AGENDA

SPECIAL MEETING OF THE BOARD OF TRUSTEES OF THE POLICE PENSION FUND OF THE VILLAGE OF WILLOWBROOK TO BE HELD ON THURSDAY MAY 14, 2020 AT 2:00 P.M. AT THE WILLOWBROOK POLICE DEPARTMENT, 7760 QUINCY DRIVE, WILLOWBROOK, DUPAGE COUNTY, ILLINOIS

DUE TO THE COVID-19 PANDEMIC, THE VILLAGE OFFICES HAVE BEEN CLOSED AND THE BOARD WILL BE UTILIZING A CONFERENCE CALL FOR THIS MEETING.

THE PUBLIC CAN UTULIZE THE FOLLOWING INFOMRATION TO JOIN THE MEETING

Call in number: (312) 626-6799

Meeting ID: 874 4814 0489

WRITTEN PUBLIC COMMENTS SHOULD BE SUBMITTED TO NTURVILLE@WILLOWBROOK.IL.US BY 12:00 P.M. ON MAY 12, 2020.

1. CALL TO ORDER
2. ROLL CALL
3. **APPROVAL** - PENSION BOARD ACTUARIAL SERVICES
4. VISITOR BUSINESS
5. ADJOURNEMNT

VILLAGE OF WILLOWBROOK
POLICE PENSION FUND

REQUEST FOR PROPOSALS
FOR ACTUARIAL SERVICES

May 4, 2020

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

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

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May 4, 2020

Carrie Dittman, CPA
Director of Finance

Village of Willowbrook
835 Midway Drive
Willowbrook, IL 60527
cdittman@willowbrook.il.us

Re: Professional Actuarial Services for the Village of Willowbrook Police Pension Fund

Dear Ms. Dittman:

I am writing to provide a formal response to your search for a firm to provide professional actuarial services for the Village of Willowbrook Pension Fund ("Board"). This letter is our effort to emphasize what a pleasure it would be to serve as the Board's actuary. In this proposal, you will find details surrounding the services we would be providing and the fees associated with performing the work.

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. Currently, we provide actuarial services to public retirement programs in Illinois, Florida, Missouri, Ohio, Georgia, Alabama, Texas, Arizona, Louisiana, Oklahoma, and Arkansas. As the consulting actuaries to more than 350 public entities across the country, which include police, fire, and general employees, as well as cities, districts, school boards, and hospitals, we understand and are well qualified to perform the services required of the Board.

We are uniquely qualified and would be the best applicant to perform the services requested for the following reasons:

- **Firm's Expertise and Resources –** For over forty years we have been specializing in providing actuarial services of this nature to the public sector. Our firm has 24 credentialed actuaries with over 320 years of public sector experience. This includes nine Fellows of the Society of Actuaries (FSAs). Additionally, we have 10 consultants who are taking the exams to earn their credentials. The plethora of resources ensures that we meet the deadlines of all our clients.

- **Consultant's Credentials** – We will devote five credentialed actuaries, including three Fellows of the Society of Actuaries (FSAs), to assist the Board. This is the highest actuarial designation that an actuary can obtain. Unlike some of our competitors, we guarantee that a credential actuary will deliver the results at a meeting.

- **Quality Control Procedures –** Foster & Foster has a formal peer review process that is unmatched by our competitors. Every report is reviewed by more than one credentialed actuary and nothing leaves our office without being reviewed by our senior quality control actuary. He reviews all of our work to ensure that it is consistent across the firm and conforms to the Actuarial Standards of Practice.

- **Active Consultants –** Our consultants do not just report the news. We prepare our clients for contingent risks and actively manage and provide services to our clients. Whether it is by providing innovate internet-based solutions or by holding interactive workshops with Boards and City Council members, our consultants are visible, articulate, and progressive.

- **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, FSA and consulting actuary, am authorized to represent and contractually bind the firm. You may reach me at the address and telephone number listed below. Our firm understands the scope of services and would consider it a privilege to serve the Board.

If you have any questions regarding this proposal response, our firm, or the services we are prepared to provide, please don't hesitate to contact me.

Sincerely,

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

Foster & Foster, Inc.
184 Shuman Blvd., Suite 305
Naperville, IL 60563
Telephone: (630) 620-0200
Facsimile: (239) 481-0634
Email: data@foster-foster.com
Website: www.foster-foster.com

FIRM PROFILE AND EXPERIENCE

Foster & Foster Consulting Actuaries, Inc. d/b/a Foster & Foster, Inc., a Florida corporation, is a nationally independent actuarial consulting firm that was founded in Gainesville, FL in June 1979 by Ward and Eileen Foster. In that first year, the firm had one client and revenues of $1,500. Today we have revenues of over $13.5 million and are a profitable firm with presence in ten states. Our firm is structured to provide actuarial services to public retirement and other post employment benefit programs.

Our firm currently employs 68 consultants, of which 23 have obtained actuarial credentials. Brad Heinrichs, Jason Franken, Heidi Andorfer, Pat McDonald, Paul Baugher, Pete McCloud, Ann Byman, Colleen Atchison, and Jeffrey Gann are Fellows of the Society of Actuaries (FSA), the highest distinction an actuary can obtain. Our firm also has a strong support staff with teams devoted to data preparation/collection and asset reconciliation.

Foster & Foster derives 100% of its revenue from actuarial consulting services. While these services are predominately to public pension boards of trustees (approximately 75%), we also provide GASB 45/75 services and health consulting services to public entities and Taft-Hartley plans (approximately 25%).

We currently have offices in Naperville, IL, Atlanta, GA, Cape Coral, FL, Dallas, TX, Paso Robles, CA, and Fort Myers, FL. Additionally, we have satellite offices in St. Louis, MO, Milwaukee, WI, Baton Rouge, LA, Tampa, FL, Eden Prairie, MN, and North Liberty, IA. The Board's primary contact is our office located in Naperville, IL at the following address:

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

Telephone: (630) 620-0200
Email: data@foster-foster.com
www.foster-foster.com

COMPANY HISTORY AND STRUCTURE

One of the top priorities of our firm is educating the caretakers of public pension programs. It is a source of pride for us that we do more to educate these individuals than any other actuarial firm in the State. We are frequent speakers at Illinois Public Pension Fund Association (IPPFA) conferences, Associated Fire Fighter of Illinois (AFFI) conferences, National Conference of Public Employee Retirement Systems (NCPERS), Florida Public Pension Trustee Association (FPPTA) conferences, Florida Government Finance Officers Association (FGFOA) meetings, and Florida Division of Retirement Police and Fire conferences. Additionally, our firm is a strong supporter for organizations such as IPPFA, IFEBP, TEXPERS, NCPERS, FPPTA, and FGFOA. These speaking engagements have enabled us to be very efficient at discussing complicated issues in a way that everybody can understand.

Over the past eight years, we have taken many steps to expand and diversify our business. For example, we expanded our services to provide actuarial services to other post employment benefit (OPEB) plans as required by Government Accounting Standards Board Statements No. 43, 45, 74 & 75. In order to meet Foster & Foster's high quality standards, we hired credentialed health care actuaries, including Michael Merlob, an FSA with 20+ years of experience in valuing postretirement medical and disability programs, to perform the work.

Foster & Foster is currently providing ongoing support to more than 350 public sector clients and provides GASB 45/75 services to over 190 different entities. We work almost exclusively with public retirement and other post employment benefit (OPEB) plans and consider ourselves to be experts in all phases of the design and administration of these programs. We currently have two plans that contain over 100,000 participants each, several with over $10 Billion in assets, and our consultants combine for over 320 years of public pension plan experience.

In 2008, we established an office in Illinois to further our 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 expands the firm's presence outside the pension and postretirement medical world and gives 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 TEXPERS and TLFFRA conferences. Since that time, we have obtained eleven (11) clients, seven (7) of which are TLFFRA firefighter pension funds. We now are the consulting actuary for over 175 public safety funds nationwide.

In December 2012, we acquired SJ Actuarial Associates. This acquisition helped expand our public pension presence in the south.

In July 2016, our firm has 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 currently studying to become a credentialed actuary.

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 over 20 years of actuarial pension consulting experience to Foster & Foster.

Finally, in January 2018, Foster & Foster acquired Marsh Consulting Group, a health and benefits consulting firm, in Paso Robles, California, and hired three credentialed actuaries and opened an office in Atlanta, Georgia. These two moves helped expand Foster & Foster's footprint from the Atlantic Ocean to the Pacific Ocean.

ORGANIZATIONAL QUALIFICATIONS

Our firm has had a pristine record of performance in providing actuarial services to our clients. In fact, a majority of our actuarial reports are reviewed by regulatory agencies or by other actuarial firms who perform actuarial audits. In all cases, these reports have been approved. As such, we are extremely comfortable with our approach, disclosure, and process for performing the requested work.

Our firm provides similar actuarial services to hundreds of pension and OPEB programs across the country so we fully understand and are well equipped to provide all of the proposed services. 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. We will use a similar methodology that we use with all of our clients, who may be similarly situated. We have standardized some of the processes to increase operational efficiencies, such as data request forms, typical report formats, etc.

We use the best actuarial valuation software money can buy. ProVal was developed by WinTech in Greenwich, and is THE state-of-the-art in actuarial valuation software. It is utilized in valuing liabilities for the largest funds in the country and provides updates as needed based on legal and regulatory changes, requested changes from their clients, etc. Each time an update is provided, our firm installs the update to utilize the new features.

This software is also entirely PC-based, which eliminates the time and expense associated with maintaining and operating a mainframe system. This software has a comprehensive database management system designed to accurately prepare and summarize census data for the current year's valuation, has separate calculation modes for public sector plans that apply the appropriate laws and regulations and is designed to move seamlessly from valuations to deterministic and stochastic forecasts. Beyond the core tasks of running valuations and forecasts, ProVal also offers several analytic tools including: gain/loss analysis, experience studies, and asset/liability modeling.

Foster & Foster has also gone to great lengths to ensure the firm's information technology needs are up to industry standard. The Dell server hardware has been configured with multiple sets of redundant hard disk arrays and multiple power supplies to ensure maximum uptime. All data including email is housed internally to ensure valuable private client data is secure and safe.

Our firm's secure file transfer server allows us to send and receive files containing personal information, such as names and social security numbers, in a HITECH-compliant format. We are also capable of receiving data via email or certified mail. Intrusion detection and firewall prevention is provided by Sonicwall, an industry leader in network intrusion prevention.

SWORN STATEMENT, LITIGATION & RELATIONSHIP

Foster & Foster, Inc. is a profitable firm. This has been achieved over the course of 40+ years by providing a quality work product to its clients at the lowest possible cost, thereby building strong business relationships that last many years.

There are no known conflicts of interest that would prevent us from completing the work requested on behalf of the Board. In order to protect our firm from future conflicts of interest, we disallow any of our associates to obtain employment or work for any other outside agency other than Foster & Foster. Furthermore, we require each of our associates to disclose any other professional activities or personal relationships that they may have with any of our clients or plan sponsors. If conflicts of interest do arise, we follow the procedures outlined in the Actuarial Standards of Practice, which require us to immediately identify all affected parties that a potential conflict of interest does exist. Upon notification, we would require that each impacted party agree to allow us to continue to perform the requested work. Otherwise, we would be forced to resign as our client's actuary until the conflict no longer exists.

For our entire history, no company employee has ever been charged or censured with any offense involving fraud, theft, or dishonesty. Furthermore, our Firm is not presently in violation of any statutes or regulatory rules that might have an impact on our operations nor are we involved in any litigation.

As with all of our clients, we agree to be a fiduciary.

STAFF QUALIFICATIONS

Each client is assigned to a team of professionals. The size of the team varies by the size and nature of the client relationship. Additionally, we will have one general administrative person who will handle all work requests and a separate team that will be dedicated to data input.

Being strictly involved with the public sector, our consultants have a very firm grasp on the wants and needs of our clients. We understand that the services required may vary from client to client and we tailor both services and reports to each individual client. The lead actuarial consultant that will be assigned to this account has worked on plans of all sizes and is a Fellow of the Society of Actuaries (FSA).

The person with the primary responsibility for completion of the worked outlined herein for Jason Franken (FSA/EA). Below is a list of actuaries, consultants, and staff members that will be working directly on actuarial services for the Board.

- **Jason Franken** will be the lead actuarial consultant and the day-to-day contact person for the Board. He brings over 23 years of actuarial pension experience. Jason is a Fellow of the Society of Actuaries, an Enrolled Actuary per ERISA and a member of the Academy of Actuaries. He consults clients on a wide range of retirement plan issues, including statutory funding requirements, accounting for pension and postretirement medical plans, plan administration, experience studies and plan design. Jason will coordinate the valuation production, deliver results at meetings, conduct special actuarial analyses, and ensure the work product adheres to the rules, regulations, and guidelines set forth by the United States Government and the Actuarial Standards of Practice.

- **Heidi Andorfer** joined the firm in 2014 and has over 24 years of actuarial pension experience. Heidi is one of few thousand actuaries worldwide who is both a Fellow of the Society of Actuaries and an Enrolled Actuary per ERISA. Heidi will assist Jason in managing the project, delivering valuation results at meetings, and ensuring that the work product adheres to the rules, regulations, and guidelines set forth by the United States Government, the State of Illinois, and the Actuarial Standards of Practice.

- **Julie Franken** has more than 21 years of experience as a pension actuary. Julie graduated from the University of Wisconsin – Madison with a Bachelor of Business Administration. She is an Enrolled Actuary per ERISA and works extensively on annual valuations, projections, benefit calculations, and special studies. Before joining Foster & Foster in 2012, Julie worked for a large benefits consulting firm. During her career, Ms. Franken has specialized in the valuation of pension plans. She has developed processes to help streamline the valuation and make it more efficient. She will work with the valuation team to scrub and reconcile the personnel data, determine funding requirements, produce the valuation reports and complete service purchase calculations.

- **Tyler Koftan** is a 2011 graduate of the University of Iowa with a B.S. in actuarial science. Tyler is an Enrolled Actuary who joined the Foster & Foster team in January 2013. Mr. Koftan will assist in programming our valuation system and calculating liabilities.

SUPPORT PERSONNEL AVAILABLE:

- **Pete McCloud** is one of our senior actuarial consultants with over 23 years of experience in the actuarial consulting industry. Mr. McCloud is a Fellow of the Society of Actuaries, an Enrolled Actuary per ERISA, and is an Associate of the Society of Actuaries (ASA). Pete's sole job is to be the final set of eyes on all work before it is delivered to the Board.

- **Geena Schwabe** joined the firm in 2013 and has over eight years of administrative work experience. She graduated with a Bachelor's degree in Business Administration from Benedictine University. Geena provides office services by implementing administrative systems, procedures and policies, and monitoring projects. She will always be accessible for billing inquiries and will be a point person responsible for the client team delivering on the work we promise when we promise.

All of our firm's professional staff meets all licensing requirements to conduct business in the State of Illinois. We guarantee accessibility of these professionals, and all phone calls/emails will be returned promptly and certainly within one business day.

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.

PROJECT APPROACH

Our firm is a full-service actuarial firm that has been providing actuarial consulting services to public retirement programs for over 40 years and complete more than 350 actuarial valuations per year. 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. We understand that the goal of this project is to help the Board, members and taxpayers feel comfortable that the financial position of each plan is accurately reflected in its most recent actuarial valuation.

The overall assumption-setting methodology changes very little from client to client, but the actual assumptions used may vary substantially from client to client. In every case, we utilize assumptions that represent the Plan's best estimate of future experience. For extremely small clients, we may use simplifying assumptions or assumptions consistent with the experience of a large group in our database. For larger clients we may use more sophisticated assumptions and rely more heavily upon recent experience studies.

We typically recommend changes to actuarial assumptions when it becomes apparent that future behavior will be somewhat different than currently assumed. This may or may not be based upon the prior experience varying substantially from our assumptions. In the past, we have recommended changes to the assumptions because of changes to the plan, federal or state law, or due to input from the client that suggests that future experience will be different than currently assumed. For example, if the Normal Retirement Age was increased, we would likely recommend a change to the assumption as to when people retire, meaning that more people will retire later. This assumption may be made regardless of prior retirement behavior.

Our firm also believes the actuarial assumptions should be set according to the actuarial Standards of Practice and reflect plan-specific experience. We perform these services hundreds of times per year so we have developed extremely efficient methods to complete this work. As required by our standards of practice, we will confirm that each assumption makes sense individually and, also, that the assumptions in the aggregate are consistent and reasonable.

An actuarial valuation provides a best estimate of a fund's liabilities and required contribution levels at a particular point in time. This estimate helps ensure that current assets and future contribution requirements will be sufficient to provide benefits promised to members. Future liabilities are determined by applying a set of actuarial assumptions to project the occurrence, amount and timing of benefits that will become payable according to current plan provisions. The extent to which an actuarial valuation accurately measures a plan's liabilities and contribution levels depends on how well the actuarial assumptions predict future plan experience.

The Actuarial Standards Board has provided coordinated guidance regarding pensions through of a series of Actuarial Standards of Practice (ASOP) for measuring pension obligations and determining pension plan costs or contributions. The ASOPs that apply specifically to valuing pensions are as follows:

- ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, which ties together the standards shown below, provides guidance on actuarial cost methods, and addresses overall considerations for measuring pension obligations and determining plan costs or contributions
- ASOP No. 23 *Data Quality*
- ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*

- ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*
- ASOP No. 41, *Actuarial Communications*
- ASOP No. 44, *Selection and Use of Asset Valuation Methods for Pension Valuations*
- ASOP No. 51, *Assessment and Disclosure of Risk Associated with Measuring Obligations and Determining Pension Plan Contributions*

We will strictly follow each of the ASOP's mentioned above in performing all analyses for the Board. Below is a proposed approach for the Board, if our firm is awarded the contract:

In performing the review and replication of the actuarial valuation, we will identify areas where we believe changes or improvements should be made and communicate those in our final report. We will complete the following steps to ensure the actuarial valuation satisfy all of the applicable ASOPs:

- Review of data used in the valuation
- Assessment of the plan provisions to be valued
- Preparation of the actuarial calculations
- Review of sample lives
- A review of methods and procedures
- A review of the actuarial valuation report content
- An analysis of the actuarial assumptions applied
- Summarizing the results

To make the transition as smooth as possible, we would first send a letter containing a checklist of data that we will need in order to produce the valuations. Once we receive the requested data from the prior actuary, we would match last year's valuation results within an acceptable range (within 5%). This is done to ensure consistency in results through the transition. If we have questions through this process, we will work directly with the prior actuary to resolve outstanding issues.

PROPOSED APPROACH FOR PENSION VALUATION:

- Sign contract with the Board for actuarial services within two weeks of receiving notice that Foster & Foster was chosen for the award.
- Collect this year's and last year's personnel and financial data. (We will provide a data request within one week of signing the agreement.) Once we have all the necessary information, we will the match the previous valuation results within an acceptable threshold to ensure consistency in results through the transition. Any discrepancies will be discussed by the actuaries. There will be no expense for this step in the process.
- Upon receipt of the data, our data personnel will review the information and note any discrepancies or anomalies that may require attention.
- Within one week of receiving the data, we will schedule a conference call with a Board representative or administrator to ask any pending questions or to clarify our understanding of the data.

- Prior to completing the valuation in the first year, we will set up a time with the Board to review the actuarial assumptions and methods. This will be beneficial to us as we work to understand the Board's funding policy.
- The provisions of the programs will be inputted into ProVal, the most robust pension and OPEB actuarial valuation system in the marketplace.
- ProVal will develop all of the necessary actuarial information to develop reports that comply with the State of Illinois 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.
- Once we receive all of the relevant demographic and financial information necessary to perform the valuations, the reports will be produced within 60 days and delivered at the subsequent meeting. We are usually able to accelerate that time frame in order to accommodate the particular needs of a client.

REFERENCES

- **Client Name**: Village of Hinsdale Police
  Contact: Art Holecek
  Address: 121 Symonds Dr, Hinsdale, IL 60521
  Phone: (630) 789-7070
  Email: artholecek@hinsdalepolicepension.com

- **Client Name**: City of Darien Police
  Contact: Leonard Catalano
  Address: 1702 Plainfield Rd, Darien, IL 60561
  Phone: (630) 971-3999
  Email: lcatx310@yahoo.com

- **Client Name**: Village of Burr Ridge Police
  Contact: Jerry C. Sapp
  Address: 7660 County Line Road, Burr Ridge, IL 60527
  Phone: (630) 323-8181
  Email: jsapp@burr-ridge.gov

FEE PROPOSAL

We have several actuaries and staff assigned to each client, and these actuaries all have different billing rates. We also have a non-actuary who is a project manager, who makes sure that the appropriate professional is performing each task. Regardless, our hourly rates are lower than most other actuarial firms. Additionally, most of our work is fixed-fee, and we typically provide not-to-exceed quotes for any work that is estimated to cost in exceeds of $5,000, or if requested by the client.

Preparation of the annual actuarial Police Pension valuation report including:

- Actuarial certification;
- Summary of valuation objectives;
- A statement of the actuarial cost method selected and actuarial assumptions;
- The results of the valuation, including the recommended contribution from the Village to properly fund the Willowbrook Police Pension Fund;
- CAFR GASB statement disclosure information;
- Coordinate and discuss the Reports with the Board;
- Guarantee to have final completed within 30-45 days of when the data is received; and
- Attend one meeting to discuss the results.

2020 Actuarial Valuation Fee:
$6,000*

**The valuation fees in subsequent years will increase by 3% per year.*

ADDITIONAL SERVICES

In addition to the regular annual services outlined on the above, we are also prepared to perform the following special services:

1. Foster & Foster has developed a pension modeler that allows the user to see the impact that various assumptions, methods, and experience have on future pension contributions, as well as the funded ratio. We have demonstrated this tool at various pension conferences across the State. It has helped our clients take a long-term view of pension funding rather than focusing on the results of the annual valuation. This tool is available for an additional fee.

2. Perform "true-cost" calculations for $300. These calculations will be performed and the results given to the Village within ten business days of receipt of all necessary employee and financial information.

3. Analyze funding trends to predict future contribution requirements.

4. Perform experience studies to help provide the Village with historical data to use when selecting actuarial assumptions.

5. Perform other general consulting services via telephone, email, or facsimile outside of what is previously stipulated.

The charges for the work not explicitly stated would be based upon the amount of time required to complete each task. We will provide a firm fee quotation prior to commencing any work at the Board's request.

Staff	Hourly Rate
Senior Consultant	$ 350
Senior Staff	$ 300
Junior Staff	$ 250
Administrative	$ 150

We do not charge additional fees for any clerical work such as copies, fax copies, or computer time (limited to communications which should not include the running of any computer-generated analyses or research). Telephone consultations will be subject to our hourly rates stated above.

