EMPLOYEES RETIREMENT SYSTEM OF TEXAS

INVESTMENT IMPLEMENTATION PLAN

Adopted January 23, 2024

Effective January 23, 2024

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PURPOSE AND SCOPE

This Plan aims to support the ability of the Investment Staff (Staff) of the Employees Retirement System of Texas (ERS) to carry out its responsibilities with respect to the overall management of the ERS Trust (Trust) as well as the selection, contracting, and monitoring of its investments. This document is crafted within the context of the governance framework outlined below. This document and all addenda hereto are to be construed and administered such that they comply with all applicable federal and state laws and regulations as well as the IPS, as such may be amended.

Source of Direction	Responsible Authority	Role
Laws and regulations	Legislators and policymakers	Statutory framework for the operation of ERS
ERS Investment Policy Statement	ERS Board of Trustees	Policy framework for the management of the Trust
ERS Investment Implementation Plan	ERS CIO and Risk Committee	Plan for the implementation of strategy for the Trust including Asset Class Guidelines
ERS Asset Class Standard Operating Procedures	ERS Asset Class Directors	Processes for the implementation of asset class/program strategy including specific procedures

This Plan is primarily intended to complement the Investment Policy Statement (IPS) by providing more detailed guidance on the implementation of its objectives. Indeed, the obligation to maintain this document is understood to be implicit in the fiduciary responsibility assigned to Staff in the IPS to establish prudent policies that define the investment objectives and strategies of the Trust. In the event of an actual or perceived conflict, the IPS shall be construed to prevail.

A specific aim of this document is to fulfill the requirement set forth in Chapter V, Sections F and G of the IPS. This provision requires Staff to maintain Asset Class Guidelines internally that operate alongside the capital plans of the respective asset classes, as applicable. This Plan shall include strategy weights, geographic diversification, manager and fund concentration, and other metrics that establish suitable risk parameters for asset classes. Prior versions of the Asset Class Guidelines crafted as a standalone document are superseded by this Plan.

Since the IPS charges the Risk Committee with developing methods and tools necessary to implement strategic decisions, the Risk Committee shall oversee this document pursuant to its Charter. The Risk Committee will formally review this Plan at least annually to determine whether it remains appropriate considering the Board's investment philosophy and objectives, significant changes in the capital market conditions, and/or meaningful revisions to the structure of the Trust. Any revisions to this document will be promptly circulated to the appropriate parties in written format. The Chief Investment Officer (CIO) is authorized to approve deviations from this Plan in furtherance of compliance with the IPS, and shall report any such approvals to the Risk Committee at its next regular meeting.

Each program within the Investments Division (including Portfolio Management, Operations, Trading, GBP and Securities Lending) shall maintain Standard Operating Procedures (SOPs) detailing guidelines and procedures that are specific to their area of responsibility and that serve to supplement this Plan.

PHILOSOPHY AND APPROACH

Authority

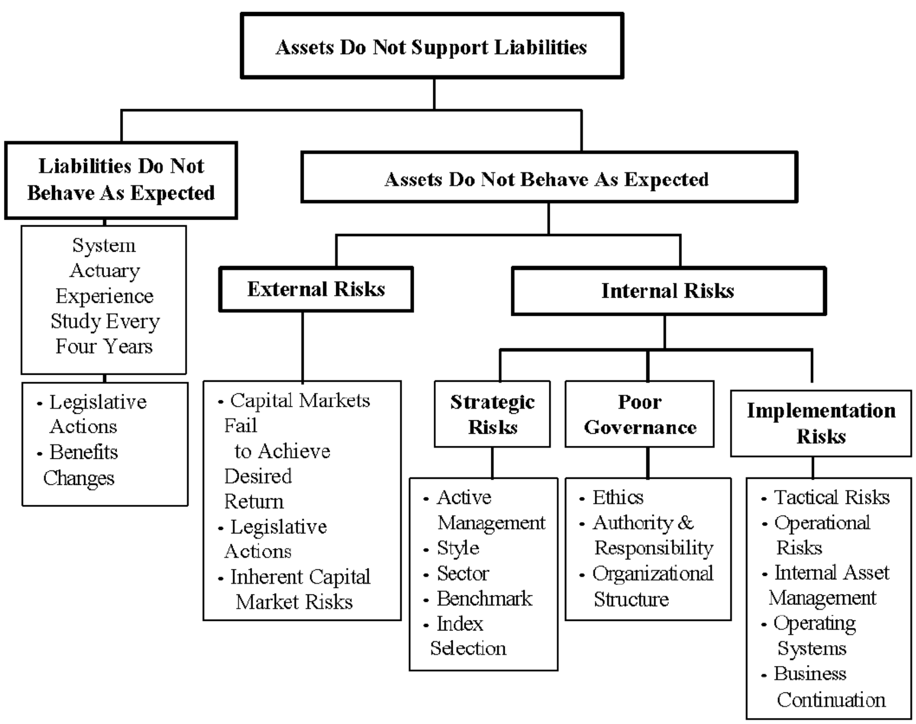
The IPS assigns to Investment Staff the responsibility for managing the Trust in the best interest of the Beneficiaries. Staff is to do so by making prudent and sound decisions regarding investment strategies, subjecting those strategies to strict due diligence, and reporting the performance of those decisions to the Board. As discussed in the IPS, the decision-making criteria for all investments is based on the “prudent person” standard, for which the ERISA prudence standards serve as a basis.

The assets of ERS are held in trust for the exclusive benefit of the Trust’s Beneficiaries and may not be diverted. This “exclusive benefit” rule must be followed when making any investment decisions. Moreover, the assets of ERS shall be invested and reinvested without distinction as to their source in accordance with Art. XVI, § 67, Texas Constitution.

Investment decisions should also take into consideration all of the assets of the Trust in aggregate and not focus solely on any single investment. This “whole portfolio” approach, in conjunction with the exclusive benefit rule, shall be the basis upon which investment decisions are made as provided in the Texas Constitution and Texas Government Code § 815.307.

Operating Framework

ERS has adapted the risk matrix set forth in *Statements of Key Investment Risk and Common Practices to* Address *Those Risks, June 2000.* This standard is endorsed by the Government Finance Officers Association (GFOA) and Association of Public Pension Fund Auditors (APPFA). These standards inform the ERS investment risk framework, which is depicted below:



- **External Risks –** External risks are embedded and inherent within the capital markets, and include most prominently the risk that capital markets fail to produce adequate long-term returns to meet the System's actuarial assumptions. This Plan shall guide the ERS investment process toward optimizing returns for the Trust within the context of these risks via effective implementation of a thoughtful strategy. However, such risks are generally managed via policy choices such as plan design and influence management assumptions such as the actuarial rate of return, and as such are generally the purview of the Board and policymakers.

- **Internal Risks:** Internal risks are embedded and inherent within the decisions that are made by Investment Staff. This Plan defines ERS strategy as the process of optimizing returns for the Trust within the context of these risks via effective implementation. These risks are generally the purview of Investment Staff since they speak to portfolio construction.

    - **Governance Risks**: These risks are mitigated by effective policies and clear decision making structures. Roles and assignments should be stated clearly in policy so that timely and effective action can be taken without confusion.

    - **Strategic Risks:** These risks are managed via Trust-level choices such as the extent to which implementation occurs via active management, private markets, etc. Such decisions should be made thoughtfully using a long-term oriented process that is deeply informed by relevant data and dynamically adjusted over time as market conditions change.

    - **Implementation Risks:** These risks center on the selection and monitoring of specific investments, strategies and managers. Such decisions should be made thoughtfully using a long-term oriented process that is informed by statistical methods, incorporates relevant data, and is dynamically adjusted over time as market conditions change.

These risks affect the total portfolio and affect almost each asset class in one or more ways. Management of these risks requires a Trust-level view of risk and a comprehensive strategy across the portfolio. This Plan is designed to set forth a clear and specific framework for the ongoing management of both the strategic investment risks and implementation risks of the Trust's investment activity.

Strategic Focus

Implementation shall be guided by the understanding that 80-90% of long-term investment performance is driven by the strategic asset allocation parameters and the positioning of the Trust within them. It should be recognized throughout the organization that even highly successful investment implementation at the asset class and sub-asset class level may not necessarily translate into strong performance for the Trust.

For example, even if every asset class produced positive relative returns but the Trust itself had a significant and persistent overweight to asset classes with relatively poor absolute returns, the overall result for the Trust would be negative excess return relative to the Policy Benchmark. Conversely, strong results from effective positioning of the Trust into asset classes with high returns can in some cases overcome weak implementation decisions at the fund/manager level.

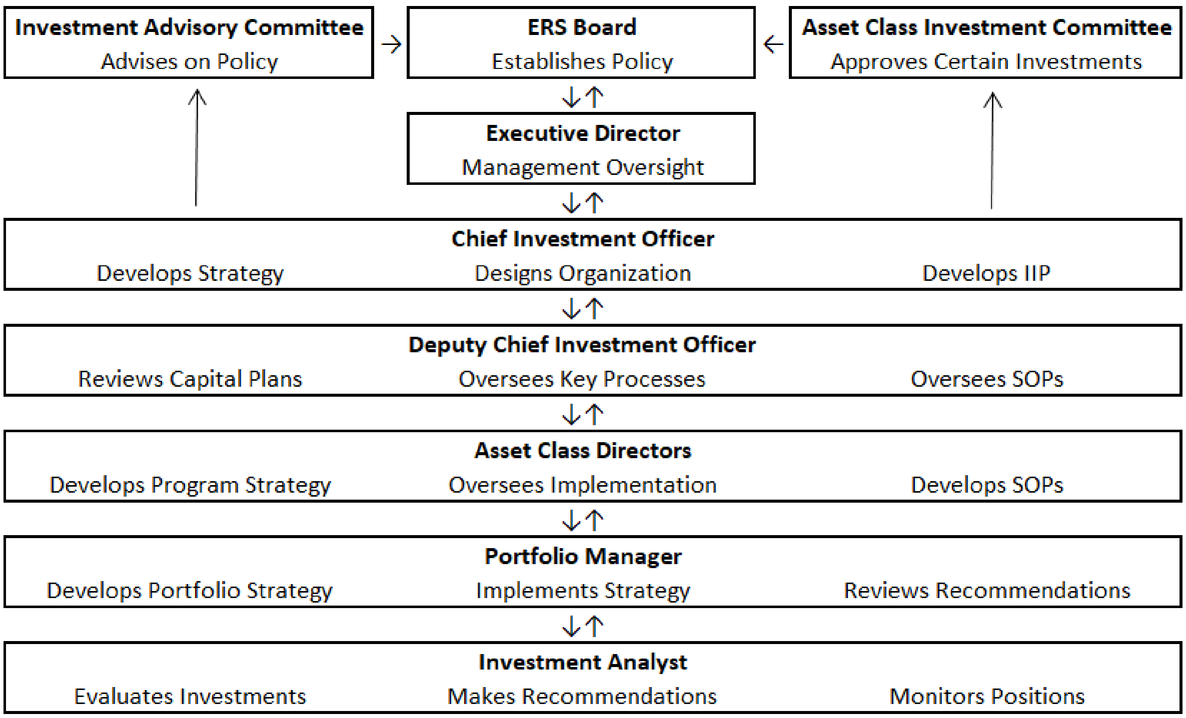
As a result, the strategic positioning of the Trust should be carefully monitored and intentionally managed with a keen eye toward maintaining strong risk-adjusted returns via effective diversification. Implementation decisions at the asset class and sub-asset class level should complement and align with the investment strategy of the overall Trust. This philosophy should also be applied at the asset class and sub-asset class level, where allocation decisions can often be more powerful than the implementation decisions within the portfolios.

ROLES AND RESPONSIBILITIES

Board of Trustees

The Board is responsible for formulating, adopting, and overseeing the investment policies of the Trust. Pursuant to Texas Government Code § 815.3016, the Board must approve alternative investments over 0.6% of the total market value of Trust assets as reported in the most recent ERS Annual Comprehensive Financial Report (ACFR). The IPS has set forth the governance structure below for the Trust, and this Plan aims to define the specific roles of Investment Staff within that context. This framework for policy implementation by Investment Staff is illustrated below:

POLICY IMPLEMENTATION FLOWCHART



Investment Staff is required to provide professional investment analysis and support, to exercise a standard of care consistent with fiduciary duty, and to maintain the integrity of the investment program. These duties are described in more detail in the IPS and the ERS Ethics Policy, which are incorporated here by reference, with additional detail contained in the Standards of Professional Conduct section within this document.

Executive Director

The Executive Director is appointed by the Board to manage and administer the System and its investments under the supervision and direction of the Board, and in accordance with applicable state and federal laws. In carrying out these responsibilities, the Executive Director has fiduciary responsibilities delegated by the Board under applicable law and is authorized to exercise his or her best judgment and discretion in planning, organizing, and administering the operations and investments of the System and ensuring that internal controls are in place to safeguard System assets.

Investment Advisory Committee

The Investment Advisory Committee (IAC) assists the Board in carrying out its fiduciary duties with regard to the investments of the Trust and related duties. The IAC reviews the investment strategies and related policies of ERS to provide comments and recommendations to assist the Board in adopting prudent and appropriate investment policies. In addition, from time to time, together with the Staff and investment consultants or advisors, the IAC recommends to the Board asset mix, portfolio strategy, investment policies, and eligible securities.

Asset Class Investment Committees

To review prospective investments within each asset class, an Asset Class Investment Committee (ACIC) will be utilized as described in Addendum VI of the IPS. ACICs will ensure that investments conform to the investment objectives outlined in the IPS, are consistent with the capital plans approved by the Board, and are prudent given current and anticipated market dynamics. Each ACIC will review investment recommendations prepared by Staff and, if applicable, the consultant. Each ACIC will approve or deny the investment decision based on information provided as well as investment information available to ACIC members based on their respective professional expertise.

Internal Investment Committee

To review prospective investment decisions across asset classes and for the Trust overall, the Chief Investment Officer may charter an Internal Investment Committee (IIC). This standing body may provide day-to-day oversight of Trust positioning and will consider rebalancing requests and other proposed changes to ensure that they conform to the investment objectives outlined in the IPS and the processes set forth by this document. The IIC may also provide governance support to the CIO and/or DCIO by considering any matters about which this policy or others may be silent or unclear, and also by reviewing emergencies where time is of the essence. The IIC shall maintain appropriate records of its activities including documentation of its regular meetings.

Internal Investment Working Groups

To develop and maintain expertise on investment allocations that span multiple asset classes and are relevant to the Trust overall, the Chief Investment Officer may charter one of more Working Groups. Such standing bodies may serve as knowledge centers for cross-functional matters, make recommendations for potential investments, and provide ongoing oversight of approved allocations. Working Groups shall maintain appropriate records of their activities including documentation of their regular meetings.

Investment Staff

Investment Staff is employed by ERS in accordance with Texas law and authorized by the Executive Director to provide professional investment analysis and support. These responsibilities include:

- asset allocation, portfolio construction, advisor/consultant selection;
- development, recommendation and implementation of the IPS;
- selection and monitoring of investment managers and funds;
- portfolio management and trade execution;
- company research and investment analysis;
- monitoring the recommendations and performance of external managers and consultants;
- voting of proxies and maintenance of the ERS Proxy Voting Guidelines;
- oversight of the Custodian and Investment Consultants.

Policy references to Investment Staff responsibilities should be construed to mean that the Chief Investment Officer has supervisory and oversight authority of those responsibilities.

Chief Investment Officer

The Chief Investment Officer (CIO) is part of the Investment Staff and directs the investment program consistent with the IPS, this Plan, and within applicable state and federal laws. The CIO works with the Executive Director to ensure that adequate resources are available to implement the Board's investment policies, including custody relationships, internal procedures, qualified investment staff, and analytical and risk management tools, subject to the budget approval process.

The CIO shall ensure that Investment Staff shall give consideration of the following factors as they relate to the System's investment strategy:

- the diversification of the Trust;
- the liquidity and income profile of the Trust relative to the liabilities of the System; and
- the expected return of the Trust relative to the funding policy of the System.

Every investment will be subject to careful due diligence, which shall be conducted by Staff with assistance from the Investment Consultant where applicable and reviewed by the Asset Class Investment Committee as required.

The CIO works closely with other members of the Investment Staff and the Investment Consultant(s) to ensure that policies and procedures provide adequate controls to protect the integrity of the investment program, and oversees all investment processes including the selection and oversight of Managers.

Deputy Chief Investment Officer

The Deputy Chief Investment Officer (DCIO) works with the CIO to develop and implement investment policy, portfolio strategy, and asset allocation including the formulation of project goals and objectives. The DCIO oversees the Asset Class Investment Committee (ACIC) process (including scheduling, diligence materials, meeting logistics, and documentation) and pursues continuous improvement for this process.

