

ORIGINAL



REQUEST FOR PROPOSAL  
OUTSIDE ACTUARIAL SERVICES  
SOLICITATION No.: CPR2300000002

**WEST VIRGINIA CONSOLIDATED PUBLIC RETIREMENT BOARD**

**TECHNICAL PROPOSAL**

**Due Date: March 1, 2023**



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS

184 Shuman Boulevard, Suite 305  
Naperville, IL 60563  
(630) 620-0200

02/27/23 09:59:35  
WV Purchasing Division



Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

State of West Virginia  
 Centralized Request for Proposals  
 Service - Prof

<b>Proc Folder:</b> 1161206			<b>Reason for Modification:</b> Addendum No. 2
<b>Doc Description:</b> Outside Actuarial Services			
<b>Proc Type:</b> Central Master Agreement			
<b>Date Issued</b>	<b>Solicitation Closes</b>	<b>Solicitation No</b>	<b>Version</b>
2023-02-21	2023-03-01 13:30	CRFP 0203 CPR2300000002	3

**BID RECEIVING LOCATION**

BID CLERK  
 DEPARTMENT OF ADMINISTRATION  
 PURCHASING DIVISION  
 2019 WASHINGTON ST E  
 CHARLESTON WV 25305  
 US

**VENDOR**

**Vendor Customer Code:**  
**Vendor Name :** Foster & Foster Consulting Actuaries, Inc.  
**Address :** 184 Shuman Blvd., Suite 305  
**Street :**  
**City :** Naperville  
**State :** IL **Country :** USA **Zip :** 60563  
**Principal Contact :** Jason L. Franken  
**Vendor Contact Phone:** (630) 620-0200 **Extension:** 117

**FOR INFORMATION CONTACT THE BUYER**

Melissa Pettrey  
 (304) 558-0094  
 melissa.k.pettrey@wv.gov

Vendor  
 Signature X

FEIN# 59-1921114

DATE 02/24/2023

All offers subject to all terms and conditions contained in this solicitation

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March 1, 2023

Melissa Pettrey  
State of West Virginia - Department of Administration  
Purchasing Division  
2019 Washington St. E  
Charleston, WV 25305  
*melissa.k.pettrey@wv.gov*

*Re: Request for Proposals for Outside Actuarial Services for West Virginia Consolidated Public Retirement Board*

To whom it may concern:

We are writing to provide a formal response to your search for a firm to provide outside actuarial services for the West Virginia Consolidated Public Retirement Board (“CPRB”). We are excited to provide information about our firm and would like to emphasize what a pleasure it would be to serve as the CPRB’s actuary.

Foster & Foster Consulting Actuaries, Inc. d/b/a Foster & Foster, Inc., is an independent national actuarial consulting firm that was founded in 1979 and is structured to provide actuarial services to public pension programs. We have a full line of services customized for the public sector, including pension and OPEB valuations as well as various levels of administrative services. As the consulting actuaries to over 1,300 public retirement systems throughout the United States, we understand and are well qualified to perform the services required by CPRB.

It is our opinion that we are uniquely qualified and would be the best applicant to perform the services requested for the following reasons:

- **Firm’s Expertise** – Foster & Foster, Inc. specializes in providing actuarial services to public pension plans across the country. We have 32 credentialed actuaries with over 650 years of public sector experience. Our team of consultants will partner with you to evaluate every aspect of your plan to identify unique and tailored solutions that can improve the affordability and performance of the program.
- **Consultants’ Credentials** – Our team will be lead by two Fellows of the Society of Actuaries (FSA); this is the highest designation that an actuary can obtain. Our support team includes five other credentialed actuaries. The team is experienced and proven.
- **Active Consultants** – Our consultants do not just report the news. We prepare our Boards for contingent risks and actively manage and provide services to our clients. Whether it’s providing innovative internet-based solutions or by holding interactive workshops with Boards, our consultants are visible, articulate, and progressive.
- **Competitive Pricing** – With limited overhead and all of our staff actively engaged in serving clients, we

are able to keep our billing rates lower than many of our competitors. Further, we do not limit our liability in providing our services.

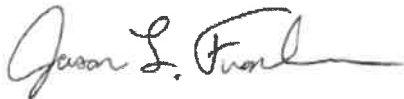
- **We Believe in the Defined-Benefit Pension** – Foster & Foster offers all our employees a defined benefit pension fund. To our knowledge, **we are the only actuarial firm in the public space that does this. We believe in pensions**, and we put our money where our mouth is.
- **Unbiased Advice** – We derive 100% of our revenues from our consulting and actuarial services. As we do not accept fees, commissions, or any other form of consideration from any source other than consulting fees, we provide our clients with unbiased advice.

I, Jason L. Franken, am authorized to represent and contractually bind the firm. Paul Baugher and I will partner as lead consultants for CPRB. We commit our firm to exceeding your expectations for quality and timeliness.

Note that, as outlined in the RFP, this document is solely the technical portion of the proposal and does not include any cost information. The Cost Proposal document is provided separately. Both pieces combine to form our complete proposal submission.

Our firm understands the scope of services and would consider it a privilege to serve the West Virginia Consolidated Public Retirement Board. If you have any questions regarding this proposal response, our firm, or the services we are prepared to provide, please do not hesitate to contact us.

Sincerely,



Jason L. Franken, FSA, EA, MAAA  
Authorized Officer  
jason.franken@foster-foster.com



Paul Baugher, FSA, EA, MAAA  
Senior Consulting Actuary  
paul.baugher@foster-foster.com

## OUR FIRM

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*This section addresses Qualification and Experience Desirable 1 and Mandatory Qualification and Experience Requirement 1.*

### **FIRM BACKGROUND**

Foster & Foster is a national, independent actuarial consulting firm that has been providing actuarial services to public entities since 1979. In that first year, the firm had one client and revenues of \$1,500. Today, Foster & Foster is a profitable corporation with more than 1,300 clients in 28 states and gross revenues approaching \$24 million.

Our firm is comprised of 105 consultants and professional staff, including 32 credentialed actuaries, including ten (10) of whom are Fellows of the Society of Actuaries (FSA), the highest distinction an actuary can obtain. In addition, there are 12 actuarial students in the process of earning credentials. Our Naperville, Illinois office currently has 9 credentialed actuaries. Foster & Foster also has a dedicated plan administration division comprised of 14 employees who have more than 90 years of combined experience and serve as the administrator to over 70 public pension plans nationwide.

Our firm's corporate headquarters is in Fort Myers, Florida; additional offices are located in Naperville, Illinois; Tampa, Florida; Cape Coral, Florida; Suwanee, Georgia; Coppell, Texas; San Mateo, California; Allentown, PA; and Royal Oak, Michigan. Foster & Foster also has satellite office locations in Missouri, Iowa, Minnesota, Wisconsin, and Arizona. Support for the CPRB will primarily be provided by our Naperville, IL office:

Foster & Foster, Inc.  
184 Shuman Blvd., Suite 305  
Naperville, IL 60563

Telephone: (630) 620-0200  
Email: [data@foster-foster.com](mailto:data@foster-foster.com)  
[www.foster-foster.com](http://www.foster-foster.com)

The recent history of Foster & Foster's growth and expansion is as follows:

- In 2008, we established an office in Illinois to reach and to consult to public plans in Illinois. Jason Franken, a Fellow of the Society of Actuaries, was hired to lead this practice.
- Next, our firm's commitment to the State of Illinois was enhanced through the acquisition of R.N. Blomquist & Company, a health and welfare consulting company, on July 1, 2010. This acquisition expanded the firm's presence outside the pension and postretirement medical world and gave us the capability to provide active health and welfare consulting services to clients. Foster & Foster hired Travis Smith, an experienced health and welfare benefits consultant, to lead this branch of our company and give us the capability to provide active health and welfare consulting services to clients.

- In 2012, the firm made a commitment to the Texas market. We began sponsoring and speaking at state-wide pension conferences. Since that time, we have obtained twelve clients, nine of which are TLFFRA firefighter pension funds. In December 2012, we acquired SJ Actuarial Associates. This acquisition helped expand our public pension presence in the South.
- In July 2016, our firm made another commitment to the Texas market by hiring Pat McDonald (FSA/EA) and Lindsey Redman in the Dallas Metroplex. Pat brings over 30 years of actuarial pension consulting experience to our firm, and Lindsey is expected to become a credentialed actuary in 2021.
- In October 2017, the firm made another commitment to the Midwest market with the hiring of Paul Baugher (FSA/EA) in the St. Louis area. Paul brings 25 years of actuarial pension consulting experience to Foster & Foster.
- In January 2018, Foster & Foster acquired Marsh Consulting Group, a health and benefits consulting firm based in Paso Robles, California. We also hired three credentialed actuaries and opened an office in the Atlanta, Georgia metro area. These two moves helped expand Foster & Foster's footprint from coast to coast.
- The hiring of Greg Pastino (ASA/EA) in September 2019, a senior consultant with over 30 years' experience as a multiemployer pension actuary, expanded our capabilities in the Taft-Hartley market and established a foothold for Foster & Foster in the Northeast. With the hire of Jonathan Davidson in September 2020, we acquired a legal expert on public pension matters.
- In January 2021, Foster & Foster acquired two actuarial consulting companies, Beyer Barber Company in Allentown, Pennsylvania, and Rodwan Consulting Company in Royal Oak, Michigan. This expansion provides Foster & Foster with office locations in two additional states, enhancing its reputation as a national actuarial consulting company.
- Most recently in July 2022, Foster & Foster acquired Bartel Associates, LLC in San Mateo, California. This acquisition markedly broadens/strengthens our OPEB and pension practices nationwide.

Brad and Sandra Heinrichs have been the owners of Foster & Foster, Inc. since 2005. Jason Franken, Travis Smith and Ferrell Jenne are minority owners of the firm.

Note that all work provided by Foster & Foster is prepared by our staff. We do not subcontract our work with any outside firm and are not partnered with any other firms via joint venture.

## **FIRM EXPERIENCE**

Our firm has been providing actuarial consulting services to retirement programs for over 43 years and is nearly 100% devoted to the public sector. We complete over 1,000 actuarial valuations per year. In the past five years, we have transitioned over 200 plans to our systems and delivered over 50 experience study reports in the past couple of years. This experience has exposed us to a multitude of different client situations and challenges, but ultimately has equipped us with a broad array of ideas and solutions.

Unlike many of our competitors, the actuaries we hire are fully devoted to serving public sector retirement systems and have extensive experience with public sector retirement systems. Each of the core team members assigned to service the State of West Virginia have over 20 years of retirement system experience.

**DEDICATION OF OUR CONSULTANTS**

At Foster & Foster, we keep our philosophies simple: *“Treat every one of our clients as if they are our only client.”* This is our sole focus and, given our remarkable growth over the last 17 years, it is working. More objectively, the results of this philosophy can be seen in the low turnover of our actuarial staff and our high rate of client retention. This is the stability that you can expect from Foster & Foster.



## OUR TEAM

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*This section addresses Mandatory Requirements 1 and 2, Qualification and Experience Desirable 3, and Mandatory Qualification and Experience Requirement 2.*

The core consulting team assigned to support West Virginia Consolidated Public Retirement Board each specialize in the public retirement system and have vast actuarial backgrounds. Our team is made up of highly experienced actuaries each with over 25 years of experience serving public retirement systems in several different States. Supporting consultants have been assigned to the team to ensure efficient and timely delivery of projects and proper peer review of all work completed.

**Paul Baugher (FSA, EA, MAAA)** will serve as the main point of contact for the CPRB and the lead consultant, ensuring that the CPRB is satisfied with all aspects of the services provided by the F&F team. He will apply his 25 years of experience in leading numerous client teams in overseeing the CPRB's work and will deliver results to the the Board. Paul is a Fellow of the Society of Actuaries, Enrolled Actuary, and a Member of the American Academy of Actuaries.



**Jason Franken (FSA, EA, MAAA)** is a fully credentialed actuary with over 25 years of retirement consulting experience, including over 15 with public pension plans. He will serve as co-lead consultant, assisting with all deliverables and meeting with the Board to deliver valuation results. Jason is also a principal and minority owner of Foster & Foster. Given this position, he has a vested interest in the satisfaction of our clients. Jason will regularly connect with staff for feedback. The team largely report to Jason, so he can help to resolve any issues that arise and quickly address staffing issues, as needed.

Supporting team members include:

- **Luke Schoenhofen (ASA, EA, MAAA)** joined the firm in 2016, and attained credentials as an Associate of the Society of Actuaries (ASA) in 2019, Enrolled Actuary (EA) in 2021 and a Member of the American Academy of Actuaries (MAAA). He graduated from Illinois State University with a B.S. in actuarial science. He will work extensively on annual valuations, projections, and special studies. Luke will work with Lindsey on completing the annual valuation and other projects, as they arise, working with the team to make sure that the first draft of all projects is reviewed and developed in a timely fashion.
- **Lindsey Redman (ASA, EA, MAAA)** joined Foster & Foster in November 2017 as an actuarial analyst in the Dallas office. Since then, she attained credentials as an Associate of the Society of Actuaries in March 2021 and became an Enrolled Actuary under ERISA in March 2022. She graduated in 2015 with a B.S. in Applied Mathematical Sciences from Texas A&M University. Lindsey has over 7 years of experience in both private and public sector pension plans, including the completion of actuarial valuation reports, projections, special projects, and benefit calculations. She will work with Luke on the annual valuations, projections, and other projects, as they arise, working with the team to make sure that the first draft of all projects is reviewed and developed in a timely fashion.

- **Julie Franken (EA, MAAA)** has more than 20 years of experience as a pension actuary. She works extensively on annual valuations, projections, benefit calculations, and special studies. During her career, Julie has specialized in the valuation of pension plans, developing processes to help streamline the valuation and make it more efficient. She has also developed our various projection modelers to help clients in understanding the long-term costs of their plan and the impact that current changes can have on those costs.
- **Kevin Peng (ASA, EA, MAAA)** joined Foster & Foster in January 2020. Kevin is a 2004 graduate of the University of Illinois at Urbana-Champaign with a M.S. in actuarial science. He is an Associate of the Society of Actuaries, an Enrolled Actuary under ERISA, and a member of the American Academy of Actuaries. Kevin works extensively on annual valuations, projections, and special studies. Kevin will coordinate with Julie and the rest of the team to make sure that the systems are set up for their most efficient use going forward. With this background on your transition, he will also be able to support the team in the future, as the need arises.
- **Matt Wadja** joined Foster & Foster as an Actuarial Student in May of 2019. He has graduated from Illinois State University with a MS in actuarial science. He is currently studying to complete his ASA. Matt will scrub and reconcile the personnel data, determine funding requirements, benefit calculations and produce the valuation reports.
- **Mariëlla Sep** has over 20 years experience in accounting and has been employed with Foster and Foster for over six years. She earned her bachelors and post-graduate degrees in the Netherlands. She is responsible for coordinating GASB 67/68 reports, ensuring that the reports are completed in a timely manner and in compliance with the accounting principles.
- **Pete McCloud (FSA, EA, MAAA)** is one of our senior actuarial consultants with over 25 years of experience in the actuarial consulting industry. He serves as our lead peer reviewer, reviewing actuarial documents before they leave our office. His independent perspective ensures that you are getting quality work and another perspective to consider. Pete's sole job is to be the final set of eyes on all work before it is delivered to CPRB, ensuring that the reports meet all federal, state, and actuarial standards.

This is the team that we propose for this work. As previously mentioned, our staff is over one hundred members and additional support can easily be called upon to meet the needs and requirements of CPRB. Turnover, while small at Foster & Foster, does occur but has never kept us from meeting our client's deadlines due to our standard processes and ability to utilize staff from all locations.

We do not solicit any outside support or assistance with the performance of any task. We meet our contractual obligations and exceed our clients' expectations. This is why our client retention rates are unmatched.

Resumes for the assigned staff members are included in the following pages.

**PAUL M. BAUGHER, FSA, EA, MAAA**

**Foster & Foster, Inc.**  
35 Lansing Avenue  
St. Louis, MO 63043  
Phone: (314) 307-2115  
Fax: (239) 481-0634

Email: [paul.baugher@foster-foster.com](mailto:paul.baugher@foster-foster.com)

**Positions**

October 2017 –  
Present

**Senior Pension Consultant**  
Foster & Foster, Inc.

- Performs and reviews actuarial valuations for public and private plans; leads and assists with special projects on various clients, including plan design, experience studies, and cost projections; supports firm expansion and growth plans in gaining new business

August 2007 –  
June 2017

**Principal / Midwest Operations Leader**  
Buck Consultants

- Oversaw retirement work within regions, including 20 staff in 4 offices; consulted with public and private plans to meet their retirement needs; member of national advisory team that developed guidance and materials for broad use by consulting staff

January 1997 –  
July 2007

**Senior Associate / Project Manager**  
Towers Perrin

- Prepared valuations for several large corporate clients; helped to improve project management process for better office results

**Education**

August 1993 –  
December 1996

**University of Missouri - Columbia**  
Columbia, MO  
Bachelor of Science Degree – Mathematics and Bachelor of Arts Degree -  
Psychology

**Professional Credentials**

Fellow, Society of Actuaries, 2003

Member, American Academy of Actuaries, 2003

Enrolled Actuary, Joint Board for the Enrollment of Actuaries, 2003

**JASON L. FRANKEN, FSA, EA, MAAA**

**Foster & Foster, Inc.**  
184 Shuman Boulevard, Suite 305  
Naperville, IL 60563  
Phone (630) 620-0200  
Email: jason.franken@foster-foster.com

**POSITIONS**

**Partner** **May, 2008 – Present**  
Foster & Foster, Inc.  
Naperville, IL

- Consults pension and OPEB boards on all aspects of retirement benefits.
- A frequent speaker at National Conference on Public Employee Retirement Systems (NCPERS), International Foundation of Employee Benefit Plans (IFEBP), Illinois Public Pension Fund Association (IPPPA), Illinois Government Officers Finance Association (IGFOA) and Associated Firefighters of Illinois (AFFI) conferences discussing all aspects of public pension plans.
- Focus on business development and the day-to-day operations of the firm.

**Consultant/People Leader** **June, 1997 – May, 2008**  
Hewitt Associates  
Lincolnshire, IL

- Provided consulting to employers on a wide range of pension and postretirement welfare plan issues.
- Directly responsible for guiding and managing the careers of junior consultants.

**EDUCATION**

**University of Iowa** **August, 1993 – May, 1997**  
Iowa City, IA  
Bachelor of Science Degree  
Major: Actuarial Science

**PROFESSIONAL CREDENTIALS**

Fellow, Society of Actuaries, 2006  
Member, American Academy of Actuaries, 2007  
Enrolled Actuary, Joint Board for the Enrollment of Actuaries, 2005

**PROFESSIONAL PRESENTATIONS**

“Health Benefit Issues Part 2: GASB 43/45”, Society of Actuaries’ Employee Benefits Meeting, Tampa, FL, June 2008.  
“Public Pension Underfunding”, Chicago Actuarial Association, Chicago, IL, March 2012.  
“Introduction to the Illinois Public Pension System”, Chicago Actuarial Association, Chicago, IL, March 2013.  
“Introduction to the Illinois Public Pension System - Illinois Municipal Retirement Fund: The Continuing Challenge to Address the Needs of Diverse Stakeholders and to Explain and Rollout GASB 68”, Chicago Actuarial Association, Chicago, IL, March 2014.