Lauterbach & Amen, LLP
CERTIFIED PUBLIC ACCOUNTANTS
668 N. RIVER ROAD • NAPERVILLE, ILLINOIS 60563
PHONE 630.393.1483 • FAX 630.393.2516
www.lauterbachamen.com

April 30, 2020

Member of the Pension Board of Trustees
Willowbrook Police Pension Fund
835 Midway Drive
Willowbrook, Illinois 60527

We are pleased to confirm our acceptance and understanding of the services we will provide for the Willowbrook Police Pension Fund for the fiscal year ending April 30, 2020. It is our understanding that Lauterbach & Amen, LLP will prepare the Police Tax Levy Actuarial Valuation and Police GASB 67/68 Actuarial Valuation for the Pension Fund.

You agree to assume all management responsibilities for the actuarial services we provide; you will oversee the services by designating an individual, preferably from senior management, with suitable skill, knowledge, or experience; you will evaluate the adequacy and results of the services; and you will accept responsibility for them.

Lauterbach & Amen, LLP does not assume any management responsibilities for the Pension Fund. These services cannot be relied upon to detect errors, irregularities, or illegal acts that may exist. However, we will inform you of any such matters that may come to our attention.

Costs for our services are as follows:

Annual Actuarial Reports	**Fiscal Year Ended 04/30/2020**
• Preparation of Police Tax Levy Actuarial Valuation	$2,900
• Preparation of Police GASB 67/68 Actuarial Valuation	$2,450
• Attendance at Meeting to present results	Included
Total Annual Actuarial Reports	**$5,350**

The fees as depicted on the prior page include attendance for up to 2 meetings per year, as requested, to discuss actuarial results. Any meeting attendance required above and beyond the 2 included meetings will be billed at the rate of $250 per meeting.

Either party may terminate our engagement at any time for any reason upon written notice to the other. Subcontracting is prohibited without the express written approval of the Pension Fund's Board of Trustees. This agreement shall be governed by and construed in accordance with the laws of the State of Illinois.

We appreciate the opportunity to be of service to the Willowbrook Police Pension Fund and believe this letter accurately summarizes the significant terms of our engagement. If you have any questions, please let us know. If you agree with the terms of our engagement as described in this letter, please indicate your acceptance by signing below and returning it to us.

Cordially,

Lauterbach & Amen, LLP

Lauterbach & Amen, LLP

RESPONSE:

This letter correctly sets forth the understanding of the Willowbrook Police Pension Fund:

Accepted by: ____

Title: ____

May 2020

Proposal to Provide Actuarial Services

Village of Willowbrook Police Pension Fund

CONTACT

Mike Zurek
FCA, EA, MAAA
(847) 400-9601
mike.zurek@nyhart.com

ADDRESS

Nyhart
8415 Allison Pointe Blvd.
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Indianapolis, IN 46250

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General (317) 845-3500
Toll-Free (800) 428-7106
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Cover Letter

Village of Willowbrook:

Thank you for considering our proposal for actuarial services for the Village of Willowbrook Police Pension Fund. We feel that Nyhart is distinctively qualified to serve the Fund in that we have supplied the same services to other pension funds across the country and to over 60 other police and fire plans in Illinois. We, therefore, thoroughly understand the services needed by the Police Pension Fund.

The serving offices will be our Chicago Office.

Mike Zurek, FCA, EA, MAAA

mike.zurek@nyhart.com
847-400-9601 | 800-428-7106
317-845-3670 FAX

707 Lake Cook Road, Suite 250
Deerfield, IL 60015

Scott Gavin, FSA, EA, MAAA

scott.gavin@nyhart.com
847-400-9603 | 800-428-7106
317-845-3670 FAX

707 Lake Cook Road, Suite 250
Deerfield, IL 60015

Our other offices are located in: Indianapolis, Atlanta, Denver, Houston, Kansas City, New York, San Diego, and St. Louis.

We feel there are positive advantages for the Village in having Nyhart perform the needed services.

Experienced Team: We have selected two credentialed and highly-experienced actuaries to serve as your team. I, Mike Zurek, and Scott Gavin will work together for the Village of Willowbrook's pension fund. Scott and I have over 45 years of combined experience. We will commit to performing the required work within the time period requested and provide valuable insight for the management of your plans. Scott and I are both very familiar with Illinois police and fire plans.

Communication: We know financial equations and charts can be rather daunting; that is why we put forth the extra effort to summarize information in a way that is easier for our clients to follow. Our communication approach is not just to give the necessary information but also to educate our clients as we explain actuarial issues. This communication approach (and the associated tools) allows our clients to make effective decisions regarding their pension plans. We consistently hear feedback from our clients that our communication style is a key reason they love to work with us.

Customer Service: Most actuaries can get the numbers right; however, where many fail is in customer service. At Nyhart, we believe customer service has to be our number one priority.

The extra effort we put into customer service shows up in a number of places – returning phone calls the same day, responding to questions without "turning on the clock", and always thinking of ways to improve the process and deliverables – are just a few. Our goal is to be treated as an extension of your staff and as a trusted partner. We will, therefore, respond in the way that best attains those goals.

Last but not least, we love what we do. This may sound cliché but it's the truth. We believe this shows through in our high-quality services and client relationships. We would truly appreciate the opportunity to become your trusted business partner. If you have any questions regarding our response, please do not hesitate to contact me or Scott at 800-428-7106 or e-mail us at mike.zurek@nyhart.com or scott.gavin@nyhart.com.

Sincerely,

Nyhart

Mike Zurek, FCA, EA, MAAA
Consulting Actuary

/lmw

Our Understanding

Statement of Project Understanding — Pension Actuarial Work

We understand the services being requested and perform these same services to over 60 Illinois Police and Firefighter Pension plan clients daily.

The purpose of an actuarial valuation is 1) to determine the amount of actuarially determined contributions (i.e., an amount that, if contributed consistently and combined with investment earnings, would be sufficient to pay promised benefits in full over the long-term) and 2) to measure the plan's funding progress. Key items to consider in reviewing the valuation report include:

- **Actuarially Determined Contribution**. The actuarially determined contribution represents the amount needed to fund benefits over time. If the contributions are not fully paid, interest accrues on the unpaid portion at the plan's expected long-term rate of return. Persistent underfunding will ultimately jeopardize the plan's sustainability.
- **Liabilities, Assets, and Funded Ratio**. The *actuarial accrued liability* (AAL) represents the present value of benefits earned, calculated using the plan's actuarial cost method. The *actuarial value of assets* (AVA) reflects the financial resources available to liquidate the liability. The *unfunded actuarial accrued liability* (UAAL) is the difference between the AAL and the AVA. The *funded ratio* (AVA/AAL) reflects the extent to which accumulated plan assets are sufficient to pay future benefits.
- **Actuarial Assumptions**. Since no one knows what the future will bring, actuarial valuations are based on assumptions. For an actuarial valuation to be reliable, the assumptions used should reflect the best information available, which should be supported by rigorous discussion and analysis. Also, information concerning the demographic characteristics of the covered population needs to be current.
- **Historical Information**. Certain historical information is especially useful to understanding funding:
    - Multi-year information on the plan's funding progress that includes the AAL, the AVA, the funded ratio, and the UAAL as a percentage of payroll, consistent with the government's funding policy; and
    - Multi-year information on both actuarially determined contributions and actual amounts contributed (by definition, if actuarially determined annual required contributions are paid faithfully each year to the plan, the plan should accumulate sufficient resources, over time to pay benefits, regardless of the actuarial cost method selected).

Our firm specializes in not only taking care in helping you understand annual results and how things changed from the prior year, but also dynamically looking at future potential results under a variety of economic scenarios. We believe this second step is critical to best managing the plan for future sustainability and successfully delivering benefits.

Firm Background

People Matter ✹ Quality First ✹ Integrity Always

Nyhart is an employee benefit and financial wellness consulting, actuarial, and administration firm that has been in business since 1943, 77 years. Nyhart was started as a family-owned actuarial firm by Howard E. Nyhart and continued as such until 1979 when an ESOP (Employee Stock Ownership Plan) purchased the company. Nyhart was a completely 100% employee-owned company from 1991 until 2019.

FuturePlan by Ascensus

As of December, 2019, The Nyhart Company became part of Ascensus out of Dresher, Pennsylvania. Ascensus has technology and expertise that has helped millions of people save for retirement, education, and healthcare. Nyhart, an employee benefits consulting firm that provides retirement (defined contribution, defined benefit, and actuarial) and healthcare actuarial services along with consumer-directed health and benefit continuation administration immediately became part of the FuturePlan by Ascensus line of business.

FuturePlan by Ascensus is the nation's largest retirement third-party administrator, combining high-touch local service with the strength and security of an industry leader. A line of business within Ascensus, FuturePlan's dedicated team serves more than 46,000 retirement plan sponsors in more than 40 locations across the country as of September 30, 2019.

Experience

Nyhart serves more than 2,400 clients in all 50 states from nine strategically-placed locations (Indianapolis, Atlanta, Chicago, Denver, Houston, Kansas City, New York, San Diego, and St. Louis). With client assets that exceed $20 billion, the firm specializes in bringing a consultative approach to large, complex plans and is home to a talented employee population that features 130 actuaries, employee benefit consultants, and administrators.

Nyhart works with a diverse client base that includes states, cities, and municipalities; professional services firms; public sector entities; healthcare systems; religious organizations; and higher education institutions. Along with its retirement and healthcare solutions, the firm also offers Votaire, a proprietary health and financial wellness platform that allows employers to provide employees with the tools to help them develop a plan for reaching their financial goals.

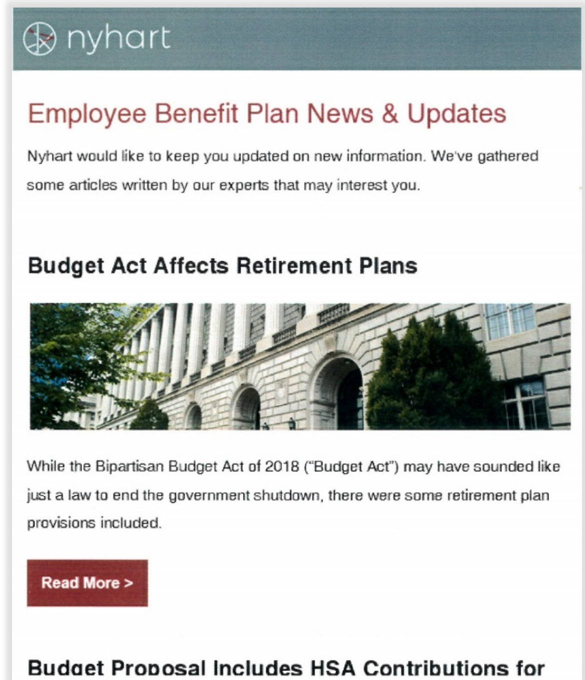
Our philosophy for providing actuarial consulting services is based on our desire to be a value-added resource and trusted advisor to our clients. We believe this is achieved by consistently performing requested services at a level that meets or exceeds the client's expectations, by putting forth the extra effort to ensure the client's satisfaction, and by maintaining frequent communication with our clients. It is through this kind of relationship that excellent service becomes routine.

Strengths

Nyhart delivers high-quality consulting and actuarial services at reasonable prices. Our pension consultants pride themselves on helping our clients solve complex problems and manage their plans to avoid surprises. Our consultants have extensive experience helping clients manage large, complex plans; that experience is shared throughout the company and applied to future projects.

Our communication style is also something that makes Nyhart unique from the competition. Almost any actuary can get the numbers correct, but we put forth the extra effort to summarize those numbers in a way that is easier for our clients to understand. Our communication approach and associated tools allow our clients to make effective decisions regarding their plans. We consistently hear feedback from our clients that our communication style is a key reason they love to work with us.

Keeping Clients Informed


nyhart

Employee Benefit Plan News & Updates

Nyhart would like to keep you updated on new information. We've gathered some articles written by our experts that may interest you.

Budget Act Affects Retirement Plans

While the Bipartisan Budget Act of 2018 ("Budget Act") may have sounded like just a law to end the government shutdown, there were some retirement plan provisions included.

Read More >

Budget Proposal Includes HSA Contributions for

Nyhart issues occasional newsletters to our clients to keep them up-to-date on what is happening in the benefits arena. In order to do this, Nyhart uses multiple sources to keep informed of new developments. We use several professional groups such as Conference of Consulting Actuaries, Society of Actuaries, and ASPPA. These organizations provide endless continuing education opportunities for our actuaries. Our credentialed actuaries attend national and state conferences. This ensures we are bringing the latest information to our clients across the nation and specific state requirements or changes as well.

In addition, we use the following resources:

- State organizations: For the states that have public pension plan organizations, we participate in annual conferences to learn of State specific ideas, hot topics, etc. that we can share with our clients.
- Thomson Reuters Checkpoint: It is an extensive research site that has primary source material (including the Internal Revenue Code and related Treasury regulations, ERISA, DOL regulations and pronouncements) as well as editorial material.
- Wolters Kluwer's IntelliConnect: It provides online access to the Internal Revenue Code and regulations and a wide variety of Aspen Publishers Answer Books.
- BenefitsLink: We receive technical updates from the IRS through their Employee Plan News. We participate in the IRS phone forums on technical topics relating to retirement plans.

Keeping our clients up-to-date, first and foremost, is the responsibility of the lead actuary for each of our clients. We pride ourselves in being proactive and bringing new ideas to our clients. Many actuaries can "crunch the numbers", but many don't provide the value needed by clients to avoid surprises with their pension plans. Our lead actuaries are always asking… What else does this client need? If I were in the client's shoes, what else would I want to know? What are the new ideas the client should hear about? As part of the annual valuation presentation, we will highlight topics such as these for the client's consideration.

Our newsletters are intended to help the particular entities that would be affected by the subject. They are sent out to all of our clients (those that have requested the service) in order to keep them abreast of any changes coming that may or may not affect them now or in the future. Our newsletters are prepared by our Legal Department that consists of two attorneys and a paralegal.

Other Services Available

As the employee benefit field widened, so did the services offered by Nyhart. We offer services in the following areas:

• **Pension Actuarial Services**	• **Health Care Actuarial Consulting**
▶ Valuations ▶ Cost Projections ▶ Online Pension Administration Software ▶ Benefit Statements	▶ GASB 45 Interactive Modeler ▶ Medicare Part D Subsidy Report ▶ Medicare Part D Creditable Coverage Determination ▶ Reserving for Self-Insured Plans ▶ Rate Setting, Design Modeling, & IBNR ▶ ACA Minimum Actuarial Value Determination ▶ Annuity Purchases and Consulting
• **Defined Contribution Services**	
▶ Balance Forward ▶ Daily Valuation	
• **Flex Administration**	• **Compensation Studies**
▶ Flexible Spending Accounts / Dependent Care Accounts ▶ Health Savings Accounts ▶ Health Reimbursement Accounts ▶ COBRA	

Professional Staff

Nyhart Actuaries

Nyhart has 25 credentialed actuaries on staff. Most of our actuaries have achieved either their FSA and EA designation. The team selected for the Village of Willowbrook Police Pension Fund includes two associates with over 45 years of experience, located in metro Chicago (Deerfield, IL). The team that will be working with the Police Pension Fund will be:

Relationship Manager and Consulting Actuary

Mike Zurek, FCA, EA, MAAA
Consulting Actuary
707 Lake Cook Road, Suite 250
Deerfield, IL 60015

mike.zure@nyhart.com
847-400-9601 | 800-428-7106

Consulting Actuary

Scott Gavin, FSA, EA, MAAA
Consulting Actuary
707 Lake Cook Road, Suite 250
Deerfield, IL 60015

scott.gavin@nyhart.com
847-400-9603 | 800-428-7106

Mike Zurek, FCA, EA, MAAA

Relationship Manager / Consulting Actuary

mike.zurek@nyhart.com

707 Lake Cook Road, Suite 250 | Deerfield, IL 60015
847-400-9601 | 317-845-3670 FAX

Mike is a Consulting Actuary based in Nyhart's Chicago Office. Mike has 31 years of pension experience and works with several different types of plans, of varying sizes and structures. Mike will work directly with the Village to provide timely and thorough valuation results.

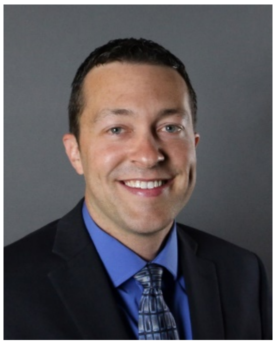
Utilizing his experience and detailed knowledge of your plan, Mike is able to explain complex actuarial topics in simple terms. His clients have found this to be an invaluable part of Mike's service.

Mike earned a Bachelor of Science Degree in Actuarial Science from the University of Illinois.

Sample of Illinois Clients

City of Highland Park – IL	Village of Morton – IL	City of Oak Forest – IL
Illinois Education Association - IL	Village of Skokie - IL	Mt. Carmel Public Utility Co. – IL
City of Mendota - IL	Sauk Village - IL	Township of Schaumburg – IL

Village of Clarendon Hills – IL	Village of Bellwood - IL	Village of Creve Coeur – IL
Village of Mount Prospect - IL	City of Rockford – IL	Village of Oak Brook - IL
Village of Romeoville - IL	City of Woodstock - IL	City of East Peoria - IL
Village of Libertyville – IL	Village of Lombard - IL	Village of River Grove - IL
River Valley Metro Mass Transit System – IL		City of Kewanee



Scott Gavin, FSA, EA, MAAA

Consulting Actuary

scott.gavin@nyhart.com

707 Lake Cook Road, Suite 250 | Deerfield, IL 60015
847-400-9603 | 317-845-3670 FAX

Scott is a Consulting Actuary based in Nyhart's Chicago Office. With over 15 years of experience as a retirement actuary, he has worked on plans with liabilities of $5 million to over $10 billion. He consults on a variety of pension-related topics ranging from valuations to long-term projections. Scott's collaborative approach provides his clients with insight to complex problems and an understanding of the underlying issues and resolutions.

Scott earned his Bachelor's Degree in Finance and Mathematics from the University of Notre Dame.

Professional Organizations

The two consulting actuaries on your team belong to several professional organizations

Mike Zurek belongs to the Conference of Consulting Actuaries and the American Academy of Actuaries, and the Illinois Public Pension Fund Association (IPPFA).

Nyhart participates and speaks at several public plan conferences IPPFA (Illinois), IAFPD (Illinois), MAPERS (Michigan), FPPTA (Florida) and others to share our thought leadership and learn from other professionals how to best serve our public pension plan clients. Additionally, Nyhart has committed involvement with the Conference of Consulting Actuaries. This organization provides significant sessions on a regular basis throughout the year and at their annual conference. Another actuary, Nick Meggos, has participated on the annual planning committee that develops the sessions for the annual conference the last three years. Many of these sessions are focused on public pension plan issues and allow our firm to make sure we are bringing the newest and best ideas to our clients.

Training

First, we ensure our employees have the proper training and education for the services being provided. We also invest heavily in ongoing education for our employees so we are able to bring the latest topics and thinking to our clients.

All of our employees that deal with our clients are required to have a certification. We use ASPPA (American Society of Pension Professionals & Actuaries) to train and keep our employees up-to-date by the continued taking of exams to earn their designations. For our credentialed actuaries, we also provide monthly training sessions provided by the Conference of Consulting Actuaries and the Society of Actuaries and attendance at an annual conference. In addition, we provide internal training sessions to help our new professionals grow in their career that cover detailed actuarial topics to consulting skills.

While we have these internal training opportunities for our employees, we do not typically provide formal training programs for our clients. However, when we meet with clients on an annual basis we make it a point of keeping them up-to-date on current developments that would affect their plans. For instance, as the details regarding GASB 67 and 68 became known, we began educating clients on the impacts of the new standards well before the first required disclosure was produced. Beyond current developments, we take a great deal of care in making sure that our clients have the best information possible to manage their plans. We do not just provide numbers. We strive to make sure our clients understand the numbers we provide and why there are changes from one year to the next such that they not only understand changes that have happened, but also anticipate future potential changes.

As an example, we specifically work diligently to help plans anticipate projected near and long term funding needs to help them best prepare for the future and assure they are making the appropriate progress toward funding the plan. This type of communication happens not only in the meetings we attend, but also throughout the year as we expect and enjoy responding to questions and inquiries as part of our fees.

Assumptions Most Commonly Used

Actuarial valuations are forward-looking estimates, where a plan's current benefit obligations are tied to the present value of the benefits that are expected to be paid from the plan in the future for current plan members and their beneficiaries. Those expected benefit payments and the present value of the expected benefit payments require the use of actuarial assumptions to estimate, among other things:

- The future investment return on the pension fund (time value of money)
- How long members will live to draw benefits in retirement
- When members will retire
- How many members will withdraw, die, or become disabled prior to retirement
- How salary will change over a member's career

We consider the selection of actuarial assumptions to be the joint responsibility of the actuary and the plan sponsor. A reliable actuarial valuation is dependent on the best information available and that information will come from various sources. Following are our general thoughts on some of the key assumptions used in the actuarial valuation. As noted above, the final assumptions used will be the joint responsibility of the actuary and the plan sponsor.

- **Investment Return**: The investment return should be based on the expected returns of the individual investments held in the pension trust. We rely on current long-term capital market assumptions as a basis for this analysis. Survey data is used to assess the reasonability of the assumption selected. Our Pension Financial Manager cost modeling tool can quantify the short and long-term impact on costs if the assumed investment return is not met.

- **Mortality**: The Illinois Department of Insurance included a review of mortality experience in their Actuarial Experience Studies published in 2012 and 2017. The 2012 study found that the published RP-2000 mortality table with Blue Collar adjustment provided a close match to actual experience across the State. The 2017 study found that the RP-2014 mortality table with Blue Collar adjustment was the best fit with recent experience. We generally recommend updating to the RP-2014 table, however, the RP-2000 Blue Collar table may still be appropriate if used with a projection scale applied to anticipate mortality improvements since the year 2000, when the RP-2000 Table was constructed.

  The RP-2000 Table was the most recent table published until 2014, when the Society of Actuaries released the RP-2014 Table and associated mortality improvement scale MP-2014. The RP-2014 table was based on mortality data specific to private sector pension plans, so we do not believe the RP-2014 Table is necessarily the best assumption to use for public plans. The Society of Actuaries released the results of a mortality experience study using public sector plan data in 2019, and published separate mortality tables for Public Safety Officers, Teachers, and all other municipal employees. The new tables should be considered along with Illinois public safety experience in performing future valuations.

