PUBLIC SCHOOL RETIREMENT SYSTEM
OF THE CITY OF ST. LOUIS

INVESTMENT AND OPERATING GUIDELINES

February 25, 2019

I. GENERAL

A. The Public School Retirement System of the City of St. Louis ("PSRSSTL") is a defined benefit retirement plan established to provide retirement benefits to participants in accordance with the specific provisions of R.S. Mo. §§169.410 - 169.540 and the general provisions of R.S. Mo. §§169.560 - 169.597 and R.S. Mo. §§ 105.660 - 105.691 (collectively the "PSRSSTL Statutes").

B. These Investment and Operating Guidelines are issued pursuant to Rule XIV of the PSRSSTL Rules and Regulations for the guidance of fiduciaries, including the PSRSSTL staff, investment consultant, other investment professionals and the investment managers ("Managers") in the course of investing the retirement funds ("Fund") of the PSRSSTL and to assist in measuring the performance of the Managers and the Fund. These guidelines supplement the formal Investment Policies of the PSRSSTL Board of Trustees as set forth in Chapter A, Rule XIV of the PSRSSTL Rules and Regulations and should be read in conjunction therewith.

II. PERFORMANCE OBJECTIVES

A. Total return on Fund assets shall consistently rank in the top half of the investment consultant's Public Total Funds Universe, and shall meet or exceed the return of the PSRSSTL Policy Index. "Total return", as used herein, includes income less expenses plus realized and unrealized gains and losses in the PSRSSTL assets. (See Appendix I for an explanation of the Policy Index.)

B. Appendix III to these guidelines provides specific guidance regarding individual Manager assignments or classifications, benchmarks, and guideline exceptions. Appendix III, combined with the applicable sections of these guidelines and the PSRSSTL Rule XIV, provide a complete statement of investment objectives, rules and guidelines for each investment Manager, exclusive of rules or guidelines directly incorporated into contracts or other similar agreements.

C. Total Fund risk exposure and risk adjusted returns will be regularly evaluated and compared to the investment consultant's Public Total Funds Universe. Total Fund risk exposure is expected to be midrange (25th to 75th percentile) relative to the investment consultant's universe of public total funds. Risk-adjusted returns are expected to rank consistently in the top half of the investment consultant's Public Total Funds Universe over time. (See Appendix I for an explanation of risk adjusted returns.)

D. Equity Managers

1. Total return for domestic equity specialist Managers shall meet or exceed the Standard & Poor's 500 stock index or an appropriate index based on the Manager's style and consistently rank in the top half of the investment consultant's appropriate Domestic Equity Specialist Fund Universe.

2. Total return for international equity specialist Managers shall meet or exceed the MSCI EAFE (Europe, Australia and Far East) index and consistently rank in the top half of the investment consultant's universe of Developed International Equity Specialist managers. Emerging international equity Managers shall meet or exceed the MSCI Emerging Markets index and rank in the top half of the investment consultant's Emerging International Equity Funds Universe.

E. Fixed-Income Managers

1. Total return for domestic fixed-income Managers shall consistently meet or exceed the Barclays Aggregate Bond Index or an appropriate index based on the Manager's style, and consistently rank in the top half of the investment consultant's appropriate domestic Fixed Income Specialist Fund Universe.

2. Total return for global fixed income Managers shall meet or exceed the Citi World Government Bond Index or an appropriate index based on the Manager's style and consistently rank in the top half of the investment consultant's universe of Global Fixed Income Specialist managers.

F. Real Estate Managers

The performance objectives for each Manager, over a three-year to five-year period, are to outperform the Frank-Russell NCREIF Property Index or appropriate index based on the Manager's strategy and to rank in the top half of the investment consultant's real estate fund universe.

G. Private Capital Market Investments, Market Neutral and certain hedge funds as defined in Rule XIV

1. Achieve a market rate of return commensurate with the perceived risk for each investment undertaken.

2. Investment returns will be compared to the return on similar investments that originated during the same period.

H. Normally results will be evaluated over a three-year to five-year time horizon, but shorter-term results will be reviewed regularly and earlier action taken if the Board of Trustees, in its sole discretion, determines such action to be in the best interest of the Fund.