**LUKE SCHOENHOFEN, ASA, EA, MAAA**

**Foster & Foster, Inc.**  
 184 Shuman Blvd., Suite 305  
 Naperville, IL 60563  
 Phone: (630) 620-0200  
 Fax: (239) 481-0634  
 Email: [Luke.Schoenhofen@foster-foster.com](mailto:Luke.Schoenhofen@foster-foster.com)

**Education**

Illinois State University	Normal, IL
Bachelor of Science Degree	May 2016
Major: Actuarial Science	
GPA: 3.51	

**Professional Designations**

Associate of the Society of Actuaries (2019)  
 Member of the American Academy of Actuaries (2020)  
 Enrolled Actuary (2021)

**Actuarial Exams Passed**

Exam P	July 2014	Exam MFE	July 2015
Exam FM	December 2014	Exam C	June 2016
Sitting Exam MLC	October 2016		

**Related Skills/Coursework**

Probability	Statistics	Economics
Accounting	Basic VBA	Microsoft Excel
Microsoft Access	Basic ProVal	Life Contingencies

**Work History**

***Actuarial Analyst*** June 2016 - Present

Foster & Foster Inc., Naperville, IL

- Prepare benefit calculations, DROP schedules/updates, annual COLAs, and buyback calculations.
- Assist with experience studies, initial share plan setup/annual share plan allocations, and general needs of the client.

***Respite Support Worker*** 2013 - 2013

Good Shepherd Center, Hazel Crest, IL

- Aid the respite department with scheduling, managing clients, payroll, and facilitating training classes.

## LINDSEY E. REDMAN, ASA, EA, MAAA

**Foster & Foster, Inc.**  
870 S. Denton Tap Rd, Suite 250  
Coppell, TX 75019  
Phone: (239) 433-5500  
Email: lindsey.redman@foster-foster.com

### PROFESSIONAL DESIGNATIONS

Associate of the Society of Actuaries (2021)  
Member, American Academy of Actuaries (2021)  
Enrolled Actuary, Joint Board for the Enrollment of Actuaries (2022)

### PROFESSIONAL EXPERIENCE

**Foster & Foster, Inc.**  
*Actuarial Analyst*

**Dallas, TX**  
*2017 – Present*

- Prepare annual actuarial valuation reports for multiple public and private sector pension plans
- Coding pension benefits in Proval, an actuarial software, for actuarial valuation replication
- Assist in special actuarial projects, including experience studies and benefit design studies
- Assist in the preparation and maintenance of Foster & Foster's Retirement Planning Calculator

**Conduent (formerly Buck Consultants)**  
*Actuarial Associate, Wealth Practice*

**Houston, TX**  
*2015 – 2017*

- Performed annual actuarial valuations and disclosures as well as annual expense calculations under ASC 715 and IAS 19 for pension and other postemployment benefit plans
- Collected annual participant census data for retirement plan actuarial valuations, evaluated data for reasonableness and completeness, and reconciled participant movement from prior census
- Performed additional projects including termination studies, non-discrimination testing, quarterly remeasurements, and calculations related to settlements and reimbursements
- Calculated individual retirement benefits incorporating compensation limits under 401(a)(17), including early, normal, and late retirement calculations and estimates, death benefits, actuarially equivalent benefits for optional payment forms, and QDRO benefits
- Assisted in completion of government forms and auditor requests
- Prepared monthly client invoices and allocated time for multiple projects

### EDUCATION

**Texas A&M University – May 2015**  
*BS in Applied Mathematical Sciences, Minor in Economics*

**JULIE E. FRANKEN, EA, MAAA**

**Foster & Foster, Inc.**

184 Shuman Boulevard, Suite 305

Naperville, IL 60563

Phone (630) 620-0200

Fax: (239) 481-0634

Email: julie.franken@foster-foster.com

**Positions**

July, 2012 –  
Present

**Consultant**

Foster & Foster, Inc.  
Naperville, IL

- Reviewing/testing a client's new actuarial valuation system
- Responsible for annual review of over 600 police and fire actuarial valuations
- Developed procedure for converting Florida pension funds to new valuation software
- Perform service purchase and buyback calculations
- Complete various projects including annual valuations, projections, plan audits

February, 2000 –  
July, 2012

**Consultant**

Hewitt Associates  
Lincolnshire, IL

- Provided consulting to employers on a wide range of pension and postretirement welfare plan issues.
- Managed projects for junior analysts.
- Developed templates and tools for streamlining valuation process

**Education**

August, 1995 –  
December, 1999

**University of Wisconsin**  
Madison, WI

Bachelor of Business Administration

Major: Actuarial Science

**Professional Credentials**

Enrolled Actuary, Joint Board for the Enrollment of Actuaries, 2009

Member, American Academy of Actuaries, 2011

**Statement of Experience** Julie is a consulting actuary with Foster & Foster in Naperville, IL. She has vast experience working on a wide range of pension and postretirement welfare plan issues, including statutory funding requirements, Financial Accounting Standards Board (FASB) accounting for pension and postretirement medical plans, plan administration, experience studies and plan design.

**Kevin (Chih-Hung) Peng, ASA, EA, MAAA**

**Foster & Foster, Inc.**  
184 Shuman Boulevard, Suite 305  
Naperville, IL 60563  
Phone (630) 620-0200  
Fax: (239) 481-0634  
Email: kevin.peng@foster-foster.com

**EXPERIENCE:** **Actuarial Consultant**  
Foster & Foster, Inc. (January 2020 – Present)

**PREVIOUS EXPERIENCE:** **Actuarial Consultant**  
Buck Consultants, (June 2005 – January 2020)

- Actuarial Valuation of assets and liabilities and the determination of funding requirements for pension plans including public and private corporations, state and local governments
- Determination of benefit obligations, cost and disclosure information under FASB and GASB standards
- Prepare and review special actuarial studies including experience studies, cost projections, and benefit change studies
- Code actuarial valuation software to match valuations for new clients, or recode our current clients' valuations for benefit or assumption changes

**EDUCATION:** **Master of Science**  
**Field of study, Actuarial Science**  
University of Illinois at Urbana- Champaign, December 2004

**PROFESSIONAL DESIGNATIONS:**  
Associate, Society of Actuaries, September 2007  
Member, American Academy of Actuaries, January 2009  
Enrolled Actuary under ERISA, September 2011



**Mateusz Wajda**

**Foster & Foster, Inc.**  
184 Shuman Boulevard, Suite 305  
Naperville, IL 60563  
Phone: (630) 620-0200  
Email: [matt.wajda@foster-foster.com](mailto:matt.wajda@foster-foster.com)

**EXPERIENCE**

**Actuarial Analyst**

Foster & Foster, Inc. (May 2018 – Present)

- Junior Actuarial Consultant for several Police, Fire, and General Employees' pension plans
- Prepare service purchase calculations and cost-of-living adjustment calculations
- Assist in preparing Letters of No Financial Impact pertaining to proposed Ordinance changes
- Assist in special actuarial projects including experience studies

**EDUCATION**

**Bachelor of Science in Mathematics**

University of Illinois at Chicago; December 2008

**Master of Science in Mathematics (Actuarial Science)**

Illinois State University; May 2018

**PROFESSIONAL EXAMS**

- Pursuing Associate of the Society of Actuaries (SOA) designation
- Probability (2015)
- Financial Mathematics (2016)
- Models for Financial Economics (2017)
- Construction and Evaluation of Actuarial Models (2018)

**PETER B. McCLOUD, FSA, EA, MAAA**

**Foster & Foster, Inc.**  
13420 Parker Commons Blvd. Suite 104  
Fort Myers, FL 33912  
Phone: (239) 433-5500  
Fax: (239) 481-0634  
Email: peter.mccloud@foster-foster.com

**Positions**

July, 2018 –  
Present

**Quality Control Actuary**

Foster & Foster, Inc.  
Fort Myers, FL

- Provide quality control review of pension and retiree welfare plan valuations

June, 1995-  
June, 2018

**Actuarial Consultant**

Aon/Aon Hewitt/Hewitt Associates  
Minneapolis, MN; Dallas, TX; and Lincolnshire, IL

- Primary contact and consultant for several large companies
- Managed teams of actuaries, including managing Dallas retirement practice 2007-2008
- Provided consulting services on a wide range of pension and postretirement welfare plan issues including plan design, non-discrimination testing and merger/acquisition/spin-off-related issues
- Responsible for quality and timeliness of work products for wide range of clients

**Education**

August, 1991 –  
May, 1995

**University of Iowa**

Iowa City, IA  
Bachelor of Science degree  
Major: Actuarial Science  
Minor: Business Administration

## OUR STRATEGY

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Each client, even each plan, has its own unique situation. Its members are unique, its benefits are customized, and the approach to funding the benefits have likely been established over time. We do not claim to have strategy that is perfect for the West Virginia Consolidated Public Retirement Board. However, there are a few steps that we like to take with our clients that help to set them on the right course to solidify their ability to provide secure benefits to their members for years to come.

### EXPERIENCE STUDIES

The first step is to perform an experience study for each plan, a formal review of actual plan experience as compared to the assumptions used in the valuation. These studies would review both demographic (retirement, termination, disability, etc.) and economic (interest rate, salary increase, etc.) assumptions. Completing these studies allow us to capture trends in participant behavior and adjust to changing market forces to ensure that our valuations provide the best possible allocations of costs to current and future time periods. Our goal is to put the best possible assumptions in place so that you have a solid starting point as you look to the future.

Our reports will document general actuarial requirements to consider in setting assumptions, a summary of our analysis based on actual plan data, and cost implications for proposed changes by assumption and in total.

Moving forward, we find it to be a best practice to provide a review of all assumptions on an annual basis prior to completing the actuarial valuation. A formal study will generally be performed every three-to-five years, which appears to be in line with your current approach.

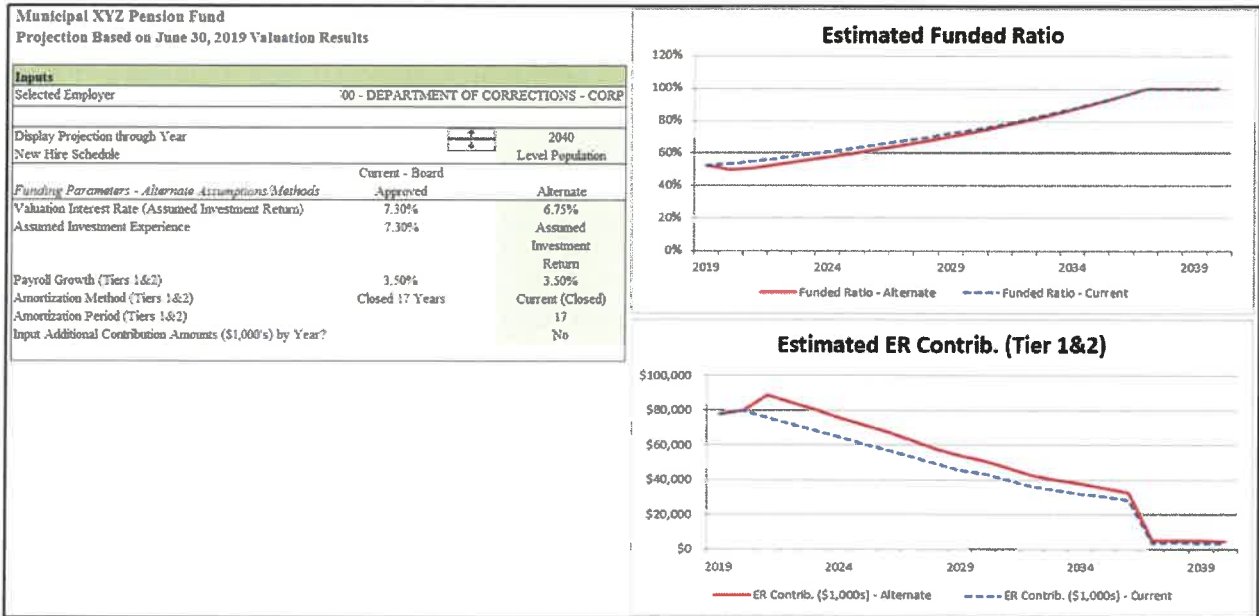
### FUNDING MODELER

Once a solid starting point has been established, it is important to model the future and what possibilities, both good and bad, there may be to consider. The valuation is a static measurement that is effectively outdated as soon as the report is delivered. Tracking historical improvement is good to see what progress has been made, but dynamic forecasting is needed to see patterns going forward.

Foster & Foster has developed an Excel-based pension funding modeler that allows the user to see the effect of various changes (i.e., experience, plan amendments, assumptions, and funding policies) have on the long-term financial status of the plan. This tool is highly customizable, allowing the user to model various scenarios on their desktop. The modeler includes projections of the actuarial required contribution, funded ratio, assets, liabilities, member statistics, and other financial information. While the tool is often used by staff directly, its ability to instantaneously illustrate the impact of various changes on the results makes it a great tool to be used interactively in meetings.

Our standard modeler provides the scenarios that most employers want to consider, reflecting a stable active membership. Our advanced modeler (Input screen shown below) allows results for different employers /

groups within a system to be displayed by changing a simple drop-down box. This advanced modeler also allows for changes in active membership (up or down) over time.



Once this tool is set up, you will be able to see any issues that may be coming and model alternatives to help address them. As you can see in the screenshot above, this version of the modeler has been set up to review different amortization approaches, including different periods and payroll growth assumptions. We would want to use this functionality with the CPRB to consider the current closed amortization periods. As those periods become shorter, it can result in more volatility to annual costs. We have used this tool with other clients to consider both layered and open amortization periods, resulting in more stable costs in the future.






## FUNDING POLICY

A funding policy is a set of guidelines that describe how a board wants to approach the funding of benefits systematically over time. Aspects to be considered include:

- Funding target and objectives
- Approach to retiring unfunded liability
- Intergenerational equity

Once high-level objectives are set, it becomes easier to see the various elements that will be used to implement the funding policy. These elements include actuarial cost method, asset smoothing method, and amortization method.

With your funding policy in place, a set of metrics can be used to monitor the progress, good or bad, over time to identify trends. See a sample metric dashboard below. The policy can then be reviewed and updated, as needed.

<b>Funding Policy Dashboard</b>																																																	
<b>Combined Pension &amp; Health - Tiers 1 &amp; 2</b>																																																	
<b>As of June 30, 2021</b>																																																	
The following results tie to the funding policy metrics adopted by the Board of Trustees. For more information on the funding policy and the underlying metrics, see the 2021 valuation report (located on the System website).																																																	
Results for Consolidated Plan																																																	
	Status	Comments / Action Required																																															
Corollary 1a: Gain/Loss Experience (Metric 1)		Current 5-year cumulative gain/loss as percentage of market value is 5%.																																															
Corollary 1b: Funding Targets (Metric 2)		Both measures have increased over the 5-year period. 13 employers have not seen an increase in both measures over a 4-year period.																																															
Corollary 2a: Stakeholder Communications (Metric 3)		Stakeholder questionnaire in development.																																															
Corollary 3a: Recognition of Costs (Metric 4)		Measure has increased by 8.3% over five years. Negative amortization for current employers should be eliminated in 3-5 years.																																															
Key		Support																																															
Objective Met		<table border="1"> <thead> <tr> <th rowspan="2">Year</th> <th colspan="2">Corollary 1a</th> <th colspan="2">Corollary 1b</th> <th>Corollary 3a</th> </tr> <tr> <th>Asset G/L</th> <th>Liab G/L</th> <th>5-Yr Total</th> <th>PVB</th> <th>AAL</th> <th>Net Amort %</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>-0.2%</td> <td>0.2%</td> <td>5.0%</td> <td>53.8%</td> <td>60.5%</td> <td>62.1%</td> </tr> <tr> <td>2020</td> <td>1.8%</td> <td>0.5%</td> <td>6.9%</td> <td>39.3%</td> <td>44.6%</td> <td>55.9%</td> </tr> <tr> <td>2019</td> <td>0.7%</td> <td>0.2%</td> <td>6.0%</td> <td>40.0%</td> <td>46.1%</td> <td>55.2%</td> </tr> <tr> <td>2018</td> <td>1.4%</td> <td>0.5%</td> <td>8.5%</td> <td>39.8%</td> <td>45.9%</td> <td>54.4%</td> </tr> <tr> <td>2017</td> <td>0.8%</td> <td>1.8%</td> <td>9.7%</td> <td>38.5%</td> <td>45.1%</td> <td>53.8%</td> </tr> </tbody> </table>	Year	Corollary 1a		Corollary 1b		Corollary 3a	Asset G/L	Liab G/L	5-Yr Total	PVB	AAL	Net Amort %	2021	-0.2%	0.2%	5.0%	53.8%	60.5%	62.1%	2020	1.8%	0.5%	6.9%	39.3%	44.6%	55.9%	2019	0.7%	0.2%	6.0%	40.0%	46.1%	55.2%	2018	1.4%	0.5%	8.5%	39.8%	45.9%	54.4%	2017	0.8%	1.8%	9.7%	38.5%	45.1%	53.8%
Year	Corollary 1a			Corollary 1b		Corollary 3a																																											
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2017	0.8%	1.8%	9.7%	38.5%	45.1%	53.8%																																											
Action Needed																																																	

## OUR APPROACH

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Our understanding of the services the CPRB is seeking as part of this RFP process is as follows:

- **Funding Valuations:** Preparation of annual pension funding valuation reports for five systems (PERS, TRS, Trooper Plan A, Trooper Plan B, and JRS) beginning with the valuations performed in 2023;
- **GASB Valuations:** Preparation of annual pension GASB accounting reports for five systems (PERS, TRS, Trooper Plan A, Trooper Plan B, and JRS) beginning with the reporting period ending June 30, 2023;
- **Return Projections:** Preparation of annual investment return projections over various time horizons;
- **Experience Studies:** Preparation (with CPRB staff) of experience study reports for each pension plan using the schedule as provided; and
- **Other Consulting Support:** Peer review of funding / GASB reports prepared by staff for smaller systems, legislative cost analyses, and other items as directed by the CPRB.

### FUNDING VALUATIONS

Before our first valuations can be prepared, a complete transition of the prior year's valuations must take place. Having transitioned over 200 plans to our systems over the past five years, we are very experienced in the transition process. You can expect the following:

1. **Kickoff Meeting:** Our team will connect with staff to discuss the transition, important history, and any open projects. It will also be important to discuss the quality of the data provided, any questions that have been asked by the actuary, and any assumptions that should be made to "complete" the data.
2. **Data Request:** A formal request of participant data and actuarial tables will be provided. Participant data will include demographic (e.g., date of birth, date of hire, status) and financial (e.g., annual salary, annual benefit) for each participant. Actuarial tables will be needed for any table that is not fully outlined in the valuation report.
3. **Replication:** We will review the information provided and use it to replicate the prior year's valuation results within an acceptable range. This will include a data review, liability match, and review of current funding methods. The provisions of the programs will be inputted into ProVal, the most robust pension and OPEB actuarial valuation system in the marketplace and, in our opinion, the best actuarial valuation software money can buy. ProVal will develop all of the necessary actuarial information to develop reports that comply with applicable laws as well as GASB. Two credentialed actuaries will review this output for reasonableness. Individual test cases will also be examined to be sure that the benefits are being correctly handled and projected. As needed, additional questions will be raised of the prior actuary until we resolve any outstanding issues.
4. **Results Presentation:** Final transition results will be formalized in a letter to document the work that was done and highlight any items that the Plan may need to consider for the next valuation.

A typical transition will take ten to twelve weeks to complete. Note there will not be a fee to complete this process.