- **Demographic Assumptions other than Mortality**: We generally recommend the use of the demographic assumptions published in the 2017 Illinois Department of Insurance Actuarial Experience Study in our valuations. One of the difficulties of smaller plans is there may not be enough credible past experience to use to predict future experience based on the plan in isolation. If you have experience specific to your plan or reasons why the Department of Insurance assumptions may not be appropriate, that information will be considered when setting assumptions.

References

Client	Contact	Services Provided	
City of Rockford 425 E. State Street Rockford, IL 61104	Carrie Hagerty Finance Director 779-348-7467 carrie.hagerty@rockfordil.gov	Actuarial Police Since 2017	Actuarial Firefighters
Village of Oak Brook 1200 Oak Brook Road Oak Brook, IL 60523	Jason Paprocki Finance Director 630-368-5070 jpaprocki@oak-brook.org	Actuarial Police Pension and OPEB Since 2015	Actuarial Firefighters
City of Highland Park 1707 St. Johns Avenue Highland Park, IL 60035	Julie Logan Finance Director 847-432-0800 jlogan@cityhpil.com	Actuarial Firefighters Since 2017	Actuarial Police

Illinois Municipality Clients

Client	Contact	Contact Information	Services Provided
City of East Peoria 100 South Main Street East Peoria, IL 61611	Terri Gualandi, Treasurer	309-698-4715 terrigualandi@cityofeastpeoria. com	OPEB Actuarial Since 2005 Police and Firefighters Actuarial since 2018
City of Highland Park 1707 St. Johns Avenue Highland Park, IL 60035	Julie Logan Finance Director	847-432-0800 jlogan@cityhpil.com	Actuarial – Police & Firefighters Since 2016
City of Highland 1115 Broadway Highland, IL 62249-01218	Kelly Korte Director of Finance	(618) 654-9891 kkorte@highlandil.gov	Actuarial – Police Since 2017
City of Kewanee 401 E. Third Street Kewanee, IL 61443	Deborah L. Johnson Director of Finance & Administrative Services	309-852-2611 djohnson@cityofkewanee.net	Actuarial – Police & Firefighters Since 2019
City of Mendota 800 Washington Street Mendota, IL 61342	Jeff Simonton City Treasurer	(815) 539-7459 x228 JSimonton@MendotaCity.com	Actuarial – Fire Since 2018
City of Oak Forest 15440 Central Avenue Oak Forest, IL 60452	Colleen Julian	(708) 687-4050 cjulian@oak-forest.org	Actuarial – Police & Firefighters Since 2016 OPEB Actuarial Since 2017
City of Rock Island 1528 Third Avenue Rock Island, IL 61201	Cynthia L. Parchert Finance Director	(309) 732-2117 parchert.cynthia@rigov.org	Actuarial - Police & Firefighter Since 2014

Client	Contact	Contact Information	Services Provided
City of Rockford 425 E. State Street Rockford, IL 61104	Carrie Hagerty Finance Director	779-348-7467 carrie.hagerty@rockfordil.gov	Actuarial - Police & Firefighter Since 2017
City of Sycamore 308 West State Street Sycamore, IL 60178	Adam Orton City Treasurer / Assistant to the City Manager	815-895-0918 aorton@cityofsycamore.com	Actuarial – Police & Firefighters Since 2019
City of Watseka 201 Brianna Drive Watseka, IL 60970	Cathy Kosik Administrative Assistant	815-432-2711 mayor@watsekacity.org	Actuarial – Police Since 2019
City of Woodstock 121 W. Calhoun Street Woodstock, IL 60098	Paul N. Christensen, CPA, CPFO Asst. City Manager / Finance Director / Treasurer	815-338-4300 pchristensen@woodstockil.gov	Actuarial – Police Since 2018
Mt. Carmel Public Utility Co. 316 N. Market Street Mount Carmel, IL 62863	Margaret Felts	618-262-5151 mfelts@mtcpu.com	FASB Actuarial Actuarial - Retirement Plan for Employees
River Valley Metro Mass Transit District 1137 E. 5000 N. Rd Bourbonnais, IL 60914	Lois Bentley Director of Finance and Grants	(815) 935-1403 lbentley@rivervalleymetro.com	Actuarial Since 2015
Village of Bellwood 3200 Washington Blvd. Bellwood, IL 60104-1984	Greg Peters	(708) 547-3500 gpeters@vil.bellwood.il.us	Actuarial – Police and Firefighters Since 2018
Village of Betholto 213 N. Prairie Street Bethalto, IL 62010	Karen Hall Finance Administrator	(618) 377-9018 khall@bethalto.com	Actuarial – Police Since 2017
Village of Bloomingdale 201 S. Bloomingdale Road Bloomingdale, IL 60108	Gary L. Szott Finance Director / Treasurer	630-671-5631 szottg@vil.bloomingdale.il.us	Actuarial – Police Since 2019
Village of Carpentersville 1200 LW Besinger Drive Carpentersville, IL 60110	Michael Salvaggio Patrol Commander	224-293-1663 msalvaggio@cville.org	Actuarial – Police Since 2019
Village of Clarendon Hills 1 North Prospect Avenue Clarendon Hills, IL 60514-1292	Maureen Potempa	(630) 286-5415 mpotempa@clarendonhills.us	Actuarial Police & Firefighters Since 2016
Village of Crestwood 13840 S. Cicero Avenue Crestwood, IL 60418	Jim Smaron Comptroller	708-371-4800 jsmaron@crestwood.illinois.gov	Actuarial Police & Firefighters Since 2019
Village of Creve Coeur 103 N. Thorncrest Avenue Creve Coeur, IL 61610	Jackie Lyles, Treasurer	309-699-6714x722 treasurer@villageofcc.com	Actuarial Police
Village of Evergreen Park 9418 S. Kedzie Evergreen Park, IL 60805	John Sawyers Director of Finance, Treasurer	708-422-1551 jsawyers@evpkadm.org	Actuarial Police & Firefighters Since 2019
Village of Flossmoor 2800 Flossmoor Road Flossmoor, IL 60422	Scott Bordui, CPA, CGMA Finance Director	708-335-5405 sbordui@flossmoor.org	Actuarial Police & Fire Since 2019
Village of Justice 7800 Archer Road Justice, IL 60458	Kelly Zabinski Treasurer	708-458-2520 kzabinski@zcsinc.net	Actuarial – Police Since 2019

Client	Contact	Contact Information	Services Provided
Village of Libertyville 118 West Cook Avenue Libertyville, IL 60048\	Nick Mostardo Director of Finance	847-918-2102 nmostardo@libertyville.com	Actuarial Police & Fire Since 2017
Village of Lombard 255 E. Wilson Avenue Lombard, IL 60148	Jamie Cummingham Assistant Director of Finance	630-620-5910 cumminghamj@villageoflombar d.org	Actuarial Police & Fire Since 2018
Village of Morton 120 N. Main Street Morton, IL 61550	Ms. Julie A. Smick, CPA Village Administrator	309-266-5361 jsmick@morton-il.gov	Actuarial Police, Fire Since 2011 OPEB – Since 2009
Village of Mount Prospect 50 South Emerson Street Mount Prospect, IL 60056	David O. Erb Finance Director	847-392-6000 derb@mountprospect.org	Actuarial Police & Fire Since 2017
Village of Oak Brook 1200 Oak Brook Road Oak Brook, IL 60523	Jason Paprocki Finance Director	630-368-5070 jpaprocki@oak-brook.org	Actuarial Police, Firefighters & OPEB Since 2015
Village of River Grove 2621 N. Thatcher Ave. River Grove, IL 60171	Greg Peters	708-453-8000 gpeters@rivergroveil.gov	Actuarial Police Since 2018
Village of Romeoville 1050 West Romeo Road Romeoville, IL 60446	Kirk Openchowski	(815) 886-5250 kopenchowski@romeoville.org	Actuarial Police & Firefighters Since 2016
Village of Schaumburg 101 Schaumburg Court Schaumburg, IL 60193	Lisa Petersen Director of Finance	847-923-4530 lpetersen@schaumburg.com	Actuarial Police & Firefighters Since 2019
Village of Skokie 5127 Oakton Street Skokie, IL 60077	Julian Prendi Director of Finance	(847) 933-8246 Julian.prendi@skokie.org	Actuarial Police & Firefighters Since 2018
Village of West Dundee 102 South Second Street West Dundee, IL 60018	David Danielson Finance Director	847-551-3800 ddanielson@wdundee.org	Actuarial Police, Firefighters & OPEB Since 2019

Cost Proposal

Plan	220	2021	2022
Police Pension Fund	4,500	4,500	4,650

Pension Scope of Services

- Review of valuation objectives
- Review of actuarial assumptions
- Cost analysis of alternative assumptions and funding policies
- Tax levy valuation report including actuarially-determined contribution (ADC) and unfunded actuarial accrued liability (UAAL) under established funding policy and Illinois statutory methods (if different).
- GASB 67 & 68 valuation report including all information needed for Comprehensive Annual Financial Report
- Management summary report highlighting key results from the valuation and important trends and market changes that may impact future valuations
- Attendance at annual meeting (including travel)
- Consulting on phone calls and questions regarding valuation, accounting, audit and other recurring issues are included in our basic annual fee. Clients do not need to be concerned that they are *on the clock*.
- 30-year projected funded ratios, benefit payouts, and contribution requirements using our Pension Financial Manager modeling tool
- Development of a funding policy for the Village using our Pension Financial Manager modeling tool

Appendix

Sample Pension Valuation Report

Sample GASB 67 & 68 Valuation Report

Sample Management Summary Report

Village of XYZ
Police Pension Fund

January 1, 2018

Actuarial Valuation Report

nyhart

At the request of the plan sponsor, this report summarizes the Village of XYZ Police Pension Fund as of January 1, 2018 . The purpose of this report is to communicate the following results of the valuation:

• Funded Status;
• Recommended Village Contribution;
• Statutory Minimum Contribution;

This report has been prepared in accordance with the applicable Federal and State laws. Consequently, it may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

The results in this report were prepared using information provided to us by other parties. The census information has been provided to us by the employer. Asset information has been provided to us by the administrator. We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we have made assumptions we believe to be reasonable. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report. A summary of the data used in the valuation is included in this report.

The actuarial assumptions and methods were chosen by the employer. In our opinion, all actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

• plan experience differing from that anticipated by the economic or demographic assumptions;
• changes in economic or demographic assumptions;
• increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
• changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement. This report has been prepared in accordance with generally accepted actuarial principles and practice.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report. To the extent that this report or any attachment concerns tax matters, it is not intended to be used and cannot be used by a taxpayer for the purpose of avoiding penalties that may be imposed by law.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are available for any questions.

Nyhart

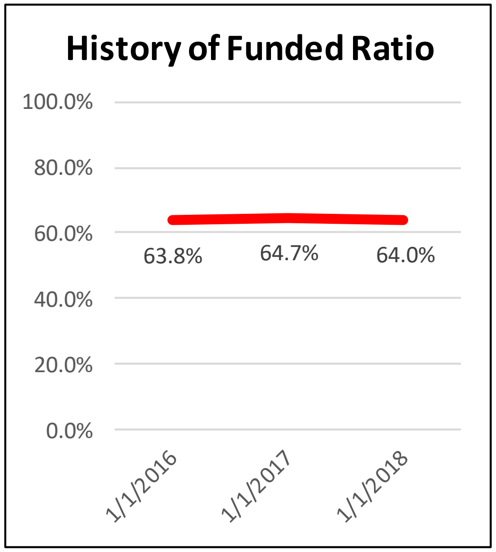
____

____
Date

Summary Results

The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The Accrued Liability is based on the Entry Age Normal actuarial cost method.

	January 1, 2017	January 1, 2018
Funded Status Measures		
Accrued Liability	$ 54,407,673	$ 58,193,184
Actuarial Value of Assets	35,227,208	37,254,244
Unfunded Accrued Liability	$ 19,180,465	$ 20,938,940
Funded Percentage (AVA)	64.7%	64.0%
Funded percentage (MVA)	61.6%	64.9%
Cost Measures		
Recommended Total Pension Contribution	$ 2,140,308	$ 2,345,451
Expected Employee Contributions	(392,283)	(398,737)
Recommended Net Village Contribution	$ 1,748,025	$ 1,946,714
- as a Percentage of Payroll	45.6%	50.0%
Asset Measures		
Market Value of Assets (MVA)	$ 33,534,050	$ 37,779,816
Actuarial Value of Assets (AVA)	$ 35,227,208	$ 37,254,244
Actuarial Value/Market Value	105.0%	98.6%
Participant Information		
Active Participants	40	39
Terminated Vested Participants	2	3
Retirees, Beneficiaries, and Disabled Participants	35	35
Total	77	77
Payroll	$ 3,829,224	$ 3,892,216



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Changes since Prior Valuation and Key Notes

There have been no changes to the plan provisions since the last valuation.

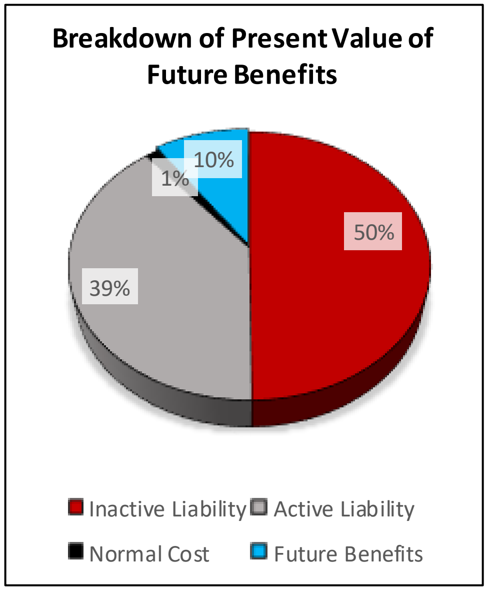
The mortality assumption was changed from the RP-2000 mortality table with blue collar adjustment projected to 2017 using scale AA, to the RP-2014 mortality table with blue collar adjustment, with generational mortality improvement scale MP-2017 applied from 2013. 115% of the RP-2014 blue collar mortality table with generational mortality improvement scale MP-2017 applied from 2013 is used for disabled lives. The changes resulted in an increase in benefit obligations and an increase in the recommended contribution.

The retirement, withdrawal, and disability decrement assumptions were changed to the recommended rates in the Illinois Department of Insurance Experience Study published in 2017. The changes resulted in a small increase in benefit obligations and a decrease in the recommended contribution.

Present Value of Future Benefits

The Present Value of Future Benefits represents the future benefits payable to the existing participants.

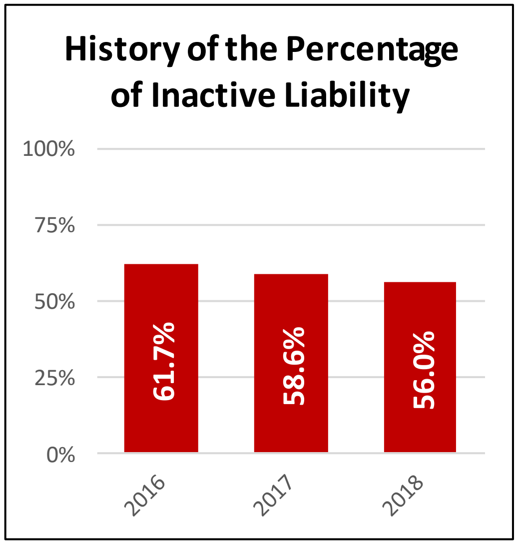
	January 1, 2018
Present Value of Future Benefits	
Active Participants	
Retirement	$ 29,624,233
Disability	1,902,447
Death	491,245
Termination	797,912
Total Active	$ 32,815,837
Inactive participants	
Retired Participants	$ 26,690,425
Beneficiaries	1,942,153
Disabled Participants	3,581,518
Terminated Vested Participants	349,340
Total Inactive	$ 32,563,436
Total	$ 65,379,273
Present Value of Future Payrolls	$ 32,701,535
Present Value of Future Employee Contributions	$ 3,235,742



Accrued Liability

The Funding Liability measures the present value of benefits earned as of the valuation date, using the actuarial assumptions described in the assumption section of this report and the Entry Age Normal actuarial cost method.

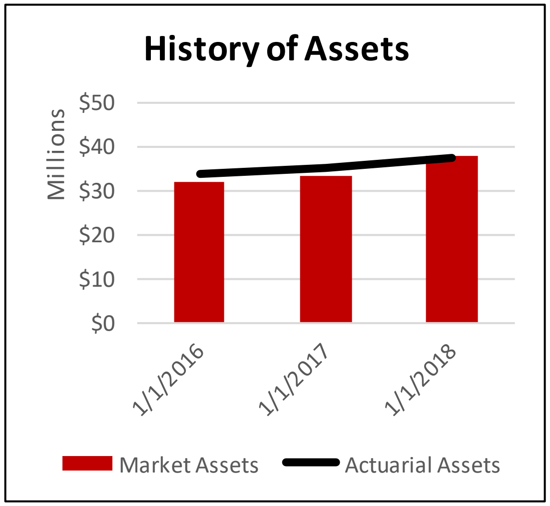
	January 1, 2018
Funding Liabilities	
Active Participants	
Retirement	$ 24,060,955
Disability	969,303
Death	250,208
Termination	349,282
Total Active	$ 25,629,748
Inactive Participants	
Retired Participants	$ 26,690,425
Beneficiaries	1,942,153
Disabled Participants	3,581,518
Terminated Vested Participants	349,340
Total Inactive	$ 32,563,436
Total	$ 58,193,184
Normal Cost	$ 890,871



Asset Information

The amount of assets backing the pension promise is the most significant driver of volatility and future costs within a pension plan. The investment performance of the assets directly offsets the ultimate cost.

	January 1, 2018
Market Value Reconciliation	
Market Value of Assets, Beginning of Prior Year	$ 33,534,050
Contributions	
Employer Contributions	$ 1,748,025
Member Contributions	386,727
Total	$ 2,134,752
Investment Income	4,461,837
Benefit Payments	(2,315,047)
Administrative Expenses	(35,776)
Market Value of Assets, Beginning of Current Year	$ 37,779,816
Return on Market Value	13.3%
Actuarial value of assets	
Value at Beginning of Current Year	$ 37,254,244



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Asset Information (continued)

Plan Assets are used to develop funded percentages and contribution requirements.

	January 1, 2018
1. Expected Market Value of Assets	
(a) Market Value of Assets, Beginning of Prior Year	$ 33,534,050
(b) Contributions	2,134,752
(c) Benefit Payments	(2,315,047)
(d) Administrative Expenses	(35,776)
(e) Expected Return	2,256,256
(f) Expected Market Value of Assets, Beginning of Current Year	$ 35,574,235
2. Market Value of Assets, Beginning of Current Year	$ 37,779,816
3. Actual Return on Market Value	$ 4,461,837
4. Amount Subject to Phase-in [(3)-(1e)]	$ 2,205,581
5. Phase-in of Asset Gain/(Loss)	
(a) Current Year [80% x $ 2,205,581]	$ 1,764,465
(b) First Prior Year [60% x $ 42,705]	25,623
(c) Second Prior Year [40% x $ (2,627,154)]	(1,050,862)
(d) Third Prior Year [20% x $ (1,068,268)]	(213,654)
(e) Total Phase-in	$ 525,572
6. Actuarial Value of Assets, Beginning of Current Year [(2)-(5e)]	$ 37,254,244
7. Return on Actuarial Value of Assets	6.4%

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Reconciliation of Gain/Loss

	January 1, 2018
Liability (Gain)/Loss	
Actuarial Liability, Beginning of Prior Year	$ 54,407,673
Normal Cost	833,296
Benefit Payments	(2,315,047)
Expected Interest	3,650,633
Expected Actuarial Liability, Beginning of Current Year	$ 56,576,555
Actual Actuarial Liability, Before Changes	$ 56,228,966
Liability (Gain)/Loss	$ (347,589)
Asset (Gain)/Loss	
Actuarial Value of Assets, Beginning of Prior Year	$ 35,227,208
Contributions	2,134,752
Benefit Payments and Administrative Expenses	(2,350,823)
Expected Return	2,370,544
Expected Actuarial Value of Assets, Beginning of Current Year	$ 37,381,681
Actual Actuarial Value of Assets, Beginning of Current Year	$ 37,254,244
Asset (Gain)/Loss	$ 127,437
Total (Gain)/Loss	$ (220,152)

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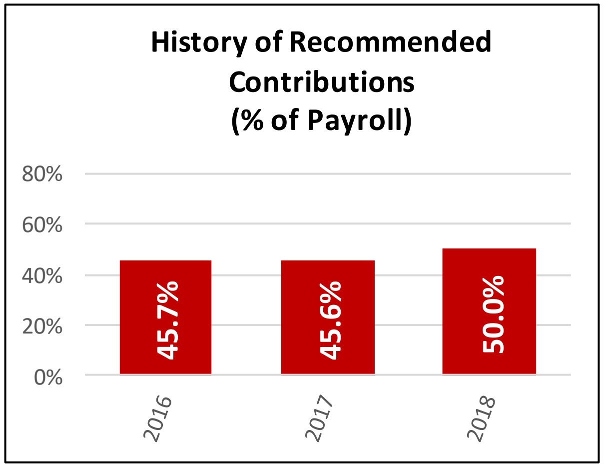
Development of Recommended Contribution

The recommended contribution is the annual amount needed to fund the plan to 100% by the end of the 2040 fiscal year as a level percentage of payroll, using the Entry Age Normal actuarial cost method. The recommended contribution is subject to the State statutory minimum, which is the annual amount needed to fund the plan to 90% by the end of the 2040 fiscal year as a level percentage of payroll, using the Projected Unit Credit actuarial cost method.

	January 1, 2018
Funded Position	
1. Entry Age Normal Accrued Liability	$ 58,193,184
2. 100% of Entry Age Normal Accrued Liability	$ 58,193,184
3. Actuarial Value of Assets	37,254,244
4. Unfunded Actuarial Accrued Liability (UAAL) (2 – 3)	$ 20,938,940
Recommended Contribution	
1. Normal Cost	$ 890,871
2. Administrative Expenses	35,776
3. Amortization of UAAL	1,342,229
4. Applicable Interest	76,575
5. Total Recommended Contribution	$ 2,345,451
6. Expected Employee Contributions	398,737
7. Net Recommended Village Contribution (5 – 6)	$ 1,946,714
8. Minimum Contribution (Public Act 096-1495 Tax Levy Requirement)	$ 1,652,761
9. Final Recommended Contribution [max (7,8)]	$ 1,946,714
As a Percentage of Expected Payroll	50.0%



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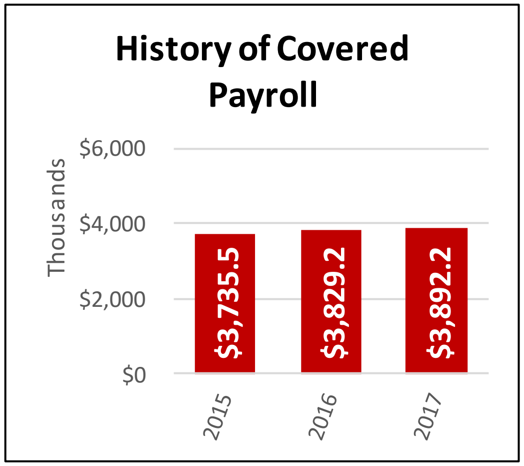
Demographic Information

The foundation of a reliable actuarial report is the participant information provided by the plan sponsor. Monitoring trends in demographic information is crucial for long-term pension planning.

