known as smoothing. Combined liabilities grew from $4.58 trillion to $4.83 trillion, or 5.4 percent. Liabilities fluctuate as a result of four factors: a) because liabilities are a present value, they increase at a rate of interest equal to the prior year's discount rate; b) new benefit accruals resulting from active participants accruing an additional year of service credit; c) payment of benefits to retired participants (which reduces liabilities); and d) changes in actuarial assumptions and actuarial experience that differs from assumptions.

FY 18 marks the seventh consecutive year that aggregate funding levels have been within a narrow range—between 71.9 and 73.5 percent. Many factors combine to affect a plan's funding ratio. The complexity inherent in determining the funding level of a single plan is increased significantly when many plans--each of which is unique in various ways regarding its combination of actuarial experience, methods, and assumptions—is added. Primary factors typically affecting the aggregate funding level include pension funds' actual investment returns, illustrated by Figure K, and changes in investment return assumptions, charted on Figure L. A sharp downturn in equity markets at the end of 2018 affected not only one-year returns but also returns for the three- and five-year periods ended 12/31/18. Although equity markets returned to and exceeded their pre-decline levels quickly, because the downturn occurred just before the end of the calendar year, the drop affected funding levels for plans whose fiscal year ends 12/31.

The effect on funding levels of tepid investment returns for most plans over the last few years have been outweighed by reductions, made by many plans, in investment return assumptions and changes to mortality assumptions to reflect longer expected lifespans. See the NASRA issue brief on investment return assumptions.

Funding levels can be affected by many factors, and certain actuarial events typically affect a plan's funding level (and cost) more than others. For example, funding levels usually are affected by changes to its actuarial assumptions, its actual return on investments and other variations in the plan's experience from what is expected.

Figure A



FY 18 individual funding levels of the 120 plans in the Survey are depicted in Figure B. The size of each circle in the chart is roughly proportionate to the size of each plan's actuarial liabilities—larger bubbles reflect larger plans and smaller bubbles reflect smaller plans. The median funding level is 72.7 percent, and the range is 15.8 percent to 112.0 percent. This chart illustrates the wide distribution that exists in public pension funding levels.

Figure B

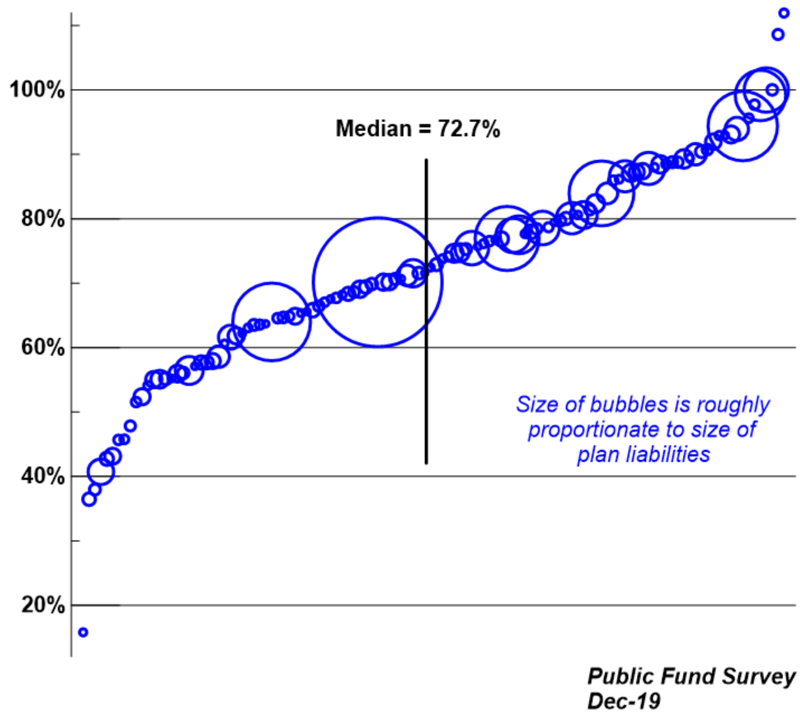
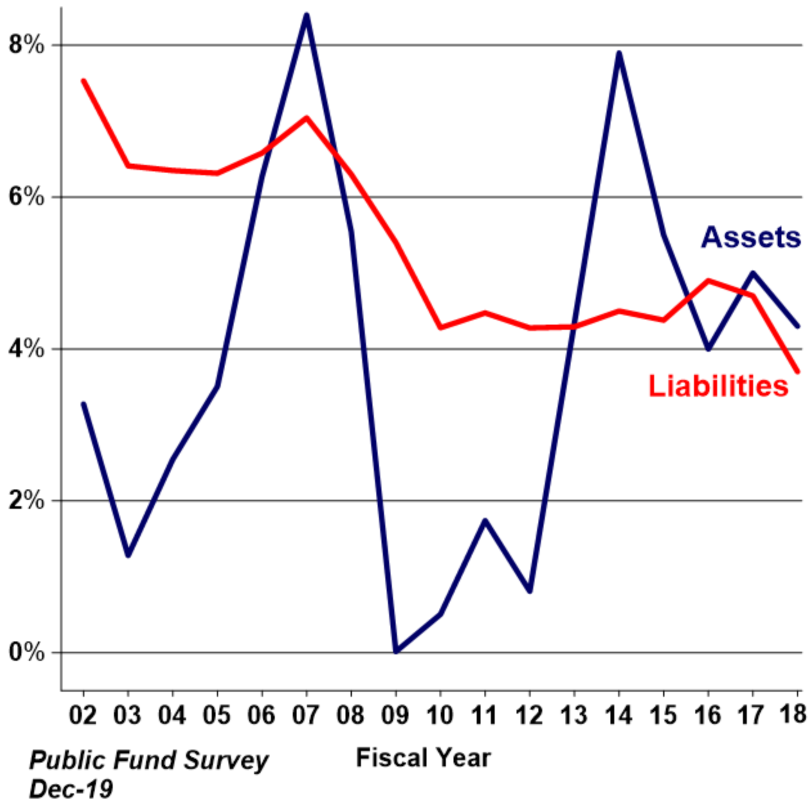


Figure C plots the median annual change among plans in the Survey in the actuarial value of assets and liabilities since FY 01. For a pension plan's funding level to improve, its actuarial value of assets must grow faster than its liabilities. Once again in FY 18, at a median rate below 4.0 percent--the lowest rate of change in the history of this survey--liability growth remains notably lower than historical rates. This lower rate of growth in liabilities is likely due to several factors that, as with other factors, vary by plan, but generally includes slow rates of growth in salaries and employment levels and the effects of many reforms (chiefly reductions) in pension benefits enacted in recent years. Rates of liability growth would be even lower were many plans not also reducing their investment return assumptions in recent years (see Figure L), an action that increases a plan's liabilities.

As with individual plans, the volatility in aggregate changes in asset values over this measurement period also is muted compared to actual changes in market values of assets. This is because most plans phase in investment gains and losses over several years, a process that is intended to smooth out the effects of market volatility.

Figure C



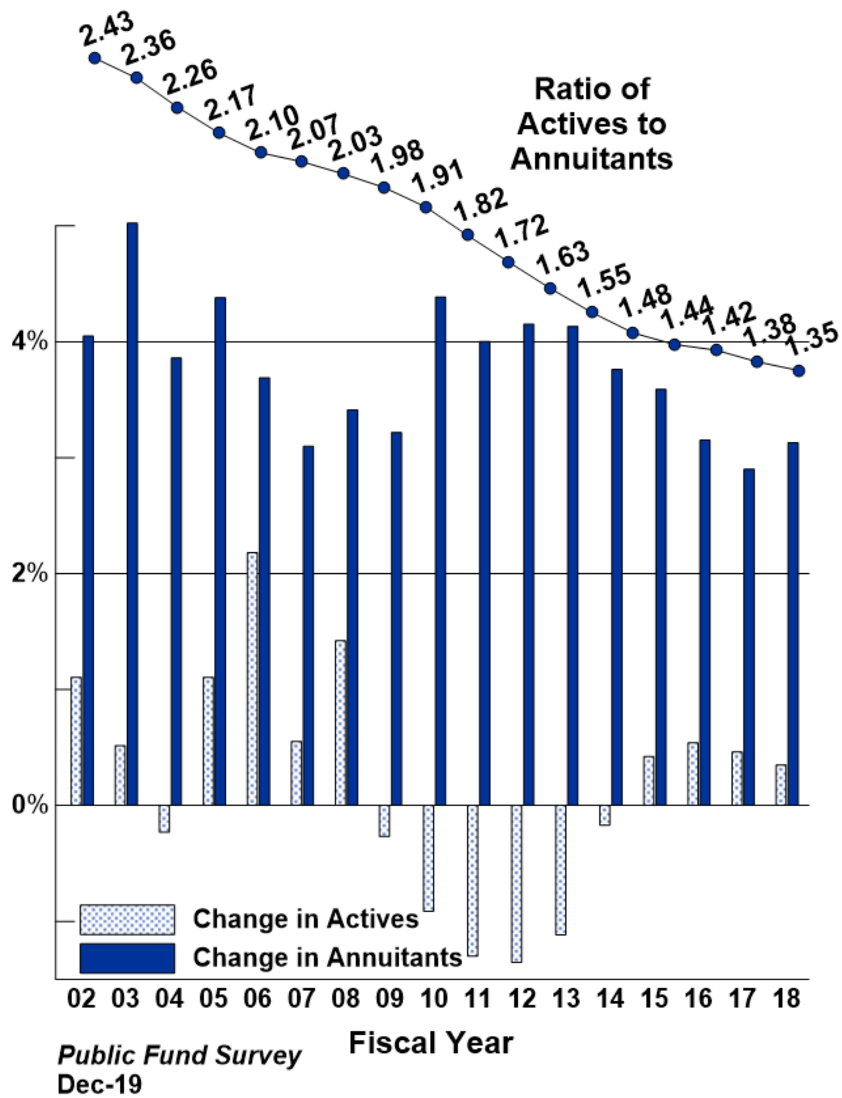
The Survey measures two types of retirement system members: actives and annuitants. Actives are those who currently are working and earning retirement service credits; most actives also make contributions toward the cost of their pension benefit. Annuitants are those who receive a regular benefit from a public retirement system; these are predominantly retired members, but also include those who receive a disability benefit (disabilitants), and survivors of retired members or disabilitants.

As shown in Figure D, the median rate of increase in annuitants among systems in the Survey increased in FY 18, following five consecutive years of decline. The number of active members grew for the fourth consecutive year in FY 18, following six consecutive years of decline, from FY 09 to FY 14. This pattern of change in the number of active members is consistent with US Census Bureau reports showing a continued reversal of a trend of fewer persons employed by state and local government, a trend Census data shows began in August 2008. As Figure D shows, marginal gains in the number of active members have been reported each year since FY 14.

The difference between the continued increase in annuitants and a declining number of active members is driving a long-term reduction in the overall ratio of actives to annuitants. In FY 18, this ratio dropped to 1.35, which marks the fourth consecutive year of a more modest rate of decline, below three percent, following six consecutive years of steeper decline of three percent or greater. A low or declining ratio of actives to annuitants is not necessarily problematic for a public pension plan. This is because the typical public pension funding model features accumulation, during plan participants' working years, of assets needed to fund retirement benefits, in anticipation of higher rates of payout as members retire.

When combined with an unfunded liability, however, a low or declining ratio of actives to annuitants can cause financial distress for a pension plan sponsor. An unfunded liability represents a shortfall in accumulated assets and results in a cost of the plan above the normal cost, which is the cost of benefits earned each year. A lower ratio of actives to annuitants results in the spreading of costs to amortize a plan's unfunded liability over a relatively smaller payroll base, which increases the cost of the plan as a percentage of employee payroll. Thus, although a declining active-annuitant ratio does not, by itself, pose an actuarial or financial problem, when combined with a poorly-funded plan, a low or declining ratio of actives to annuitants can result in higher required pension costs.

Figure D



On a market value basis, as of FY 18, systems in the Survey held a combined $3.62 trillion in assets, an increase of 4.3 percent from FY 17. Figure E, which plots the fiscal year-end value of public pension funds in the Survey, reflects the result of market volatility in recent years, including the strong asset gains since 2009. As the aggregate market value of funds in the Public Fund Survey has grown by roughly $1.52 trillion over the past decade, these same plans also have paid out approximately $2.2 trillion in benefits.

Figure E

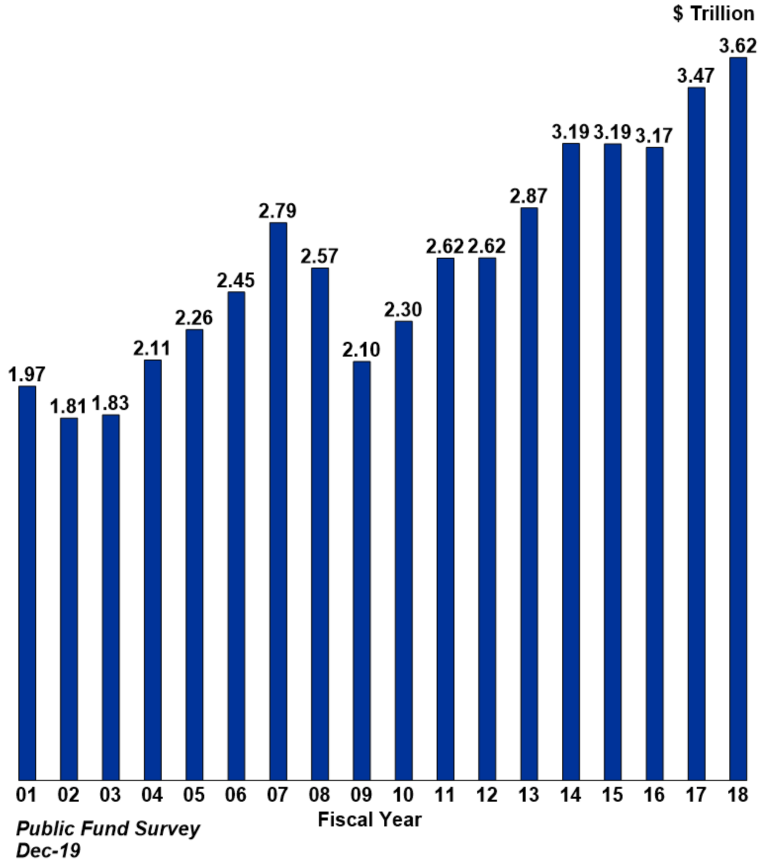


Figure F plots the combined revenues and expenditures of the systems in the Public Fund Survey. The green line reflects investment gains and losses, which vacillate as investment markets fluctuate. Blue bars indicate contributions, from employees and employers, and red bars show benefit payments. Because most plans pay out more each year in benefits than they receive in contributions, contributions are used to pay current benefits (as shown in Figure H), and investment earnings accrue to pension trust funds. Pension trust funds are established for the sole purpose of paying benefits and funding administrative costs. The benefits paid by public retirement systems are paid from these trust funds, not from state and local government operating budgets or general funds.

Growth in levels of contributions and benefits is mostly stable and predictable over time. Investment earnings, which comprise over 60 percent of public pension revenues over the past thirty years, vacillate, often appreciably, depending on market performance (see Figure K).

Figure F

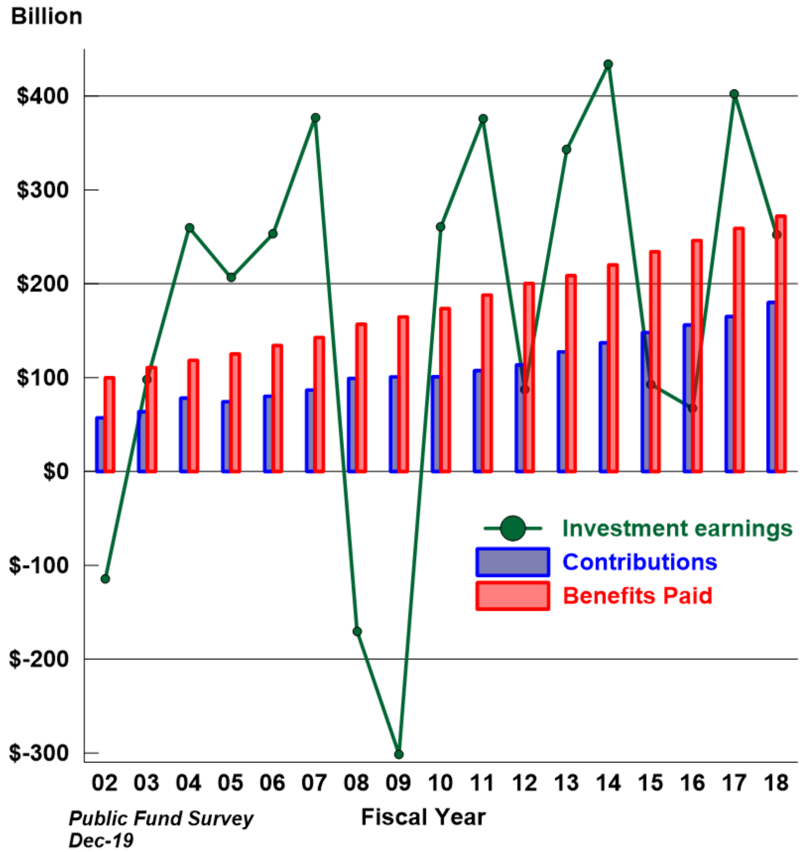


Figure G plots the distribution of the median annual change in payroll from FY 02 to FY 18 among plans in the survey for which this data is available. (The chart excludes plans in the Survey that are closed to new hires. Closed plans have no new, active members joining, and the number of annuitants grows each year as active members retire or terminate.)