The annual valuation would naturally follow the transition, having many similar steps to complete:

- 1. Kickoff Meeting:** Brief annual meeting to discuss any changes to the process and other items that may impact the valuations.
- 2. Data Collection:** Receive all participant data and trust statements from staff and/or vendors. If needed, a formal request letter can be sent to start this process.
- 3. Processing Results:** Data and assets will be compared to prior year information for consistency. Once data is finalized, liabilities and results will be prepared using ProVal. This system is the most robust pension actuarial valuation system in the marketplace.
- 4. Assumption Discussion:** Prior to completing the valuations in the first year, we will set up a time with staff and the Board to review the actuarial assumptions and methods. This will be beneficial to us as we work to understand the CPRB's funding policy.
- 5. Prepare / Deliver Report:** We feel that flooding a client with words is not effective communication. Being clear, concise, illustrative, and articulate is a much better approach in our view. Our reports bear that out, as they are some of the clearest and easiest to read. They are compliant with actuarial standards, including recent updates to ASOP 4 and the new ASOP 51. While we seek general compliance with these standards, we can work with our clients to expand this information, as needed.
- 6. Present Reports:** Reports are only valuable if you understand what the results mean. It is only when you understand their meaning that you are informed to make critical decisions to manage the plan. Our goal with each annual meeting is to present the information you need in layman's terms so that you are ready to act.

Given the staggered timing for the various CPRB valuations, we would utilize this process multiple times in a year to develop reports for all the plans. Whenever possible, we will consolidate steps to minimize the staff time required (e.g., a single kickoff meeting, a single assumption discussions, and a single presentation of reports).

## **GASB VALUATIONS**

GASB reporting is required each year for auditing and inclusion of the plan's financials in the overall picture of the CPRB and the State. Foster & Foster has a separate team that oversees all the GASB reporting that we prepare for our clients. They have experience with all facets of the calculations, including rolling forward the prior valuation's liabilities and the detailed allocation of costs to sub-entities within the system. They use a standard report template which allows us to provide complete GASB reports in short-order.

**RETURN PROJECTIONS**

Foster & Foster is not an investment firm and does not prepare our own set of capital market assumptions. We regularly prepare custom projection information using the survey of capital market assumptions assembled annually by Horizon Actuarial Services, LLC. This survey combines the assumptions of multiple advisors to truly give a reasonable likelihood of projected returns. The 2022 survey included assumptions of 24 advisors who provided both short-term (10 years) and long-term (20 years or more) horizons. This survey would appear

**Distribution of Geometric Returns - Horizon**

	10-Year	20+ Years
40 <sup>th</sup> Percentile	5.32%	6.25%
45 <sup>th</sup> Percentile	5.84%	6.62%
50 <sup>th</sup> Percentile	6.34%	6.97%
55 <sup>th</sup> Percentile	6.85%	7.33%
60 <sup>th</sup> Percentile	7.36%	7.69%

**Probability of Exceeding Assumption**

Investment Return Assumption	Horizon (20+ Years)
5.75%	67%
6.00%	63%
6.25%	60%
6.50%	57%
6.75%	53%
7.00%	50%
7.25%	46%

to meet the timeframe requested by CPRB. Our analysis would then provide various percentile returns for your use. Below is a sample that we have provided in a recent experience study analysis. We prefer the assumption to be within the 45<sup>th</sup> to 55<sup>th</sup> percentile range, hence the values shown, but any percentile can be easily developed. We do have relationships with several investment advisors that could provide their capital market assumptions for individual use; however, that would only be a single set of data points. Since West Virginia has its own investment board, we would fully expect that they could provide excellent information for your consideration. A one-off analysis from a single provider would not be expected to add much to your analysis.

**EXPERIENCE STUDIES**

Experience studies are an important part of our process, as outlined in the “Our Strategy” section above. We don’t want to repeat that information here, but want to make clear that we have experience preparing these studies for our clients (just ask our references). We look forward to partnering with CPRB staff to provide a complete review of all systems.

The Q&A document mentioned your interest in understanding how we have handled assumption setting in light of the COVID pandemic. While the pandemic did not change the experience study process, it certainly has an impact that must be considered in reviewing results and making recommendations. There things have become clear:

1. Experience studies are typically an update to the current assumptions, not a replacement. The study is working more recent experience into the overall past experience shown by the plan. As issues arise, it may be necessary to apply more / less weight to recent experience, but all experience will need to be considered.
2. Sharing initial results with the Board, staff, and other stakeholders can lead to future expectations to be included in the assumptions. Oftentimes, the results are the results and no one provides real thought on



future trends. The pandemic, though, gives an opportunity for people to react to the unexpected and provide insight into how it could change the experience going forward.

3. Actions can be taken to limit the short-term impact, while planning to monitor more frequently. Valuation systems can easily isolate one or more years of experience to show if there are outliers in a particular period, which can help to keep anomalies from overly influencing the recommendations. That said, it may be worthwhile to have an interim study of certain assumptions (e.g., turnover and retirement) between the full five-year studies to see if pandemic experience persists.

## CONSULTING

Reports and other deliverables are only valuable if you understand what the results mean. It is only when you understand their meaning that you are informed to make critical decisions to manage the plan. Our goal with all our work is to be available to present the information you need in layman's terms and address questions you have so that you are ready to act.

Specially for CPRB, our consulting will include:

- **Peer Review:** CPRB staff will prepare certain funding and GASB reports that will need our independent review. Given our experience in preparing such documents and our role in being the outside reviewing actuary for a leading audit firm (see "Our References" section for more on our relationship with CliftonLarsonAllen), we have no reservations in performing this work; and
- **Legislative Costings:** Cost studies are a common need for anyone sponsoring a benefit plan. No matter what is being considered (benefit provisions, retirement windows, etc.), we aim to understand the objective of the request and translate that into actionable analysis for the CPRB. We find that regular communication allows us to be aware of studies as they are developing and work out details in advance, resulting in a clearer final product.

Foster & Foster stands ready to assist CPRB staff and the Board in any other ways possible, including projections, review policies, and administrative factors.

**SAMPLE TIMELINE**

The following is a sample timeline that could be used as we work towards delivering 2023 valuation results. This timeline assumes the RFP process and all contracting will be finalized by the end of April. Items are color-coded so that projects can be seen as a whole and in contrast to other projects. We will discuss this timeline with staff to ensure that all deadlines are reasonable.

<b>Task</b>	<b>Project</b>	<b>Target Deadline</b>
Contract finalized	Transition	4/28/2023
Kick-off meeting	Transition	5/1/2023
Information request to staff / prior actuary	Transition	5/2/2023
Information provided to Foster & Foster	Transition	5/15/2023
Questions raised to staff / prior actuary	Transition	6/12/2023
Answers to Foster & Foster	Transition	7/7/2023
Transition completed / update to staff	Transition	7/14/2023
Return projections finalized	Returns	8/21/2023
Finalize assumptions to be used in 2023 valuations	Valuations	8/31/2023
Final financials provided	Valuations	9/20/2023
GASB reports finalized	Valuations	9/25/2023
Data provided - PERS	Valuations	10/18/2023
Data finalized – PERS	Valuations	11/6/2023
Data provided - TRS	Valuations	11/10/2023
Data finalized – TRS	Valuations	11/30/2023
Staff provides reports for peer review	Valuations	12/1/2023
Data provided – Trooper A & B	Valuations	12/5/2023
Data provided – JRS	Valuations	12/11/2023
Preliminary results discussion with staff	Valuations	12/15/2023
Comments to staff on peer reviewed reports	Valuations	12/15/2023
Data provided – JRS	Valuations	12/10/2023
Data finalized – Trooper A & B / JRS	Valuations	12/20/2023
Valuation reports delivered	Valuations	1/8/2024
Legislative session begins	Cost Studies	1/10/2024
Valuation results meeting	Valuations	1/15/2024
Experience study (PERS) begins	Exp Study	2/12/2024
Initial results discussion with staff	Exp Study	4/15/2024

## OUR REFERENCES

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*This section addresses Qualification and Experience Desirable 2.*

Our firm currently works with eleven state-wide pension systems to provide ongoing annual actuarial services. These systems vary in size, with assets ranging from \$30 million to over \$18 billion. The following are client references who have worked with our staff and can speak to the quality of their work. We encourage you to contact them to learn about the difference our Foster & Foster team can make for the Plans. They will testify to our accuracy, timeliness, and strong customer service as it relates to the actuarial services we provide.

- **Arizona Public Safety Personnel Retirement System**  
**Contact / Title:** Mike Townsend / Administrator  
**Address:** 3010 E. Camelback Road, Suite 20, Phoenix, AZ 85016  
**Phone:** (602) 296-2527  
**Email:** mtownsend@psprs.com  
**Client Since:** 2019 – present  
**F&F Consultant:** Paul Baugher  
**Services:** Annual valuation services (funding and GASB) for three plans, experience study, experience studies, and consulting (e.g., change to amortization approach, enhancing funding policy, legislative costings)
- **Illinois Firefighters' Pension Investment Fund**  
**Contact Name / Title:** Steve Zahn / Chief Operating Officer  
**Address:** 1919 South Highland Avenue, Lombard, IL 60148  
**Phone:** (630) 785-2567  
**Email:** sczahn@ifpif.org  
**Client Since:** 2021 – present  
**F&F Consultant:** Jason Franken  
**Services:** Annual valuation services (state minimum funding basis) for over 300 plans and experience study
- **Illinois Police Officers' Pension Investment Fund**  
**Contact Name / Title:** Richard White / Executive Director  
**Address:** 456 Fulton Street, Suite 402, Peoria, IL 61602  
**Phone:** (309) 280-6464 ext. 101  
**Email:** rwhite@ipopif.org  
**Client Since:** 2021 – present  
**F&F Consultant:** Jason Franken, Paul Baugher  
**Services:** Annual valuation services (state minimum funding basis) for over 350 plans and experience study

Our firm also has substantial peer review and state-wide plan experience through its long-standing relationship with the auditing firm CliftonLarsonAllen, LLP (CLA). As part of this arrangement, our firm audits the GASB 67/68 valuations for CLA's clients. The audits include a review of the calculations of the total pension liability, pension expense, sensitivities of the discount rate, trend rates, and all other information required by the Governmental Accounting Standards Board (GASB).

Foster & Foster also ensures the economic and demographic assumptions used in the calculations are reasonable. While our reviews are often a confirmation of the work performed by the system actuary, there are times where potential errors are raised, like the error our firm once found that led to a \$1.2 billion adjustment to one client's results.

The public pension funds Foster & Foster has audited for CLA are listed below:

- Arizona State Retirement System
- Arlington County Employees' Retirement System
- City of Baltimore Employees Retirement System
- Baltimore City Fire & Police Retirement System
- Baltimore County Employees' Retirement System
- Public Employees' Retirement Association of Colorado (PERA)
- District of Columbia Retirement Board Teachers' Retirement Plan
- District of Columbia Police Officers' & Firefighters' Retirement Plan
- Kansas Public Employees Retirement System
- Montgomery County Employees Retirement System
- Public Employees' Retirement System of the State of Nevada
- Public Employees Retirement Association of New Mexico
- North Dakota Public Employees Retirement System
- North Dakota Teachers' Fund for Retirement
- Ohio Public Employees Retirement System
- Philadelphia Municipal Retirement System
- Seattle City Employees' Retirement System
- South Carolina Retirement System
- Washington State Department of Retirement Systems

Contact information is provided below:

- **CliftonLarsonAllen, LLP**  
**Contact / Title:** Brittany Smith / Manager  
**Address:** 1966 Greenspring Drive, Suite 300, Timonium, MD 21093  
**Phone:** (425) 250-6023  
**Email:** brittany.smith@CLAconnect.com  
**Client Since:** 2016 – present  
**F&F Consultant:** Jason Franken

## OUR TOOLS

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Our firm heavily invests in developing technological solutions that address the needs of our clients and make retirement easier for their members. As our firm is devoted almost exclusively to serving public sector clients, most of the tools we provide are geared for the public sector. We would like to take this opportunity to mention two other tools that can be made available to our clients: our web-based administration portal and the Retirement Planning Calculator.

Before we do so, we wanted to take another opportunity to mention our Funding Modeler. This tool was already presented as part of the “Our Strategy” section of this proposal, so we do not want to repeat that information here. We did want to share one success story that was recently submitted by a client using our modeler. This client was able to use our customized modeling tool to educate and equip the stakeholders of their systems in better understanding their unfunded liability, leading to actions from state and local employers to fund an additional \$5 billion into the fund over a couple years. These actions, along with the strong investment management by their staff, resulted in their system having the largest year-over-year growth in investments held of all large U.S. retirement plans in both 2021 and 2022, as found by *Pensions and Investments* magazine.

### F&F ADMIN PORTAL

Foster & Foster has developed customized administrative software for our clients. This easy-to-program system helps to streamline the administration of your plan, leaving you time to address other items. Every type of calculation can be automated, allowing for final calculations to be prepared upon termination with the touch of a button. The electronic archive allows for past calculations to be called upon at any time.

Our system enables administrators to house member data in one centralized location with a multitude of user-friendly capabilities.

- **Benefit Processing Forms** – Forms are automatically populated with member data.
- **IRS & Custodial Forms** – W-4P and direct deposit forms can be uploaded and auto populated.
- **Retirement Benefit Estimates** – Run retirement numbers for members in minutes.
- **Life to Date Contribution Statements** – Prepare up-to-date statements for members.
- **Customized Reports** – Track important dates, COLAs, DROP max periods, DROP balances, RMDs, Social Security drop down dates.

Our system also provides an individual member portal, which enhances members’ experience by providing them with the most current and up to date information regarding their pension.

- **Contact Information** – Members can see & update their address and email information.
- **Beneficiary Information** – Members can verify that their beneficiary data is current and make changes.

- **Change Forms** – Common forms can be uploaded for member use; W-4P, direct deposit forms.
- **Retirement Benefit Estimates** – Members can run their own estimates using various dates.
- **Life to Date Contribution Statements** – LTD statements can be run and used for asset verifications.
- **Member Statements** – Statements can be uploaded for each member. No need for hard copies.
- **Benefit Summary** – Real time accrued benefit data is housed on the member home screen.

### **RETIREMENT PLANNING CALCULATOR**

Our Retirement Planning Calculator is a web-based tool that allows members to better prepare for retirement. By incorporating pension, Social Security, savings, and anticipated expenses, members can review a complete picture of what their retirement could look like. With this information, members can make decisions on proper timing and shore up any income shortfalls before it is too late. The biggest value of this tool could be its Social Security optimizer, which considers both member and spouse to provide the optimal ages for their combined benefit commencement. Results are summarized in charts, timelines, and spreadsheets to give you the exact level of detail that you desire.

Below are some screen shots of the Retirement Planning Calculator:



Multiple versions of the tool are being offered to meet your pricing and customization needs.

## OUR COVERAGE

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### Insurance Specifications

Foster & Foster does not limit its professional liability to clients in any capacity. Our firm carries workers' compensation, comprehensive general liability, and professional liability insurance. Our coverage also includes error and omissions insurance for up to \$5,000,000, and our firm has never submitted a claim to its insurance company for professional liability due to an error or omission on our part. The limit of Foster & Foster's liability is on a per-claim basis (\$5,000,000), subject to an annual aggregate (\$5,000,000). Our firm's professional liability insurance carrier is Indian Harbor Insurance Company, and its worker's compensation carrier is Travelers Indemnity Company of America. Our firm has increased its cyber liability coverage from \$1 million to \$2 million and will self-insure against any breaches from \$2 million to \$5 million.

- **Risks Covered:** Professional Liability (Errors & Omissions)  
**Name of Insurance Carrier:** Indian Harbor Insurance Company  
**Levels and Limits:** The limit of our liability is on a per-claim basis (\$5,000,000), subject to an annual aggregate (\$5,000,000). Foster & Foster does not limit its professional liability to its clients in any capacity.
- **Risks covered:** Comprehensive General Liability  
**Name of Insurance Carrier:** State Farm  
**Levels and Limits:** The limit of our liability is \$1,000,000 for each occurrence with a \$2,000,000 general aggregate. Limits of liability are 500/500/100.
- **Risks covered:** Automobile Liability  
**Name of Insurance Carrier:** State Farm  
**Levels and Limits:** The limit of our liability is \$1,000,000
- **Risks covered:** Umbrella Liability  
**Name of Insurance Carrier:** Travelers Insurance Company  
**Levels and Limits:** The limit of our liability is \$5,000,000 for each occurrence.
- **Risks covered:** Workers Compensation and Employers' Liability  
**Name of Insurance Carrier:** Travelers Insurance Company  
**Levels and Limits:** The limit of our liability is \$1,000,000.
- **Risks covered:** Cyber Liability  
**Name of Insurance Carrier:** Travelers Insurance Company  
**Levels and Limits:** The limit of our liability is \$2,000,000 for each occurrence





### CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
08/01/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> 	<b>ANN CLARK, AGENT</b> 16440 S TAMiami TRL, STE 9 FORT MYERS, FL 33908	<b>CONTACT NAME:</b> ANN CLARK <b>PHONE (A/C, Ho, Ext):</b> 239-433-7771 <b>E-MAIL:</b> ANN.CLARK.BXKH@STATEFARM.COM <b>ADDRESS:</b>	<b>FAX (A/C, No.):</b> 239-437-8140
	<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAIC #</b>
<b>INSURED</b> Foster & Foster Consulting Actuaries Inc 13420 Parker Commons Blvd Suite 104 Fort Myers, FL 33912	<b>INSURER A:</b> State Farm Mutual Automobile Insurance Company	25178	
	<b>INSURER B:</b> State Farm Fire and Casualty Company		
	<b>INSURER C:</b>		
	<b>INSURER D:</b>		
	<b>INSURER E:</b>		

**COVERAGES**      **CERTIFICATE NUMBER:**      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSUR LTR	TYPE OF INSURANCE	ADDL SUBR (INSR, WCD)	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
B	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Fiduciary Liability	Y N	98-CP-T158-5	03/22/2022	03/22/2023	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Per occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMPROP AGG \$ 4,000,000 OTHER \$
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY <input type="checkbox"/> AUTOS ONLY	Y	G89 8287-F10-59A G87 7081-E19-59C 980 1670-A25-59M	08/10/2022 05/19/2022 01/25/2022	06/10/2023 05/19/2023 01/25/2023	CONFINED SINGLE LIMIT (Per accident) \$ BODILY INJURY (Per person) \$ 1,000,000 BODILY INJURY (Per accident) \$ 1,000,000 PROPERTY DAMAGE (Per accident) \$ 1,000,000
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB	<input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE	98-BS-T964-2	04/27/2022	04/27/2023	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in WV) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A			PER STATUTE      OVL OR E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 161, Additional Remarks Schedule, may be attached if more space is required)

<b>CERTIFICATE HOLDER</b>	<b>CANCELLATION</b> SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE
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FOSTE-2

OP ID: JV

**CERTIFICATE OF LIABILITY INSURANCE**

DATE (MM/DD/YYYY)  
12/28/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Atkinson & Assoc. Insurance 1637 Brantley Rd. Bldg C Fort Myers, FL 33807 Paul G. Atkinson A008636	239-437-6655 CONTACT <b>Paul G Atkinson</b> PHONE (A/C. No. Ext) <b>239-437-6655</b> FAX (A/C. No.) <b>239-689-3826</b> E-MAIL <b>patkinson@atkinsoninsurance.com</b>
<b>INSURED</b> Foster and Foster Consulting Actuaries, Inc. dba Foster & Foster, Inc. 13420 Parker Commons Blvd #104 Fort Myers, FL 33812	INSURER(S) AFFORDING COVERAGE INSURER A: <b>Travelers Indemnity Company of America</b> NAIC # <b>25866</b> INSURER B: <b>Indian Harbor Insurance Co</b> <b>38940</b> INSURER C: <b>Travelers Casualty &amp; Surety</b> <b>31194</b> INSURER D: INSURER E: INSURER F:

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR (INSR. WORD)	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
D	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE OCCUR <b>X CYBER LIABILITY</b>		108817993	11/01/2022	01/01/2024	EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COM/OP AGG \$ EA CLAIM \$ <b>2,000,000</b>
	AUTOMOBILE LIABILITY ANY AUTO OWNED AUTOS ONLY Hired AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY					COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION \$					EACH OCCURRENCE \$ AGGREGATE \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/EMBER EXCLUDED? (Mandatory in WA) If yes, describe under DESCRIPTION OF OPERATIONS/LOCATIONS	Y/N <b>X</b> N/A	UB8J3906882342E	01/01/2023	01/01/2024	X PER STATUTE OTH-ER E.L. EACH ACCIDENT \$ <b>1,000,000</b> E.L. DISEASE - EA EMPLOYEE \$ <b>1,000,000</b> E.L. DISEASE - POLICY LIMIT \$ <b>1,000,000</b>
C	PROF LIABILITY E&O \$250,000. Ded		MPP 9037522 04	09/01/2022	01/01/2024	EA CLAIM \$ <b>5,000,000</b> AGGREGATE \$ <b>5,000,000</b>

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

<b>CERTIFICATE HOLDER</b>  ****INFORMATION ONLY****	<b>CANCELLATION</b> SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE 
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ACORD 25 (2018/03)

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## **APPENDIX A – COMPLETED EXHIBIT A**

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**DESIGNATED CONTACT:** Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Jason L. Franken - Principal

(Address) 184 Shuman Blvd., Suite 305, Naperville, IL 60563

(Phone Number) / (Fax Number) (630) 620-0200 / (239) 481-0634

(Email address) jason.franken@foster-foster.com

**CERTIFICATION AND SIGNATURE:** By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

*By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.*

Foster & Foster Consulting Actuaries, Inc.