	January 1, 2018
Participant Counts	
Active Participants	39
Retired Participants	26
Beneficiaries	5
Disabled Participants	4
Terminated Vested Participants	3
Total Participants	77
Active Participant Demographics	
Average Age	43.5
Average Service	16.8
Average Compensation	$ 99,800
Covered Payroll	$ 3,892,216



Demographic Information (continued)

	January 1, 2018
Retiree Statistics	
Average Age	69.1
Average Monthly Pension Benefit	$ 6,051
Beneficiary Statistics	
Average Age	70.0
Average Monthly Pension Benefit	$ 3,455
Disabled Participants Statistics	
Average Age	58.9
Average Monthly Pension Benefit	$ 3,926
Terminated Participants Statistics	
Average Age	35.6
Average Monthly Pension Benefit*	$ 3,383

* Average monthly pension benefit does not include participants eligible for a return of contributions only.

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Participant Reconciliation

	Active	Terminated Vested	Disabled	Retired	Beneficiaries	Totals
Prior Year	40	2	4	27	4	77
Active						
To Retired	0	0	0	0	0	0
To Disabled	0	0	0	0	0	0
To Terminated Vested	(1)	1	0	0	0	0
Terminated Nonvested (return of employee contributions)	(1)	0	0	0	0	(1)
Terminated Vested						
Return of employee contributions	0	(1)	0	0	0	(1)
Retired						
To Death with Beneficiary	0	0	0	(1)	1	0
Beneficiaries						
To Death	0	0	0	0	0	0
Additions	1	1	0	0	0	2
Departures	0	0	0	0	0	0
Current Year	39	3	4	26	5	77

Active Participant Schedule

Active participant information grouped based on age and service.

Age Group	Years of Service										Total	Average Pay
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25											0	
25 to 29	1	3									4	73,314
30 to 34		1		1							2	86,892
35 to 39			2	1	2						5	94,850
40 to 44			1	1	6	1					9	98,902
45 to 49					6	2	1				9	105,471
50 to 54						3	4				7	105,804
55 to 59				1				1			2	136,597
60 to 64						1					1	97,744
65 to 69											0	
70 & up											0	
Total	1	4	3	4	14	7	5	1	0	0	39	99,800

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Eligibility for Participation

Police Officers of the Village of XYZ

Accrual of Benefits

For employees hired prior to January 1, 2011, the normal retirement benefit is equal to 50% of the final salary plus 2.5% of any service over 20 years (with a maximum of 30) times the final salary. There is a minimum benefit of $1,000 per month. The benefit is paid as a 100% joint and survivor benefit with the spouse, children under 18, or dependent parents of the participants as the survivor.

For employees hired after or on January 1, 2011, the normal retirement benefit is equal to 2.5% of the final average salary times benefit service (maximum 30 years.) The benefit is paid as a 66.67% joint and survivor benefit with the spouse, children under 18, or dependent parents of the participants as the survivor.

Benefits

Normal Retirement

Eligibility	For employees hired prior to January 1, 2011, the normal retirement date is the first day of the month on or after completion of 20 years of service and attainment of age 50. For employees hired after or on January 1, 2011, the normal retirement date is the first day of the month on or after completion of 10 years of service and attainment of age 55.
Benefit	Unreduced Accrued Benefit payable immediately.

Early Retirement

Eligibility	For employees hired prior to January 1, 2011 and terminating with less than 20 years of service For employees hired after or on January 1, 2011 who has attained age 50 and has 10 years of service.
Benefit	For those hired prior to January 1, 2011 the Accrued Benefit of 2.5% of final salary times service shall be paid at age 60. For those hired after or on January 1, 2011 the Accrued Benefit is reduced by 0.5% for each month prior to age 55

Termination

Eligibility	Participants terminating before 20 years of service.
Benefit	Refund of Contributions

Disability In The Line of Duty

Eligibility	For participants who become disabled in the line of duty.
Benefit	The greater of 65% of the final salary or the accrued benefit

Disability Not In The Line of Duty

Eligibility	For participants who become disabled outside of the line of duty.
Benefit	50% of the final salary

Death In the Line of Duty

Eligibility	For participants who die in the line of duty.
Benefit	The benefit is 100% of final salary paid to the survivor.

Death Not In the Line of Duty

Eligibility	For participants who die outside of the line of duty.
Benefit	For those hired before 1/1/2011 with greater than 20 years of service, a benefit of 100% of the accrued benefit is paid to the survivor. For those with more than 10 years of service, but less than 20 years of service, a benefit of 50% of the final salary is paid to the survivor. For those hired after 1/1/2011 a benefit of 100% of the accrued benefit is paid to the survivor.

Compensation

Final Salary is the salary attached to the rank held on the last day of service, or one year prior to the last day, whichever is greater.

Final Average Salary is the average monthly salary obtained by dividing the total salary of the police office during the 96 consecutive months of service within the last 120 months of service in which the total salary was the highest by the number of months of service in that period. Salary will not exceed $106,800 adjusted from January 1, 2011 with the lesser of 3% and 50% of the CPI on November 1.

Credited Service

For Vesting and Benefit Accrual purposes, pension service credit is based on elapsed time from hire.

Employee Contributions

9.91% of Compensation

COLA

Eligibility	All Participants
Benefit	For employees hired prior to January 1, 2011 a compound COLA of 3% is granted each year after attainment of age 55 and 1 year of payments. For employees hired after or on January 1, 2011 a simple COLA of the lesser of 3% and 50% of the CPI on November 1 is granted each year after attainment of age 60 and 1 year of payments. For disabled employees, a simple COLA is available after attainment of age 60 and 1 year of payments. For employees hired prior to January 1, 2011 the COLA is 3%. For employees hired after January 1, 2011, the COLA is the lesser of 3% and 50% of the CPI on November 1.

Plan Provisions Not Included

We are not aware of any plan provisions not included in the valuation

Adjustments Made for Subsequent Events

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact the results of this report.

Except where otherwise indicated, the following assumptions were selected by the plan sponsor with the concurrence of the actuary. Prescribed assumptions are based on the requirements of the relevant law, the Internal Revenue Code, and applicable regulation. The actuary was not able to evaluate the prescribed assumptions for reasonableness for the purpose of the measurement.

Valuation Date	January 1, 2018
Participant and Asset Information Collected as of	January 1, 2018
Actuarial Cost Method (CO)	Entry Age Normal Cost Method
Amortization Method – Recommended Contribution (CO)	Closed level percentage of payroll amortization of 100% of the Unfunded Actuarial Accrued Liability using a 2.75% payroll growth assumption over the period ending on December 31, 2040 (23-year amortization in 2018)
Asset Method	5 year smoothing of asset gains and losses
Interest Rates (CO)	6.75%**,** net of investment expenses
Inflation (FE)	2.50%
Annual Pay Increases (FE)	3.75%
Ad-hoc Cost-of-living Increases	3.0% (1.25% for those hired after 1/1/2011)
Mortality Rates (FE)	
Healthy	RP-2014 Mortality Table with blue collar adjustment, projected generationally with scale MP-2017 from 2013
Disabled	115% of RP-2014 Mortality Table with blue collar adjustment, projected generationally with scale MP-2017 from 2013
	10% of deaths are assumed to be in the line of duty

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Retirement Rates (FE)

Recommended rates from the 2017 IDOI experience study:

Tier I Age	Tier I Rate	Tier II Age	Tier II Rate
50-51	15%	50-54	5%
52-54	20%	55	40%
55-64	25%	56-64	25%
65-69	40%	65-69	40%
70+	100%	70+	100%

Disability Rates (FE)

Recommended rates from the 2017 IDOI experience study. Sample rates include:

Age	Rate
20	0.000%
30	0.140%
40	0.420%
50	0.710%

60% of disabilities are assumed to be in the line of duty

Termination Rates (FE)

Recommended rates from the 2017 IDOI experience study. Sample rates include:

Age	Rate
20	10.40%
30	5.60%
40	1.90%
50	1.50%

Marital Status and Ages (FE)

80% of participants are assumed to be married with female spouses 3 years younger.

Expense Load

Equal to the administrative expenses paid in the prior year.

Funding Policy

Statutory minimum contribution, with additional funding at the discretion of the Village.

FE indicates an assumption representing an estimate of future experience
MD indicates an assumption representing observations of estimates inherent in market data
CO indicates as assumption representing a combination of an estimate of future experience and observations of market data

The actuarial report also shows the necessary items required for plan reporting and the any state requirements.

- ✓ Minimum contribution (Public Act 096-1495 Tax Levy Requirement)

Minimum Contribution (Public Act 096-1495 Tax Levy Requirement)

	January 1, 2018
1. Accrued liability using projected unit credit cost method	$ 56,115,548
2. 90% of Accrued liability	$ 50,503,993
3. Actuarial value of assets	37,254,244
4. Unfunded liability to be amortized [(2)-(3)]	$ 13,249,749
5. Total normal cost using projected unit credit cost method	$ 1,099,408
6. Administrative expenses	35,776
7. 23-year level pay amortization of (4)	849,336
8. Applicable interest	66,978
9. Minimum contribution (5 + 6 + 7 + 8)	$ 2,051,498
10. Expected employee contributions	398,737
11. Net employer minimum contribution (9 – 10)	$ 1,652,761

Actuarial Cost Method	Projected Unit Credit
Amortization Method	Closed level percentage of payroll amortization of 90% of Unfunded Actuarial Accrued Liability using a 2.75% payroll growth assumption over the period ending on December 31, 2040 (23-year amortization in 2018)
Asset Method	5 year smoothing of asset gains and losses
Interest Rate	6.75%, net of investment expenses

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Village of XYZ Police Pension Fund

December 31, 2017

GASB Nos. 67 & 68 Report

This report is prepared in accordance with our understanding of GASB Nos. 67 & 68 for the purpose of disclosing pension plans in financial statements. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report.

The information presented in this report is based on:

- the actuarial assumptions included in this report;
- the plan provisions;
- participant information furnished to us by the Plan Administrator;
- asset information furnished to us by the Plan Trustee.

We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we may have made assumptions we believe are reasonable for the purpose of the measurement. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report.

The interest rate, other economic assumptions, and demographic assumptions have been selected by the plan sponsor with our recommendations. The assumptions used, in our opinion, are reasonable and represent a reasonable expectation of future experience under the plan. All calculations have been made in accordance with generally accepted actuarial principles and practice.

A summary of any assumptions not included in this report, the plan provisions and the participant information is included in the Actuarial Valuation Report for funding purposes.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

- plan experience differing from that anticipated by the economic or demographic assumptions;
- changes in economic or demographic assumptions;
- increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States.

To our knowledge there have been no significant events prior to the current year's measurement date or as of the date of this report which could materially affect the results contained herein.

Neither Nyhart nor any of its employees have any relationships with the plan or plan sponsor which could impair or appear to impair the objectivity of this report.

Nyhart

Mike Zurek, EA, MAAA

03/15/2018

Net Pension Liability

The components of the net pension liability at December 31	12/31/2017	12/31/2016
Total pension liability	$ 58,193,184	$ 54,407,673
Plan fiduciary net position	(37,779,816)	(33,534,050)
Net pension liability	$ 20,413,368	$ 20,873,623
Plan fiduciary net position as a percent of the total pension liability	64.92%	61.63%
Pension Expense for the Fiscal Year Ended December 31	$ 2,434,582	$ 2,562,155

Actuarial Assumptions

The total pension liability was determined using the following actuarial assumptions

Inflation	2.50%	2.50%
Salary increases, including inflation	3.75%	3.75%
Investment rate of return, including inflation, and net of investment expense	6.75%	6.75%

Plan Membership

The total pension liability was determined based on the plan membership as of December 31	2017	2016
Inactive plan members and beneficiaries currently receiving benefits	35	35
Inactive plan members entitled to but not yet receiving benefits	3	2
Active plan members	39	40
Total members	77	77

Assets	**12/31/2017**	**12/31/2016**
Cash and deposits	$ 98,741	$ 96,379
Securities lending cash collateral	0	0
Total cash	$ 98,741	$ 96,379
Receivables:		
Contributions	$ 0	$ 0
Due from broker for investments sold	0	0
Investment income	120,562	0
Other	3,162	113,913
Total receivables	$ 123,724	$ 113,913
Investments:		
Money Market Mutual Funds	$ 2,296,060	$ 2,702,046
Fixed Income	10,869,733	10,683,395
Stock Equities	0	0
Mutual Funds	24,401,325	19,950,332
Total investments	$ 37,567,118	$ 33,335,773
Total assets	$ 37,789,583	$ 33,546,065
Liabilities		
Payables:		
Investment management fees	$ 0	$ 0
Due to broker for investments purchased	0	0
Collateral payable for securities lending	0	0
Other	9,767	12,015
Total liabilities	$ 9,767	$ 12,015
Net position restricted for pensions	**$ 37,779,816**	**$ 33,534,050**

	12/31/2017	12/31/2016
Additions		
Contributions:		
Employer	$ 1,748,025	$ 1,527,927
Member	386,727	383,238
Nonemployer contributing entity	0	0
Total contributions	$ 2,134,752	$ 1,911,165
Investment income:		
Net increase in fair value of investments	$ 2,518,009	$ 1,296,696
Interest and dividends	2,015,358	960,781
Less investment expense, other than from securities lending	(71,530)	(81,459)
Net income other than from securities lending	$ 4,461,837	$ 2,176,018
Securities lending income	0	0
Less securities lending expense	0	0
Net income from securities lending	$ 0	$ 0
Net investment income	$ 4,461,837	$ 2,176,018
Other	0	0
Total additions	$ 6,596,589	$ 4,087,183
Deductions		
Benefit payments, including refunds of member contributions	$ 2,315,047	$ 2,364,839
Administrative expense	35,776	39,522
Other	0	0
Total deductions	$ 2,350,823	$ 2,404,361
Net increase in net position	$ 4,245,766	$ 1,682,822
Net position restricted for pensions		
Beginning of year	33,534,050	31,851,228
End of year	$ 37,779,816	$ 33,534,050

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	12/31/2017	12/31/2016	12/31/2015
Total pension liability			
Service cost	$ 833,296	$ 800,389	$ 816,276
Interest	3,650,633	3,563,145	3,338,238
Changes of benefit terms	0	0	0
Differences between expected and actual experience	(347,589)	(856,825)	(48,037)
Changes of assumptions	1,964,218	96,439	1,597,133
Benefit payments, including refunds of member contributions	(2,315,047)	(2,364,839)	(2,346,686)
Net change in total pension liability	3,785,511	1,238,309	3,356,924
Total pension liability - beginning	54,407,673	53,169,364	49,812,440
Total pension liability - ending (a)	**$ 58,193,184**	**$ 54,407,673**	**$ 53,169,364**
Plan fiduciary net position			
Contributions - employer	$ 1,748,025	$ 1,527,927	$ 1,336,683
Contributions - member	386,727	383,238	358,499
Contributions - nonemployer contributing member	0	0	0
Net investment income	4,461,837	2,176,018	(429,965)
Benefit payments, including refunds of member contributions	(2,315,047)	(2,364,839)	(2,346,686)
Administrative expenses	(35,776)	(39,522)	(38,647)
Other	0	0	0
Net change in plan fiduciary net position	$ 4,245,766	$ 1,682,822	$ (1,120,116)
Plan fiduciary net position - beginning	33,534,050	31,851,228	32,971,344
Plan fiduciary net position - ending (b)	**$ 37,779,816**	**$ 33,534,050**	**$ 31,851,228**
Net pension liability - ending (a) - (b)	**$ 20,413,368**	**$ 20,873,623**	**$ 21,318,136**
Plan fiduciary net position as a percentage of the total pension liability	64.92%	61.63%	59.91%
Covered-employee payroll	$ 3,892,216	$ 3,829,224	$ 3,735,548
Net pension liability as percentage of covered-employee payroll	524.47%	545.11%	570.68%

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Fiscal year ending	12/31/2017	12/31/2016
Service cost	$ 833,296	$ 800,389
Interest on total pension liability	3,650,633	3,563,145
Projected earnings on pension plan investments	(2,256,256)	(2,133,313)
Changes of benefit terms	0	0
Employee contributions	(386,727)	(383,238)
Pension plan administrative expense	35,776	39,522
Other changes	0	0
Current period recognition of deferred outflows/(inflows) of resources		
Differences between Expected & Actual Experience in measurement of the Total Pension Liability	$ (250,490)	$ (180,972)
Changes of assumptions	731,559	338,715
Differences between Projected & Actual Earnings on Pension Plan Investments	76,791	517,907
Total	$ 2,434,582	$ 2,562,155

Differences between expected and actuarial experience in measurement of the total pension liability for fiscal year ending:	Initial Balance	Initial Amortization Period	Annual Recognition	12/31/2017 Balance
December 31, 2017	$ (347,589)	5.0	$ (69,518)	$ (278,071)
December 31, 2016	$ (856,825)	5.0	$ (171,365)	$ (514,095)
December 31, 2015	$ (48,037)	5.0	$ (9,607)	$ (19,216)
			$ (250,490)	$ (811,382)

Changes in assumptions for fiscal year ending:	Initial Balance	Initial Amortization Period	Annual Recognition	12/31/2017 Balance
December 31, 2017	$ 1,964,218	5.0	$ 392,844	$ 1,571,374
December 31, 2016	$ 96,439	5.0	$ 19,288	$ 57,863
December 31, 2015	$ 1,597,133	5.0	$ 319,427	$ 638,852
			$ 731,559	$ 2,268,089

Differences between projected and actual earnings on pension plan investments for fiscal year ending:	Initial Balance	Initial Amortization Period	Annual Recognition	12/31/2017 Balance
December 31, 2017	$ (2,205,581)	5.0	$ (441,116)	$ (1,764,465)
December 31, 2016	$ (42,705)	5.0	$ (8,541)	$ (25,623)
December 31, 2015	$ 2,632,238	5.0	$ 526,448	$ 1,052,894
			$ 76,791	$ (737,194)

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 0	$ (811,382)
Changes of Assumptions	$ 2,268,089	$ 0
Net difference between projected and actual earnings on pension plan investments	$ 1,052,894	$ (1,790,088)
	$ 3,320,983	$ (2,601,470)

The balances as of December 31, 2017 of the deferred outflows/(inflows) of resources will be recognized in pension expense for the fiscal year ending December 31.

2018	$ 557,860
2019	$ 557,854
2020	$(278,409)
2021	$(117,792)
2022	$ 0
Thereafter	$ 0

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These expected future real rates of return are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2017 are summarized in the following table:

Asset class	Target allocation	Long-term expected real rate of return
Money Market Mutual Funds	6.0%	*0.50%*
Fixed Income	29.0%	*2.50%*
Stock Equities	0.0%	*5.50%*
Mutual Funds	65.0%	*5.50%*
Cash	0.0%	*0.00%*
Total	100.0%	

Long-term expected rate of return is 6.75%.

Money-weighted rate of return is 13.35%.

Discount rate

The discount rate used to measure the total pension liability was 6.75%. 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 contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Professional judgment on future contributions has been applied in those cases where contribution patterns deviate from the actuarially determined rates. 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 was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability, calculated using the discount rate of 6.75%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease (5.75%)	Current Discount Rate (6.75%)	1% Increase (7.75%)
Net pension liability	$ 28,269,448	$ 20,413,368	$ 13,491,712

	2017	2016	2015	2014	2013
Actuarially determined contribution	$ 1,748,025	$ 1,708,330	$ 1,550,233	$ 1,485,673	$ 1,205,519
Contributions in relation to the actuarially determined contribution	1,748,025	1,527,927	1,336,683	1,259,824	1,171,537
Contribution deficiency (excess)	**$ 0**	**$ 180,403**	**$ 213,550**	**$ 225,849**	**$ 33,982**
Covered-employee payroll	$ 3,829,224	$ 3,735,548	$ 3,631,184	$ 3,598,016	$ 3,646,309
Contributions as a percentage of covered-employee payroll	45.65%	40.90%	36.81%	35.01%	32.13%

	2012	2011	2010	2009	2008
Actuarially determined contribution	$ 969,024	$ 885,339	$ 0	$ 0	$ 0
Contributions in relation to the actuarially determined contribution	977,367	674,170	0	0	0
Contribution deficiency (excess)	**$ (8,343)**	**$ 211,169**	**$ 0**	**$ 0**	**$ 0**
Covered-employee payroll	$ 3,310,998	$ 3,288,064	$ 0	$ 0	$ 0
Contributions as a percentage of covered-employee payroll	29.52%	20.50%			

The total pension liability as of December 31, 2017 was determined using the following actuarial assumptions:

Actuarial Cost Method	Entry Age Method
Asset Method	Market Value of Assets
Interest Rates	
Discount Rate	6.75%
Expected Long Term Rate of Return	6.75%
Municipal Bond Rate	N/A
Inflation	2.50%
Annual Pay Increases	3.75%
Measurement Date	December 31, 2017
Ad-hoc Cost-of-Living Increases	3.0% (1.25% for those hired on or after January 1, 2011)
Mortality Rates	
Healthy	RP-2014 Mortality Table with a blue collar adjustment, with generational improvement scale MP-2017 applied from 2013
Disabled	115% of the RP-2014 Mortality Table with a blue collar adjustment, with generational improvement scale MP-2017 applied from 2013
All other assumptions	As described in the assumptions section of the actuarial determined contribution
Experience Study	An actuarial experience study was provided October 5, 2017 to the Department of Insurance reflecting experience for the years 2011 - 2016 from numerous Funds valued by the Department of Insurance, including the Village of XYZ.