III. ASSET ALLOCATION POLICY

In order to have a reasonable probability of consistently earning the long-term target return, the PSRSSTL Board of Trustees ("Trustees") has adopted the asset allocation policy contained as Appendix II to these guidelines.

IV. INVESTMENT GUIDELINES

A. Rule XIV authorizes the adoption of such policies, procedures and limitations as are necessary, advisable or appropriate for the management of the Fund or any asset class component of the Fund. Toward this end, Managers shall manage their holdings in compliance with the provisions set forth below.

B. Domestic Equity Managers

1. Equity Managers will be expected to manage their holdings in order to maximize net long-term returns. It is contemplated that the equity specialist Managers, except the equity component of balanced portfolios, shall normally be fully invested, maintaining a 90-100% equity commitment level. Managers should determine that the securities to be purchased are of an investment grade suitable for their accounts.

2. A single company, except mutual funds, shall neither exceed 10% of the market value of an equity Manager's total portfolio at purchase nor increase to 15% of the Manager's total portfolio.

3. No purchase shall be made by a Manager, which would cause a holding to exceed 10% of the market value of the issue outstanding.

4. There shall be no short selling, securities lending, use of financial futures or other specialized investment activity without the prior approval of PSRSSTL.

5. Equity Managers may invest up to 10% of their portfolios in reserve and cash equivalent investments. However, these investments should be made primarily on the basis of safety and liquidity and only secondarily by yield available. Such securities shall carry ratings the equivalent of Standard & Poor's Corporation A1 or Moody's Investors Service, Inc. P-1.

C. Domestic Fixed-Income Managers

1. Fixed-income securities are to be selected and managed to ensure appropriate quality and maturity exposure, consistent with these guidelines and current money market and economic conditions. "Active" bond management (both for the fixed-income portion of the balanced portfolios and within fixed-income specialist portfolios) is encouraged, as deemed appropriate by the Managers. Fixed-income specialists, except the fixed-income portion of balanced portfolios, may vary their bond commitments from 90-100% of assets under their discretion.

2. As provided in the PSRSSTL Rule XIV, domestic debt securities may include U.S. Government and Agency obligations, corporate bonds, asset backed securities, agency guaranteed mortgage pass-through securities, and low risk collateralized mortgage obligations of comparable or lower risk, such as Planned Amortizations Class Level 1 and Sequentials, commercial paper, certificates of deposit and other instruments deemed prudent by the Managers.

3. No security, except issues of the U.S. Government or its agencies or mutual funds, shall comprise more than 6% of the Manager's total portfolio of assets, measured at market. Further, no individual portfolio shall purchase more than 6% or hold more than 10% of its assets in the securities of any single issuer, excepting issues of the U.S. Government or its agencies. (For mortgage-backed securities, an issuer is defined as a separate trust.)

4. The average duration (interest rate sensitivity) of an actively managed portfolio shall not exceed seven years. (See Appendix I for an explanation of "duration".)

5. The diversification of securities by maturity, quality, sector and coupon is the responsibility of the Manager.

6. There shall be no use of options, financial futures or other specialized investment activity without the prior approval of PSRSSTL.

7. The overall average quality of each high-grade fixed income portfolio shall be AA or better. The average quality rating of the securities held in a high yield portfolio shall be "B" or better. For split rated issues, for the purposes of meeting credit quality standards, the middle rating shall be considered (if rated by all three agencies), and the lower of the two ratings shall be considered (if rated by only two agencies). For issues rated by only one agency, that agency's rating shall be considered for the purposes of meeting credit quality standards.

D. International Equity Managers

1. International equity securities are expected to be issued by non-U.S. corporations, although the Manager, if authorized, may have latitude to hold U.S. securities provided that such investments are consistent with attainment of the portfolio's investment objective. An international Manager employing an active currency management program may, upon specific authorization of PSRSSTL, deal in futures and options within the discipline of that currency management program.