(Company)

(Signature of Authorized Representative)

Jason L. Franken - Principal 02/24/2023

(Printed Name and Title of Authorized Representative) (Date)

(630) 620-0200 (239) 481-0634

(Phone Number) (Fax Number)

jason.franken@foster-foster.com

(Email Address)

# REQUEST FOR PROPOSAL

(Agency Name and RFP #)

- 6.8. Availability of Information:** Proposal submissions become public and are available for review immediately after opening pursuant to West Virginia Code §5A-3-11(h). All other information associated with the RFP, including but not limited to, technical scores and reasons for disqualification, will not be available until after the contract has been awarded pursuant to West Virginia Code of State Rules §148-1-6.3.d.

By signing below, I certify that I have reviewed this Request for Proposal in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Foster & Foster Consulting Actuaries, Inc.  
(Company)

Jason L. Franken - Principal  
(Representative Name, Title)

(630) 620-0200 / (239) 481-0634  
(Contact Phone/Fax Number)

02/24/2023  
(Date)

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: CPR230000002**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

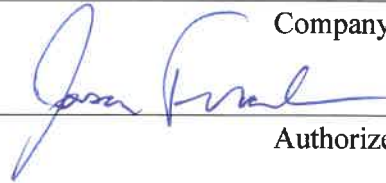
(Check the box next to each addendum received)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input checked="" type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

\_\_\_\_\_  
Foster & Foster Consulting Actuaries, Inc.

Company

\_\_\_\_\_  


Authorized Signature

\_\_\_\_\_  
02/24/2023

Date

**NOTE:** This addendum acknowledgement should be submitted with the bid to expedite document processing.

## **APPENDIX B – SAMPLE VALUATION REPORT**

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Foster & Foster has a standard valuation report but can expand the document to meet the needs of an individual client. The following pages are a sample valuation report, including GASB accounting information, for a plan that has been customized to meet the needs of the client.

Often times, valuation reports contain a lot of information that Boards / staff do not use. As part of our transition process, we will work through your current reports with staff to make sure we understand what items are critical, what items are not needed, and what information could potentially be added to the report documents.

**XYZ RETIREMENT FUND**

ACTUARIAL VALUATION  
AS OF DECEMBER 31, 2020

CONTRIBUTIONS APPLICABLE TO THE  
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2021

GASB DISCLOSURE INFORMATION AS OF  
DECEMBER 31, 2020



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS





April 22, 2021

Board of Trustees  
XYZ Retirement Fund  
1234 XYZ St.  
Anywhere, USA 12345

Dear Board:

We are pleased to present to the Board this report of the December 31, 2020 actuarial valuation of the XYZ Retirement Fund.

The valuation was performed as of December 31, 2020 to determine the current funding status and to develop the appropriate funding requirements for the applicable plan year. Successive valuations will be performed every year.

Included are the related results for GASB Statements No. 67 and No. 68. The total pension liability, net pension liability, and certain sensitivity information shown in the GASB results are based on an actuarial valuation performed as of the valuation date. The calculation of the liability for GASB results was performed for the purpose of satisfying the requirements of GASB Statements No. 67 and No. 68. Use of the results for other purposes may not be applicable and produce significantly different results.

#### **Data Sources**

In preparing this report, we have relied on personnel, plan design and asset information supplied by the Fund. The actuarial value of assets was determined based on audited financial statements supplied by Legacy Professionals LLP, the auditor for the Fund. In our opinion, the assumptions used in the valuation, as adopted by the Board of Trustees, represent reasonable expectations of anticipated fund experience. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

#### **Experience**

The experience of the Fund over the last year is outlined in this report. Overall, the Fund experienced an actuarial gain of \$5,448,697 which consists of a \$10,483,804 gain on the Fund's actuarial value of assets and a \$5,035,107 loss on the Fund's actuarial accrued liability. Based on the actuarial value of assets, the Fund earned 7.98% compared to the assumed 7.25% return. The primary source of liability loss was due to more retirements than expected. These losses were offset somewhat by lower than assumed salary increases and higher than expected mortality experience for surviving spouses.

#### **Changes Since Prior Report**

The valuation reflects no changes since the prior report.

#### **Contribution Amounts**

The statutory funding objective of the Fund is to attain a funded ratio of at least 90% by the year 2050. However, an additional contribution requirement has been determined based on achieving a funding level of 100%. District contributions equal an amount that will be sufficient to meet the Fund's actuarially determined contribution requirement but shall not exceed an amount equal to the total employee contributions 2 years prior multiplied by 4.19.

Based on the results of this valuation, the actuarially determined contribution applicable for the fiscal year ending December 31, 2021 is \$76,841,344. This contribution is based on a 100% funding target. Based on the pension code, the maximum employer contribution (based on the 4.19 multiplier) is \$88,754,000.

We estimate that a multiplier of 3.63 is required to cover the full actuarially determined contribution requirement for the year 2021.

Illinois Public Act 97-0894 (effective 8/3/2012) provided for changes to member contribution requirements and the required multiplier. The expected member contributions reflect the same rates as the prior year valuation.

#### **Schedules for Annual Financial Report**

The report includes information and trend data schedules for use in the Annual Financial Report. The following information and exhibits are included in the body of the report and Supplementary Tables section:

- Recommended Employer Multiple
- Present Value of Future Benefits
- Membership Note Data
- Participant Statistics
- History of Change in Unfunded Accrued Liability
- History of Annuitants and Surviving Spouses Added/Dropped from Rolls
- Summary of Annuitants and Surviving Spouses by Age
- History of Average Annuities at Retirement
- Breakdown of Aggregate Accrued Liabilities

**Actuarial Certification**

The valuations have been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflects laws and regulations issued to date pursuant to the provisions of Article 13, Illinois Pension Code, as well as applicable federal laws and regulations. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuation, we did not perform an analysis of the potential range of such future measurements.

In our opinion, the assumptions and method used to determine the annual required contribution, as adopted by the Board of Trustees, represent reasonable expectations of anticipated plan experience.

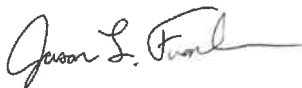
In our opinion, the following valuation results fairly present the financial condition of the XYZ Retirement Fund as of December 31, 2020.

The undersigned is familiar with the immediate and long-term aspects of pension valuations and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All the sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no associate of Foster & Foster, Inc. working on this report has any direct financial interest or indirect material interest in the XYZ, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the XYZ Retirement Fund. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

We look forward to discussing the results with you.

Regards,



Jason L. Franken, FSA, EA, MAAA

Enrollment Number: 20-06888  
Foster & Foster, Inc.

XYZ Retirement Fund  
*Actuarial Valuation Report as of December 31, 2020*

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## SUMMARY OF RESULTS

The table below contains a summary of key valuation results compared to the prior year values.

	December 31, 2020	December 31, 2019
Total Actuarial Liability	\$ 2,714,192,284	\$ 2,666,221,630
Actuarial Value of Assets	<u>1,556,056,167</u>	<u>1,489,266,144</u>
Unfunded Actuarial Liability	\$ 1,158,136,117	\$ 1,176,955,486
Funded Ratio	57.3%	55.9%
Market Value of Assets	\$ 1,580,890,628	\$ 1,506,834,278
Unfunded Liability (MVA basis)	\$ 1,133,301,656	\$ 1,159,387,352
Funded Ratio (MVA basis)	58.2%	56.5%
Employer Normal Cost as % of Payroll:		
Tier 1 Benefits	6.36%	6.38%
Tier 2 Benefits	2.87%	3.19%
Administrative Expenses	0.85%	0.86%
Total Employer Normal Cost	6.14%	6.38%
Applicable Fiscal Year <sup>1</sup>	<b>2021</b>	<b>2020</b>
Actuarially Determined Contribution	\$ 76,841,344	\$ 77,392,414
Contribution Requirement For Fiscal Year <sup>2</sup>	\$ 76,841,344	\$ 77,392,414
Expected Employer Contribution for Fiscal Year	\$ 88,754,000	\$ 88,127,000

<sup>1</sup> The contribution requirements are levied in the applicable fiscal year and deposited into the Fund during the following fiscal year.

<sup>2</sup> See details of calculation on page 9.

## ACTUARIAL LIABILITY AND FUNDED RATIO

Below are details regarding the actuarial liability and funded ratio as of December 31, 2020.

1. Present Value of Future Benefits	\$	2,978,314,242
2. Active Members		
Retirement	\$	632,213,871
Termination		19,422,959
Death		22,224,419
Disability		<u>6,561,245</u>
Total	\$	680,422,494
3. Members Receiving Benefits		
Retirement Annuities	\$	1,781,297,562
Survivor Annuities/Children		<u>232,466,316</u>
Total	\$	2,013,763,878
4. Inactive Members	\$	20,005,912
5. Total Actuarial Liability (2. + 3. + 4.)	\$	2,714,192,284
6. Actuarial Value of Assets	\$	1,556,056,167
7. Unfunded Actuarial Liability	\$	1,158,136,117
8. Funded Ratio		57.3%

## EMPLOYER'S NORMAL COST

Below is a summary of the employer's share of the normal cost for the year beginning January 1, 2021.

Normal Cost	Tier 1		Tier 2		Total	
	Normal Cost	Percent of Total Payroll	Normal Cost	Percent of Total Payroll	Normal Cost	Percent of Total Payroll
Retirement	\$ 20,925,849	16.09%	\$ 4,643,432	8.01%	\$ 25,569,281	13.60%
Termination	1,083,791	0.83%	1,197,748	2.07%	2,281,539	1.21%
Death	1,473,288	1.13%	731,958	1.26%	2,205,246	1.17%
Disability	<u>399,671</u>	<u>0.31%</u>	<u>311,364</u>	<u>0.54%</u>	<u>711,035</u>	<u>0.38%</u>
Total Normal Cost	\$ 23,882,599	18.36%	\$ 6,884,502	11.87%	\$ 30,767,101	16.36%
Expected Member Contributions	\$ 15,609,566	12.00%	\$ 5,219,393	9.00%	\$ 20,828,959	11.07%
Employer's Share of Normal Cost	\$ 8,273,033	6.36%	\$ 1,665,109	2.87%	\$ 9,938,142	5.29%
Expected Administrative Expenses					\$ 1,592,783	0.85%
Employer's Share of Normal Cost, adjusted for expected administrative expenses					\$ 11,530,925	6.14%
Pensionable Payroll	\$ 130,079,718		\$ 57,993,252		\$ 188,072,970	



## ACTUARIALLY DETERMINED CONTRIBUTION

The actuarially determined contribution requirement based on the provisions applicable for fiscal years 2013 and later, according to section 13-503 of Article 13 of the Illinois Pension Code, is below.

1. Employer's Share of Normal Cost	\$ 11,530,925
2. Amortization Payment (annual amount to amortize 100% of the unfunded liability by 2050)	
Actuarial Liability	\$ 2,714,192,284
Actuarial Assets	\$ 1,556,056,167
Unfunded Accrued Liability	\$ 1,158,136,117
Amortization Period	30 years
Amortization Payment	\$ 65,310,419
3. Actuarially Determined Contribution for Year Beginning January 1, 2021	\$ 76,841,344
as a percentage of pensionable payroll	40.86%
4. District's Funding Policy (4.19 x Total Member Contributions for two years prior)	\$ 88,754,000
as a percentage of pensionable payroll	47.19%
5. Statutory Employer Contribution (lesser of 3 and 4)	\$ 76,841,344



XYZ Retirement Fund  
 Actuarial Valuation Report as of December 31, 2020

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## UNFUNDED ACTUARIAL LIABILITY

1. Unfunded Actuarial Accrued Liability (UAAL) as of December 31, 2019	\$ 1,176,955,486
2. Employer Normal Cost, Developed as of December 31, 2019	12,115,137
3. Expected Interest (7.25%) on 1. and 2.	86,207,620
4. Employer Contributions	107,852,191
5. Expected Interest (7.25%, mid-year) on 4.	3,841,238
6. Expected UAAL as of December 31, 2020 (1)+(2)+(3)-(4)-(5)	1,163,584,814
7. Change in UAAL Due to Actuarial (Gain)/Loss, by component	
Decrease in UAAL due to investment return higher than assumed	(10,483,804)
Decrease in UAAL due to salary increases lower than assumed	(6,558,614)
Increase in UAAL due to decrement experience	18,970,774
Decrease in UAAL due to inactive mortality experience	(1,824,785)
Decrease in UAAL due to other changes	<u>(5,552,268)</u>
Net decrease in UAAL due to actuarial experience	(5,448,697)
8. Change in UAAL Due to Assumption Changes	-
9. Unfunded Actuarial Accrued Liability as of December 31, 2020	\$ 1,158,136,117

XYZ Retirement Fund  
Actuarial Valuation Report as of December 31, 2020

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## CHANGE IN FUNDED RATIO

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1. Funded ratio as of December 31, 2019	55.9%
2. Expected funded ratio as of December 31, 2020	57.0%
3. Change in funded ratio Due to Actuarial (Gain)/Loss, by component	
Increase in funded ratio due to investment return higher than assumed	0.4%
Increase in funded ratio due to salary increases lower than assumed	0.2%
Decrease in funded ratio due to decrement experience	-0.4%
Increase in funded ratio due to inactive mortality experience	0.0%
Increase in funded ratio due to other changes	0.1%
Net increase in funded ratio due to actuarial experience	0.3%
4. Change in UAAL Due to Assumption Changes	-
5. Funded Ratio as of December 31, 2020	57.3%

## DEVELOPMENT OF ASSETS

### Development of Actuarial Value of Assets

Market Value of Assets, 12/31/2020	\$ 1,580,890,628
Less: Unrecognized Amounts as of 12/31/2020	24,834,461
Actuarial Value of Assets, 12/31/2020	<u>\$ 1,556,056,167</u>
Limited Actuarial Value of Assets, 12/31/2020	\$ 1,556,056,167

### Development of Investment Gain/(Loss)

Market Value of Assets, 12/31/2019	\$ 1,506,834,278
Contributions & Other Additions Less Benefit Payments & Admin Expenses	(50,043,109)
Expected Investment Earnings for 2020	<u>107,463,162</u>
Expected Market Value of Assets, 12/31/2020	\$ 1,564,254,331
Actual Net Investment Income/(Loss) for 2020	\$ 124,099,459
2020 Investment Gain/(Loss), (Actual less Expected)	\$ 16,636,297

Plan Year Ending	Gain/(Loss)	Gains/(Losses) Not Yet Recognized by Valuation Year			
		2020	2021	2022	2023
12/31/2016	18,841,099	0	0	0	0
12/31/2017	95,056,619	19,011,324	0	0	0
12/31/2018	(213,622,995)	(85,449,198)	(42,724,599)	0	0
12/31/2019	129,938,829	77,963,297	51,975,532	25,987,766	0
12/31/2020	16,636,297	<u>13,309,038</u>	<u>9,981,778</u>	<u>6,654,519</u>	<u>3,327,259</u>
Total		24,834,461	19,232,711	32,642,285	3,327,259

### Calculation of Rates of Return

Rates of return calculated below are based on a formula defined by the IRS. Therefore, the returns may differ from investment returns calculated for other purposes. The formula is defined as  $(2 * I)$  divided by  $(A + B - I)$  where A, B and I are as follows:

(A) 12/31/2019 Actuarial Assets:	\$ 1,489,266,144
(I) Net Investment Income:	
1. Interest, Dividends, Net Gross Securities Lending Income and Other Income	25,516,960
2. Change in Actuarial Value	95,990,431
3. Investment Expenses	<u>(4,671,521)</u>
Total	<u>\$ 116,835,870</u>
(B) 12/31/2020 Actuarial Assets:	\$ 1,556,056,167
Actuarial Asset Rate of Return = $2I/(A+B-I)$ :	7.98%
Market Value of Assets Rate of Return (IRS formula):	8.37%

STATEMENT OF FIDUCIARY NET POSITION  
 December 31, 2020

<u>ASSETS</u>	MARKET VALUE
Cash	306,082
Total Cash and Equivalents	306,082
Receivables:	
District Contributions	88,127,000
Due From Broker	40,175,815
Accounts Receivable	106,664
Accrued Income	3,123,574
Total Receivables	131,533,053
Investments:	
Equities	389,988,687
U.S. Government and government agency obligations	93,678,203
Corporate and foreign government obligations	132,056,474
Mutual and Exchange Traded Funds	97,691,014
Pooled Funds - Equity	460,933,943
Pooled Funds - Fixed Income	164,604,327
Limited Partnership - Real Estate	62,992,834
Real estate investment trust	68,176,270
Short-Term Investment Funds	28,783,361
Securities Lending Collateral	6,841,775
Total Investments	1,505,746,888
Total Assets	1,637,586,023
<u>LIABILITIES</u>	
Liabilities:	
Payable:	
Securities Lending Collateral	6,841,775
Due to Broker	48,822,915
Accounts Payable	1,030,705
Total Liabilities	56,695,395
Net Assets:	
Active and Retired Members' Equity	1,580,890,628
Net Assets	
Active and Retired Members' Equity	1,580,890,628
NET POSITION RESTRICTED FOR PENSIONS	1,580,890,628
TOTAL LIABILITIES AND NET ASSETS	1,637,586,023

XYZ Retirement Fund  
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STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
 FOR THE YEAR ENDED December 31, 2020  
 Market Value Basis

<u>ADDITIONS</u>	
Contributions:	
Member	20,982,056
District	107,852,191
<b>Total Contributions</b>	<b>128,834,247</b>
Investment Income:	
Interest & Dividends	22,191,464
Net Increase in Fair Value of Investments	106,380,332
Net Securities Lending Income	199,184
Less Investment Expense <sup>1</sup>	(4,671,521)
<b>Net Investment Income</b>	<b>124,099,459</b>
Other Income	2,738
<b>Total Additions</b>	<b>252,936,444</b>
<u>DEDUCTIONS</u>	
Distributions to Members:	
Benefit Payments	174,996,453
Refunds of Employee Contributions	2,290,858
<b>Total Distributions</b>	<b>177,287,311</b>
Administrative Expenses	1,592,783
Other Deductions	0
<b>Total Deductions</b>	<b>178,880,094</b>
<b>Net Increase in Net Position</b>	<b>74,056,350</b>
<b>NET POSITION RESTRICTED FOR PENSIONS</b>	
Beginning of the Year	1,506,834,278
End of the Year	1,580,890,628

<sup>1</sup> Investment related expenses include investment management, investment consulting and custodial fees.

