



City of Burlington Employees’ Retirement System

Proposal for Investment Advisory Services

October 8, 2020

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PFM Asset Management LLC

215.567.6100  
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Philadelphia, PA 19103



About PFM

PFM is the marketing name for a group of affiliated companies providing a range of services. All services are provided through separate agreements with each company. This material is for general information purposes only and is not intended to provide specific advice or a specific recommendation.

Investment advisory services are provided by PFM Asset Management LLC which is registered with the Securities and Exchange Commission (“SEC”) under the Investment Advisers Act of 1940. Financial advisory services are provided by PFM Financial Advisors LLC, a registered municipal advisor with the SEC and the Municipal Securities Rulemaking Board (“MSRB”) under the Dodd-Frank Act of 2010. Swap advisory services are provided by PFM Swap Advisors LLC which is registered as a municipal advisor with both the MSRB and SEC under the Dodd-Frank Act of 2010, and as a commodity trading advisor with the Commodity Futures Trading Commission. Additional applicable regulatory information is available upon request.

Consulting services are provided through PFM Group Consulting LLC. Institutional purchasing card services are provided through PFM Financial Services LLC. PFM’s financial modeling platform for strategic forecasting is provided through PFM Solutions LLC. A web-based platform for municipal bond information is provided through Munite LLC.

For more information regarding PFM’s services or entities, please visit [www.pfm.com](https://www.pfm.com/home).

Arthur J. Meizner, CFA, CAIA, CFP®, AIF®

Hooker & Holcombe Investment Advisors, Inc.

1300 Hall Blvd., Suite 1C

Bloomfield, CT 06002

RE: Request for Proposal (“RFP”) for Investment Advisory Services

Cover Letter

Dear Mr. Meizner:

PFM Asset Management LLC (“PFM”) appreciates the opportunity to submit our proposal to provide investment advisory services to the City of Burlington Employees’ Retirement System (the “System” or “Plan”). For more than 25 years, PFM has partnered with public sector clients nationwide to develop enduring investment programs that are built on their distinct needs. To best position the Retirement Board (the “Board”) to maximize risk-adjusted investment returns in the coming years and improve the funded status of the Plan, we are proposing our hybrid investment advisory solution.

We firmly believe that our hybrid advisory structure has enabled clients to respond quickly to volatile market conditions, while continuing to include them as an important component of the investment process — producing strong performance outcomes relative to benchmarks, efficiently mitigating uncompensated risk, and effectively managing overall investment program costs.

We believe the following qualities, addressed in greater detail throughout our proposal, help demonstrate that we are the firm best suited to meet the investment needs of the City of Burlington (the “City”):

* **Public Pension Plan Experience.** Having advised public pension plans since 1992, we believe that our experience and strong knowledge of public retirement funds is unmatched.[[1]](#footnote-1) We manage and advise on more than 209 public retirement plans nationwide with assets totaling more than $10 billion (as of June 30, 2020).[[2]](#footnote-2)
* **Tailored Hybrid Investment Advisory Solution.** Our sole focus is to serve institutional investors such as the System. We understand that each client is different and requires a tailored solution. We have a long history of creating customized investment strategies that seek to help our clients achieve their unique goals. By proposing a hybrid approach to our investment advisory solution, we would proactively recommend asset allocation and investment manager changes to the Board, seeking approval prior to implementation. This approach offers the Plan the opportunity to recognize the benefits of nimble portfolio implementation while allowing the Board to focus their time on other strategic initiatives.
* **Fiduciary Independence and Free of Conflicts of Interest.** Our team will serve as an extension of the Board in its role as a fiduciary. We are 100% employee-owned, take no custody of assets, no fees or soft dollars from managers, no trading commissions and no double-dipping in fees from proprietary products.
* **Robust Reporting Capabilities.** The Board will receive a customized quarterly report containing a variety of exhibits, including total Plan performance and attribution data versus the benchmark, a comparison versus a peer group of other similar type funds, and analysis of constituent managers versus appropriate benchmarks and manager universes.
* **Financial Advisory Relationship.** Our affiliate, PFM Financial Advisors LLC, has had the distinct opportunity to serve as financial advisor to the City for more than 30 years. Through our team, led by Matthew Schnackenberg, PFM has a thorough understanding of the City and its comprehensive goals and objectives.[[3]](#footnote-3) Our current partnership offers the chance for an expanded team to serve on behalf of the City — leveraging our collective expertise to deliver proactive, hands-on, customized advice.

If you have questions regarding our response, please contact Bikram Chadha at 215.567.6100 or chadhab@pfm.com or John Spagnola at 215.567.6100 or spagnolaj@pfm.com.

Sincerely,

|  |  |
| --- | --- |
| John S. Spagnola  Managing Director  PFM Asset Management LLC | Bikram Chadha  Director  PFM Asset Management LLC |

# Proposal Questions

* 1. Organization

### Name of firm.

PFM Asset Management LLC.

### Name, address, and telephone number(s) of key contact.

John Spagnola, Managing Director  
1735 Market Street, 43rd Floor  
Philadelphia, PA 19103  
215.567.6100

Bikram Chadha, Director  
1735 Market Street, 43rd Floor  
Philadelphia, PA 19103  
215.567.6100

### Ownership structure of firm.

PFM and its affiliates are indirect, wholly owned subsidiaries of a holding company, PFM I, LLC, which is 100% owned by its 83 managing directors, of which approximately 30% are minority and/or women (as of June 30, 2020), who set the firm’s strategic direction.

### Team structure brief biographies of individuals to be assigned.

Below we provide brief biographies for individual to be assigned to the System’s engagement.

| Team Member, Title, Education, Location | Engagement Role | Brief Biographies |
| --- | --- | --- |
| Engagement Team | | |
| **John Spagnola**  *Managing Director &  Co-Leader of PFM’s Multi-Asset Class Business* | **Co-Engagement Manager** | **17 Years with PFM** | **36 Years of Experience**  John co-leads our multi-asset class business. Prior to joining PFM, he co-founded Spagnola-Cosack, Inc., an independent investment consulting firm that PFM acquired in 2003. John oversees efforts surrounding client service, product development, marketing and is a member of the Multi-Asset Class Investment Committee (“Investment Committee”). |
| **Bikram Chadha**  *Director* | **Co-Engagement Manager** | **4 Years with PFM** | **13 Years of Experience**  Bikram manages institutional client relationships and supports business development efforts for PFM’s consulting and outsourced CIO practice areas – focusing on pension funds, other post-employment benefits (“OPEB”) trusts, endowments, foundations and other long-term investment portfolios. Additionally, Bikram helps lead efforts for PFM’s multi-asset class business in the northeast. He is a member of PFM’s DEI Council, part of the firm’s Office of Diversity, Equity, and Inclusion. |
| **Surya Pisapati, CFA**  *Manager, Research & Portfolio Strategy* | **Portfolio Strategist** | **4 Years with PFM** **|** **13** **Years of Experience**  Surya serves as the lead for global equity manager research within the multi-asset class management (“MACM”) team. In her role, she is responsible for manager selection and oversight that includes sourcing new manager ideas as well as continued monitoring of existing allocations. She also serves as a portfolio strategist, assisting clients in customizing portfolios and playing an integral role in communicating the investment process and portfolio management decisions across the firm. Surya also serves as a member of the Investment Committee and the Economic and Capital Market Outlook Committee. |
| **Marc Ammaturo**  *Managing Director &  Co-Leader of PFM’s Multi-Asset Class Business* | **Engagement Oversight** | **15 Years with PFM** | **24 Years of Experience**  Marc co-leads our multi-asset class business and assists in setting the firm’s strategy in developing, servicing and marketing our services nationwide. He is a member of the Investment Committee. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Team Member, Title, Education, Location** | **Engagement Role** | | **Brief Biographies** |
| Portfolio Management | | | |
| **Biagio Manieri, Ph.D., CFA**  *Managing Director* & *Chief Multi-Asset Class Strategist* | | **Chief Multi-Asset Class Strategist** | **8 Years with PFM** | **34 Years of Experience**  Biagio’s experience includes economic research, finance and investment management. He is responsible for leading PFM’s economic and capital markets research. As chair of the Investment Committee, he leads the discretionary investment management of clients’ multi-asset class, multi-manager portfolios. Biagio is the chair of the Economic and Capital Markets Outlook Committee and is also responsible for leading PFM’s thought leadership, writing white papers and presenting at investor conferences. |
| **Alex Gurvich**  *Director of Research* | | **Research Oversight** | **2 Years with PFM** | **26 Years of Experience**  Alex manages the Investment Research, Asset Allocation and Manager Selection teams. He is a member of the Investment Committee and the Economic and Capital Markets Outlook Committee. |
| **Tyler Braun, CFA**  *Senior Managing Consultant* | | **Portfolio Trading** | **12 Years with PFM** **|** **15** **Years of Experience**  Since joining the firm in 2008, Tyler has conducted portfolio management/trading activities for client portfolios under the direction of the Investment Committee. His experience also includes conducting portfolio reviews and asset liability analysis for current and prospective clients. |
| Client Reporting | | | |
| **Teshome Gebremedhin**  *Senior Managing Consultant* | | **Client Reporting** | **18 Years with PFM** **|** **24** **Years of Experience**  Tesh leads the multi-asset class client service and reporting team. His team serves as a day-to-day contact and performs ongoing monitoring and investment performance analysis, including quarterly report production and manager searches. Tesh is responsible for coordinating portfolio management/trading activities of PFM’s multi-asset class managed portfolio solutions. |

### Business focus/client base.

* + - * 1. What is the primary business focus of your firm? Is your firm affiliated with any organization(s), specifically a brokerage firm? If yes, please describe the relationship in full.

PFM Asset Management LLC’s primary business focus is providing discretionary investment management and non-discretionary investment consulting services for our multi-asset class and fixed-income clients.

Yes. PFM has a limited-purpose wholly owned broker-dealer subsidiary, PFM Fund Distributors, Inc., which is registered with the SEC as a broker-dealer, a member of FINRA, and also subject to the rules of the MSRB. PFM Fund Distributors Inc., a limited-purpose broker-dealer whose primary activity is to serve as the distributor for shares of the local government investment pools (“LGIPs”) whom we advise and administer, the PFM Multi-Manager Series Trust, a registered investment company whom we advise, and the PFM Funds, a registered money market mutual fund we advise and administer. The LGIPs are state-specific pooled investment vehicles mostly for local governments and school districts and are neither investment options nor are they applicable for the Plan. ***We hold no inventory of securities, do not trade for individual client accounts through this broker-dealer or receive any commissions through this subsidiary. Importantly, we will exclusively use third-party investment managers to construct the portfolio for the City.***

* + - * 1. What is your firm’s targeted market in terms of plan size?

The firm’s targeted market in terms of plan size is clients with assets up to $500 million.

* + - * 1. How many pension consulting clients do you currently have? What is the average plan size of your clientele?

As of June 30, 2020, 77 discretionary pension clients with an average account size of $95.2 million. As of that same date, PFM has 15 non-discretionary pension clients with an average account size of $375.2 million.[[4]](#footnote-4)

* + - * 1. What is the client turnover (gains and losses) of your firm over the last three years?

The following table illustrates discretionary multi-asset class clients gained and lost during the last three years.

|  |  |  |
| --- | --- | --- |
| Year | Clients Gained | Clients Lost |
| 2019 | 13 | 2 |
| 2018 | 16 | 3 |
| 2017 | 18 | 0 |

* + - * 1. How many full-time staff is employed by your team and firm?

As of June 30, 2020, PFM employs 212 full-time staff, including 31 full-time staff who directly support the multi-asset class business.

* + - * 1. When did your organization begin providing investment advisory services?

PFM began providing investment advisory services to public entities in 1980 and created PFM Asset Management LLC in 2001 as the entity to provide investment advisory services. In 2003, PFM acquired Spagnola-Cosack, Inc., a multi-asset class investment consultant co-founded in 1992 by Managing Director ***John Spagnola,*** the proposed co-engagement manager to the City, to provide independent investment consulting services to public and multi-employer pensions, endowments, foundations and other multi-asset class portfolios. Before its acquisition, Spagnola-Cosack, Inc. had been providing investment consulting services since 1992.

* + - * 1. Is providing investment advisory services currently one of your organization’s principal lines of business?

Yes. PFM Asset Management LLC provides non-discretionary investment consulting and discretionary investment management services for our multi-asset class and fixed-income clients, which account for approximately 97% of PFM’s total revenue.

* + - * 1. What percentage of your organization’s revenues in the last fiscal year was attributable to the investment advisory practice?

17.2% of PFM Asset Management LLC’s total revenue in the last fiscal year was attributable to our MACM investment advisory and management business.

### Is your organization registered with the Securities Exchange Commission (SEC) as an investment advisor under the Investment Advisors Act of 1940?

Yes. PFM Asset Management LLC is registered with the SEC as an investment advisor under the Investment Advisers Act of 1940.

### Please provide a copy of your organization’s Form ADV Part II A&B.

We provide a copy of our Form ADV, Parts 2A and 2B in Appendix A.

* 1. Potential Conflicts of Interest

### Does your organization provide trust, investment management or securities brokerage services (including commission recapture)? If so, please identify and explain all such services provided:

Yes. PFM provides investment management services, but we do not provide trust or securities brokerage services. As mentioned, PFM also has a limited-purpose wholly owned broker-dealer subsidiary PFM Fund Distributors, Inc. PFM Fund Distributors, Inc. is exclusive to our fixed-income business line and not our multi-asset class business; therefore, PFM Fund Distributors, Inc. will have no role in this engagement.

1. What percentage of your 2019 revenue was attributable to such trust, investment management or securities brokerage services?

90.7% of PFM Asset Management LLC’s 2019 revenue was attributable to our investment management services.

1. Does your organization provide any other services or engage in any other lines of business aside from investment advisory, trust, investment management, commission recapture, soft-dollar or securities brokerage services? If so, please describe such services in detail, noting the percentage of your firm’s 2019 revenue that was attributable to such services.

Yes. Our other services include specialized services, such as arbitrage rebate compliance, structured products and treasury consulting, which represents approximately 3% of PFM Asset Management LLC’s 2019 revenue.

### If any part of your organization provides brokerage services, soft-dollar services, directed brokerage, discount brokerage or commission recapture programs (collectively, “brokerage related services”):

1. What percentage of your organization’s 2019 revenue was received in soft dollars?

0%, as PFM does not engage in soft dollar fee arrangements with outside organizations.

1. What percentage of your organization’s 2019 revenue was attributable to (or compensation for) brokerage-related services?

0% of PFM Asset Management LLC’s revenue was attributable to (or compensation for) brokerage-related services.

### Does your organization offer or sell services or products to investment managers? If so, identify these in detail and name every manager who purchased any such services or products (with hard or soft dollars) over the last two fiscal years.

No. PFM does not sell its research to outside organizations and does not engage in hard dollar or soft dollar fee arrangements with outside organizations.

### Please confirm that your organization will not accept any commissions or other remuneration from any service providers in exchange for placing business with that organization.

We confirm our firm will not accept any commissions or other remuneration from any service providers in exchange for placing business with that organization.

### Does your organization solicit or accept fees for placing or helping to place money managers? If so, please explain.

No. Our clients are our only source of income, thereby maintaining our 100% independence to make fiduciary decisions in the best interest of our clients.

### Does your organization charge to include any investment managers in your database or in any search? If so, please explain.

No. PFM does not charge investment managers any direct or indirect fees to be included in our database or in any search.

### Does your organization have any clients or associations that could present a conflict of interest and possibly compromise the objectivity of its advice to the City of Burlington? If so, please explain.

To the best of our knowledge, PFM does not have any clients or associations that could present a conflict of interest and possibly compromise the objectivity of its advice to the City.

### Does your organization receive any products or services from any investment managers? If so, identify each service and the amount of compensation paid, if any.

No.

* 1. Legal Fiduciary Status, Investment Advisory Status and Litigation

### Does your organization consider itself to be a fiduciary in its role as investment advisor? Will your organization contractually agree to accept fiduciary responsibility with respect to its investment advisory services?

Yes. We will contractually agree to accept fiduciary responsibility with respect to our investment advisory services.

### Does your organization serve as an independent fiduciary to any client subject to court supervision or a U.S. Department of Labor judgment or decree? If so, please identify them.

### To the best of our knowledge, PFM does not serve an independent fiduciary to any client subject to court supervision or a U.S. Department of Labor judgment or decree.

### Has your organization, or a principal, employee, or agent of your organization, ever been investigated or charged by the SEC, the U.S. Departments of Justice or Labor, the Internal Revenue Service, or any other federal, state or local regulatory agency for any purported or actual violation of applicable law? If yes, please explain and provide date(s) of the violation(s).

Neither PFM Asset Management LLC, nor to the best of its knowledge, any of its principals, employees or agents have ever been investigated or charged by the SEC, the U.S. Departments of Justice or Labor, the Internal Revenue Service, or any other federal, state or local regulatory agency for any purported or actual violation of applicable law.

### Over the past five years, has your organization or any principal, employee or agent been named or threatened to be named as a party in any private or governmental litigation, arbitration or other dispute resolution proceedings; been a target in any governmental or professional investigation; or settled any actual or threatened claim? If so, please provide details including a copy of all relevant complaints and communications, a list of all parties, and the results or status of such proceedings(s), investigation(s) or settlement(s). All fillings, or otherwise, must be disclosed.