2. These portfolios should be considered as "equity funds" and shall normally be fully invested, maintaining a 90-100% equity exposure.

3. Decisions as to the number of international equity issues held and their geographic distribution shall be left to the Managers, provided that equity holdings in any one company, excluding mutual funds, may not exceed 6% of the market value of the Manager's total portfolio without the consent of the Trustees.

4. Short-term reserves may be held in U.S. dollar denominated securities or investment vehicles available through the PSRSSTL custodian.

5. Subject to limitations that may be contained in PSRSSTL Rule XIV, Managers may enter into forward exchange contracts on currency provided that use of such contracts is designed to dampen portfolio volatility or to facilitate settlement of securities transactions, rather than to leverage portfolio risk exposure.

E. Global Bond Managers

1. PSRSSTL global fixed-income portfolios should be considered as "bond funds" and shall normally be fully invested, maintaining a 90-100% bond exposure.

2. Short-term reserves may be held in U.S. dollar denominated securities or investment vehicles available through the PSRSSTL custodian or sub-custodian banks. Short-term funds must be rated A1 (S&P) or P1 (Moody's) or the equivalent using similar credit criteria.

3. Decisions as to the number of issues held and their geographic distribution shall be left to the Manager.

4. Upon specific authorization of the Trustees, global Managers may employ an active currency management program and deal in futures and options within the discipline of that currency management program. In the context of an active currency management program, cross currency and proxy hedging is allowed. The use of such contracts is designed to dampen portfolio volatility rather than leverage portfolio risk exposure. Currency contracts may also be used to either hedge the portfolio's currency risk exposure or in the settlement of securities transactions.

5. The overall average quality of each global fixed-income portfolio shall be A or higher. Non-rated issues may be purchased, provided that in the judgment of the Manager, they are of a quality sufficient to maintain the average overall portfolio quality of A or higher.

6. The average duration (interest rate sensitivity) of an actively managed global fixed-income portfolio shall not differ from the passive benchmark by more than two years.

F. Global Asset Allocation (GAA) Managers

1. Global Asset Allocation Strategies are allowed, where the manager has the ability to invest in, but is neither limited by nor required to hold, domestic, international and emerging equities and bonds, investments in real assets, such as commodities and real estate, and derivative products. The Manager will employ a global tactical asset allocation strategy that can change the capital structure of the fund at any time as market conditions dictate within the strategy guidelines of the Manager. These strategies may employ either a passive or active / tactical approach with regard to how the assets are invested. These strategies should be employed to improve the overall portfolio's diversification and to provide attractive risk-adjusted returns. These strategies may include products that are focused on generating absolute or real returns, compared to other strategies in the portfolio which may be more benchmark sensitive.

2. Fully covered or protected investments using options, futures or short sales are permitted in the interest of reducing volatility and protecting capital or changing asset mix.

G. Private Market Investments

1. Private capital markets investments are intended to enhance the diversification of the Fund and to achieve a market rate of return commensurate with the perceived risk of each investment.

2. All investments must have a mechanism for exit acceptable to the Trustees. The Trustees, after reviewing the totality of an investment's terms and acting in consultation with the PSRSSTL's Investment Consultant and other plan professionals, shall have sole discretion in determining whether an investment has an acceptable mechanism for exit, which could include, but is not necessarily limited to the right to sell or transfer the PSRSSTL's interest in the investment to a third party without the investment manager unreasonably withholding its consent to such transfer or sale.

3. References on the sponsor, investment adviser, manager, general partner or other person(s) performing substantially the same function (regardless of title) must be checked prior to investing in a fund, partnership or other investment vehicle.

4. An investment screening and review committee may be established to pre-qualify investment proposals. Evaluation of proposals will address the manager, the fund focus and strategy, and the fund structure.

5. The private markets investments will be diversified to reduce the risk of any single investment on the total Fund.

6. No more than 25% of the assets earmarked for private markets should be invested with a single manager, general partner, or single fund, with the exception of fund of funds.

7. Preference will be given to those funds where the general partner is contributing at least 1% of the total fund.

8. Reserves for future alternative investments may be held in large capitalization U.S. equities or domestic fixed income, as appropriate, subject to the investment guidelines for such investments.