## PARTICIPANT DATA

Participant Information	December 31, 2020	December 31, 2019	Change
Number Active Members - Total	1,769	1,817	-2.6%
Number Active Members - Fully Vested	1,095	1,174	-6.7%
Number Receiving Benefits			
Retirement Annuities	1,917	1,883	1.8%
Surviving Spouse Annuities	546	561	-2.7%
Children's Annuities	20	21	-4.8%
Number Inactive Members - Total	132	131	0.8%
Number Inactive Members - Vested	37	38	-2.6%
Total Members	4,384	4,413	-0.7%
Total Pensionable Salary	\$ 188,072,970	\$ 189,961,010	-1.0%
<b>Active Statistics – Tier 1</b>			
Number	1,124	1,225	-8.2%
Average Age	53.44	53.20	0.4%
Average Service	17.96	17.68	1.6%
Total Pensionable Salary	\$ 130,079,718	\$ 138,352,537	-6.0%
Average Salary	\$ 115,729	\$ 112,941	2.5%
<b>Active Statistics – Tier 2</b>			
Number	645	592	9.0%
Average Age	43.31	42.95	0.8%
Average Service	4.39	3.80	15.6%
Total Salary	\$ 58,463,131	\$ 51,942,396	12.6%
Average Salary	\$ 90,641	\$ 87,741	3.3%
Pensionable Salary	\$ 57,993,252	\$ 51,608,473	12.4%
Average Pensionable Salary	\$ 89,912	\$ 87,176	3.1%
<b>Annual Benefit Payments for Members Receiving Benefits</b>			
Retirement Annuities	\$ 149,537,047	\$ 142,324,135	5.1%
Surviving Spouse Annuities	\$ 27,722,263	\$ 27,127,117	2.2%
Children's Annuities	\$ 120,000	\$ 126,000	-4.8%

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**Participant Reconciliation**

	Active	Inactive Vested	Inactive Not Vested	Employee Annuitants	Survivor Annuitants	Child	Total Count
<i>As of 12/31/2019</i>	<i>1,817</i>	<i>38</i>	<i>93</i>	<i>1,883</i>	<i>561</i>	<i>21</i>	<i>4,413</i>
<b>Terminations</b>							
Vested	(13)	13					0
Not Vested	(15)		15				0
<b>Retirements</b>	(91)	(10)	(3)	104			0
<b>Deaths</b>							
w/o Beneficiary	(4)		(1)	(38)	(48)		(91)
w/ Beneficiary	(2)	(1)		(31)	34		0
w/ Child Beneficiary							0
w/ Rev. Annuitant							
<b>New Member</b>	79						79
<b>Return to Work</b>	6	(2)	(4)				0
<b>Benefit expired</b>				(1)	(1)	(1)	(3)
<b>Refunds</b>	(8)	(1)	(5)				(14)
<b>Repaid Refunds</b>							
<b>Adjustments</b>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Net Change</b>	(48)	(1)	2	34	(15)	(1)	(29)
<i>As of 12/31/2020</i>	<i>1,769</i>	<i>37</i>	<i>95</i>	<i>1,917</i>	<i>546</i>	<i>20</i>	<i>4,384</i>

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**Active Member Statistics by Tier**

Tier	Sex	Count	Avg Age	Avg Svc	Pensionable Salary <sup>1</sup>		Total Salary	
					Total	Average	Total	Average
1	M	821	53.7	18.1	97,128,464	118,305	97,128,464	118,305
	F	<u>303</u>	52.8	17.5	<u>32,951,253</u>	108,750	<u>32,951,253</u>	108,750
	Total	1,124	53.4	18.0	130,079,718	115,729	130,079,718	115,729
2	M	484	44.1	4.5	45,259,234	93,511	45,542,957	94,097
	F	<u>161</u>	41.0	4.1	<u>12,734,018</u>	79,093	<u>12,920,174</u>	80,250
	Total	645	43.3	4.4	57,993,252	89,912	58,463,131	90,641
Total	M	1,305	50.1	13.1	142,387,699	109,109	142,671,421	109,327
	F	<u>464</u>	48.7	12.8	<u>45,685,271</u>	98,460	<u>45,871,427</u>	98,861
	Total	1,769	49.7	13.0	188,072,970	106,316	188,542,848	106,582

<sup>1</sup> Pensionable Salary reflects the salary limitations established in the Illinois Pension Code for members hired on or after January 1, 2011. The statutory salary limitation is \$115,928.92 for calendar year 2020.



**Active Age Service Grid - Total**  
 Total Active Member Count and Pensionable Salary by Age and Service

Age	Years of Service									Total
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	4	10	3							17
	\$74,657	\$63,405	\$78,749							\$68,760
25-29	7	34	3							44
	\$74,963	\$73,570	\$106,935							\$76,067
30-34	9	62	48	10						129
	\$64,784	\$80,630	\$93,718	\$111,899						\$86,818
35-39	4	55	53	48	12					172
	\$60,046	\$86,954	\$93,159	\$119,888	\$121,561					\$99,845
40-44	7	69	45	59	37	19				236
	\$65,437	\$94,718	\$104,437	\$109,722	\$118,476	\$118,114				\$105,062
45-49	1	46	54	54	40	60	6			261
	\$103,334	\$90,976	\$101,032	\$109,573	\$125,604	\$132,669	\$203,955			\$114,440
50-54	4	39	49	45	38	74	28	9		286
	\$81,541	\$93,183	\$98,362	\$103,693	\$110,766	\$124,064	\$121,191	\$108,336		\$109,107
55-59	3	37	38	46	34	68	48	15	1	290
	\$57,249	\$92,561	\$100,790	\$103,203	\$113,304	\$122,334	\$135,094	\$125,835	\$105,906	\$113,182
60-64	2	17	37	30	34	50	16	18	2	206
	\$55,806	\$90,952	\$103,725	\$95,397	\$109,140	\$128,657	\$122,600	\$113,086	\$127,735	\$110,455
65-69		8	6	17	11	29	14	9	3	97
		\$86,750	\$90,473	\$93,344	\$107,294	\$119,326	\$122,057	\$105,294	\$152,265	\$109,047
70+		1	3	4	5	10	2	3	3	31
		\$103,334	\$83,307	\$99,830	\$98,480	\$102,609	\$114,115	\$111,810	\$109,061	\$101,997
<b>Total</b>	<b>41</b>	<b>378</b>	<b>339</b>	<b>313</b>	<b>211</b>	<b>310</b>	<b>114</b>	<b>54</b>	<b>9</b>	<b>1,769</b>
	\$68,720	\$87,407	\$98,610	\$107,111	\$115,220	\$124,591	\$131,581	\$114,466	\$127,262	\$106,316

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**Active Age Service Grid – Male Members**  
 Male Active Member Count and Pensionable Salary by Age and Service

Age	Years of Service									Total
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	3	7	2							12
	\$68,973	\$63,811	\$76,128							\$67,155
25-29	6	19	2							27
	\$77,695	\$75,828	\$111,245							\$78,866
30-34	7	40	29	7						83
	\$65,208	\$85,657	\$95,268	\$114,937						\$89,760
35-39	1	42	36	37	6					122
	\$53,040	\$90,577	\$97,256	\$121,365	\$125,809					\$103,310
40-44	4	55	42	40	26	12				179
	\$70,585	\$98,260	\$104,688	\$110,560	\$123,053	\$131,004				\$107,695
45-49	1	34	41	42	33	41	6			198
	\$103,334	\$95,802	\$101,411	\$108,388	\$126,040	\$136,694	\$203,955			\$116,456
50-54	2	34	39	37	28	48	23	7		218
	\$82,784	\$95,544	\$98,818	\$107,479	\$113,270	\$124,695	\$121,430	\$110,913		\$109,958
55-59	3	23	27	32	25	51	41	10		212
	\$57,249	\$103,906	\$100,749	\$104,400	\$112,434	\$120,507	\$139,453	\$143,152		\$116,643
60-64		14	32	18	27	39	11	14	2	157
		\$96,177	\$107,131	\$101,056	\$109,181	\$130,056	\$124,599	\$117,182	\$127,735	\$113,888
65-69		8	5	13	10	18	12	8	2	76
		\$86,750	\$95,168	\$98,516	\$108,380	\$121,528	\$109,722	\$110,591	\$147,680	\$108,140
70+		1	1	3	4	7	1	2	2	21
		\$103,334	\$66,997	\$108,451	\$104,609	\$104,760	\$122,325	\$130,215	\$117,229	\$107,841
<b>Total</b>	27	277	256	229	159	216	94	41	6	1,305
	\$70,577	\$92,280	\$100,542	\$109,224	\$116,642	\$126,392	\$133,444	\$121,795	\$130,881	\$109,109

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**Active Age Service Grid – Female Members**  
 Female Active Member Count and Pensionable Salary by Age and Service

Age	Years of Service								Total	
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34		35+
<25	1	3	1							5
	\$91,710	\$62,455	\$83,990							\$72,613
25-29	1	15	1							17
	\$58,573	\$70,710	\$98,316							\$71,620
30-34	2	22	19	3						46
	\$63,302	\$71,489	\$91,351	\$104,811						\$81,510
35-39	3	13	17	11	6					50
	\$62,381	\$75,247	\$84,483	\$114,917	\$117,314					\$91,391
40-44	3	14	3	19	11	7				57
	\$58,573	\$80,803	\$100,927	\$107,957	\$107,658	\$96,017				\$96,794
45-49		12	13	12	7	19				63
		\$77,305	\$99,838	\$113,718	\$123,549	\$123,983				\$108,106
50-54	2	5	10	8	10	26	5	2		68
	\$80,298	\$77,127	\$96,584	\$86,185	\$103,754	\$122,900	\$120,092	\$99,316		\$106,376
55-59		14	11	14	9	17	7	5	1	78
		\$73,924	\$100,891	\$100,467	\$115,721	\$127,815	\$109,561	\$91,202	\$105,906	\$103,775
60-64	2	3	5	12	7	11	5	4		49
	\$55,806	\$66,572	\$81,926	\$86,909	\$108,984	\$123,696	\$118,202	\$98,751		\$99,458
65-69			1	4	1	11	2	1	1	21
			\$66,994	\$76,535	\$96,429	\$115,723	\$196,063	\$62,917	\$161,434	\$112,333
70+			2	1	1	3	1	1	1	10
			\$91,462	\$73,965	\$73,965	\$97,588	\$105,906	\$75,002	\$92,726	\$89,725
<b>Total</b>	14	101	83	84	52	94	20	13	3	464
	\$65,140	\$74,041	\$92,651	\$101,350	\$110,870	\$120,451	\$122,822	\$91,351	\$120,022	\$98,460

**Inactive Age Service Grid**

Inactive Member Count and Final Pensionable Salary by Age and Service at Termination

Age	Years of Service									Total
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25										
25-29	1 \$82,245	8 \$67,375								9 \$69,027
30-34	3 \$40,404	7 \$65,360	2 \$96,637							12 \$64,334
35-39	2 \$28,767	6 \$78,966	3 \$76,556	2 \$92,573						13 \$72,780
40-44	2 \$41,600	4 \$37,883	6 \$93,729	4 \$73,025	2 \$118,493					18 \$73,678
45-49	2 \$29,909	7 \$65,059	3 \$90,566	1 \$103,490	1 \$69,160	1 \$127,795				15 \$72,491
50-54	2 \$1,742	9 \$60,926	3 \$50,601	6 \$70,738	4 \$103,667			1 \$120,313		25 \$66,521
55-59	3 \$35,216	6 \$58,784	2 \$49,856	3 \$71,720	4 \$100,377			1 \$114,240		19 \$67,841
60-64	3 \$54,201	3 \$41,786	2 \$76,452		1 \$98,538			2 \$194,808		11 \$84,456
65-69	1 \$43,645	5 \$41,183			1 \$167,413	1 \$79,624				8 \$62,075
70+						1 \$73,803			1 \$123,799	2 \$98,801
<b>Total</b>	19 \$37,863	55 \$60,174	21 \$79,116	16 \$76,271	13 \$106,790	3 \$93,741		4 \$156,042	1 \$123,799	132 \$70,668

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**Annuitant Statistics by Tier and Gender**

**Retirement Annuities**

Tier	Sex	Count	Avg Age	Total Annuity	Average Annuity
1	M	1,452	73.0	120,340,643	82,879
	F	<u>465</u>	70.6	<u>29,196,404</u>	62,788
	Total	1,917	72.4	149,537,047	78,006
2	M	0	0.0	0	0
	F	<u>0</u>	0.0	<u>0</u>	0
	Total	0	0.0	0	0
Total	M	1,452	73.0	120,340,643	82,879
	F	<u>465</u>	70.6	<u>29,196,404</u>	62,788
	Total	1,917	72.4	149,537,047	78,006

**Surviving Spouse Annuities**

Tier	Sex	Count	Avg Age	Total	Average
1	M	24	74.9	1,023,734	42,656
	F	<u>522</u>	79.9	<u>26,698,529</u>	51,147
	Total	546	79.7	27,722,263	50,773
2	M	0	0.0	0	0
	F	<u>0</u>	0.0	<u>0</u>	0
	Total	0	0.0	0	0
Total	M	24	74.9	1,023,734	42,656
	F	<u>522</u>	79.9	<u>26,698,529</u>	51,147
	Total	546	79.7	27,722,263	50,773

West Virginia Consolidated Public Retirement Board  
Request for Proposals Outside Actuarial Services

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**Distribution of Retirement Annuities by Age and Gender**

	Male			Female			Total		
	Count	Total Annuities	Average Annuities	Count	Total Annuities	Average Annuities	Count	Total Annuities	Average Annuities
x < 45	0	0	0	0	0	0	0	0	0
45 <= x < 50	0	0	0	0	0	0	0	0	0
50 <= x < 55	25	2,300,601	92,024	11	712,080	64,735	36	3,012,681	83,686
55 <= x < 60	82	6,547,477	79,847	55	4,010,444	72,917	137	10,557,921	77,065
60 <= x < 65	200	15,808,836	79,044	74	5,631,168	76,097	274	21,440,004	78,248
65 <= x < 70	242	18,709,017	77,310	79	5,112,518	64,715	321	23,821,535	74,210
70 <= x < 75	320	28,682,699	89,633	113	6,948,109	61,488	433	35,630,808	82,288
75 <= x < 80	268	22,264,496	83,076	58	3,296,752	56,841	326	25,561,248	78,409
80 <= x < 85	153	13,096,478	85,598	39	1,794,982	46,025	192	14,891,460	77,560
85 <= x < 90	104	8,469,026	81,433	27	1,388,248	51,417	131	9,857,274	75,246
90 <= x	58	4,462,013	76,931	9	302,102	33,567	67	4,764,115	71,106
<b>Total</b>	<b>1,452</b>	<b>120,340,643</b>	<b>82,879</b>	<b>465</b>	<b>29,196,404</b>	<b>62,788</b>	<b>1,917</b>	<b>149,537,047</b>	<b>78,006</b>

**Distribution of Surviving Spouse Annuities by Age and Gender**

	Male			Female			Total		
	Count	Total Annuities	Average Annuities	Count	Total Annuities	Average Annuities	Count	Total Annuities	Average Annuities
x < 45	0	0	0	1	52,525	52,525	1	52,525	52,525
45 <= x < 50	0	0	0	2	82,511	41,255	2	82,511	41,255
50 <= x < 55	2	14,848	7,424	10	420,769	42,077	12	435,617	36,301
55 <= x < 60	1	4,501	4,501	13	577,332	44,410	14	581,834	41,560
60 <= x < 65	0	0	0	24	1,169,155	48,715	24	1,169,155	48,715
65 <= x < 70	2	177,158	88,579	38	2,300,233	60,532	40	2,477,390	61,935
70 <= x < 75	4	265,083	66,271	64	3,898,285	60,911	68	4,163,368	61,226
75 <= x < 80	7	285,132	40,733	90	5,022,259	55,803	97	5,307,392	54,715
80 <= x < 85	7	211,577	30,225	99	5,837,752	58,967	106	6,049,328	57,069
85 <= x < 90	0	0	0	85	4,017,186	47,261	85	4,017,186	47,261
90 <= x	1	65,435	65,435	96	3,320,322	34,589	97	3,385,957	34,907
<b>Total</b>	<b>24</b>	<b>1,023,734</b>	<b>42,656</b>	<b>522</b>	<b>26,698,529</b>	<b>51,147</b>	<b>546</b>	<b>27,722,263</b>	<b>50,773</b>



## ACTUARIAL ASSUMPTIONS AND METHODS

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Below is a summary of the actuarial assumptions for the December 31, 2020 valuation. An experience study was performed in September of 2018 based on data for the period December 31, 2012 through December 31, 2017. The assumptions below are based on the experience study and were adopted effective December 31, 2018.

Interest Rate	7.25%
Mortality Rates – Healthy and Disabled Lives	RP-2000 Combined Healthy Mortality Table with Generational Mortality Improvements (Scale AA). Female rates are adjusted by a factor of 1.04 and male rates are unadjusted.
Cost-of-Living Adjustment - Annuitants	
Members Hired On Or After January 1, 2011	1.25%
Members Hired Before January 1, 2011	3.00%
Inflation	2.50%
Salary Increases	See Table 1
Retirement Rates	See Table 2
Termination Rates	See Table 3
Disability Rates	See Table 4
Load for Reciprocal Benefits	1.5% of active member costs and liabilities.
Percent Married	76%
Spousal Age Difference	Spouse of male member assumed to be 4 years younger than member; Spouse of female member assumed to be 4 years older than member.

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Actuarial Cost Method	Entry Age Normal, with costs allocated on basis of earnings. Actuarial gains and losses are reflected in the unfunded actuarial liability.
Actuarially Determined Contribution Requirement	Section 13-503. Employer's normal cost plus the annual amount needed to amortize the unfunded liability by the year 2050 as a level percent of payroll.  The funding goal is to attain a funded ratio of at least 100% by the year 2050.
Actuarial Asset Method	Market value of assets adjusted by the unrecognized investment gains and losses for each of the five years prior to the valuation date. Gains and losses are recognized at a rate of 20% per year. Actuarial Assets shall not be less than 80% nor greater than 120% of Market Value of Assets.
Payroll Growth	3.00%
Assumed Administrative Expenses	Administrative expenses paid from the trust during the prior year.
Source of Data	Data and audited financial information is provided by the Fund.
Valuation Date	December 31, 2020.

**Changes in Funding Assumptions/Methods Since the Prior Valuation**

The valuation reflects no assumption or method changes since the prior year.