The DCIO conducts an initial review of materials for the ACIC meetings and participates in ACIC discussions as needed. The DCIO also works with internal teams to oversee the selection and monitoring of external advisors. The DCIO works with Investment Operations to deliver performance attribution for implementation decisions. The DCIO also oversees and reviews the Standard Operating Procedures (SOPs) for relevant programs.

Asset Class Managing Directors

The Asset Class Managing Directors report to the CIO and are primarily responsible for the strategic implementation of the investment program. Managing Directors work with the Consultant(s) as appropriate to advise the CIO on investment policy and management issues. Such issues may include the development of investment goals and objectives, investment policies and strategies, investment risk management policies, asset allocation decisions, the funding, defunding or termination of investment strategies, the establishment of investment performance benchmarks, and the development of investment management guidelines and restrictions. Recommendations will seek to advance the goals of the Trust as set forth by the CIO and DCIO.

Program Directors

The Program Directors report to the Managing Directors and are primarily responsible for implementation of the investment program. Program Directors work with the Consultant(s) to advise the Managing Directors and CIO on investment policy and management issues. Such issues may include the development of investment goals and objectives, investment policies and strategies, investment risk management policies, asset allocation decisions, the funding, defunding or termination of investment strategies, the establishment of investment performance benchmarks, and the development of investment management guidelines and restrictions. Recommendations will seek to advance the goals of the Trust as set forth by the CIO and DCIO.

Each private markets program shall develop a long-term capital plan that projects the expected commitments, capital calls, and distributions over the current fiscal year and at least the next four fiscal years. Pursuant to the IPS, the long-term capital plan and the forecasted 12-month tactical ranges shall be presented to the Board at least annually for approval. Further details on investment implementation for each asset class shall be included within the capital plan that is presented for approval by the Board on an annual basis. Approvals by an ACIC shall count toward the capital plan for the fiscal year of the approval rather than the fiscal year of closing. Such projections are understood to be based on a number of assumptions and as such the results and the timing associated with funding these commitments can be significantly influenced by market conditions.

In some cases, the mandate for a program may overlap with other asset classes. In such cases, the sponsoring program director will consult with the other program directors as well as the Managing Directors and the Chief Investment Officer to determine where a particular investment opportunity should reside within the Trust.

Portfolio Managers

Within internally advised allocations, a Portfolio Manager is responsible for maintaining the proper investment mix that best carries out the investment strategy of one or more individual portfolios. Within externally advised allocations, Portfolio Managers are responsible for monitoring a fund’s asset mix to assess asset class portfolio fit and validate underwritten exposure expectations. Within the context of private market investments, a Portfolio Manager will also build and monitor relationships with external managers including the timely provision of required information. Recommendations will seek to advance the goals of the asset class/program as set forth by the Asset Class/Program Directors.

Investment Analysts

Investment Analysts are responsible for analyzing potential investments, executing transactions as appropriate, and monitoring portfolio activity. Recommendations will seek to advance the goals of the portfolio as set forth by the Portfolio Manager. Within the context of private market investments, investment analysts will also build and monitor relationships with external managers including the timely provision of required information.

Risk Management Team

The Risk Management team, under the direct supervision of the Director of Risk Management, is responsible for monitoring the alignment of the Trust overall and the individual programs with all guidelines set forth in this document. Such monitoring shall include the development of independent methods to verify the information provided by the team such that the Risk Management team is not overly reliant on the representations of staff. A detailed report shall be provided to the Risk Committee on a monthly basis with exceptions clearly noted for consideration and potential action by the Risk Committee.

Stewardship Committee

The CIO shall appoint a Stewardship Committee of not more than five qualified, professional members of the ERS Investments Division. This Committee may also include non-voting members from other ERS divisions as deemed appropriate by the CIO, including the addition of observers as deemed appropriate by the Executive Director. This Committee monitors the day-to-day implementation of key stewardshop activities such as proxy voting, scrutinized investments, and the restricted list. As needed, the Stewardship Committee may consult with staff in other departments, with other ERS consultants, and with the Board/IAC.

STANDARDS OF PROFESSIONAL CONDUCT

The Investments division believes that an unwavering commitment to high standards of fiduciary conduct is foundational to the pursuit of superior long-term performance. This framework aims to provide a set of expectations that will guide behavior and support ethical decision-making. All ERS Investment Staff are covered by these standards and shall acknowledge them in writing annually.

- Loyalty. In matters related to their employment, Staff must act for the sole benefit of the ERS and not deprive ERS of the advantage of their skills and abilities, or otherwise cause harm to ERS.

- Consistency. Staff must make investment recommendations and take investment actions that are consistent with the stated objectives and constraints of the portfolio or strategy they manage.

- Diligence. Staff must exercise diligence, independence, and thoroughness in analyzing investments, making investment recommendations, and taking investment actions.

- Confidentiality. Staff must protect confidential information including the intellectual property associated with the investment process while abiding by all regulations regarding open records.

- Reasonableness. Staff must have a reasonable and adequate basis that is supported by appropriate research and investigation for any investment analysis, recommendation, or action.

- Judgment. Staff must use reasonable judgment in identifying which factors are material to their investment analyses, recommendations, and actions. Those factors must be clearly included in communications with interested parties.

- Transparency. Staff must make reasonable efforts to ensure the communication of investment performance information is fair, accurate, clear, and complete.

- Thoroughness. Staff must disclose to interested parties the basic format and general principles of the investment processes that are used to analyze investments, select securities, and construct portfolios. Any significant risks and limitations associated with the investment process must be clearly included in communications with interested parties.

- Timeliness. Staff must promptly and proactively disclose any changes that might have a material effect on investment processes. Investment recommendations and any subsequent changes to those recommendations shall be delivered in a timely fashion.

- Integrity. Staff must not engage in any professional conduct involving dishonesty, fraud, or deceit or commit any act that reflects adversely on their professional reputation, integrity, or competence. Covered Persons must also report any suspected violations of applicable laws, rules, regulations, and policies to their supervisor and Investment Compliance.

- Supervision. Staff must make reasonable efforts to ensure that anyone subject to their supervision or authority complies with applicable laws, rules, regulations, and policies.

Covered Persons should direct any questions regarding these principles and report any concerns to their supervisor as soon as possible. Violation of these principles may be considered a breach of fiduciary duty and lead to administrative action as outlined in the Investment Policy Statement.

OBJECTIVES AND MEASUREMENT

Strategic Purpose

As stated in the IPS, the overall objective of the ERS investment program is to invest prudently in securities at a reasonable and predictable cost to deliver performance that supports the current and future provision of earned benefits for members, retirees, and beneficiaries (Beneficiaries) of the Trust funds managed by the System. The selection and management of Trust assets will be guided to generate superior risk-adjusted returns to fund the long-term liabilities of the System while maintaining prudent diversification of assets to provide liquidity to the meet the short-term obligations of the System. This dual mandate shall deeply inform the investment strategy of the Trust and the decisions that are made by Investment Staff.

Performance Objective

The IPS specifies the following investment performance objectives for the Trust and its constituent investments:

- Obtain returns in excess of the adopted benchmark, and
- Achieve returns commensurate with the amount of active risk assumed.

Performance is to be measured primarily over rolling five-year periods, and returns are expected to at least exceed benchmark returns or the stated return objective net of investment expenses.

As stipulated in the IPS, private market investments are evaluated over rolling 10-year periods or other specified time periods using realized internal rates of return (IRR) and gross realized multiples. Unrealized metrics and/or shorter time horizons should also be used for evaluation purposes when the data set of realized metrics is limited. At a minimum, active returns are expected to exceed benchmark returns net of both direct and indirect expenses.

Additional information on the constituent asset classes, including benchmarks and risk metrics, is located in Table 4 of the Investment Policy Statement.

Measuring Returns

The Trust and its constituent investments are to be evaluated against associated benchmarks that describe, in general terms, the opportunity set and return characteristics available to comparable peer institutions. For certain private or more complex asset classes, the benchmark may serve as a proxy for expected returns rather than an approximation of the actual return that will characterize that component of the portfolio.

For the Trust overall and within each asset class, Staff shall adopt portfolio implementation strategies and investment styles to meet or exceed the overall investment objective of each asset class. As noted above, active returns relative to the returns of the adopted benchmark are expected to exceed the total cost of management and be proportionate to the amount of risk assumed.

As required by the IPS, Investment Staff shall report quarterly to the Board via the Investment Advisory Committee on the current status and historical performance of these implementation decisions. The baseline time horizon for assessing the achievement of these objectives is five years, though shorter and longer time periods should also be considered.

On behalf of ERS, the custodian calculates performance figures using two different approaches depending on the purpose:

- Those derived from the utilization of unit trust accounting as required to support the day-to-day operations of the Group Benefits Program (GBP). These figures are provided via the 2nd and 4th business day (BD) reports, and are analogous to "cash accounting" since transactions are not matched to the proper period but are instead recorded in the period in which they are received. For the 2nd/4th BD report, it may be appropriate and applicable to use a lagged benchmark to enhance comparability to asset classes such as hedge funds and private credit where reporting is regularly delayed by one or more months.

- Those derived from the calculation of performance-based gain sharing for Group 4 members. These figures are provided by BNY Mellon via matched performance reports and are analogous to "accrual accounting" since transactions are matched to the proper period instead of being recorded upon arrival. For such matched (i.e., non-lagged) performance calculations, the relevant benchmark data will not be lagged.

All performance reports will be reviewed for accuracy and completeness by Investment Operations before being distributed broadly to constituences. In all cases Staff shall seek to comply with Global Investment Performance Standards including as specifically detailed in the ERS GIPS Policies & Procedures Manual, which shall be approved annually by the CIO.

Measuring Risk

Staff recognizes that bearing prudent levels of compensated investment risk is critical in meeting the long-term return objectives of the Trust, which are in turn essential to the provision of benefits for current and future generations. This understanding acknowledges that investment risk cannot be eliminated but should instead be managed through appropriate diversification. Staff seeks to ensure that investment risks are adequately rewarded over time and that return expectations are consistent with the risk parameters established by the Strategic Asset Allocation (SAA) process.

Quantitative measures of risk such as volatility (i.e., the standard deviation of returns) shall be regularly measured, monitored, and forecast wherever possible. In particular, risk levels for the Trust and its constituent liquid investments are to be assessed using two primary measures:

- **Market Risk (i.e., Volatility or Absolute Risk):** Market risk is associated with making investments in the pursuit of long-term capital gains while facing the potential for infrequent but significant losses. Market risk is typically defined in terms of market volatility, which is often expressed as the standard deviation of monthly returns over three or more years. The program should target a long-term Sharpe ratio of 0.3 or better for the Trust overall as well as its constituent investments.

- **Active Risk (i.e., Tracking Error or Relative Risk):** Active Risk refers to the amount of risk in the portfolio that is attributable to the management decisions made by its fiduciaries. A common measure of active risk is commonly called tracking error, which can be best estimated within portfolios of tradable liquid securities. Actively managed mandates should target an Information ratio of 0.25 or better to ensure that the associated risk is adequately compensated.

When relying on relative measures of risk such as tracking error, it is critical to note that the calculation does not distinguish between strategies that increase market risk from those that reduce it. As such, relative performance and risk measures should be evaluated in conjunction with the absolute level of risk borne by that strategy. For example, when a strategy is outperforming its stated benchmark but does so with substantially more absolute risk than the benchmark, then that investment may in some cases be deemed unsuccessful. Likewise, relative underperformance that occurs with substantially less absolute risk than the benchmark may in some cases be deemed a success.

Since many risk models assume normality of returns and thus often fail to anticipate the severity of drawdowns, it is also important to monitor downside risk using forward-looking techniques such as scenario analysis and stress testing where applicable. Risk measurement efforts should also consider other statistical measures of historical and projected absolute risk such as Value-at-Risk (VaR) and maximum drawdown. These techniques can provide insight into potential future downside risks by analyzing historical market dislocations and potential future events to consider the resulting impacts on the Trust. It should be noted that accurate models for conducting these analyses may not be available for all asset classes. Further, the use of historical data to calibrate these risk models may limit their usefulness in anticipating future portfolio dynamics. For these reasons, the choice of risk model used to calculate forecasted tracking error shall be approved by the CIO on the basis of a recommendation from staff.

Since these risk management procedures are predominantly applicable to public markets, the assessment of investment risk within private markets should focus on analysis of sector concentration, leverage levels, terms, vintage year diversification and other key aspects of these investments.

Measurement Considerations

The use of performance data from the custodian for volatility and tracking error calculations has its own challenges. For instance, ERS attributes the performance of external investment managers to the month in which their statements are received by the custodian rather than the period in which the returns were earned. This presentation is similar to cash versus accrual accounting. Such an approach avoids the need to restate the Trust's net asset value and performance retroactively. However, the practice also creates spurious tracking error by including unusually large performance differences between the benchmark (recorded in real time) and the portfolio (recorded with a lag of up to 2 months) during periods of extreme market volatility. For example, most investments in the External Credit portfolio report performance quarterly, and this data is received by ERS 45 to 90 days after the end of the performance period. As noted earlier, this circumstance creates a timing mismatch for these activities relative to the rest of the Internal Credit portfolio, which reports daily. This anomaly artificially inflates realized tracking error in volatile markets, whereas in periods of normal volatility there is little impact.

The choice of implementation matters for risk calculations. In comparing similar investment holdings, risk measures for the illiquid vehicles as measured (such as volatility and tracking error) tend to be far lower than those for liquid vehicles. Specifically, the daily marking of liquid investments causes these portfolios to have significantly higher observed volatilities even though the underlying portfolios are similar. For example, illiquid strategies within private credit that are discretely marked at monthly or quarterly intervals exhibit less price and return volatility than being those that are publicly traded and marked on a daily basis.

STRATEGIES AND DILIGENCE

Permissible Investments

Statute allows the Trust to invest only in instruments that are deemed to be securities, the definition of which is included in Addendum III of the IPS. The Scrutinized Investment Policy, included as Addendum II of the IPS, includes detailed procedures that Staff shall follow to ensure compliance with Chapters 2270 and 808 of the Texas Government Code as well as other relevant regulations.

The authorized types of derivatives are set forth in Chapter V, Section I of the IPS and include:

- futures contracts
- options
- options on futures contracts
- forward contracts
- other derivatives commonly used by institutional investors.

However, derivative transactions within internally managed portfolios that would be considered either “swaps” or “security-based swaps” may only be used as specifically authorized in the IPS.

All investments must be of institutional quality, which means that the investment would be considered acceptable by other institutional investors with a similar asset mix and risk tolerance.

Investment managers and external advisors may be permitted to utilize derivatives to implement their approved investment strategies. Each investment manager or external advisor’s investment guidelines will generally specify the permitted amount and type of derivative usage. Underlying leverage shall be limited to the underlying portfolio in which the derivatives are approved. That is, investment managers may not use derivatives to introduce leverage at the Trust level using a different account.

Staff will establish prudent risk management procedures to monitor compliance by both internal and external managers with this Plan and to require prudent investment practice regarding derivative usage. Such procedures will, among other things, include taking into account any operational risks associated with various derivatives strategies.

Implementation Options

Implementation of the investment strategy and the Strategic Asset Allocation parameters set forth in the IPS may be carried out through:

- Both public and private market vehicles, with public markets representing the default given their lower cost structure and greater liquidity. Specifically, private markets investments should be expected to add meaningful amounts of diversification to the Trust and/or earn returns that compensate at least fairly for the incremental risks (such as illiquidity, governance, etc.) that such structures typically entail. Analytical tools should be developed internally to estimate, measure and monitor these premiums where possible.

- Both separate accounts and pooled vehicles, with separate accounts representing the default option within public markets given their greater transparency, customization, and liquidity. However, it is recognized that pooled vehicles may offer significant advantages over separate accounts, which would make them the preferred implementation approach for some strategies and/or geographies.

- Both active and passive strategies, with active strategies representing the default option where a reasonable expectation that they will contribute to the goals of the program can be demonstrated. Active strategies should be expected to add meaningful amounts of diversification to the Trust and/or earn returns that compensate at least fairly for the incremental risks (including tracking error, turnover, etc.) that they entail.

The IPS allows for external management:

- In public asset classes by using External Advisors where discretion for managing assets is maintained by Staff.

- In private asset classes by using external managers that may exercise full investment discretion to achieve pertinent objectives.

Use of the term Investment Managers in the IPS is understood to include both internal teams and external advisors unless otherwise noted.