As the chart shows, the median change in payroll was either negative or in decline from the prior year from FY 08 to FY 12, and has increased slowly but steadily in subsequent years compared to historical experience. Negative or slow payroll growth reflects one or both of two basic factors: stagnant or declining employment levels, and modest salary growth among employees of state and local government. The payroll experience of public pension plans is corroborated by information provided by the U.S. Bureau of Labor Statistics, indicating that although state and local employment levels have accelerated since FY 14, annual growth in wages and salaries for employees of state and local government have only recently broken above two percent following seven years of growth below two percent. These trends suggest that while states and local governments have been hiring new employees, the rate of hiring of new, generally lower-salary workers, has thus far not been enough to offset increasing numbers of retiring older, generally higher-paid workers.

Payroll growth affects a pension plan actuarially because the long-term funding of a typical pension plan is based partly on expected growth in a pension plan's payroll base. When a plan's payroll grows at a rate less than expected, the base that is used to amortize the plan's unfunded liability is smaller, meaning that the cost of amortizing the unfunded liability is larger. This situation is analogous to a mortgage, in which the mortgage-holder anticipates a growing salary to make her or his monthly mortgage payment. When salary growth does not materialize as anticipated, the cost of the mortgage payment as a percentage of expected income is higher.

Many pension plans in recent years have reduced their payroll growth assumption to reflect changing economic realities and expectations for future payroll growth. As a result, improving payroll growth experience and assumptions for future payroll growth are converging. The FY 18 experience marks the fifth consecutive year of median payroll growth at a rate of between 2.0 and 2.68 percent, following four consecutive years of growth below one percent.

Figure G

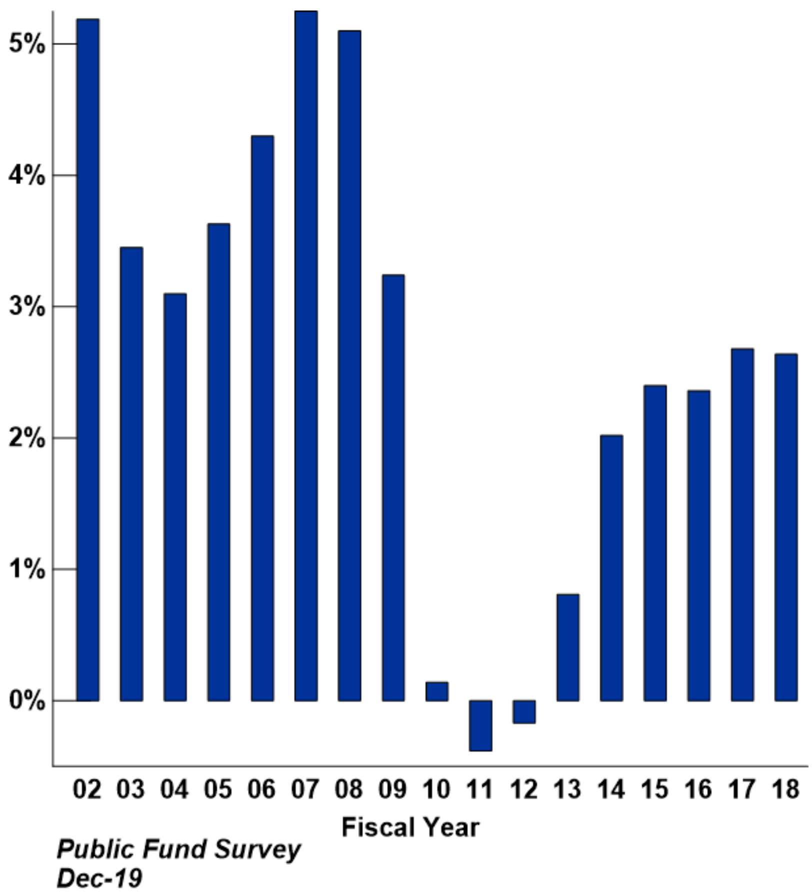
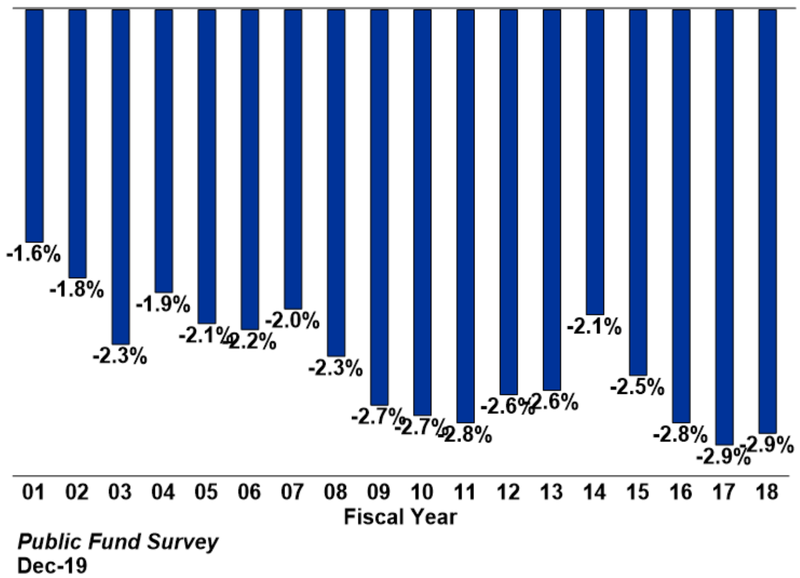


Figure H plots the median external cash flow as a percentage of assets since FY 01. External cash flow is the difference between a system's revenue from contributions, and payouts for benefits and administrative expenses. External cash flow excludes investment gains and losses. Dividing a system's cash flow into the market value of the system's assets produces the measure of cash flow as a percentage of assets. A growing number of annuitants, combined with slow or declining growth in active members, will result in a reduction in a retirement system's external cash flow. Conversely, a growing asset base will offset a rate of negative cash flow. Contributions made below the actuarially recommended rate can also be a factor contributing to a plan's negative cash flow.

Nearly all systems in the survey have an external cash flow that is negative, meaning they pay out each year more than they collect in contributions. Negative cash flow is not, by itself, an indication of financial or actuarial distress: the purpose of accumulating assets is to eventually pay them out as benefits. As a system matures, i.e., as its members age, the system will inevitably pay out in benefits relatively more compared to a less mature, younger system. A lower (more negative) cash flow may require the system's assets to be managed more conservatively, with a larger allocation to more liquid assets to meet current benefit payroll requirements.

The median external cash flow in FY 18 is -2.9 percent, virtually unchanged from the prior year.

Figure H

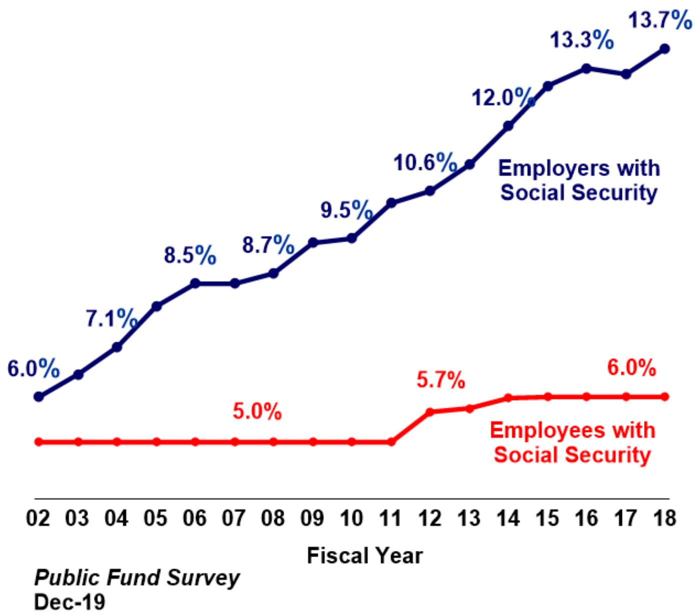


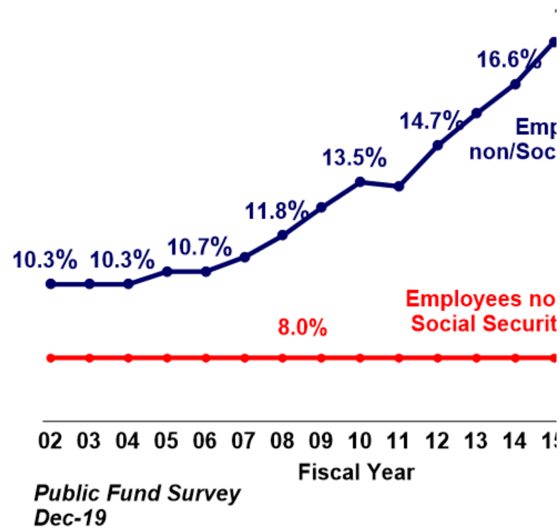
Figures I and J reflect changes in median employee and employer contribution rates. Figure I includes active members and employers for active members who also participate in Social Security; Figure J includes those participants and their employers who do not participate in Social Security. These contribution rates apply to general employees and public school teachers; the rates do not reflect those for public safety workers and narrow employee groups, such as legislators, judges, etc.

Approximately 30 percent of employees of state and local government do not participate in Social Security, including approximately 40 percent of all public school teachers, and a majority to substantially all state and local government workers in seven states: Alaska, Colorado, Louisiana, Maine, Massachusetts, Nevada, and Ohio.

Nearly every state has made changes to its pension plan(s) since 2009; the most common change has been an increase in required employee contribution rates. This trend is reflected in Figure I, which shows the median employee contribution rate for employees participating in Social Security increasing to 6.0 percent in FY 14, after an extended period at 5.0 percent. Contribution rates for many non-Social Security-participating employees have increased as well, though the median rate remains at 8.0 percent. Contribution rates among both sets of employers—in and out of Social Security—have increased considerably since the inception of the survey, due primarily to larger unfunded pension liabilities. These larger unfunded liabilities are attributable to various factors, depending on the plan, but often include lower investment return assumptions. Higher employer contribution rates for some plans also are due to a strengthened effort by some employers to contribute all or more of their actuarially determined contribution. FY 02, the first year of the measurement period, was at or near the all-time low point for employer contribution rates, following the strong investment gains experienced in the 1980s and 1990s.

Figure I **Figure J**

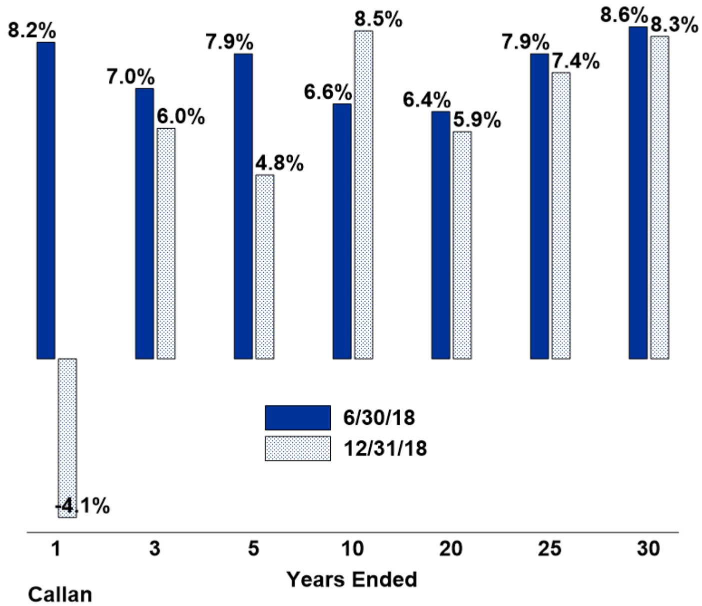




As shown in Figure K, the median investment return for plans with a FY-end date of June 30, 2018 (the FY-end date used by approximately three-fourths of the funds in the survey), was 8.2 percent; the return for plans whose fiscal year-end coincides with the calendar year (used by most other plans) was negative 4.1 percent. This decline resulted largely from a sharp drop in equity values during the final quarter of 2018, evidenced by a decline of more than 13 percent in the S&P 500 index during this period. By the end of the first quarter of 2019, the index had made up all of its losses in the preceding quarter, but the effect of this temporary drop is reflected in the returns and funding level of plans with a FY-end date of 12/31.

Returns for the 10-year period ended 12/31/18 reflect the first 10-year period that does not include any of the losses experienced in the 2008-09 market decline.

Figure K



Of all actuarial assumptions, a public pension plan's investment return assumption has the greatest effect on the plan's funding level and its projected long-term cost. This is because, over time, a majority of revenues of a typical public pension fund come from investment earnings. Even a small change in a plan's investment return assumption can impose a disproportionate impact on a plan's funding level and cost.

From the beginning of this survey (and for several years preceding this survey), until FY 11, the median investment return assumption used by public pension plans was 8.0 percent. Following the sharp decline in global capital markets in 2008-09 and the subsequent decline in interest rates and projected returns on most major asset classes, nearly every plan in the survey has reduced its assumed investment return. This has resulted in a reduction in the median return assumption to 7.25 percent. Figure L compares the distribution of investment return assumptions for each fiscal year since the inception of the Survey through the present. This chart illustrates the steady reduction in assumed rates of return, particularly since 2009, and the continuation of lower return assumptions beyond FY 18 and into FY 19.

Figure L

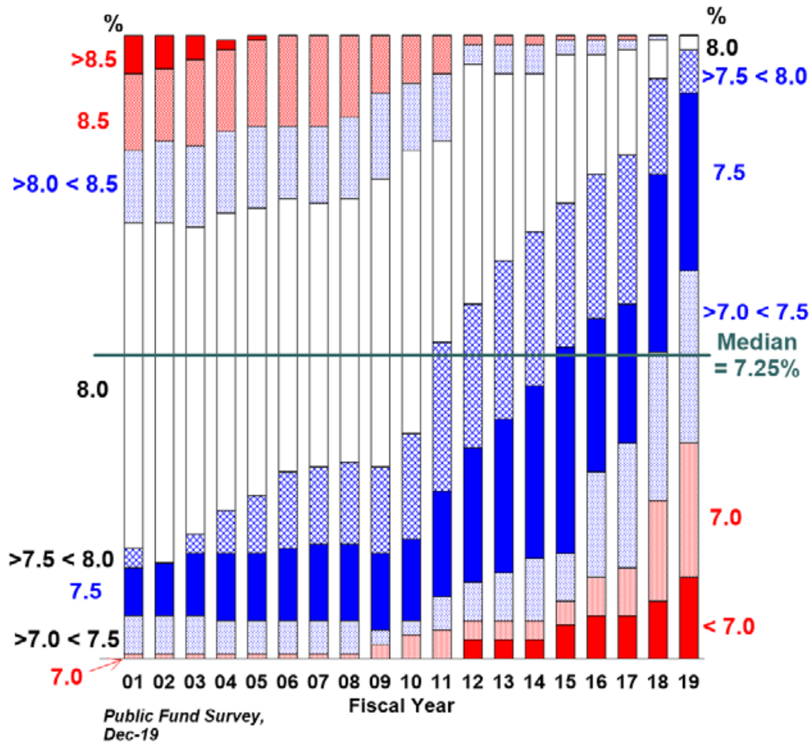
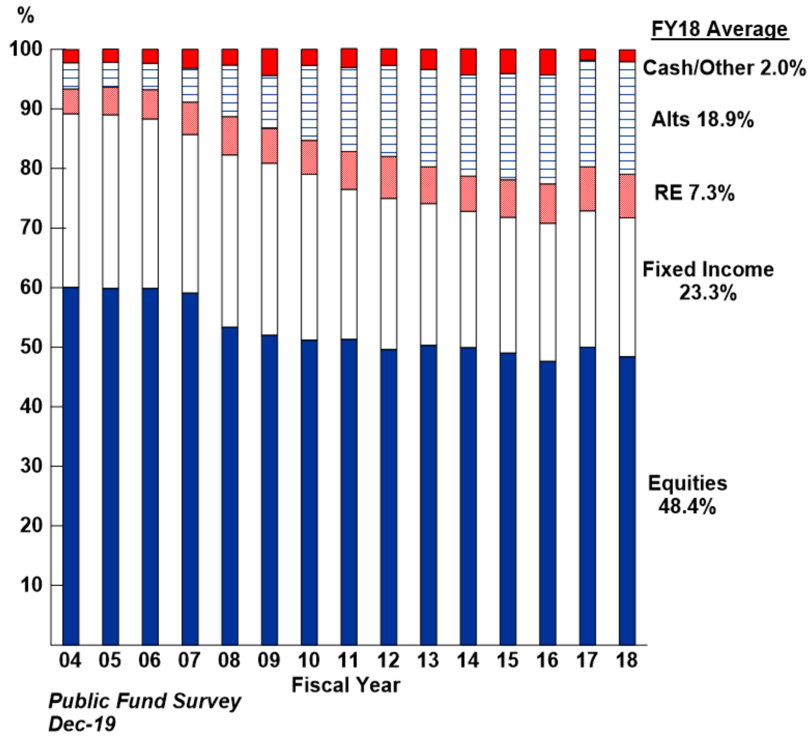


Figure M plots the average asset allocation of 90+ funds in the Public Fund Survey since its inception. The average allocation to public equities remains approximately 50 percent, while Fixed Income remains below 25 percent for the sixth consecutive year. Sustained low-interest rates have caused most public pension funds to seek higher returns in other asset classes. One of those asset classes is Real Estate, the allocation to which has grown steadily in recent years and remained above 7 percent for the second consecutive year. At nearly 19 percent, the average allocation to Alternatives, composed primarily of private equity and hedge funds, also continues to grow steadily.