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Table 1 – Salary Increase Rates

Service	Salary Increase Rate
0	7.00%
1	6.50%
2	5.75%
3	5.50%
4	5.25%
5	6.00%
6	5.00%
7	4.75%
8	4.50%
9	4.25%
10	5.00%
11 - 14	4.00%
15	5.00%
16 - 19	4.00%
20	5.00%
21+	3.50%

Table 2 – Retirement Rates

Age	Retirement Rate
50 - 59	7%
60	20%
61 - 64	10%
65	15%
66	18%
67	25%
68	15%
69	30%
70	35%
71 - 74	20%
75	100%

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Table 3 – Termination Rates

Service	Male Rate	Female Rate
0	5.00%	7.75%
1	3.50%	6.75%
2	3.50%	5.75%
3	2.60%	4.75%
4	2.24%	4.52%
5	2.15%	4.49%
6	1.75%	4.19%
7	1.70%	3.94%
8	1.65%	3.74%
9	1.55%	3.54%
10	1.55%	3.34%
11	1.55%	3.14%
12	1.45%	2.94%
13	1.40%	2.85%
14	1.35%	2.52%
15	1.20%	2.52%
16+	1.00%	2.52%

Table 4 – Disability Rates (Sample Rates)

Age	Disability Rate
20	0.002%
25	0.003%
30	0.006%
35	0.014%
40	0.033%
45	0.065%
50	0.120%
55	0.225%
60	0.490%
65	0.000%

## GLOSSARY

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Total Annual Payroll is the annual pensionable salary as of the valuation date.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

Normal (Current Year's) Cost is the current year's cost for benefits yet to be funded.

Unfunded Accrued Liability is a liability which arises when a pension plan is initially established or improved and such establishment or improvement is applicable to all years of past service.

Total Recommended Contribution is equal to the Normal Cost plus an amount sufficient to amortize 100% of the Unfunded Accrued Liability over a period ending in 2050.

Entry Age Normal Cost Method - Under this method, the normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation.

(a) The normal cost accrual rate equals:

(i) the present value of future benefits for the participant, determined as of the participant's entry age, divided by

(ii) the present value of the compensation expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.

(b) In calculating the present value of future compensation, the salary scale is applied both retrospectively and prospectively to estimate compensation in years prior to and subsequent to the valuation year based on the compensation used for the valuation.

(c) The accrued liability is the sum of the individual accrued liabilities for all participants and beneficiaries. A participant's accrued liability equals the present value, at the participant's attained age, of future benefits less the present value at the participant's attained age of the individual normal costs payable in the future. A beneficiary's accrued liability equals the present value, at the beneficiary's attained age, of future benefits. The unfunded accrued liability equals the total accrued liability less the actuarial value of assets.

(d) Under this method, the entry age used for each active participant is the participant's age at the time he or she would have commenced participation if the plan had always been in existence under current terms, or the age as of which he or she first earns service credits for purposes of benefit accrual under the current terms of the plan.

## DISCUSSION OF RISK

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ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined under various assumption scenarios. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- **Investment Return:** When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- **Salary Increases:** When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- **Payroll Growth:** The plan's payroll growth assumption, if one is used, causes a predictable annual increase in the plan's amortization payment in order to produce an amortization payment that remains constant as a percentage of payroll if all assumptions are realized. If payroll does not increase according to the plan's payroll growth assumption, the plan's amortization payment can increase significantly as a percentage of payroll even if all assumptions other than the payroll growth assumption are realized.
- **Demographic Assumptions:** Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could

have occurred.

- **Contribution Risk:** This risk results from the potential that actual employer contributions may deviate from actuarially determined contributions, which are determined in accordance with the Board's funding policy. The funding policy is intended to result in contribution requirements that if paid when due, will result in a reasonable expectation that assets will accumulate to be sufficient to pay plan benefits when due. Contribution deficits, particularly large deficits and those that occur repeatedly, increase future contribution requirements and put the plan at risk for not being able to pay plan benefits when due.

#### Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature plans with a substantial inactive liability. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the Fund, we have provided some relevant metrics in the table following titled "Fund Maturity Measures and Other Risk Metrics". Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has decreased from 72.2% on December 31, 2017 to 67.6% on December 31, 2020, indicating that the plan has been rapidly maturing.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the Fund, to the Total Accrued Liability, is 74.9%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors will need to be made up for over a shorter time horizon than would be needed for a less mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has stayed approximately the same from December 31, 2017 to December 31, 2020.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Market Value of Assets, stayed approximately the same from December 31, 2017 to December 31, 2020. The current Net Cash Flow Ratio of -3.2% indicates that contributions are not currently covering the plan's benefit payments and administrative expenses..

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It is important to note that the actuary has identified the risks above as the most significant risks based on the characteristics of the Fund and the nature of the project, however, it is not an exhaustive list of potential risks that could be considered. Additional advanced modeling, as well as the identification of additional risks, can be provided at the request of the audience addressed in the cover letter of this report.

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**Fund Maturity Measures and Other Risk Metrics**

	12/31/2020	12/31/2019	12/31/2018	12/31/2017
<u>Support Ratio</u>				
Total Actives	1,769	1,817	1,832	1,835
Total Inactives	2,615	2,596	2,570	2,543
Actives / Inactives	67.6%	70.0%	71.3%	72.2%
<u>Asset Volatility Ratio</u>				
Market Value of Assets (MVA)	1,580,890,628	1,506,834,278	1,343,994,268	1,501,793,976
Total Annual Payroll	188,542,848	190,294,933	188,156,185	184,807,353
MVA / Total Annual Payroll	838.5%	791.8%	714.3%	812.6%
<u>Accrued Liability (AL) Ratio</u>				
Inactive Accrued Liability	2,033,769,790	1,950,055,911	1,859,384,499	1,761,257,761
Total Accrued Liability	2,714,192,284	2,666,221,630	2,601,163,632	2,497,890,179
Inactive AL / Total AL	74.9%	73.1%	71.5%	70.5%
<u>Funded Ratio</u>				
Actuarial Value of Assets (AVA)	1,556,056,167	1,489,266,144	1,470,308,639	1,456,195,876
Total Accrued Liability	2,714,192,284	2,666,221,630	2,601,163,632	2,497,890,179
AVA / Total Accrued Liability	57.3%	55.9%	56.5%	58.3%
<u>Net Cash Flow Ratio</u>				
Net Cash Flow <sup>1</sup>	(50,043,109)	(62,321,928)	(54,809,061)	(45,628,966)
Market Value of Assets (MVA)	1,580,890,628	1,506,834,278	1,343,994,268	1,501,793,976
Ratio	-3.2%	-4.1%	-4.1%	-3.0%

<sup>1</sup> Determined as total contributions and other income minus benefit payments and administrative expenses.

## PLAN PROVISIONS

The following describe and reflect provisions in effect as described in Article 13 of the Illinois Pension Code. The provisions below reflect changes included in Public Act 96-0889 and Public Act 96-1490, which created the second "tier" of benefits for members hired on or after January 1, 2011 and provided clarifying changes.

Eligibility	All employees of the District whose duties indicate service during the calendar year for a minimum of 120 days are eligible.
Normal Retirement Eligibility	Hired before January 1, 2011: Age 60 and 5 years of service  Hired on or after January 1, 2011: Age 67 and 10 years of service
Normal Retirement Benefit	The annual benefit payable immediately is equal to the sum of: (a) 2.2% of Average Final Salary for each year of service up to 20 years.  (b) 2.4% of Average Final Salary for each year of service in excess of 20 years  The benefit shall not exceed 80% of Average Final Salary.
Early Retirement Eligibility	Hired before January 1, 2011: Age 55 (50 if hired before June 13, 1997) and 10 years of service  Hired on or after January 1, 2011: Age 62 and 10 years of service
Early Retirement Benefit	Normal Retirement Benefit reduced as follows:  Hired before January 1, 2011: If member retires before reaching age 60 with less than 30 years of service, 0.5% for each full month the member is less than age 60 or service is less than 30 years, whichever is less.  Hired on or after January 1, 2011: 0.5% per month the member is less than age 67
Deferred Retirement Eligibility	Tier 1: Age 55 (50 if hired before June 13, 1997) and 5 years of service. Tier 2: 10 years of service



Deferred Retirement Benefit	<p>The annual benefit payable at the following ages:</p> <p>Hired before January 1, 2011:</p> <p>Age 62, if withdraw on or after age 55 (50 if hired before June 13, 1997) with at least 5 years of service and less than 10 years</p> <p>Age 55 (50 if hired before June 13, 1997), if withdraw with 10 years of service</p> <p>Hired on or after January 1, 2011: Age 62, if withdraw with 10 years of service</p> <p>The annual benefit amount equals the Normal Retirement Benefit reduced with Early Retirement Reductions.</p>
Minimum Retirement Annuity	<p>10 years of service: \$500 per month plus \$25 per month for each year of service in excess of 10 years, not to exceed \$750 with 20 years of service</p> <p>Less than 10 years of service or retirement before age 60: \$250 per month</p>
Duty Disability Eligibility	<p>Member incurs injury or sickness due to employment with the District and is compensable under the Workers' Compensation Act or the Occupational Disease Act.</p>
Duty Disability Benefit	<p>75% of salary earned on the date of disability, less the amount paid by Workers' Compensation</p> <p>Benefit is 50% of salary if disability resulted from physical defect or disease that existed at the time injury was sustained.</p> <p>Benefits are payable during period of disablement, but not beyond attainment of age 65. If disability occurs at age 60 or older, benefits are payable for a maximum of 5 years.</p>
Ordinary Disability Eligibility	<p>Member becomes disabled due to any cause other than injury or illness incurred in the performance of duty.</p>
Ordinary Disability Benefit	<p>50% of earnable salary at the date of disability</p> <p>Member may receive ordinary disability benefits for a maximum period of the lesser of 25% of member's actual service prior to disablement or 5 years.</p>

Surviving Spouse Annuity Eligibility	<p>Hired before June 13, 1997: Immediately eligible if married to member on date of member's death while in service or married to member on member's date of termination from service and remained married until member's death. Dissolution of marriage after retirement shall not divest the member's spouse of entitlement if marriage was in effect for at least 10 years on the date of retirement.</p> <p>Hired on or after June 13, 1997: Eligible after 3 years of service. Conditions for marriage described for members hired prior to June 13, 1997 apply.</p>
Surviving Spouse Benefit	<p>Hired before January 1, 2011: Retirement annuity earned at the time of death multiplied by a factor of 60% plus 1% for each year of member's total service, to a maximum of 85%. If hired after January 1, 1992, annuity is reduced by 0.25% for each full month spouse is younger than member to maximum reduction of 60%. Discount is reduced by 10% for each year marriage is in effect.</p> <p>Hired on or after January 1, 2011: 66 2/3% of retirement annuity earned at the time of death.</p>
Minimum Surviving Spouse Annuity	<p>Member with 10 years of service: greater of (a) \$500 per month plus \$25 per month for each year of service in excess of 10, not to exceed \$750 per month, or (b) 50% of the retirement annuity of member at time of death.</p> <p>Member with less than 10 years of service: \$250 per month.</p>
Children's Annuity Eligibility	<p>Member parent dies in service or deceased parent was former member with at least 10 years of service. Child is unmarried and less than age 18 (23, if full-time student).</p>
Children's Annuity Benefit	<p>\$500 per month for each child if have living parent and \$1,000 per month for each child if neither parent is living to a maximum of \$5,000 per month.</p>

Cost-of-Living Adjustments

Hired before January 1, 2011: Retirement annuity is increased on the anniversary of retirement by 3% of the monthly annuity payable at the time of increase.

Spouse annuity is increased on the earlier of the anniversary of the member's death or retirement (whichever occurs first) by 3% of the monthly annuity payable at the time of increase.

Hired on or after January 1, 2011: increase percentage is the lesser of 3% or ½ the increase in CPI-U during the previous calendar year. Increase is based on the originally granted retirement or spouse's annuity.

Member Contributions – retiree annuity

<u>Pay period:</u>	<u>Contribution % Annuity:</u>	<u>Contribution % Annual Inc.:</u>
Before January 1, 2013	7.0%	0.5%
During calendar year 2013	7.5%	1.0%
During calendar year 2014	8.0%	1.5%
During calendar year 2015 and until Fund is 90% funded	8.5%	1.5%
After Fund is 90% funded	7.0%	0.5%

Members hired on or after January 1, 2011 have member contributions of 7.5% (7.0% of pay for the annuity and 0.5% of pay for annual increases).

Member Contributions – spouse annuity

<u>Pay period:</u>	<u>Contribution percentage:</u>
Before January 1, 2015	1.5%
During calendar year 2015 and until Fund is 90% funded	2.0%
After Fund is 90% funded	1.5%

Members hired on or after January 1, 2011 contribute 1.5% of pay.

Refund to Member upon Termination	Hired before January 1, 2011: Eligible for refund of all member contributions without interest if under age 55 (50 if hired before June 13, 1997); if age 60 with less than 20 years of service; or if 60 with less than 5 years of service. Upon receipt of refund, member forfeits rights to benefits from the Fund. Hired on or after January 1, 2011: Eligible for refund of all member contributions without interest if under age 62; or if have less than 10 years of service on termination. Upon receipt of refund, member forfeits rights to benefits from the Fund.
Refund for Surviving Spouse's Annuity	Members unmarried at the time of retirement will receive a refund of contributions for spouse annuity with interest at 3% per year, compounded annually.
Refund of Remaining Amounts	If upon death the total amount contributed by the member with 3% interest per year has not been paid to the member, the spouse or designated beneficiaries or estate receives a refund of the excess amount.
Required Contribution – Illinois Pension Code	Lesser of actuarially determined contribution and 4.19 multiplied by total member contributions for the two years prior.
District's Funding Policy	Effective August 27, 2014, the District implemented a policy of contributing an amount equal to 4.19 multiplied by total member contributions for the two years prior until the Fund reaches a funded ratio of 100%.
Pension Service	Any employment, excluding overtime or extra service for which salary is received.
Average Final Salary	Hired before January 1, 2011: Highest average annual salary for any 52 consecutive bi-weekly pay periods within the last 10 years of service immediately preceding the date of retirement.  Hired on or after January 1, 2011: Highest average annual salary for 96 consecutive months of service within last 120 months of service, limited to \$106,800 (automatically increased by lesser of 3% or ½ the increase in CPI-U during the previous calendar year).

**Pensionable Salary:**

Salary paid to a Fund member for service to the District or to the Fund, including salary paid for vacation and sick leave and any amounts deferred under a deferred compensation plan established under the Code, but excluding the following: payment for unused vacation or sick leave, overtime pay, termination pay and any compensation in the form of benefits other than salary.

Salary for members hired on or after January 1, 2011 is subject to the salary limitations established in the Illinois Pension Code. The statutory salary limitation is \$115,928.92 for calendar year 2020 and \$116,740.42 for calendar 2021.

**Changes in Fund Provisions Since the Prior Valuation**

- None

## SUPPLEMENTARY TABLES

**Table 1 – History of the Development of Unfunded Actuarial Accrued Liability**

	2020	Year Ending December 31			
		2019	2018	2017	2016
1. Unfunded Actuarial Accrued Liability (UAAL), as of beginning of year	1,176,955,486	1,130,854,993	1,041,694,303	1,070,919,694	1,063,049,156
2. Employer Normal Cost, as of beginning of year	12,115,137	12,537,329	11,897,996	12,094,866	12,130,605
3. Expected Interest on 1. and 2.	86,207,620	82,895,943	79,019,422	81,226,842	80,638,482
4. Employer Contributions, with interest	111,693,429	90,560,949	90,377,021	93,166,990	83,215,042
5. Employer Contributions in Excess of Normal Cost plus Interest (4) - (2) - (3)	13,370,672	(4,872,323)	(540,397)	(154,718)	(9,554,045)
6. Expected UAAL as of December 31, 2020 (1)+(2)+(3)-(4)	1,163,584,814	1,135,727,316	1,042,775,097	1,071,084,412	1,072,603,201
7. Change in UAAL Due to Actuarial (Gain)/Loss, by component:					
Investment Return	(10,483,804)	23,071,682	40,260,410	(27,925,002)	(15,960,567)
Salary Increases	(6,558,614)	(4,517,433)	(7,369,068)	(11,576,111)	(844,096)
Decrement Experience	18,970,774	21,233,555	14,320,903	13,672,315	12,199,482
Inactive Mortality Experience	(1,824,785)	(1,301,600)	4,104,912	(2,787,776)	311,000
Other Changes	(5,552,268)	2,741,966	(135,723)	(773,535)	2,620,674
Total change due to (Gain)/Loss	(5,448,697)	41,228,170	51,181,434	(29,390,109)	(1,673,507)
8. Change in UAAL Due to Assumption Changes/ Method Changes	-	-	37,438,859	-	-
9. Unfunded Actuarial Accrued Liability, as of end of the year	1,158,136,117	1,176,955,486	1,130,854,993	1,041,694,303	1,070,929,694

**Table 2 – History of Active Member Data**

Actuarial Valuation Date	Active Members	Percent Increase	Annual Payroll	Percent Increase	Annual Pensionable Payroll	Percent Increase	Average Pensionable Payroll	Percent Increase
12/31/2011	1,888		164,275,424		164,275,424		87,010	
12/31/2012	1,856	-1.7%	163,816,934	-0.3%	163,816,934	-0.3%	88,263	1.4%
12/31/2013	1,858	0.1%	169,375,857	3.4%	169,375,857	3.4%	91,160	3.3%
12/31/2014	1,873	0.8%	176,183,941	4.0%	176,183,941	4.0%	94,065	3.2%
12/31/2015	1,846	-1.4%	177,792,308	0.9%	177,507,159	0.8%	96,158	2.2%
12/31/2016	1,843	-0.2%	182,980,055	2.9%	182,640,163	2.9%	99,099	3.1%
12/31/2017	1,835	-0.4%	184,807,353	1.0%	184,385,188	1.0%	100,482	1.4%
12/31/2018	1,832	-0.2%	188,156,185	1.8%	187,849,708	1.9%	102,538	2.0%
12/31/2019	1,817	-0.8%	190,294,933	1.1%	189,961,010	1.1%	104,547	2.0%
12/31/2020	1,769	-2.6%	188,542,848	-0.9%	188,072,970	-1.0%	106,316	1.7%
5-year Average Increase/ (Decrease)		-0.8%		1.2%		1.2%		2.0%



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**Table 3 – History of Employee Annuitant Data**

Actuarial Valuation Date	Employee Annuitant	Total Annuities (Annual)	Average Annuities (Annual)	Increase in Average Benefit	Average Age
12/31/2011	1,683	101,092,773	60,067	n/a	n/a
12/31/2012	1,681	104,021,486	61,881	3.02%	n/a
12/31/2013	1,704	108,173,524	63,482	2.59%	n/a
12/31/2014	1,729	113,079,769	65,402	3.02%	n/a
12/31/2015	1,760	118,892,219	67,552	3.29%	n/a
12/31/2016	1,779	123,491,448	69,416	2.76%	n/a
12/31/2017	1,809	129,366,688	71,513	3.02%	n/a
12/31/2018	1,848	135,435,622	73,288	2.48%	n/a
12/31/2019	1,883	142,324,135	75,584	3.13%	72.4
12/31/2020	1,917	149,537,047	78,006	3.20%	72.4

**Table 4 – History of Survivor/Child Annuitants**

Actuarial Valuation Date	Surviving Spouse Annuitants	Total Spouse Annuities (Annual)	Average Spouse Annuities (Annual)	Increase in Average Spouse Benefit	Child Annuitants	Total Child Annuities
12/31/2011	628	17,961,273	28,601	n/a	17	114,000
12/31/2012	619	19,071,845	30,811	7.73%	17	114,000
12/31/2013	605	19,768,391	32,675	6.05%	20	138,000
12/31/2014	593	20,683,050	34,879	6.74%	21	132,000
12/31/2015	580	21,835,988	37,648	7.94%	19	114,000
12/31/2016	590	23,770,312	40,289	7.01%	25	150,000
12/31/2017	576	24,615,058	42,734	6.07%	23	138,000
12/31/2018	571	25,965,116	45,473	6.41%	24	144,000
12/31/2019	561	27,127,117	48,355	6.34%	21	126,000
12/31/2020	546	27,722,263	50,773	5.00%	20	120,000



**Table 5 – History of New Annuitants**

Year of Retirement	Number of			
	New Employee Annuitants	Average Annual Benefit at Retirement	Average Age at Retirement	Average Service at Retirement
2012	60	51,464	61.7	n/a
2013	75	45,960	60.6	n/a
2014	80	55,123	61.7	n/a
2015	101	56,673	61.3	n/a
2016	87	57,656	62.6	n/a
2017	98	59,842	59.6	n/a
2018	99	61,111	60.5	n/a
2019	94	73,717	60.9	24.2
2020	104	70,592	61.1	24.0



**Table 6 – History of Employee Annuitants and Survivor Annuitants Added to Payroll**

Year of Retirement	Employee Annuitants				Survivor Annuitants			
	Added		Removed		Added		Removed	
	Number	Annual Benefits <sup>1</sup>	Number	Annual Benefits	Number	Annual Benefits <sup>1</sup>	Number	Annual Benefits
2011	146	12,073,715	66	2,827,418	34	1,528,506	38	460,244
2012	60	6,027,239	62	3,098,526	38	1,969,114	47	858,542
2013	75	6,497,171	52	2,345,333	29	1,718,098	43	1,021,552
2014	80	7,583,277	55	2,677,032	28	1,846,441	40	931,782
2015	101	9,640,885	70	3,828,434	34	2,313,674	47	1,160,738
2016	87	8,688,540	68	4,089,312	42	3,096,415	32	1,162,089
2017	98	14,254,728	68	3,780,260	25	1,991,463	39	1,146,717
2018	99	6,049,960	60	3,769,202	30	1,798,261	35	1,046,607
2019	94	10,830,012	59	3,941,499	28	2,408,555	38	1,246,555
2020	104	11,484,248	70	4,271,335	34	2,659,591	49	2,064,444

<sup>1</sup> Annual benefits added to the payroll include annuity amounts for new annuitants during the year and cost-of-living increases for existing annuitants.