Investment Managers shall act as fiduciaries of the Trust and exercise prudence, care, skill, and diligence in the course of selecting investments to buy or sell for the Trust. Investment Managers and External Advisors are responsible for adhering to the written guidelines and being in compliance with all applicable laws, rules, and regulations. Staff will monitor all Investment Managers and External Advisors for compliance with this Plan and strategy investment guidelines.

In public asset classes, External Advisors will be selected in accordance with applicable laws and rules by the appropriate ACIC to be maintained in a Select Pool. Staff will recommend External Advisors from the Select Pool for funding.

The ACIC process, as defined in the IPS, will be followed for investments for which such approval is required.

- If the investment amount is under the 0.6% threshold for Board approval authority, then the ACIC will approve or deny the decision.

- If the investment amount exceeds the 0.6% threshold, the ACIC will review the investment. Its recommendation, if any, will be provided to the Board if the investment is presented to the Board for consideration and approval.

Pursuant to Texas Government Code Section 815.3016, the threshold is based on the total market value of the System's assets as reported in the most recent ERS Annual Comprehensive Financial Report (ACFR). Investments for which Staff believes there are significant internal conflicts of interest may also be referred to the Board. Individual co-investments, including follow-on investments in the same deal, may not be greater than the established investment limits without Board approval. The co-investment limit applies to both existing and new relationships.

Costs matter and need to be effectively managed. Prudent investment decisions cannot be made without thoughtful consideration of the expected costs, which must be carefully monitored and managed whenever possible to maximize investment returns. Hence, investment decisions should seek to maximize returns net of fees rather than to minimize the associated costs.

Due Diligence

The due diligence process for each investment will include both operational and investment due diligence. Areas of review, as applicable, may include: an evaluation of the organization, business culture, background checks on key personnel, governance, analysis of performance, analysis of exposures, investment process, risk management and control, position review, compliance, operational infrastructure, document review, trade operations, custody and counterparties, financing, valuation practices, legal, reporting, auditors, information technology capabilities, and disaster recovery.

All underlying investments must be of institutional investment quality, which is defined as being considered acceptable by other prudent institutional investors of comparable size to ERS when considering an investment in a similar size and strategy. In addition, ERS will make a good faith effort to award contracts to or acquire services from qualified emerging fund managers when acquiring private financial services. An emerging fund manager is defined as a private professional investment manager with assets under management of not more than $2 billion.

VALUATION AND REPORTING

Background

In accordance with GASB Statement No. 72, investments of the Trust are reported at fair value. Fair value is the amount at which an investment could be exchanged at the measurement date in a current transaction between willing market participants, other than in a forced or liquidation sale. Since ERS holds a wide variety of securities in both separate accounts and pooled vehicles, establishing and maintaining a consistent framework for assessing the reliability and reasonableness of the associated values is critical to the integrity of the Investment program.

The U.S. Financial Accounting Standards Board (FASB) has established a uniform approach for how companies are required to establish fair value for their assets. This standard is today named Accounting Standards Codification 820 (ASC 820) and it includes a classification system for assets that is used across the investment management industry. The International Accounting Standards Board (IASB) has created IFRS 13 to serve a similar purpose at a global level.

In addition, ERS has claimed compliance with the Global investment Performance Standards (GIPS) for Trust performance since 2009 and for composites since 2014. As such, all reports prepared and presented by ERS related to composite and total fund maintenance, as well as the calculation, presentation, and distribution of performance, shall seek to comply with the GIPS standards. Staff separately maintains the GIPS Policies & Procedures Manual to facilitate specific compliance with the GIPS standards, and the valuation practices contained herein shall be harmonized with that document.

As outlined below, Staff relies heavily on these frameworks to guide its efforts with respect to valuation and its support of the Finance division, which maintains primary responsibility for the preparation of financial statements for ERS.

Framework

In accordance with GASB 72, ERS categorizes the fair value measurements of its investments within a fair value hierarchy as established by ASC 820 and IFRS 13. The categories for asset valuation measurements are distinguished by the level of observability of the inputs used to establish fair value as outlined below:

- For publicly traded investments (i.e., Level 1 assets), fair value is typically based on published market prices and quotations from brokers at current exchange rates, as available. Listed securities are traded on public exchanges and have readily identifiable and observable market values. These assets can be easily marked to market based on exchange pricing and include Treasury Bills, listed equities, and foreign currencies.

- For less liquid assets (i.e., Level 2 assets), fair value is typically based on quoted prices in inactive markets or models that have observable inputs, such as interest rates, default rates, and yield curves. For example, investments in derivatives may derive fair value from prices executed on an exchange or from over-the-counter (OTC) market quotations. Likewise, corporate bonds are generally valued based on yields currently available on comparable securities of issuers with similar credit ratings.

- For illiquid assets (i.e., Level 3 assets), fair value is typically based on models and unobservable inputs. That is, assumptions from market participants must be used to price the asset given that there is no readily available market information on them. The values can only be estimated using a combination of market prices, mathematical models and/or subjective assumptions. Examples of Level 3 assets may include limited partnership interests, private mortgage-backed securities (MBS), complex derivatives, and distressed debt.

It is important to note that the categorization of investments described above is based solely upon the observability and objectivity of the inputs used. Such a taxonomy aims to reflect the level of precision associated with the process used to measure fair value for an investment and does not necessarily reflect the level of risk associated with the investment itself.

Separate Accounts

For investments held in separately managed accounts, ERS is typically required to value directly its holdings of individual securities such as listed US equities or Treasury bills. Such values are typically provided by the custodian using exchanged-based pricing sources. For these investments, it is the role of Staff, in consultation with investment managers and the custodian, to assess the reliability and reasonableness (R&R) of the fair values provided for those investments. Since most (but not all) of these investments for the Trust are likely to be Level 1 and Level 2 assets, these R&R checks will be aimed at ensuring that appropriate pricing is applied to securities. However, for separate accounts that hold Level 3 assets (e.g., separate accounts that hold private real estate assets), the procedures for pooled vehicles outlined below should be followed as outlined further in the program SOPs.

Pooled Vehicles

Investments in pooled vehicles include interests in collective investment trusts, mutual funds, and limited partnerships (include funds-of-one due to the GP's interest), and/or limited liability companies. For the Trust most (but not all) of these investments will be categorized as Level 3 assets with fair value estimated by the investment manager in conformity with its applicable accounting standards. However, for pooled vehicles that hold Level 1 and/or Level 2 assets (e.g., passive equity index funds), the procedures for separate accounts outlined should be followed as outlined further in the program SOPs.

Fair value assessments for each investment are typically audited annually and the underlying investments may be periodically appraised by an independent third party. Since number of underlying holdings held by the Trust within these interests is currently in the thousands, Staff is necessarily reliant on the application of reliable processes by investment managers to produce reasonable estimates of fair value for the interests and their underlying holdings. These processes may employ one or more different approaches, which may involve using comparable asset analysis, replacement cost analysis, and/or discounted cash flows.

The scope of the valuation work conducted by pooled vehicles must be sufficient to demonstrate that the value of the underlying assets has been appropriately determined. As applicable, these practices should include:

- Documenting and following internal written valuation policies.
- Using appropriate, established, industry-specific valuation techniques.
- Notifying Staff of any changes to internal valuation policies.
- Ensuring oversight, review, and approval is independent of the portfolio manager.
- Reconciling any significant variance(s) from prior appraisals.
- Providing sufficient documentation for auditors to review key calculations, inputs, and assumptions.

If an external valuation firm is used to conduct any part of the appraisal process, such work must be performed in accordance with the appropriate authoritative standard for the country in which the asset is domiciled. Any material differences between external valuation and the valuation used in reporting by the manager, as well the reason for the differences, must be disclosed to Staff and the relevant Investment Consultant.

The responsibilities of Staff for assessing valuation within the context of pooled vehicles will be (1) to assess and monitor the reliability of the valuation methods used by the manager to provide valuations and (2) to assess the reasonableness of the valuations that are provided by the manager applying those processes. For the sake of clarity, this policy would emphasize that the role of Staff does not include revaluing private fund interests or the portfolio assets. Indeed, significant fund expenses are attributable to the provision of high quality valuation and audit work associated for these investments. As such, duplication of those expenses is not viewed by Staff to be a prudent fiduciary practice.

Due Diligence

In its evaluation of proposed investments, wherever applicable the internal Operational Risk Management team and external asset class consultants shall assess the valuation approach applied by the manager to the fund interests and the underlying assets. Significant management judgments and/or estimations are required to develop the valuations for Level 3 investments. As such, diligence efforts should assess the extent to which the manager discloses quantifiable information about the unobservable inputs used in its valuation processes.

The internal Operational Risk Management team and external asset class consultants shall also analyze the manager's valuation policy and assess the extent to which it clearly defines an acceptable valuation process to calculate NAVs. Such policies typically state which parties (i.e., deal teams, finance staff, risk managers, operations personnel, etc.) are to be responsible for performing valuation work and making recommendations. Such policies should also stipulate which party (i.e., an internal valuation committee or another such body) ultimately approves valuations. The manager's valuation policy should also speak to the threshold amounts or other circumstances under which an independent third-party review of its internal valuation recommendations would be requested.

The internal Operational Risk Management team and external asset class consultants shall make particular note of the independent auditor (including the professional reputation of the firm) and its role with the fund (including audit frequency and whether audits are inclusive of valuation). Diligence efforts should also assess whether the manager has restated the historical NAVs of the proposed investment and/or other vehicles that it has sponsored and/or operated.

Staff Monitoring

As described above, for separate accounts it is the role of Staff, in consultation with investment managers and the custodian, to assess the reliability and reasonableness of the fair values provided for those investments. The responsibilities of Staff for assessing valuation within the context of pooled vehicles will be (1) to assess and monitor the reliability of the valuation methods used by the manager, and (2) to assess the reasonableness of the valuations that are provided by the manager. All such assessment under this section shall be subject to a materiality standard at both the portfolio and Trust level.

If Staff determines that (1) the valuation process applied to a material fund investment and/or its underlying asset(s) is unreliable, or (2) that the valuation provided is unreasonable, Staff will express those concerns to the relevant manager and raise a challenge if necessary. Such feedback is important since an accurate assessment of fair value is essential to the ability of ERS to comply with the law and relevant accounting/audit standards. If this challenge process is unable to resolve the issue, Staff may pursue independent valuations to the extent it is prudent to do so in light of a materiality threshold.

Standard Operating Procedures (SOPs) for relevant programs shall explicitly define most common valuation methodologies used for their relevant program. For example, Staff expects that most private equity managers will value portfolio companies using the relative value approach (either guideline public companies or comparable transactions) while most private infrastructure managers will value assets using the intrinsic value approach. Reliability and reasonableness checks using these standards will be compiled in reports and presented to the Investment Valuation Committee on a quarterly basis.

Staff shall monitor the liquidity of all investments since those that suddenly become illiquid (such as when trading in these securities is halted for an extended period) must be valued at fair value, with any resulting gains or losses reflected in performance. In such cases, the CIO shall consult with the Executive Director regarding the potential need to adjust the valuations of these holdings using the most conservative approach available, which may be to mark such assets to zero. Investment Compliance should also express comfort with such an approach. At that point, the CIO may directed that the necessary steps be taken internally, with investment managers, and with the custodian to facilitate such a change.

Investment Consultants

ERS also relies on its asset class consultants to review the audited financial statements provided by investment managers. On a quarterly basis, as soon as is practicable after quarter-end, consultants will produce a report on the portfolio which will address activities that occurred during the quarter, including cash flows, valuations, IRR, and any other material items. The consultant will also reconcile portfolio valuations with the custodian bank at least quarterly. Any issues of concern that are highlighted through that review shall be documented and discussed between Staff and the consultant(s). Consultants shall be encouraged to note their review of valuations in their quarterly reports to ERS and to attest to the reasonableness of the valuations within the subject portfolio.

ACA, as the GIPS verification consultant for ERS, annually reviews the policies and procedures established by ERS to comply with GIPS standards related to composite and total fund maintenance and the calculation, presentation, and distribution of performance information. Verification provides assurance on whether these policies and procedures have been (1) designed in compliance with the GIPS standards and (2) implemented on an asset owner-wide basis. This policy and the activities related to it shall be carried out in such a manner as to facilitate compliance with GIPS by ERS, and ACA may be used as an expert resource in that pursuit.

Divisional Valuation Committee

The Chief Investment Officer shall charter an Investment Valuation Committee (IVC) for the purpose of overseeing and advising on the valuation process within the Investments division. Its functions shall be to conduct quarterly reviews of relevant information from Staff, Investment Consultants, and other parties as appropriate. Such discussions should include relevant content derived from standard GP reporting (fund financial and account statements as well as fund portfolio updates) along with key takeaways from LPAC meetings and business update calls/meetings. For the quarterly meeting following calendar year end, particular attention will be given to information gained from review of the audited financials, noting any audit concerns or changes of auditors.

For the fiscal year end of ERS, the IVC may advise on the relevance of market movements since June 30 on valuations. Given that June 30 is typically the last valuation date for private markets funds before the end of the ERS fiscal year on August 31, the focus of the meeting in August is to determine whether market movements between those dates could have materially impaired those valuations. If so, the IVC may recommend to the Finance Director that an adjustment be applied to some or all of those valuations as appropriate.

The membership of the IVC will be formalized in its charter, which shall be set forth in writing by the Chief Investment Officer. The IVC may make recommendations to the CIO, request additional information from teams, and may consult with investment managers independent of the portfolio management teams if necessary. The CIO shall consult the IVC prior to directing any adjustments to the fair value of investments.

External Auditors

As a further check on the accuracy of the financial statements of the System, ERS retains an independent third party (i.e., CliftonLarsonAllen, LLP) to conduct an annual audit. The objectives of this audit are to obtain reasonable assurance about whether the financial statements are free from material misstatement (whether due to fraud or error) and to issue a report stating expressing that view. Misstatements would be considered material if there is a substantial likelihood that they would, either individually or in the aggregate, influence the judgment of a reasonable user of the financial statements.

In doing so, these auditors design and perform procedures to identify and assess the risks of material misstatement of the financial statements. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Auditors also evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements. Such audit work is understood by Staff to represent an additional line of defense against unreliable processes or unreasonable outputs from the valuation processes associated with Trust investments.

Total Trust

Procedures: Total Trust

Strategic Purpose

The purpose of the Trust is to generate a maximum risk-adjusted return to fund the long-term liabilities of ERS while maintaining prudent diversification of assets to provide liquidity to meet the shot-term liabilities of the System. The Board is ultimately responsible for formulating, adopting, and overseeing the investment policies of the Trust, and exercises that authority primarily through the IPS.

The IPS requires that all funds be invested as a single Trust without distinction as to their source and held collectively for the proportionate benefit of its constituent funds. Separate investment objectives, guidelines, strategy and accounting are used for GBP assets as outlined in the Investment Policy Statement.

Performance Objective

The overall objective of the Investment program of ERS is to invest prudently in securities at a reasonable and predictable cost to deliver performance that supports the current and future provision of earned benefits for beneficiaries of the Trust funds managed by the System.

To that end, this plan establishes the following investment performance objectives for the Trust.

- Absolute Return: achieve core beta-only (i.e., no value added from implementation) returns commensurate with the level of risk assumed.

	Low	High
Volatility (underlying)	11%	13%
Sharpe Ratio	≥ 0.3	≥ 0.3
Risk Free Rate	3%	3%
Total Return	6.3%	6.9%
Benchmark	Passive Index	Passive Index

- Relative Return: obtain returns in excess of the adopted benchmark that are commensurate with the level of risk assumed.

	Target	Maximum
Tracking Error	200 bps	300 bps
Information Ratio	≥ 0.25	N/A
Excess Return	≥ 50 bps	N/A
Benchmark	Policy Benchmark	Policy Benchmark

Performance is to be measured primarily over rolling five-year periods and net of investment expenses, though other time horizons should also be examined and considered.

The returns of the Policy Benchmark returns for the Trust is to be weighted according to the Neutral Weights set forth in the SAA parameters. Specifically, the net return of the Trust shall aim to meet or exceed the:

- **Passive Index:** This benchmark is intended to reflect the investment mix prevailing among institutional peer portfolios as implemented via low-cost passive investable indices. Outperformance relative to this benchmark should represent the value added through decisions made by the Board in the Strategic Asset Allocation process and should be evaluated on a risk-adjusted basis. The Passive Index is established as outlined below.