The firm is not presently involved in any litigation or regulatory actions. Past litigation actions in which the firm was involved are provided as follows:

* Beginning in 2009, a Burlingame, California law firm filed complaints on behalf of 20 California governments or agencies against 40 financial institutions and advisors, including PFM Asset Management LLC. Some of the plaintiffs joined in the claims were never clients of PFM Asset Management LLC, and we have always maintained that the claims were both legally and factually unsupportable, should not apply to PFM Asset Management LLC, and that PFM Asset Management LLC has no liability; however, we agreed to settle the claims in 2016 to avoid further legal expense, inconvenience, and the distraction of burdensome and protracted litigation.
* A municipal depositor in a LGIP for which PFM Asset Management LLC is the investment advisor/administrator was defrauded by an employee of the municipal depositor, who misappropriated funds to her own benefit. That individual was arrested in early 2010, and then convicted, incarcerated and ordered to pay restitution. In October 2012, the affected municipal government sought to recover funds from PFM Asset Management LLC and the LGIP. PFM Asset Management LLC has always maintained that the claims were both legally and factually unsupportable and that PFM Asset Management LLC has no liability; however, the parties agreed to settle and withdraw the claims in 2017 to avoid further legal expense, as well as to preserve their ongoing business relationships.
  1. Insurance

### Does your organization carry a fidelity bond and/or fiduciary liability, professional liability or any other insurance that would be beneficial to the Plan? If so, please describe the insurer, the type of insurance coverage, the beneficiary of such coverage, the limits of such coverage and the deductible amount under such coverage. Please also attach a copy of each such policy or an applicable certificate of insurance.

PFM has a complete insurance program, including property, casualty, general liability, automobile liability and workers compensation. PFM maintains professional liability and fidelity bond coverages which total $40 million and $25 million single loss/$50 million aggregate, respectively. PFM also carries a $10 million cyber liability policy.

Our Professional Liability policy is a “claims made” policy and our General Liability policy claims would be made by occurrence.

**Deductibles/SIR:**Automobile $250 comprehensive & $250 collisionCyber Liability $25,000General Liability $0Professional Liability (E&O) $1,000,000

In Appendix B, we provide our insurance statement and certificates of insurance that include additional insurance information.

### Is your organization currently aware of any claims that have been made, are being made or may be made with respect to such policies? If so, please describe.

We are not aware of any claims or notices of potential claims with respect to PFM’s insurance policies, except as the same may have been submitted to the carrier in respect of the matters disclosed in connection with the response to the items referenced above.

### Has your organization ever assisted a client in reducing its fiduciary liability insurance premiums? If so, please explain how, and to what extent your organization has done this (and provide references), and whether and how your organization would assist the Plan in reducing its premiums.

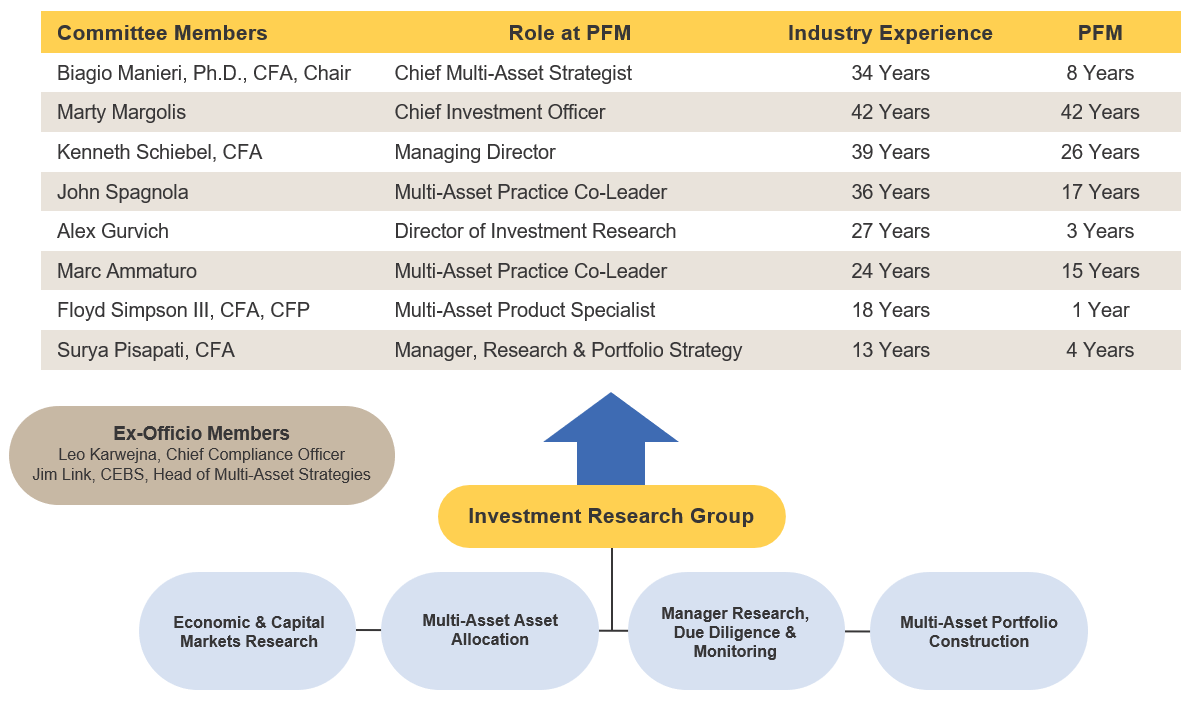
No. We do not have direct experience assisting a client in reducing their insurance premiums. Co-counsel of funds have complimented us in bringing clarity to the investment process and fees paid by plan sponsors.

* 1. Staffing and Facilities

### How is your organization structured to service your accounts?

Managing Director ***John Spagnola*** and Director ***Bikram Chadha*** will serve as the Plan’s primary consultants. We use a team approach to managing portfolios, which allows us to provide a high level of attention to our clients and to share our best ideas. Our manager decisions are made by our experienced Investment Committee (please see the graphic on the following page), which is comprised of eight members who each work in specialized areas of the global marketplace and average 29 years of industry experience. The Investment Committee is chaired by Chief Multi-Asset Class Strategist ***Biagio Manieri, Ph.D., CFA,*** and is supported by our dedicated Multi-Asset Class Investment Research Group (“Investment Research Group”), led by ***Alex Gurvich.*** The Research Group consists of nine specialists who focus on two broad areas of research: (1) general market data research for the Investment Committee; and (2) manager research to find managers for each asset class.

This team generally meets weekly to discuss investment ideas related to our client portfolios. Informed by the findings from our Investment Research Group, the Investment Committee also meets formally each month and provides macro-level direction for our multi-asset class strategies, acting as the investment and portfolio risk oversight team for investment decisions.

Additional personnel include six dedicated client service and reporting analysts and two administrative staff members.

Our multi-asset class team is supported by additional firm-wide accounting, compliance, legal, trading and client service personnel.

### How many of your staff are investment consultants?

As of June 30, 2020, PFM employs 105 investment consultants nationwide, 15 of which are dedicated to supporting our multi-asset class business.

### What is the average number of accounts handled per investment advisor?

The firm does not have a formal limit on the number of accounts each team handles. We are careful to assign a team with the experience and time to deliver our high standard of customer service to each client. For long-term, multi-asset class portfolios, PFM’s representatives are responsible for 10-15 clients on average. Our client managers are supported by other members of the multi-asset class team who assist with performance reporting and day-to-day client requests.

### Describe the qualifications and expertise of your organization’s professional staff (both local and national), including their years of service and experience in the public pension sector.

Our professional staff has advised public-sector pension plans and assisted boards, committees and staff in investment-related matters since 1992, and have extensive experience managing public retirement plans. We manage and advise on more than 209 public retirement plans nationwide with assets totaling more than $10 billion (as of June 30, 2020). Our dedicated presence in this space gives us unique insight into the needs and challenges specific to the public pension sector.

PFM’s dedicated practice of retirement professionals helps provide public employers with a comprehensive set of services to meet their retiree benefit challenges. Our philosophy is that pension and retiree health benefits must be sustainable, affordable for the employer and its employees, and provide public employees with a secure and dignified retirement. From benefit design services to asset/liability analysis to investment management and advice, PFM has extensive expertise delivering tailored and comprehensive retiree benefit recommendations to public employers of all types and sizes.

PFM has several managing directors who serve as advisors to the Government Finance Officers Association (“GFOA”) Committee on Retirement and Benefits Administration (“CORBA”) and are also active with the National Association of Government Defined Contribution Administrators (“NAGDCA”). PFM is registered with the National Association of State Boards of Accountancy (“NASBA”) as a sponsor of continuing professional education on the National Registry of Continuing Professional Education (“CPE”) Sponsors. Many of our seminars provide opportunities for CPE credit. In addition, we are currently working with Moody’s Investors Service to provide our opinion on its proposed pension calculations changes. Our firm continues to expand the mediums of communication to our clients, and we pride ourselves on being responsive to clients’ needs and suggestions.

In light of COVID-19 and the recent market volatility, PFM has been proactive in offering actionable advice as it relates to market and economic outlooks, such as the MACM webinars discussing the impact of COVID-19 on the financial markets, as well as a webinar on the issuance of pension obligation bonds to fund pension plans.

Additionally, our staff includes public retirement plan experts who:

* Advise the GFOA and CORBA in creating public pension and other retirement best practices and advisories;
* Regularly consult with GASB staff as they promulgate new accounting rules;
* Attend industry conferences to speak about public retirement plans; and
* Confer with actuaries and auditors to support the setting of discount rates, the compiling of Capital Market Assumptions (“CMAs”), and the documenting of information for financial statements.

#### Qualifications of the Engagement Team

The System’s engagement will be managed by a team of professionals based in our Philadelphia office, who have a combined average of 23 years of experience in the public pension sector. Our engagement team’s clients are geographically spread across the northeast, all with different plan design, differing discount rate assumptions and varying funded ratios, all of which drive investment strategy. Our differentiated experience allows us the opportunity to bring different ideas and best practices to our clients.

PFM Asset Management LLC is registered with the SEC as an investment advisor under the Investment Advisers Act of 1940. At the employee level, our internal Compliance Group helps ensure that our investment professionals hold the necessary registrations to conduct investment activity as appropriate for their business area. Those holding FINRA licenses must meet continuing education and other requirements. Additionally, many investment personnel hold or are pursuing the Chartered Financial Analyst (“CFA”) designation and are subject to both the firm’s and the CFA Institute’s Standards of Ethical and Professional Conduct. The key members of the System’s relationship team hold a combination of FINRA licenses, advanced degrees, and the CFA designation.

In the following response, we provide further details about our engagement team’s academic backgrounds, years of service and experience in the public pension sector.

### Please list the name and location of the primary individuals who will be responsible for the City of Burlington’s Plan, and provide detailed biographies of such persons, including their tenure with your organization. How many Plans similar to Burlington’s do these primary individuals service? Please list the number of clients that are assigned to these individuals.

Below we provide detailed biographies of the professionals who will be assigned to the City’s Plan. As mentioned, we do not have a formal limit on the number of accounts each team handles. For the primary individuals serving the System, ***John Spagnola*** manages 13 clients, with 12 plans similar to Burlington’s, and ***Bikram Chadha*** manages 22 clients, with 13 similar plans. We provide full resumes further detailing our engagement team’s qualifications and experience in Appendix C.

| Team Member, Title, Education, Location | Engagement Role | Detailed Biographies |
| --- | --- | --- |
| **Engagement Team** | | |
| **John Spagnola**  *Managing Director &  Co-Leader of PFM’s Multi-Asset Class Business*  **Education:** B.A. in Political Science, Yale University  **Location:** Philadelphia, PA | **Co-Engagement Manager** | **17 Years with PFM** | **36 Years of Experience**  As lead engagement manager, John will oversee the System’s engagement to help ensure it has the necessary resources to meet the Plan’s investment objectives and goals. John will work with the Board to develop investment strategy and recommend asset class and investment manager decisions for implementation.  John co-leads our multi-asset class business. Prior to joining PFM, he co-founded Spagnola-Cosack, Inc., an independent investment consulting firm that PFM acquired in 2003. John oversees efforts surrounding client service, product development, marketing, and is a member of the Investment Committee.  John holds Financial Industry Regulatory Authority (“FINRA”) Series 6, 26 and 63 licenses. |
| **Bikram Chadha**  *Director*  **Education:** B.A. in Sociology, Stony Brook University  MBA in Finance, Villanova University  Advanced Finance Program Candidate, The Wharton School of the University of Pennsylvania  **Location:** Philadelphia, PA | **Co-Engagement Manager** | **4 Years with PFM** | **13 Years of Experience**  Bikram will serve as the System’s key contact and will work with John to oversee the System’s engagement.  Bikram manages institutional client relationships and supports business development efforts for PFM’s consulting and outsourced CIO practice areas – focusing on pension funds, OPEB trusts, endowments, foundations and other long-term investment portfolios. Additionally, Bikram helps lead efforts for PFM’s multi-asset class business in the northeast. He is a member of PFM’s DEI Council, part of the firm’s Office of Diversity, Equity, and Inclusion.  Bikram holds the FINRA Series 6 and 63 designations and is a CFA Level II Candidate. |
| **Surya Pisapati, CFA**  *Manager, Research & Portfolio Strategy*  **Education:** B.S. in Mechanical Engineering, Jawaharlal Nehru Technological University (JNTU) College of Engineering  M.S. in Finance, Villanova University  MBA, Indian Institute of Management  **Location:** Philadelphia, PA | **Portfolio Strategist** | **4 Years with PFM** **|** **13** **Years of Experience**  Surya serves as the lead for global equity manager research within the MACM team. In her role, she is responsible for manager selection and oversight that includes sourcing new manager ideas as well as continued monitoring of existing allocations. She also serves as a portfolio strategist, assisting clients in customizing portfolios and playing an integral role in communicating the investment process and portfolio management decisions across the firm. Surya also serves as a member of the Investment Committee and the Economic and Capital Market Outlook Committee.  She is a CFA charterholder. |
| **Marc Ammaturo**  *Managing Director &  Co-Leader of PFM’s Multi-Asset Class Business* | **Engagement Oversight** | **15 Years with PFM** | **24 Years of Experience**  Marc co-leads our multi-asset class business and assists in setting the firm’s strategy in developing, servicing and marketing our services nationwide. He is a member of the Investment Committee. |

| Team Member, Title, Education, Location | Engagement Role | | | Detailed Biographies |
| --- | --- | --- | --- | --- |
| **Portfolio Management** | | | | |
| **Biagio Manieri, Ph.D., CFA**  *Managing Director* & *Chief Multi-Asset Class Strategist*  **Education:** Ph.D. in Political Science and International Relations, Columbia University  **Location:** Philadelphia, PA | | **Chief Multi-Asset Class Strategist** | **8 Years with PFM** | **34 Years of Experience**  Biagio’s experience includes economic research, finance and investment management. He is responsible for leading PFM’s economic and capital markets research. As chair of the Investment Committee, he leads the discretionary investment management of clients’ multi-asset class, multi-manager portfolios. Biagio is the chair of the Economic and Capital Markets Outlook Committee and is also responsible for leading PFM’s thought leadership, writing white papers and presenting at investor conferences.  Prior to joining PFM, Biagio was the Investment Officer at the Federal Reserve ***overseeing the investment management of over $13 billion in defined benefit and defined contribution plan assets.*** He reported to the Federal Reserve’s Investment Committee, consisting of Federal Reserve Presidents and Board of Governors. He was responsible for setting the asset allocation of the pension plans and oversaw a team of manager due diligence analysts.  Biagio is a CFA charterholder. | |
| **Alex Gurvich**  *Director of Research*  **Education:** B.A. in Physics, University of Chicago  MBA, INSEAD  M.S. in Financial Engineering, New York University  **Location:** Philadelphia, PA | | **Research Oversight** | **2 Years with PFM** | **26 Years of Experience**  Alex manages the Investment Research, Asset Allocation and Manager Selection teams. He is a member of the Investment Committee and the Economic and Capital Markets Outlook Committee.  Prior to PFM, Alex was a director of quantitative research at Commonfund, an asset management firm for endowments and foundations. Before that, Alex was a quantitative equity portfolio manager at The Rockledge Group, an investment management firm that he co-founded. | |
| **Tyler Braun, CFA**  *Senior Managing Consultant*  **Education:** B.A. in Economics and Political Science, Bucknell University  MBA in Finance, Villanova University  **Location:** Philadelphia, PA | | **Portfolio Trading** | **12 Years with PFM** **|** **15** **Years of Experience**  Since joining the firm in 2008, Tyler has conducted portfolio management/trading activities for client portfolios under the direction of the Investment Committee. His experience also includes conducting portfolio reviews and asset liability analysis for current and prospective clients.  Tyler is a CFA charterholder. | |
| **Client Reporting** | | | | |
| **Teshome Gebremedhin**  *Senior Managing Consultant*  **Education:** B.B.A. in Finance, Temple University  **Location:** Philadelphia, PA | | **Client Reporting** | **18 Years with PFM** **|** **24** **Years of Experience**  Tesh leads the multi-asset class client service and reporting team. His team serves as a day-to-day contact and performs ongoing monitoring and investment performance analysis, including quarterly report production and manager searches. Tesh is responsible for coordinating portfolio management/trading activities of PFM’s multi-asset class managed portfolio solutions. | |

### How many consultants have left your organization during the past two years? Include their reasons for leaving. Please describe the measures your organization takes to assure continuity of service when a team member leaves your organization.

PFM has a very low rate of employee turnover. In the last two years, one senior consultant has left the firm. Please note that per company policy, PFM does not disseminate reasons for departure. Because we use a team-based approach, continuity is ensured should there be personnel transition for any reason. While we do not anticipate any changes in personnel during the engagement, we will keep the Board apprised of any staff changes that would affect our service delivery. As we continue to grow, we have proactively added members to our portfolio management, portfolio strategy, analytical and client service staff. In the last two years, we have expanded our staff by more than 60 asset management professionals, including our Director of Research, creation of our Multi-Asset Strategies Group and additional support for the portfolio analytics team.