**Table 7 – History of Development of Actuarial Value of Assets**

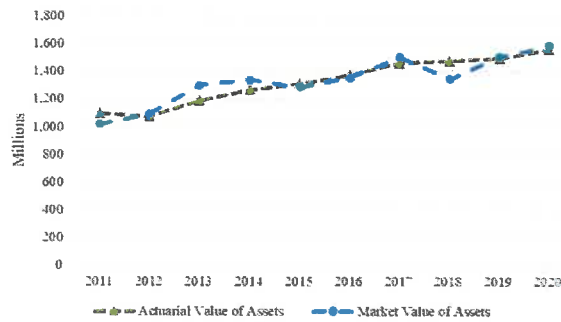
Year Ended	Employer Contributions	Employee Contributions	Gross Investment Income	Administrative/Investment Expenses	Benefit Payments	Refunds	Actuarial Value of Assets, End of Year	Market Value Return
12/31/2011	37,379,137	15,031,961	3,012,778	5,787,836	118,102,369	2,711,115	1,097,397,206	-0.3%
12/31/2012	65,097,835	14,714,496	121,081,385	6,052,080	122,713,908	1,195,737	1,076,740,164	11.9%
12/31/2013	92,944,381	16,890,798	231,567,647	6,856,698	127,205,981	1,128,922	1,188,503,716	21.7%
12/31/2014	73,906,168	18,974,954	87,504,592	7,306,073	132,913,502	984,346	1,263,287,068	6.7%
12/31/2015	71,041,361	21,385,212	4,143,814	7,202,753	139,160,911	1,348,845	1,307,982,039	-0.2%
12/31/2016	80,259,713	20,830,779	118,306,730	6,116,322	145,325,385	2,010,630	1,372,361,950	9.5%
12/31/2017	89,858,224	20,839,829	199,445,312	6,234,729	152,152,914	2,560,129	1,456,195,876	15.6%
12/31/2018	87,167,339	21,032,601	(97,717,715)	6,958,411	159,561,047	1,762,475	1,470,308,639	-7.4%
12/31/2019	87,446,476	21,182,425	230,494,663	6,974,934	167,480,736	1,827,884	1,489,266,144	18.3%
12/31/2020	107,852,191	20,982,056	128,773,718	6,264,304	174,996,453	2,290,858	1,556,056,167	8.7%
							Average 5-Year Return	8.5%
							Average 10-Year Return	8.1%



**Table 8 – Funding Progress**

Fiscal Year	Actuarial Accrued Liability	Actuarial Value of Assets	Fair Value of Net Assets	AVA / FVA	UAAL (AVA)	UAAL (FVA)	Funded Ratio (AVA)	Funded Ratio (FVA)	Covered Payroll
2011	2,101,319,098	1,097,397,206	1,021,470,611	107.43%	1,003,921,892	1,079,848,487	52.2%	48.6%	164,275,424
2012	2,136,508,223	1,076,740,164	1,092,402,602	98.57%	1,059,768,059	1,044,105,621	50.4%	51.1%	163,816,934
2013	2,194,911,693	1,188,503,716	1,298,613,827	91.52%	1,006,407,977	896,297,866	54.1%	59.2%	169,375,857
2014	2,296,438,698	1,263,287,068	1,337,795,620	94.43%	1,033,151,630	958,643,078	55.0%	58.3%	176,183,941
2015	2,371,031,195	1,307,982,039	1,286,653,498	101.66%	1,063,049,156	1,084,377,697	55.2%	54.3%	177,507,159
2016	2,443,291,644	1,372,361,950	1,352,598,383	101.46%	1,070,929,694	1,090,693,261	56.2%	55.4%	182,640,163
2017	2,497,890,179	1,456,195,876	1,501,793,976	96.96%	1,041,694,303	996,096,203	58.3%	60.1%	184,385,188
2018	2,601,163,632	1,470,308,639	1,343,994,268	109.40%	1,130,854,993	1,257,169,364	56.5%	51.7%	187,849,708
2019	2,666,221,630	1,489,266,144	1,506,834,278	98.83%	1,176,955,486	1,159,387,352	55.9%	56.5%	189,961,010
2020	2,714,192,284	1,556,056,167	1,580,890,628	98.43%	1,158,136,117	1,133,301,656	57.3%	58.2%	188,072,970

Comparison of AVA and MVA



**Table 9 – Solvency Test**

Year Ended	Actuarial Accrued Liabilities			Actuarial Value of Assets	Portion of Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active and Inactive Member Contributions	Active and Inactive Retirees and Survivors	Active and Inactive Members (ER Financed)		Active and Inactive Member Contributions	Active and Inactive Retirees and Survivors	Active and Inactive Members (ER Financed)
12/31/2011	199,015,897	1,433,294,765	469,008,436	1,097,397,206	100%	63%	0%
12/31/2012	213,323,414	1,431,829,221	491,355,588	1,076,740,164	100%	60%	0%
12/31/2013	223,354,127	1,463,856,177	507,701,389	1,188,503,716	100%	66%	0%
12/31/2014	231,430,077	1,541,326,692	422,154,924	1,263,287,068	100%	67%	0%
12/31/2015	236,967,954	1,616,195,435	517,867,805	1,307,982,039	100%	66%	0%
12/31/2016	244,239,334	1,676,732,070	522,320,240	1,372,361,950	100%	67%	0%
12/31/2017	247,730,731	1,745,598,298	504,561,150	1,456,195,876	100%	69%	0%
12/31/2018	251,845,144	1,843,563,888	505,754,600	1,470,308,639	100%	66%	0%
12/31/2019	251,719,321	1,929,940,867	484,561,442	1,489,266,144	100%	64%	0%
12/31/2020	249,921,777	2,013,763,878	450,506,629	1,556,056,167	100%	65%	0%



KY7 Retirement Fund  
Actuarial Valuation Report as of December 31, 2020

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**Table 10 – Contribution History**

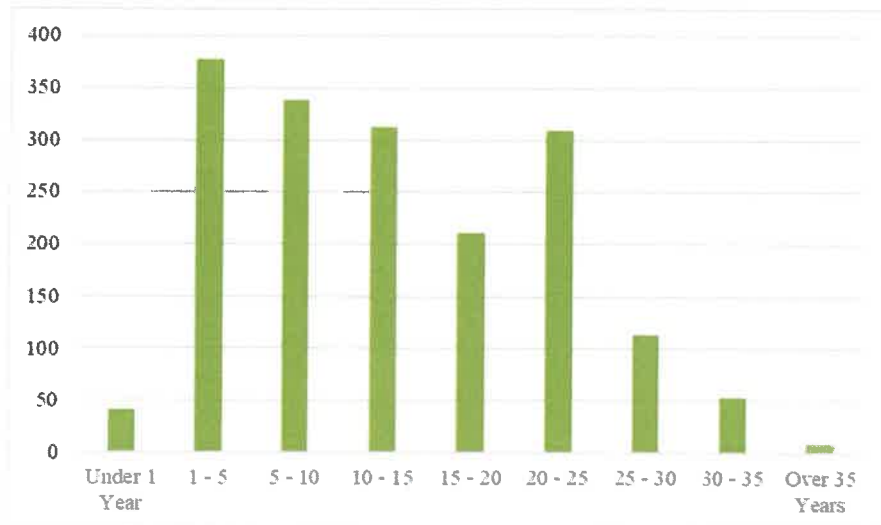
Contribution Year Ended	Actuarially Determined Contribution for Fiscal Year End	Maximum Employer Contribution	Employer Contribution	% of Actuarially Determined Contribution Contributed	Estimated Multiplier Necessary to Match ADC
12/31/2011	69,393,171	34,362,000	37,379,137	53.87%	4.42
12/31/2012	74,828,844	34,761,000	65,097,835	87.00%	2.82
12/31/2013	74,774,148	62,984,000	92,944,381	124.30%	2.98
12/31/2014	69,924,438	61,654,000	73,906,168	105.69%	3.94
12/31/2015	62,603,576	70,772,000	71,041,361	113.48%	3.71
12/31/2016	64,596,066	79,505,000	80,259,713	124.25%	3.40
12/31/2017	65,727,912	89,604,000	89,858,224	136.71%	3.07
12/31/2018	64,988,583	87,281,000	87,167,339	134.13%	3.12
12/31/2019	74,279,999	87,319,000	87,446,476	117.73%	3.56
12/31/2020	77,392,414	88,127,000	107,852,191	139.36%	3.68

**Table 11 – Contribution Rates**

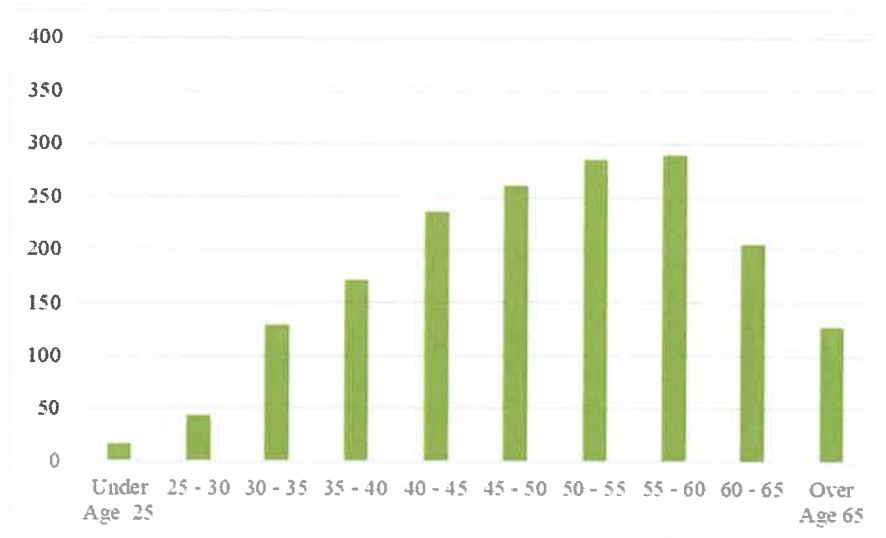
Year	Total Actuarially Determined Contribution Rate	Actual Employer Contribution	Actual Employee Contribution	Deficiency (Excess) in Annual Contribution
2011	48.77%	21.42%	8.62%	18.73%
2012	54.54%	39.62%	8.96%	5.96%
2013	55.62%	56.73%	10.31%	-11.42%
2014	52.18%	43.63%	11.20%	-2.65%
2015	47.28%	40.32%	12.14%	-5.18%
2016	48.06%	45.21%	11.74%	-8.89%
2017	47.52%	49.20%	11.41%	-13.09%
2018	46.67%	47.27%	11.41%	-12.01%
2019	50.86%	46.55%	11.28%	-6.97%
2020	51.93%	56.78%	11.05%	-15.90%
2021	51.93%	47.19% (Est)	11.07% (Est)	-6.33% (Est)



**Graph 12 – Distribution of Active Members by Service**



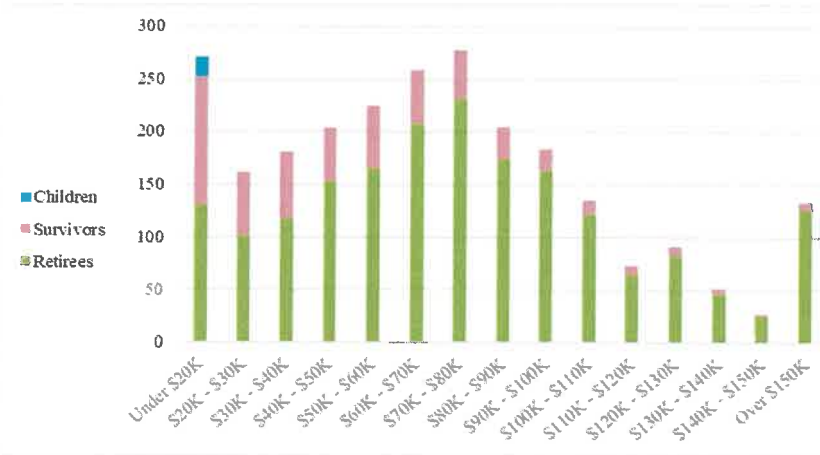
**Graph 13 – Distribution of Active Members by Age**



XYZ Retirement Fund  
 Actuarial Valuation Report as of December 31, 2020

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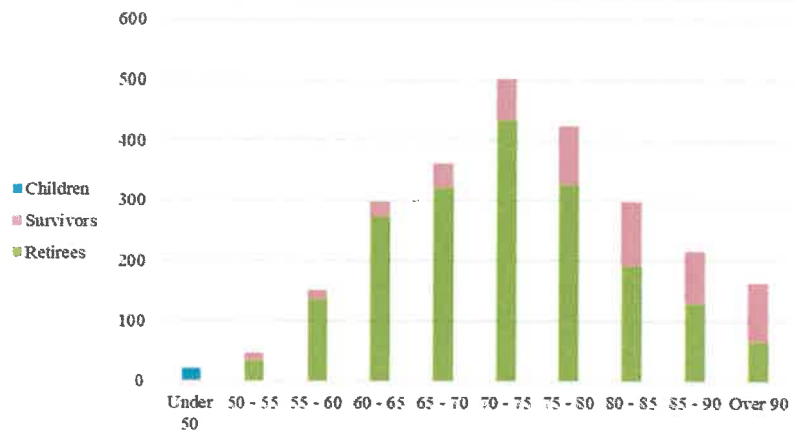
**Table 14 – Distribution of Annuitants by Annual Benefit**



Annual Benefit	Retirees	Survivors	Children	Total
Under \$20K	131	121	20	272
\$20K - \$30K	102	60	0	162
\$30K - \$40K	118	63	0	181
\$40K - \$50K	154	50	0	204
\$50K - \$60K	166	59	0	225
\$60K - \$70K	208	51	0	259
\$70K - \$80K	231	47	0	278
\$80K - \$90K	175	30	0	205
\$90K - \$100K	164	20	0	184
\$100K - \$110K	122	13	0	135
\$110K - \$120K	65	8	0	73
\$120K - \$130K	82	10	0	92
\$130K - \$140K	47	4	0	51
\$140K - \$150K	26	2	0	28
Over \$150K	126	8	0	134
<b>Total</b>	<b>1,917</b>	<b>546</b>	<b>20</b>	<b>2,483</b>



**Table 15 – Distribution of Annuitants by Age**



Age	Retirees	Survivors	Children	Total
Under 50	0	3	20	23
50 - 55	36	12	0	48
55 - 60	137	14	0	151
60 - 65	274	24	0	298
65 - 70	321	40	0	361
70 - 75	433	68	0	501
75 - 80	326	97	0	423
80 - 85	192	106	0	298
85 - 90	131	85	0	216
Over 90	67	97	0	164
<b>Total</b>	<b>1,917</b>	<b>546</b>	<b>20</b>	<b>2,483</b>

## GASB 67/68 RESULTS

### SUMMARY

Valuation Date	12/31/2020	12/31/2019
Measurement Date	12/31/2020	12/31/2019
Plan Membership:		
Inactives Currently Receiving Benefits	2,483	2,465
Inactives Not Yet Receiving Benefits	132	131
Active Plan Members	<u>1,769</u>	<u>1,817</u>
Total	4,384	4,413
Covered Payroll	\$ 188,072,970	\$ 189,961,010
Net Pension Liability		
Total Pension Liability	\$ 2,701,962,060	\$ 2,653,769,022
Plan Fiduciary Net Position	<u>1,580,890,628</u>	<u>1,506,834,278</u>
Net Pension Liability	\$ 1,121,071,432	\$ 1,146,934,744
Plan Fiduciary Net Position		
As a Percentage of Total Pension Liability	58.51%	56.78%
Net Pension Liability		
As a Percentage of Covered Payroll	596.08%	603.77%
Total Pension Expense	\$ 100,744,878	\$ 133,237,886
Development of Single Discount Rate		
Single Discount Rate	7.25%	7.25%
Long-Term Expected Rate of Return	7.25%	7.25%
High-quality Municipal Bond Rate	1.93%	3.26%
Number of Years Future Benefit Payments Are Expected to be Paid	99	99

SCHEDULE OF CHANGES IN NET PENSION LIABILITY  
 PLAN REPORTING

Measurement Date	12/31/2020	12/31/2019
Total Pension Liability		
Service Cost	32,591,914	33,039,382
Interest	188,334,503	183,916,142
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	4,553,932	17,732,815
Changes of Assumptions	-	-
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	(169,308,620)
Net Change in Total Pension Liability	48,193,038	65,379,719
Total Pension Liability - Beginning	2,653,769,022	2,588,389,303
Total Pension Liability - Ending (a)	\$2,701,962,060	\$ 2,653,769,022
Plan Fiduciary Net Position		
Contributions - Employer	107,852,191	87,446,476
Contributions - Employee	20,982,056	21,182,425
Net Investment Income	124,099,459	225,158,880
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	(169,308,620)
Administrative Expense	(1,592,783)	(1,642,209)
Other	2,738	3,058
Net Change in Plan Fiduciary Net Position	74,056,350	162,840,010
Plan Fiduciary Net Position - Beginning	1,506,834,278	1,343,994,268
Plan Fiduciary Net Position - Ending (b)	\$1,580,890,628	\$ 1,506,834,278
Net Pension Liability - Ending (a) - (b)	\$1,121,071,432	\$ 1,146,934,744
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	58.51%	56.78%
Covered Payroll	\$ 188,072,970	\$ 189,961,010
Net Pension Liability as a Percentage of Covered Payroll	596.08%	603.77%