Figure M



- Appendix A: Public Retirement System Assets and Membership
- Appendix B: Actuarial Funding Levels for FY 18

See Also

- Public Plans Data
- NASRA Issue Briefs & Analysis

Prepared by:

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202-624-8464	202-624-8461

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: **TFFR Board**

FROM: **Fay Kopp**

DATE: **April 16, 2020**

SUBJ: **Annual TFFR Ends and Statistics Report**

Attached is the Annual TFFR Ends and Statistics Report for the year ended June 30, 2019. It contains information related to various TFFR Board ends policies: Membership Data and Contributions, Member Services, Account Claims, and Trust Fund Evaluation/Monitoring. It also includes statistics regarding TFFR outreach programs, service purchases, active membership tiers, service retiree history and options, retiree statistics, disability retirements, and employer history and employer payment plan model information.

I will make a few brief comments about this annual report, and respond to any questions from the Board.

BOARD ACTION:

Board Motion to accept Annual TFFR Ends and Statistics Report.

TFFR Ends
Annual Review
Year Ended June 30, 2019
(Corrected Report 4.27.20)

The information provided below indicates that the TFFR ends policies formally adopted by the TFFR Board and accepted by the SIB are being implemented.

Ends Policy: **Membership Data and Contributions**

Ends: Ensure the security and accuracy of the members' permanent records and the collection of member and employer contributions from every governmental body employing a TFFR member.

- **Member and Employer Information**

  The CPAS pension administration software and FileNet document management software has been used for 14 years. The CPAS pension administration software version we are using is client server based and is reaching the end of its life cycle. We received legislative approval in 2019 to replace or upgrade the TFFR pension software with a secure web based application to improve efficiencies and functionality. TFFR Member and Employer Online Services are secure applications allowing TFFR members to view their personal pension account information and provide employers the ability to electronically report monthly payroll to TFFR. Security of TFFR data is a high priority and staff annually completes cyber security training. In FY19, we updated our FileNet workflow system used to manage Retirement Services paperless account processing functions.

- **Collections and Payments**

  Collected member and employer contributions totaling $171.9 million from 213 employers and $1.9 million from members for the purchase of service credit.

  Paid out $215.3 million in pension benefits and $5.9 million in refunds and rollovers totaling $221.2 million for the year.

  About 85% of employers electronically report contributions to TFFR. This comprises over 98% of the active membership.

  As of June 30, 2019, 182 employers are reporting using TFFR Employer Online Services.

  Assessed 4 reporting penalties and did not withhold foundation payments from any school districts. TFFR waived 1 of the 4 penalties. Employer reporting penalties include late reporting of contributions and failure to provide documentation in a timely manner (e.g. new member forms, return to teach forms, employer compliance audit documentation.)

  5 employers modified employer payment plan model election.

- **Employer Summary Report and Member Statements**

  Mailed 13,386 annual benefits statements to non-retired members in August
  Mailed 8,740 annual statements to retired members in December
  Mailed FY2019 Employer Summary Report to each employer in August 2019

- **Employer Outreach Programs & Communications**

  Met with school board members, business managers, and software vendors at the 2018 School Board and School Business Manager Association Annual Conference.

  Presented TFFR employer information to 127 school district business managers at four statewide workshop.

  Completed four new business manager workshops attended by Beulah, Manning, Williston, Solen, New Town, Mandaree, and E Central Special Education.

  GASB 68 2018 data updated and added to website.

  Briefly employer newsletter (4 publications sent electronically)

  Updated TFFR Employer Guide.

  Completed project to eliminate employer payment plan model 3.

  Created electronic survey for business manager workshop feedback.

Ends Policy: **Member Services**

Ends: Provide direct services and public information to members of TFFR.

- **Outreach Program Statistics**

  818 attended outreach programs (plus convention participants)
  Retirement Services staff traveled 4,046 miles

- **Retirement Education Workshops**

  70 attended
  2 locations – Minot & West Fargo

  Retirement Education Workshops are generally held at two sites each year in July and rotate between Bismarck, Minot, Fargo, and Grand Forks. Additional workshops will be added if requested by an employer and minimum attendance can be met.

- **Retirement 101 Workshops**

  n/a

- **Group Counseling Sessions**

  244 attended
  7 locations – Minot, Grand Forks, Jamestown, Devils Lake, Fargo, Dickinson, and Williston

- **Local Office Counseling –** 301 members

- **Group Presentations**

  203 attended

  NDRTA Convention
  NDSBA
  NCCEL
  Thompson In-Service
  Jamestown In-Service

- **Conferences and Conventions**

  ND Retired Teachers Convention – Jamestown
  ND School Board Convention – Bismarck
  ND Career and Technical Education Convention – Bismarck
  NDCEL Annual Conference – Bismarck
  Mandan In-Service

- **Member Communications**

  Report Card non-retired newsletter (2 publications)
  Retirement Today retiree newsletter (2 publications)
  Updated retirement forms, and Member Handbook
  Updated TFFR Fast Facts handout
  Created electronic registration for Retirement Education Workshops
  New Retirement Application process was communicated to active members via email
  Created an electronic Retirement Guide
  Marketed Member Online with email blasts
  Included Member Online enclosure in annual statement mailings

- **NDRIO Website**

  NDRIO web site was visited by 21,386 users a total of 45,647 times. The average length of each visit was just under four minutes. The webcasts in the training library were viewed 53 times in FY19.

- **TFFR Member Online**

  As of June 30, 2019, 3,560 members have signed up for TFFR Member Online Services.

Ends Policy: **Account Claims**

Ends: Ensure the payment of benefit claims to members of TFFR.

- **Annuity Payments**

  Distributed $215.3 million in pension benefits to 8,833 retired members and beneficiaries. Of the total, only 3 payments are still mailed by check and the remainder deposited via electronic funds transfer.

- **Monthly Payroll Deductions** (July 1, 2019 payroll – total 8,882)

Federal tax withholding	6,730	76%
ND state tax withholding	5,604	63%
PERS health insurance	627	7%
PERS dental insurance	395	4%
PERS vision insurance	201	2%
PERS life insurance	24	<1%

- **Refunds, Rollovers & Transfers**

  Distributed refund and rollover payments of $5.9 million to 258 participants during the fiscal year. Approximately 36% of the refunding members rolled over their refund payment to an IRA or another eligible plan.

- **Processed Claims for Benefits**

Refunds	164
Rollovers	94
Retirements	326
Disabilities	4
Survivor annuitants	11
Continuing annuitants	59

- **Member Account Activity**

New members	1,089	
Deaths	220*	*Corrected 4.27.20
Pop ups	61	
Purchase requests	132	
Retiree Payroll Notices	1,300	

Ends Policy: **Trust Fund Evaluation/Monitoring**

Ends: Ensure actuarial consulting and accounting services are provided to the retirement program. The TFFR Board of Trustees will select the independent actuary for consulting and actuarial purposes and direct a contract to be executed by the Deputy Directory/Chief Retirement Officer.

- **Actuarial Services**

  The annual actuarial valuation for July 1, 2019 was presented to the TFFR Board by Segal on October 24, 2019.

- **External Audit**

  An unqualified opinion was issued by independent auditors, Clifton Larson Allen, LLP, regarding RIO's financial statements for the year ending June 30, 2019. Clifton Larson Allen, LLP presented the report to the SIB Audit Committee on November 13, 2019.

- **Internal Audit**

  The annual audit activities report was presented to the TFFR Board on September 26, 2019. The report included information about TFFR employer audits, cost benefit audit, purchase and refund audit, and the salary verification project.

- **Other**

  Received Certificate of Achievement in Financial Reporting from GFOA for June 30, 2018, Annual Financial Report.

  Received 2019 recognition award for pension plan administration from the Public Pension Coordinating Council.

TFFR Retirement Statistics

>Participation in Outreach Programs

>Service Purchase Statistics

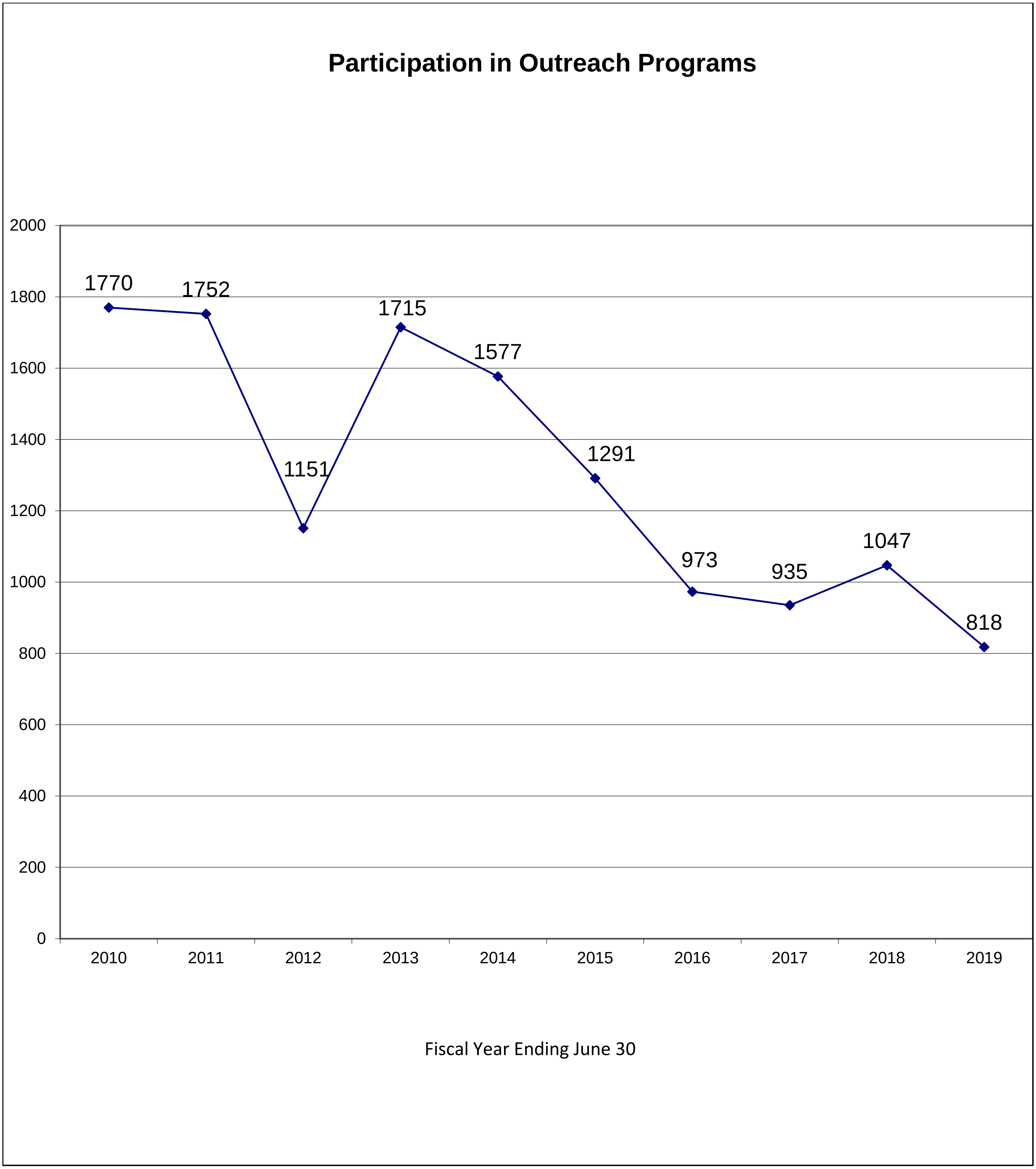
>Active Membership Tier Statistics

>Service Retiree History & Option Usage

>Retiree Statistics

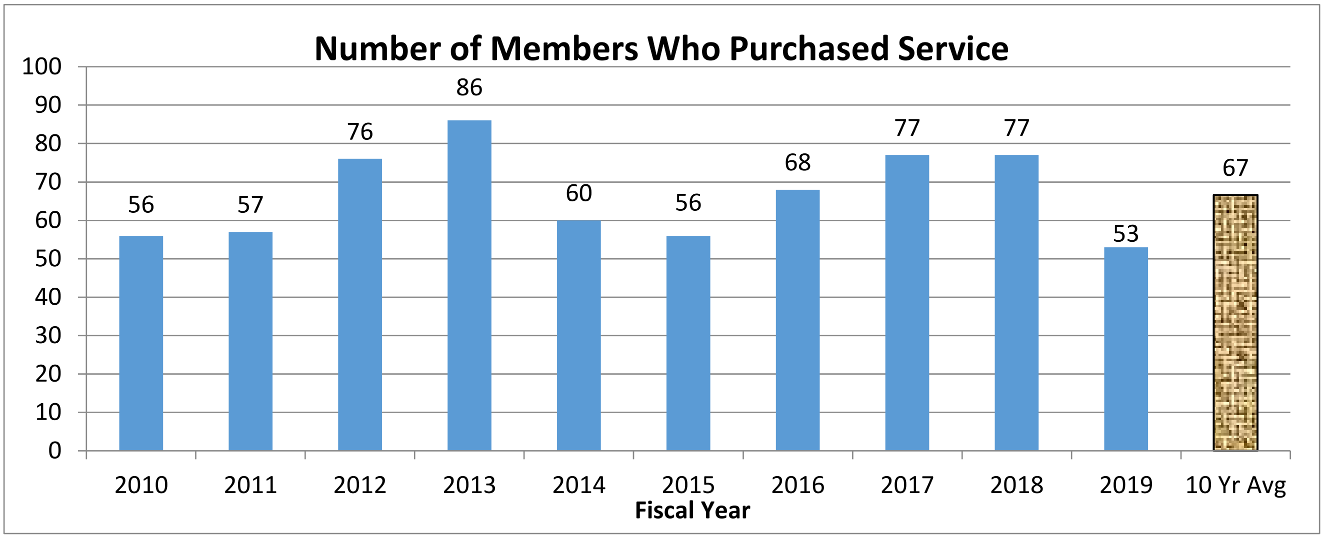
>Disability Retirements

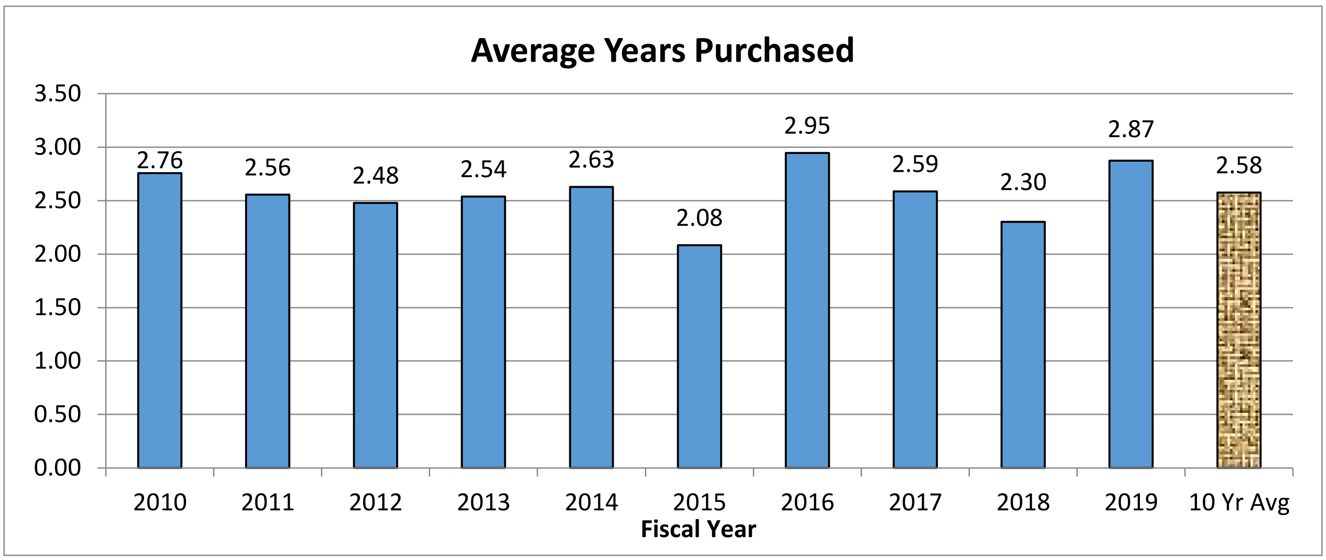
>Employer History & Current Employer Payment Model Statistics