### Please provide a full disclosure of whether any of your organization’s professional staff has ever been suspended or disbarred from performing investment advisory services or other professional services, has been subject to any disciplinary actions, or has committed any criminal offenses evidencing fraud, dishonesty or breach of trust.

To the best of our knowledge, none of our professional staff has ever been suspended or disbarred from performing investment advisory services or other professional services, has been subject to any disciplinary actions, or has committed any criminal offenses evidencing fraud, dishonesty or breach of trust.

### Please describe the location(s) and capabilities of your organization’s computer/data processing staff. Is the entire staff in-house? Does your organization outsource any of these services? Please describe the security of these resources.

PFM’s Information Technology department, which is mainly located in our Philadelphia and Harrisburg, Pennsylvania offices, is a full-service in-house organization consisting of experienced applications development, infrastructure management, project management and business analysis professionals. Each year, PFM makes significant investments in our technology to ensure that it remains current, and our professionals have the best available tools and capabilities to meet the needs of our clients. All of our professional staff are provided with a desktop or notebook computer that is built with standard Microsoft Office tools (Word, Excel, Outlook, etc.) and equipped with the latest virus-protection software. All incoming and outgoing emails are scanned for viruses or malware to provide protection against potential malicious exploits that could cause harm to our environment. We leverage Adobe Acrobat for PDF document creation and review. Microsoft SharePoint is used for document storing, sharing, and collaboration between PFM business teams and clients as needed.

Periodically, we contract an independent information security company to perform a comprehensive review of our security posture. The scope of this engagement includes a thorough review of our network and firewall configurations, web and application servers, application architecture, core business applications, and other critical aspects of our production environment.

#### PFM’s Security Resources

At PFM, “security” means more than seeking safe investments. It also means providing clients with tools to guard against cybersecurity compromises. PFM systems are proactively monitored 24/7, and our business and technical teams are prepared to respond to a variety of events that may pose a business threat or cause a business disruption. We maintain highly available systems in redundant data centers located in different regions, each designed to back up the other in the event of an unplanned business disruption.

##### Physical Security

The primary PFM data centers are located in our Philadelphia and Harrisburg offices. Both offices have a 24-hour security desk and require an access card for entry to each floor. In addition to the security desk and required access cards previously mentioned, as an additional level of protection, our data centers in the Philadelphia and Harrisburg offices have a key pad requiring a security code for entry. The data centers also have temperature probes that monitor room temperature levels and will send alerts to the IT department should the temperature rise above standard temperature thresholds. Additionally, a user ID and password for each client is used seeking to protect the confidentiality of online data which is stored on a secure server.

##### Digital Security

All firm websites have an industry-standard threat-management gateway that works in conjunction with network firewalls to protect internal systems from unauthorized external access. An Intrusion Prevention System and Intrusion Detection System (“IDS”) also have been deployed and are updated on a regular basis. Internally, an anti-virus solution scans all workstations and servers, and is updated from the vendor several times a day. A patch-management console also deploys security updates to the servers and workstations on a scheduled basis as released by all of the major vendors. Data Loss Prevention (“DLP”) software and Mobile Device Management (“MDM”) software also are in place to seek to provide added protection and security controls for critical information resources. All employees accessing PFM systems require an authorized user account consisting of a user ID and password that meets a strict set of standards based on industry best practices. Users are required to change their passwords every 90 days. Access permissions are managed using Microsoft’s Active Directory, which is administered centrally by the IT Department.

Sensitive participant data is only available to PFM employees with specific responsibilities for that data, and further the rights for view-only or view-and-add/edit are set for each user. Only users who have a responsibility to maintain data have this add/edit capability. PFM uses a dual review and authorization system internally, so that all participant request for additions or edits to sensitive information, such as wire or ACH instructions, must be made by a team member with those rights and then must be approved by a second unique team member at PFM with the rights to approve.

In PFM’s primary online reporting client portal, Easy Online Network (“EON”), all non-public information is secured on database or file servers with access restricted to a specific list of privileged accounts. Highly sensitive information (e.g., access credentials) is stored in an encrypted format. Please see the following list of site features that are designed to enhance security and/or protect the privacy of sensitive data:

* Uses multi-factor authentication (“MFA”), a method of confirming a user’s identity using factors beyond the standard username and password
* Requires Secure Sockets Layer (“SSL”)
* Requires use of mixed case, numbers, and symbols within user passwords
* User account is locked out after five unsuccessful login attempts
* User accounts expire after one year of inactivity
* Instructs browsers not to allow auto-complete or cache-sensitive information locally
  1. Clients

### Please provide a representative list of your organization’s investment advisory clients of similar size.

Below we provide a representative list of PFM’s discretionary pension and OPEB plans that are of similar size to the System.[[5]](#footnote-5)

* Abington Township
* City of Roseville OPEB Trust
* City of Scranton
* City of Sunnyvale OPEB Trust
* Golden Gate Bridge Highway & Transportation District
* Howard County OPEB Trust
* Laborers' Local 1174 Pension Fund
* Mary Washington Healthcare
* Milwaukee Public Schools
* Mt. Lebanon
* Northampton County
* Plymouth Township Pension Fund
* Plumbers and Pipefitters Local No. 520
* Prince William County
* UA Local 322
* Woods Resources, Inc.

### Please list your organization’s government public Pension system clients and the portfolio size for each.

Below we provide a representative list of PFM’s discretionary multi-asset class government public Pension system clients and the portfolio size for each.5

| Client Name | AUM ($ mil) |
| --- | --- |
| Northampton County | $424.5 |
| Abington Township | $123.0 |
| Mt. Lebanon | $107.2 |
| City of Scranton | $101.6 |
| Harrisburg City Police | $87.0 |
| Bartlett City Retirement System Pension | $86.0 |
| Bensalem Township | $84.2 |
| Plymouth Township Pension Fund | $74.8 |
| Radnor Township | $67.8 |
| City of Wilkes-Barre | $66.6 |

### Please complete the following table:

| Size of Plan Assets | # of Plans\* | AUM ($ mil)\* |
| --- | --- | --- |
| Under $100M | 221 | $4,181 |
| $100M to $200M | 22 | $2,021 |
| $200M to $300M | 4 | $697 |
| Over $300M | 7 | $6,791 |
| **Total** | 254 | **$13,691** |
| *\* Includes discretionary multi-asset class clients.* | | |

### Please list the number of clients that have terminated your organization’s services during the past three years, including their reasons for termination.

PFM manages funds for many public and other institutional entities and has a strong record of client satisfaction. However, each year, there are a handful of clients that choose to change their investment manager or consultant. Reasons vary by organization from a desire to manage funds internally to a change in leadership/politics. During the last three years, five clients have terminated our services.

### For reference purposes, provide the name, address, telephone number and contact person for four current clients (three must be government public Pension system clients) for whom your organization provides comprehensive investment advisory services.

Below we provide four current references for whom we provide comprehensive investment advisory services.

| Client Name and Address | Contact Information |
| --- | --- |
| **Massachusetts Port Authority** One Harborside Drive, Suite 200S East Boston, MA 02128 | **John Pranckevicius,** *Director of Administration & Finance/Secretary Treasurer/CFO* Telephone Number: 617.568.1024 Email: jpranckevicius@massport.com |
| **Northampton County** Northampton County Government Center 669 Washington Street Easton, PA 18042 | **LaMonte McLure,** *County Executive* Telephone Number: 610.559.3000 Email: lmclure@northamptoncounty.org |
| **City of Scranton** 340 North Washington Avenue Scranton, PA 18503 | **David Mitchell,** *President – Combined Pension Board* Telephone Number: 570.348.4265 Email: dmitchell@scrantonpa.gov |
| **City of Sunnyvale** 650 West Olive Avenue Sunnyvale, CA 94086 | **Tim Kirby,** *Director of Finance* Telephone Number: 408.730.7603 Email: tkirby@sunnyvale.ca.gov |
| **City of Raleigh** 222 West Harget Street Raleigh, NC 27601 | **Laura Broda,** *Investment and Cash Manager* Telephone Number: 919.996.4940 Email: laura.broda@raleighnc.gov |

* 1. Services

### General Please indicate which of the services listed below your organization intends to provide to the Plan (Please indicate yes or no):

1. attend or teleconference regularly scheduled Board meetings (generally monthly). In person quarterly meetings at a minimum;

Yes.

1. advise the Board during these meetings on the investment impact of plan amendments that may be considered;

Yes.

1. provide oversight of all investment aspects of the Board’s operations;

Yes.

1. review and develop an investment policy statement and provide an analysis on the reasonableness of investment assumptions;

Yes.

1. advise the Board on the prudence and relative financial impact of various investments;

Yes.

1. review, develop and periodically rebalance asset allocation;

Yes.

1. recommend hiring, retention and termination of investment managers, mutual funds and other investment products;

Yes.

1. prepare and present quarterly performance evaluations, including a review and report of all investment transactions by all investment managers in a five year investment performance history of the Plan (if source date is available);

Yes.

1. review and comment upon investment management agreements prepared by the Plan’s counsel;

Yes.

1. develop and monitor adherence to individualized investment guidelines, risk controls, proxy voting and adherence to proxy voting policies;

Yes.

1. monitor custody bank and assist in retention and replacement, as appropriate;

Yes.

1. supervise, monitor and verify transfer of assets in the event of change of investment manager;

Yes.

1. provide assistance required by audits or examinations conducted by governmental agencies;

Yes.

1. assist in reducing fiduciary liability insurance premiums and address special investment and other issues as they arise.

No.

### Investment Policy Development & Portfolio Design

1. Describe briefly the processes and tools your organization uses to help clients develop investment policies and objectives.

PFM has been helping our clients with developing and updating their investment policies and portfolio management guidelines for more than 40 years. When providing investment policy support, we typically develop a single investment policy that outlines guidelines for the overall portfolio and each asset class, rather than developing separate governing documents. We usually begin this process by performing a detailed Portfolio Planning Survey, which we further explain in the following response. We conduct this process at the beginning of engagements and review it annually.

The steps in policy development and allocation selection include:

* Engaging in a portfolio planning survey
* Compiling CMAs
* Understanding the special nature of the portfolio’s payout policy or other liabilities
* Determining asset allocation structure
* Selecting an appropriate asset mix

These resulting goals and objectives are then documented in the Plan’s investment policy. A typical investment policy we help develop contains the following:

* **Background:** Discusses the origination of the portfolio and identifies the fiduciaries. Named fiduciaries will vary based on structure, but some example fiduciaries include the Board of Trustees, Investment Committee and relevant third parties such as an investment advisor.
* **Statement of Purpose:** Documents the portfolio’s investment objectives and strategy and outlines the purpose of the investment policy.
* **Investment Authority:** Outlines the roles and responsibilities of the parties responsible for fiduciary oversight, management and safekeeping of assets. Examples of such parties include the Board, investment advisor, custodian, actuary and auditors.
* **Investment Guidelines:** Establishes the investment time horizon, diversification parameters, asset allocation targets and ranges, rebalancing philosophy, risk tolerances and performance expectations.
* **Selection of Investment Managers:** Documents the criteria for evaluating and choosing investment managers.
* **Guidelines for Portfolio Holdings:** Establishes the criteria and restrictions for portfolio holdings in equities, fixed-income, cash and other asset classes. It also discusses the use of pooled vehicles and lists prohibited securities.
* **Safekeeping of Assets:** Documents the manner in which assets are held in custody.
* **Control Procedures:** Documents the procedure for reviewing investment objectives, investment performance, the voting of proxies and the execution of security trades.
* **Prohibited Transactions:** Identifies types of securities and investments that cannot be held.

As part of this process PFM will:

* Meet with the Board and interface with actuarial consultant and third-party providers to understand the Plan’s specific goals and objectives.
* Conduct a formal review of the Plan’s Investment Policy Statement (“IPS”), guidelines and liquidity needs.
* Identify risk and return parameters, as well as determine the specific inputs (cash flow, assumptions, funded status, views on risk).
* Evaluate investment performance, asset allocation and risk metrics against the Investment Metrics Peer Universe of public plans similar in size and allocation.
* Conduct a formal review of current investments and overall investment strategy.
* Evaluate investment managers, underlying fees and hidden investment costs.
* Develop a detailed asset allocation and asset/liability analysis incorporating projected future contributions and benefit payments to determine the appropriate investment strategy and asset allocation designed to maximize funded status while minimizing risks.
* Consider and harmonize three different policies (if applicable): the benefits policy, contribution policy and investment policy.
* Draft/update formal IPS to outline new investment strategy and guidelines.
* Review the funding policy.
* Identify asset classes suitable for inclusion and define the expected role for each asset class in the Plans’ asset allocation using our internally developed CMAs.

We provide a sample IPS in Appendix D.

1. How does your organization identify and understand the Plan’s financial and investment objectives?

To identify and understand the Plan’s financial and investment objectives, we begin this process by performing a detailed Portfolio Planning Survey. This survey is designed to facilitate a discussion on various asset classes to determine which should be permitted in the portfolio, as well as an understanding of the System’s goals, objectives, cash flow projections, present and future liabilities, annual required contributions, risk tolerance, ability to withstand losses and view of the economy and the markets. As a result, we will help guide the Board to select an appropriate asset allocation and investment strategy to meet its goals and objectives.

1. In addition, comment on your organization’s process for recommending modifications to investment guidelines.

At the onset of the relationship and annually, PFM’s engagement team will provide a comprehensive review and refining of the Plan’s Investment Policy. Our team will provide recommendations in keeping with industry best practices that the Board can review, incorporate and adopt as they see fit. Our team of specialists are experienced at determining optimal policy allocations given clients’ unique objectives, constraints, and unique considerations. Determining optimal policy allocations will include determining appropriate allocations to alternative investments which PFM views favorably for clients that can bare the unique risks associated (e.g., illiquidity, potentially higher volatility in the near term, etc.).

Additionally, our client portfolios are monitored daily through Bloomberg Asset and Investment Manager (“Bloomberg AIM”), a robust trade compliance platform. Bloomberg AIM allows us to maintain allocations within clients’ target ranges and to decide when rebalancing is appropriate. By using Bloomberg AIM, we can monitor investment compliance within our clients’ portfolios. Our dedicated trading staff reviews client portfolios on a daily basis and receives warnings/alerts if a client’s portfolio falls out of compliance based on the guidelines we have coded in the system, which are recorded directly from clients’ IPS. In addition to guidelines based on the client’s IPS, we are also able to construct additional “portfolio management” guidelines that allow us to more efficiently implement the strategies and views of our Investment Committee.

1. Describe your firm’s philosophy and approach to using alternative investments, including:
2. How you differentiate between traditional and alternative investments.

Alternative investments at PFM are all investments that are not classified as diversified, long-only equities, fixed-income, and cash & cash equivalents. Alternative investments is a very broad, growing segment of the investable universe. Alternative investments are diverse, and an investor can achieve any risk/return profile desired by incorporating the ideal alternative investment(s). Although, this diversity can be both an advantage and a risk. To increase the likelihood of achieving the desired risk/return profile with alternatives, we recommend employing the services of an experienced alternatives asset manager.

We source alternatives managers/funds via a wide range of sources including specialized databases, longstanding relationships, recommendations from existing relationships, and industry conferences. PFM subscribes to (1) Pitchbook, a leading provider of data on private capital managers and funds including private equity, venture capital, private debt, real estate, and other real assets; and (2) Hedge Fund Research, Inc. (“HFRI”), a sourcing database and leading benchmark provider with approximately 2,200 hedge funds reporting to it. These tools are useful as we evaluate alternative investment managers and look to update our proprietary, in-house database that enables us to become more familiar with each manager and their strategies.

Our team has both (1) access to leading alternatives data sources; and (2) experience leveraging and screening these data sources. It is essential for an allocator to have superior information and ability to interpret that information in order to generate superior returns for their clients. This is especially important in alternatives which is notoriously opaque and esoteric.

We believe the best way to build out and maintain a strategic allocation to alternative investments is to consider alternative strategies as either “core” or “satellite” funds. Within each alternatives asset class (e.g., real assets, private debt, private equity), we recommend maintaining an allocation to both core and satellite investments. Core funds are funds that deliver diversified exposure to an asset class. Core funds are typically more mainstream alternative asset classes managed by experienced managers with a track record of outperformance relative to broad asset class benchmarks. Satellite funds are more concentrated, tactical, generally higher risk/return strategies. Satellite funds are expected to generate an enhanced risk/return profile for the combined alternatives allocation. The key to this portfolio composition is systematic allocations to core and satellite funds that ensure vintage year and strategy diversification.

1. Explain why you would use alternatives, i.e., risk reduction, alpha, non- correlated assets, etc.? Why would you not use them?

We use alternatives for clients that meet various applicability requirements — size of the portfolio, stability of cash flows for illiquid strategies, client’s amenability to alternatives, portfolio time horizon, etc. If a client is both able and willing to invest in alternatives, PFM advocates for a diversified alternatives sleeve that incorporates selective investments to each of the main sub-asset classes — private equity, private credit, and real assets.

We believe that alternative investments such as private equity, private debt, diversifying (hedge funds), and real assets have unique risk/return qualities that can improve the long-term return risk/return profile of a client’s portfolio. The attribution varies widely based on an investor’s allocation choices. At PFM, we typically employ a private capital focused strategy. We believe that private equity, private debt, and private real assets are inefficient asset classes relative to traditional asset classes. Properly incorporating these assets into a portfolio is expected to: (1) lower portfolio risk due to lower correlations between alternatives and traditional assets; (2) increase risk-adjusted returns and absolute returns due to alpha generation and enhanced diversification.