Passive Index			
Asset Class	Weight	Benchmark Index	Bloomberg Ticker
Global Equities	80%	MSCI ACWI IMI Gross USD TR	M1WDW$GI
Global Fixed Income	20%	Bloomberg Intermediate Treasury TR Index Unhedged USD	LT08TRUU

- **Policy Benchmark**: This benchmark is intended to reflect a passive implementation of the asset class weights established by the Board during the Strategic Asset Allocation (SAA) process. The Policy Benchmark is calculated as a neutral weighted composite of the benchmarks selected to track the constituent asset classes, and the benchmarks for broad asset classes are calculated as a neutral weighted composite of the benchmarks selected to track the constituent programs. Outperformance should represent the value added by investment implementation and risk management activities that are carried out by Staff. The Policy Benchmark is set by the IPS and replicated below as a reference.

Policy Benchmark			
Asset Class	Weight	Benchmark Index	Bloomberg Ticker
Return Seeking Assets			
Global Equity	51%	Neutral Weighted Composite	N/A
Public Equity	35%	MSCI ACWI IMI Gross USD TR	M1WDW$GI
Private Equity	16%	Wilshire TUCS Private Equity Median Total Return of Public Plans > $5B	N/A
Global Credit	12%	Neutral Weighted Composite	N/A
Public Credit	9%	Bloomberg US High Yield 2% Issuer Capped Cash Pay TR	LF89TRUU
Private Credit	3%	Morningstar LSTA Leveraged Loan TR Index+ 150 bps	SPBDAL
Real Assets	17%	Neutral Weighted Composite	N/A
Public Real Estate	3%	FTSE EPRA/NAREIT Developed TR	TGPGHM4U
Private Real Estate	9%	NCREIF – ODCE	NPPIODCE
Private Infrastructure	5%	US CPI-U NSA + 400 bps	CPURNSA
Risk Reducing Assets			
Fixed Income - Rates	12%	Bloomberg Intermediate Treasury Unhedged USD	LT08TRUU
Cash	2%	ICE BofA US 3M T-bill	G0O1
Hedge Funds	6%	ICE BofA US 3M T-bill + 350 bps	G0O1
Special Situations	0%	Strategy Weighted Average	May be N/A
TOTAL TRUST	100%	Neutral Weighted Composite	N/A

These benchmarks should be reviewed annually for potential adjustment via a recommendation to the Board to update the IPS. Attention paid to the selection of the constituent indices for continued relevance, applicability, and investability. These benchmarks are not expected to change except to reflect substantial changes in either long-term market opportunities and/or asset allocations by the System or its institutional peers.

Program Construction

The IPS adopted by the Board uses the asset allocation parameters to determine the long-term expected return and target information ratio of the Trust. The IPS also includes tracking error targets and expected information ratios for public asset classes to inform the expected level of total excess return for these asset classes. The targets are incorporated into an overall excess return target for the Trust that is recommended to the Executive Director by the CIO for approval in conjunction with the Incentive Compensation Plan document.

ERS Trust Excess Return Target FY24

	Policy Weight	Target Tracking Error	Expected Information Ratio	Target Excess Return	Weighted Target Excess Return	Source
	(A)	(B)	(C)	(D) = (B) × (C)	(A) × (D)	
Security Selection						
Public Equity	35.0%	150	0.25	37.5	13.1250	(1)
Private Equity	16.0%			75	12.0000	(2)
Public Credit	9.0%	200	0.35	70	6.3000	(1)
Private Credit	3.0%			70	2.1000	(3)
Public Real Estate	3.0%	200	0.30	60	1.8000	(1)
Private Real Estate	9.0%			50	4.5000	(2)
Private Infrastructure	5.0%			50	2.5000	(2)
Special Situations	0.0%	150	0.25	50	-	(4)
Hedge Funds	6.0%	200	0.25	50	3.0000	(5)
Rates	12.0%	50	0.20	10	1.2000	(1)
Cash	2.0%	25	0.20	5	0.1000	(6)
TOTAL TARGET	**100.0%**				**46.6250**	

(1) Ties to Table 4 - Risk Budget of the Investment Policy Statement.
(2) Tracking error and IR are not relevant for private market asset classes and thus have no established values in policy. Excess return targets were established in consultation with NEPC in July 2020.
(3) Private Credit retains its imputed historical excess return target following the separation from Public Credit.
(4) Public Equity is used as a proxy for Special Situations to reflect the current composition of this allocation.
(5) Tracking error and expected IR were established in consultation with Albourne in June 2019.
(6) Ties to Investment Implementation Plan (effective as of August 8, 2023)

The framework currently used for the asset allocation divides the universe between return seeking and risk reduction/liquidity assets, which aims to provide broader diversification and better returns across disparate economic regimes. Within this paradigm, careful consideration will be given to the dynamic nature of long-term correlations between asset classes and their implication for portfolio construction.

Implementation decisions at the asset class and sub-asset class level should complement and align with the investment strategy of the Trust overall. This philosophy should also be applied at the asset class and sub-asset class level, where allocation decisions can often be more powerful than the implementation decisions in the portfolios. Implementation decisions should also be made with particular attention to the views of the Board and Staff regarding the benefits of diversification, the maintenance of appropriate liquidity, and the significant impact of expenses.

Risk Management

Using a risk budgeting framework to define a tolerance for volatility and tracking error provides a transparent, measurable methodology for allocating risk to implementation efforts in pursuit of the System’s investment objectives. To ensure that this Risk Budget continues to be appropriate it will be reviewed at least annually by the Risk Committee.

Staff shall pursue several steps throughout the investment process to identify, measure, and report on investment risk at a variety of different levels. The key risks that are to be identified and addressed in the internal processes of the Investment Staff include:

- **Counterparty Risk:** the creditworthiness of the firms with which ERS interacts will be monitored closely, and the restrictions included in the guidelines shall apply.

- **Geopolitical Risk:** the risk of impairment in the value of Trust investments associated with wars, terrorist acts, and tensions between states that affect the normal and peaceful course of global commerce and international relations. Geopolitical risk specifically includes the risks associated with economic sanctions, capital controls, asset seizures, and investment confiscation. A key aspect of managing this risk shall be to minimize the exposure of the Trust to foreign governments and foreign non-government persons that have been determined to engage in conduct significantly adverse to the national security of the United States or the security and safety of United States persons.

- **Liquidity Risk:** sufficient liquidity must be maintained to meet benefit payment obligations. The allocation to highly liquid investments will be monitored on a daily basis as will anticipated contributions, benefit payments, and any capital calls or other investment commitments. Liquid investments may be used to meet short-term cash needs and due consideration will be given to transaction costs when raising cash to meet benefit payments and other commitments. Illiquid asset types will be considered any investment where access to fund is expected to take a year or more (such as LP interests in private equity, real estate, or infrastructure funds), or where a gate could be applied that would block access to those investments (such as hedge funds or open ended funds within real assets).

- **Strategy Risk:** strategy risk is the risk of pursuing an inferior investment strategy due to lack of clarity in investment beliefs, objectives, and/or risk tolerance. To the extent any of these decision components change, the parameters established in the Strategic Asset Allocation may no longer be appropriate and require review. To ensure that the Strategic Asset Allocation process and parameters remain appropriate, the Risk Committee should regularly review.

- **Asset Allocation Risk:** the Board uses a number of critical assumptions to set the SAA parameters for the Fund as part of the SAA process. This effort is in support of its goal of establishing an investment program that will allow the System to meet its long-term liabilities through investment returns as well as contributions, but faulty assumptions can jeopardize this aim. The Board via the Investment Advisory Committee will monitor these assumptions as well as Trust positioning relative to SAA parameters set forth elsewhere in this Plan at least quarterly.

- **Implementation Risk:** implementation risk is the risk of losses or unmet expectations due to either poorly designed investment guidelines or Managers not delivering on the expectations that are embedded in well-designed guidelines. These risks are managed through proper and timely initial and ongoing due diligence programs, portfolio oversight and monitoring, and a willingness to make timely changes when appropriate.

- **Currency Risk:** to the extent that the Trust invests extensively in international markets, a negative currency return may result from adverse movements in foreign exchange rates. Over long periods of time, currency movements are not expected to add significant returns to the portfolio but may add to its volatility. As such, the Board may authorize Staff to hedge this risk or seek return from this risk by employing active currency management at the Trust level. The Trust often utilizes unhedged benchmarks and does not require its Managers to hedge the currency exposure in their portfolios.

- **Leverage Risk:** there are two primary types of leverage: financial leverage and economic leverage. Leverage by itself does not necessarily create additional market risk or variation in market returns, and in fact can be used to deliver greater diversification and better risk-adjusted returns than an unlevered but concentrated portfolio. The Trust has exposure to leverage through different structures and vehicles and that leverage is inherent in some investment strategies as a means to achieve their target beta, volatility or other such market exposure. The use of leverage will be monitored in portfolios where derivatives or other forms of leverage are introduced, but leverage may not be employed at the Trust level.

Program Management

Trust positioning will be overseen on an ongoing basis by the Internal Investment Committee, whose membership and functioning shall be detailed in its charter.

The use of designated Trust-level asset allocation accounts that use ETFs, futures or other such beta-oriented instruments shall be the primary responsibility of the Portfolio Management team. Oversight and approval will be provided by the CIO including written direction governing the operational aspects of those accounts.

Funding, defunding, or removal of an External Advisor in the Select Pool will be recommended by Staff for action by the CIO, in consultation with the Executive Director. Staff will report to the Board and IAC the status of funding and report significant changes to the Board and IAC at least quarterly.

Guidelines: Total Trust

Performance Targets		
Aspect	Range	Basis
Volatility	11-13%	Realized volatility of Passive Index on a five-year basis
Volatility	7-9%	Realized volatility of ERS Trust on a trailing five-year basis
Sharpe Ratio	≥ 0.3	Trailing five-year absolute returns net of fees
Tracking Error	≥ 100 bps	Realized TE on a trailing five-year basis
Tracking Error	≤ 300 bps	Realized TE on a trailing five-year basis
Information Ratio	≥ 0.25	Trailing five-year relative returns net of fees

Portfolio Diversification		
Aspect	Range	Basis
Illiquid Asset Types	≤ 50%	Total assets of the Trust
Single Investment Manager	≤ 5%	Total assets of the Trust
Single Public Corporation	≤ 6%	AUM of any asset class
Single Public Corporation	≤ 3%	Total assets of the Trust
Voting Shares	≤ 5%	Trust ownership of voting securities within any share class of a single publicly traded corporation
Voting Shares of a Single Public Corporation	≤ 5%	Trust ownership of any class of voting securities of a single publicly traded corporation

Counterparty Risk		
Aspect	Range	Basis
Credit Rating: Custodian	≥ A	Long-term and short-term basis as rated by at least one nationally recognized rating services organizations such as Moody's, S&P, and Fitch.
Credit Rating: Futures Commission Merchants	≥ BBB-	Long-term and short-term basis as rated by at least one nationally recognized rating services organizations such as Moody's, S&P, and Fitch.

Geopolitical Risk		
Aspect	Range	Basis
Foreign Adversaries as defined by the US Secretary of Commerce in 15 CFR 7.4*.	0%	Total assets of the Trust
	0%	AUM of any asset class

*As of January 23, 2024 the following Foreign Adversaries have been identified:

1. The People's Republic of China, including Hong Kong Special Administrative Region (China);
2. Republic of Cuba (Cuba);
3. Islamic Republic of Iran (Iran);
4. Democratic People's Republic of Korea (North Korea);
5. Russian Federation (Russia); and
6. Venezuelan politician Nicolás Maduro (Maduro Regime).

Public Equity Program

Procedures: Public Equity

Strategic Purpose

The Public Equity program is a risk-seeking allocation that aims to deliver significant long-term growth for the Trust and serve as a significant source of potential liquidity. Consistent with a prudent level of risk, global equity assets shall be managed to achieve optimum performance through diversification across regions, sectors, styles, and capitalization.

Performance Objective

The IPS specifies the following investment performance objectives for the program and its constituent investments. Performance is to be measured primarily over rolling five-year periods and net of investment expenses, though other time horizons will also be examined and considered.

For the Public Equity Program overall:

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	**Maximum**
Tracking Error	150 bps	300 bps
Information Ratio	≥0.25	N/A
Excess Return	≥ 37.5 bps	N/A
Benchmark	MSCI ACWI IMI Gross USD TR	MSCI ACWI IMI Gross USD TR
Bloomberg Ticker	M1WDW$GI	M1WDW$GI

For the Core Portfolio (i.e., ERS Lone Star Fund):

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	**Maximum**
Tracking Error	150 bps	300 bps
Information Ratio	≥ 0.25	N/A
Excess Return	≥ 37.5 bps	N/A
Benchmark	MSCI ACWI ex China Gross USA TR	MSCI ACWI ex China Gross USA TR
Bloomberg Ticker	NU751190	NU751190

For each Satellite strategy and any other internally managed strategies:

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	**Maximum**
Tracking Error	Specific to Strategy	Specific to Strategy
Information Ratio	≥ 0.25	N/A
Excess Return	≥ 37.5 bps	N/A
Benchmark	Specific to Strategy	Specific to Strategy
Bloomberg Ticker	May be N/A	May be N/A

Because the Satellite strategies collectively serve as a completion portfolio for the Public Equity program overall, it should be recognized that the performance of the overall allocation versus any assigned benchmark will have little inherent meaning when viewed in isolation.

Portfolio Construction

The following securities are authorized within the Public Equity program:

- All equity securities including listed Exchange Traded Funds (ETFs) and securities that exhibit characteristics of equity securities traded on the local market(s).
- Domestic equity securities consisting of all stocks domiciled in the U.S. plus eligible securities including ADRs of international securities traded on the U.S. and Canadian exchanges.
- International securities including GDRs of international securities traded on the exchanges of all countries contained in the MSCI All Country World ex US Index.
- Units of participation in commingled equity-oriented funds or trusts.
- Interests in equity-oriented Limited Partnerships.
- Derivatives may be used to assist in the efficient management of risk, Trust positioning and market exposures. This may include the equitization of cash held by passive and active portfolios through the use of derivatives.

The Public Equity program will be subdivided into the Core Portfolio, Satellite Strategies, and the Global Tactical Portfolio, all of which will be all subject to rigorous ongoing monitoring of performance and positioning.

Core Portfolio (ERS Lone Star Fund). This strategy will be managed internally and serves as the core holding of the asset class. Stock selection is expected to be the primary driver of performance, and as such sector and region weights shall generally be within 300 basis points of the index. Individual positions are maintained with a maximum deviation of 100 basis points versus the benchmark.

Other strategies such as those described below may be managed internally.

- **Quantitative Strategies:** Portfolios managed through a quantitative process are designed to generate alpha from both stock and sector selection through a quantitative model that derives quantitative scores from five diversified factor groups: value, quality, capital allocation, momentum, and sentiment. The portfolio tracking error limit is 100 basis points, with a target tracking error of 60-70 basis points.

- **Best Ideas:** The Best Ideas portfolios are strategies that are proposed by internal investment staff to exploit a market anomaly or market opportunity. Internal investment staff presents the investment rationale for their proposed portfolio to an internal committee. The investment rationale generally is supported by academic research or quantitative backtesting. These portfolios tend to be diversified, but generally have no tracking error target or constraint.

Satellite Strategies

External management in the Public Equity program will be primarily through using External Advisors where discretion for managing assets is maintained by Staff. External Advisors will be selected in accordance with applicable laws and rules by the appropriate ACIC to be approved for addition to the Select Pool, and Staff will recommend External Advisors from the Select Pool for funding. Funding, defunding, or removal from the Select Pool will be recommended by Staff for action by the CIO, in consultation with the Executive Director.

Staff will seek out External Advisors to complement internal management efforts. The key consideration is to determine whether the external advisor has an ability to add value to the program overall, and the goal is to work with external partners that can provide diversification benefits through increased returns and/or risk reduction. In particular, Staff is looking for differentiated strategies where ERS may not have the resources and/or expertise to implement in-house. Characteristics may include one or more of the following: concentrated or high active share portfolio, distinctive investment philosophy/process, uniquely experienced team, or less efficient asset class.

Each External Advisor will invest the portfolio in accordance with objectives, guidelines, restrictions and procedures as set forth in the Investment Guidelines of its contract with ERS. These guidelines will be established during the contracting phase and will be determined prior to funding.

These portfolios are to be held primarily in separate account format, since doing so is typically less expensive, offers greater trasparency, and affords ERS greater control over the underlying investments. However, commingled fund vehicles may also be considered where significant advantages exist.

Trading of external portfolios can be executed by ERS or by the External Advisor. Decisions will be determined during the contracting phase and will be based on criteria such as investment strategy, trading frequency, firm expertise, investment team location and other factors.