Actuarial Cost Method — Entry Age Normal Cost Method

Amortization Method — Closed level percentage of payroll amortization of 100% of the Unfunded Actuarial Accrued Liability using a 2.50% payroll growth assumption over the period ending on December 31, 2040 (23-year amortization in 2018)

Asset Method — 5 year smoothing of asset gains and losses

Interest Rates — 6.75%, net of investment and administrative expenses

Inflation — 2.50%

Annual Pay Increases — 3.75%

Ad-hoc Cost-of-living Increases — 3.0% (1.25% for those hired after 1/1/2011)

Mortality Rates

Healthy — RP-2014 Mortality Table with a blue collar adjustment, with generational improvement Scale MP-2017 applied from 2013

Disabled — 115% of the RP-2014 Mortality Table witha blue collar adjustment, with generational improvement scale MP-2017 applied from 2013

10% of deaths are assumed to be in the line of duty

Retirement Rates — Recommended rates from the 2017 IDOI experience study:

Tier I		Tier II	
Age	Rate	Age	Rate
50-51	15%	50-54	5%
52-54	20%	55	40%
55-64	25%	56-64	25%
65-69	40%	65-69	40%
70+	100%	70+	100%

Disability Rates	Recommended rates from the 2017 IDOI experience study. Sample rates include:

Age	Rate
20	0.00%
30	0.14%
40	0.42%
50	0.71%

60% of disabilities are assumed to be in the line of duty

Termination Rates	Recommended rates from the 2017 IDOI experience study. Sample rates include:

Age	Rate
20	10.40%
30	5.60%
40	1.90%
50	1.50%

Marital Status and Ages	80% of participants are assumed to be married with female spouses 3 years younger.
Expense Load	Equal to the administrative expenses paid in the prior year.

Eligibility for Participation

Police Officers of the Village of XYZ

Accrual of Benefits

For employees hired prior to January 1, 2011, the normal retirement benefit is equal to 50% of the final salary plus 2.5% of any service over 20 years (with a maximum of 30) times the final salary. There is a minimum benefit of $1,000 per month. The benefit is paid as a 100% joint and survivor benefit with the spouse, children under 18, or dependent parents of the participant as the survivor.

For employees hired on or after January 1, 2011, the normal retirement benefit is equal to 2.5% of the final average salary times benefit service (maximum 30 years). The benefit is paid as a 66.67% joint and survivor benefit with the spouse, children under 18, or dependent parents of the participant as the survivor.

Benefits

Normal Retirement

Eligibility	For employees hired prior to January 1, 2011, the normal retirement date is the first day of the month on or after completion of 20 years of service and attainment of age 50. For employees hired on or after January 1, 2011, the normal retirement date is the first day of the month on or after completion of 10 years of service and attainment of age 55.
Benefit	Unreduced Accrued Benefit payable immediately.

Early Retirement

Eligibility	For employees hired prior to January 1, 2011 and terminating with less than 20 years of service For employees hired on or after January 1, 2011 who has attained age 50 and has 10 years of service.
Benefit	For those hired prior to January 1, 2011 the Accrued Benefit of 2.5% of final salary times service shall be paid at age 60. For those hired on or after January 1, 2011 the Accrued Benefit is reduced by 0.5% for each month prior to age 55.

Termination

Eligibility	Participants terminating before 20 years of service.
Benefit	Refund of Contributions

Disability In The Line of Duty

Eligibility	For participants who become disabled in the line of duty.
Benefit	The greater of 65% of the final salary or accrued benefit

Disability Not In The Line of Duty

Eligibility	For participants who become disabled outside of the line of duty.
Benefit	50% of the final salary

Death In the Line of Duty

Eligibility	For participants who die in the line of duty.
Benefit	The benefit is 100% of final salary paid to the survivor.

Death Not In the Line of Duty

Eligibility	For participants who die outside of the line of duty.
Benefit	For those hired before January 1, 2011 and greater than 20 years of service, a benefit of 100% of the accrued benefit is paid to the survivor. For those with more than 10 years of service, but less than 20 years of service, a benefit of 50% of the final salary is provided to the survivor. For those hired on or after January 1, 2011 a benefit of 100% of the accrued benefit is paid to the survivor.

Compensation

Final Salary is the salary attached to the rank held on the last day of service, or one year prior to the last day, whichever is greater.

Final Average Salary is the average monthly salary obtained by dividing the total salary of the police officer during the 96 consecutive months of service within the last 120 months of service in which the total salary was the highest by the number of months of service in that period. Salary will not exceed $106,800 adjusted from January 1, 2011 with the lesser of 3% and 50% of the CPI on November 1.

Credited Service

For Vesting and Benefit Accrual purposes, pension service credit is based on elapsed time from date of hire.

Employee Contributions

9.91% of Compensation

COLA

Eligibility	All Participants
Benefit	For employees hired prior to January 1, 2011, a compound COLA of 3% is granted each year after attainment of age 55 and 1 year of payments. For employees hired after or on January 1, 2011, a simple COLA of the lesser of 3% and 50% of the CPI on November 1 is granted each year after attainment of age 60 and 1 year of payments. For disabled employees, a simple COLA is available after attainment of age 60 and 1 year of payments. For employees hired prior to January 1, 2011, the COLA is 3%. For employees hired after January 1, 2011, the COLA is the lesser of 3% and 50% of the CPI on November 1.

Plan Provisions Not Included

We are not aware of any plan provisions not included in the valuation

Adjustments Made for Subsequent Events

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact the results of this report.

Sample Management Summary Report

February 22, 2018

Village of XYZ

2018 Police and Firefighter Pension Review

Assumption Review:
2017 IDOI Experience Study

- In October, 2017, the Illinois Department of Insurance published a new pension experience study covering the periods from 2011 – 2016.
- In general, the new study features the following changes versus the prior experience study covering the periods from 2004 – 2011:
    - Updates to the retirement, withdrawal, and disability assumptions.
    - Reduction in the salary increase assumption.
    - Reduction in the payroll growth assumption used to amortize unfunded liabilities.
    - Update to use mortality tables published in 2014 (from tables published in 2000) and with a mortality improvement projection scale applied (from no projection.) The new mortality basis has longer life expectancies than the prior basis.
    - Reduction in the assumed interest rate (equal to the expected investment return on assets) by 0.25% for plans with more than $2.5 million in invested assets.
- The new basis was used in tax levy reports produced by the IDOI in 2017.
- The published experience study suggests the following impact of the new assumption basis for a typical plan with more than $10 million in assets:
    - 8.5% increase in actuarial liabilities and 21.7% increase in actuarially determined contributions for Police Funds.
    - 6.6% increase in actuarial liabilities and 16.2% increase in actuarially determined contributions for Firefighters' Funds.
- **Recommendation: Adopt the new IDOI demographic assumptions for the 2018 valuations**

Assumption Review:
Mortality

- The 2017 valuation used the RP-2000 Blue Collar Mortality Table with mortality improvements projected to 2017 using scale AA.
- IDOI Assumption prior to 2017: RP-2000 Blue Collar Mortality Table without mortality improvement projection
- 2017 IDOI Assumption: RP-2014 Blue Collar Mortality Table with generational mortality improvements based on scale MP-2016 applied from 2013
- Sample life expectancies, male age 55:

Current Age	Current Assumption	New Generational Assumption
25	81.9	85.5
55	81.9	82.5

- **Recommendation for 2018: Adopt the new IDOI basis. Actuarial liabilities will increase by 3% to 4% for the change.**
- For 2019: The Society of Actuaries is performing a mortality study specific to public plan experience (the RP-2014 table is based on private sector mortality experience), with results expected in 2018 or 2019. The new table will be considered when published.

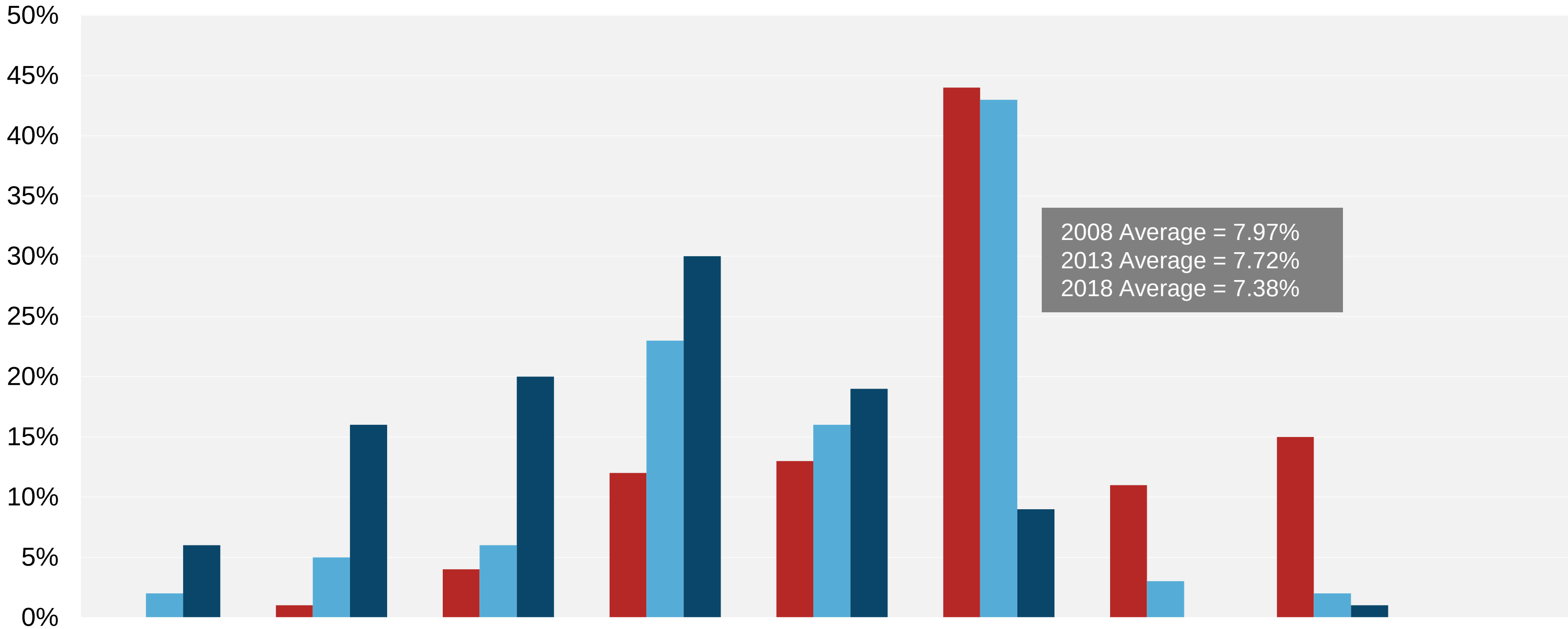
Assumption Review:
Interest Rate

- **Recommend the continued use of a 6.75% interest rate assumption (equal to the expected future investment return on plan assets.)**
- 6.50% is the rate used by the Illinois Department of Insurance for plans with more than $10 million in invested assets. The IDOI assumption was 6.75% prior to 2017 experience study.
- 6.50% assumption is based on composite plan with asset allocation of 45% equities, 45% fixed income, and 10% real estate
- Support using a building-block approach:

Asset Class	Expected Real Return	IDOI Allocation	Police Allocation	Fire Allocation
Mutual Funds	5.5%	45.0%	65%	60%
Fixed Income	2.5%	45.0%	29%	35%
Real Estate	4.0%	10.0%	0%	0%
Cash and Equivalents	0.5%	0.0%	6%	2%
Weighted Average Expected Real Return		4.0%	4.3%	4.2%
Inflation		2.5%	2.5%	2.5%
Expected Total Return		6.6%	6.9%	6.8%

Assumption Review:
Interest Rate

Results of Survey Interest Rates Used By Large Public Plans*:

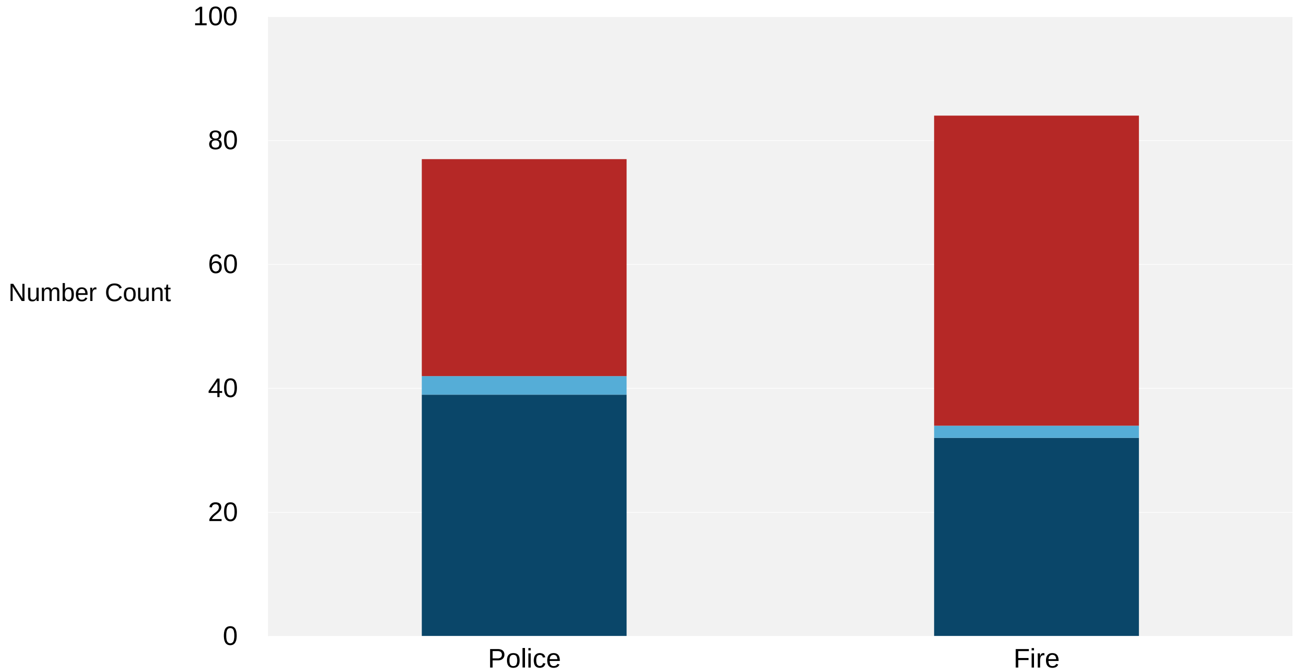


	6.75% or Lower	6.76% - 7.00%	7.01% - 7.25%	7.26% - 7.50%	7.51% - 7.75%	7.76% - 8.00%	8.01% - 8.25%	8.26% - 8.50%	Above 8.5%
2008	0%	1%	4%	12%	13%	44%	11%	15%	0%
2013	2%	5%	6%	23%	16%	43%	3%	2%	0%
2018	6%	16%	20%	30%	19%	9%	0%	1%	0%

XYZ: 6.75%

* Source: Public Fund Survey Summary of Findings for FY 2008, FY2013, and preliminary FY2018

Participant Information
on January 1, 2018

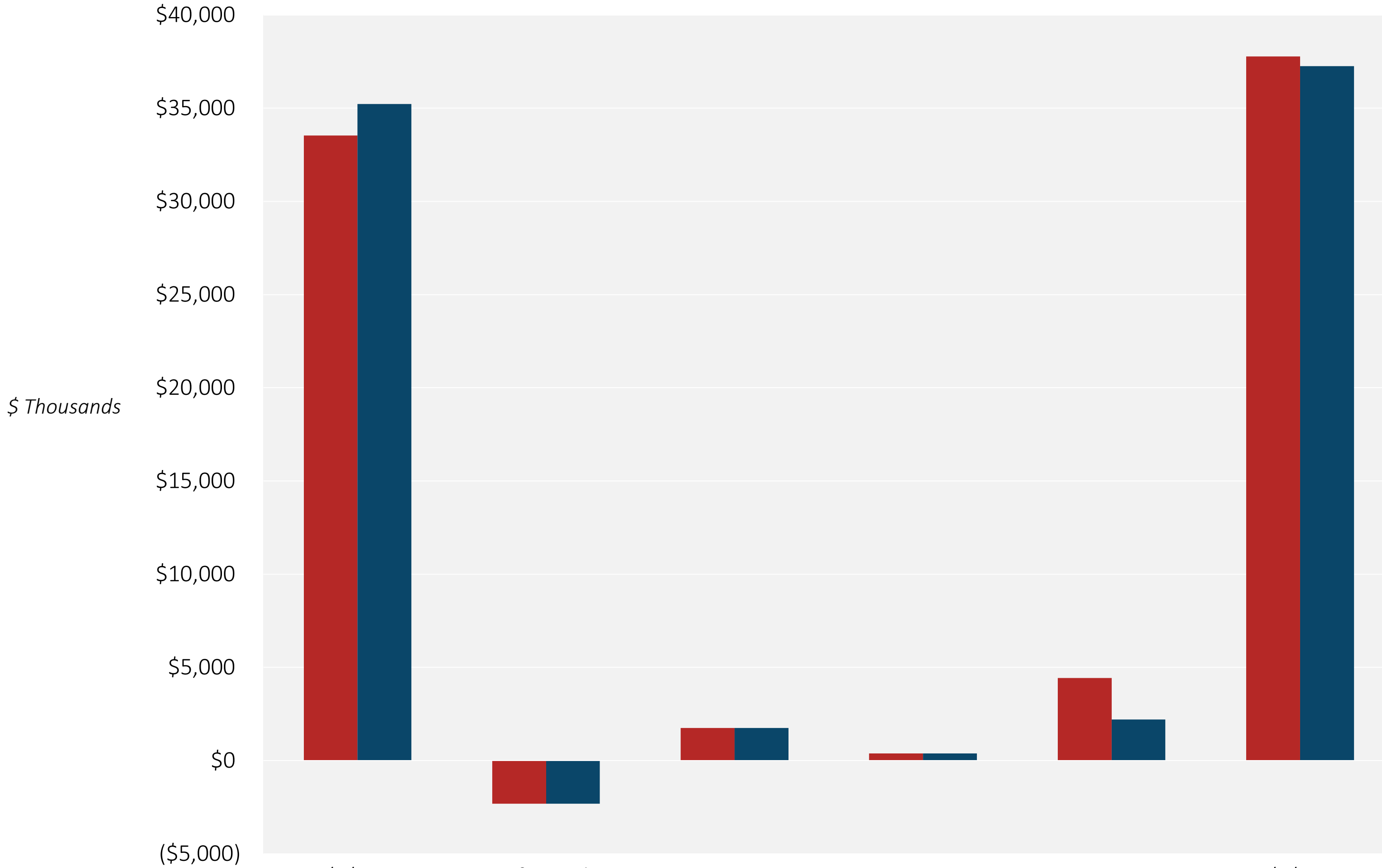


	Police	Fire
Retirees	35	50
Inactive Vesteds	3	2
Actives	39	32

Active Participant Demographics

	Police	Fire
Average Age	43.5	42.6
Average Service	16.8	13.7
Average Plan Compensation	$99,800	$96,432
Active Participant Payroll	$3,892,216	$3,085,809

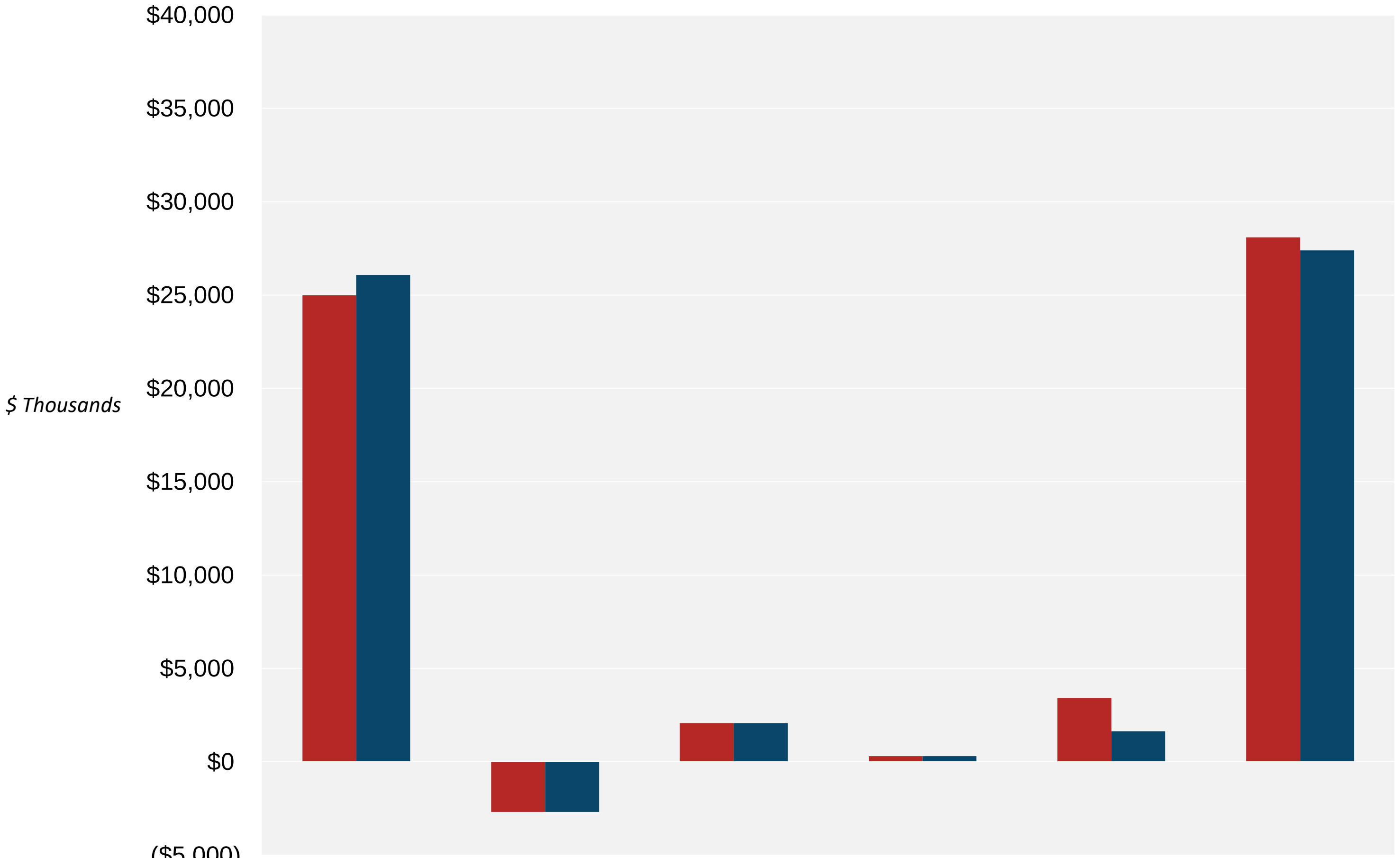
2017 Change in Assets: **Police**



	1/1/2017	Bfts Paid	ER Contr.	EE Contr.	Net Return	1/1/2018
Market Value of Assets	$33,534	($2,315)	$1,748	$387	$4,423	$37,777
Actuarial Value	$35,227	($2,315)	$1,748	$387	$2,206	$37,253