While some alternatives can enhance portfolio return or reduce volatility, they may not be appropriate in all cases. We believe that alternatives should be selected carefully. One issue that needs careful analysis is the illiquidity of typical alternative investment funds. The illiquidity of these funds becomes particularly acute during financial crises, which may adversely impact an institutional investor’s ability to meet its liabilities. Following the financial crisis, some investors were unable to meet their financial obligations as their private equity funds issued capital calls. We take great care to understand our clients’ unique profiles including funded ratios and expected future cash flows before recommending any allocation to illiquid alternatives.

1. Alternative investments you currently utilize.

Alternatives funds that we have recently proposed across the three broad private capital asset classes include LEM Multifamily Fund V, Golub Capital Partners XII, Harbourvest Partners Dover Street X, representing real assets, debt, and equity, respectively. LEM Multifamily Fund V is the LEM Capital’s latest fund in a series of first quartile private real estate funds specializing in executing a value-add strategy on multifamily assets. Golub Capital Partners XII is Golub Capital’s latest fund providing investors diversified exposure to direct loans to middle market private equity sponsored companies. HarbourVest Partners Dover Street X is HarbourVest Partner’s latest GP-led secondaries fund which we believe is well positioned to generate attractive equity-like returns from structuring complex secondary transactions. These funds are expected to provide diversification and enhanced risk-adjusted returns when incorporated into a portfolio of traditional assets. Our research shows these strategies have a proven track record, an experienced team and have repeatable investment processes.

1. Typical percentage of alternative investments, including hedge funds.

Our clients’ typical allocations to alternatives varies from 0%-30%. The breakdown of the investment also varies by composition. We have a strategic alternatives allocation percentage that includes private equity, private debt, real assets, and potentially selective investments in certain hedge fund strategies. Other hedge fund strategies such as absolute return are viewed as tactical and are not recommended as long-term investments due to their lower expected returns over the long-term. We have a tactical client-by-client approach to investing in alternative or illiquid asset classes, driven primarily by the client’s specific needs and/or tactical gaps in their asset allocation plan.

1. Delivery structure(s) in use (i.e., mutual funds, ETFs, separate accounts, CITs, limited partnerships, MLPs, etc.)

The types of alternatives vehicles we use range from liquid (e.g., REITs, listed infrastructure) to illiquid (e.g., limited partnerships). Additionally, PFM clients are invested in other structures like mutual funds, CITs, etc. At PFM, we weigh the costs and benefits of relative structures to identify the option that meets our client’s needs (e.g., liquidity, transparency, fees, realized volatility, etc.).

1. Describe your philosophy and approach to using factor weighted (Smart Beta) funds?

In our approach to implementing passive strategies across equity markets, we have traditionally used cap-weighted funds since we consider these to be a true representation of the market return.

Smart Beta based strategies use factor-based investing methodology. This methodology isolates one or more factors that are seen as persistent anomalies leading to outperformance over a period of time, and as a result, generate alpha only when the isolated factor/factors is in favor. A passive portfolio that is built as a combination of different smart beta indices could provide an approximation for total market return but could deviate from the market return from time to time if the factors are not rebalanced constantly. In our view, the cost associated with replicating a smart beta index and with rebalancing the factors, does not justify the incremental alpha that could be generated using this methodology.

We prefer the inexpensive way of replicating cap-based index where needed, so that there is no additional tracking error introduced due to factor based bets.

We occasionally consider Smart Beta strategies as a tactical allocation, when we seek to have exposure to a certain factor. For example, we have allocated to high quality or low volatility factors in our client portfolios when we have wanted to position defensively.

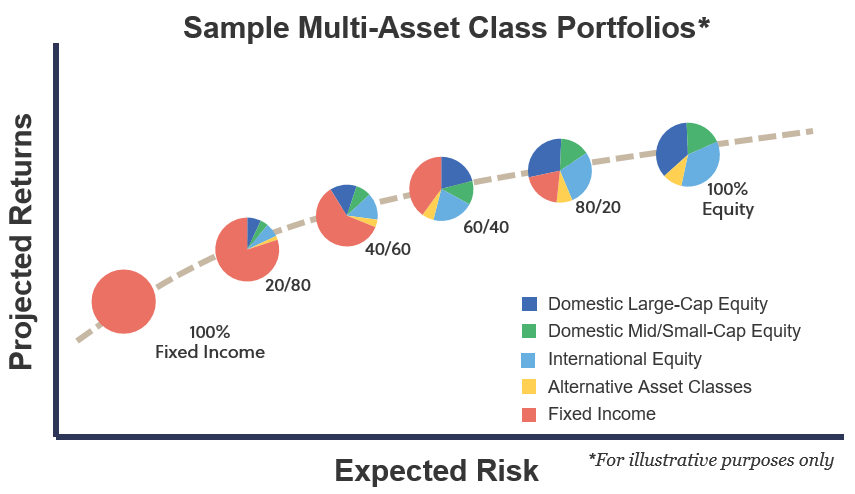
1. Describe your firm’s philosophy and approach to development of asset allocation strategies, including:
2. Methodology and approach used for asset allocation modeling, including linkage to asset/liability modeling and funding.

Our methodology and approach for asset allocation starts with the premise that all portfolios should be fully diversified across a broad range of equity, fixed-income and alternative investments, based on clients’ objectives and constraints. We will work with the System to understand the Plan’s risk/return objectives. This will confirm your objectives and guide us in using our portfolio optimization software to model asset allocations, and potentially adjust your current asset allocation targets to seek to maximize returns while managing associated risks. Outlined below are the principal steps we use to determine asset allocation:

* **Engaging in a Portfolio Planning Survey.** At the beginning of our engagement with the System, we will complete a detailed Portfolio Planning Survey to facilitate a discussion about all of the asset classes to determine which ones should be permitted in the final overall allocation. We will gather information about the Plan’s goals, objectives, cash flow projections, risk tolerance and the ability to withstand losses, as well as the view of the economy and the markets.
* **Compiling Capital Market Assumptions.** Our CMAs are determined by the Investment Committee through a comprehensive and ongoing process. Our assumptions are for intermediate- and long-term returns in a wide range of asset classes and use a wide variety of economic data to assess our expectations for asset classes.

The next steps will be completed in collaboration with System staff:

* **Determining Asset Allocation Structure.** The information from the Portfolio Planning Survey and the CMAs will be used to design an asset allocation structure for the Plan. We use a modeling program from Ibbotson Associates to conduct a detailed asset/liability modeling study. Each model uses the latest historical data on asset class investment returns, volatility, and correlation with other asset classes along with our CMAs, and liabilities based on the most recent actuarial valuation to determine an “optimal” portfolio.
* **Interface with the Actuary and Auditor.** In combination, the investment advisor, actuary and auditor form a team to provide investment, valuation and reporting advice for any pension plan. As part of that team, we often confer with actuaries and auditors to provide asset class return assumptions, intermediate- and long-term portfolio return expectations, and information related to reporting and disclosure.

The information from the Plan’s Portfolio Planning Survey and our firm’s CMAs, and asset/liability modeling output would be blended and used to design an asset allocation structure recommendation for the Plan. Sample portfolios are shown in the graphic below.

1. Application of major variables (i.e., risk tolerance, return, correlation, skewness, kurtosis, etc.).

Major variables are a multifaceted concept (volatility or standard deviation of returns, deviation from the benchmark, business risk, political risk, economic risk, career risk, risk of not meeting investment objectives, risk of loss, etc.). Since major variables are a complex subject, we think about it from different angles. Portfolios that reduce one definition of major variables (e.g., volatility) may increase another (e.g., not meeting investment objectives).

We believe PFM’s approach to risk management is distinguished from other firms in that our decisions are not solely based on quantitative factors, which are not stationary and often do not paint the whole picture; instead, we incorporate qualitative factors that go beyond risk metrics and consider fundamentals. For example, while we look at risk measures like standard deviation and value at risk (“VaR”), these methods alone would not have kept investors out of collateralized debt obligations (“CDOs”) and structured investment vehicles (“SIVs”) before the 2008-2009 economic crisis since these investments looked attractive to many investors on a quantitative basis alone.

To effectively consider qualitative factors, investors must understand the economics of the asset and its intrinsic value; this helps ensure not overpaying for the asset or investing in assets that we do not fully understand. It also helps ensure that as market prices fluctuate, we do not over-react to market volatility. If our qualitative understanding differs from the quantitative metrics, we view this as a flag to investigate further. For example, if our qualitative understanding is that the investment strategy should result in volatile returns but yet the standard deviation of returns is low, this suggests the manager may be using stale pricing; therefore, we would investigate the autocorrelation of the returns (the similarity between observations as a function of the time lag between them).

Our performance measurement and attribution system helps us analyze the following risk/return statistics, which we compare to both a benchmark and a peer universe of similar plans and/or managers. These statistics can also be plotted within a custom peer group for both money managers and plan sponsor types.

| Risk/Return Measurements | |
| --- | --- |
| Active Return | Kurtosis |
| Active Return/Risk | Kurtosis-Modified |
| Actual Correlation | M-Squared |
| Alpha | Return |
| Beta | R-Squared |
| Consistency | Sharpe Ratio |
| Cumulative Return | Simple Alpha |
| Down Market Capture | Skewness |
| Down Market Outperformance | Skewness-Modified |
| Downside Risk | Sortino Ratio |
| Downside Semi Deviation | Standard Deviation |
| Excess Return | Tracking Error |
| Excess Risk | Treynor Ratio |
| Information Ratio | Up Market Capture |
| Jensen’s Alpha | Up Market Outperformance |
| Jensen’s Beta | Upside Semi Deviation |

We believe that from a quantitative perspective, one of the most important risk measurements is volatility or standard deviation. Therefore, we employ a thoughtful process of diversifying asset classes and recommending a balance of active and passive management. Asset classes typically have high correlations in times of market, economic, and geopolitical turmoil; however, over normal market cycles, asset classes behave differently, providing the benefits of diversification and the de-risking of the overall portfolio. Maintaining a rigorous rebalancing process also helps de-risk a portfolio by inserting a disciplined process for selling asset classes that are overvalued and buying asset classes that are undervalued based on the investment policy’s target allocations and ranges.

1. How frequently and under what circumstances do you believe asset allocation should be changed?

Following the initial portfolio planning and asset allocation modeling at the onset of the relationship, we would expect the strategic asset allocation targets in the investment policy to remain static for the long-term, unless certain assumptions have experienced meaningful changes. For example, ***a change in the discount rate is the most common example that would possibly require a change in the target asset allocation.*** All else being equal, a portfolio with a 7.5% discount rate would typically have a higher allocation to equity than a portfolio with a 7.0% discount rate. In addition to the discount rate, other actuarial assumptions (plan demographics, open/closed status of the plan, funded ratio, etc.) are important factors when determining an appropriate asset allocation. Therefore, a change in these factors may require a change in the asset allocation. Lastly, but less common, a significant change in long-term capital market assumptions (expected return and risk from each asset class) may result in a meaningful change to expected returns of the portfolio that would require a change in the asset allocation. However, given the long-term nature of the assumptions it is unlikely that they will change significantly from one year to the next. As previously mentioned, we believe a full evaluation of the asset allocation is warranted with each update to the actuarial valuation to ensure the asset allocation remains appropriate.

1. Does your firm employ a tactical allocation strategy? If yes, describe the parameters and the decision making process.

Yes. We believe that the strategic and tactical asset allocation decisions are the most important sources of investment returns. PFM does not believe that trying to time the market will add to returns over time, nor do we believe that security selection (net of all costs) can achieve the market return over time, especially in efficient markets. Strategic asset allocation involves defining which asset classes to include in the portfolio and the long-term allocation to each. Ideally, we want investments that generate a reasonable return and are driven by different factors with low correlations. While strategic asset allocation is the primary driver of investment returns over time, PFM does not believe that we should allocate the same percentage to each asset class regardless of valuation. Hence, tactical asset allocation is the temporary deviation from the strategic asset allocation based on current valuation of the various asset classes. From time to time, investment opportunities present themselves to over- or under-weight specific asset classes. If we believe that equities are temporarily cheap and fixed income expensive, we would recommend shifting some assets from fixed income to equities while remaining within the strategic asset allocation ranges defined in the investment policy. Illustrated in the following graphic are some of the tactical asset allocation decisions our Investment Committee has made based on economic and market conditions. Most recently, we thoughtfully implemented risk mitigation decisions and tactically managed client portfolio exposure as we navigated the unprecedented volatility caused by the uncertainty of COVID-19.[[6]](#footnote-6)

| Year | PFM Asset Management LLC Tactical Allocation Changes |
| --- | --- |
| **2017** | **February 2017:** Removed REIT allocation and increased International Equity to strategic target  **June 2017:** Reduced U.S. Equity overweight and added equal overweight to International Equity  **September 2017:** Removed dedicated Small Cap Equity exposure |
| **2018** | **February 2018:** Increased Emerging Markets Equity allocation to benchmark weight  **April 2018:** Added dedicated Small Cap Equity exposure  **June 2018:** Added High quality, passive U.S. Equity strategy in place of an active U.S. Equity strategy  **November 2018:** Removed overweight to International Equity and reduced overweight to Corporate Bonds |
| **2019** | **March 2019:** Removed overweight to Domestic Equity, added dedicated Mid-Cap Equity exposure and further reduced overweight to Corporate Bonds  **August 2019:** Added overweight to Domestic Equity and International Equity, removed dedicated High Yield  **September 2019:** Replaced dedicated broad IG Credit exposure with pure IG Corporate exposure  **November 2019:** Increased overweight to Domestic Equity and International Equity  **December 2019:** Removed dedicated Small Cap Equity exposure and reduced dedicated Mid Cap Equity exposure; increased Mortgage allocation within Fixed Income |
| **2020** | **March 2020:** Removed Equity overweight and implemented underweight to Equity, overweight to Fixed Income  **April 2020:** Reduced Equity underweight by shifting assets from Fixed Income to Equity  **May 2020:** Added dedicated Municipal bond allocation to Fixed Income  **June 2020:** Added dedicated allocations to Convertibles, High Yield, Emerging Debt and US Mid Cap; Removed overweight to Fixed Income  **July 2020:** Removed underweight to Equity by shifting assets from Fixed Income  **August 2020:** Removed dedicated Municipal bond allocation |
| *The information presented above as of August 25, 2020 is based upon past experience to illustrate particular analysis or decisions in the context of market events and does not describe all portfolio changes. Further information is available upon request. PFM cannot guarantee the future performance of credit analysis on any specific security.* | |

1. Does your firm use alternative asset allocation methodology beyond Markowitz? Please explain.

PFM’s approach to determining an appropriate asset allocation strategy for our clients is based on Markowitz’s Modern Portfolio Theory (“MPT”). This theory is focused on maximizing the return in a portfolio while minimizing the level of risk (volatility) and assumes that investors are generally risk averse. In doing so, one should look to eliminate idiosyncratic risk (the risk inherent in each underlying investment) by creating a diversified portfolio with assets that exhibit low correlation to one another. This results in a portfolio that is less volatile than the sum of its underlying investments and falls on what Markowitz called the “efficient frontier”, which illustrates a range of fully diversified portfolios that are expected to achieve the highest return for a given level of risk (or the lowest risk for a given level of return).

While other methods have been proposed and debated in the investment industry (post-modern portfolio theory, behavioral finance, etc.), PFM continues to believe in the tenets of MPT and follows this methodology when constructing portfolios for our clients. During our initial portfolio planning process, we will conduct a detailed asset liability study and asset allocation analysis that uses Monte-Carlo simulation through software licensed from Morningstar. This software incorporates MPT in its modeling and produces an efficient frontier based on PFM’s capital market assumptions to illustrate whether or not the portfolio is expected to achieve the highest possible return for a given level of risk (or lowest risk for a given level of return). If the portfolio falls below the efficient frontier (i.e., is not efficient), it is not properly diversified and therefore is exhibiting unnecessary risk that can be removed by improving the structure of the underlying investments. We believe this theory and approach to constructing an asset allocation strategy for client portfolios is based on sound investment reasoning and provides our clients with the best opportunity to achieve their return goals while limiting the amount of risk in the portfolio.

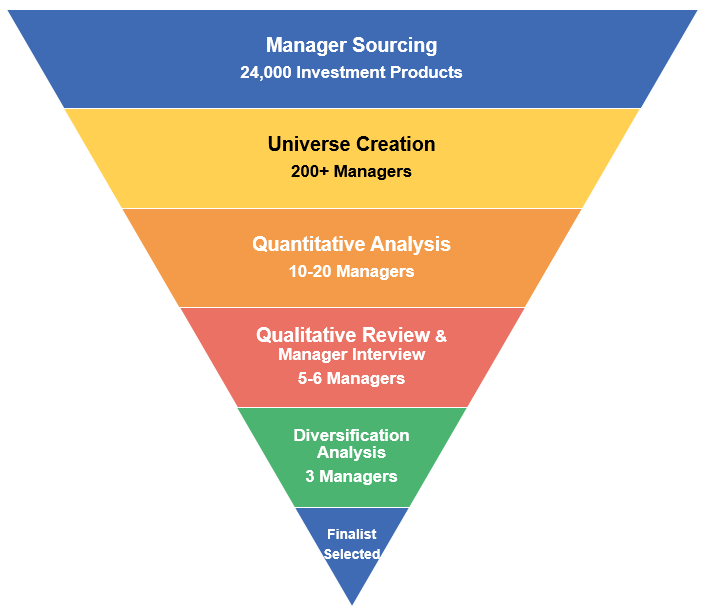
As it pertains to alternatives, specifically private market investments, we believe that such asset classes do not adequately represent risk, correlation and returns, which are important MPT inputs. Therefore, in deriving our capital market assumptions for private market investments, we adjust the reported data to make them more realistic. We also adjust the output of the MPT model since it only takes into consideration the three inputs (risk, correlation and returns) and do not consider other variables that should be considered such as non-normal distributions and illiquidity.