Global Tactical Portfolio. This portfolio will be managed internally primarily using exchange traded funds (ETFs) and index funds. The objective of this overlay strategy is to replicate an asset class, market, or factor and gain exposure in an efficient and cost effective way. This portfolio will be used to manage the Public Equity program overall by bringing the allocation closer to benchmark weights or to make opportunistic and/or tactical tilts away from benchmark weights.

The key benefits of this portfolio are expected to include:

- Ready funding for liquidity needs such as benefit payments or capital calls;
- Minimize and manage cash as we can stay fully invested when desired;
- Lower transaction costs than trading in and out of individual securities;
- Effective and efficient tool to express tactical views, especially during market volatility;
- Less disruptive to external and internal portfolios when rebalancing.

Portfolio Management

The Public Equity asset class will be managed in accordance with the Investment Policy Statement, these program guidelines and the Public Equity Standard Operating Procedures. Positioning of the program will be overseen on an ongoing basis by the CIO in consultation with the Internal Investment Committee.

The CIO has authority to approve trades and may delegate that authority in writing to qualified staff. For the execution of internal trades, the managing Portfolio Manager(s) must secure approval for the trade from an available executing Portfolio Manager to whom the CIO has delegated trade approval authority for the relevant asset class. Standard operating procedures for trade approval will be maintained by Investment Operations in coordination with the trading desk as well as the Public Equity and Public Real Estate teams.

The program may utilize a mix of active and passive investment strategies. There are merits to both types of approaches and Staff will determine the most prudent way to invest depending on factors such as asset class efficiency and market conditions. Another important factor is cost. Typically, passive strategies are more cost-efficient to manage than active strategies. Additional savings can be realized when portfolios are managed internally. Staff will evaluate overall costs and expected net-of-fee performance when determining the allocation to passive and active strategies and internal and external management.

Guidelines: Public Equity

Performance Targets		
Aspect	Measure	Basis
Tracking Error	≥ 100 bps	Realized TE on a trailing five-year basis
Tracking Error	≤ 300 bps	Realized TE on a trailing five-year basis
Information Ratio	≥ 0.25	Trailing five-year net of fees

Strategy Weights		
Aspect	Range	Basis
External Advisors	≤ 50%	Program AUM
Best Ideas Program	≤ 10%	Program AUM
Hedge Fund Vehicles	≤ 10%	Program AUM

Geographic Diversification		
Aspect	Range	Basis
Region Weights	±10%	Relative to program benchmark

Portfolio Diversification		
Aspect	Range	Basis
Market Capitalization	±10%	Relative to program benchmark
Sector Weights	±10%	Relative to program benchmark
Single Investment Manager	≤ 20%	AUM of total firm
Single Investment Manager	≤ 20%	AUM of strategy assets (except for seed investments)
Single Public Corporation	≤ 6%	AUM of internally managed portfolios
Single Public Corporation	< 5%	Total share count of any class of voting securities
Liquidity of individual securities	≤ 100%	Average daily trading volume (trailing 90-days)

Private Equity Program

Procedures: Private Equity

Strategic Purpose

The Private Equity program is a risk-seeking allocation that aims to deliver significant long-term growth for the Trust.

The Private Equity asset class includes domestic and international private equity and debt investments (together, the Private Equity Portfolio). Private Equity Portfolio investments involve the purchase of unlisted, illiquid common, and preferred stock. To a lesser degree, the Private Equity Portfolio may invest in subordinated and senior debt of companies that are in most instances privately held using private equity strategies (i.e. Growth Equity and Buyouts). The selection and management of assets in the Private Equity Portfolio will be guided to generate a reasonable risk-adjusted return while maintaining prudent diversification of specific investments.

Performance Objective

To that end, the IPS specifies the following investment performance objectives for the program and its constituent investments.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target
Primary Benchmark	Wilshire TUCS Median Total Private Equity Return of Master Trusts – Public Plans > $5 Billion
Secondary Benchmark	Pubic Market Equivalent (PME)
Secondary Benchmark	Burgiss Peer Universe

As stipulated in the IPS, private market investments are evaluated over rolling 10-year periods or other specified time periods using realized internal rates of return (IRR) and gross realized multiples. Unrealized metrics and/or shorter time horizons should also be used for evaluation purposes when the data set of realized metrics is limited.

<u>Portfolio Management</u>

The Private Equity Portfolio will be managed in accordance with the IPS, these program guidelines and the Private Equity Standard Operating Procedures.

Eligible Private Equity Funds and Other Investment Vehicles. Eligible private equity funds will include both open and closed end commingled vehicles funds, such as limited partnerships, limited liability companies, managed accounts or similar structures. Limited partnership investments will be defined as including direct partnerships, fund of one and/or commingled fund of funds vehicles. The Private Equity Portfolio will also include co-investments and direct investments.

Investment Types and Terms. The following private equity strategies and investment types will be considered eligible for the Private Equity Portfolio. ERS Private Equity Staff, with the support of the Private Equity Consultant, will seek to manage the allocations of the established strategy allocation ranges, understanding that the System may deviate from these ranges depending on market conditions and the risk reward profile of the various opportunities. The definitions and terms will comply with general industry norms and are generally defined as follows.

- **Venture Capital and Growth Equity:** Investments in newer high growth companies typically addressing technology, life sciences and other specialty growth industries. Venture capital and growth equity partnerships will be allocated into separate categories and selected to achieve appropriate diversification.

- **Buyouts/Acquisition:** Partnerships which provide funding to acquire majority or controlling interests in a business or product lines from either a public or private company. These partnerships are generally diversified by industry and other relevant measures. Buyout partnerships cover company size ranges from very large to small-market. Control-oriented restructuring funds are also included here.

- **Subordinated, Senior and Distressed Debt:** Partnerships that make debt-oriented investments:

- **Subordinated Debt:** Partnerships that make debt-related investments in unsecured or junior obligations in financings. These generally take the form of subordinated debentures or preferred stock.

    - Senior Debt: Partnerships that make debt-related investments in senior secured obligations in financings.

    - Distressed Debt: Non-control investments made in distressed or poorly performing companies, with the intent of initiating a recovery via financial restructuring or the introduction of management expertise.

- **Secondaries:** Partnerships that have been acquired from other limited partners and typically have had their capital called to greater than 50% of commitments. These partnerships can include any of the Private Equity strategies.

- **Energy and Natural Resources:** Partnerships with underlying investments that focus on oil and gas, mining and minerals, power, timber, agriculture, and water.

- **Special Situations:** Partnerships with private corporate finance investment strategies that do not fall under the prior categories or do not justify a separate long-term strategic allocation. The manager will seek to diversify the portfolio across various sub-strategies.

Exposures to these strategies may be pursued through direct partnership investments, co-investment, fund of one, and/or commingled fund of funds vehicles.

Diversification. The Private Equity Portfolio will seek to diversify by geography, industry classification, life cycle, general partner and capital structure among other diversification elements.

Co-Investments and Direct Investments. A co-investment is defined as any direct or indirect investment into a single asset or group of assets alongside or otherwise in connection with an investment in such asset(s) made by a private fund.

The defining characteristics of co-investments in which the program may invest are:

- offered by general partners in which ERS has made a limited partnership investment (“Existing Relationships”) or by general partners with whom ERS has not invested (“New Relationships”);

- a discretionary investment with the right, but not the obligation, to invest;
- are offered “deal by deal” in an other than pro-rata manner alongside the main limited partnership, typically leading to greater deal concentration;
- are typically controlled by the sponsor in a special purpose vehicle governed by terms substantially similar to the main limited partnership other than the economic terms which generally call for low or no fees and carry for the general partner.

Direct investments entail investments in companies that are independently sourced and underwritten by the System. Direct investments are currently outside of the scope of the private equity program. It is also recognized that during the portfolio development and wind down stages the full investment parameters may not, of necessity, be met.

Guidelines: Private Equity

Strategy Weights			
Aspect	Min	Max	Basis
Venture Capital and Growth Equity	10%	30%	Program NAV
Buyouts/Acquisition	35%	60%	Program NAV
Subordinated, Senior and Distressed Debt	0%	15%	Program NAV
Secondaries	5%	30%	Program NAV
Energy and Natural Resources	5%	20%	Program NAV
Special Situations	0%	5%	Program NAV

Geographic Diversification		
Aspect	Range	Basis
Domestic Markets	≥ 50%	Program NAV

Portfolio Diversification		
Aspect	Range	Basis
Single Industry Classification	≤ 20%	Program NAV
Single Investment	< 0.6%	ERS Trust Fund
Single Firm, Entity, Related Organization or Associated Co-Investment	≤ 20%	Portfolio NAV plus uncalled capital commitments
Single Investment Fund/Vehicle Plus Associated Co-Investments	≤ 5%	Portfolio NAV plus uncalled capital commitments
Co-Investment Allocation Per Year	≤ 50%	Fiscal year's investment activity
Co-Investments with New Relationships Per Year	≤ 20%	Fiscal year's investment activity
Ownership of a Comingled Partnership Together with an Affiliated Co-Investment	≤ 25%	Single partnership and its affiliated co-investment
Ownership of Fund of Funds Vehicles that Invest in Partnerships	≤ 100%	Single fund of funds vehicle
Single Co-Investment (Secondary Transactions)	≤ $100m	
Single Co-Investment (Existing Relationship)	≤ $50m	Offered by general partners with which ERS has made a limited partnership investment.
Single Co-Investment (New Relationship)	≤ $20m	Offered by general partners with which ERS has not invested.

Public Real Estate Program

Procedures: Public Real Estate

Strategic Purpose

The Public Real Estate program is a risk-seeking allocation that aims to deliver significant long-term growth for the Trust. Consistent with a prudent level of risk, real estate assets shall be managed to achieve optimal performance through diversification across markets, property types, and capitalization.

Performance Objective

The IPS specifies the following performance objectives for the program and its constituent investments.

- Relative Return: obtain returns for the program composite in excess of the adopted benchmark.

	Target	Maximum
Tracking Error	200 basis points	300 basis points
Information Ratio	≥ 0.30	N/A
Excess Return	≥ 60 bps	N/A
Benchmark	FTSE EPRA/NAREIT Developed Total Return Tax Adjusted Valuation Index TR Index USD	FTSE EPRA/NAREIT Developed Total Return Tax Adjusted Valuation Index TR Index USD
Bloomberg Ticker	TGPGHM4U	TGPGHM4U

Performance is to be measured primarily over rolling five-year periods and net of investment expenses though other time horizons should also be examined and considered.

Portfolio Construction

The program is an actively managed internal portfolio but can invest with external managers. The internal Real Estate Investment Trust (REITs) allocation is comprised of a single global portfolio. The portfolio is to be diversified across property types, region, and market capitalization. The portfolio may introduce subsector, region, industry, market capitalization, and other common factor tilts, which are not to exceed 400 basis points at the country and property type subsector level relative to the index.

The investible public real estate universe is comprised of global equity, debt, and preferred securities. The use of equity option strategies is to be consistent with the Investment Policy Statement (IPS) and can be utilized in order to facilitate for risk management purposes. Investments may be made in securities owning stabilized properties with substantial income potential, as well as securities owning non-traditional properties, including those with little or no income (i.e. land banks or REOCs).

Portfolio Management

The team's relative value discipline has a general objective of maintaining country and subsector weightings within four hundred basis points of the index. Single stock overweight and underweight positions are recommended with a maximum deviation of 500 basis points versus the benchmark.

Positioning of the program will be overseen on an ongoing basis by the Asset Class Managing Director in consultation with the Program Director, who will regularly report to the CIO.

Guidelines: Public Real Estate

Performance Targets		
Aspect	Range	Basis
Tracking Error	≥ 100 bps	Realized TE on a trailing five-year basis
Tracking Error	≤ 300 bps	Realized TE on a trailing five-year basis
Information Ratio	≥ 0.30	Trailing five-year net of fees

Geographic Diversification		
Aspect	Range	Basis
Single Country	±400 bps	Portfolio AUM relative to index

Portfolio Diversification		
Aspect	Range	Basis
Property Type	±400 bps	Portfolio AUM relative to index
Individual Company Exposure	±500bps	Portfolio AUM relative to index
Debt / Preferred Securities	≤ 10%	Portfolio AUM relative to index
Options	≤ 5%	Portfolio AUM
Single public corporation	≤ 5%	Total share count of any class of voting securities
Liquidity of individual securities	≤ 100%	Average daily trading volume (trailing 90-days)

Private Real Estate Program

Procedures: Private Real Estate

Strategic Purpose

The Private Real Estate program is a risk-seeking allocation that aims to deliver significant long-term growth for the Trust.

Consistent with a prudent level of risk, real estate assets shall be managed to achieve optimum performance through diversification across markets, risk return strategies and property types.

Performance Objective

The IPS specifies the following investment performance objectives for the program and its constituent investments.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Bloomberg Ticker
Primary Benchmark	NCREIF ODCE Net TR	NPPIODCE

As stipulated in the IPS, private market investments are evaluated over rolling 10-year periods or other specified time periods using realized internal rates of return (IRR) and gross realized multiples. Unrealized metrics and/or shorter time horizons should also be used for evaluation purposes when the data set of realized metrics is limited.

Additional information on the Real Estate asset class, including benchmarks and risk metrics, is located in Table 4 of the IPS.

Portfolio Construction

The Private Real Estate portfolio includes, core, non-core, and real estate property and service companies but could include some limited amount of REIT investments as part of a private real estate manager's investment strategy. The selection and management of assets in the portfolio will be guided to generate a maximum risk-adjusted return while maintaining prudent diversification of specific investments. The Private Real Estate portfolio may include domestic and international private, public and debt investments. The currency exposure from the non-dollar investments of the program need not be hedged.

The Real Estate portfolio will be managed in accordance with the Investment Policy Statement, these program guidelines and the Real Estate Standard Operating Procedures.

Permissible investments shall include:

- **Eligible Real Estate Funds and Other Investment Vehicles**. Eligible real estate funds will include core and non-core commingled open-end funds, core and non-core commingled closed end funds, funds of funds, separate accounts, and co-Investments with selected managers. In addition, investments related to real estate technology and services companies (described in Item 1 below) may include private venture capital funds, co-investment, and direct investment vehicles.

- **Investment Types and Terms.** Each fund investment including separate accounts will consist predominantly of real estate investments. However, a portion of the portfolio may include real estate related funds or companies which support the real estate industry through products, services or technologies. Private real estate investments (i.e. private equity and/or private debt interests) will primarily consist of: office, multi-family, retail, industrial, and hotel property types. Other investable property types may include but not be limited to: land for-sale residential, senior housing, student housing, storage assets, data centers and healthcare.

ERS Real Estate Staff, with the support of the Real Estate Consultant, will seek to manage the allocations to the mid-point of the established strategy allocation ranges, understanding that the System may deviate from these ranges depending on market conditions and the risk reward profile of the various opportunities. The definition and terms will comply with general industry norms and are generally defined as follows.

- **Core:** Equity or debt investment in operating and fully-leased institutional quality real estate typically in the traditional property types (office, multi-family, retail, industrial, and hotel) but may include other property types if the cash flow attributes and risk profile support a core classification

- **Non-Core**: Equity or debt investments in real estate properties, operating companies or other investment vehicles that are in need of lease up, repositioning, require extensive capital expenditures or ground up development.

Included in this category are:

- **Real Estate Technology and Services:** Equity or debt investments in real estate related funds or companies (but not physical property) which support the real estate industry through products, services or technologies. The primary type of investments will be focused on property technology companies (PropTech).

- **Infrastructure:** Equity or debt investments in infrastructure, including both stabilized core cash-producing assets, i.e., brownfields, and value-added and opportunistic assets with less stabilized income-generating potential and more capital appreciation potential, i.e., greenfields. Institutional quality infrastructure asset categories include, but are not limited to, the following: Transportation, Utilities and Regulated Industries, Communication, Social Infrastructure, and Natural Resources.

- **Diversification.** The Private Real Estate portfolio shall be diversified as to: risk/return mixture, geography, property type, investment leverage; investment vehicle, vintage year, and investment manager.

- **Co-Investments.** The Real Estate team may elect to invest in co-investments that are with general partners with whom ERS has made a limited partnership investment ("Existing Relationships") or with general partners with whom ERS has not invested ("New Relationships").