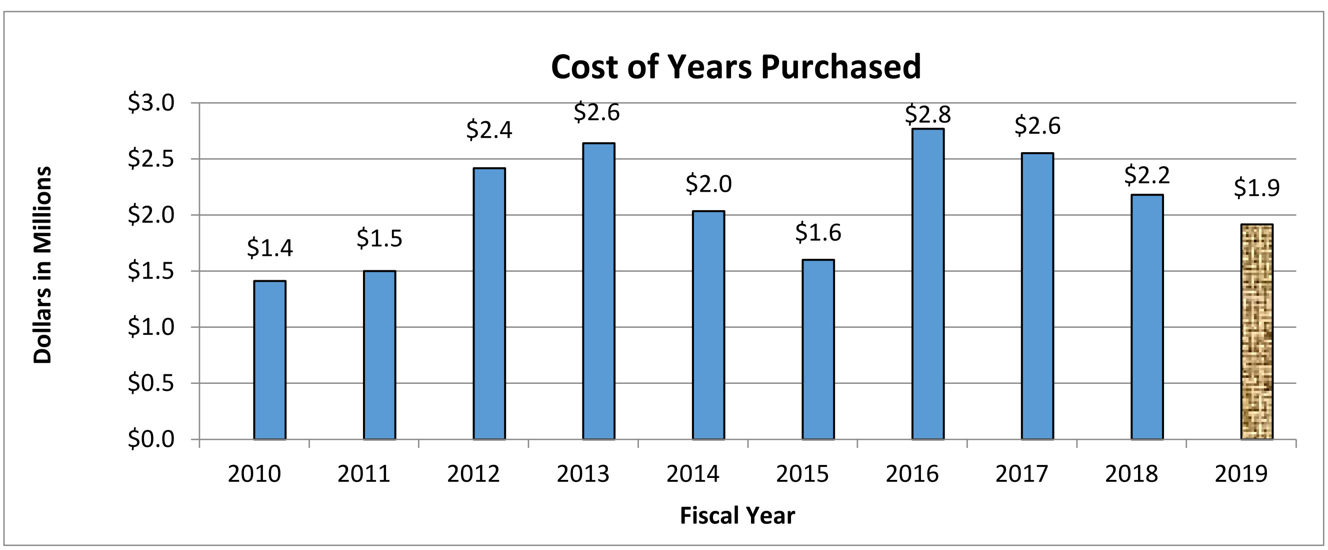


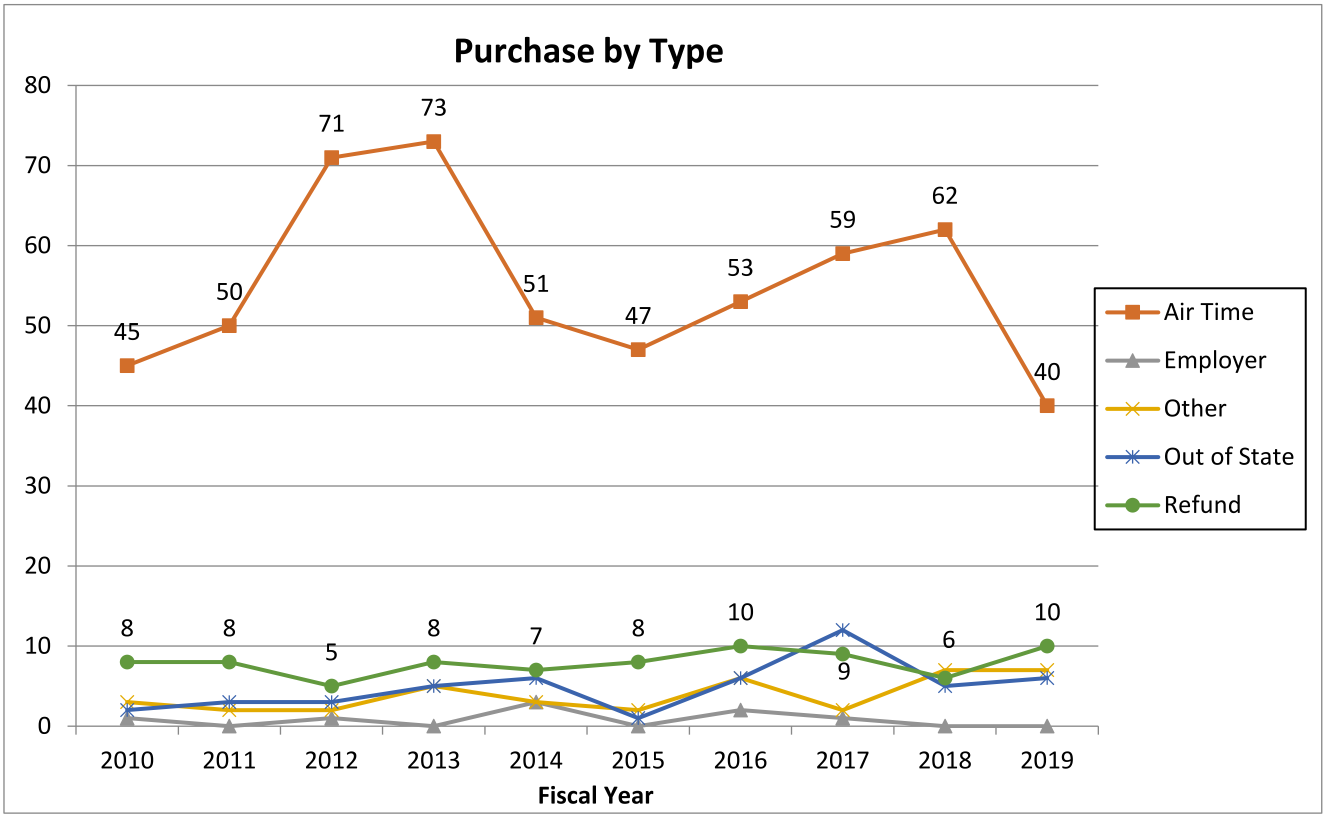
Participation in Outreach Programs
2000
1800
1600
1400
1200
1000
800
600
400
200
0
1770
1752
1151
1715
1577
1291
973
935
1047
818
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fiscal Year Ending June 30

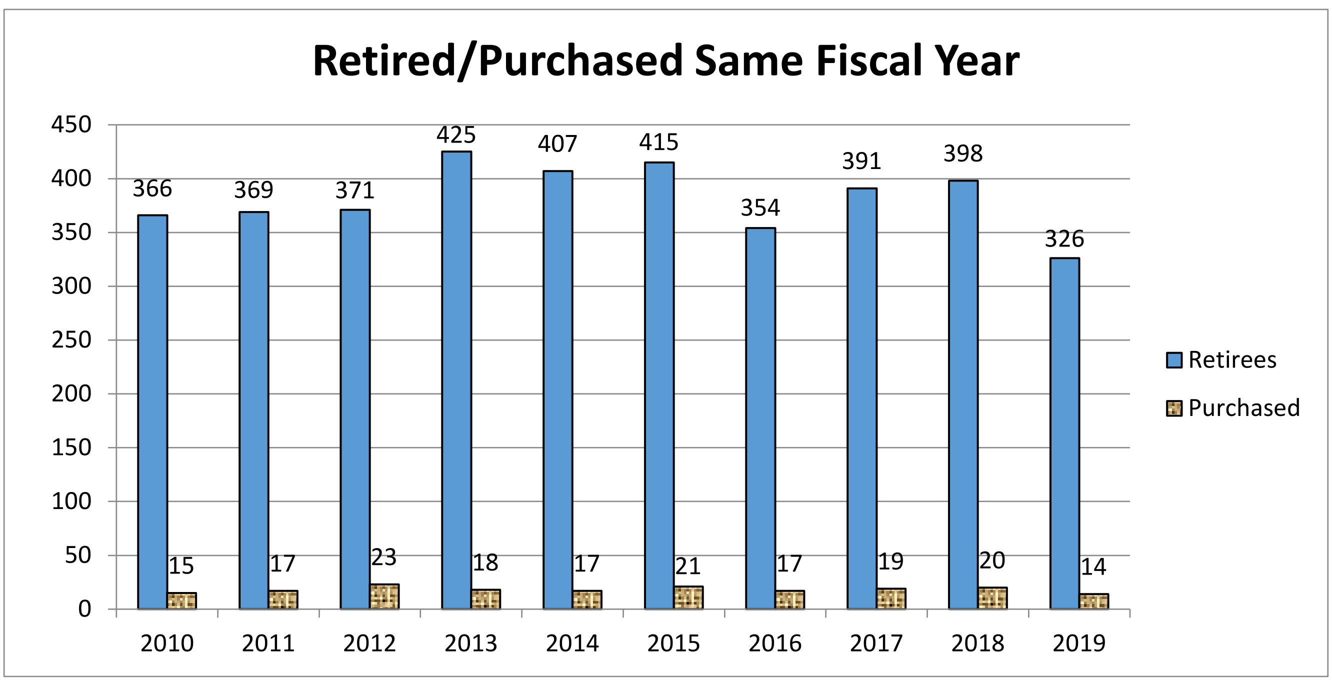
Service Purchase Statistics - 2019

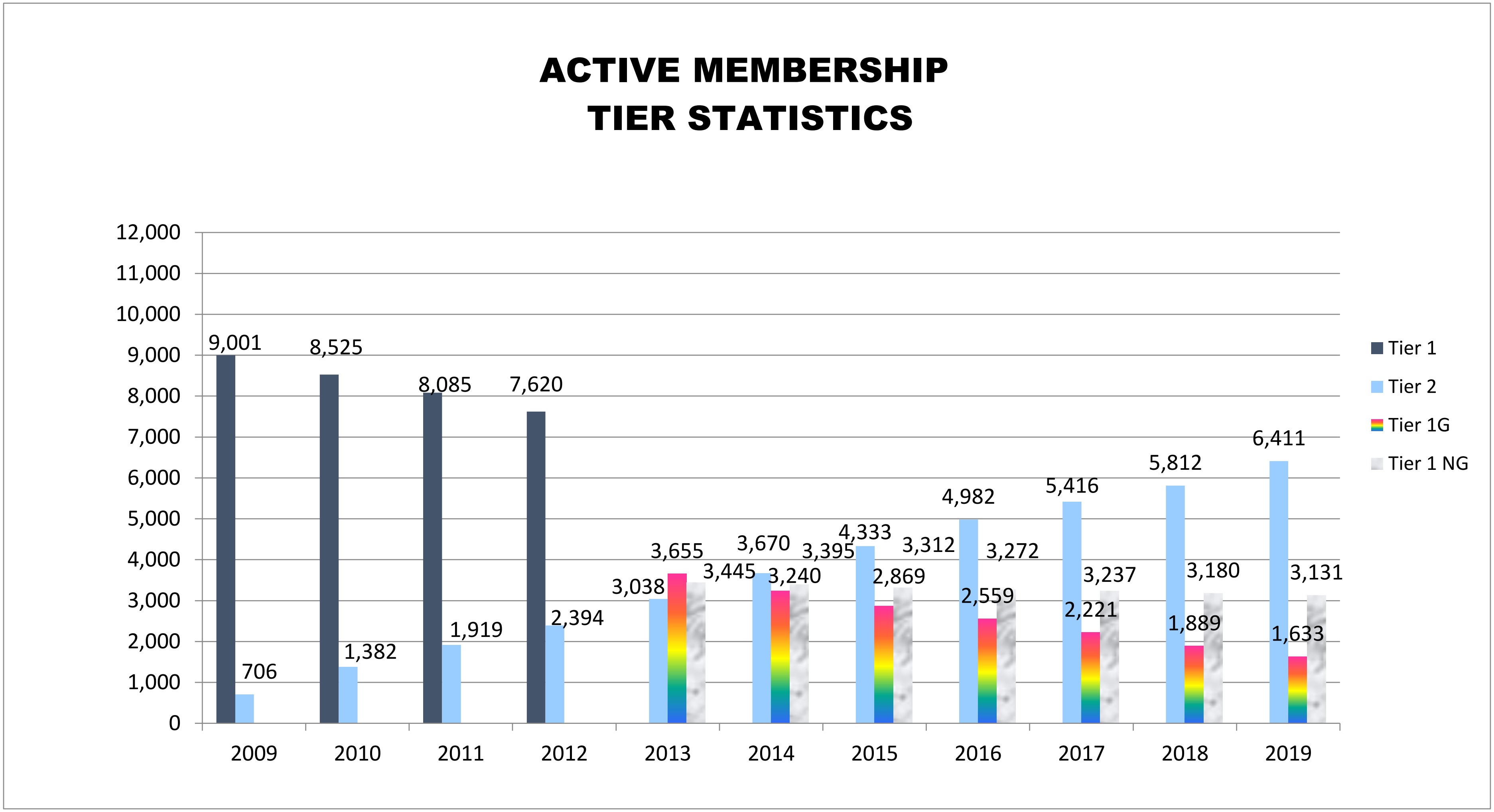


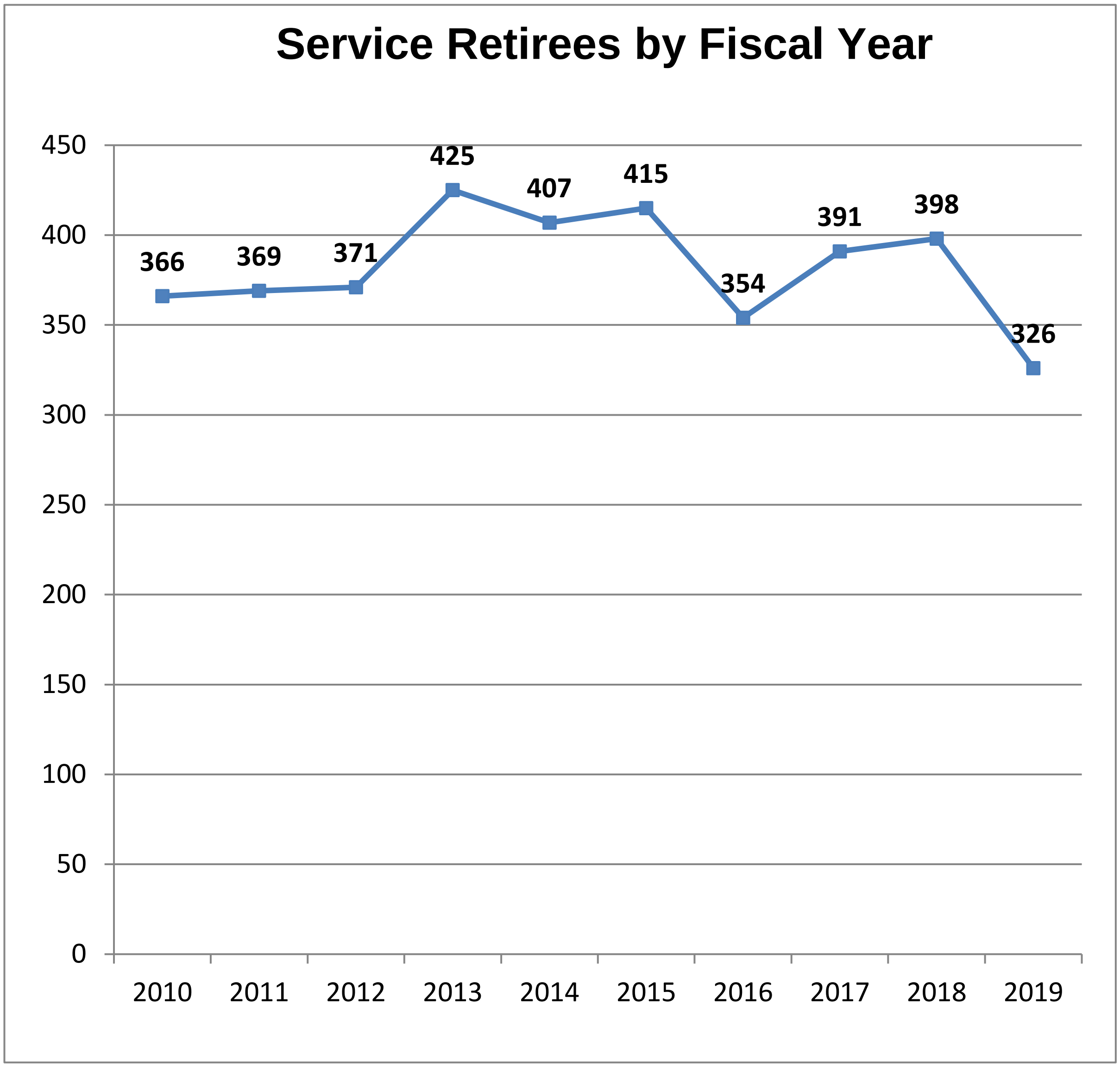





Purchase by Type
80
70
60
50
40
30
20
10
0
45
50
71
73
51
47
53
59
62
40
8
8
5
8
7
8
10
9
6
10
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fiscal Year
Air Time
Employer
Other
Out of State
Refund