9. Because commitments to most private market investments are drawn down over time, actual investments are usually less than committed investments. To compensate for this, the Fund may

commit more than the target allocation, perhaps as much as twice the target allocation, to private market investments in order to achieve the actual investment target.

H. Hedge Fund of Funds

1. The primary objective of these strategies is to provide positive absolute return throughout a market cycle (cash return + incremental spread), as well as provide increased diversification to the portfolio.

2. Each investment should fall within the expected risk and return characteristics historically displayed by domestic fixed income and public domestic equity investments. Leverage may be employed by managers within a specific fund of hedge funds, but not by the Fund of Hedge Funds Manager.

I. Real Estate Investments

1. The role of the real estate segment is to provide a stable return premium, after inflation, and to increase the diversification of the overall Fund.

2. Real Estate Managers will have full discretion to invest portfolios in accordance with the terms of their investment strategies. It is expected that the Managers will adhere to their stated philosophies and that any material deviation will be communicated promptly to the Trustees.

J. General Guidelines

1. Full discretion shall be granted to the Managers regarding their portfolio diversification, the selection of securities, and the timing of transactions, within the parameters of the objectives and guidelines described herein and in PSRSSTL Rule XIV.

2. While PSRSSTL is sensitive to excessive turnover, there shall be no specific limitation in this regard, recognizing the importance of providing flexibility to the Managers to adjust their asset mix in changing market conditions.

3. The flexible management of the portfolio is permitted, and while PSRSSTL is appropriately sensitive to book losses, there is no justification to hold a particular security, or to manage the collective assets, for the sole purpose of avoiding the recognition of a book loss.

V. BENEFIT PAYMENTS

Managers should assume that withdrawals may be made from their portfolios from time to time to pay benefits. The PSRSSTL Executive Director shall provide an annual projection of cash needs, updated on an interim basis, and an estimate of the drawdown requirements from their portfolios. Accordingly, appropriate liquidity should be maintained to fund these withdrawals without impairing the investment process.

VI. STANDARDS OF INVESTMENT PERFORMANCE

Performance of the Fund and individual Managers will be evaluated on a regular basis. Consideration will be given to the degree to which performance results meet the goals and objectives as set forth herein and in PSRSSTL Rule XIV. Toward that end, the following standards will be used in evaluating investment performance.

A. Managers will be deemed to have performed satisfactorily when compared with:

1. the objectives set, and
2. other similarly managed funds.

B. In addition to reviewing each Manager's results, PSRSSTL will re-evaluate, from time to time, its progress in achieving the objectives set for the Fund overall. This re-evaluation will involve an assessment of the continued appropriateness of (1) the manager structure; (2) the allocation of assets among the Managers; and (3) the investment objectives for the Fund.

C. The Trustees may appoint investment consultants to assist in the ongoing evaluation process. The consultants selected by the Trustees are expected to be familiar with the investment practices of similar retirement plans and will be responsible for suggesting appropriate changes in the investment program over time.

VII. WATCH LIST / PROBATION

A. A Manager may be placed on a watch list or on probation in response to significant changes in the ownership structure or key personnel; anticipated changes in the investment process; concerns about the Manager's recent or long term investment results; failure of the Manager to comply with the investment guidelines or other separate instructions; legal or regulatory concerns, or, any other event which the Trustees conclude may lead to a change in the Manager's status with the Fund. This is a guide for action, and notwithstanding the provisions herewith, the Trustees reserve the right to immediately place a manager on probation or to take immediate action to terminate a Manager for any reason at their sole discretion.

B. The process leading toward probationary status with regard to long term under-performance will normally be as follows:

A Manager will be placed on probationary status if, over four consecutive quarters, or, if over a two-year time frame, both of these conditions exist:

1. the Manager has failed to meet the return of the benchmark index, and
2. during this same period the return has not achieved median ranking in comparison to the Manager's assigned peer group.

C. A Manager may be placed on the watch list or on probation for under-performance in a lesser time period or other actions may be taken if deemed appropriate.