**SENSITIVITY OF CHANGES IN DISCOUNT RATE  
PLAN REPORTING**

*Sensitivity of Net Pension Liability to changes in the Discount Rate:*

	1% Decrease	Current Discount Rate	1% Increase
	6.25%	7.25%	8.25%
Sponsor's Net Pension Liability	\$ 1,422,861,759	\$ 1,121,071,432	\$ 866,595,596

SCHEDULE OF CHANGES IN NET PENSION LIABILITY  
 DISTRICT REPORTING

GASB 68 Reporting Period Ending	12/31/2020	12/31/2019
Measurement Date	12/31/2019	12/31/2018
Total Pension Liability		
Service Cost	33,039,382	32,212,530
Interest	183,916,142	182,881,416
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	17,732,815	12,157,757
Changes of Assumptions	-	35,593,015
Benefit Payments, Including Refunds of Employee Contributions	(169,308,620)	(161,323,522)
Net Change in Total Pension Liability	65,379,719	101,521,196
Total Pension Liability - Beginning	2,588,389,303	2,486,868,107
Total Pension Liability - Ending (a)	\$2,653,769,022	\$ 2,588,389,303
Plan Fiduciary Net Position		
Contributions - Employer	87,446,476	87,167,339
Contributions - Employee	21,182,425	21,032,601
Contributions - Buy Back	-	-
Net Investment Income	225,158,880	(103,006,062)
Benefit Payments, Including Refunds of Employee Contributions	(169,308,620)	(161,323,522)
Administrative Expense	(1,642,209)	(1,685,479)
Other	3,058	15,415
Net Change in Plan Fiduciary Net Position	162,840,010	(157,799,708)
Plan Fiduciary Net Position - Beginning	1,343,994,268	1,501,793,976
Plan Fiduciary Net Position - Ending (b)	\$1,506,834,278	\$ 1,343,994,268
Net Pension Liability - Ending (a) - (b)	\$1,146,934,744	\$ 1,244,395,035
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	56.78%	51.92%
Covered Payroll	\$ 189,961,010	\$ 187,849,708
Net Pension Liability as a Percentage of Covered Payroll	603.77%	662.44%

STATEMENT OF CHANGES IN NET PENSION LIABILITY  
DISTRICT REPORTING YEAR-END DECEMBER 31, 2020

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Reporting Period Ending December 31, 2019	\$2,588,389,303	\$1,343,994,268	\$1,244,395,035
Adjustment to beginning of year	-	-	-
Changes for a Year:			
Service Cost	33,039,382	-	33,039,382
Interest	183,916,142	-	183,916,142
Differences Between Expected and Actual Experience	17,732,815	-	17,732,815
Changes of Assumptions	-	-	-
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	87,446,476	(87,446,476)
Contributions - Employee	-	21,182,425	(21,182,425)
Contributions - Buy Back	-	-	-
Net Investment Income	-	225,158,880	(225,158,880)
Benefit Payments, Including Refunds of Employee			
Contributions	(169,308,620)	(169,308,620)	-
Administrative Expense	-	(1,642,209)	1,642,209
Other Changes	-	3,058	(3,058)
Net Changes	65,379,719	162,840,010	(97,460,291)
Reporting Period Ending December 31, 2020	\$2,653,769,022	\$1,506,834,278	\$1,146,934,744

Sensitivity of Net Pension Liability to changes in the Discount Rate:

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.25%	7.25%	8.25%
Sponsor's Net Pension Liability	\$ 1,446,814,051	\$ 1,146,934,744	\$ 894,253,229

Pension Plan Fiduciary Net Position

Detailed information about the Pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

STATEMENT OF CHANGES IN NET PENSION LIABILITY  
DISTRICT REPORTING YEAR-END DECEMBER 31, 2021

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Reporting Period Ending December 31, 2020	\$2,653,769,022	\$1,506,834,278	\$1,146,934,744
Adjustment to beginning of year	-	-	-
Changes for a Year:			
Service Cost	32,591,914	-	32,591,914
Interest	188,334,503	-	188,334,503
Differences Between Expected and Actual Experience	4,553,932	-	4,553,932
Changes of Assumptions	-	-	-
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	107,852,191	(107,852,191)
Contributions - Employee	-	20,982,056	(20,982,056)
Contributions - Buy Back	-	-	-
Net Investment Income	-	124,099,459	(124,099,459)
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	(177,287,311)	-
Administrative Expense	-	(1,592,783)	1,592,783
Other Changes	-	2,738	(2,738)
Net Changes	48,193,038	74,056,350	(25,863,312)
Reporting Period Ending December 31, 2021	\$2,701,962,060	\$1,580,890,628	\$1,121,071,432

Sensitivity of Net Pension Liability to changes in the Discount Rate:

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.25%	7.25%	8.25%
Sponsor's Net Pension Liability	\$ 1,422,861,759	\$ 1,121,071,432	\$ 866,595,596

Pension Plan Fiduciary Net Position

Detailed information about the Pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

FINAL PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND  
 DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS  
 YEAR-END DECEMBER 31, 2020

For the year ended December 31, 2020, the Sponsor will recognize a pension expense of \$133,237,886. On December 31, 2020, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience	29,890,761	995,382
Changes of assumptions	23,728,676	0
Net difference between projected and actual earnings on pension plan investments	0	17,642,159
Employer contributions after the measurement date	107,852,191	0
<b>Total</b>	<b>\$161,471,628</b>	<b>\$18,637,541</b>

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date has been recognized as a reduction of the Net Pension Liability in the year ended 12/31/2020.

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year-ended December 31:

2021	\$117,068,627
2022	\$10,588,255
2023	\$27,303,498
2024	(\$15,081,762)
2025	\$2,955,469
Thereafter	\$0



**PRELIMINARY PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND  
 DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS  
 YEAR-END DECEMBER 31, 2021**

For the year ended December 31, 2021, the Sponsor will recognize a pension expense of \$100,744,878. On December 31, 2021, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience	23,997,990	663,588
Changes of assumptions	17,796,507	0
Net difference between projected and actual earnings on pension plan investments	0	24,905,012
Employer contributions after the measurement date	TBD	0
<b>Total</b>	<b>TBD</b>	<b>\$25,568,600</b>

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date will be recognized as a reduction of the Net Pension Liability in the year ended 12/31/2021.

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year-ended December 31:

2022	\$8,013,617
2023	\$24,728,860
2024	(\$17,656,400)
2025	\$380,831
2026	\$758,989
Thereafter	\$0

FINAL COMPONENTS OF PENSION EXPENSE  
YEAR-END DECEMBER 31, 2020

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$1,244,395,035	\$ 65,930,741	\$331,610,814	
Employer Contributions made after December 31, 2019	-	-	107,852,191	-
Total Pension Liability Factors:				
Service Cost	33,039,382	-	-	33,039,382
Interest	183,916,142	-	-	183,916,142
Changes in Benefit Terms	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions	17,732,815	-	17,732,815	-
Current Year Amortization	-	(331,794)	(11,497,902)	11,166,108
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	-	-	-	-
Current Year Amortization	-	-	(5,932,169)	5,932,169
Benefit Payments, Including Refunds of Employee Contributions	(169,308,620)	-	-	-
Net Change	65,379,719	(331,794)	108,154,935	234,053,801
Plan Fiduciary Net Position:				
Contributions - Employer	87,446,476	-	(87,446,476)	-
Contributions - Employee	21,182,425	-	-	(21,182,425)
Projected Net Investment Income	95,180,415	-	-	(95,180,415)
Difference Between Projected and Actual Earnings on Pension Plan Investments	129,978,465	129,978,465	-	-
Current Year Amortization	-	(48,788,709)	(62,696,483)	13,907,774
Benefit Payments, Including Refunds of Employee Contributions	(169,308,620)	-	-	-
Administrative Expenses	(1,642,209)	-	-	1,642,209
Other	3,058	-	-	(3,058)
Net Change	162,840,010	81,189,756	(150,142,959)	(100,815,915)
Ending Balance	\$1,146,934,744	\$146,788,703	\$289,622,790	\$133,237,886

PRELIMINARY COMPONENTS OF PENSION EXPENSE  
YEAR-END DECEMBER 31, 2021

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$ 1,146,934,744	\$146,788,703	\$289,622,790	
Employer Contributions made after December 31, 2020	-	-	TBD <sup>1</sup>	-
Total Pension Liability Factors:				
Service Cost	32,591,914	-	-	32,591,914
Interest	188,334,503	-	-	188,334,503
Changes in Benefit Terms	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions	4,553,932	-	4,553,932	-
Current Year Amortization	-	(331,794)	(10,446,703)	10,114,909
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	-	-	-	-
Current Year Amortization	-	-	(5,932,169)	5,932,169
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	-	-	-
Net Change	48,193,038	(331,794)	(11,824,940)	236,973,495
Plan Fiduciary Net Position:				
Contributions - Employer	107,852,191	-	(107,852,191)	-
Contributions - Employee	20,982,056	-	-	(20,982,056)
Projected Net Investment Income	107,431,323	-	-	(107,431,323)
Difference Between Projected and Actual Earnings on Pension Plan Investments	16,668,136	16,668,136	-	-
Current Year Amortization	-	(52,122,337)	(42,717,054)	(9,405,283)
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	-	-	-
Administrative Expenses	(1,592,783)	-	-	1,592,783
Other	2,738	-	-	(2,738)
Net Change	74,056,350	(35,454,201)	(150,569,245)	(136,228,617)
Ending Balance	\$ 1,121,071,432	\$111,002,708	TBD	\$100,744,878

<sup>1</sup> Employer contributions made after the December 31, 2020 measurement date, but before December 31, 2021 need to be added.

AMORTIZATION SCHEDULE – EXPERIENCE

Increase (Decrease) in Pension Expense Arising from the Recognition of the  
 Effects of Differences between Expected and Actual Experience

Year Base Established	Differences Between Expected and Actual Experience	Recognition Period (Years)	Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience						
			2021	2022	2023	2024	2025	Thereafter	
2020	\$ 4,553,932	6	\$ 758,987	\$ 758,989	\$ 758,989	\$ 758,989	\$ 758,989	\$ 758,989	
2019	\$ 17,732,815	6	\$ 2,955,469	\$ 2,955,469	\$ 2,955,469	\$ 2,955,469	\$ 2,955,469	\$ -	
2018	\$ 12,157,757	6	\$ 2,026,293	\$ 2,026,293	\$ 2,026,293	\$ 2,026,293	\$ -	\$ -	
2017	\$ (1,990,761)	6	\$ (331,794)	\$ (331,794)	\$ (331,794)	\$ -	\$ -	\$ -	
2016	\$ 13,813,742	6	\$ 2,302,290	\$ 2,302,290	\$ -	\$ -	\$ -	\$ -	
2015	\$ 14,421,984	6	\$ 2,403,664	\$ -	\$ -	\$ -	\$ -	\$ -	
2014	\$ 10,861,109	6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Net Increase (Decrease) in Pension Expense			10,114,909	7,711,247	5,408,957	5,740,751	3,714,458	758,989	

AMORTIZATION SCHEDULE – CHANGES OF ASSUMPTIONS

Increase (Decrease) in Pension Expense Arising from the Recognition of the  
 Effects of Changes of Assumptions

Year Base Established	Effects of Changes in Assumptions	Recognition Period (Years)	2021	2022	2023	2024	2025	Thereafter
2018	\$ 35,593,015	6	\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ -	\$ -

GASB 68



AMORTIZATION SCHEDULE – INVESTMENTS

Year Base Established	Differences Between Projected and Actual Earnings	Recognition Period (Years)	Increase (Decrease) in Pension Expense Arising from the Recognition of the Differences Between Projected and Actual Earnings on Pension Plan Investments						
			2021	2022	2023	2024	2025	Thereafter	
2020	\$ (16,668,136)	5	\$ (3,333,628)	\$ (3,333,627)	\$ (3,333,627)	\$ (3,333,627)	\$ (3,333,627)	\$ -	
2019	\$ (129,978,465)	5	\$ (25,995,693)	\$ (25,995,693)	\$ (25,995,693)	\$ (25,995,693)	\$ -	\$ -	
2018	\$ 213,585,270	5	\$ 42,717,054	\$ 42,717,054	\$ 42,717,054	\$ -	\$ -	\$ -	
2017	\$ (95,087,666)	5	\$ (19,017,533)	\$ (19,017,533)	\$ -	\$ -	\$ -	\$ -	
2016	\$ (18,877,416)	5	\$ (3,775,483)	\$ -	\$ -	\$ -	\$ -	\$ -	
2015	\$ 99,897,144	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Net Increase (Decrease) in Pension Expense			\$ (9,405,283)	\$ (5,629,799)	\$ 13,387,734	\$ (29,329,320)	\$ (3,333,627)	\$ -	

SCHEDULE OF CONTRIBUTIONS

Plan Year-End	Actuarially Determined Contribution	Contributions in Relation to		Contribution Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
		the Actuarially Determined Contributions	Contributions			
12/31/2020	77,392,414	107,852,191		(30,459,777)	188,072,970	57.35%
12/31/2019	74,279,999	87,446,476		(13,166,477)	189,961,010	46.03%

The following assumptions were used to determine the Actuarially Determined Contribution for the plan year ending December 31, 2020:

Calculation Timing	The Actuarially Determined Contribution is calculated using a December 31, 2019 valuation date.
Interest Rate	7.25%
Mortality Rate	<i>Healthy and Disabled Lives</i> RP-2000 Combined Healthy Mortality Table with Generational Mortality Improvements (Scale AA). Female rates are adjusted by a factor of 1.04 and male rates are unadjusted.
Assumptions	All other assumptions and methods used for determining the Actuarially Determined Contribution can be found in the December 31, 2019 Actuarial Valuation Report for the XYZ Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

SCHEDULE OF INVESTMENT RETURNS

For the year ended December 31, 2020, the annual money-weighted return on Pension Plan investments, net of pension plan investment expense, was not available. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

<u>Plan Year-End</u>	<u>Annual Money-Weighted Rate of Return Net of Investment Expense</u>
12/31/2020	8.67%
12/31/2019	18.25%



**ASSUMPTIONS – GASB PENSION LIABILITY AND PENSION EXPENSE**

The GASB 67 Pension Liability for Plan reporting as of December 31, 2020 and Preliminary GASB 68 Pension Expense for the District's January 1, 2021 - December 31, 2021 reporting period were determined as follows:

Valuation Date	December 31, 2020
Measurement Date	December 31, 2020
Discount Rate	7.25%
Inflation	2.50%
Salary Increases	Service-based rates
Other Assumptions	A summary of complete assumptions can be found in the accompanying Actuarial Valuation as of December 31, 2020 for the XYZ Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

The GASB 67 Total Pension Liability and Preliminary GASB 68 Pension Expense reflect no assumption changes.

The GASB 68 Pension Liability and Final Pension Expense for the current District reporting period were determined as follows:

Valuation Date	December 31, 2019
Measurement Date	December 31, 2019
GASB 68 Expense Measurement Period	December 31, 2019 - December 31, 2019
Reporting Period	January 1, 2020 - December 31, 2020
Discount Rate	7.25%
Inflation	2.50%
Salary Increases	Service-based rates
Other Assumptions	A summary of complete assumptions can be found in the Actuarial Valuation as of December 31, 2019 for the XYZ Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

The GASB 68 Total Pension Liability and Final GASB 68 Pension Expense reflect no assumption changes.

NOTES TO THE FINANCIAL STATEMENTS

*Support for Long-Term Expected Rate of Return*

The Long-Term Expected Rate of Return on Pension Plan investments can be determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Pension Plan investment expenses and inflation) are developed for each major asset class.

These ranges are combined to produce the Long-Term Expected Rate of Return by weighting the expected future real rates of return by target asset allocation percentage and by adding expected inflation.

Best estimates of geometric real rates of return for each major asset class included in the Pension Plan's target asset allocation adopted as of December 31, 2020, as provided by Marquette Associates, are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
Domestic Equity	41.00%	5.20%
International Equity	22.00%	5.60%
Bonds	27.00%	2.20%
Private Real Estate	10.00%	5.60%
Cash	0.00%	0.00%
<b>Total</b>	<b>100.00%</b>	

Inflation rate of investment advisor 2.00%

*Concentrations*

The Plan did not hold investments in any one organization that represent 5 percent or more of the Pension Plan's fiduciary net position.

*Discount Rate*

The Discount Rate used to measure the Total Pension Liability was 7.25 percent.

The projection of cash flows used to determine the Discount Rate assumed that Plan Member contributions will be made at the current contribution rate and that Sponsor contributions will be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the Long-Term Expected Rate of Return on Pension Plan investments (7.25 percent) was applied to all periods of projected benefit payments to determine the Total Pension Liability.

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25 percent. The municipal bond rate is 1.93 percent (based on the daily rate closest to, but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index). The resulting single discount rate is 7.25 percent.

SUMMARY OF CURRENT PLAN

Article 13 Pension Fund

The Fund is established and administered as prescribed by “Article 13. XYZ Retirement Fund” of the Illinois Pension Code.

Fund Administration

The Fund is a single employer defined benefit pension plan administered by a Board of Trustees comprised of:

- a.) Three members appointed by the Board of Commissioners of the Water Reclamation District, one of which must be a retiree participating in the Fund
- b.) Four elected employee members.

Benefits Provided

The Plan provides retirement, termination, disability and death benefits.

A summary of the benefit provisions can be found in the accompanying Actuarial Valuation as of December 31, 2020 for the XYZ Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

HISTORY OF NET PENSION LIABILITY

Measurement Date	Total Pension Liability	Fund Net Position	Net Pension Liability	Fund Net Position as a Percentage of Total Pension
				Liability
12/31/2014	2,285,095,580	1,337,795,620	947,299,960	58.54%
12/31/2015	2,359,766,327	1,286,653,498	1,073,112,829	54.52%
12/31/2016	2,432,163,441	1,352,598,383	1,079,565,058	55.61%
12/31/2017	2,486,868,107	1,501,793,976	985,074,131	60.39%
12/31/2018	2,588,389,303	1,343,994,268	1,244,395,035	51.92%
12/31/2019	2,653,769,022	1,506,834,278	1,146,934,744	56.78%
12/31/2020	2,701,962,060	1,580,890,628	1,121,071,432	58.51%

HISTORY OF SENSITIVITY OF NET PENSION LIABILITY TO CHANGES IN THE DISCOUNT RATE

	1% Decrease	Current	1% Increase
12/31/2014			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,217,729,913	\$947,299,960	\$720,078,909
12/31/2015			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,349,610,381	\$1,073,112,829	\$840,620,797
12/31/2016			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,361,928,929	\$1,079,565,058	\$841,925,382
12/31/2017			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,269,993,791	\$985,074,131	\$745,011,954
12/31/2018			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,539,876,439	\$1,244,395,035	\$995,556,421
12/31/2019			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,446,814,051	\$1,146,934,744	\$894,253,229
12/31/2020			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,422,861,759	\$1,121,071,432	\$866,595,596



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**VENDOR**

**Vendor Customer Code:**

**Vendor Name :** Foster & Foster Consulting Actuaries, Inc.

**Address :** 184 Shuman Blvd., Suite 305

**Street :**

**City :** Naperville

**State :** IL

**Country :** USA

**Zip :** 60563

**Principal Contact :** Jason L. Franken

**Vendor Contact Phone:** (630) 620-0200

**Extension:** 117

**FOR INFORMATION CONTACT THE BUYER**

Melissa Pettrey  
 (304) 558-0094  
 melissa.k.pettrey@wv.gov

**Vendor Signature X**

**FEIN#** 59-1921114

**DATE** 02/24/2023

All offers subject to all terms and conditions contained in this solicitation