2017 Net Investment Returns = 13.3% on Market Value, 6.4% on Actuarial Value

2017 Change in Assets:
Fire

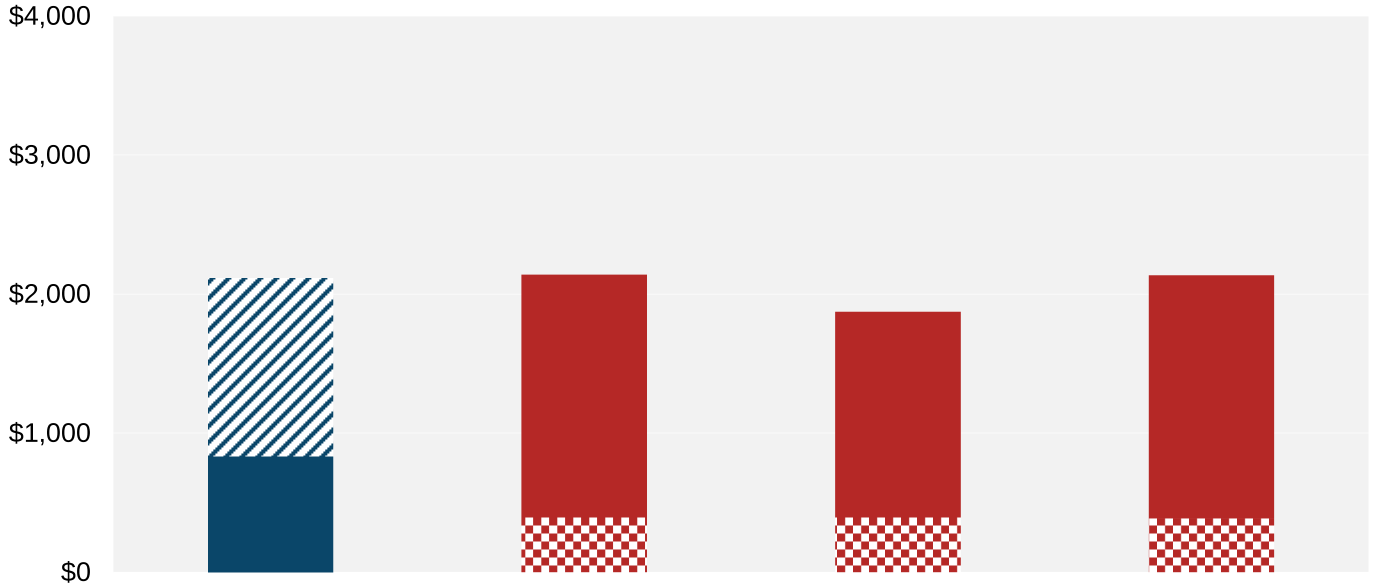


	1/1/2017	Bfts Paid	ER Contr.	EE Contr.	Net Return	1/1/2018
Market Value of Assets	$24,995	($2,696)	$2,080	$295	$3,422	$28,096
Actuarial Value	$26,081	($2,696)	$2,080	$295	$1,636	$27,396

2017 Net Investment Returns = 14.0% on Market Value, 6.5% on Actuarial Value

Review of 2017 Contribution:
Police

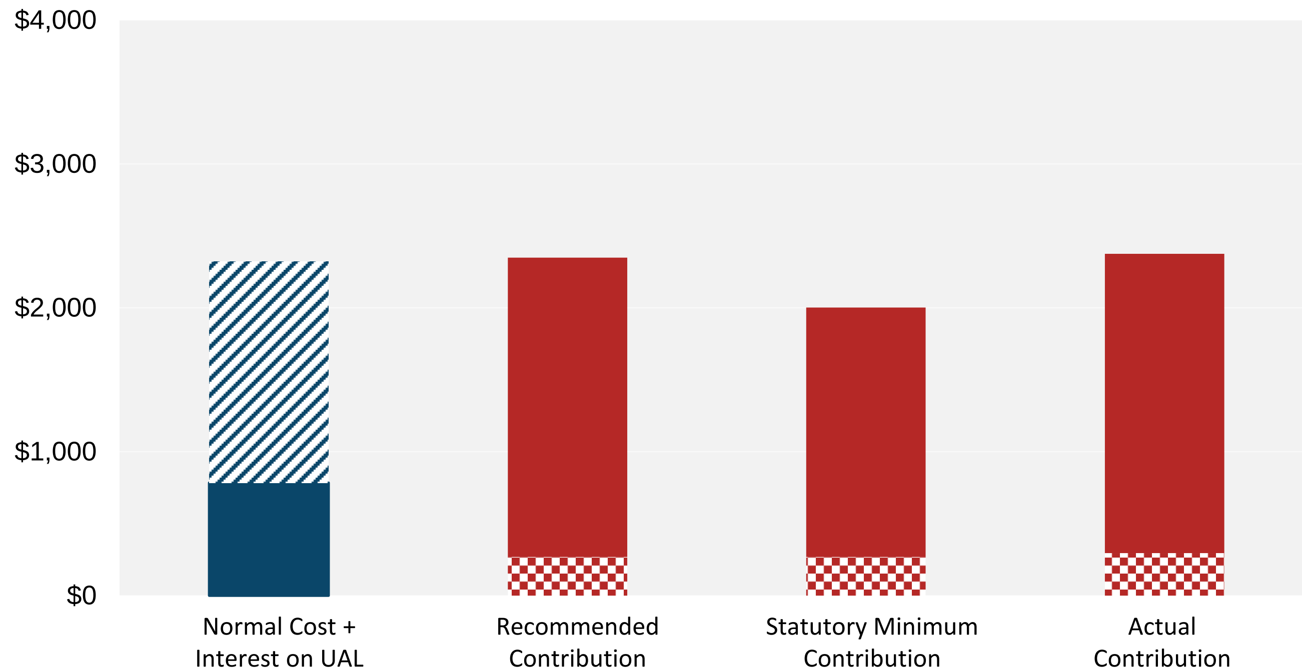
A contribution equal to the normal cost plus interest on the Unfunded Accrued Liability (UAL) will keep the UAL level if all assumptions are met. A contribution less than normal cost plus interest on the UAL will increase the UAL. A contribution greater than the normal cost plus interest on the UAL will decrease the UAL.



	Normal Cost + Interest on UAL	Recommended Contribution	Statutory Minimum Contribution	Actual Contribution
Normal Cost	$ 833			
Interest on UAL	$1,280			
Employer Contributions		$1,748	$1,480	$1,748
Employee Contributions		$ 392	$ 392	$ 387
Total	$2,113	$2,140	$1,872	$2,135

Review of 2017 Contribution:
Fire

A contribution equal to the normal cost plus interest on the Unfunded Accrued Liability (UAL) will keep the UAL level if all assumptions are met. A contribution less than normal cost plus interest on the UAL will increase the UAL. A contribution greater than the normal cost plus interest on the UAL will decrease the UAL.



	Normal Cost + Interest on UAL	Recommended Contribution	Statutory Minimum Contribution	Actual Contribution
Normal Cost	$ 783			
Interest on UAL	$1,540			
Employer Contributions		$2,080	$1,735	$2,080
Employee Contributions		$ 268	$ 268	$ 295
Total	$2,323	$2,348	$2,003	$2,375

2018 Valuation Results:
Police

	2017 Valuation	2018 Same as 2017	2018 2017 IDOI Demographic Assumptions	2018 2017 IDOI Demog + Mortality	2018 2017 IDOI Demog + Mort 6.50%
Total Payroll	$ 3,829,224	$ 3,892,216	$ 3,892,216	$ 3,892,216	$ 3,892,216
Market Assets	$ 33,534,050	$ 37,777,365	$ 37,777,365	$ 37,777,365	$ 37,777,365
Actuarial Assets	$ 35,227,208	$ 37,252,540	$ 37,252,540	$ 37,252,540	$ 37,252,540
Accrued Liability (EAN)	$ 54,407,673	$ 56,228,966	$ 56,305,878	$ 58,193,184	$ 60,193,117
Actuarial Assets	35,227,208	37,252,540	37,252,540	37,252,540	37,252,540
Unfunded Liability	$ 19,180,465	$ 18,976,426	$ 19,053,338	$ 20,940,644	$ 22,940,577
Funded Percentage	64.7%	66.3%	66.2%	64.0%	61.9%
Recommended Contribution					
Funding Policy:	100% by 2040	100% by 2040	100% by 2040	100% by 2040	100% by 2040
Total Normal Cost (EAN)	$ 833,296	$ 858,432	$ 847,154	$ 890,871	$ 956,379
Expenses	39,522	37,243	37,243	37,243	37,243
Amortization	1,197,613	1,216,428	1,221,358	1,342,338	1,438,514
Interest	69,877	71,283	71,069	76,628	79,044
Recommended Contribution	$ 2,140,308	$ 2,183,386	$ 2,176,824	$ 2,347,080	$ 2,511,180
Employee Contributions	(392,283)	(398,737)	(398,737)	(398,737)	(398,255)
Net City Contribution	$ 1,748,025	$ 1,784,649	$ 1,778,087	$ 1,948,343	$ 2,112,925
- as a % of Payroll	45.6%	45.9%	45.7%	50.1%	54.3%

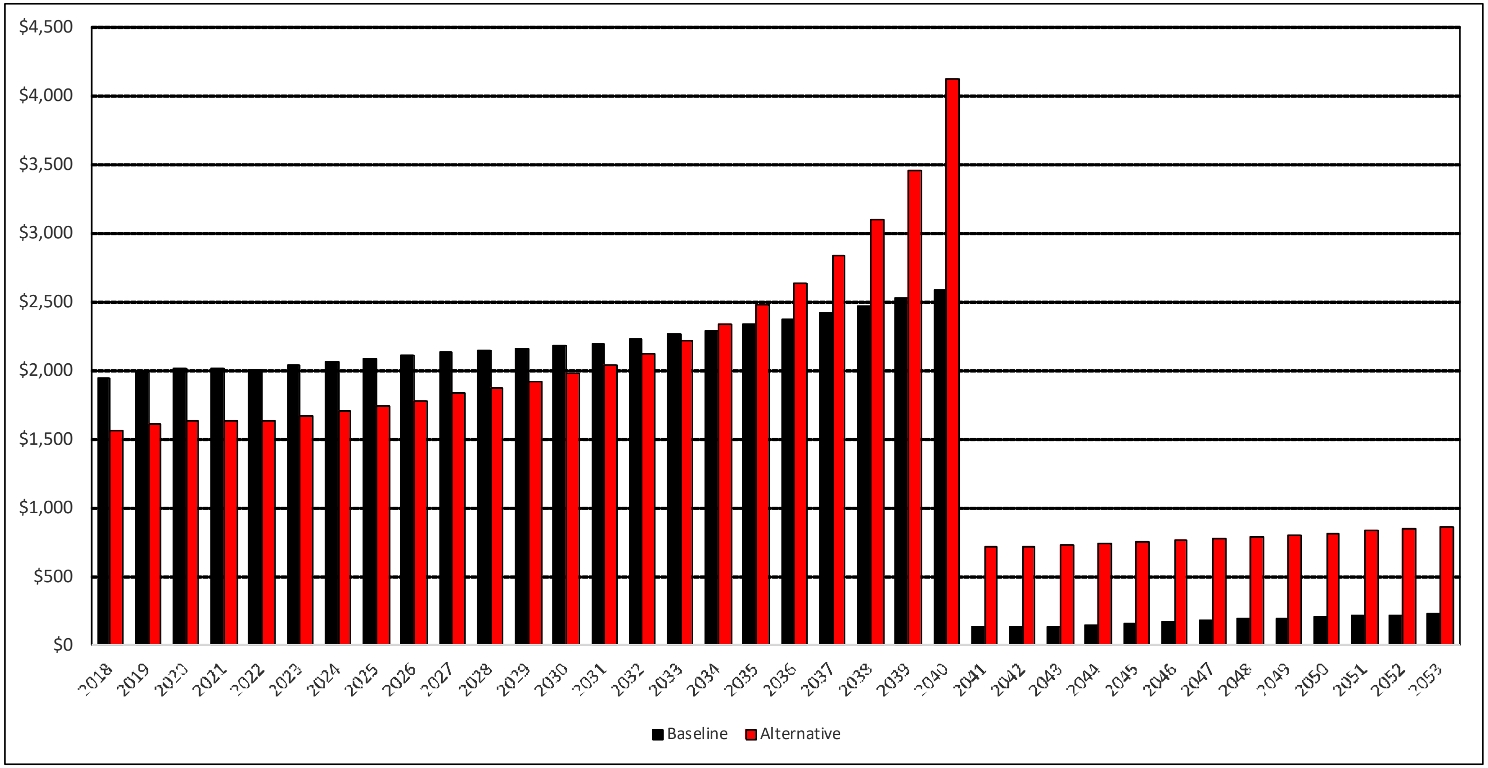
2018 Valuation Results:
Fire

nyhart

	2017 Valuation	2018 Same as 2017	2018 2017 IDOI Demographic Assumptions	2018 2017 IDOI Demog + Mortality	2018 2017 IDOI Demog + Mort 6.50%
Total Payroll	$ 2,918,844	$ 3,085,809	$ 3,085,809	$ 3,085,809	$ 3,085,809
Market Assets	$ 24,995,420	$ 28,096,804	$ 28,096,804	$ 28,096,804	$ 28,096,804
Actuarial Assets	$ 26,081,281	$ 27,396,338	$ 27,396,338	$ 27,396,338	$ 27,396,338
Accrued Liability (EAN)	$ 49,274,222	$ 49,880,985	$ 48,239,742	$ 50,181,210	$ 51,738,762
Actuarial Assets	26,081,281	27,396,338	27,396,338	27,396,338	27,396,338
Unfunded Liability	$ 23,192,941	$ 22,484,647	$ 20,843,404	$ 22,784,872	$ 24,342,424
Funded Percentage	52.9%	54.9%	56.8%	54.6%	53.0%
Recommended Contribution					
Funding Policy:	100% by 2040	100% by 2040	100% by 2040	100% by 2040	100% by 2040
Total Normal Cost (EAN)	$ 782,892	$ 807,513	$ 745,236	$ 786,115	$ 839,148
Expenses	40,567	40,556	40,556	40,556	40,556
Amortization	1,448,149	1,441,312	1,336,105	1,460,557	1,526,418
Interest	76,667	77,267	71,614	77,194	78,199
Recommended Contribution	$ 2,348,275	$ 2,366,648	$ 2,193,511	$ 2,364,422	$ 2,484,321
Employee Contributions	(268,044)	(300,297)	(300,297)	(300,297)	(299,934)
Net City Contribution	$ 2,080,231	$ 2,066,351	$ 1,893,214	$ 2,064,125	$ 2,184,387
- as a % of Payroll	71.3%	67.0%	61.4%	66.9%	70.8%

Projection of Net Village Contribution:
Police

($Thousands)



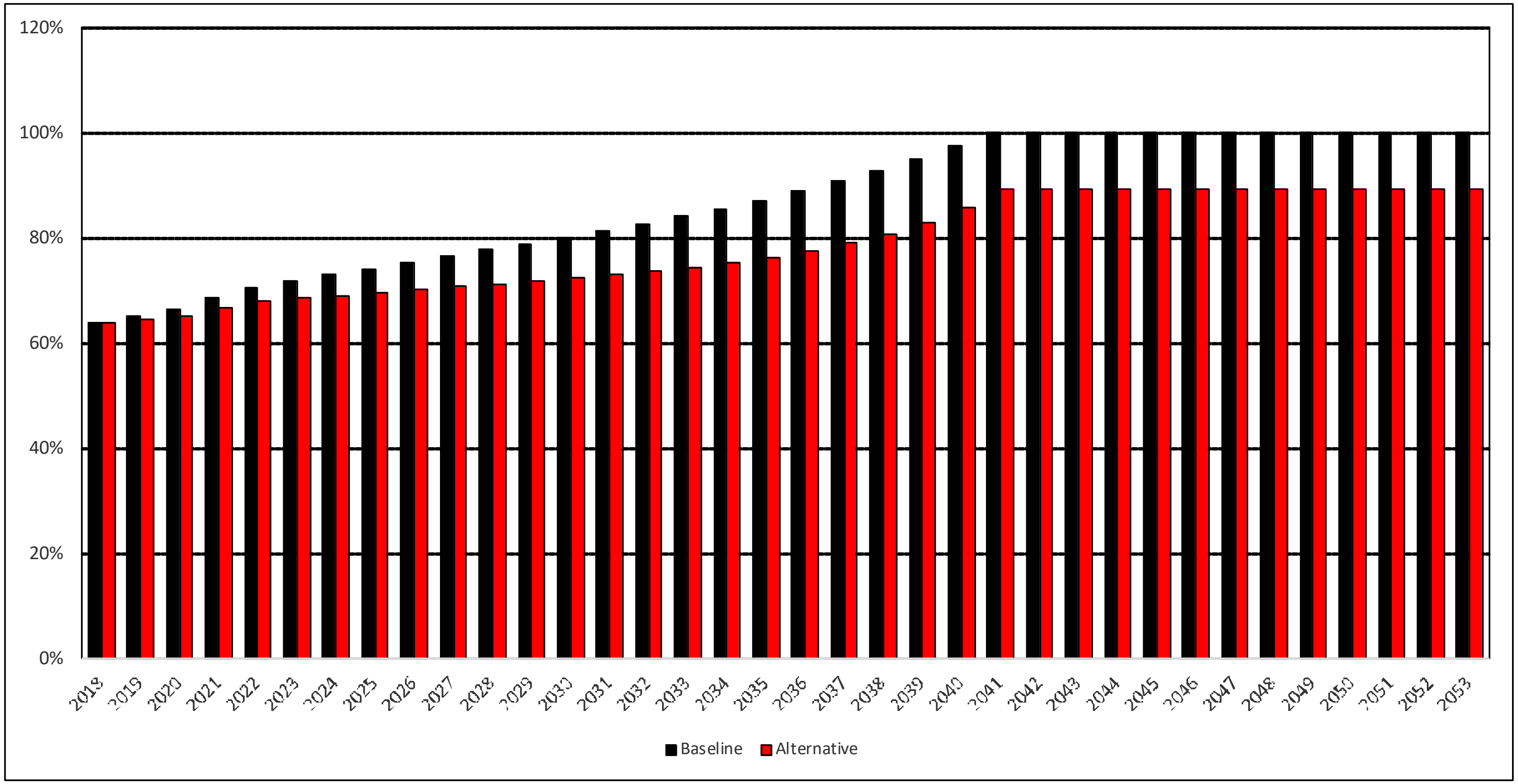
Baseline Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 100% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

Sum of Contributions (000's)	$	52,903
Present Value of Contributions (000's)	$	24,852

Alternative Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 90% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

Sum of Contributions (000's)	$	60,061
Present Value of Contributions (000's)	$	23,904

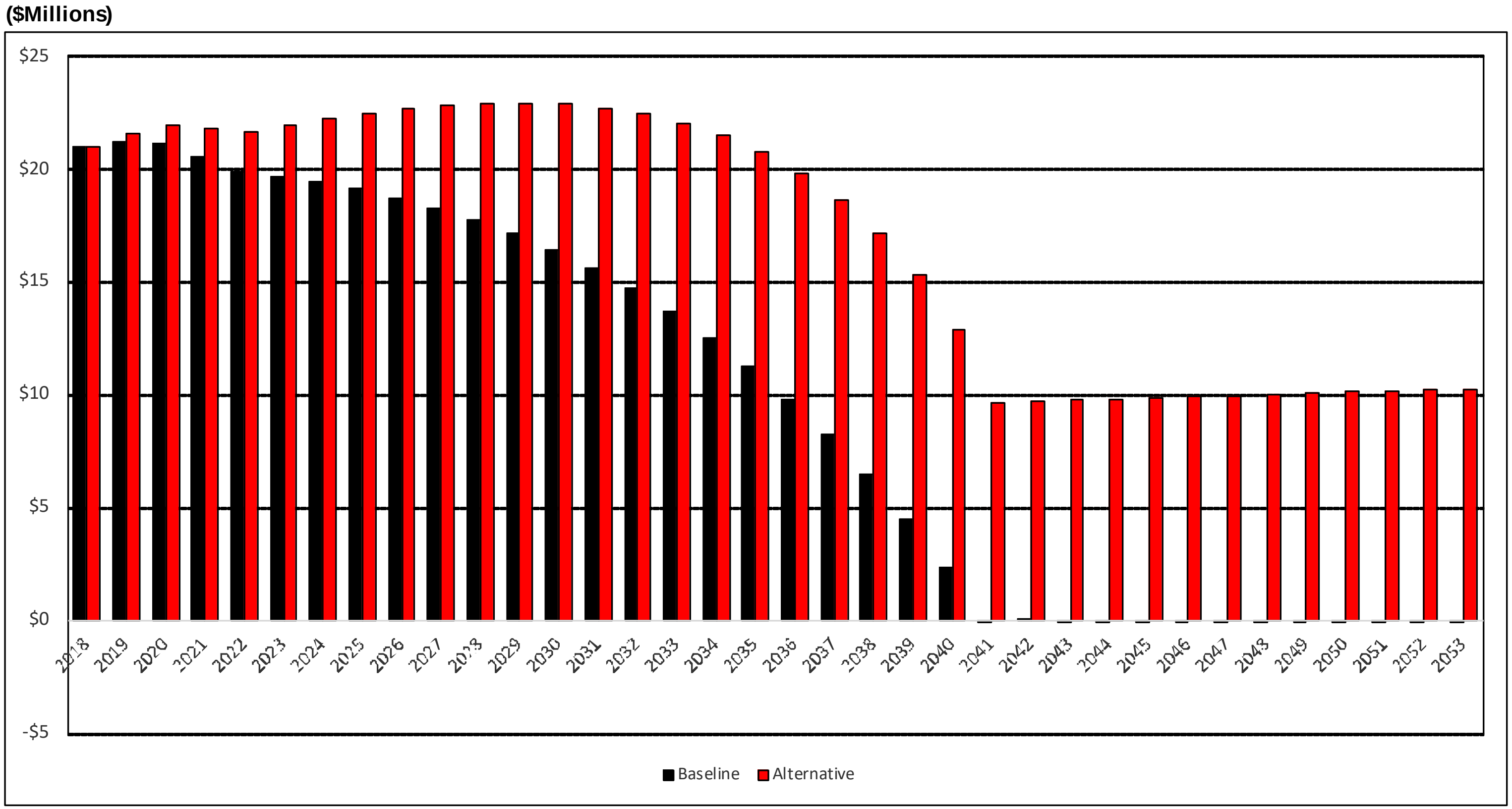
Projection of Funded Status:
Police



Baseline Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 100% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