Guidelines: Private Real Estate

Strategy Weights			
Strategy	Target	Range	Basis
Core	35%	±15%	Program NAV
Non-Core	65%	±15%	Program NAV
Real Estate Technology and Services	0%	≤ 5%	Program NAV

Geographic Diversification			
Description	Target	Range	Basis
Domestic Markets	70%	±15%	Program NAV
International Markets	30%	±15%	Program NAV

Portfolio Diversification		
Description	Range	Basis
Each Primary Property Type (Office, Industrial, Multifamily, Hotel and Retail)	±30%	Proportion of program NAV vs. ODCE index weight
• *Office will include medical office and life science.* • *Residential will include student housing, manufactured housing and senior housing.*		
All Other Property Types Combined (Data Centers, Self Storage, etc.)	≤ 30%	Program NAV
Single Investment	< 0.6%	Total Trust
Single Co-Investment (Portfolio)	≤ $100m	Absolute
Single Co-Investment (Existing Relationships)	≤ $50m	Absolute
Single Co-Investment (New Relationships)	≤ $20m	Absolute
Single Investment Manager Organization	≤ 25%	Program NAV plus uncalled capital commitments
Fund of Funds Vehicles Investing in Real Estate Partnerships	≤ 100%	Vehicle AUM

Operational Ranges		
Description	Range	Basis
Leverage – Portfolio	≤ 65%	Loan to value of program NAV
Leverage – Core	≤ 50%	Loan to value of program core NAV
Leverage – Non-Core	≤ 70%	Loan to value of program non-core NAV
Leverage – Separate accounts	≤ 70%	Loan to value of Program separate accounts

Private Infrastructure Program

Procedures: Private Infrastructure

Strategic Purpose

The Infrastructure program is a risk-seeking allocation that aims to deliver significant long-term growth for the Trust.

Infrastructure typically refers to large essential public systems or facilities which involve long-term capital and often enjoy high barriers of entry by potential competitors. Infrastructure assets are often highly regulated monopolies or long-term contracted businesses. Infrastructure assets are generally expected to provide a combination of stable inflation-protected cash flows and capital appreciation.

Performance Objectives

The IPS specifies the following investment performance objectives for the program and its constituent investments.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Bloomberg Ticker
Benchmark	US CPI Urban Consumers NSA+ 400 bps	CPURNSA

Additional information on the Infrastructure asset class, including benchmarks and risk metrics, is located in Table 4 of the IPS.

As stipulated in the IPS, private market investments are evaluated over rolling 10-year periods or other specified time periods using realized internal rates of return (IRR) and gross realized multiples. Unrealized metrics and/or shorter time horizons should also be used for evaluation purposes when the data set of realized metrics is limited.

Portfolio Construction

The portfolio includes private equity and debt, domestic and international infrastructure and similar real asset investments (collectively referred to as the "Infrastructure Portfolio"). The selection and management of assets in the Infrastructure Portfolio will be guided to generate a maximum risk-adjusted return while maintaining prudent diversification of specific investments.

Portfolio Management

The Infrastructure Portfolio will be managed in accordance with the Investment Policy Statement, these program guidelines, and the Private Infrastructure Standard Operating Procedures. Specific investment limitations, targets and investment parameter ranges are included as program guidelines in the next section.

- **Eligible Infrastructure Funds**. Eligible investments will include both open-ended and closed-end commingled funds and asset specific special purpose vehicles ("SPVs") focused on core, value-added and opportunistic infrastructure strategies. Infrastructure Staff will primarily make commitments to infrastructure related limited partnerships and SPVs. Limited partnership investments will be defined as including direct partnerships, fund of one and/or commingled fund of funds vehicles. In addition, the Infrastructure Portfolio may also consist of co-investments and direct investments.

- **Investment Types and Terms.** The Infrastructure Portfolio will consist of private equity and debt, domestic and international infrastructure investments. The portfolio may include but is not limited to investments in the following infrastructure sectors: Energy Resources and Utilities, Transportation Assets, Water and Waste, Communication Assets and Natural Resources.

- **Diversification.** The portfolio shall be diversified as follows: risk/return mixture, regulatory jurisdiction, geography, industry sector, investment sponsor, timing of investment, and other diversification elements. The average investment size will be monitored and compared to the number and size of individual commitments. Staff, with the support of the Infrastructure Consultant will seek to manage the allocations to the mid-point of the established ranges, understanding that the System may deviate from these ranges depending on market conditions and the risk reward profile of the various opportunities.

- **Co-Investments.** In addition to fund investments and separate accounts, the Infrastructure Portfolio may also consist of co-investments and direct investments. Co-investments entail providing additional funding to specific infrastructure investments. Typically, co-investment opportunities arise when the general partner of a fund invites limited partners to provide additional capital when an investment is of a size that exceeds the fund's diversification parameters. Direct investments, or asset specific investments through special purpose vehicles, may also be pursued without necessarily being a limited partner alongside a general partner. Investment limits for co-investments are included in in the guidelines section below.

- **Life Cycle Diversification.** Commitments to partnership investments will be staged over time with the intent to make new commitments each fiscal year. This approach will provide for vintage diversification and mitigate event risks associated with investing over a business cycle. Annual commitments will be allotted in accordance with an Infrastructure Portfolio Pacing Analysis maintained by Infrastructure Staff and the Infrastructure Consultant. The results will be updated and incorporated into the capital plan for the asset class.

- **Investment Leverage.** While prudent leverage can enhance returns, careful consideration will be given when reviewing investment strategies to the impact of leverage on investment and portfolio risk. Infrastructure Staff will underwrite and monitor the amount of leverage applied to the portfolio's underlying investments and the practices of general partners.

- **Hedging.** The non-dollar currency exposure associated with the Infrastructure Portfolio will not be hedged unless hedging is deemed appropriate. This will be done based on further discussion between Infrastructure Staff, the Infrastructure Consultant, and the CIO.

Guidelines: Private Infrastructure

Strategy Weights			
Aspect	Target	Range	Basis
Core	25%	±15%	Program NAV
Value-Added	50%	±15%	Program NAV
Opportunistic	25%	±15%	Program NAV

Geographic Diversification		
Aspect	Target	Range
Developed Markets	70%	±20%
Emerging Markets	30%	±20%

Portfolio Diversification		
Aspect	Range	Basis
Single Investment (including Funds, Co-Investments, and Direct Investments)	< 0.6%	Trust NAV
Single Fund Ownership	≤ 25%	Fund NAV
Single Fund-of-One and SPV Ownership	≤ 100%	Fund NAV
Single Investment Manager Organization	≤ 25%	NAV + uncalled capital

Developed markets refers to countries with high income levels, high levels of industrialization and a reasonable standard of living. Developed markets are further defined by also having large public markets with strong custodial and settlement history. Infrastructure Staff will utilize MSCI classification as a general guidance for geographic categorization. Emerging Market investments will be further diversified by geographic region such as Latin America, Europe, Asia and Africa.

Public Credit Program

Procedures: Public Credit

Strategic Purpose

The Public Credit program is a risk-seeking allocation that aims to deliver significant long-term growth for the Trust. It does so by investing in publicly traded bonds with ratings below investment grade, though bonds with investment grade rating may also be held as deemed attractive by Staff.

Performance Objectives

IPS specifies the following investment performance objectives.

- Public Credit Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Maximum
Tracking Error	200 bps	300 bps
Information Ratio	≥ 0.35	N/A
Excess Return	≥ 70 bps	N/A
Benchmark	Bloomberg Barclays US High Yield 2% Issuer Capped Cash Pay	Bloomberg Barclays US High Yield 2% Issuer Capped Cash Pay
Bloomberg Ticker	LF89TRUU	LF89TRUU

Performance is to be measured primarily over rolling five-year periods and net of investment expenses.

Portfolio Construction

Internal management is considered the primary approach for the Public Credit program since it provides Staff better control of risk as well as a clearer understanding of the current credit environment. This knowledge also allows Staff to better assess opportunities for external managers.

The allocation between internal and external management considers the resources and costs of particular strategies relative to the expected excess return. Diversifying across external managers and strategies is necessary for idiosyncratic and organizational risk mitigation. Of particular importance in strategies accessed through a commingled vehicles is ensuring the fund's tenor aligns with the assets it holds. Fees and incentives must also be reasonable and provide an alignment of interest with those of the Trust.

Portfolio construction for Global Credit follows a Core/Satellite approach with Public Credit comprising the Core and Private Credit containing the Satellites. The Core allocation credit is expected to range from 50%-90% of Global Credit. The Public Credit program will seek to allocate to a Core group of investments which will be comprised of diversified assets with returns and risks roughly comparable with the underlying strategy benchmarks. This may additionally involve "beta" strategies such as ETFs at times that offer a greater speed and lower cost of implementation.

Guidelines: Public Credit

Performance Targets		
Aspect	Range	Basis
Tracking Error	≥ 100 bps	Realized tracking error on a trailing five-year basis
Tracking Error	≤ 300 bps	Realized tracking error on a trailing five-year basis
Information Ratio	≥ 0.35	Trailing five-year net of fees

Strategy Weights		
Aspect	Range	Basis
External Managers	≤ 50%	Program AUM

Private Credit Program

Procedures: Private Credit

Strategic Purpose

The Private Credit program is a risk-seeking allocation that aims to deliver significant long-term growth for the Trust. It does this by investing across the following types of private credit strategies:

- Below investment grade bonds
- Loan-based strategies including CLO warehousing
- Emerging market debt
- Structured credit
- Distressed debt
- Directly originated credit
- Other credit opportunities
- These entail investments with varying amounts of risk and liquidity.

The current IPS includes separate mandates for Public and Private Credit. To the extent that those terms have specific legal meaning, both mandates may hold a combination of public and private assets as approved via the ACIC process. Both Public and Private Credit may be opportunistically driven since there may be extended periods where either or both may be unattractive.

Historically the combined allocation to Global Credit was primarily managed internally and complimented opportunistically with various externally managed strategies. Such external strategies were selected when they were deemed likely to produce a clear enhancement to the internally managed program. Portfolio construction followed a Core/Satellite approach with Public Credit comprising the Core and Private Credit containing the Satellite allocation. Historically, Private Credit was expected to have a range from 10%-50% of Global Credit.

Performance Objectives

IPS specifies the following investment performance objectives.

- Private Credit Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Maximum
Excess Return	≥ 70 bps	N/A
Benchmark	Morningstar LSTA Levered Loan Total Return Index +150 bps Annually	Morningstar LSTA Levered Loan Total Return Index +150 bps Annually
Bloomberg Ticker	SPBDAL	SPBDAL

Performance is to be measured primarily over rolling five-year periods and net of investment expenses.

Portfolio Construction

External management is considered the primary approach to Private Credit since such strategies are typically more complex and specialized than publicly traded bonds. Diversifying across external managers and strategies is necessary for idiosyncratic and organizational risk mitigation. Of particular importance in strategies accessed through a commingled vehicles is ensuring the fund's tenor aligns with the assets it holds. Fees and expenses must also be reasonable in light of the expected returns of the investment and be structured to provide an alignment of interest with ERS.

Guidelines: Private Credit

Strategy Weights			
Strategy	Min	Max	Basis
Structured Credit	0%	70%	Program NAV
Distress	0%	70%	Program NAV
Direct Origination	0%	70%	Program NAV
Asset Based Lending/Other	0%	70%	Program NAV

Geographic Diversification		
Aspect	Range	Basis
Domestic Markets	≥ 80%	Program NAV

Portfolio Diversification		
Aspect	Range	Basis
Single investment	< 0.6%	ERS Trust Fund
Single firm, entity, related organization or associated co-investment	≤ 35%	Committed capital
Single investment fund/vehicle, excluding funds of one, seeded and anchored funds.	≤ 35%	Committed capital
Ownership of a commingled partnership, excluding funds of one, seeded and anchored funds	≤ 35%	Single partnership
Allocation to a single Private Credit strategy	≤ 70%	Portfolio NAV plus uncalled capital commitments

Rates Program

Procedures: Rates

Strategic Purpose

The primary objective of the Interest Rates (“Rates”) program is to provide the Trust with liquidity and capital preservation within the prevailing market environment while earning the highest total return possible consistent with this objective.

Performance Objectives

To that end, the IPS specifies the following investment performance objectives for the program and its constituent investments.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Maximum
Tracking Error	50 bps	100 bps
Information Ratio	≥ 0.20	N/A
Excess Return	≥ 10 bps	N/A
Benchmark	Bloomberg Barclays Intermediate Treasury Unhedged USD Index	Bloomberg Barclays Intermediate Treasury Unhedged USD Index
Bloomberg Ticker	LT08TRUU	LT08TRUU

Performance is to be measured primarily over rolling five-year periods and net of investment expenses.

Portfolio Construction

Permissible investments include: U.S. Treasury Bills, Notes, and Bonds (including TIPS), U.S. Government backed Agencies, Agency Mortgage Backed Securities, Agency Commercial Mortgage Backed Securities, Agency Asset Backed Securities, highly rated and extremely liquid foreign government bonds. Further, Fixed Income may use exchange-traded Treasury futures (Futures) and Options on Futures to manage duration efficiently. In addition, if allowable under the IPS, Interest Rate Swaps (IRS), Futures and Options on Swaps, and Asset Swaps can be used to manage portfolio rate risk.

Portfolio Management

The selection and management of Rates will be guided to generate a maximum risk-adjusted return while preserving liquidity to pay benefits, make capital calls and reallocate capital. Meaningful deviations from the policy allocations to the Rates portfolio will depend upon the liquidity needs of the Trust and the opportunity set in other asset classes rather than upon interest rates themselves.

Internal management helps to better understand the environment and risks taken by external managers, as well as to mitigate risk.

Guidelines: Rates

Performance Targets		
Aspect	Range	Basis
Tracking Error	≥ 25 bps	Realized tracking error on a trailing five-year basis
Tracking Error	≤ 100 bps	Realized tracking error on a trailing five-year basis
Information Ratio	≥ 0.2	Trailing five-year net of fees

Strategy Weights			
Aspect	Target	Range	Basis
US Treasuries	80%	±15%	Program NAV
Agency mortgages	20%	±15%	Program NAV

Hedge Funds Program

Procedures: Hedge Funds

Strategic Purpose

The purpose of the Hedge Funds program is to deliver a target net return above that available in cash & equivalents. It is expected to have a low beta and limited directionality to the overall market. The selection and management of assets will be guided to generate a reasonable risk-adjusted return while maintaining prudent diversification.

Hedge funds may be employed within the Absolute Return Portfolio, the ERS Launchpad Portfolio, or tactically within other ERS asset classes to support specialized investment strategies. Individual hedge fund allocations are made within the framework of the performance objectives of the sponsor asset class, and the Hedge Funds program may also help oversee such investments within other asset classes.

Performance Objective

The IPS specifies the following investment performance objectives the Hedge Funds program, which shall also apply to the Absolute Return Portfolio for the program.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Maximum
Volatility	≥ 4%	≤ 8%
Excess Return	≥ 50 bps	≤ 100 bps
Benchmark	US 3-Month T-Bill +350 bps	US 3-Month T-Bill + 350 bps
Bloomberg Ticker	G0O1	G0O1

The performance objectives for the ERS Launchpad Portfolio are based on a blended benchmark, which is constructed on the basis of the investment strategies of each underlying allocation. Specifically, the Launchpad benchmark is a portfolio market value weighted mix of ERS Launchpad's respective portfolio benchmarks, monthly rebalanced, from inception to present. To that end, the investment performance objectives for the program are as follows.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Maximum
Tracking Error	200 bps	300 bps
Information Ratio	≥ 0.25	N/A
Excess Return	50 bps	N/A
Benchmark	Custom composite	Custom composite
Bloomberg Ticker	N/A	N/A

Performance of the all programs and portfolios will be measured primarily over rolling five-year periods, with performance being measured net of all investment expenses.

Portfolio Construction

Trust investments in hedge funds are subdivided into the Absolute Return Portfolio and the ERS Launchpad Portfolio. The total allocation target of the Hedge Fund Program is 6% of Trust assets with an allowable range of ±5% from its stated target allocation.

- The Absolute Return Portfolio has a targeted allocation of 5% among the Trust's assets based on internal portfolio construction parameters.

- The ERS Launchpad Portfolio does not have a stated target allocation within the Trust. New investment opportunities are evaluated on a one-off basis and determined by a number of factors such as favorable investment terms, level of revenue sharing economics, size of our potential investment compared to other investors in the firm, as well as others. Nevertheless, the manager's ability to produce attractive risk-adjusted returns will remain the primary reason for considering an investment.

Hedge funds include private investment vehicles that engage primarily in the tactical trading of securities and other financial instruments, and are consistent with the approved classes of hedge funds defined below.

- **Absolute Return Portfolio:** The Absolute Return Portfolio is a risk reducing portfolio of hedge funds and is comprised of several hedge fund investments where each investment strives to provide an absolute return over a full market cycle. Each respective investment should have diversifying properties whereby maintaining a low beta and correlation to the Trust. The Absolute Return Portfolio allocates across the following strategies: Relative Value, Event Driven, Equity Long/Short, Global Macro, and Opportunistic.