1. Does your firm utilize liability driven methodology? Please explain.

Yes, if a pension plan sponsor is interested in de-risking the plan, we would recommend adopting a de-risking glide path. This approach shifts assets from the return-seeking portfolio to the defeasement portfolio as interest rates rise and the plan’s funded status improves. Over time, the plan would reduce its risk while simultaneously controlling the rise in the cost of providing the benefit. We think this approach is best used for pension plans that are closed where participants do not accrue additional benefits. For plans that are open and have a very long-term investment horizon, we think a risk-based portfolio construction approach that is designed to deliver higher return over time is a more cost-efficient solution.

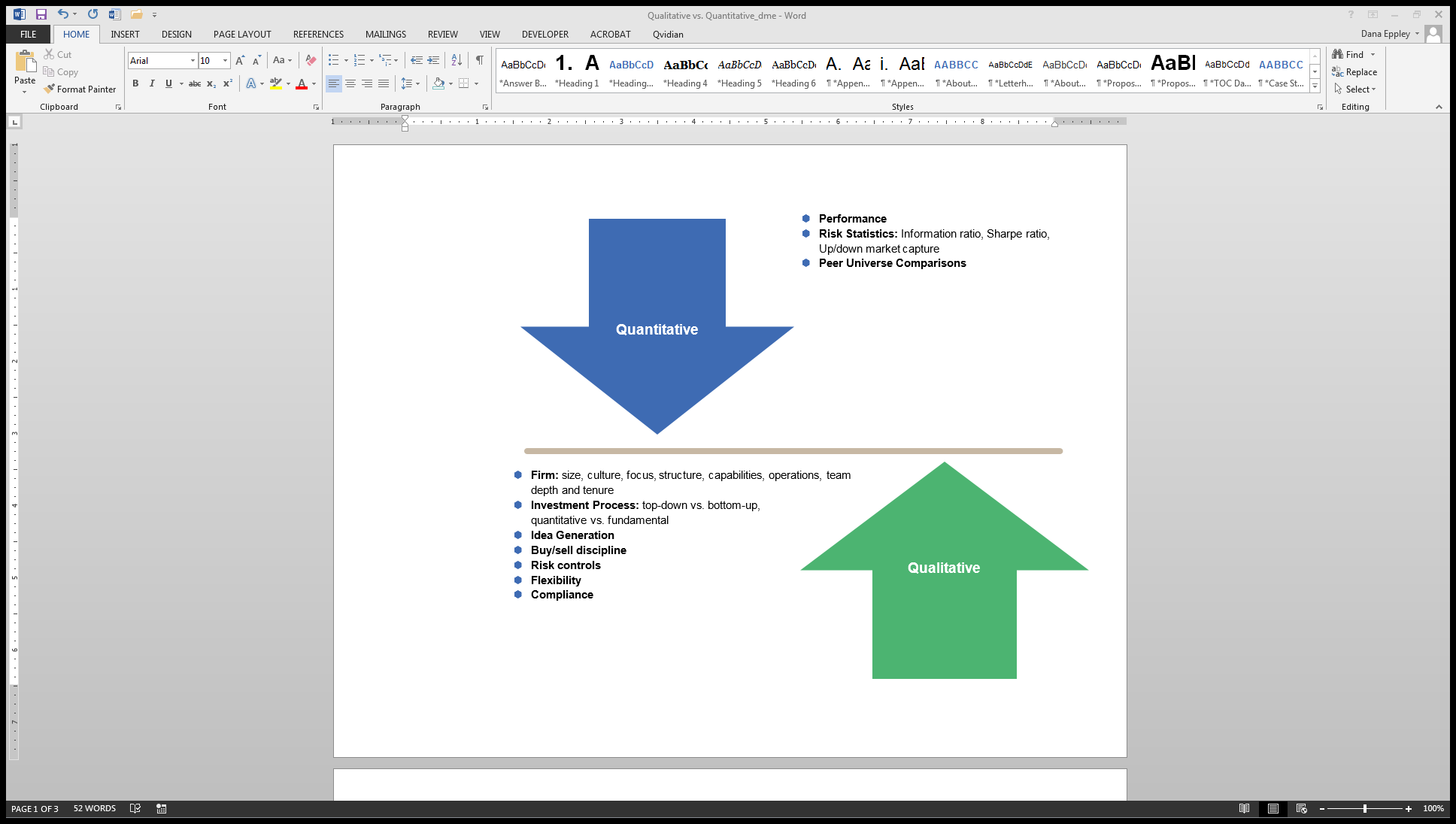
### Manager Selection

1. Briefly describe the process and methodology of choosing an investment manager and fund from initial screening through the development of your recommendation.

Facilitated by our Investment Research Group and Investment Committee, PFM uses a formal due diligence process for evaluating funds, underlying managers and investment strategies. We like to think of our process as a funnel (see graphic), starting at the top with a large universe of possible managers and working our way down to a few well-qualified firms for further examination. In addition to over 14,000 products for eVestment Alliance, PFM has access to an additional 10,000 investment products through various other databases (such as our in-house database and those offered through Morningstar and Investment Metrics), providing us with a total universe of roughly 24,000 investment products.

**Manager Universe Creation**

Starting with this total universe of 24,000 investment products available for investment, we define a smaller universe of managers that correspond to the style mandate for which we are searching. The databases that help us in our search are eVestment Alliance, Morningstar, and a performance and attribution reporting system developed by Investment Metrics.

* **Qualitative Analysis.** We employ a full-scale qualitative review to understand the manager’s process and to assess whether we believe it is repeatable. We conduct interviews with managers to learn more about the firm, personnel and process. PFM understands that this is a very dynamic business and that change in this industry is constant. Therefore, we place a premium on having the most up-to-date and complete information on the candidate managers.
* **Quantitative Analysis.** We also examine the volatility of the manager’s performance or how consistently those returns were generated. To determine these characteristics, PFM examines various performance and risk measures and then selects the top 10 to 20 managers, based on alpha, beta, standard deviation, information ratio, and other important quantitative criteria.
* **Proprietary Scoring Model, Manager Reviews and Selection.** To formalize the due diligence process, PFM writes detailed manager reviews for each manager who has passed the interview process. In addition, managers are assigned scores based on the following sub-categories, such as firm background, the firm’s investment and management teams, investment process, performance, and risk or volatility characteristics. Each of these sub-categories is assigned a score between 1 (best) and 5 (worst). The scores for the sub-categories are then summed to derive a combined total score for the manager. Managers with an average score higher than four are presented to the Investment Committee for vetting and approval. Because our research analysts are continuously meeting with new managers and maintain a bench of possible managers for future use, the process for conducting a manager search and selection is very efficient and should typically take one to two months.

1. Indicate the source of information for investment manager candidates, CITs, funds, ETFs, etc.

As our business has grown, we have continually evaluated our systems and technology to help ensure we have quality investment tools for our research team. The external systems we use from Investment Metrics, eVestment Alliance and Morningstar Direct are all viewed as industry leaders. When evaluating various manager databases and analytical systems, we found that these provided the largest manager universe and most flexible and robust analytics based on our needs and the needs of our clients. Through these systems, we have access to roughly 24,000 investment products across all asset classes. The databases contain a wide range of quantitative and qualitative data points on the firm, team, strategy, etc. Our analysts are also able to compare this information to a peer universe of similar strategies and compile a variety of risk/return statistics, performance attribution and other analytics on the investment managers. Our research staff has been using these three systems since the inception of our multi-asset class business in 2006 and even prior to that time through our traditional consulting business.

1. Does your organization conduct on-site due diligence meetings? Please explain. How often do you visit with managers or representatives of the funds used in your portfolios?

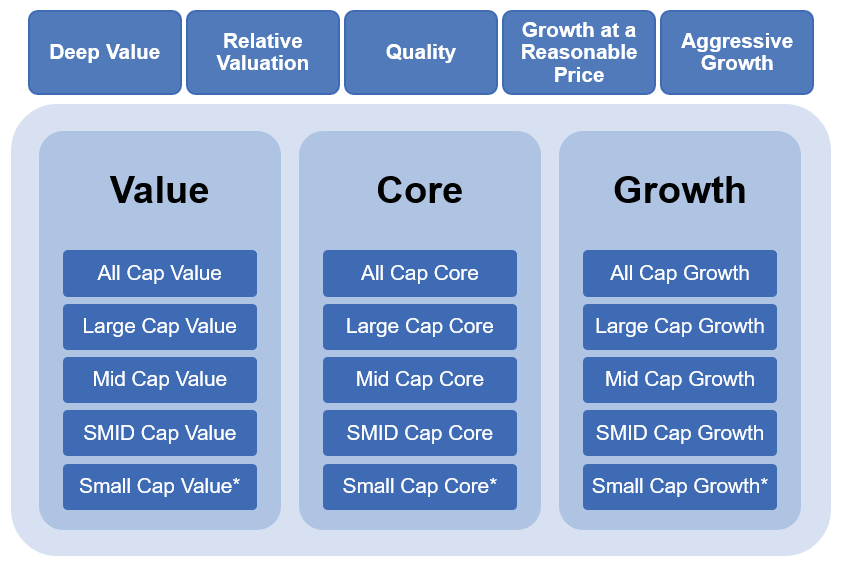
Yes. Our research staff members conduct frequent visits with the universe of institutional money managers, both in-house and on-site. We generally conduct in-house interviews in our Philadelphia office, which proves to be quite convenient as this major metropolitan area is frequently on the travel schedule of investment managers.

We also regularly conduct on-site visits to managers’ offices. We visit managers currently handling client assets and those managers under consideration for managing our clients’ assets. Each member of our Investment Research Group is responsible for these visits within their own assigned asset class. During these visits, our research staff meets directly with the primary investment decision makers, the portfolio managers, and analysts. On-site visits typically cover policies and procedures related to compliance, risk control, trading systems, portfolio accounting, investment process, and systems backup.

Finally, we prefer to establish regular communication with managers who currently manage funds for our clients. Many of the conversations are conducted by conference call and serve as an adequate update for our needs. Our ultimate desire is to meet with portfolio management personnel at least two thirds of the time during these meetings, and every time if the manager is under watch or on probation.

1. Does your organization classify equity managers and funds by style? If yes, please indicate the style categories your organization uses and what process it uses to determine the manager’s/fund’s style?

Yes. Starting with the total universe of 24,000 investment products available for investment, which are sourced by our various external and internal databases, we define a smaller universe of managers that correspond to the style mandate for which we are searching. The process we use for this is called “style analysis,” which examines a manager’s return history through statistical analysis to determine which investment style the manager employs. In addition to the returns-based style analysis, our research analysts also review the manager’s underlying holdings for various time periods to further confirm the stocks they are purchasing are consistent with the style mandate to which they are being measured. The manager is then added to the appropriate style universe based upon the style analysis, as well as our firm’s own knowledge of the investment manager and their quantitative and qualitative processes and compared to a universe of similar managers from both a risk and return standpoint. The graphic below shows our style categories.



\**Microcap style is included in small cap style.*

1. How does your organization verify the validity of limited partnership and separate account managers’ performance records?

PFM’s accounting team maintains an internal record of all holdings and transactions on a daily basis, which is fully reconciled with the custodian at month-end and used to calculate portfolio performance in compliance with Global Investment Performance Standards (“GIPS®”). For clients invested in institutional share class mutual funds, performance is verified and provided to us through a third-party vendor.

If a client’s portfolio contains separate account managers, we do not allow the manager to hold assets in custody themselves but instead require a third-party custodian. At month-end, we compare the performance we calculate internally to the performance the manager has submitted to us. Any differences in performance are fully investigated and our staff will work with the custodian and investment manager to determine the appropriate return.

Commingled funds are typically set up with an independent custodian. For these accounts, we use the commingled product statement — verified by the fund’s own third-party bank — rather than the client’s main custodial statement, since they often lag an entire month. Again, any differences in performance compared to our internal calculations are fully investigated by our staff.

1. What is your position relative to active and passive investing?

We believe that successful investing begins with a consistent, repeatable process that can adapt to changes in the global economy and markets, and because asset allocation is the most important decision, we focus on selecting investment vehicles to produce the best risk/return/cost characteristics. As such, ***we prefer to use low-cost index options in the most efficient asset classes, saving active manager selection for less efficient asset classes or to provide downside protection.*** In addition, we adjust the asset allocation of the portfolio using our analysis of fundamental valuations to overweight underpriced asset classes while underweighting or exiting overpriced classes.

We take a dynamic approach to active and passive management. We believe that markets generally discount available information — but not always. Likewise, markets generally price assets efficiently — but not always. There are times when investors are willing to sell an asset for a price that is below intrinsic value, and times when an asset commands a price above intrinsic value. In most major asset classes, our approach is to use passive or indexing strategies, unless such a vehicle does not exist (e.g., private equity), or where we have strong conviction that we have identified an active manager with a sustainable competitive advantage that we believe will generate outperformance on a net-of-fees basis over the long term. There are several reasons for our approach:

* The majority of active equity managers have not added value on a consistent basis over passive investing, especially when considered on an after-fee basis.
* With an exceptionally long investment time horizon, passive management helps attain market-like performance.
* Oftentimes, when you combine multiple active managers, you end up with security holdings that look like an index.
* Until the time when liquidity and near-term risk management become an issue, a passive approach should provide sound market returns at a low cost.

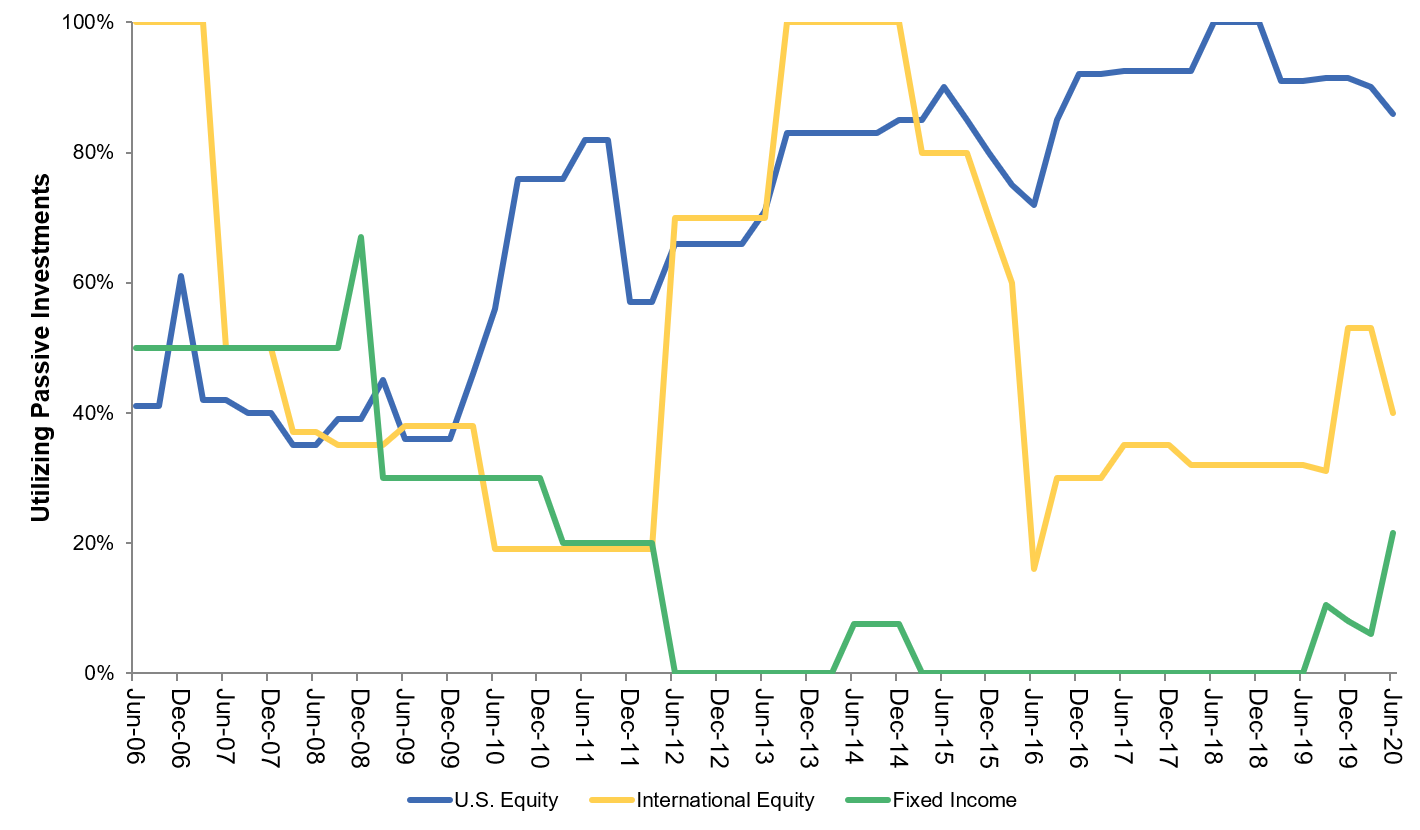
Despite our conviction in the efficiencies of passive investing, we still firmly believe that active management can add value in an overall asset allocation program. This is the case in asset classes not sufficiently covered by passive management (such as private real estate, private equity, commodities, emerging-market debt, etc.), as well as lesser efficient markets (emerging-market equities, high-yield debt, etc.) and markets experiencing temporary price dislocations (core fixed income post-2008). In the less efficient markets and where no passive strategies exist, a well-vetted and monitored active manager has an opportunity to add value, particularly with relative downside protection.