D. Any Manager on the watch list or in probationary status will not be eligible to receive additional investment funds.

VIII. REPORTING REQUIREMENTS

A. Managers shall promptly report on the following as soon as they occur:

1. Discovery of a material violation of the investment guidelines contained in this Investment Policy Statement;
2. A significant change in investment strategy, portfolio structure, or market value or liquidity of managed assets;

3. A significant change, in the ownership affiliations, organizational structure, financial condition, professional staffing, or clientele of the Investment Manager;
4. Sanctions against the firm or its employees by any state or federal governmental or regulatory agency, or the Financial Industry Regulatory Authority (FINRA), to the extent permissible by law.

B. Quarterly reports provided by each Manager within 30 days after the end of each calendar quarter shall contain the following information:

1. Review of Organizational Structure
    a. Organizational changes (i.e., ownership)
    b. Departures of/additions to key investment staff
    c. Total assets and accounts for product managed for the System
    d. Change in assets/accounts (i.e., Gains $ / Losses $) since last report
2. Summary of Investment Guidelines
    a. Summarize guidelines and objectives
    b. Discuss adherence to guidelines
    c. Provide any comments and suggestions regarding policy constraints, guidelines, etc.
3. Review of Investment Process and Evaluation of Portfolio Management Process
    a. Brief review of investment process
    b. Discussion of any changes to the investment process
    c. Investment strategy used over the past quarter and underlying rationale
    d. Evaluation (in hindsight) of strategy's success/disappointments
    e. Current investment strategy and underlying rationale
4. Performance Review
    a. Present total portfolio and asset class returns for last quarter, year-to-date, last year, three years and five years, and since inception versus designated benchmarks.
    b. Discuss performance relative to benchmarks. (International equity Managers should provide attribution analysis which identifies returns due to country allocation, stock selection, duration and currency decisions).
    c. Provide portfolio characteristics relative to benchmark.
5. Derivatives Review
    a. A list of all derivative positions as of quarter-end.
    b. An assessment of how the derivative positions affected the risk exposure of the total portfolio.
    c. An explanation of any significant pricing discrepancies between the Manager and the PSRSSTL custodian bank.
    d. A statement certifying compliance with PSRSSTL Rule XIV and these investment guidelines throughout the quarter; or, if the portfolio has been out of compliance, an explanation.

6. Provide Portfolio Holdings
   a. Present book value and current market value.
   b. List individual securities by:
      (i) Standard and Poor's Corporation sectors for domestic equities
      (ii) Countries and by industry within country for international equities
      (iii) Sector for domestic fixed-income
      (iv) Country, and, for corporate bonds (if any), by industry within country for global fixed-income.
   c. In the case of mutual funds, a statement showing: (1) the fund holdings broken out, minimally, by equity, fixed-income, cash equivalents and uninvested cash balances and (2) fund positions, by individually-named securities.

C. Annual Reporting

The annual reports submitted to the PSRSSTL Trustees, staff and investment consultant shall contain the following information:

1. Proxy Voting

   a. PSRSSTL may, from time to time, or at any time, retain responsibility for the exercise of ownership rights through proxy solicitations, in which case the Managers shall have no responsibility for proxy voting. If the Trustees delegate to the Managers responsibility for the exercise of ownership rights through proxy solicitations, the Managers shall exercise this responsibility strictly for the economic benefit of the Fund and its participants. Annually, Managers shall describe their standing policies with respect to proxy voting, including any changes that have occurred in those policies.

   b. The proxy votes for all shares of stock in companies held on behalf of PSRSSTL, specifically noting any instances where proxies were not voted in accordance with standing policy.