- **ERS Launchpad Portfolio:** The ERS Launchpad Portfolio is a risk reducing portfolio of hedge funds. The ERS Launchpad Portfolio is comprised of hedge fund investments where ERS receives a revenue share based on the firm's top line economics. Each investment is benchmarked to an appropriate HFRI or HFRX index, and the ERS Launchpad Portfolio as a whole is evaluated versus a blended benchmark based on the underlying strategies of each investment. The ERS Launchpad Portfolio will invest in the same hedge fund strategies as the Absolute Return Portfolio (strategies are listed below), but can do so in a more concentrated manner. Since the inception of the program, the portfolio has focused on Equity Long/Short and Equity Market Neutral strategies, but has recently invested in a Global Macro strategy. Future allocations will focus on other hedge fund strategies that can provide an element of diversification to the ERS Launchpad Portfolio. Similar to the Absolute Return Portfolio, the ERS Launchpad Portfolio may be managed using a Core/Satellite approach as described below.

The portfolio will be structured using a Core/Satellite approach:

- **Core Investments.** Core investments will include low correlation and low volatility managers implementing one or more strategies that, in aggregate, are expected to achieve a stable return in line with the Absolute Return Portfolio's target return.

- **Satellite Investments.** Typically, Satellite investments operate with a higher beta given that they strive to generate a higher risk reward profile relative to what is defined as a Core investment. In other instances, these could be niche liquid trading strategies that operate with a low beta, but carry other riskier attributes. For instance, these investments often implement either a single strategy with a sub-strategy or a regional focus. They are used opportunistically to augment the risk/return/beta profile of the Core managers such that the Absolute Return Portfolio, in aggregate, is expected to achieve a more attractive risk adjusted return profile that meets the portfolio's overall performance objectives.

Eligible investments include, but are not limited to, private investment funds with the characteristics and strategies described below. The hedge fund portfolio definitions and terms will comply with general industry norms and are generally defined as follows.

- **Relative Value Strategies.** Relative value strategies seek returns by capitalizing on the mispricing of related securities or financial instruments. Generally, relative value strategies avoid taking a directional bias with regard to the price movement of particular securities or markets. Representative relative value strategies include equity market-neutral, volatility arbitrage, convertible arbitrage, fixed income arbitrage and other strategies that exhibit low net/market neutral profiles.

- **Event Driven Strategies.** Event driven strategies focus on identifying and analyzing securities that can benefit from the occurrence of a corporate transaction or event, e.g., restructurings, takeovers, mergers, spin-offs, bankruptcy. Representative event driven strategies include merger arbitrage, event driven equity and distressed investing.

- **Equity Long/Short Strategies.** This strategy seeks to combine long and short equity positions to benefit from security selection while offsetting systematic market risk (to varying degrees). Portfolios are typically constructed using a “fundamental, bottom-up approach” encompassing detailed financial modeling, industry research and company due diligence. Equity long/short strategies will maintain some level of market exposure (either net long or net short); however, the level of market exposure may vary through time.

- **Global Macro Strategies.** The global macro strategy classification refers to discretionary and systematic strategies, where the manager tends to invest at the asset class level, in fixed income, equities, FX, credit, commodities and/or digital assets rather than individual securities. Managers can shift opportunistically between trading strategies with a directional bias and a non-directional bias. Directional trades may demonstrate higher short term market beta, however global macro strategies will typically demonstrate low or even negative market betas over a full market cycle or in particular during periods of underperformance for traditional risk assets. Representative systematic strategies include Global Tactical Asset Allocation (“GTAA”) and Commodity Trading Advisors (“CTA”).

- **Opportunistic.** Opportunistic investments should generally satisfy the following conditions: enhance returns of the portfolio, display a positive asymmetric return profile (i.e., upside potential with limited downside), have an identifiable exit point (typically five years or less, likely achieved through investment in a closed-end vehicle), and be sourced primarily, though not exclusively, through existing relationships. The investments may be in any sub-strategy or niche strategy, but are likely to result from a market dislocation and display greater illiquidity, beta and volatility than other investments in the Absolute Return Portfolio. Typically, these investment vehicles will have a capital commitment whereby capital is called/drawn over a period of time. The opportunistic sub-portfolio is not meant to be viewed as a diversified stand-alone portfolio but rather a collection of opportunistic investments with unique characteristics.

Portfolio Management

Program assets will be managed in accordance with the IPS, this Plan, and the Hedge Funds Standard Operating Procedures. Specific investment limits, target allocations and investment parameters are included as in the next section of this Plan. As represented in the Guidelines, the targeted ranges and upper policy limits are specified to ensure that each respective portfolio remains sufficiently diversified by strategy.

ERS Hedge Fund Staff, with the support of the Hedge Fund Consultant, will manage investments to the provided strategy allocation ranges, but may deviate from these ranges depending on market conditions and the risk reward profile of the various opportunities.

Hedge Fund vehicles will include both open-ended and closed-end commingled vehicles, such as limited partnerships, limited liability companies, managed accounts, fund of one, or similar structures.

Leverage. The underlying funds in the hedge fund program may use leverage in a prudent manner that is consistent with leverage applied in similar hedge fund strategies. Leverage is a condition where the net potential monetary exposure of an obligation exceeds the value of the underlying assets which support the obligation.

- Net leverage is calculated as the difference between (A) the sum of (i) the market value of all long cash market positions, (ii) the notional value of all long derivative positions, and (B) the sum of (i) the absolute market value of all short cash market positions, and (ii) the absolute notional value of all short derivative positions divided by (C) the net market value of the fund.

- Gross Leverage is the total of (A) the sum of (i) the market value of all long positions, (ii) the notional value of all long derivative positions, (iii) the absolute market value of all short cash market positions, and (iv) the absolute value of all short derivative positions divided by (B) the net market value of the fund.

Liquidity. Staff will seek to maintain a relatively liquid portfolio of hedge funds and will typically favor managers offering more favorable liquidity terms. However, Staff is conscious of, and will seek to avoid, potential asset liability mismatches. In each case, Staff will evaluate the appropriateness of allowing longer term redemption periods. Factors considered in this determination will include, but not be limited to, potential fee concessions, availability of capacity, and consistency with terms offered by similar funds. Notwithstanding a fund's stated redemption schedule, Staff recognizes that such timetables for liquidity may be suspended under certain circumstances, such as periods of unusual financial stress either within markets or within underlying hedge funds.

Portfolio Performance. Performance of the program will be monitored at the portfolio level against the asset class benchmark adopted in the IPS. The program's value-added return will be derived in equal measure from strategy selection and manager selection. In addition, ERS will monitor the performance of both the Absolute Return Portfolio and the ERS Launchpad Portfolio relative to established policy benchmarks.

Staff will monitor the performance of individual investments versus the Hedge Funds Consultant's database of peer group hedge fund investments. Quartile rankings will be calculated and monitored for each ERS investment over various look back periods and against both broad and sub-strategy hedge fund peer groups. Rankings based on risk adjusted measures (e.g., risk, return, correlation and beta) to the Absolute Return Portfolio and the Trust will be monitored.

Redemption Policy. Decisions to redeem from any single hedge fund investment is at the discretion of the Director of Hedge Funds in consultation with the CIO. The redemption of any hedge fund investment can occur for numerous reasons which include loss of assets, strategy drift, poor performance, key employee departures, etc. There is no one underlying determining factor for a stated redemption, and such decisions should be made in view of the totality of the circumstances as well as the construction of the portfolio overall. In many instances, a redemption is often triggered when one or more issues arise.

Transparency. Transparency is obtained and reviewed where possible on all hedge fund investments. The Hedge Funds team obtains transparency from its underlying managers from a mix of sources which include ongoing investment discussions, manager reporting, a monthly DDQ questionnaire, etc. In addition, the Hedge Funds Consultant will typically operate a database where managers report various exposures on a lagged basis over either a monthly or quarterly timeframe. This type of transparency offers the ability to see both aggregate exposures along with specific sub-strategy exposures. The current consultant to the team is Albourne and their database system is referred to as Open Protocol.

Guidelines: Hedge Funds

Hedge Funds Program

Performance Targets		
Aspect	Range	Basis
Beta	≤ 0.4	Rolling five-year beta to monthly returns of the Trust
Volatility	4-8%	Rolling five-year standard deviation of monthly returns
Core Position Size	≤ 15%	Total program assets
Satellite Position Size	≤ 10%	Total program assets
Non-Developed Market Exposure	≤ 50%	Total program assets

Portfolios: Absolute Return (AR) and ERS Launchpad (EL)

Performance Targets			
Aspect	AR Range	EL Range	Basis
Beta	≤ 0.4	≤ 0.4	Rolling five-year beta to monthly returns of the Trust
Volatility	4-8%	4-8%	Rolling five-year standard deviation of monthly returns

Portfolio Diversification			
Aspect	AR Range	EL Range	Basis
Core Position Size	≤ 15%	N/A	Total portfolio assets
Satellite Position Size	≤ 10%	N/A	Total portfolio assets
Number of Holdings	≥ 10	≥ 3	Absolute
Number of Holdings	≤ 25	≤ 10	Absolute
Fund Concentration	≤ 20%	≤ 100%	Total strategy assets

Strategy Weights: Absolute Return Portfolio			
Aspect	Min	Max	Basis
Relative Value	20%	60%	Total portfolio assets
Event Driven	0%	60%	Total portfolio assets
Equity Long/Short	0%	30%	Total portfolio assets
Global Macro	10%	40%	Total portfolio assets
Opportunistic	0%	30%	Total portfolio assets

Strategy Weights: ERS Launchpad Portfolio			
Aspect	Min	Max	Basis
Equity Long/Short	30%	100%	Total portfolio assets
Relative Value	0%	30%	Total portfolio assets
Event Driven	0%	50%	Total portfolio assets
Global Macro	0%	35%	Total portfolio assets
Opportunistic	0%	50%	Total portfolio assets

Special Situations Program

Procedures: Special Situations

Strategic Purpose

The Special Situations program exists to promote prudent innovation and improve the risk-adjusted returns of the Trust with new investment strategies and mandates.

Performance Objective

The performance objective of Special Situations is to improve the risk-adjusted returns of the Trust by adopting prudent investment strategies that are innovative and/or diversifying. At a strategic level, such investments should be expected to meaningfully improve the long-term Sharpe ratio of the Trust by adding meaningful amounts of additional return per unit of risk and/or providing diversification benefits arising from the fundamentals of the investment and/or their appropriateness for the economic regime.

At an implementation level these strategies will do so by achieving a rate of return in excess of the weighted average return of the benchmarks of the underlying investment strategies. To that end, the IPS specifies the following investment performance objectives for the program and its constituent investments.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Maximum
Tracking Error	As approved	As approved
Information Ratio	≥ 0.25	N/A
Excess Return	As approved	N/A
Benchmark	Custom composite	Custom composite

Each investment strategy used in Special Situations will have an explicit benchmark used for performance evaluation of relevant securities. Performance is to be measured primarily over rolling five-year periods and net of investment expenses.

Program Structure

Special Situations encompass a broad range of investment strategies that may fall outside of traditional asset classes. This category is intended to comprise a small portion of the Trust and it will grow as suitable investments are identified by potential sponsors. In all cases the constituent investments must meet the statutory definition of a security, which in some cases may imply that the exposure must be gained in derivative form (e.g., commodities or digital assets via futures or a fund vehicle).

Program Management

Oversight of this asset class will be provided by the Internal Investment Committee (IIC), which shall provide initial and ongoing monitoring of the complementarity of such investments to the overall strategy and positioning of the Trust. Any potential investment not aligned with an asset class included in the IPS shall require approval by an ACIC. Investment recommendations must be based on extensive due diligence that provides a high level of comfort and knowledge on the part of the Staff and Board. Its constituent investments will be overseen on an ongoing basis by the sponsor and/or a designated successor. Special Situations investments may be considered for permanent inclusion in an established asset class upon the recommendation of the CIO and approval by the ACIC of the asset class in which the investment will be included.

Guidelines: Special Situations

Strategy Weights			
Aspect	Min	Max	
Multi-Asset	0%	100%	Invested plus committed capital
Relative Value	0%	100%	Invested plus committed capital
Commodity Linked	0%	100%	Invested plus committed capital
Digital Assets	0%	50%	Invested plus committed capital

Cash Program

Procedures: Cash

Strategic Purpose

As a mature pension system, cash disbursements of ERS are expected to exceed cash receipts for the medium term. As such, sufficient funds must be made available for transfer from the investments to meet the operating needs of the System.

The primary objective of the Cash program is to provide the Trust with liquidity and capital preservation within the prevailing market environment, and a secondary objective shall be to deliver an attractive risk-return profile. To the extent that its primary objective remains liquidity and capital preservation, the program is expected to exhibit an information ratio that is lower than programs that are primarily return seeking.

Performance Objective

To that end, the IPS specifies the following investment performance objectives for the program and its constituent investments.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target	Maximum
Tracking Error	25 bps	75 bps
Information Ratio	≥ 0.20	N/A
Excess Return	≥ 5 bps	N/A
Benchmark	US 3-Month T-Bill	US 3-Month T-Bill
Bloomberg Ticker	G0O1	G0O1

Performance is to be measured primarily over rolling five-year periods and net of investment expenses.

Portfolio Construction

Allocations within the strategy will be broadly focused on preserving stable value, and may include:

- US Treasury and US government agency securities
- Institutional money market funds
- US dollars on deposit
- Certificates of Deposit (CDs)
- Foreign currencies
- Asset backed securities (ABS)
- Commercial paper
- Time deposits
- Repurchase agreements
- Bank notes
- Supranationals/sovereigns
- Domestic corporate bonds and floating rate notes (FRNs)
- Short duration fixed income exchange traded funds (ETFs)
- Account receivable associated with Trust transactions

For the purposes of these guidelines US government instruments is considered to include agency debt.

Portfolio Management

The portfolio shall be conceptually understood to consist of different liquidity layers, each of which will serve different strategic and operational purposes for the Trust. A base layer of cash (roughly $50-100 million) shall be maintained with overnight liquidity to support day-to-day operations of the Trust such as meeting capital calls and transfers for GBP. A second layer of cash (roughly $250-400 million) will be held in liquid instruments with laddered maturities to fund upcoming benefit payments. Amounts above these layers may be held in various instruments to provide yield enhancement and portfolio diversification.

On at least a weekly basis, Operations will project the cash flow needs of the System based on the amount budgeted for projected benefit payments, including retiree payroll. Cash draws should generally be made from asset classes and individual portfolios that are overweight relative to their strategic target, with those funds then transferred to the System's cash account at the custodian bank. A standing direction may be issued for monthly transfers from managed investments to address projected cash flow needs.

The Chief Investment Officer will review the anticipated disbursements regularly, and will compare the disbursement requirements to funds available. A recommendation of the amount of cash draw required from the Custodian Bank will be made to the CIO, who will monitor transfer of the required funds from the Custodian Bank to the Operating Bank on a specified date.

Each quarter Staff will provide to the Board a report detailing the aggregate value of cash movements from the prior quarter that are related to investment program operations.

For the purposes of asset allocation and the associated compliance process, the level of cash shall be the amount of unallocated cash and shall exclude cash held within portfolios and cash held as collateral for derivative accounts.

Guidelines: Cash

Performance Targets		
Aspect	Range	Basis
Tracking Error	≥ 25 bps	Realized tracking error on a trailing five-year basis
Tracking Error	≤ 75 bps	Realized tracking error on a trailing five-year basis
Information Ratio	≥ 0.20	Trailing five-year net of fees

Strategy Weights			
Aspect	Min	Max	Basis
Core Holdings			
Money Market Funds (e.g., STIF)	5%	60%	Program NAV
US Treasury Bills	40%	95%	Program NAV
Bank Deposits			
US Dollars on Deposit	0%	50%	Program NAV
Certificates of Deposit (CDs)	0%	20%	Program NAV
Other Instruments			
Insured Cash Sweep	0%	25%	Program NAV
Foreign Currency	0%	25%	Program NAV
Accounts Receivable	0%	25%	Program NAV
Sponsored Cleared Repo	0%	15%	Program NAV
Short Duration Fixed Income ETFs	0%	15%	Program NAV
Commercial Paper	0%	25%	Program NAV

Portfolio Diversification		
Aspect	Range	Basis
Single security (excluding T-bills)	≤ 10%	Program NAV
Single commercial counterparty	≤ 25%	Program NAV
Money Market Funds (e.g., STIF)	>$100mm	Absolute Basis
Commercial Paper	≤$500mm	Absolute Basis

Security Characteristics	
Asset Type	Aspect
Collateral Type	
Money Market Funds	100% Government
Sponsored Cleared Repo	100% Government
Short Duration Fixed Income ETFs	100% Government
Credit Quality	
Commercial Paper	≥A1/P1
Tenor	
Treasury Bills	≤ 180 days
Money Market Funds	≤ 60 days
Certificates of Deposit	≤ 60 days
Insured Cash Sweep	Overnight
Short Duration Fixed Income ETFs	≤ 60 days
Sponsored Cleared Repo	Overnight
Commercial Paper	≤ 60 business days

Texas Employees Group Benefits Program (GBP)

Procedures: GBP

Strategic Purpose

The primary objective of the Texas Employees Group Benefit Program (GBP) is to maintain investment guidelines for the assets administered by ERS for the benefit of GBP participants. In 2001, the Texas Group Benefits Act (the Act) replaced the Uniform Group Insurance Program (UGIP) that began on September 1, 1976 (Article 3.50-2, Texas Insurance Code). The Act establishes the structure, scope, eligibility and participation provisions of the GBP as well as certain mandatory benefits.