Retired/Purchased Same Fiscal Year
450
400
350
300
250
200
150
100
50
0
366
369
371
425
407
415
354
391
398
326
15
17
23
18
17
21
17
19
20
14
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Retirees
Purchased

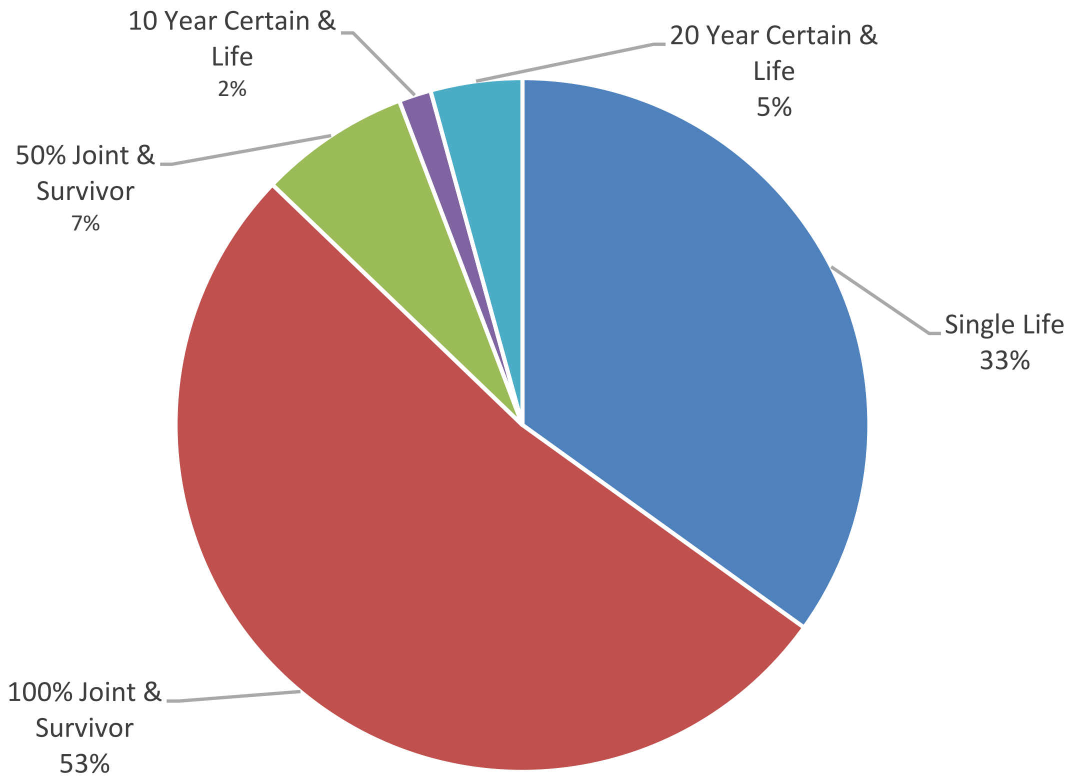

ACTIVE MEMBERSHIP
TIER STATISTICS
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
9,001
706
8,525
1,382
8,085
1,919
7,620
2,394
3,038
3,655
3,445
3,670
3,240
3,395
4,333
2,869
3,312
4,982
2,559
3,272
5,416
2,221
3,237
5,812
1,889
3,180
6,411
1,633
3,131
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Tier 1
Tier 2
Tier 1G
Tier 1 NG


Service Retirees by Fiscal Year
450
400
350
300
250
200
150
100
50
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
366
369
371
425
407
415
354
391
398
326

Service Retirement Options

2018-19

Retirement Option	Number
Single Life	109
100% Joint & Survivor	174
50% Joint & Survivor	22
10 Year Certain & Life	6
20 Year Certain & Life	15
Total	**326**



Note: Of total, 3 members (<1%) selected level income option.

Of total, 17 members (5%) selected partial lump sum option.

TFFR Retiree Statistics

October 2019

Data Selection

- 8,918 retired members and beneficiaries as of July 2019 based on data from the valuation file.

- Selected various categories of retiree data and grouped data 3 ways

TFFR Retiree
Statistics by Fiscal Year

Fiscal Year of Retirement Ending June 30	Avg Monthly Pension	Avg Annual Salary	Avg Service Credit	Avg Retirement Age of Member	Avg Current Age of Recipient	Number of Retirees
pre-1979	$ 497	$ 8,143	25.4	59.3	87.5	60
1980	$ 600	$ 12,315	28.3	59.8	94.1	13
1981	$ 528	$ 13,437	23.6	58.6	96.3	14
1982	$ 682	$ 20,064	27.4	61.1	91.8	14
1983	$ 420	$ 10,459	21.6	57.7	90.4	8
1984	$ 807	$ 20,165	29.6	62.0	94.6	38
1985	$ 914	$ 24,439	31.3	60.3	89.3	15
1986	$ 965	$ 25,213	31.4	61.2	92.8	54
1987	$ 888	$ 24,434	27.0	59.4	90.3	15
1988	$ 1,002	$ 25,970	28.6	60.4	90.1	79
1989	$ 980	$ 28,006	27.5	59.0	88.3	23
1990	$ 1,103	$ 27,284	29.8	59.2	87.3	175
1991	$ 993	$ 28,140	26.1	59.6	86.6	74
1992	$ 1,204	$ 31,209	30.0	58.8	84.7	140
1993	$ 1,105	$ 32,810	25.4	57.8	82.3	59
1994	$ 1,288	$ 32,128	28.3	59.4	84.6	225
1995	$ 1,264	$ 32,856	27.8	58.7	81.7	169
1996	$ 1,258	$ 32,944	27.4	58.5	81.2	147
1997	$ 818	$ 27,112	19.8	58.0	80.2	72
1998	$ 1,502	$ 34,478	29.0	58.9	80.1	307
1999	$ 1,109	$ 33,427	21.3	58.5	78.4	88
2000	$ 1,691	$ 37,961	29.2	58.6	78.0	383
2001	$ 1,395	$ 38,235	23.2	57.3	75.4	79
2002	$ 1,745	$ 39,358	28.3	58.2	75.6	475
2003	$ 1,726	$ 40,532	27.2	58.1	74.2	271
2004	$ 1,773	$ 41,596	27.3	58.2	73.0	342
2005	$ 1,918	$ 43,302	27.7	58.4	72.6	344
2006	$ 1,928	$ 44,632	27.3	58.9	71.7	360
2007	$ 2,103	$ 48,051	27.9	58.7	70.8	340
2008	$ 1,991	$ 46,204	26.4	59.3	70.5	355
2009	$ 2,134	$ 49,415	27.1	59.2	69.4	335
2010	$ 2,146	$ 50,101	26.2	60.4	69.5	332
2011	$ 2,178	$ 50,958	25.9	60.4	68.3	398
2012	$ 2,331	$ 53,861	26.7	60.7	67.7	363
2013	$ 2,627	$ 58,264	27.7	60.6	66.8	455
2014	$ 2,627	$ 58,945	27.7	61.2	66.5	418
2015	$ 2,572	$ 58,227	27.0	61.0	65.3	388
2016	$ 2,877	$ 64,255	27.1	61.5	64.7	399
2017	$ 2,863	$ 63,888	26.8	61.9	63.9	373
2018	$ 2,978	$ 67,218	26.3	61.6	62.8	397
2019	$ 3,232	$ 74,477	26.5	61.3	61.6	292
2020	$ 4,989	$ 99,322	32.1	61.1	61.2	30
All FY	**$ 2,067**	**$ 47,750**	**27.3**	**59.8**	**72.2**	**8,918**

Note: 2020 is a partial year (30 retirees) and includes July 1, 2019 retirees. These retirees averages are higher since they include primarily administrators.

Oct-19

TFFR Retiree
Statistics by Formula

Fiscal Year of Retirement Ending June 30	Avg Monthly Pension	Avg Annual Salary	Avg Service Credit	Avg Retirement Age of Member	Avg Current Age of Recipient	Number of Retirees
Old formulas	$ 497	$ 8,143	25.4	59.3	87.5	60
1979-1983 or 1.00%	$ 573	$ 14,547	25.6	59.5	93.4	49
1983-1985 or 1.05%	$ 837	$ 21,374	30.1	61.5	93.1	53
1985-1987 or 1.15%	$ 948	$ 25,044	30.5	60.8	92.3	69
1987-1989 or 1.22%	$ 997	$ 26,429	28.3	60.1	89.7	102
1989-1991 or 1.275%	$ 1,070	$ 27,539	28.7	59.3	87.1	249
1991-1993 or 1.39%	$ 1,175	$ 31,684	28.7	58.5	84.0	199
1993-1997 or 1.55%	$ 1,219	$ 31,935	27.0	58.8	82.5	613
1997-1999 or 1.75%	$ 1,414	$ 34,244	27.3	58.8	79.7	395
1999-2001 or 1.88%	$ 1,641	$ 38,008	28.2	58.4	77.6	462
2001-present or 2.00%	$ 2,340	$ 53,285	27.1	60.0	68.5	6,667
All Formulas	**$ 2,067**	**$ 47,750**	**27.3**	**59.8**	**72.2**	**8,918**

TFFR Retiree Statistics
By Retirement Type

Type	Avg Monthly Pension	Avg Annual Salary	Avg Service Credit	Avg Retirement Age of Member	Avg Current Age of Recipient	Number of Retirees
Death	$ 1,289	$ 37,659	27.3	58.7	75.1	744
Disability	$ 1,254	$ 39,721	15.2	50.7	64.7	127
Early	$ 723	$ 35,563	14.7	60.3	73.6	987
Normal	$ 2,359	$ 50,669	29.3	60.0	71.8	7,032
QDRO	$ 675	$ 48,699	9.4	58.2	68.2	28
All Types	**$ 2,067**	**$ 47,750**	**27.3**	**59.8**	**72.2**	**8,918**

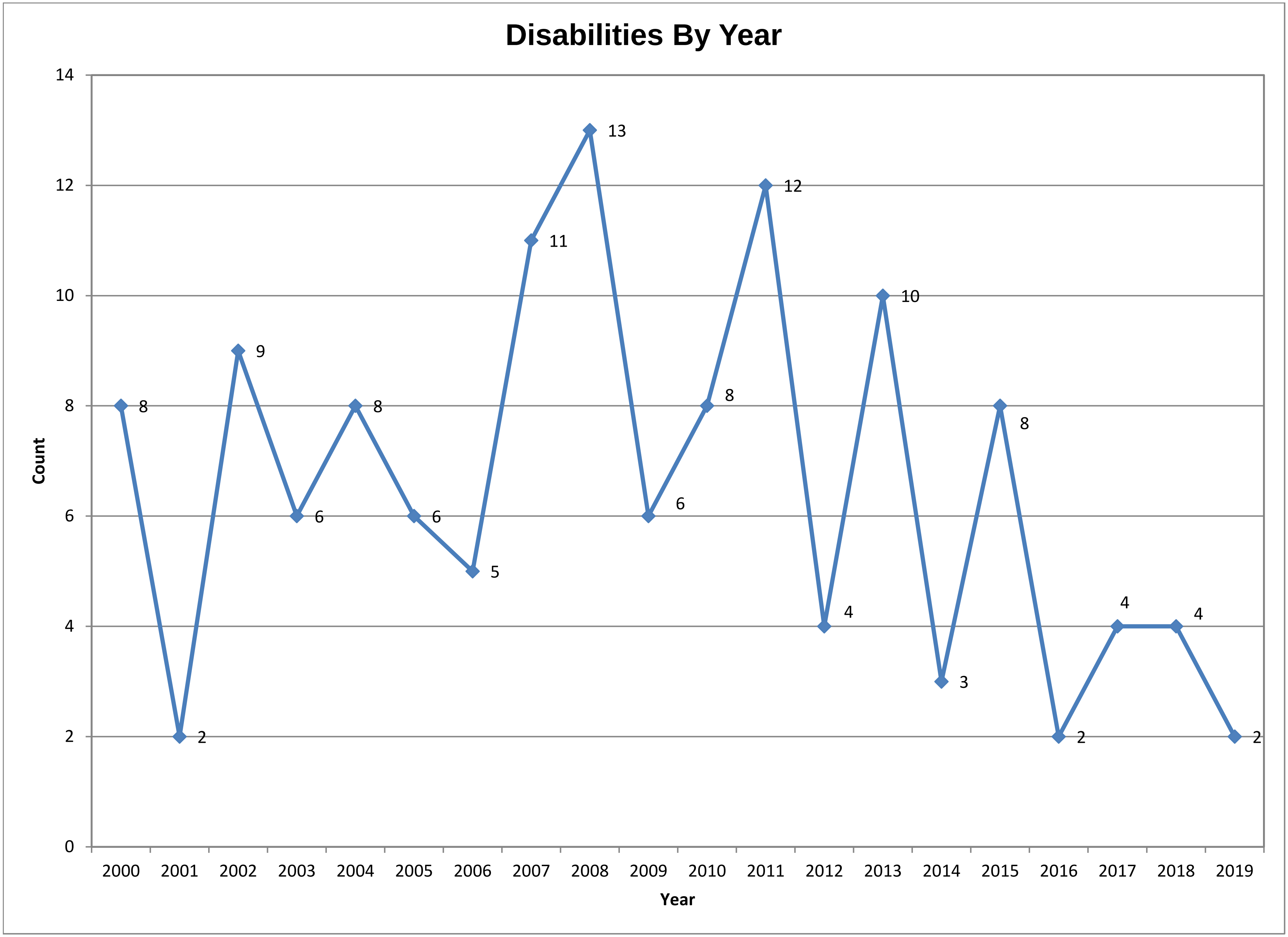
Oct-19

Disability Summary (2000 - 2019)

• Total disabilities approved since 2000 - 2019	131*
Of 131, number of physical disabilities:	112
Of 131, number of emotional disabilities:	19
• Average number of disabilities approved per year:	7
• Of 131, number that are living and drawing benefits:	90
Of 131, number that are living and returned to work:	4
Of 131, number that are deceased:	37
• Of 131, option selected was:	
Count of Single Life:	84
Count of 100% Joint & Survivor:	31
Count of 50% Joint & Survivor:	12
Count of 5 Year Certain & Life:	1
Count of 10 Year Certain & Life:	1
Count of 20 Year Certain & Life:	2
• Of 90 living and drawing benefits:	
Average service credit in years:	15.3
Average age in years:	62
Average monthly benefit:	$1,433
Average years benefit was received:	10.1
• Of 4 living and returned to work:	
Average service credit in years:	5.1
Average age in years:	60
Average monthly benefit:	$839
Average years benefit was received:	7.5

*Approved disabilities removed from total if they return to employment then refund or retire.