Currently, we use a mix of both active and passive strategies across our client portfolios that include equities. In terms of passive management, 86% of our domestic equity portfolio and 40% of international equity portfolio is passively managed. Our fixed-income portfolio is 78% actively managed as of June 30, 2020. The passive/active exposures will vary over time and are driven by our marketplace views and availability of suitable active managers.

Our active/passive historic allocation in domestic and international equities and fixed income for our discretionary accounts is illustrated below.

As of June 30, 2020. Actual passive allocations for our firm’s flagship 60/40 composite since inception. For illustrative purposes only to show active-passive mix changes over time based on our views.

**PFM’s Historical Passive Allocation by Asset Class**



1. Do you use multiple funds or managers for larger sleeves such as Large Growth, Core or Value?

Yes, depending on the size of the allocation we may utilize more than one manager or fund for a given allocation. While we tend to avoid setting up a portfolio with offsetting value and growth mandates (we prefer a core approach), we do use multiple managers in some of our larger exposures. Core/core plus fixed income is a good example where we currently have four managers that we believe are complementary to each other and improve the level of diversification in the portfolio. We also have two active international equity managers that provide similar exposures but have complementary styles. For smaller mandates, we typically use a single manager unless a strong case can be made for multiple managers.

1. For portfolios of a similar size as the City of Burlington’s pension plan, what types of investment vehicles (as shown below) would you use, and what percentage:
2. CITs
3. Mutual Funds
4. ETFs
5. Individual bonds
6. Individual stocks
7. Limited Partnerships
8. Separately Managed Accounts (SMA)
9. Other (explain)

Client portfolios are typically constructed using a combination of mutual funds and ETFs. Additionally, we may use limited partnerships and separately managed accounts if deemed appropriate based on further discussions with the client. As of June 30, 2020, portfolios of a similar size as the City use both mutual funds and ETFs, with a 52% and 48% split, respectively.

### Performance Measurement and Evaluation

1. Describe your organization’s approach to monitoring and evaluating portfolio performance, risk, investment style and individual investment managers for your clients. Please discuss how you benchmark the managers or funds.

PFM has a multi-tiered process for monitoring and evaluating portfolio performance and investment managers on a continual basis. It is our goal to develop a collaborative and continual dialogue with the Board and System staff, with the objective of providing transparency and insight into the management of the Plan’s assets. Below is a description of our process for monitoring client portfolios and their underlying investment managers.

* **Daily.** Every client portfolio is monitored daily through Bloomberg AIM, a robust trade compliance platform. Bloomberg AIM allows us to maintain allocations within clients’ target ranges and to our tactical targets, as well as help to decide when rebalancing is appropriate.
* **Monthly.** In between formal quarterly reviews, we have developed a consistent way to monitor portfolio performance and investment manager compliance by reviewing the performance of each portfolio relative to appropriate benchmarks on a monthly basis. The goal of this review is to identify whether there are any developments within the portfolio that may require additional analysis or possibly even require action to address.
* **Quarterly.** PFM’s research analysts and proposed engagement manager’s ***John Spagnola*** and ***Bikram Chadha*** will formally review performance each quarter. Our research analysts meet with investment managers on a regular basis. This ongoing interaction creates a consistent flow of information to assess and evaluate a manager, not only at the portfolio level but also as an organization. Information gathered by the Investment Research Group and investment advisors is generally communicated at quarterly meetings; however, if a significant event occurs (e.g., personnel departures), our firm will contact the System and take prudent action immediately as the System’s advisor.

At the total fund level, we look to set benchmarks based on your specific asset allocation. We prefer to have a simplified/more straightforward benchmark, as opposed to constructing a total fund benchmark with a specific weighting for each underlying portfolio exposure. In our view, we believe this helps to avoid a set-it-and-forget-it approach where plans maintain exposures to asset classes and strategies that fall out of favor for multiple years (e.g., commodities). The individual manager benchmarking process starts with selecting the appropriate benchmark for each of the underlying money managers. Rather than simply using the benchmark that is used by the money manager for marketing purposes, our research analysts run a series of risk statistics and style analysis on each manager to determine the most appropriate benchmark. For example, a domestic equity manager may be categorized as small cap and benchmarked against the Russell 2000 Index in the manager’s marketing material, but our returns- and holdings-based analysis shows that they actually hold some mid-cap stocks and would more closely resemble a small/mid-cap manager with the Russell 2500 Index as a benchmark.

Once a benchmark is selected for each money manager, a customized total portfolio benchmark is constructed based on the target asset allocations established in the investment policy. We believe that creating a static benchmark based on the broad asset allocation targets in the investment policy allows our clients to clearly measure the value added/detracted by us through both tactical asset allocation and manager selection. A more detailed benchmark or a benchmark that changes with the portfolio will not provide the same level of feedback on our performance as an advisor.

Through the use of Investment Metrics’ Performance Analysis Reporting and Information System (“PARis”), we are able to tap into a universe consisting of more than $4.3 trillion in institutional assets. Institutional peer universe data can be broken down by plan type (e.g., foundations and endowments, public pension plans, etc.) and asset size, while manager peer universe data can be broken down by asset class and sub-asset class. In addition, our performance reporting system is capable of generating attribution analysis at the total fund, asset class, and investment manager levels.

We believe that a customized investment program tailored around a client’s unique “total enterprise risk,” with custom benchmarks created based on its unique investment program, is far more meaningful than generic peer comparisons.

The best method for measuring the performance of a portfolio is to compare the performance to two concrete benchmarks. One of these benchmarks should consist of a blend of indices that represents the “market return” based on the underlying asset class allocation of the portfolio. This will determine whether or not the investment consultant is adding value through asset allocation and/or manager recommendations. The other benchmark should be based on comparison versus a peer group of other Plans of a similar size and asset allocation.

PARis also allows us to create custom peer groups for comparison against client portfolios. In addition to various plan types (such as public retirement plans), we are also able to create custom peer groups by asset size.

#### Risk Management

To measure the risk and performance of underlying managers, we look at the trailing, calendar, and rolling year periods against both a peer universe and a benchmark. Additionally, we review a variety of risk statistics (e.g., alpha, standard deviation, information ratio, up/down market capture, etc.) versus an appropriate benchmark. For equity managers, we review the top holdings and sector weights compared to existing managers in that asset class for the portfolio as well as the benchmark. A returns-based style map can also be used to show manager “drift.” For fixed income, we review the sector and quality breakdown of the managers versus the benchmark as well as compare statistics such as duration, maturity and yield.

1. How often does your firm review an investment manager’s performance?

Our firm’s research analysts formally review investment manager performance each quarter and correspond with managers regularly. This ongoing interaction creates a consistent flow of information to assess and evaluate a manager, not only at the portfolio level but also as an organization. The research analysts are thorough and do not simply seek to know that a manager under/outperformed, but they seek to understand the why and how behind the investment results. On a quarterly basis (at a minimum), they use a number of key factors to evaluate managers, including (but not limited to):

* Performance Attribution;
* Portfolio Positioning (duration, issue, sector, and country allocations, etc.);
* Portfolio Turnover;
* Changes in Strategy Assets Under Management;
* Cash Levels;
* Portfolio Risk Levels;
* Performance vs. Peers;
* Adherence to Buy/Sell Discipline and Investment Philosophy.

By examining these key issues our team can better gauge a manager’s ability to continue to add value for client portfolios. This ongoing research also helps to identify any new risks or issues that may keep a manager from performing at or above expectations. Any concerns will be presented to the Investment Committee for further review and discussion. Much of this investment manager data and research is available to clients in our quarterly performance reports.

1. Explain what would cause you to recommend a manager or fund to be terminated? Also explain what would cause you to place a fund or manager on Watch?

Not only is it important to select quality managers/funds, but it is also critical to know when to terminate or replace a manager/fund. PFM has a formal monitoring process that requires our Investment Research Group and Investment Committee to constantly reevaluate clients’ managers and create consistency in why and how managers are terminated. Reasons for increased monitoring and eventual termination may include:

* Violation of investment guidelines;
* Deterioration in communication;
* Investment style drift;
* Prolonged underperformance;
* Change in ownership;
* Departure of key investment professionals; or
* Change in compensation package.

Through the hybrid solution we are proposing, we will take a more proactive approach in the manager monitoring process than a typical investment consultant. Rather than formally ranking managers and reporting those rankings to the client along with our recommendation, our Investment Research Group and Investment Committee closely monitor each manager on a regular basis. Based on some of the reasons outlined above, the level of scrutiny and due diligence spent on a given manager may increase, similar to a watch list for an investment consultant. However, the benefit of our approach is that we can act more quickly if the problems persist. If the situation arises where the Investment Committee decides to terminate a manager, we will communicate our recommendation to the Board and await approval so action can be taken immediately, rather than waiting for the next meeting. This means an underperforming manager can be removed from a client’s portfolio in a matter of days, as opposed to weeks or months under a typical consultant engagement.

When terminating a manager, we typically first identify a replacement manager before moving funds. In cases where we feel moving funds is immediately necessary, we are able to purchase ETFs as temporary solutions until we identify a replacement manager.

If any issues or concerns were to arise with respect to an underlying manager in the portfolio, we would immediately notify the Board by issuing a “Manager Alert” announcement outlining the specific issues and our recommendations for addressing them efficiently.

1. Briefly describe your organization’s reporting system and the components of your performance reports. Please explain the extent to which these performance reports can be customized to meet a particular client’s needs.

We will provide the Board and System staff with a variety of reports to make sure that the City is always informed about the state of its investment portfolio, as well as ongoing market events.

While PFM can fully customize performance reports to meet the Plan's needs, our quarterly performance analysis reports for the Plan will include at a minimum:

* A return presentation for the portfolio and individual managers for the most recent quarter, fiscal year to date, one-year, three-year, five-year, and 10-year or since inception periods;
* A return presentation for the portfolio and individual managers for each calendar year;
* Evaluation of managers in relation to the defined styles for which they were hired (e.g., large cap value, etc.);
* Comparison of returns and risk characteristics of the managers’ various components (e.g., upside and downside capture, etc.) and the total plan to related benchmarks as defined by the Investment Policy Statement;
* Comparison to an appropriate peer group universe of managers with a similar mandate and like characteristics;
* Comparison of the total portfolio performance and asset allocation to a peer group universe of similar funds; and
* An evaluation of each manager’s ability to add value to the investment portfolio.

As mentioned, we can fully customize performance reports to meet the System’s needs through the use of the PARis platform. Through PARis we are able to tap into a universe consisting of more than $4.3 trillion in institutional assets. Institutional peer universe data can be broken down by plan type (e.g., pension plans, foundations and endowments, non-profits, etc.) and asset size, while manager peer universe data can be broken down by asset class and sub-asset class. In addition, our performance reporting system is capable of generating attribution analysis at the total fund, asset class, and investment manager levels. PARis also allows us to create custom peer groups for comparison against client portfolios. In addition to various plan types (such as pension plans), we are also able to create custom peer groups by asset size.

Our quarterly and annual performance analysis reports for the client will include, at a minimum:

* Comparison to an appropriate peer group universe of managers with a similar mandate and characteristics; and
* Comparison of total portfolio performance and asset allocation to a peer group universe of similar funds (e.g., public retirement plans with $200 million in assets).

We will provide as many hard or electronic copies of reports and related materials as required. We will also provide qualitative inputs on the Plan’s managers, reflection of other relevant considerations such as changes in the manager’s organization, other portfolio management assignments, and the results of site visits.

The table below describes the various reports our professionals provide for our clients. We provide a sample monthly statement and quarterly performance report in Appendix E.

| **Report** | **Frequency** | **Brief Description of Report Format and Content** |
| --- | --- | --- |
| **Performance Report** | *Quarterly* | Contains a variety of exhibits, including the portfolio’s performance and attribution data versus a customized benchmark, a comparison versus a peer group of other funds, and analysis of constituent managers versus appropriate benchmarks and money manager universes, as well as a review of the economy, financial markets and our investment strategy. |
| **Flash Report** | *Monthly* | Provides the portfolio’s asset allocation and trailing performance versus benchmarks. |
| **Manager Alert** | *As Needed* | Describes any changes we have implemented within the portfolio, including the rationale for the change and impact. |
| **Market Commentaries** | *Monthly and Quarterly* | Provides a timely overview of current events impacting the financial markets. |
| ***PFM Perspectives*** | *Published Regularly* | Thought Leadership white papers describing our current thoughts on developments in the financial markets, and how they relate to our clients’ portfolios. |
| ***PFM InvestEd*** | *Published Regularly* | Educational series of short, informational papers that cover topics relevant to institutional investors. |
| **Special Reports** | *As Needed* | Announces important market events, such as Federal Open Market Committee announcements and rating agency downgrades. |
| **Capital Market Assumptions** | *Annually* | Describes our assumptions for intermediate- and long-term returns across a wide range of asset classes. |

As mentioned, if any issues or concerns were to arise with respect to an underlying manager in the portfolio, we would immediately notify the Board by issuing a “Manager Alert” announcement outlining the specific issues and our recommendations for addressing them efficiently.

The Board and System staff will have access to our web-based portal, EON, which offers daily access to portfolio holdings, as well as the ability to review and print complete portfolio details. Holdings and transactions can be queried and downloaded from EON in a comma-separated values (“CSV”) format or in Microsoft Excel format so that System staff can easily upload this information to its own accounting systems if desired.

1. Describe the types of analysis and investment performance comparisons included in a typical performance evaluation report. To what extent does your organization provide analysis of year-to-year changes? How does your organization monitor and report performance data that is typically delayed, i.e., LPs. Are there any performance adjustments that you use to compensation. What is your organization’s typical turnaround time for the preparation of such analysis?

When calculating performance for our client portfolios, we follow the CFA Institute’s GIPS®. GIPS® recommends using the roll-forward methodology with alternative investments that have delayed reporting. This method adjusts the most recently received market value by the cash flows since that time to arrive at an estimated value for the current period. This results in a 0% return for the current period. Once the official value is received, client holdings and performance is updated to reflect the most recent information.

In the normal course of business, comprehensive investment performance reports and evaluation reports are distributed quarterly, approximately 40-45 calendar days after quarter-end. This timing allows us to include certain benchmark and institutional peer information that is only available at that time. An abbreviated report (typically excluding underlying investment manager holdings analysis) is available within 20 days following quarter-end.

PFM will provide the Plan with as many hard or electronic copies of reports and related materials as needed. We will also provide qualitative inputs on the Plan’s managers, reflection of other relevant considerations such as changes in the manager’s organization, other portfolio management assignments, and the results of site visits.

1. Are rates of return routinely presented on a net of fee basis?

Total return is reflected net of investment management fees, but gross of PFM’s investment advisory fee. Performance is calculated in compliance with GIPS®. Please see Appendix F for our complete GIPS®-compliant multi-asset class performance composites, which provide both annualized and calendar year historical returns by strategy since inception. We provide a composite snapshot below.

1. Databases:
2. Please describe the databases your firm uses?

We maintain a database in-house of managers we monitor on a regular basis. Our investment manager database is updated through Investment Metrics on a monthly basis and through eVestment Alliance as it is made available by the manager. Our Investment Research Group verifies any data received from these vendors by comparing them to the conversations we have with the respective investment managers.

We also use PARis that contains data for over 3,700 market indices, 370 investment manager peer universes and more than 5,100 plan sponsors representing over $4.3 trillion in assets. PARis tracks all major traditional asset classes and a wide range of alternative asset classes including, but not limited to, domestic and international equity, fixed-income, real estate, commodities and specialized alternative strategies like hedge funds. Within each high-level asset class, PARis also tracks and segments managers and benchmarks into a wide range of sub-asset classes, style groups, and specific geographic groups (high yield, value, growth, emerging markets, absolute return, etc.).

PARis is the same system we use when conducting performance comparisons within investment manager searches. It is highly customizable and as such does not produce direct biases. In calculating performance, we use the Modified-Dietz time-weighted methodology, which attempts to remove the impact that cash flows including contributions and withdrawals have on total portfolio performance. This method of performance calculation complies with GIPS®. Performance is calculated and reported net of underlying investment manager fees.

In addition, we subscribe to the database of eVestment. We also use Morningstar and the Bloomberg AIM system to house, monitor and automate compliance assurance.

For alternatives data, PFM subscribes to (1) Pitchbook, a leading provider of data on private capital managers and funds including private equity, venture capital, private debt, real estate, and other real assets; and (2) HFRI, a sourcing database and leading benchmark provider with approximately 2,200 hedge funds reporting to it. These tools are useful as we evaluate alternative investment managers and look to update our proprietary, in-house database that enables us to become more familiar with each manager and their strategies.

1. Is the database proprietary to your firm or purchased?

PFM uses a combination of proprietary and purchased databases. Most of our databases are purchased, however, we also use an in-house investment manager database that we created.

1. If purchased, how many do you use and for what purposes?

We subscribe to three databases provided by Investment Metrics, eVestment Alliance and Morningstar. When evaluating various manager databases and analytical systems, we found that these provided the largest manager universe and most flexible and robust analytics based on our needs and the needs of our clients. This provides us with a total universe of roughly 24,000 investment products. When conducting a manager search, we review all products in these databases. The asset classes covered include:

| Asset Class | No. Active Firms | No. of Active Products |
| --- | --- | --- |
| U.S. Equity | 1,118 | 3,940 |
| U.S. Real Estate | 57 | 69 |
| U.S. Fixed Income | 501 | 2,655 |
| U.S. Balanced/Multi-Asset | 203 | 319 |
| Non-U.S. Developed Markets Equity | 340 | 576 |
| Diversified Emerging Markets Equity | 361 | 630 |
| All Country World Index ex U.S. Equity | 255 | 412 |
| Global Equity | 818 | 1,969 |
| Global Fixed Income | 341 | 1,090 |
| Global Real Estate | 34 | 28 |
| Global Balanced/Multi-Asset | 407 | 1,652 |
| **Total** | **1,985** | **13,340** |
| *As of December 31, 2019. Totals do not equal the sum as managers have multiple products.* | | |

1. How many investment managers are in your database(s)?

On the traditional side, our internal database houses between 200 and 300 managers. We continuously receive communication from new investment managers and often receive referrals from various third parties, including our clients. As a result, the list of managers followed by our firm is constantly growing.