2. Commissions & Trading Costs

   The annual commission report should be delivered to the PSRSSTL Trustees, staff and investment consultant within forty-five (45) days of the end of each calendar year. The report should cover all trades executed during the prior calendar year. Each annual commission report should include the following:

   a. *Broker Selection Policy.* Discussion of the firm's policy for selecting brokers, reviewing brokers, and negotiating brokerage commissions. This discussion should identify any situations where the Manager has a financial interest in brokers used to execute trades in the portfolio and a list of all broker-dealers used by the firm.

   b. *Commission Expense.* Provide a review of the portfolio's actual commission expense over the prior year. At a minimum, this should be broken down by broker and include a distinction between commissions on listed versus unlisted securities, average commission per share, total shares traded, total commission expense, and total trading volume.

c. *Transaction Cost Analysis*. If the firm has a system for monitoring total transaction cost, commissions plus market impact, a copy of this analysis should be provided. If no system is being used, the commission report should include a complete explanation of how the firm monitors selected brokers for best execution.

d. *Soft Dollar Policy*. This should include a discussion of the firm's soft dollar policy, including the procedures in place to assure that any services purchased by the firm with soft dollars provide economic benefit to the Fund.

e. *Soft Dollar Expense Review*. Identify any goods and services purchased with soft dollars over the past year. This should report, at a minimum, the goods and services purchased, the total cost, and the share of that total cost paid by the Fund.

IX. IMPLEMENTATION

All monies invested for PSRSSTL by its Managers after the adoption of this investment policy shall conform to this policy.

FOR PSRSSTL	**FOR THE INVESTMENT MANAGER**
Approved by:	Approved by:
PUBLIC SCHOOL RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS	
Name of Organization	Name of Organization
Signature	Signature
ANDREW CLARK	
Printed Name	Printed Name
EXECUTIVE DIRECTOR	
Title	Title
Date	Date

APPENDIX I - Glossary

This appendix to the Investment and Operating Guidelines for the Public School Retirement System of the City of St. Louis ("PSRSSTL") is written to provide additional background regarding the selection and interpretation of various standards contained within the guidelines.

- **Policy Index** - Total return should meet or exceed the System's Policy Index . . .

  The Policy Index is constructed by using target asset class percentages applied to market rates of return. The Policy Index for the System is calculated using the following target allocations and indices:

Asset Class / Product	Target %	Rating Index
Equities		
Domestic Large Cap	13.0	S&P 500/Russell 1000 Growth & Value
Domestic Mid/Small/Micro Cap	9.0	S&P 400 Mid Cap, Russell 2000 Growth/Value/Micro Cap
Established International	14.0	MSCI EAFE
Emerging International	5.0	MSCI Emerging Markets
Emerging International (Small Cap)	3.0	MSCI Emerging Markets Small Cap
Global Stocks	5.0	MSCI All Country World
Global Asset Allocation	5.0	MSCI World/Citi WGBI/Mellon/PIMCO
Fixed-Income		
Domestic Core Bonds	8.0	Barclays Aggregate
Absolute Return	5.0	BofA Merrill Lynch US$ 3-Mo. LIBOR Constant Maturity
Emerging Markets Debt - Blended	3.0	50% JPM GBI-EM Global / 50% JPM EMBI Global
Global Multi-Sector Bonds	5.0	Barclays Global Aggregate – Hedged
Treasury Inflation-Protected Securities (TIPS)	3.0	Barclays TIPS
Hedge Fund Strategies	5.0	HFRI FOFs/HFN Multi-Strategy
Real Estate	7.0	NCREIF
Private Equity	7.0	Venture Economics Private Equity
Private Debt	3.0	S&P Leveraged Loan, ML HY, HFRI ED

Risk-adjusted Returns - Should be consistent . . .

Risk-adjusted returns are usually calculated by isolating the return earned in excess of the risk-free rate (the T-bill rate) and evaluating that return in relation to the additional risk (volatility, or standard deviation) incurred in earning the incremental return.

For example:

	Return	Risk	Excess Return	Excess Return Divided By Risk
T-Bills	8%	--	--	
S&P 500	12%	16%	4%	4/16 = 0.25
Manager A	12%	20%	4%	4/20 = 0.20

In this example, both the Equity Manager and the market earned 4% over T-Bills, but the Equity Manager incurred somewhat more risk and had lower risk-adjusted return - not a desirable situation. A higher risk adjusted return indicates that more return was achieved for the amount of risk taken.