Alternative Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 90% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

Projection of Unfunded Liability:
Police

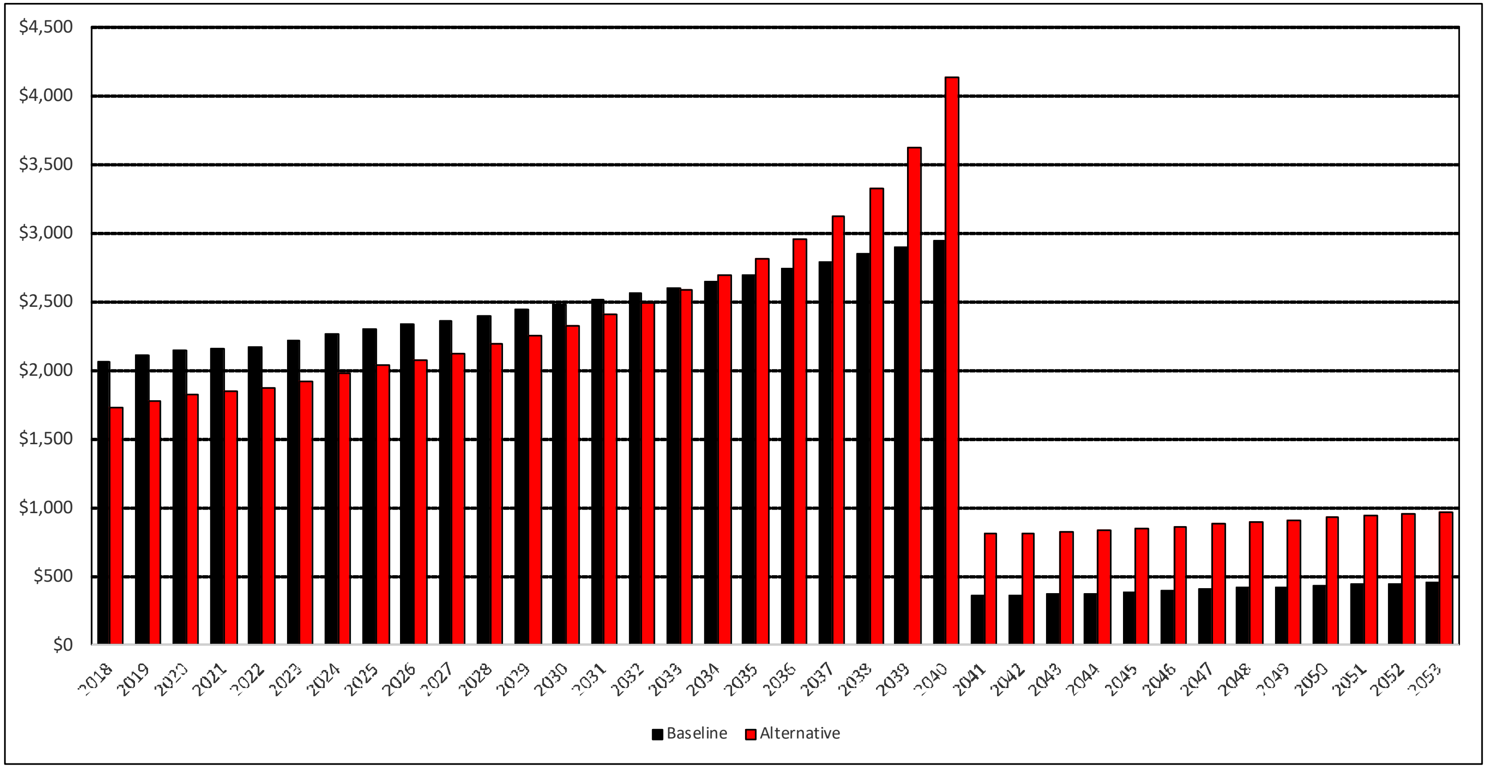


Baseline Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 100% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

Alternative Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 90% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

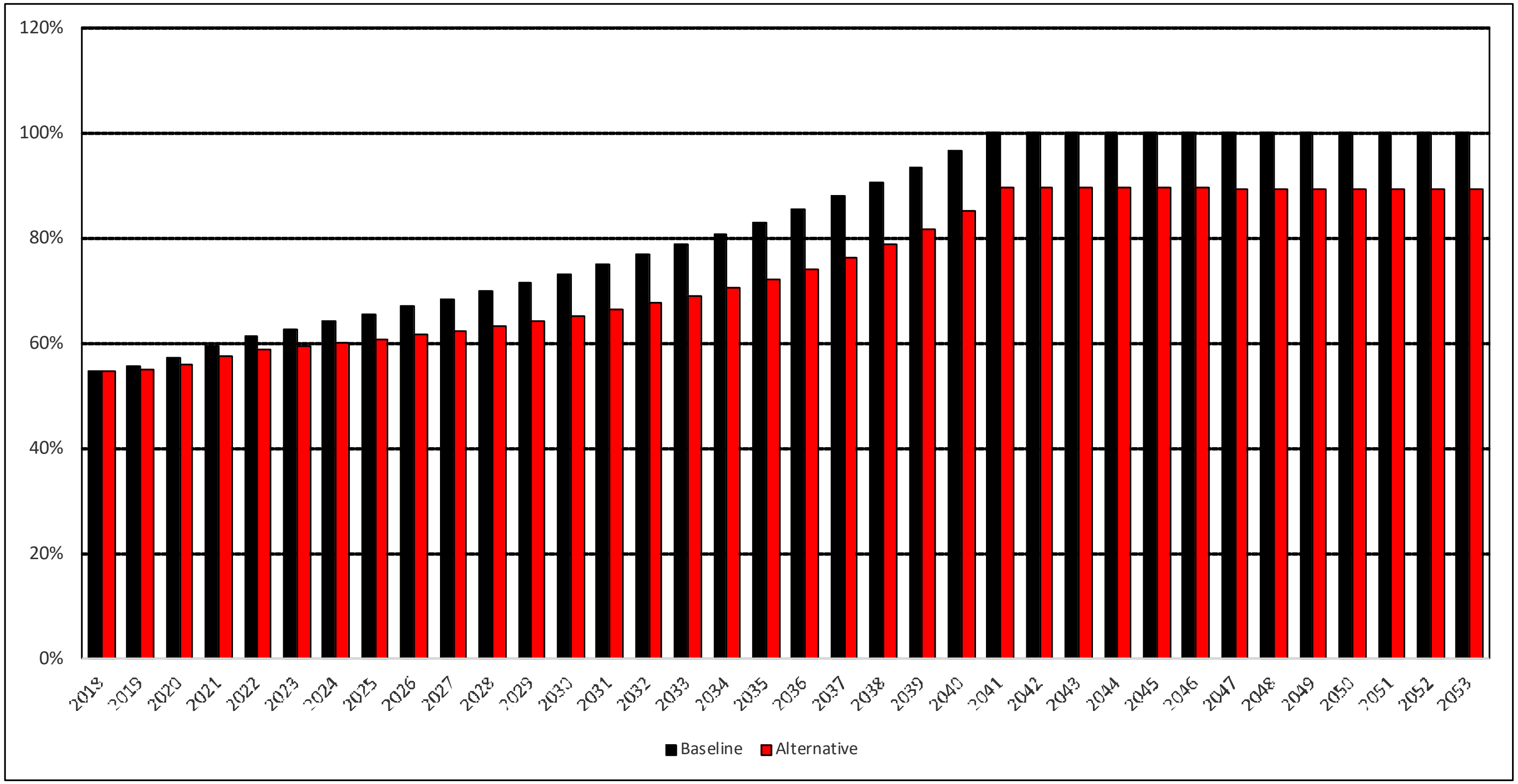
Projection of Net Village Contribution:
Fire

($Thousands)



Baseline Projection:			**Alternative Projection:**		
- 2018 Investment Return:	6.75%		- 2018 Investment Return:	6.75%	
- 2019+ Investment Return:	6.75%		- 2019+ Investment Return:	6.75%	
- 23-Year Level Percent of Pay Amortization			- 23-Year Level Percent of Pay Amortization		
- 100% Funding Target			- 90% Funding Target		
- 2.75% Payroll Growth			- 2.75% Payroll Growth		
- 6.75% Assumed Interest			- 6.75% Assumed Interest		
Sum of Contributions (000's)	$	61,959	Sum of Contributions (000's)	$	67,571
Present Value of Contributions (000's)	$	27,895	Present Value of Contributions (000's)	$	27,083

Projection of Funded Status:
Fire

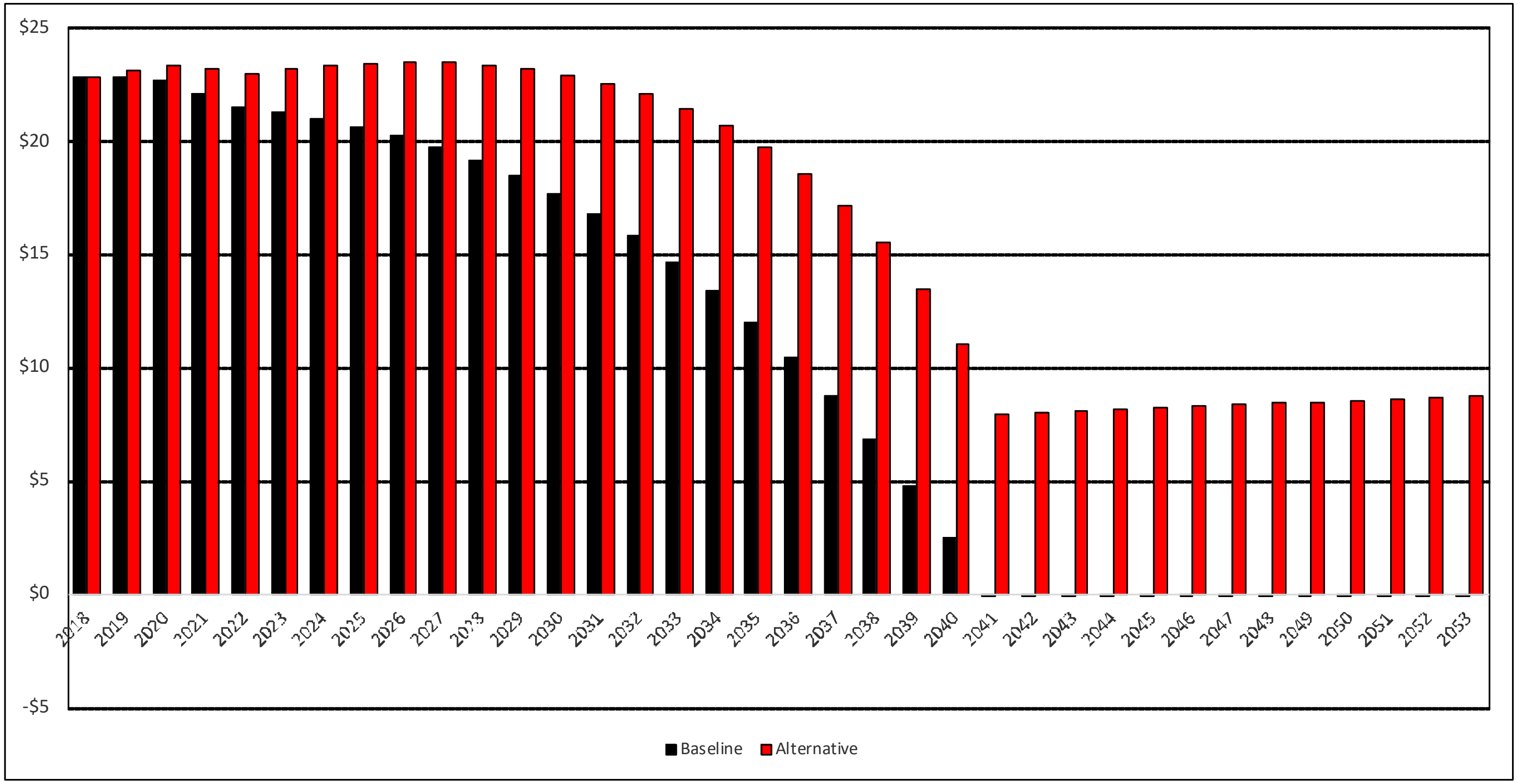


Baseline Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 100% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

Alternative Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 90% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

Projection of Unfunded Liability: Fire

($Millions)



Baseline Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 100% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

Alternative Projection:
- 2018 Investment Return: 6.75%
- 2019+ Investment Return: 6.75%
- 23-Year Level Percent of Pay Amortization
- 90% Funding Target
- 2.75% Payroll Growth
- 6.75% Assumed Interest

A Proposal to Provide
Pension Actuarial Services
For
The Village of Willowbrook

MWM Consulting Group
Taking Measure of Tomorrow

Table of Contents

Section

This proposal is firm and irrevocable and will expire ninety days (90) days from May 8, 2020 and may be extended only in writing by MWM Consulting Group.

I. Transmittal and Engagement Letter

By e-mail transmission
cdittman@willowbrook.il.us

May 9, 2020

Ms. Carrie Dittman, CPA
Director of Finance
Village of Willowbrook
835 Midway Drive
Willowbrook, IL 60527

Re: **Actuarial Services**

Dear Ms. Dittman:

In response to your request, we have prepared this proposal for your review. We would be delighted to provide actuarial consulting services for the Village in connection with meeting the requirements for financial reporting under GASB S-67 and GASB S-68; and for statutory funding and tax levy funding determinations of the Village's Police pension plan. This letter is to confirm our understanding of the terms, scope and objectives of our engagement.

MWM Consulting Group will:

- Prepare actuarial valuations of each of the Village's pension benefit plan:
  - The Village of Willowbrook Police Officers' Pension Fund
  - Prepare certified, separate accounting and funding valuations and respective written reports. The accounting reports will include the schedules and actuarial information necessary for compliance with GASB S-67 and GASB S-68, and for disclosure in the Village's CAFR. The accounting report will include calculations of deferred inflows and outflows and any other year end actuarial calculations required for financial reporting in accordance with GASB S-67 and S-68. The funding reports will include the results of the valuation presenting minimum statutory funding requirements, the contribution amounts determined according to the Village's funding policy, statements of actuarial cost methods and assumptions, and summaries of the valuation objectives.
  - Provide all supporting information as required by the Village's auditors.
  - Prepare alternative assumption and funding method calculations, as requested or appropriate.
  - Provide projections of future municipal contribution requirements.
  - Assist in the development and maintenance of the Village 's funding policies
  - Review developing experience with Village staff and discuss suitability of assumptions or recommendations regarding adjustments.
  - Coordinate and discuss report results with Village staff and update staff on relevant legislation, trends and events

- Consult with the Village staff on the actuarial, accounting, design, funding, administrative and related issues associated with the pension and retiree health programs, including but not limited to the validity of assumptions and suitability of the funding method to achieve goals
- Meet with the Pension Fund, Village Board, and staff as needed

We appreciate this opportunity to offer our proposal and intend our fee proposal to be competitive. MWM Consulting Group is an equal opportunity employer and does not discriminate on the basis of age, race, color, religion, gender, marital status, sexual orientation or national origin in any of its employment practices. MWM is a women-owned firm certified with the Women's Business Enterprise National Council (WBENC) and recognized as an FBE by Central Management Services (CMS) for the State of Illinois.

MWM affirms that we are independent of the Village as defined by generally accepted auditing standards, and that all assigned key professionals are properly credentialed as qualified actuaries as defined by the Academy of Actuaries, the Joint Board for Enrollment, the Society of Actuaries, the Conference of Consulting Actuaries, and Illinois State statutes. MWM Consulting Group is an Illinois corporation licensed in the State of Illinois.

For information regarding technical, price and contract questions, the authorized contacts are myself, Kathleen E. Manning, and Karl Oman. Our contact information is:

MWM Consulting Group
55 East Jackson Blvd.
Chicago, IL 60604
T: 312.987.9097
F: 312.987.9793
Email: kmanning@mwmcg.com
koman@mwmcg.com
Website: www.mwmcg.com

The information herein referred to in Section VI as "representative client lists and client references" page 13, shall be treated as proprietary and confidential, and shall not be made part of the public record in accordance with the Illinois Freedom of Information Act, and without MWM's prior written consent, shall not be disclosed to any person who is not an officer or employee of the institution addressed. The obligation to maintain the confidentiality of such information shall survive the expiration of this proposal.

This proposal is firm and irrevocable and will expire ninety days (90) days from May 8, 2020 and may be extended only in writing by MWM Consulting Group.

We are available at the Village 's convenience to discuss the proposal, make modifications to more closely tailor it to the Village 's needs, and provide any additional information. A visit to our website www.mwmcg.com provides an expanded perspective of our organization.

Very Truly Yours,

Kathleen E. Manning, FSA
Managing Principal and Consulting Actuary

Please indicate your acceptance of our proposal by signing below and returning to MWM Consulting Group by fax (312.987.9217), email (kmanning@mwmcg.com) or mail (55 E. Jackson Blvd, Suite 1000, Chicago, IL 60604).

Agreed and Accepted on behalf of Client

By:______________________________ Date:_______________

II. MWM Consulting Group
Firm and Staff Background

MWM Consulting Group

MWM Overview

MWM Consulting Group was founded by experienced actuaries who left international consulting firms in order to establish a firm committed exclusively to a client centered focus. MWM Consulting Group, Inc. was incorporated in the State of Illinois in January of 1993. As an independent employee owned corporation, MWM Consulting Group has no parent organization, no outside investors, and no organizational affiliations. MWM has grown consistently since 1993 at a respectable pace through organic measures, based almost exclusively upon referrals. Our present professional staff consists of three credentialed actuaries, together with three deeply experienced non-credentialed actuarial staff, two financial and health care consulting professionals, and additional administrative support. MWM is an independent consulting firm, and a WBE certified by the WBENC, and CMS, providing professional services to clients to both public sector and private sector employers. MWM professional staff are located in downtown Chicago and would serve the Village from that location.

The professionals proposed to head the team would include two senior, heavily credentialed and experienced actuaries, Kathy Manning and Karl Oman who would be supported by other actuaries and staff as necessary. Complete biographies are provided Section VIII.

Capabilities

At MWM, senior professionals are the central participants in each engagement. In contrast with the practices of many competitors, the daily responsibilities for projects at MWM are assumed by tenured consultants, not apprentices. We use our broad experience to deliver efficiency, innovation and enhanced quality of service. We combine focus and individual skill with the power of the latest technologies to solve our clients' problems. Our goal as a firm is to provide services to complement and enhance the capabilities of our clients.

Our actuaries have comprehensive competencies in retirement and health programs as well as all aspects of benefit plans. We have a deep background of consulting with every type and size organization; including not-for-profit, privately held corporations, public companies and governmental employers. We have experience in self-funded health and disability plans, in qualified and non-qualified retirement plans, private sector and public sector accounting requirements, in administration and targeted outsourcing, in featured entity actuarial forecasting, and in advising and presenting concepts to Boards and other decision makers with respect to complex benefits, retirement plan and actuarial issues.

MWM Consulting Group

Range of Experience

MWM Consulting Group is first and foremost an actuarial and employee benefit plan consulting firm, engaged solely in the provision of actuarial consulting and employee benefit consulting services to our clients. We recognize that our value to clients lies in our specialized training and skills as actuaries and consultants.

MWM has an extensive pension practice covering single employer retirement plans in the private and the public sector. Our clients have included publicly traded Fortune 100 companies, privately held corporations, large and small public sector employers, and not for profit corporations. We have worked with many pension plans in many different industries: governmental employers, large health care organizations, light and heavy manufacturing organizations, professional associations, financial services and insurance companies. Our actuaries have provided pension actuarial services for over 30 years to organizations covering every sector and plan size. MWM has provided consulting services to employers in the public sector since 1995.

We provide full actuarial services and advisory services to municipalities with Police and Fire pension plans, to agency plans, and to employer supplemental retirement plans. We provide funding valuations to determine statutory minimums, develop funding policy contribution levels for tax levy and other purposes, and provide short and long-term forecasting and sensitivity analysis, and where appropriate, we develop plan design and funding alternatives. We provide second opinion services for municipalities seeking independent reviews of their plan's funding and have provided OPEB services for municipalities since before GASB 45 was effective.

Accounting Under GASB 67 & 68, GASB 74&75 etc.

Our actuarial expertise and understanding of pension and retiree health financial accounting and disclosure is expansive. Years of private sector financial accounting experience pre-dating public plan requirements provided us with deep expertise and a facility to rapidly understand and implement public sector GASB accounting requirements. Kathy and other MWM actuaries have been working with public sector clients for decades. We are intimately familiar with the calculation methodologies as well as the disclosure and audit requirements. Our actuaries have worked in/with public accounting firms on large state programs and have prepared and assisted in public and private sector audits providing professional reviews of pension and retiree health valuations.

As a firm we routinely review new GASB pronouncements and participate in professional committees and educational sessions regarding accounting standards and actuarial practices. To assist our clients, MWM publishes periodic updates on GASB and accounting issues related to public sector retirement plans and issues.

Statutory and Funding Policy Contributions

MWM prepares reports which contain the statutory funding requirements, the stated funding policy contribution amount, and frequently, additional contribution alternatives. We recommend illustrations be prepared showing long term projections of plan assets, liabilities and contributions under various funding policies (statutory, existing funding policy, and alternative policies and assumptions. We believe illustrations of long-term projections enhance the understanding of the range of potential variations, the magnitude and relationships of financial elements within the plan, the annual cash flows, and the short- and long-term effects of decisions.

Staffing

MWM Consulting Group professionals are highly skilled experts who work collaboratively with each other for the benefit of our clients. The key personnel that will be committed to this project include the most senior actuary of the firm, Kathy Manning, Supporting Kathy, is Karl Oman and Joe Zienty, as well as other credentialed and experienced retirement plan actuaries, along with various administrative staff. Complete biographies appear in Section VIII.

Technology Resources

Our size allows us to rapidly adapt PC based technologies and software as it emerges in the market place. Our actuarial valuation software (ProVal) is the most sophisticated available and is currently used by the largest competitors in retirement and investment consulting. ProVal is leased and maintained by Winklevoss Technologies. In addition to leased software, we supplement our actuarial software with specialized packages and our own independently developed custom programs. We have the ability to customize programming to meet many client requests for specialized capabilities or projects.