Our proprietary alternatives database currently has profiles on over 1,600 funds and growing. These are funds that the Alternatives Research Team has met with or had calls with. Over time, we continue to add new funds and top prospects to the database for deep analysis. This database is a key tool used for identifying skilled alternatives managers and new funds for our clients.

1. If you maintain your own proprietary database, how does your firm gather, verify and analyze the data collected on managers for the database(s)? Include name of any external sources.

We maintain an in-house database of managers we monitor on a regular basis. At any given time, our internal database houses between 200 and 300 managers. Our investment manager database is updated through Investment Metrics, Morningstar, eVestment Alliance and Bloomberg, including manager performance and portfolio characteristics. We also receive information directly from investment managers in which we have invested our client’s portfolios. Our Investment Research Group verifies any data received from these vendors by comparing to the conversations we have with the respective investment managers.

We continuously receive communication from new investment managers and often receive referrals from various third parties, including our clients. As a result, the list of managers followed by our firm is constantly growing. Our research analysts meet with multiple investment managers every week and have phone conversations with many more during an initial screening process. We work with institutional third-party managers in seeking to obtain the most favorable pricing or share class available to our clients, leveraging our clients’ aggregate AUM. Because of our place in the market, we find this method to be more advantageous to our clients than being constrained to a third-party platform.

We also use PARis, which contains data for over 3,700 market indices, 370 investment manager peer universes and more than 5,100 plan sponsors representing over $4.3 trillion in assets.

We evaluate the influence that thousands of different economic scenarios will have on the ability to meet our clients’ benefit payments and other goals.

PARis tracks all major traditional asset classes and a wide range of alternative asset classes including, but not limited to, domestic and international equity, fixed-income, real estate, commodities and specialized alternative strategies like hedge funds. Within each high-level asset class, PARis also tracks and segments managers and benchmarks into a wide range of sub-asset classes, style groups, and specific geographic groups (high yield, value, growth, emerging markets, absolute return, etc.).

PARis is the same system we use when conducting performance comparisons within investment manager searches. It is highly customizable and as such does not produce direct biases. In calculating performance, we use the Modified-Dietz time-weighted methodology, which attempts to remove the impact that cash flows including contributions and withdrawals have on total portfolio performance. This method of performance calculation complies with GIPS®. Performance is calculated and reported net of underlying investment manager fees.

MACM Alternatives Database data is actively sought out by the MACM Alternatives Research Team as we continue to develop and improve the database. Our Alternatives Research Analysts are experienced at identifying, standardizing, and incorporating data. Our Alternatives Team has incorporated checks and balances that require the review and approval of new data by the Team’s management before we rely on the information. Over time, as the Research team identifies data that we would like to use on an ongoing basis, they will create a standardized format for inputting the data into the database so that it limits transmission errors. Currently, the MACM Alternatives Database has significant data capabilities including (1) client profiles; (2) AUM – aggregate and by fund; (3) Fund profiles; (4) fund commitments – aggregate and by portfolio; (5) Manager & fund data flows in automatically from pitchbook; (6) custom benchmark flows in automatically from Pitchbook; etc.

1. Describe your screening process and capabilities.

As part of the due diligence process, our firm writes detailed manager reviews for each manager who has passed the interview process. In addition, managers are assessed based on the following qualitative sub-categories:

* **Firm Background:** History/year started/ownership, infrastructure, clients/assets (growth/decline);
* **Investment Team/Management:** Experience/education, tenure/turnover, compensation structure;
* **Investment Process:** Portfolio characteristics, buy/sell process, style drift, product growth/decline, largest client;
* **Performance:** Trailing, calendar, and rolling year performance; up/down market and economic cycle performance; composite quality; and
* **Risk/Volatility:** Standard deviation/Sharpe ratio, sector/security limits.

Managers identified through this process are presented by the Investment Research Group to our Investment Committee for vetting and approval.

1. How many managers are actively monitored?

While we start with a total universe of 24,000 investment products available for investment, we define a smaller universe of managers that correspond to the style mandate for which we are searching until we narrow it down to the selected finalist. For example, if we are conducting a search for a large-cap value manager, we want to confirm that the managers we are evaluating are actually large-cap value managers. The process we utilize for this is called “style analysis,” which examines a manager’s return history through statistical analysis to determine which investment style the manager employs. In addition to the returns-based style analysis, our research analysts also review the manager’s underlying holdings for various time periods to further confirm the stocks they are purchasing are consistent with the style mandate to which they are being measured. The manager is then added to the appropriate style universe based upon the style analysis, as well as our firm’s own knowledge of the investment manager and their quantitative and qualitative processes and compared to a universe of similar managers from both a risk and return standpoint.

### Risk Control

1. Does your organization assist clients in developing individualized, written investment manager guidelines? If so, attach a sample of such guidelines for a domestic equity manager and for a domestic fixed income manager.

Yes, if the individual managers are separately managed accounts (see Appendix G for samples). PFM has worked with numerous clients and investment managers in drafting investment guidelines. However, the majority of our clients are invested in third-party mutual funds and other commingled vehicles (i.e., ETFs, etc.), which are guided by a fund prospectus and cannot be customized to a specific client. In either case, we will work with the client to draft a customized investment policy at the total portfolio level that provides guidelines for PFM related to asset allocation, overall credit quality, sector concentration limits, etc.

1. Please explain how your organization measures and analyzes relevant financial characteristics regarding each manager’s account and funds, and the entire fund portfolio in order to detect and control risk.

PFM believes that risk-based portfolio construction is a useful approach to managing institutional portfolios depending on the specific objectives the client is trying to achieve. For risk-based portfolio construction, the primary tool used to manage risk relies on the thoughtful process of diversifying asset classes and the use of active and passive management. Over normal market cycles, asset classes behave differently, providing the benefits of diversification and helping to reduce overall portfolio. Maintaining a rigorous rebalancing process also helps to manage portfolio risk through a disciplined process for selling asset classes that are overvalued and buying asset classes that are undervalued based on the target allocations and ranges within the IPS. Risk-based portfolio construction serves the purpose of constructing efficient portfolios where the highest expected return is achieved per unit of risk assumed.

We believe that from a quantitative perspective, one of the most important risk measurements is volatility or standard deviation. Therefore, we employ a thoughtful process of diversifying asset classes and recommending a balance of active and passive management. Asset classes typically have high correlations in times of market, economic, and geopolitical turmoil; however, over normal market cycles, asset classes behave differently, providing the benefits of diversification and the de-risking of the overall portfolio. Maintaining a rigorous rebalancing process also helps de-risk a portfolio by inserting a disciplined process for selling asset classes that are overvalued and buying asset classes that are undervalued based on the investment policy’s target allocations and ranges.

In addition, to measure and control risk, our firm’s research analysts measure and analyze relevant financial characteristics regarding each manager’s account and funds. On a quarterly basis (at a minimum), they use a number of key factors to evaluate managers, including (but not limited to):

* Performance Attribution;
* Portfolio Positioning (duration, issue, sector, and country allocations, etc.);
* Portfolio Turnover;
* Changes in Strategy Assets Under Management;
* Cash Levels;
* Portfolio Risk Levels;
* Performance vs. Peers;
* Adherence to Buy/Sell Discipline and Investment Philosophy.

By examining these key issues our team can better gauge a manager’s ability to continue to add value for client portfolios. This ongoing research also helps to identify any new risks or issues that may keep a manager from performing at or above expectations. Any concerns will be presented to the Investment Committee for further review and discussion. Much of this investment manager data and research is available to clients in our quarterly performance reports.

1. How do you manage for extreme left-tail risk? Do you consider Value at Risk (VaR) or Conditional Value at Risk (CVaR)?

We believe PFM’s approach to risk management is distinguished from other firms in that our decisions are not solely based on quantitative factors, which are not stationary and often do not paint the whole picture; instead, we incorporate qualitative factors that go beyond risk metrics and consider fundamentals. For example, while we look at risk measures like standard deviation and VaR, these methods alone would not have kept investors out of CDOs and SIVs before the 2008-2009 economic crisis since these investments looked attractive to many investors on a quantitative basis alone.

Additionally, we mitigate risk by structuring a diversified portfolio with managers that are complementary. This should improve the risk/return structure of the portfolio and limit downside risk if managers exhibit relatively low correlation. This also enables us to quickly make changes to the portfolio to protect against significant volatility, such as shifting assets from equity to fixed income and/or cash like we did in March and April of this year from the impact of COVID-19.

d. How do you define risk for a defined benefit plan? How do you help sponsors mitigate that risk?

We believe that risk for defined benefit plans can be defined in two broad areas: investment risk and non-investment risk. As an investor, defined benefit plans are exposed to a variety of investment risks that pertain to all types of investors, such as market risk, credit risk, interest rate risk, and liquidity risk. Other important risks include manager risk and diversification risk, which can largely be mitigated by a properly structured portfolio. Another important investment-related risk that must be monitored is shortfall risk, which is the risk that the portfolio will not achieve its investment return goals. Not all of these risks can be defined simply by a statistical measure of volatility, such as standard deviation.

In terms of non-investment risk, a defined benefit plan ultimately needs to be concerned with its ability to pay retiree benefits that have been earned. Although this is highly impacted by how the assets are invested, there are other non-investment factors to consider such as annual funding, benefit accrual guidelines, and plan demographics. The risk of not being able to provide for future retiree benefits is arguably the most important risk facing public pension plans.

As a firm focused on public-sector plan sponsors, our professionals also manage our clients’ portfolios with headline risks in mind (the impacts of negative publicity related to the Plan and its investments). We realize that citizens put enormous trust in their public-sector officials, and we want to ensure that our clients’ reputations stay intact.

1. What do you consider the critical success factors for a de-risking strategy?

If a pension plan sponsor is interested in de-risking the plan, we would recommend adopting a de-risking glide path. This approach shifts assets from the return-seeking portfolio to the defeasement portfolio as interest rates rise and the plan’s funded status improves. Over time, the plan would reduce its risk while simultaneously controlling the rise in the cost of providing the benefit. We think this approach is best used for pension plans that are closed where participants do not accrue additional benefits. For plans that are open and have a very long-term investment horizon, we think a risk-based portfolio construction approach that is designed to deliver higher return over time is a more cost-efficient solution.

1. Describe the optimization or risk management techniques used in the portfolio construction process. Detail strategies employed to prevent excessive volatility.

An understanding and emphasis on risk management is a core part of our investment process. But this raises the following questions: What is risk? Is it volatility? Is it underperforming a benchmark? Is it a permanent loss of capital? Recognizing that different clients may be uniquely impacted by various aspects of risk, we construct portfolios that seek to balance multiple types of risk. Most investors define risk as volatility or standard deviation of returns. As fundamental investors, we view volatility as a potential opportunity to buy quality assets at attractive prices and/or to sell assets trading at a high valuation. Additionally, risk is not simply a statistic such as standard deviation, but also includes a permanent loss of capital. While being conscious of statistical measures of risk, our preferred definition of risk is a permanent loss of capital. For us, risk of capital loss is of utmost concern.

Recognizing that we operate in a world of imperfect and incomplete information, we strive to avoid investments where losses could be significant and where we may suffer a permanent loss of capital if the future runs counter to our expectations. Our approach to risk management is not to rely on quantitative models — which are prone to fail in spectacular fashion, as we have seen numerous times in history. Rather, we strive to manage risk by:

* Not buying what we do not fully understand;
* Buying assets that are priced below our estimate of intrinsic value; and
* Focusing on the downside (what could potentially go wrong).

When constructing portfolios, we are cognizant of the downside of making an investment — therefore, we size our investment positions according to our level of conviction in each investment idea.

Each of our client portfolios is customized to match our client’s desired asset allocation and portfolio structure. Since all client portfolios are managed by our Investment Committee, they tend to consist of the same underlying investment managers that we have selected and are allocated in accordance with our current views of the market. However, each client has its IPS with unique investment goals, risk tolerance and liquidity needs that are considered when constructing a portfolio. Prior to approving an investment decision, our Investment Committee may model various scenarios, portfolio outcomes and exposures to prevent excess volatility. We do not simply place each of our clients into a standard “model” portfolio.

1. How does your approach differ for plans that are closed versus active?

All else being equal, a closed plan would typically be managed in a more conservative manner than an open plan, given the shorter time horizon and higher average age of the underlying participants. In addition, a closed plan would normally have less inflows and more outflows, making the plan cash flow negative, which is another factor that leads to a more conservative asset allocation. However, there are a number of other factors that should be considered, such as funded ratio and discount rate, that may have a more significant impact on how the plan is invested. For example, even though a plan may be closed, it still needs to achieve its discount rate / investment return assumption in order to maintain or improve its funded status and have the best opportunity to provide for all future benefit payments. If the discount rate is 7.5% and the plan is not well-overfunded, it likely can’t afford to adopt a more conservative asset allocation without having a negative impact on the funded status. Similarly, if a plan is not fully funded, adopting a more conservative strategy will reduce the likelihood of improving its funded status, unless the plan sponsor intends to make large contributions to offset the unfunded liability. Therefore, we absolutely take into consideration the closed vs. open status of retirement plans when determining an appropriate investment strategy, but there are other important factors that should also be considered. As part of our initial portfolio planning process, our team will conduct a thorough review of the Plan’s actuarial information and determine the most appropriate investment strategy.

1. How do you propose meeting periodic cash flow needs?

The income needs and cash flows will dictate how cash is managed in the portfolio. In some cases, if a client has regular cash needs on a monthly or quarterly basis, it may be prudent to keep a small allocation in cash to cover near-term outflows to prevent the need to sell assets following a dip in the markets. However, if cash inflows are expected to largely offset outflows or a spending reserve fund is established, the cash allocation can be kept to a minimum to prevent unnecessary cash drag on the portfolio. In general, a portfolio that has no cash flows or is cash flow positive can weather a downturn in the markets and therefore may justify a more aggressive allocation, while a portfolio that is cash flow negative needs to be mindful of selling assets following a market downturn and should consider a more conservative allocation.

In reviewing the actuarial valuation for the plan, the plan is slightly more than 70% funded and has annual outflows that slightly exceeded inflows in recent years.[[7]](#footnote-7) In addition, as with most pension plans, there are monthly benefit payments that are disbursed from the pool of assets that we would be managing. In that case, we would typically allocate a certain percentage of assets to cash that is expected to cover 3-4 months of benefit payments. This allows our portfolio traders to only raise cash once per quarter to fund benefit payments for the following quarter. We feel that this provides the right balance of limiting trading costs while also keeping cash drag on performance to a minimum. As part of the initial planning process, we will gain a better understanding of the monthly cash needs so we can effectively manage the cash allocation in a way that is customized for this plan.

### Transition Management

1. In light of the five LPs in the current Plan, describe how you would transition the assets to your recommended portfolio and custodian?

As our investment advisory business has evolved, we have successfully partnered with clients similar to the System to transition from their current investment approaches. Our investment strategies are developed and implemented by an experienced team of investment professionals. Working together, these teams implement our best investment ideas, considering strategies across traditional asset classes and, if appropriate, alternatives, in a way that fits each client’s distinct return objectives and risk constraints.

Given the System’s current actuarial assumption (7.5%) and portfolio profile, we would likely recommend further diversifying the current alternatives allocation. Our strategic asset allocation targets across alternative sub-asset classes is to have roughly equivalent allocations to private equity, private debt, and real assets. Our research and current capital market assumptions suggest that this allocation should generate attractive absolute and risk-adjusted returns relative to a similar portfolio without alternatives.

The process of on-boarding begins with understanding the goals and challenges relating to the Plan. This information is generally derived from discussions with the Board, the City and the plan actuary. The following process result is dependent on developing a clear understanding of the goals and challenges. During the onboarding process, our team would determine whether to replace the City’s current core real estate exposure with our recommended lineup or maintain the current allocation. The decision will be dependent on the relative quality of the managers. While we believe our current line-up is high quality, we prefer to remain open-minded and ensure we are making the best decisions for our individual clients.

The System’s current private equity exposure is primarily traditional private equity fund of funds. While traditional fund of funds are an acceptable core private equity allocation, we recommend also incorporating allocations to “satellite” private equity funds. We would recommend ongoing allocations in private equity be to more tactical, niche, higher risk/return, higher alpha-potential funds. We believe that incorporating these types of exposures into a diversified private capital allocation will enhance returns over the long-term.

We would recommend similarly developing a core private debt position and adding satellite private debt strategies systematically going forward. Currently, this portfolio construction involves adding a diversified, skilled middle market direct lending fund and adding niche, tactical strategies over time (e.g. venture debt, special situations / distressed, multi-strategy, etc.).

1. What extra costs would be involved?

There is no additional cost to transition the Plan’s assets to our recommended portfolio and custodian.