9.13.2019


Disabilities By Year
Count
Year
0
2
4
6
8
10
12
14
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
8
2
9
6
8
6
5
11
13
6
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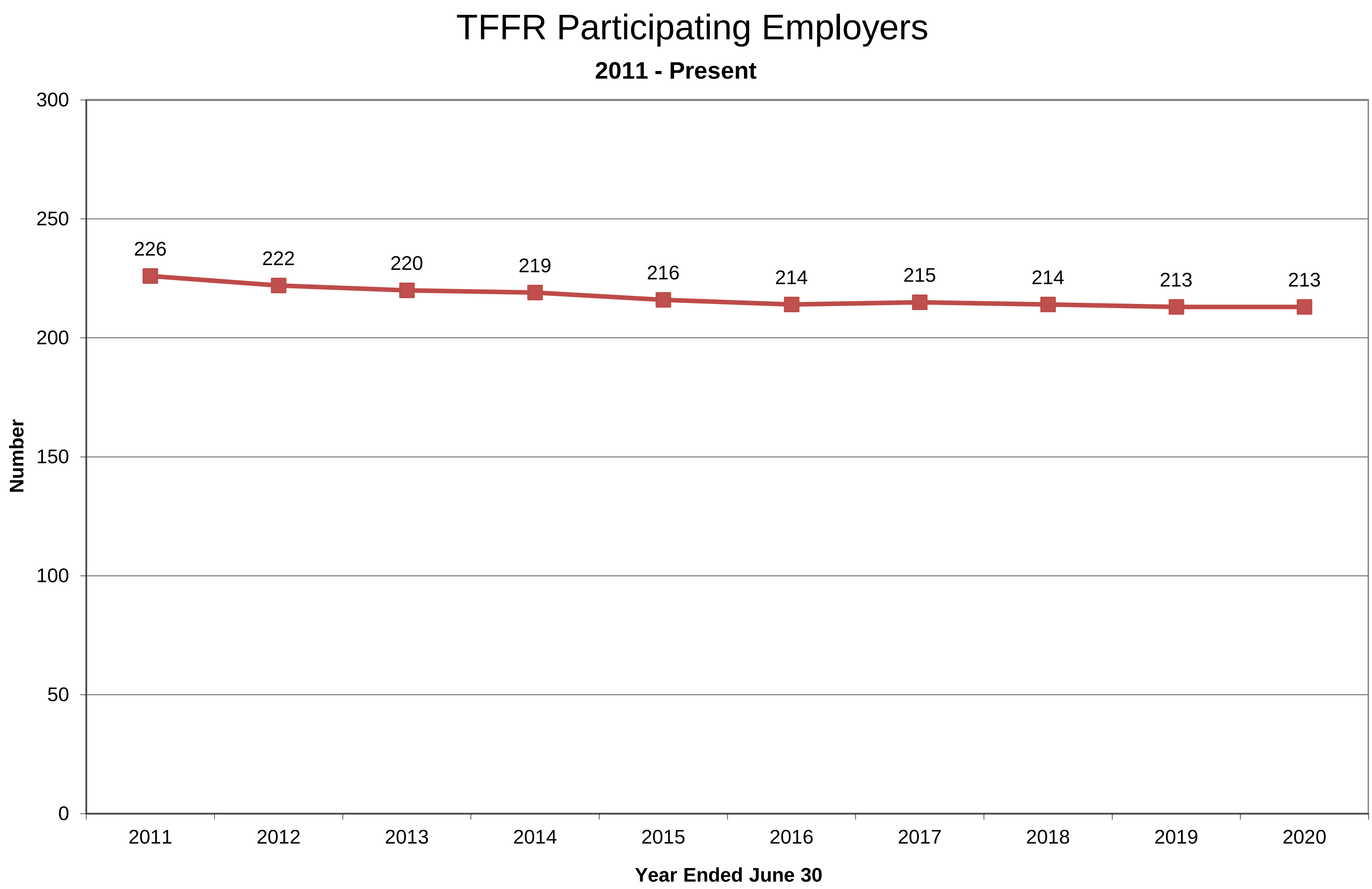
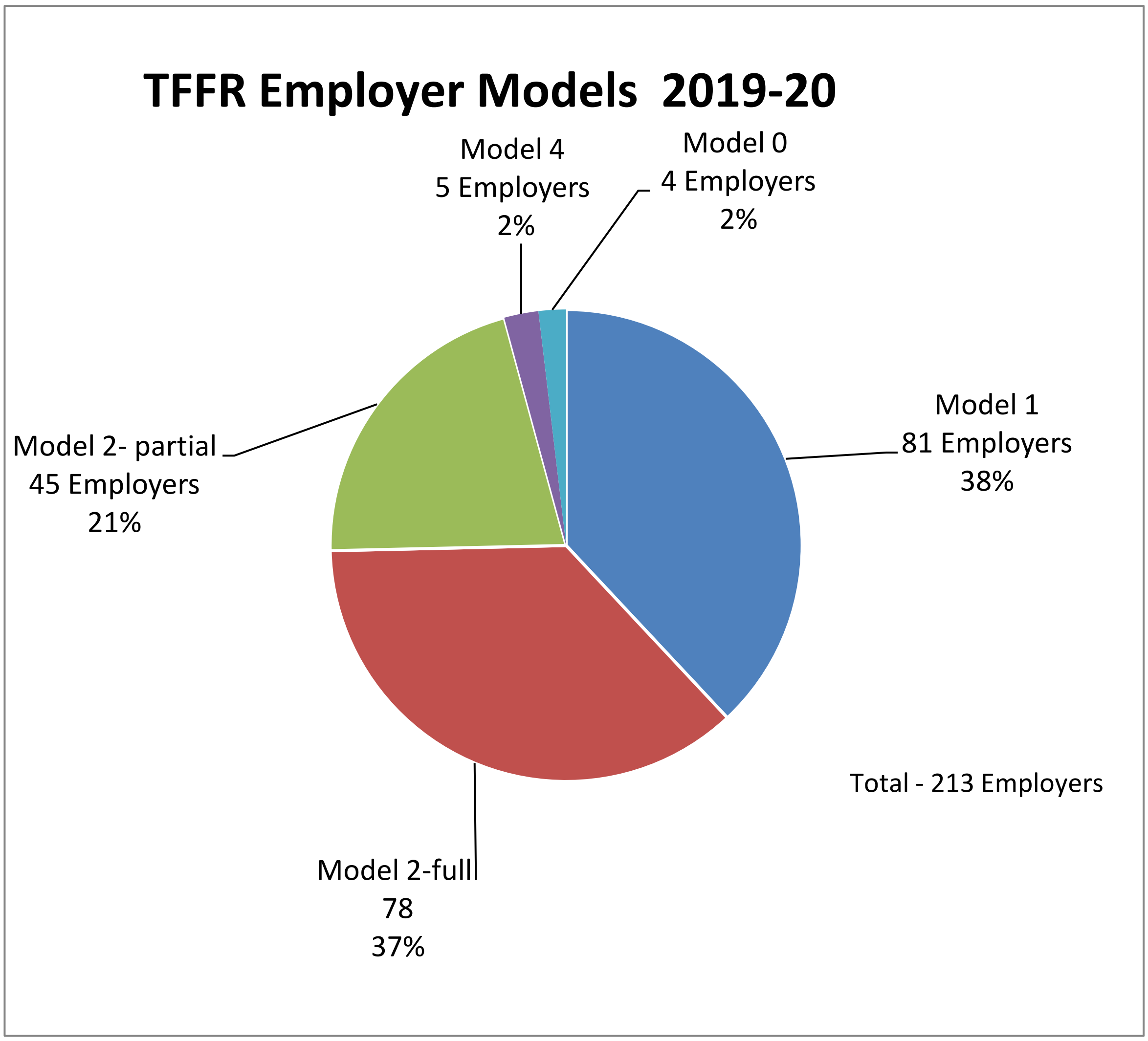
12
4
10
3
8
2
4
4
2


TFFR Participating Employers
2011 - Present
Number
300
250
200
150
100
50
0
226
222
220
219
216
214
215
214
213
213
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Year Ended June 30

Model Usage 2019-20

	Employers	
Model 1	81	38%
Model 2-full	78	37%
Model 2-partial	45	21%
Model 3	0	0%
Model 4	5	2%
Model 0	4	2%
Total	213	100%



North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board

FROM: Fay Kopp

DATE: April 16, 2020

SUBJ: Annual TFFR Retirement Trends and Projections Report

Attached is the Annual TFFR Retirement Trends and Projections Report. This report contains updated projections related to the number of teachers, superintendents, and other administrators who are projected to retire in the next 20 years.

As you can see from this report, approximately 2,500 active members are projected to retire in the next 10 years which averages about 250 per year. This differs significantly from the previous 10 years which showed nearly 3,900 members retiring or about 390 per year. The change in retirement eligibility for nongrandfathered Tier 1 members is reflected in the lower future number.

I will make a few brief comments about this annual report, and respond to any questions from the Board.

BOARD ACTION:

Board Motion to accept annual ends and statistics report.

Retirement Trends and Projections

North Dakota
Teachers' Fund for Retirement

January 2020

Retirement: Now or Later?

The decision to retire is prompted by both non-financial and financial reasons.

- **Non-financial considerations:**
- Health of teacher (and spouse)
- Family issues (spouse, children, parents)
- Personal reasons (job satisfaction vs. job stress)
- Federal regulations
- State and local issues (school closings, school consolidations)

- **Financial considerations:**
- Salary vs. Retirement benefits
- Health insurance benefits – rising cost of medical care
- Employment in retirement
- Inflation

TFFR Members

- TFFR member count includes number of people, not FTE’s.

- TFFR members may be full time, part time, or temporary teachers, but must be licensed and contracted. Noncontract substitute teachers are not TFFR members.

TFFR Member Categories

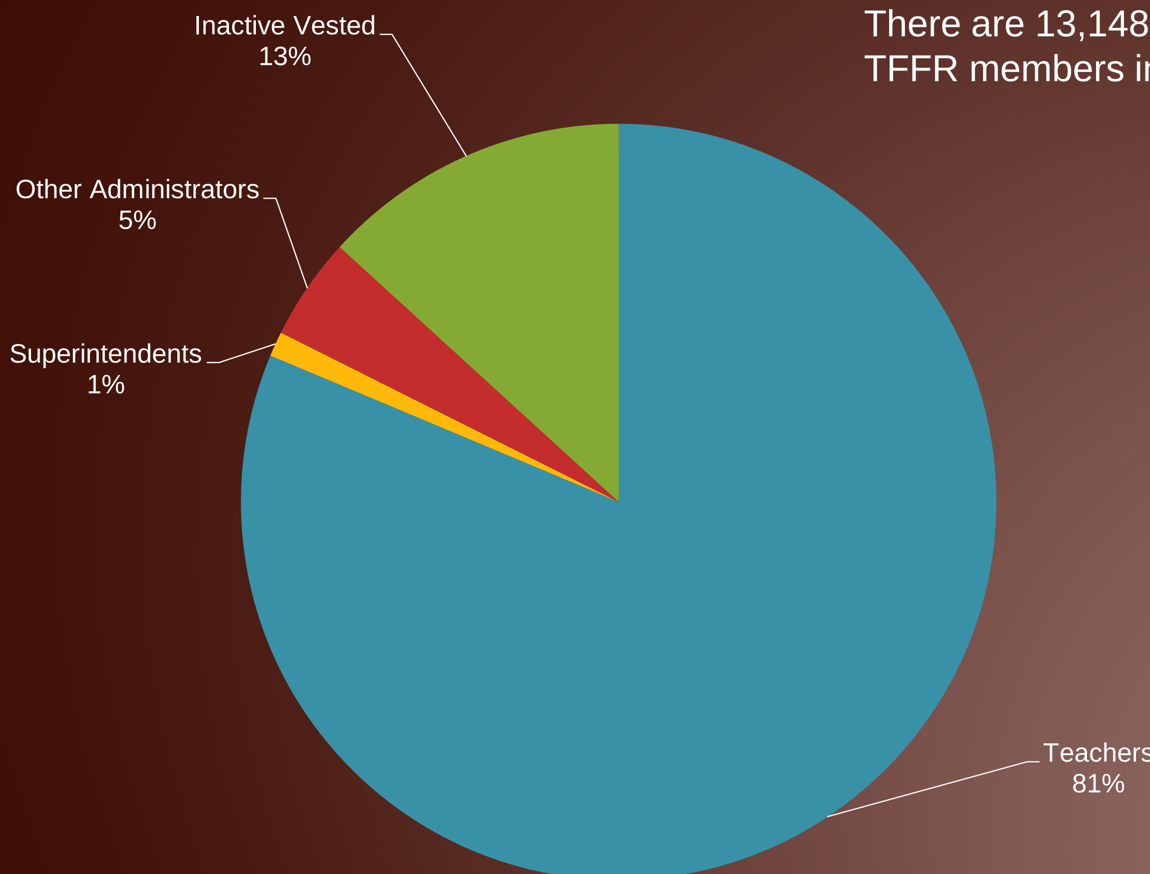
TFFR member categories are based on DPI title codes and presented according to teacher and administrator categories defined in NDCC 15.1-02-13.6.

- “Teacher” includes positions of teacher, special ed teacher, career advisor, coordinator, strategist, counselor, instructional coach, library media specialist, psychologist, and speech/language pathologist.
- “Superintendent” includes only school superintendents.
- “Other Administrators” includes positions of assistant superintendent, director, assistant director, principal, assistant principal, county superintendent, and other administrative positions.

Today

Current TFFR Membership

There are 13,148 active and inactive vested TFFR members in January 2020.



Teachers	10,663
Superintendents	138
Other Administrators	582
Inactive Vested	1,765
Total	13,148

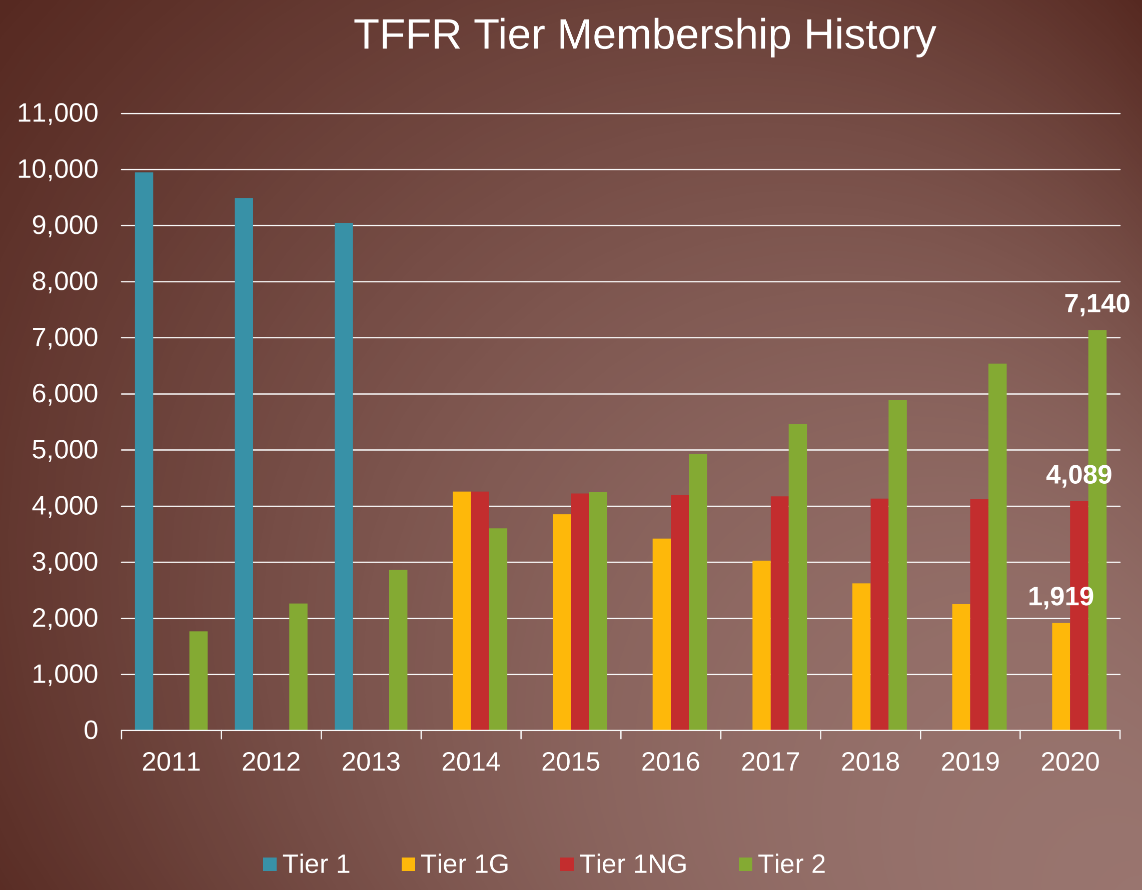
Note: There are also 1,237 inactive non-vested TFFR members and 8,932 retired members and beneficiaries.