Professional Standards No Subcontracting

One of the signature features of our firm is that the senior consultants are intimately involved in the projects and oversee the progress as a matter of course. All services are provided through MWM employees – we do not subcontract projects. We have documented work plans, schedules and task assignments for each client project. These are updated and monitored daily. MWM subscribes to numerous research and publication services and our professionals are credentialed and members of all four of the major professional actuarial organizations. MWM standards require participation in continuing education programs, including formal classes, seminars, teleconferences, independent study and professional meetings exceeding levels required by our accrediting organizations.

Insurance Coverages

MWM carries insurance coverages for general liability covering commercial liability of $2,000,000 per claim and $4,000,000 aggregate and for Workmans' Compensation (statutory limits) and for professional liability with a limit of $3,000,000 each claim. MWM does not carry an umbrella policy.

Ongoing Client Education and Communication

MWM provides ongoing consultation and is available for discussions on client projects, typically as part of the annual fee. Our practice is to provide publications such as the MWM Updates to our clients on new relevant legislation and GASB pronouncements, or other matters, and to follow up with our clients regarding the impact upon their specific situations.

No Litigation, Complaints or Disciplinary Action

MWM Consulting Group, Inc. is not now, and has never been involved in any pending or previous litigation dealing with the quality of services and/or of pricing of products provided. There are not now, and have never been any complaints or disciplinary actions filed against the firm (MWM Consulting Group, Inc.) or any of its actuaries by the Actuarial Board for Counseling and Discipline.

III. Proposed Scope of Services

Proposed Scope of Services

The initial assignment will be to perform valuations as of May 1, 2020 for funding and April 30, 2020 for financial disclosure and compliance with GASB 68. Valuation reports will be prepared separately for funding purposes and for accounting purposes.

Scope of Pension Services

The MWM valuation reports will contain, as a minimum, the information elements supporting the results provided in the actuarial reports. MWM will provide written signed, certified reports (for funding and for accounting) which will include a cover letter, executive summary, a report narrative, summary of results as enumerated above, supporting exhibits and required information, principal actuarial assumptions and cost methods, a summary of the principal benefit provisions, and a summary and description of the data.

In addition, our reports include: Actuarial Certifications, valuation highlights, historical experience (as available) and analysis, summary of valuation objectives, statements of actuarial cost methods selected and actuarial assumptions. Additional narrative descriptions and discussion of significant issues relevant to management of the plan are typically provided in separate communications.

MWM will provide all of the services specified below:

- Review the previous actuarial reports and accounting entries
- Collect and confirm financial and participant data. This data will be reconciled each year with prior year's information. Develop a consolidated statement of assets as part of each report.
- Assist the Village in developing, evaluating and articulating the funding policy and Actuarially Determined Contribution.
- Determine and certify the Annual Actuarial Requirement under statutory requirements using the plan's interest rate and other valuation assumptions.
- Determine the Actuarially Determined Contribution level reflecting the funding policy of the Village.
- Provide alternative funding method and assumption variations calculations, as appropriate or requested
- Provide projections of future municipal contribution requirements
- Develop the tax levy requirements for the period according to municipal policy and minimum statutory requirements under Public Act 096-1495.
- Provide valuation results in a complete, certified written reports.
- Provide accounting valuation results under GASB 67/68 in a separate, complete certified report. Include solvency test illustration supporting selection of the discount rate.

Proposed Scope of Services

- Include liabilities, costs, summaries and reconciliations pertinent to the understanding of the reports and to the Required and Supplementary Information needed to comply with GASB Statements 67/68. Include among other items, sensitivity analysis, investment return analysis, discount rate determinations, description of all assumptions including mortality tables, calculation of the discount rate and cash flow projections, descriptions of changes in assumptions or benefits terms, inflows and outflows by resources, amounts to be recognized in pension expense for the subsequent five years and in the aggregate thereafter.
- Develop supporting schedules and summaries documenting contribution calculations.
- Review plan actuarial results, economic experience, and coordinate discussions with Village Staff and Pension Boards as may be needed.
- Update staff on any new legislation, regulations or accounting statements that may be relevant to the administration of the pension plans.
- Complete auditor confirmation documents and assist auditors as required regarding information requests.
- Attend Village Council Meetings, or Financial Advisory Board Meetings if requested.

In order to complete the actuarial valuations, the following participant data and financial information will be needed:

- Trust items: receipts and disbursements for the fiscal period ending April 30, 2020, distribution of investments by category and a listing of benefit payments by individual. [State of Illinois Department of Insurance reports]
- Individual active member data: date of birth, sex, date of hire (service date), credited service, pensionable pay or pay rate and accumulated contributions. [State of Illinois Department of Insurance reports] as of April 30, 2020/May 1, 2020.
- Individual inactive member data: date of birth, sex, benefit service at termination, date of retirement/payment commencement, monthly benefit, form of payment and date of birth. [State of Illinois Department of Insurance reports]
- Prior years valuation reports

Out of Scope and Additional Services -OPEB Actuarial Services

MWM Consulting Group will be available to discuss additional projects and services, such as GASB 74/75 actuarial services for Other Post Employment Benefits.

IV. Proposed Schedule of Implementation

Proposed Schedule of Implementation

Project Initiation

At initiation of the project, we will review the project definition, work plan and anticipated timeframes. We would expect to discuss major aspects and provide suggestions regarding significant actuarial assumptions, alternative contribution/funding amounts, articulation and development of the funding policy, open group funding illustrations under statutory and Village policies, investment policies, and any issues related to the funding of the pension plans or compliance with GASB S- 68.

Transition Process

After confirming the assumptions and methods, MWM would develop preliminary results, tested individually and with comparison of prior year reports. Unless there are inconsistencies with prior actuarial reports, we would expect there to be a smooth transition. The census data for prior valuations is available through the DOI for the pension plans, which allows testing results accurately.

When satisfied with the testing, preliminary valuation results summary would be developed for review by the Village. The preliminary results for GASB valuations would illustrate the accounting components and the supplementary information and schedules applicable to all reporting entities. After agreement upon the funding method, amortization basis, and the economic and other actuarial assumptions, a preliminary funding actuarial valuation summary report would be issued. Full, finalized actuarial valuations would be prepared after review. Kathy Manning, Principal and Consulting Actuary, would serve as lead actuary with Karl Oman, second signing actuary. As previously indicated, we would confirm the timetable as part of our initial work plan and would expect to provide the draft results well in advance of the due date in order to permit sufficient review by management.

Proposed Schedule of Implementation

Action	Explanation	Timeframe	Responsibility
Award of Contract	Appointment by Village Execute Contract		MWM /VILLAGE
Kick off meeting / conference call	Confirm project definition, discuss actuarial assumptions and funding issues, schedules, timing and short plan year valuations	Within two weeks of notification, or at designation by Village	MWM /VILLAGE
Review Actuarial Information	Collect Data, Review prior actuarial reports and disclosure information and related information. • Collect Census and Financial Data • Resolve Data Questions or Issues	Within two weeks of receipt	MWM
Develop Actuarial Assumptions	Develop proposed initial assumptions for discussion with Village. Discuss asset returns, investment policies	Within one month of notification	MWM
Confirm Village Funding Policy	Discuss implications of policy with respect to funding and accounting issues	Within one month of notification	MWM
Develop preliminary results including comparison with prior actuarial reports. duplication of prior	Calculate Liabilities, Actuarial Assets, Present Values, Normal Costs and disclosure elements Review and discuss preliminary results and consistency with prior actuary's results, as necessary to resolve any discrepancies.	Within one month of receipt of database information	MWM
Provide draft report for review by Village	Prepare valuation and preliminary calculations.	Within six weeks of receipt of database information	MWM
Issue Final Certified Report	Provide hardcopies and electronic version	Within seven weeks of receipt of database information, or by Village specified date, if earlier	MWM

V. Assumptions and Methods Discussion

Assumptions and Methods Discussion

Selection of Assumptions

Even though the benefits are statutory and therefore identical for each municipalities' pension plans, MWM actuaries separately consider the demographics, financial and other experience of each group, as well as other experience from relevant sources. We consider plan experience as well as published experience studies such as those by Illinois Department of Insurance and the recent public plans mortality study by the Society of Actuaries. We would expect to discuss with the Village any changes in assumptions or recommendations regarding funding or other methods, in advance of preparing final reports.

Assumptions are used to estimate possible future economic outcomes based on past experience and future expectation and are generally neither "right" nor "wrong", since they represent estimates of future experience. The standard for evaluating actuarial assumptions is whether they are reasonable or unreasonable. Actuarial assumptions are also characterized as conservative, less conservative and occasionally aggressive. A conservative assumption would be one in which the expectation of a future gain is higher than for a future loss.

In actuarial parlance, a reasonable assumption means:

- It is appropriate for the purpose of the measurements
- It reflects the actuary's professional judgment
- It takes into account historical and current data that is relevant as of the measurement date
- It reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in financial market data
- It has no significant bias

The selection of assumptions requires consideration of information from various resources and professional judgment regarding expectations. Actuarial assumptions are educated guesses about future events, based upon published tables of historical data, data from similarly situated clients, client specific experience and judgments about the future. The actual cost of a pension or retiree health program is determined not by the actuarial calculations and assumptions, but by the actual payout of benefits which develop under the program. Aggressive assumptions may reduce near term contributions, but will not change ultimate program costs, and vice versa.

Some assumptions have more economic impact and therefore bear more significance in their selection. For pension plans, the assumed interest rate used to discount liabilities has a very major impact on calculations, as does the assumed rate of increase in salaries, the age at retirement of retirees, and the mortality table. Other assumptions are also important, but the four above can move the calculations to very significant degrees.

In developing an assumption to arrive at a best estimate, actuaries are guided by professional standards as well as professional judgment and consideration should be given to the following:

- ASOP 35 and the guidance regarding selection of assumptions and improvements in mortality
- The appropriateness of the proposed table as well as alternative mortality tables
- The experience of the Plan
- Statutory or other mandated requirements

Assumptions and Methods Discussion

Selection of Funding Methods and Amortization Basis

The selection of the funding method is an important process in the success of a pension program.

An actuarial funding method, also called actuarial cost method, is a procedure for allocating the actuarial present value of projected benefits (and expenses, if applicable) to time periods, usually in the form of a normal costs and actuarial accrued liability. For purposes of this discussion, a pay-as- you-go method is not considered to be an actuarial cost method since it does not prefund obligations.

When measuring pension obligations, determining periodic costs or actuarially determined contributions, the purpose of the measurement must be considered and reflected. Examples of measurement purposes are actuarially determined contribution requirements versus accounting periodic expense/costs.

Pension actuarial cost methods divide the costs into current, future and past costs. Most funding cost methods are developed in two pieces: one piece reflecting the current period cost plus a second piece reflecting payments toward the prior cost accrued benefits. The current costs represent the current period cost (the normal cost) and the prior period costs represent the accrued liability. The primary job of the actuarial method is to allocate the costs to these different periods. The second feature of the cost method is to determine the basis for allocating the prior unfunded costs. This is called the amortization basis.

In selecting an actuarial cost method, the cash flow requirements of the program must be considered. If the benefit payments exceed the assets and contributions at any point in time, the program is insolvent. For example, the program should not have an amortization period so long that overall plan actuarially determined contributions would be scheduled to occur too late to make plan benefit payments when due.

As a practical matter, many public sector plans have adopted the entry age normal method as their funding method since it is required for GASB accounting under both pension and OPEB standards. The Illinois statutory minimums are determined under the projected unit credit method, none the less, the employer's Actuarially Determined Contribution for funding can be developed under a variety of cost methods.

Open Versus Closed Amortizations

An open amortization method amortizes the unfunded liability over a constant number of years. For example, a 30-year open amortization method will amortize the unfunded liability over 30 years for all future valuations. A closed amortization method sets an initial amortization period that decreases by one year each future valuation. For example, a 30-year closed amortization method will amortize the initial unfunded liability over 30 years and the following year the unfunded liability will be amortized over 29 years. The amortization period will continue to decrease down to one after 30 years.

Assumptions and Methods Discussion

Under an open amortization method, the liability will never become fully funded which creates intergenerational inequity as future taxpayers pay for benefits accrued in the past. Illinois Statute requires that Police and Fire pension plans use a closed amortization period that results in assets equal to 90% of the accrued liability by the year 2040 when determining the minimum required statutory contribution.

As a matter of actuarial standards, an open amortization period for pension funding would not be considered compliant with generally accepted actuarial practice.

Percentage of Payroll Versus Level Dollar Amortizations

A percentage of payroll amortization method amortizes the unfunded liability as a level percentage of future payroll. A level dollar amortization method amortizes the unfunded liability as a level dollar amount each year.

Since payroll is expected to increase each year with inflation, a level percentage of payroll amortization method results in small initial amortization payments, typically less than the interest on the unfunded liability for the year (negative amortization), that increase each year as payroll increases. A level dollar amortization method will have initial payments that are higher than under a level percentage of payroll amortization method. They will remain a level dollar amount and over time will be less than future amortization payments under a level percentage of payroll method. Because so much of the accrued liability amortization payments are deferred under the level percentage of payroll method, the potential for significant increases in the amortization amount (in dollars and as a percentage of payroll) exists if payrolls do not increase as expected, or if non-pay related losses are realized. The effect of the percentage of payroll amortization is to heavily back load the contribution schedules.

Avoiding Negative Amortizations

MWM practice, and recent guidance by actuarial standards groups recommends that the amortization method prohibit negative amortization, such that as a minimum, at least the interest on the unfunded liability be part of the amortization methodology.

The current Illinois statutory minimum contribution amounts are developed based upon a level percentage of payroll amortization methodology, which can result in an increasing unfunded liability.

Consideration of potential intergenerational inequity must be given when setting the amortization method. The further in the future that unfunded liability is deferred the greater intergenerational inequity that is created as future taxpayers pay a larger portion of liabilities accrued in the past.

The combination of an open amortization period and a percentage of payroll approach produces a payment scheme which would be unacceptable for funding pension obligations. The current statutes do not permit such an approach and actuarial standards do not allow such an approach for pension funding.

VII. Fee Proposal

Fee Proposal

Fees

Our inclusive maximum fees for these services are as shown below.

Maximum Fees for Scope of Services	GASB (April 30) / Funding (May 1)	
	2020	
Police Pension Fund	$6,500	

Out of Scope Hourly Rates

For projects not included under the In Scope of Services, MWM Consulting Group fees will be based upon an hourly rate basis, charged on a fixed fee arrangement by service, or for a basket of services. The hourly rates and fixed fees reflect the background and experience of the individual consultants assigned to a project and range from $250 to $600 per hour. An example of an additional project might include long term cash flow and liability forecasting with sensitivity analysis, reflecting adjustments in assumptions, benefit provisions and deviations from expected assumptions.

VIII. Professionals and Staffing

Professionals and Staffing

Staffing

MWM Consulting Group professionals are highly skilled experts who work collaboratively with each other for the benefit of our clients. The key personnel that will be committed to this project include the most senior actuary of the firm, Kathy Manning, together with experienced actuaries who have significant defined benefit and retirement plan, forecasting and compliance experience. Supporting the above team actuaries as necessary, are other credentialed and experienced retirement plan actuaries, along with various administrative staff. The below individuals are proposed for the project team. More complete biographies appear at the end of this section.

Kathleen E. Manning, Managing Principal and President, would serve as senior actuary and project manager. In her consulting career, Kathy's clients have included large, intermediate and smaller size public sector employers, Fortune 100 organizations, large and intermediate size privately held corporations, tax exempt organization, hospital systems, and other organizations of all sizes. Kathy's municipal pension expertise includes annual valuations, long term cash and liabilities forecasting for pension systems, and studies to help employers evaluate potential legislation and formulate pension funding strategies.

Kathy has consulted heavily on retirement plans throughout her career, is an expert in the area of retirement plans forecasting, pension funding and financial accounting. Kathy integrates actuarial perspectives with an entity's overall financial strategy. Kathy has been a frequent speaker on the GASB 43 and 45, on actuarial assumptions and funding methods for public pension plans, and sits on professional committees dedicated to accounting for retirement plans in the private and public sector. Her practice areas include all types of pension and retirement plans, and group health and welfare programs with emphasis on strategic analysis, financial forecasting and probabilistic modeling of actuarial liabilities.

Kathy spearheaded MWM's public plans practice on the late 1990's. MWM helped the City of Chicago implement GASB 45 and has acted as actuary for since 2003. Throughout our history, in Illinois and other states, MWM has provided pension actuarial and advisory services for municipal and agency pension plans. MWM has provided advisory services and forecasting studies for several large municipal retirement plans, and currently serves as appointed actuary for the retirement plans of approximately eight municipalities in Illinois.

Professionals and Staffing

Kathy's and Dan's pension expertise includes long term cash and liabilities forecasting for large pension systems along with studies to help employers evaluate potential legislation and formulate pension funding strategies. Throughout our history, in Illinois and other states, we have provided pension actuarial and advisory services for municipal and agency pension plans.

Karl Oman, Consulting Actuary with decades of experience working with pension and retiree health benefit programs. Karl has worked on the defined benefit plans and retiree health programs of small, medium and large public and private sector employers and has developed a specialty practice in public sector retiree health plans. Karl has worked with Kathy on numerous pension and OPEB actuarial valuations for public-sector clients including some similarly situated such as the Village of Arlington Heights, Village of Hinsdale, and Village of Bensenville. Besides his broad experience and actuarial credentials, Karl holds a Ph.D. in Mathematics and spent several years as an Associate Professor of Mathematics. Karl is an expert in technology driven applications, risk transfer issues and modeling.

Joseph Zienty, Consulting Actuary with 25 years of experience working with the benefit programs of small, medium and large employers. Joe would serve as an integral team member and provide additional technical and supervisory valuation support. Joe's specialties include qualified and non-qualified retirement plans, pension participant communications and specialty focused retirement programs for closely held organizations.

Other Considerations

All staff resources indicated above will be available throughout the project timeline. All consultants are physically located in the City of Chicago at 55 East Jackson Blvd. MWM values all of its clients and has sufficient resources to provide each of our clients with exceptional service.

Professionals and Staffing

Team Bio

KATHLEEN E. MANNING, FSA, EA, MAAA, FCA, MSPA
Managing Principal and Consulting Actuary,
President, MWM Consulting Group Inc.

Current Position

Kathleen founded MWM Consulting Group in 1993. Prior to establishing MWM Consulting Group Kathleen held senior actuarial positions with international consulting firms, lead major practices areas and was lead consultant on key accounts.

Kathleen's actuarial experience spans over three decades and group actuarial management positions at insurance companies and senior employee benefits consulting positions with expertise beyond recurring actuarial issues, to include specialties in mergers and acquisitions, strategic financial forecasting, financial accounting standards, executive benefit programs and self-funded health and welfare programs. Kathleen's clients have included every aspect of pension plans and employee benefit programs design, funding, communications, compliance and administration for wide spectrum of organizations: Fortune 100 companies, large hospital systems, not for profit entities, governmental employers, and privately held corporations.

Professional Designations

- Fellow of the Society of Actuaries
- Fellow of the Conference of Consulting Actuaries
- Member of the American Academy of Actuaries
- Enrolled Actuary under ERISA
- Member of the American Society of Pension Actuaries

Education

Kathleen earned a Bachelor of Science in Mathematics from the University of Illinois and studied at the University of Chicago's Master of Business 190 program, with a concentration in finance.

Professional Committees

Kathleen is/has been an active participant in many professional committees, some of which are listed below.

- Pension Accounting Committee – Academy of Actuaries – 2005-2014
- Committee on Continuing Education Seminars – Conference of Consulting Actuaries –Current
- Committee on Smaller Consulting Firms – Conference of Consulting Actuaries - Current
- Actuarial Issues Committee - American Society of Pension Actuaries 2006 -2008
- Education and Examination Committee – Society of Actuaries - Part 6 - 1980 – 1983
- Committee on Social Insurance - Society of Actuaries - 1982

Professionals and Staffing

Karl K. Oman, ASA, FCA, MAAA, EA, Ph.D

Consulting Actuary

MWM Consulting Group

Current Position

Karl has more than 25 years of actuarial consulting experience in plan design, implementation, administration, accounting disclosure statements under FASB and GASB and funding of retirement benefit programs for major U.S. corporations, professional and trade associations, not-for-profit organizations and public retirement systems and municipalities.

Professional Background

Prior to joining MWM, Karl practiced at BCG Pension Risk Consultants, Inc. (BCG) as a Senior Consultant. His primary responsibility was to perform an in-depth evaluation of a sponsor's ongoing plan expenses and the plan's funded position relative to the annuity purchase market to determine whether a risk transfer opportunity such as a Lump Sum Window, Annuity Purchase or Plan Termination would be feasible and financially beneficial to the sponsor.

Karl worked for Aon Hewitt and RSM McGladrey for many years as a Retirement Consultant prior to joining BCG. His responsibilities included managing small teams, performing complex actuarial calculations, and consulting with clients on a wide range of issues associated with the implementation, administration and funding of retirement benefit programs, both public and private sector. Karl's background also includes five years of teaching mathematics and actuarial science courses as an Associate Professor of Mathematics for Thiel College. With this academic experience, Karl brings a wide range of skills that are useful to build and maintain solid client relationships by being able to communicate complex subject matter in a manner that is understandable to diverse audiences.

Professional Designations

- Associate of the Society of Actuaries
- Fellow of the Conference of Consulting Actuaries
- Member of the American Academy of Actuaries
- Enrolled Actuary under ERISA

Education

Karl's highest academic degree is a Doctorate in Mathematics from Wayne State University in Detroit, MI awarded in December 1998.

Professionals and Staffing

JOSEPH R. ZIENTY, ASA, MAAA, EA
Consulting Actuary

MWM Consulting Group

Current Position

Mr. Zienty joined MWM Consulting Group in February, 1993 as senior actuarial consultant. He has over thirty years of actuarial consulting experience. He has experience in the plan design, implementation, administration, accounting disclosure statements and funding of pension and retiree health benefit programs for major U.S. corporations, professional and trade associations, not-for-profit organizations and public retirement systems and municipalities.

Professional Background

Prior to joining MWM, Mr. Zienty was an actuarial consultant with AON serving clients in, the administration and funding of retirement benefit programs.

Professional Designations

- Associate of the Society of Actuaries
- Fellow of the Conference of Consulting Actuaries
- Member of the American Academy of Actuaries
- Enrolled Actuary under ERISA

Education

Mr. Zienty graduated from the University of Illinois in June 1985 with a Bachelor of Sciences degree in Mathematics.