- **Duration** - The average duration (interest rate sensitivity). . .

  Duration is a measure of interest rate sensitivity. It provides a ball park estimate of how much the current price of a security (or the current cost of funding a liability stream) will vary for a given change in interest rates. For example, the price of bonds with durations of seven years will increase roughly 7% if interest rates decline 1%; conversely, the price of these bonds will tend to decline 7% if rates go up 1%.

  Duration may be the same as maturity, but usually it is not. For example, coupon bearing 20 year bonds will typically have durations in the 6-7 year range. However, 20 year zero coupon bonds will have durations of 20 years.

  Accordingly, it is appropriate to conclude that a 20 year zero coupon bond is roughly three times more volatile, or aggressive, than a 20 year coupon bearing bond.

  For example, the Barclays Aggregate Bond Index is based on durations of approximately 5.0 years. The seven year guideline, then, would permit active bond Managers to hold a bond portfolio some 40% more volatile than the market (seven years versus five years). Clearly, this latitude would permit a Manager the opportunity to structure a portfolio which would appreciate more than the market in good times, when rates are declining. However, the risk of incurring higher losses than the market also exists if the Manager extends to the maximum allowable term and rates increase.

APPENDIX II - Asset Allocation Policy

The actuarial rate of return (discount rate) assumption for the Fund is 7.5%. In order to have a reasonable probability of achieving this assumption, the Trustees have adopted the asset allocation policy outlined below.

Asset Class / Product	Target Allocation	Exposure Range
Equities	**49.0%**	**29 - 64%**
Domestic Large Cap	13.0%	9 - 16%
Domestic Mid/Small/Micro Cap	9.0%	6 - 12%
Established International	14.0%	8 - 17%
Emerging International	5.0%	3 - 7%
Emerging International (Small Cap)	3.0%	0 - 5%
Global Stocks	5.0%	3 - 7%
Global Asset Allocation	**5.0%**	**3 - 7%**
Fixed Income	**24.0%**	**13 - 34%**
Domestic Investment Grade	8.0%	6 - 10%
Absolute Return	5.0%	3 - 7%
Emerging Markets Debt	3.0%	1 - 5%
Global Multi-Sector Bonds	5.0%	3 - 7%
Treasury Inflation-Protected Securities (TIPS)	3.0%	0 - 5%
Hedge Fund Strategies	**5.0%**	**3 - 7%**
Real Estate	**7.0%**	**5 - 9%**
Private Equity	**7.0%**	**2 - 9%**
Private Debt	**3.0%**	**1 - 5%**
Cash	**0.0%**	**0 - 10%**

(Revised 02-25-19)

APPENDIX III – Performance Benchmarks

This Appendix provides specific guidance regarding individual Manager assignments for classifications, benchmarks and guideline exceptions. Combined with the applicable sections of the Investment and Operating Guidelines and PSRSSTL Rule XIV, this Appendix provides a complete statement of investment objectives, rules and guidelines for each investment Manager, exclusive of rules or guidelines directly incorporated into contracts or other similar agreements.