Today

TFFR Tier Membership

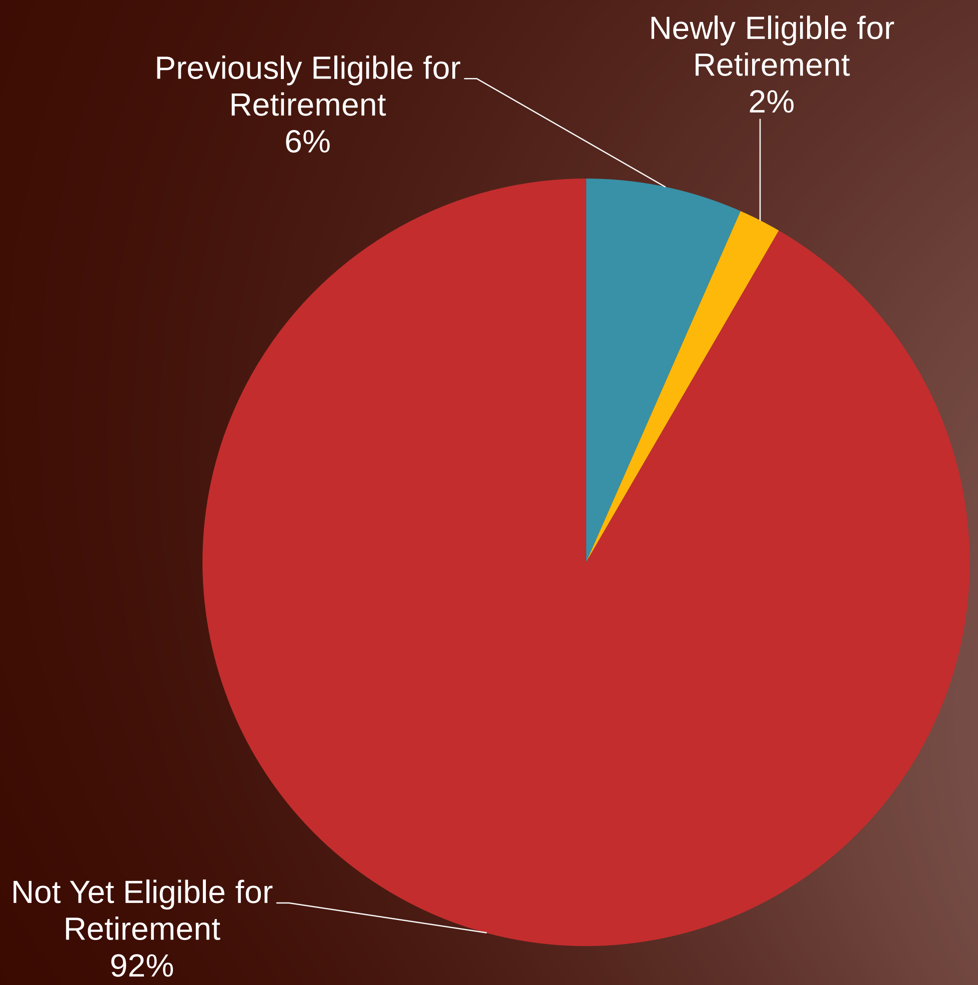
Active and inactive vested Tier membership in January 2020

TFFR Members	Tier 1G	Tier 1NG	Tier 2	Total
Teachers	1,420	2,773	6,470	10,663
Superintendents	42	48	48	138
Other Administrators	102	269	211	582
Inactive Vested	355	999	411	1,765
Total	1,919	4,089	7,140	13,148



Today

Current Active TFFR Membership Eligible for Retirement

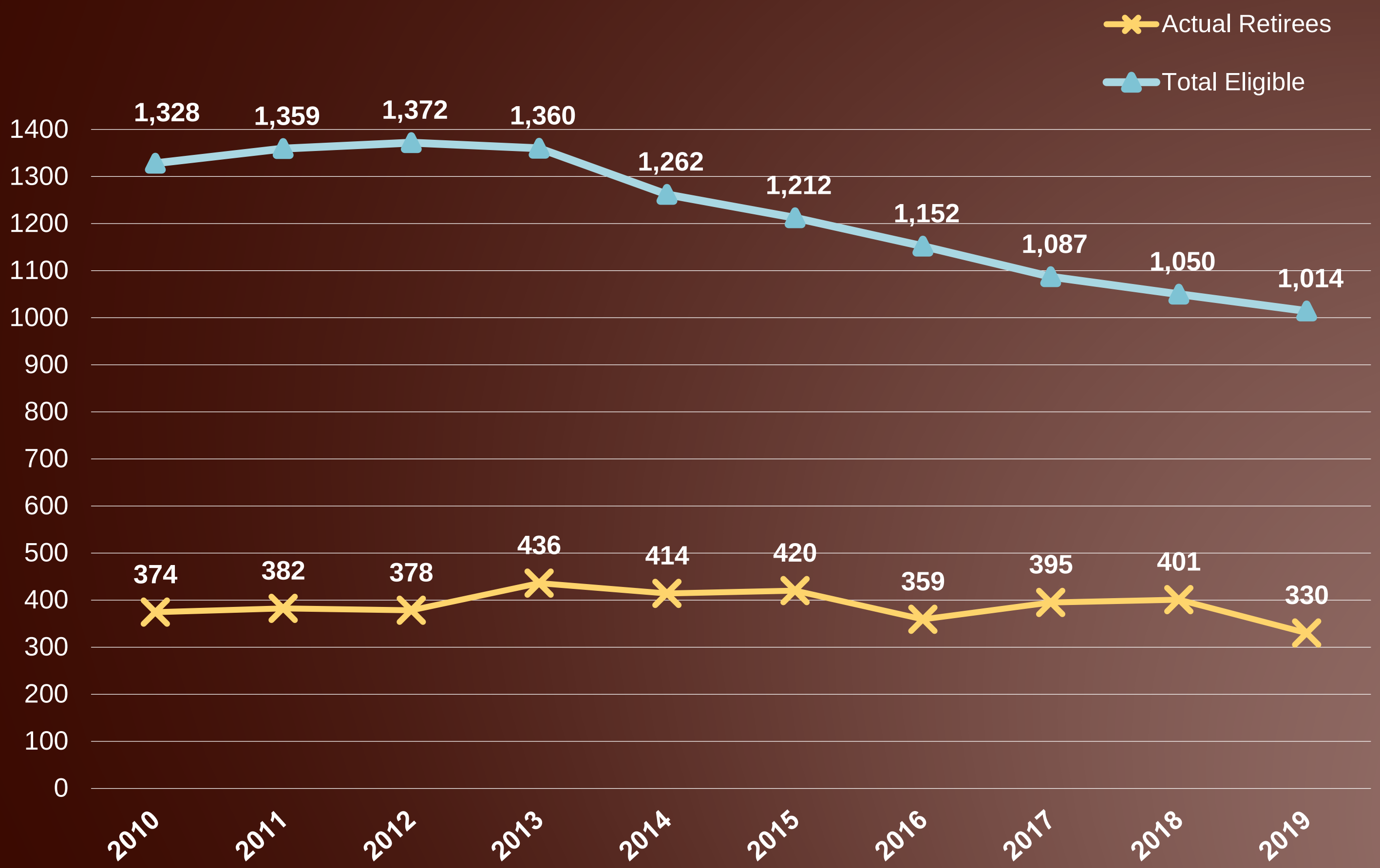


Of the 11,383 active TFFR members, 954 members are currently eligible to retire (8%) either under the Rule of 85, Rule of 90/Min age 60, or age 65.

Of the 954 active TFFR members eligible to retire, 79% are previously eligible and 21% are newly eligible in 2019-20.

Previously Eligible for Retirement	751
Newly Eligible for Retirement	203
Not Yet Eligible for Retirement	10,429
Total	11,383

Yesterday Actual Retirees & Total Eligible

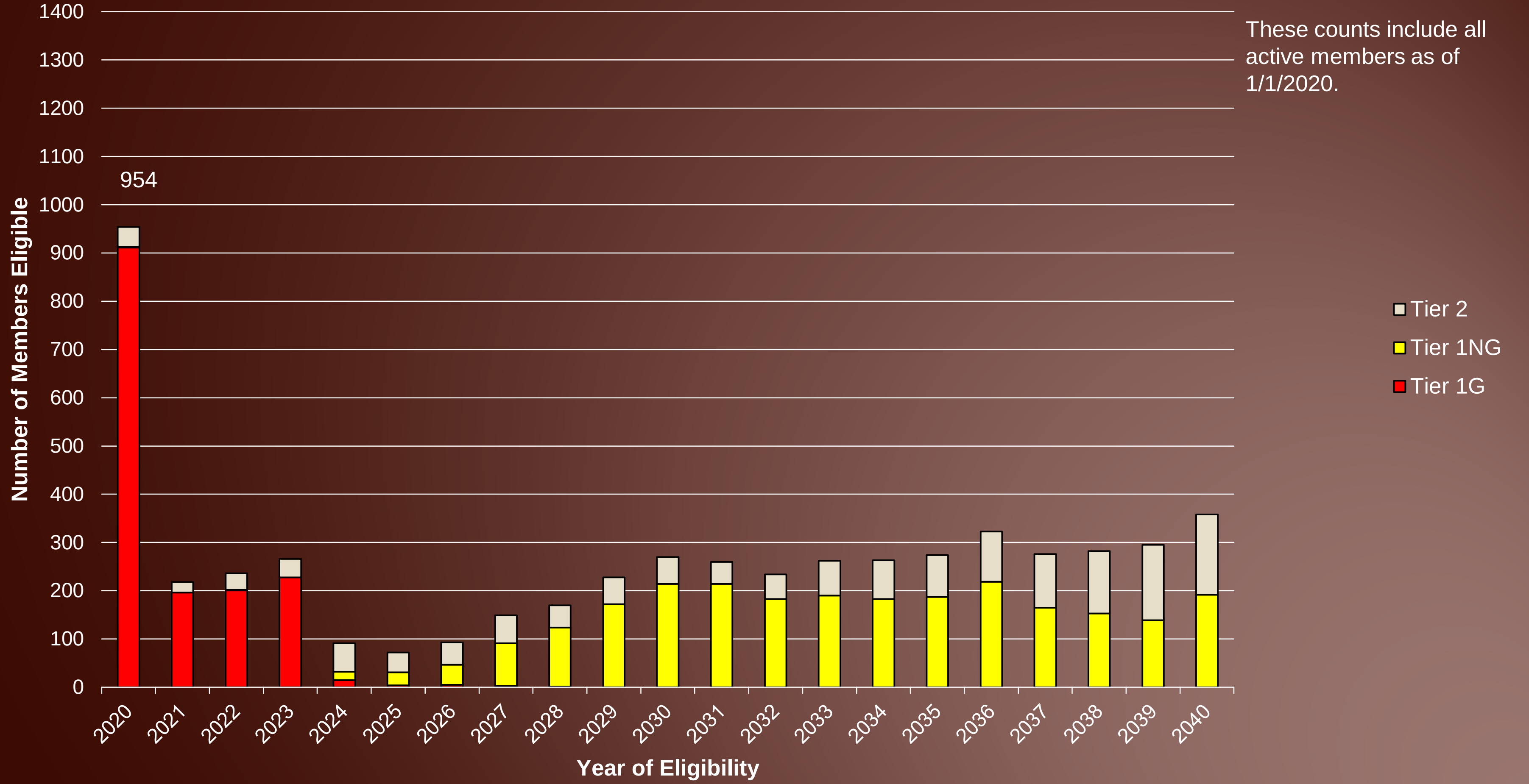


10 Year History

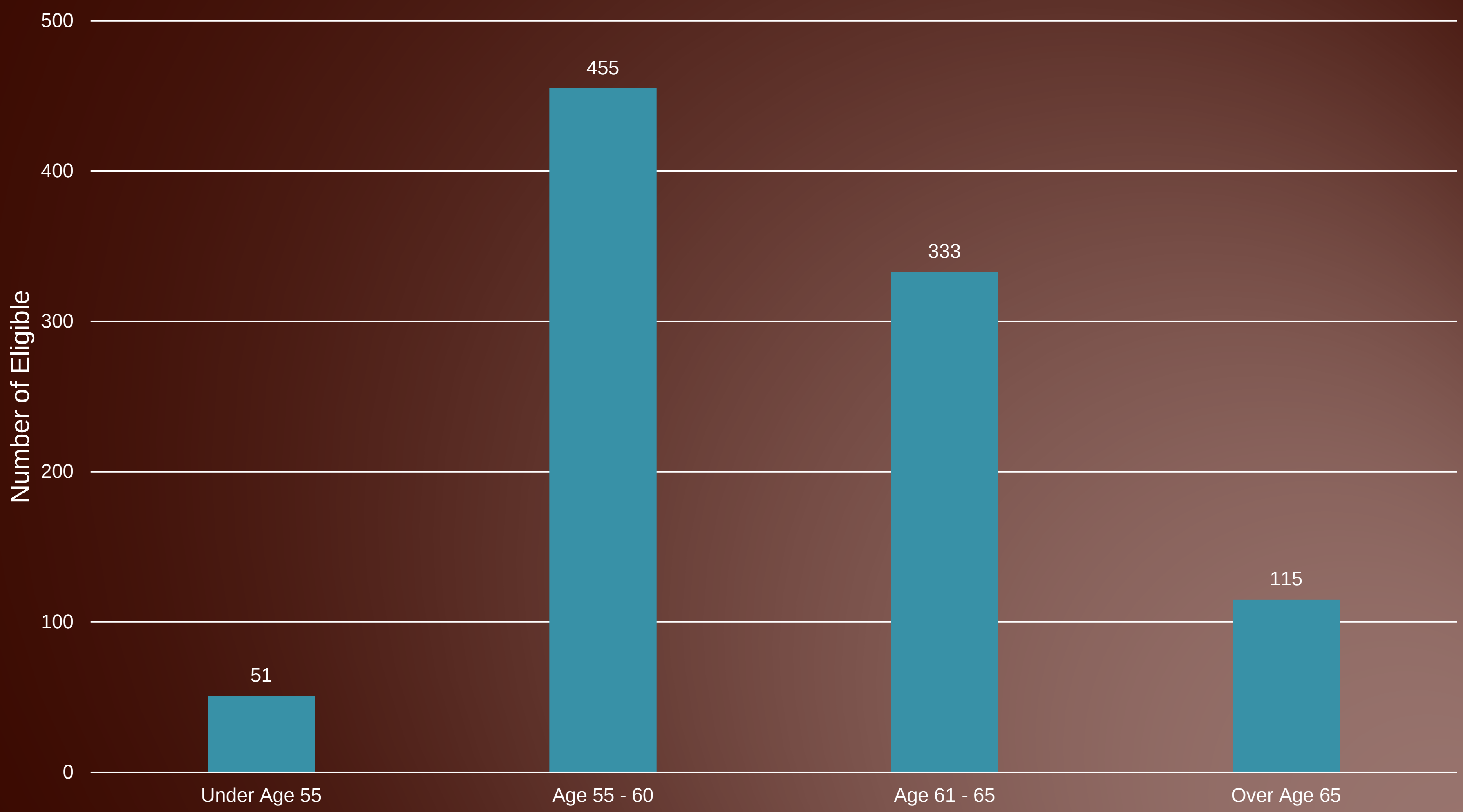
2010-2019

- On average, 1,220 teachers have been eligible to retire each year over the last 10 years.
- On average, 389 teachers actually retired each year, or total of almost 3,889 for 10 year period.
- Approximately 32% of eligible members actually retired over the past 10 years.