### Computer and Technical Capabilities

1. Describe the software and hardware that will be used to support the proposed work plan.

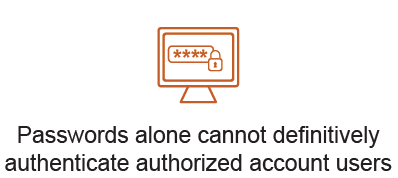
PFM invests significant capital in its people and infrastructure to help ensure that we have the best proprietary tools and technology in place designed to serve our clients. We invest in technology and resources for risk management and compliance to address the evolving regulatory environment. We use trading systems that help ensure compliance with all policies and regulations and facilitate straight-through processing of trades to the custodian and our accounting systems. At PFM, we never stop looking for ways to enhance our suite of services and deliver the most value for our public sector clients. Our asset allocation, risk management manager search and performance reporting systems include:

* **Research Database Systems.** We use non-proprietary systems that include eVestment, Morningstar and PARis, a research database and portfolio attribution model to manage and support investment management, risk management, and our research and analytics teams. PARis is recognized as one of the best in the industry. PARis tracks all major traditional asset classes and a wide range of alternative asset classes. Within each high level asset class, PARis also tracks and segments managers and benchmarks into a wide range of sub-asset classes, style groups, and specific geographic groups (high yield, value, growth, emerging markets, absolute return, etc.). Additionally, PitchBook, HFRI, and our proprietary MACM Alternatives Database will be used for managing our clients’ alternative investments.
* **Bloomberg AIM System.** We use Bloomberg AIM for automated policy compliance and trade execution to help ensure compliance between a client’s permitted investments and a pending trade in a real-time environment.
* **Sophisticated Investment Accounting System.** We use an integrated portfolio management, reporting, and investment accounting system to assist in pricing securities, tracking credit quality for issuers and securities, etc.
* **Software Designed to Safeguard Client Communication and Information.** Information security is taken very seriously at PFM. We routinely invest in the latest software tools and protections designed to detect and prevent malicious attacks against our enterprise environment. All of our professional staff are provided with a desktop or notebook computer that is built with standard Microsoft Office tools (Word, Excel, Outlook, etc.) and equipped with the latest virus-protection software. All incoming and outgoing emails are scanned for viruses or malware to provide protection against potential malicious exploits that could cause harm to our environment.
* **Video Conferencing and Webinars.** Our team members will be available in a timely manner by phone, video conference or by e-mail. We also provide periodic web and telephonic conferences covering a wide variety of investment, economic and other topics. Many conferences this year have been cancelled due to COVID-19 and social distancing directives. As a result, it has become vital for PFM to provide these services on a virtual basis and to fundamentally rethink the way we interact with clients.

As mentioned, we also have a dedicated client reporting website, EON. At any time, authorized personnel from the System staff can log on to access portfolio reports, which will contain detail information on the Plan’s portfolio and trading activity.

#### Multi-factor Authentication

Online security is more important than ever. PFM is proactively extending new online security features to our clients.



#### What is MFA?

MFA protects online accounts against data breaches that are commonly related to compromised login credentials. It provides an additional layer of security by requiring a second form of verification from online account users. This helps confirm only authorized individuals are accessing confidential account information.

#### How does MFA work?

After you enter your EON account login credentials, the system will prompt you to also enter a unique, one-time passcode (second form of verification). This passcode will be delivered to you via email, phone call or text message. You can select the delivery method that works best for you. This passcode must then be entered in order to complete your log in.

1. Describe your catastrophic data recovery plans. How often do you test your recovery system?

We have a comprehensive disaster recovery system. In the event of an emergency, our crisis management team, consisting of the firm’s managing directors, is responsible for assessing the extent of the disaster, declaring one if warranted and notifying the business recovery team, which consists of various business leaders and other critical staff. Our disaster recovery plans are built around both a “hot site” strategy and a mobility strategy. Business recovery team members may relocate to our disaster recovery facility (or “hot site”) located in Philadelphia, or they can connect remotely to complete necessary tasks. Databases and systems are duplicated or redundant so that all critical applications and databases are up and running in the disaster recovery environment. A copy of our disaster recovery plan is available for in-person review upon request.

***We conduct several localized disaster recovery test scenarios each year.*** These tests simulate a situation whereby our central trading and accounting facility, located in Harrisburg, is assumed to be destroyed or a key component of the local Harrisburg systems infrastructure supporting one or more critical business applications is unavailable. Our crisis management team, consisting of the firm’s managing directors, is responsible for assessing the extent of the incident, declaring a disaster if warranted and notifying the business recovery team, which consists of various business leaders and other critical staff. All critical applications and databases are part of a high-availability cluster, which provides redundancy and near-real-time recoverability from the disaster recovery environment.

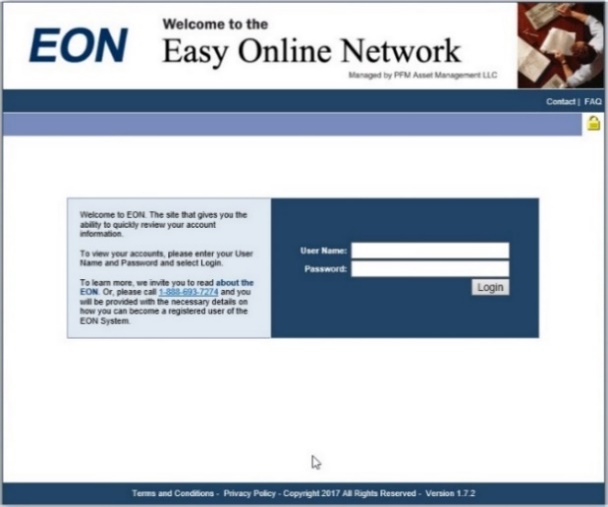
1. Describe your maintenance and backup procedures including daily backups, retention timetable and off-site backup storage approach. Where are your off- site backup facilities located? Is the backup data saved on disc or in the cloud?

Every functional unit within PFM has a business continuity plan that involves relocation either to a local site, another PFM office or to a remote site where backup systems are maintained. Additionally, the backup data is stored on disk in the PFM data centers. After 90 days, the encrypted backup sets are transferred to Microsoft Azure for long-term storage in a read-only format. The business continuity plan provides for occurrences as minor as hardware failure to major disasters such as the loss of the physical office space. Our investment operations are based in our Harrisburg office, and our disaster recovery facility is located in our Philadelphia office. All critical business applications and system configurations are routinely synchronized between our production and disaster recovery environments. Critical business data and files are replicated and backed up nightly. Transactional data (e.g., trades) are replicated to our devoted disaster recovery servers in Philadelphia every 15 minutes. Given the level of system and data redundancy in place, we can completely restore our systems environment within approximately three hours of a declared disaster. Investment operations can be operated out of the Philadelphia office's relocation site indefinitely. Records are backed up daily and maintained. All application and database servers have “hot” spare servers in our Philadelphia office that are updated either on a nightly basis or via “near-time” replication.

1. Describe how any database(s) can be accessed by the Burlington Employees’ Retirement System Board staff.

PFM has invested a significant amount of time and resources in developing the best possible performance measurement and reporting services for our clients. As a result, we are able to provide fully customized performance reporting to our clients through the use of EON. EON is our password-protected Internet reporting site used to deliver reports and other information to clients. EON is available 24/7 and will give System staff the ability to review and print, on a daily basis, their complete portfolio details, monthly portfolio reports and intra-month transactions. Daily confirmation statements are available through EON on the next business day. Monthly statements are available online through EON by the fifth business day of the new month and will demonstrate the portfolio’s compliance with the Plan’s Investment Policy.

Industry standard site security and a confidential password help ensure the confidentiality of the Plan’s portfolio data. The System’s authorized personnel will be assigned a unique user ID and password for access to account information. Viewing access on EON can be customized to each individual user, depending on their role with the System. A sample view of what our online account access looks like is provided below.



* 1. Fees

### Please outline your fee structure for this plan. Please indicate all services you propose to provide and their associated fees. Specifically, detail in terms of your retainer, manager searches, performance monitoring on a monthly basis and other functions.

For this engagement, PFM proposes a combined asset-based fee schedule for the City. We believe that our asset-based structure is a competitive, unbiased, cost-effective approach to meeting the System’s investment needs. Our fee schedule, as shown below, ***includes all the services described throughout our response*** and all expenses such as travel, lodging, meals and other out-of-pocket expenses.

|  |  |
| --- | --- |
| **Assets Under Management** | **Standard Fee in Basis Points (“bps”)** |
| Up to $25 million | 30 bps (0.30%) |
| Next $75 million | 15 bps (0.15%) |
| Next $150 million | 10 bps (0.10%) |
| Next 250 million | 5 bps (0.05%) |
| Thereafter | 2 bps (0.02%) |
| *Minimum annual fee of $25,000.* | |

If PFM is fortunate enough to be selected as the advisor for the System, the estimated advisory fee will be **14 basis points (.14%), or** ***$282,500 based on a combined $195 million portfolio.***

Underlying manager fees are subject to change based on asset allocation and manager lineup.

When evaluating proposals for investment advisors, it is important to consider all costs that will be incurred in the investment process, including underlying money manager, mutual fund or other investment fees. These fees are based on the investment managers, strategies, and securities utilized and the asset allocation of the portfolio that may change over time.

Based on the City’s combined portfolio size of $195 million and a 75/25 asset allocation, the estimated underlying investment manager fee would be 30 basis points (.30%), or $585,000. Our underlying manager fee is based on the current investment policy. Actual fees will be based on the implemented asset allocation and underlying investments of the portfolio.

### Please indicate the number of years for which your organization would be willing to guarantee its fees.

PFM will guarantee its fees for the length of the contract.

### Please list any anticipated miscellaneous expenses and disbursements for which your organization will charge or seek reimbursement and unit costs of such expenses (if applicable).

PFM does not anticipate any miscellaneous expenses and disbursements for which we will charge or seek reimbursement and unit costs of such expenses.

### Disclose your portfolio management philosophy as it relates to negotiating/establishing fee arrangements with money managers. Disclose your review/evaluation process to determine reasonableness of each investment manager fee. Disclose your process for periodic review and recommendation of service fee reductions or consolidation.

A client will pay investment management fees paid directly to an investment manager or paid as an expense ratio of a mutual fund. When evaluating proposals for investment advisers, it is important to consider all costs that will be incurred in the investment process, including underlying money manager, mutual fund or other investment fees. The underlying manager fees are based on the investment managers, strategies and securities utilized and the asset allocation of the portfolio, and they may change over time.

Regarding the investment manager fees, when sourcing a manager, we compare their fees to a universe of similar managers using eVestment Alliance, which allows us to judge the reasonableness of the fee versus their peers.

For a typical current PFM client with a target 75/25 allocation, as of September 16, 2020, we estimate the manager fees to be .30% as illustrated in the following table. Actual fees will be based on the implemented asset allocation and underlying investments of the portfolio.

|  |  |
| --- | --- |
| **Aggregate Annual Investment Fees (Assuming Assets of $195 million)** | |
| Investment Advisory Fee (Out of pocket) | $282,500 (0.14%) |
| Underlying Manager Fee\* | $585,000 (0.30%) |
| **Total Estimated Fees and Expenses\*** | **$867,500 (0.44%)** |
| *\*Underlying manager fees are based on a 75/25 portfolio and are subject to change.* | |

### What are the anticipated fund, limited partnerships, separate account, CITs, ETF, etc., fees and expenses?

For a typical current PFM client with a target 75/25 allocation, as of September 16, 2020, we estimate the manager fees to be .30% The anticipated underlying manager fee would be 30 bps (.30%) or $585,000 for a 75/25 based on a portfolio. This fee does not include any private equity or other alternatives that may be included in the System’s portfolio.

### What are the estimated fees and expenses charged by your Custodian/Trustee?

In line with industry best practice, we believe independent investment advisors should use a separate custody service provider to avoid conflicts of interest, maintain transparency in terms of service arrangements and provide safekeeping of assets under management. As such, we do not directly provide trust and custody services.

Although we currently work with dozens of custodians, we have established a particularly strong working relationship with U.S. Bank, which serves as the independent custodian for the majority of our clients. As a result, we are able to negotiate a highly competitive fee structure for our clients (1.5 basis points on assets, plus additional transaction-based fees). U.S. Bank provides its clients with an online benefit payment portal for inputting any changes to participant data, lump sum payments, etc. that U.S. Bank then uses to process the benefit payments. U.S. Bank’s tax services include annual tax form production, TEFRA mailing and state and federal tax payments and filings.

### Do you intend to charge for special projects or ad hoc work? If so, how would these services be defined and billed? Would there be a discount from the standard fees or special projects?

PFM does not intend to charge for special projects or ad hoc work.

### If hired, will your firm receive any other form of compensation from working with this account that has not yet been revealed? If yes, what is the form of compensation?

No.

### Describe in detail any mutual fund revenue sharing (recapture), 12b-1 fees, finder’s fees, directed brokerage commissions (separate accounts), collective trust rebates, and any other revenues or fee rebates. Full transparency and disclosure of expenses, fees, revenue sharing, etc. is an absolute and nonnegotiable requirement.

There are no circumstances under which PFM receives compensation from mutual fund revenue sharing (recapture), 12b-1 fees, finder’s fees, directed brokerage commissions (separate accounts), collective trust rebates, or any other revenues or fee rebates. Our clients are our only source of income, thereby maintaining our 100% independence to make fiduciary decisions in the best interest of our clients.

### If your organization plans to bill for special projects on an hourly basis, please include a schedule showing the hourly rates of the professionals who would be assigned to the Trust’s account. If selected, your organization will be expected to provide detailed back- up documentation reflecting the number of hours expended on a special project, billing rates, the subject matter of the services rendered, and the particular person(s) rendering those services.

PFM does not plan to bill for special projects on an hourly basis.

* 1. Miscellaneous

### Please provide a confirmation of your organization’s willingness and availability to commence work immediately upon selection and to devote sufficient resources to perform any and all services in a timely and efficient manner.

PFM confirms our willingness and availability to commence work immediately upon selection and to devote sufficient resources to perform any and all services in a timely and efficient manner.

### A certification that all information contained in the proposal is complete and accurate, signed by a person authorized to negotiate on behalf of and contractually bind your organization. Any misrepresentation in the proposal could result in the termination of the contract at any time and potential liability.

We certify that all information contained in the proposal is complete and accurate, signed by a person authorized to negotiate on behalf of and contractually bind your organization. We acknowledge that any misrepresentation in the proposal could result in the termination of the contract at any time and potential liability.

### Any other information you feel will be beneficial to support your proposal.

In addition to the core investment advisory services that we have described throughout this proposal, PFM also provides a wide range of ancillary services to our public-sector clients. These services will be negotiated under a separate contract with the City and may be provided by our affiliates. We are happy to further discuss any of these services with you.

* **Treasury Consulting/Banking Services RFP.** Development and design of a banking services RFP customized to the specific needs of the System. In this role, we would work closely with the System staff to review and evaluate proposals submitted by custody service providers to help ensure that the System staff obtains the appropriate services to meet specified needs.
* **Arbitrage Rebate.** Our arbitrage rebate compliance practice is focused exclusively on the challenges of arbitrage rebate and post-issuance compliance. We work with issuers of every size all across the country, and our internally developed arbitrage rebate calculation models maintain the flexibility needed to analyze a wide variety of tax scenarios.
* **Post-Issuance Compliance.** We can assist issuers with the development of a system for post-issuance compliance that meets the best practices sought by the IRS. This compliance system builds upon current business procedures, and documents by incorporating client-specific processes, written policies and procedures, and internal controls to help ensure continued and timely application.
* **Other Post-Employment Benefits Programs.** PFM’s OPEB Management Program provides thorough and rigorous solutions to the decision-making process, budget implications analysis and ongoing investment management services to offer a comprehensive program for public entities.
* **Synario Financial Modeling Platform.** PFM’s affiliate, PFM Solutions LLC, offers a flexible financial modeling platform designed to produce dynamic, multi-year financial projections to facilitate strategic planning. Its patented architecture permits users to easily consider alternative portfolios of operating and capital assumptions, and its browser-based functionality allows for distributed use and multi-dimensional reporting.
* **Procurement Card (“P-Card”) Program.** The P-Card program is a simple, easy-to-use purchasing card program designed to help clients streamline the purchasing process, offer spending controls to mitigate risk and provide free insurance protection from any employee misuse.

Standard Investment Advisory Provisions

If PFM Asset Management LLC is awarded the engagement, we respectfully request the inclusion of certain provisions in the resulting contract that are driven by our status as an investment advisor registered under the Investment Advisers Act of 1940 (e.g., registered advisor description; conflict of interest provision; our maintenance of books and records; and our disclosure statement [Form ADV, Parts 2A and 2B]).

**I. Proposal Questions**

# Appendices

1. Form ADV, Parts 2A and 2B
2. Insurance Statement and Certificates of Insurance
3. Resumes of Key Professionals
4. Sample Investment Policy Statement
5. Sample Client Reporting
6. Sample Monthly “Flash” Statement
7. Sample Quarterly Performance Report
8. Multi-Asset Class Performance Composites
9. Sample Guidelines for Domestic Equity Manager and Domestic Fixed Income Manager

1. Public retirement plan services provided by Spagnola-Cosack, Inc. prior to acquisition by PFM. [↑](#footnote-ref-1)
2. Represents discretionary multi-asset class and investment consulting assets for Public defined benefit plans and OPEB trusts. [↑](#footnote-ref-2)
3. Services provided by PFM Financial Advisors LLC are pursuant to separate agreement and fee. [↑](#footnote-ref-3)
4. Represents total defined benefit and defined contribution assets managed or advised for Public, Non-Profit and other institutional investors. [↑](#footnote-ref-4)
5. Client list as of June 30, 2020. Client examples were selected based on client type and/or other non-performance-based criteria to show PFM’s representative clients. A full list is available upon request. These examples do not represent an endorsement or testimonial of the services of PFM. [↑](#footnote-ref-5)
6. The information presented below is based upon past experience to illustrate particular analysis or decisions in the context of market events and does not describe all portfolio changes. Further information is available upon request. [↑](#footnote-ref-6)
7. Source: https://www.burlingtonvt.gov/Retirement/Valuation-Information. [↑](#footnote-ref-7)