Asset Class/ Manager Product Names	Rating Index/Benchmark	Peer Group Assignment	Comments / Exceptions**
U.S. EQUITY MANAGERS			
Large Cap Growth Managers	Russell 1000 Growth	IFU* Large Cap Growth Managers	Separate Accounts
Large Cap Value Managers	Russell 1000 Value	IFU* Large Cap Value Managers	Separate Accounts
Large Cap Core Managers	S&P 500	IFU* Large Cap Core Managers	Co-mingled Fund(s)
Mid/Small/Micro Cap Managers	S & P 400 Mid-Cap Russell 2000/Micro Cap	IFU* Small/Micro Cap Managers	Co-mingled Fund(s) / Separate Accounts
U.S. BOND MANAGERS			
High Grade Core Managers	Barclays Aggregate	IFU* Core Bond Managers	Separate Accounts
Absolute Return Bond Managers	BofA ML US$ 3Mo LIBOR	IFU* Absolute Return Bond Managers	Co-mingled Funds
TIPS Managers	Barclays TIPS	IFU* TIPS Managers	Separate Accounts
INTERNATIONAL & GLOBAL EQUITY MANAGERS			
International Equity Managers	MSCI EAFE/MSCI EM/ MSCI EM Small Cap	IFU* International Equity Managers	Co-mingled Funds / Separate Accounts
Global Equity Managers	MSCI All Country World	IFU* Global Equity Managers	Separate Accounts
INTERNATIONAL & GLOBAL BOND MANAGERS			
International Bond Managers	JPMorgan EM Blended	IFU* EM Bond Managers	Co-mingled Funds
Global Multi-Sector Bond Managers	Barclays Global Aggregate - Hedged	IFU* Global Bond Managers	Co-mingled Funds
GLOBAL ASSET ALLOCATION (GAA) MANAGERS			
Existing Manager	60% MSCI World 40% Citi WGBI	IFU* GAA Managers	Co-mingled Funds
Existing Manager	Mellon Custom Benchmark	IFU* GAA Managers	Co-mingled Funds
Existing Manager	PIMCO All Asset	IFU* GAA Managers	Co-mingled Funds
REAL ESTATE MANAGERS			
Existing Manager	NCREIF	IFU* Real Estate Managers	Agreements exclude some guidelines
ALTERNATIVE INVESTMENTS			
Private Equity/Debt/ Real Estate Managers	Venture Economics PE / S&P LL, ML HY, HFRI ED	IRR based on Vintage Year	Agreements exclude some guidelines
HEDGE FUND MANAGERS			
Fund of Fund Managers/ Multi-Strategy Managers	HFRI Fund of Funds Composite / HFN Multi-Strategy	IFU* Hedge Fund Managers (Depends on Manager's Style)	Agreements exclude some guidelines

* Investor Force Universe
** Co-mingled Funds may be excluded from some investment and operating guidelines because of an agreement

(Revised 02-25-19)

APPENDIX IV – Minority or Women-Owned Business Enterprise (MWBE) Brokerage Policy

The Board encourages the use of broker/dealer firms that are Minority or Women-Owned Business Enterprises.

The Fund's Investment Managers shall give consideration to certified Minority or Women-Owned Business Enterprises when executing trades for the Fund subject to each Investment Manager being responsible for implementing trading policies that result in the best price and execution of any broker/dealer selected.

In implementing this Broker/Dealer Trading Policy, the Fund has established the following minimum annual goals based on its current asset allocation:

1) Active Domestic Equity Investment Managers:

   Subject to best price execution, each Investment Manager shall direct at least one-third (33.3%) of total commission dollars, on an annual basis, to Minority or Women-Owned Business Enterprises. Step-out-trades will not be counted towards trades with Minority or Women-Owned Business Enterprises.

2) International Equity Investment Managers:

   Subject to best price execution, each Investment Manager shall direct at least 10% of total commission dollars, on an annual basis to Minority or Women-Owned Business Enterprises. Correspondence arrangements will not be counted towards trades with Minority or Women-Owned Business Enterprises.

3) Fixed Income Investment Managers:

   Subject to best price execution, each Investment Manager shall direct 10% of eligible fixed income trading volume (par) to Minority or Women-Owned Business Enterprises.

4) Transition Managers:

   Subject to best price execution, each Transition Manager shall direct at least 40% of total commission dollars to Minority or Women-Owned Business Enterprises. Step-out-trades will not be counted towards this goal.

Reporting

All trades must be identified in an Investment Manager's quarterly report submitted to the Board. Investment Managers must identify which brokers utilized are broker/dealers that are Minority or Women-Owned Business Enterprises and the dollar amount traded with each firm. In addition, the report should detail total shares executed, total trading commissions, and average commission cost per share.

When an Investment Manager cannot meet these goals, the Investment Manager must identify the reasons the goal could not be met within the quarterly report to the Board. Failure by an Investment Manager to meet the goals set forth in this Policy will be considered as a factor when evaluating the Investment Manager's overall performance and relationship with the Fund.

(Adopted 10-21-13)