TFFR Active Membership Retirement Eligibility Profile - 20 Year Projection



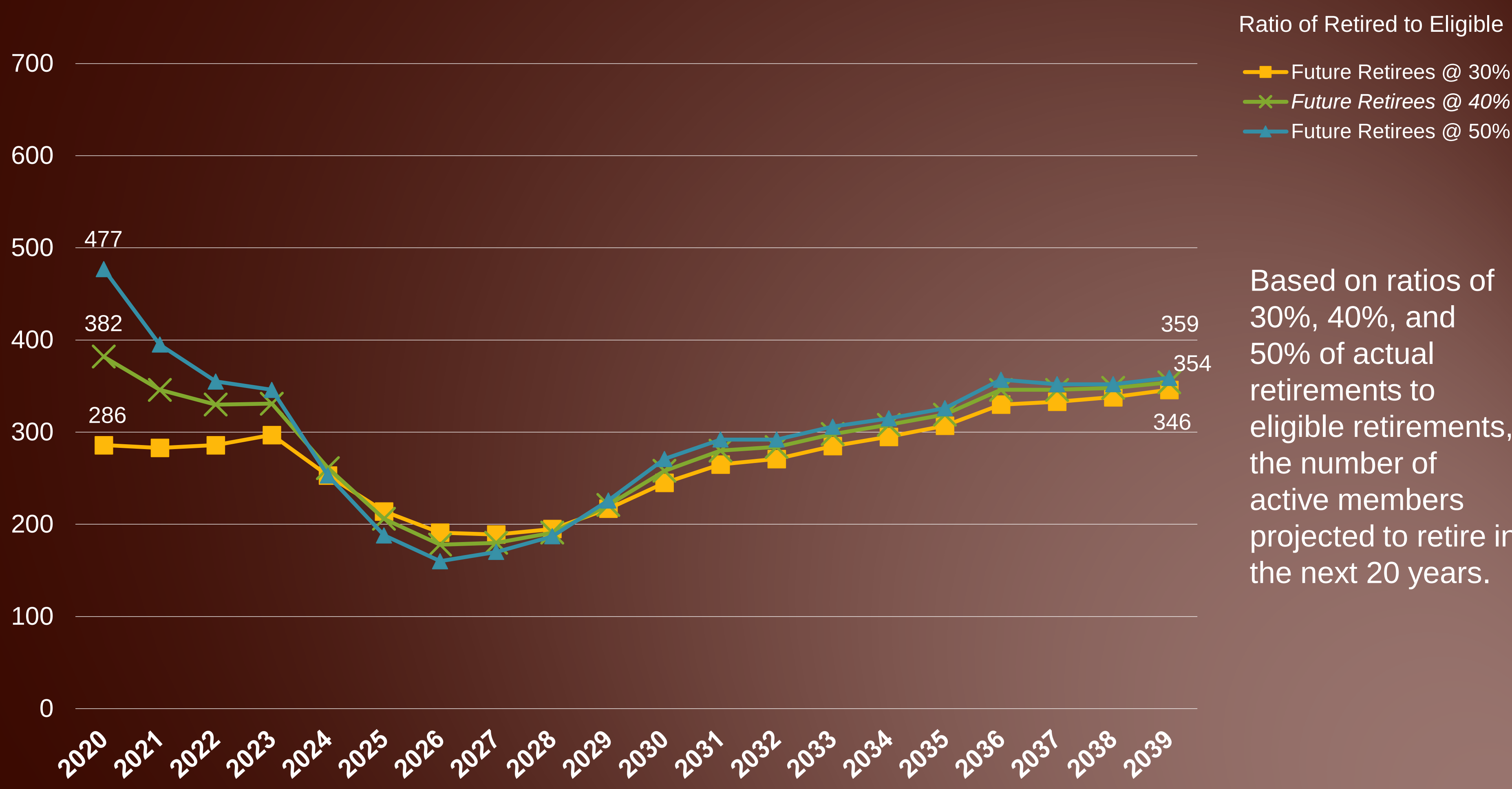
Current Eligible in 2020 by Age



Note: Of the 954 total eligible, the youngest is age 52 and the oldest is age 80

Tomorrow???

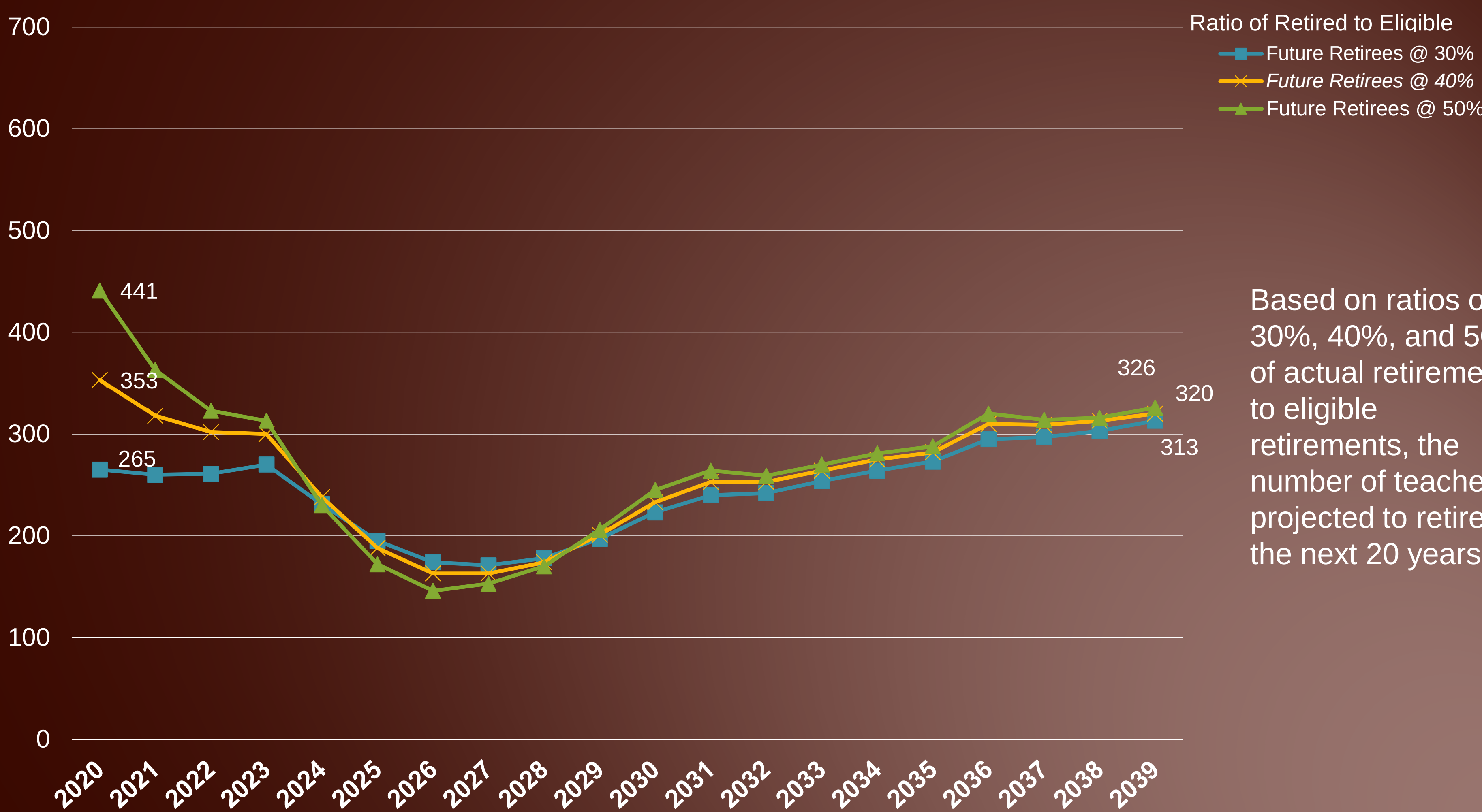
Projected Retirees All Active



Based on ratios of 30%, 40%, and 50% of actual retirements to eligible retirements, the number of active members projected to retire in the next 20 years.

Tomorrow???

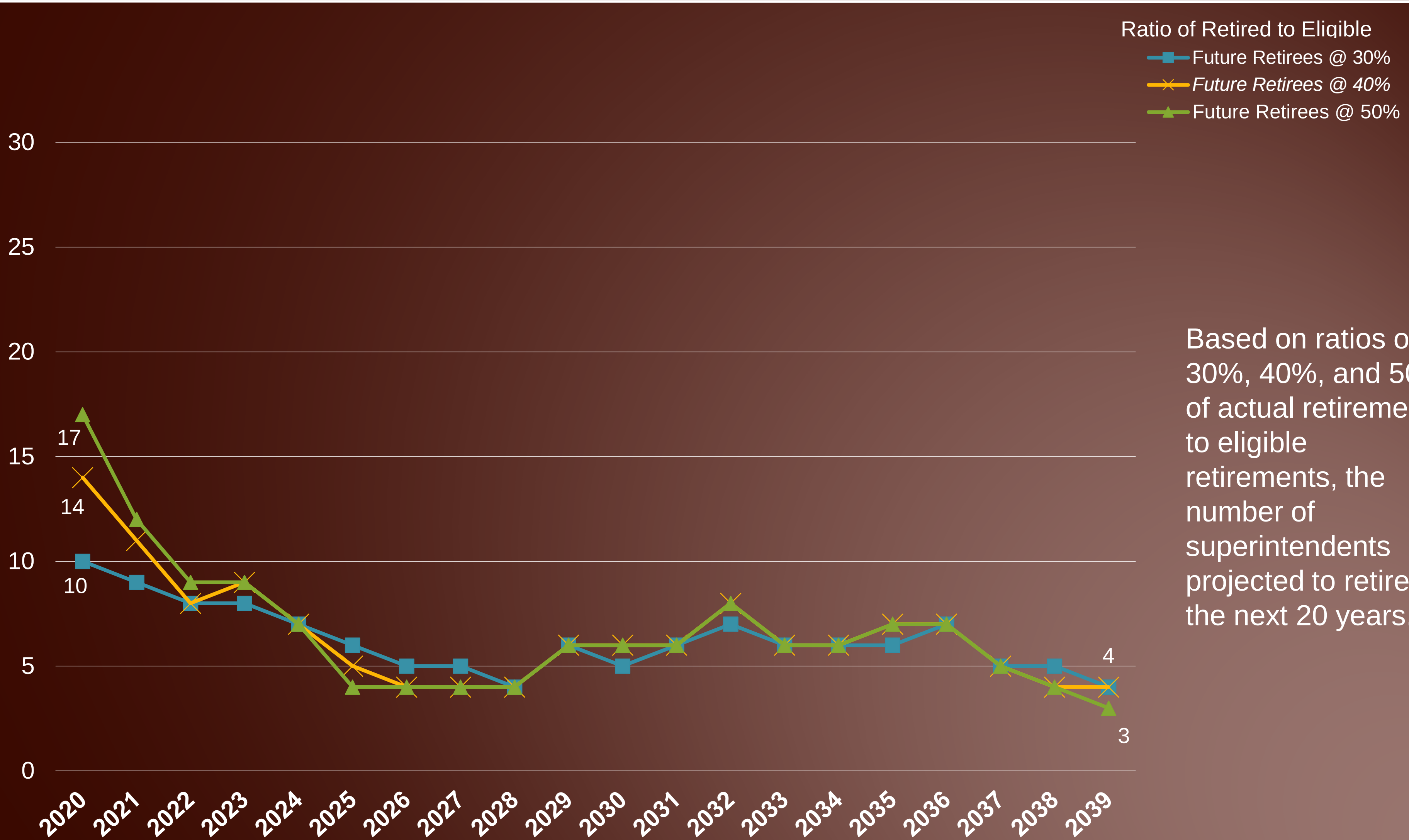
Projected Retirees Teachers



Based on ratios of 30%, 40%, and 50% of actual retirements to eligible retirements, the number of teachers projected to retire in the next 20 years.

Tomorrow???

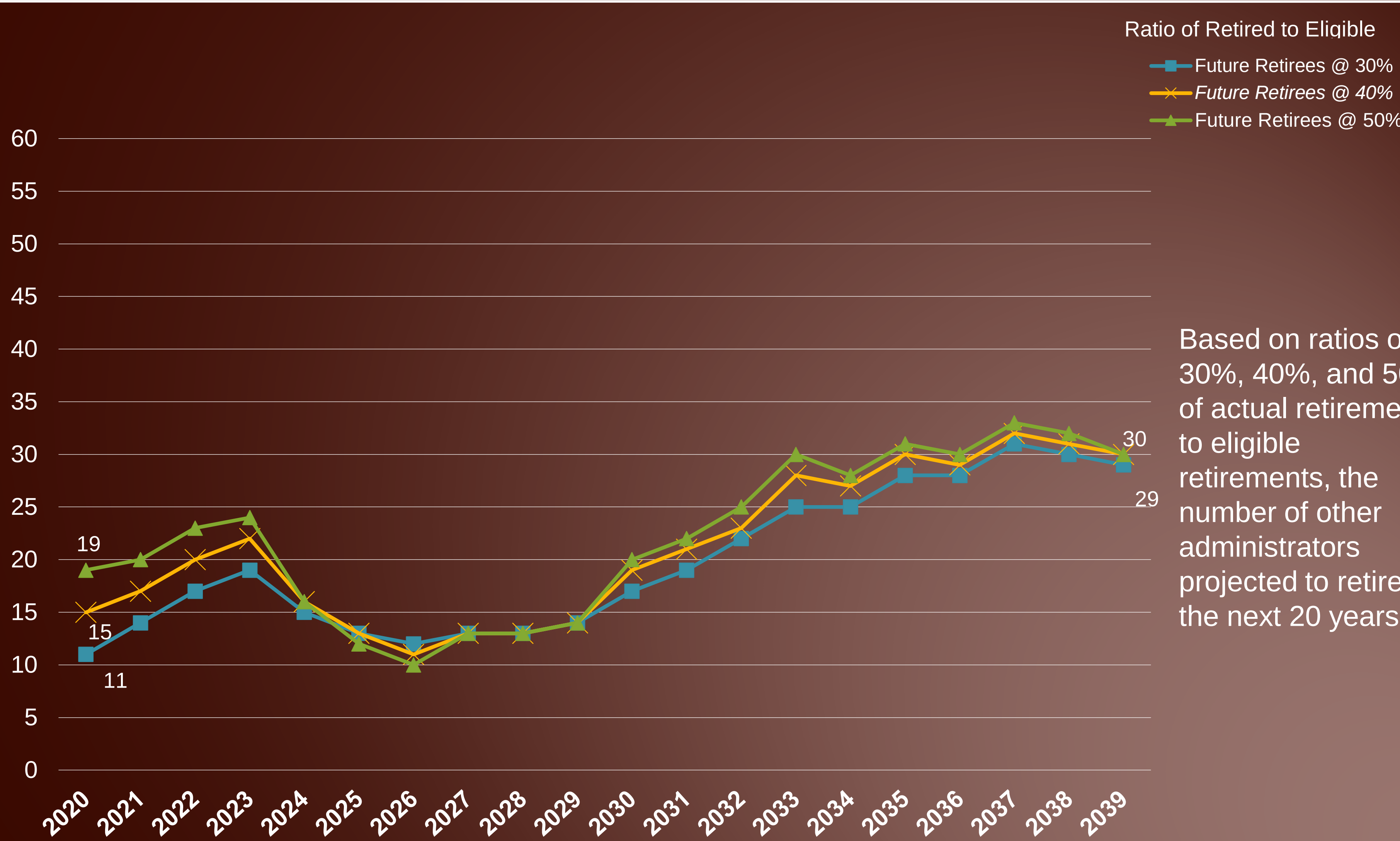
Projected Retirees Superintendents



Based on ratios of 30%, 40%, and 50% of actual retirements to eligible retirements, the number of superintendents projected to retire in the next 20 years.

Tomorrow???

Projected Retirees Other Administrators



Based on ratios of 30%, 40%, and 50% of actual retirements to eligible retirements, the number of other administrators projected to retire in the next 20 years.

Summary

Based on ratios of 30% and 40% of actual retirements to eligible retirements, approximately 2,400 to 2,600 active members are projected to retire in the next 10 years which averages about 252 per year.

	Members	# Retire		Avg/Yr	
		30%	40%	30%	40%
Teachers	10,663	2,202	2,400	220	240
Superintendents	138	68	72	7	7
Other Administrators	582	141	154	14	15
Total Active Members	11,383	2,411	2,626	241	263

Note: All retirement projections are estimates only.

Confidential materials will be sent to Board members through a secure link.

North Dakota Teachers' Fund For Retirement

MEMORANDUM

TO: TFFR Board

FROM: Fay Kopp

DATE: April 16, 2020

SUBJ: Upcoming Board Meetings

<u>2019-20</u>

- At this time, no regular TFFR Board meetings are scheduled for the remainder of the 2019-20 fiscal year. The March meeting was cancelled, and most agenda items were deferred to April meeting.

- The Board may wish to consider scheduling another board meeting in May or June in light of COVID-19 related TFFR program operations, current economic conditions, Asset Liability Study, and Deputy Executive Director-Chief Retirement Officer vacancy.

- Possible dates: May 21, 2020 (SIB May 22)
June 25, 2020 (SIB no June meeting planned) or other June date

<u>2020-21</u>

- July 23, 2020 and July 24, 2020 (SIB Educ Retreat)
- September 24, 2020
- October 22, 2020
- January 21, 2021
- March 25, 2021
- April 22, 2021

BOARD INFORMATION AND DISCUSSION.

The RIO staffing update will be provided at the meeting.

North Dakota Teachers' Fund For Retirement

NDTFFR Board Reading
April 2020

Public Pension Plan Investment Return Assumptions. National Association of State Retirement Administrators (NASRA), February 2020.

State and Local Government Contributions to Statewide Pension Plans. National Association of State Retirement Administrators (NASRA), April 2020.

Examining the Nest Egg: The Sources of Retirement Income for Older Americans. National Institute on Retirement Security (NIRS), January 2020.

Millennial State & Local Government Employee Views on Their Jobs, Compensation & Retirement. National Institute on Retirement Security (NIRS), February 2020.

Fortifying Main Street: The Economic Benefit of Public Pension Dollars in Rural America. National Institute on Retirement Security (NIRS), March 2020.

How Have Teacher Pensions Changed since the Great Recession? Urban Institute, February 2020.

Social Security is a Great Equalizer. Center for Retirement Research at Boston College (CRR), January 2020.