Investment Objectives

The Act allows the Board to invest and reinvest any portion of the GBP funds under the standard care provided by Texas Government Code 815.307, including a consideration of the functional need to provide for adverse fluctuations in claims and administrative expenses. The strategic objective is to deliver investment performance that supports the current and future provision of benefits for GBP participants. This objective is achieved by delivering returns that are consistent with the actuarial discount rate while ensuring sufficient liquidity to meet the cash flow needs of the GBP both timely and consistently.

Performance Objective

To that end, the IPS specifies the following investment performance objectives for the program and its constituent investments, including the Insurance & Benefits Fund and the Retiree Health Fund.

- Relative Return: obtain returns in excess of the adopted benchmark.

	Target
Excess Return	≥ 0 bps
Benchmark	US 3-Month T-Bill
Bloomberg Ticker	G0O1

Performance is to be measured primarily over rolling five-year periods and net of investment expenses.

Portfolio Construction

Unit trust accounting is used to provide flexibility of asset allocation and effectively invest in a diversified manner. This construction process involves assigning units to each fund based on the share of that fund's investment fair value to the total fair value of the consolidated investments. Investment earnings and price appreciation increases the per unit value of all participating funds. Investment earnings or losses and fees for the total consolidated fund are allocated to each of the participating funds on a daily basis using the pro rata share of fair value. Deposits and withdrawals for each fund change the number of units held by each fund. All changes are recorded at the unit value that is calculated for the transaction date. The custodian bank prepares consolidated statements that detail all of the unit trust accounting activity.

Program Oversight

The CIO shall appoint a member of the Investments division to manage the day-to-day operation of the GBP portfolios, including oversight of the asset allocation and making rebalancing recommendaitons.

Guidelines: GBP

Insurance & Benefits Fund

Strategy Weights			
Asset Class	Min	Max	Basis
Cash & Equivalents	0%	70%	Total assets of the portfolio
ERS Rates Pool	0%	70%	Total assets of the portfolio
ERS Public Credit Pool	0%	30%	Total assets of the portfolio
ERS Private Credit Pool	0%	10%	Total assets of the portfolio

Retiree Health Fund

Strategy Weights			
Asset Class	Min	Max	Basis
Cash & Equivalents	100%	100%	Total assets of the portfolio

Trading Program

Procedures: Trading

Strategic Purpose

The primary objective of the Trading program is to provide the Trust with best execution of listed securities transactions in the implementation of the investment strategy overall.

The Trading program shall also serve as a primary source of market intelligence regarding market functioning, asset flows, and participant positioning.

Performance Objective

Trading performance for individual transactions will be measured in basis points against one of the following benchmarks based on information from Bloomberg's Trade Costs Analysis system.

- Volume Weighted Average Price (VWAP) Adjusted For ¾ Bid/Ask Spread: the average price, based on both volume and price, that a security trades from the first route to the close of the last day of trading, a figure is then adjusted for three-quarters of the average bid/ask spread.

- Markit Impact Arrival Price (AP): the mid-price of the security at the exact time the trade is first routed to the market and adjusted for the pontential market impact of the transaction.

- Closing Price (CP): the last price at which a security trades during a regular trading session.

In each case the benchmark should be specified in advance if it is to be different from VWAP, which shall be considered the default. Since price limits, partial order executions, participating in equity offerings, and defined participation rates imposed by portfolio managers inhibit the flexibility of the trading program, those trades will be excluded from these calculations.

Performance for the program overall will weight these metrics by market value to calculate the overall value added.

- Relative Return: obtain price savings in excess of the adopted benchmark.

	Target
Excess Return	≥ 0 bps
Benchmark	Weighted Average Benchmark
Bloomberg Ticker	N/A

Performance is to be measured primarily over rolling five-year period.

Counterparty Selection

Staff shall allocate trades for the benefit and the best interest of the Trust based on the relative ability of broker/dealers to add value to the Trust through products or services that benefit the investment program, trade execution; or commission sharing arrangements.

Trade allocations for credit towards products and services shall be guided by the broker vote ranking. Best efforts will be made to pay out commission proportionately to each broker in line with the vote. Trades allocated to a particular broker-dealer strictly for execution purposes shall be executed at commission rates acceptable to ERS. All security and currency trade orders shall be placed with firms that meet all of the requirements listed in the guidelines section, to the extent applicable to the specific firm.

In order for a firm to be approved or to remain approved, all information shall be provided to ERS upon request and shall be satisfactory to ERS. Firms used strictly as crossing networks may be exempt from these requirements with the approval of the CIO.

Notwithstanding the above, orders to effect currency exchanges may also be placed with a banking institution as long as it has (1) at least a five-year history of serving institutional clients in this capacity and (2) a high short-term debt rating from at least two nationally recognized statistical rating organizations.

Portfolio Management

The traders will review daily trading cost analysis reports and copies of the prior day's activity are sent to the Chief Investment Officer, Deputy Chief Investment Officer, Director of Treasury & Trading, and the Public Equity team.

At no time will the program engage in market manipulation, including practices that intend to mislead market participants by distorting prices and/or artificially inflating trading volume.

All Covered Persons and other persons designated as having access to any ERS Information or any other Material, Non-Public Information (MNPI) are subject to the Insider Trading and Confidentiality Policy.

The program will engage one or more vendors to conduct Transaction Cost Analysis.

Guidelines: Trading

Performance Targets		
Aspect	Range	Basis
Value added	≥ 0 bps	Versus weighted average of benchmarks

Counterparty Risk		
Aspect	Range	Basis
U.S. Securities and Exchange Commission (SEC) registration	As required by law	Firms shall be registered and in good standing.
Financial Industry Regulatory Authority (FINRA) membership	As required by law	Firms and their designated agents shall be members in good standing.
Texas State Securities Board registration	As required by law	Firms and their designated agents, shall be registered and in good standing.
Established institutional platform	≥ 3 years	Firms shall demonstrate a proven and effective execution platform for institutional investors that has been utilized by the firm a designated period.
Firm net capital	≥ $2.5M	Firms and their executing brokers and clearing agents shall each have suitable levels of capital.

Proxy Voting Program

Procedures: Proxy Voting

Strategic Purpose

As described in Addendum I of the IPS, the right to vote proxies for securities held by the Trust has significant economic value, and the fiduciary act of managing those securities includes the management of the voting rights associated with those securities.

Program Objective

The objective of these procedures is to ensure that proxies are voted in a manner that is consistent with the direction provided by the Board in the ERS Proxy Voting Policy within the IPS. It does so by outlining the key processes and assignments to be used in casting votes, establishing the Proxy Voting Guidelines, and overseeing the Proxy Advisor.

Program Administration

To facilitate the processing of proxy votes, ERS uses the services of a Proxy Advisor, which for many years has been Institutional Shareholder Services (ISS). ERS provides the Proxy Advisor with ERS Proxy Voting Guidelines that are to be used by the Proxy Advisor to create a custom voting policy for ERS, which is in turn used to cast proxy votes on behalf of ERS. The Proxy Advisor codes these guidelines into its internal system so that agenda items are matched to these codes and voted electronically according to the guidelines.

In those exceptional cases where ERS guidelines do not address the topic of the proposal to be voted or ERS guidelines require an internal case-by-case analysis of the proposal, the Proxy Advisor codes the item on the ballot as “refer” to indicate it is to be voted by ERS staff. Such referrals are typically accompanied by a recommendation and/or analysis from the Proxy Advisor regarding the proposal. Designated members of the ERS Stewardship Committee perform the research necessary to determine what vote serves the best interests of ERS overall and instruct the Proxy Advisor accordingly. Research includes evaluation of Proxy Advisor recommendations, management recommendations, and input from ERS Analysts and Portfolio Managers when appropriate. In those rare cases where making such a determination proves difficult, the designated Stewardship Committee members can bring the vote before the Stewardship Committee and/or the CIO for further consideration.

Program Oversight

The Stewardship Committee monitors the day-to-day implementation of the ERS Proxy Voting Policy, maintains the ERS Proxy Voting Guidelines, and provides ongoing oversight of the Proxy Advisor. The Stewardship Committee shall keep current on the benchmark voting guidelines recommended by the Proxy Advisor. As needed, but at least on an annual basis, the Stewardship Committee shall review the proxy voting policy updates proposed by the Proxy Advisor, consider their appropriateness for ERS, and make recommendations to the CIO as appropriate.

Guidelines: Proxy Voting

The Proxy Voting Guidelines referenced in the section above will be maintained in a separate document. The Stewardship Committee shall review and maintain that document on at least an annual basis.

Scrutinized Investments Program

Procedures: Scrutinized Investments

Strategic Purpose

As described in Addendum II of the IPS (ERS Scrutinized Investment Program Procedures), the ability of the Trust to acquire and/or to hold certain securities may be restricted by applicable state or federal law. Such statutes typically provide that a designated state or federal government agency (“Applicable Agency”) will prepare and publicly publish on a periodic basis a list of companies (“Listed Companies”) in which investment may be prohibited and divestment may be required pursuant to the applicable law.

Program Objective

The objective of these procedures is to ensure that activities related to scrutinized investments occur in a manner that is consistent with the direction provided by the Board within the IPS. Since such laws generally provide different restrictions for direct investment and indirect investment in Listed Companies, it is imperative that such distinctions are observed for all activities related to these procedures.

Program Administration

As outlined in the IPS, Investment Staff is responsible for assessing the role that such securities fulfill in the investment program in order to determine the impact of the potential removal of that security from the Trust. The IPS requires that these assessments are based solely on the economic value of the securities within the Trust and its constituent portfolios while taking into consideration ERS policies, the Board’s constitutional fiduciary duty and exclusive benefit rule, and the expected transaction costs associated with divestment. Other relevant criteria may include the risk/return characteristics of the securities in the portfolio(s) including its diversification characteristics (as measured by forecasted tracking error, benchmark weighting, and/or portfolio weighting), and the economic impact to the Trust of substituting other securities as may be necessary.

As it relates to fiduciary duty specifically, such statutes typically include explicit acknowledgement that ERS has a duty of care with respect to these investments, which indicates that this constitutional duty must be balanced against the statutory requirement to divest. Indeed, it is widely accepted within finance that portfolio exclusions are by their nature harmful to portfolio performance by increasing expected risk and/or reducing expected returns. As such, the duty of care requires that the extent of the expected harm from placing such restrictions on the ability of a manager or the Trust overall to carry out their fiduciary duty should be fully analyzed prior to their implementation.

Program Oversight

ERS will follow all requirements related to ongoing monitoring and reporting of its holdings in the scrutinized investments. The Stewardship Committee will monitor the day-to-day implementation of the Scrutinized Investments Policy and maintain the ERS Scrutinized Investment Standard Operating Procedures on behalf of the Investments Division in conjunction with other divisions as appropriate. On an monthly basis, the Stewardship Committee shall review the current holdings of scrutinized investments and will be notified of any requests for fiduciary exceptions.

Guidelines: Scrutinized Investments

The Scrutinized Investment process referenced in the section above will be maintained in a separate document. The Stewardship Committee shall review that document on at least an annual basis and make recommendations to the CIO and Executive Director.

On a monthly basis the Chair of the Stewardship Committee will ensure that a list of direct holdings in those securities currently designated as scrutinized is provided to the Risk Committee for its regular meeting.

Securities Lending Program

Procedures: Securities Lending

Strategic Purpose

Securities lending of fixed income and equity securities is a common practice within the financial services industry. It involves two financial entities to engage in a transaction where one is the borrower and the other entity is the lender. The lender of the security will receive a rate of interest for its payment plus earn any additional interest on the collateral being invested. The borrower of the security will often provide a degree of collateral to the lender. At a future point in time, the borrower returns the security in exchange for its collateral.

The securities lending program aims to provide strong risk-adjusted income to the Trust. It manages risk by restricting lending to only securities which are currently earning a rate that is at or above a defined premium (“Specials”) and investing the posted margin in collateral with as little risk as is possible. This approach differs from other programs that aim to maximize revenue by (1) lending as many assets as possible and (2) investing collateral more aggressively to capture a spread over the rebate paid back to the borrower.

Performance Objectives

The threshold definition for Special is communicated to the agent via email by Staff and is changed infrequently. Historically, the threshold level for the Trust is defined as a spread to the Overnight Bank Funding Rates (OBFR) posted by the New York Fed (OBFR01 Index on Bloomberg). OBFR is the volume weighted median of U.S. based banks funding cost calculated using the Fed Funds rate and overnight Euro dollar time deposits.

Portfolio Construction

The Board has delegated to Staff the authority to manage securities lending activities for the Trust. To do so, Staff will request that the securities lending agent project various expected utilization and revenue levels for different levels of the OBFR threshold. Staff considers this information and instructs the securities lending agent accordingly.

Historically, it is issues with their collateral investments that have driven challenges experienced by securities lending programs. Collateral pools exhibit two primary types of risk:

- Credit Risk – Default or delayed payment by an asset held in the collateral pool.
- Gap Risk – Average maturity of collateral assets is longer than the tenor of the loan resulting in the risk that the value of the asset(s) being less than the value owed by the borrower.

ERS will elect to restrict collateral to overnight government repurchase agreements (“repo”), except in extraordinary circumstances when it will give specific written permission to deviate. By doing so, collateral risk can be reduced to (1) the credit quality of U.S. government entities used for the repo and (2) the bid-ask spread on those securities if the borrower fails to return cash the next day and forfeits the excess margin.

Gap and Credit Risk for securities lending programs tend to increase exponentially in a stressed financial market environment. This occurs because the value of borrowed securities tends to decline significantly during such events, with borrowers having previous shorted the securities they borrowed means lenders must return excess margin daily as they decline in value. Additionally, prime brokers tend to rapidly recall leverage extended to their clients with the client striving to reduce leverage to enhance their liquidity positioning. The net result is a sudden return of the borrowed securities and an immediate need to return posted margin. For this reason, levels of acceptable Gap and Credit risk are set by the extremes of a stress event rather than the normal operating environment.

Portfolio Management

The securities lending program will have additional protection of indemnification from its lending agent under certain circumstances. The economic value of the securities lent by ERS is protected even in the event of a borrower default that results in insufficient margin or collateral values. This arrangement results in secondary credit exposure for the Trust to the credit quality of its agent. As such, Staff actively monitors the agent's most appropriate credit spread to have a real time proxy for the ability of the agent's indemnification services. If the market is expressing concern with the agent's credit, the Trust has historically reduced its lending.

Staff will monitor the credit default swap (CDS) spread for the entity indemnifying the Trust and act when the level of its 1-year implied default rate exceeds 3%. In such cases, Staff expects to notify the agent to increase the defined premium charged for its securities defined as Specials, which will in turn tend to reduce the size of the securities lending program.

Guidelines: Securities Lending

Program Parameters		
Aspect	Range	Basis
CDS Spread of Lending Agent	<100 bps	5Y USD
Acceptable lending spread for Specials	≥ -9 bps	versus OBFR

Glossary

ASSET CLASS CONSULTANT – A Consultant that acts as an independent fiduciary advisor to the Board and provides expertise and advice related to the overall investment strategy, policies, and practices of the specific program.

BUYOUT – Buyout investments involve the purchase of all or part of the stock or assets of a company utilizing a significant amount of borrowed capital as well as equity capital. Borrowed capital typically consists of some combination of senior and subordinate debt. The company may be privately or publicly owned, or a subsidiary or division of a privately or publicly owned company.

CAPITAL IMPROVEMENTS – Expenditures that cure or arrest deterioration of property or add new improvements to prolong its life.

CARRIED INTEREST –The general partner's carried interest is its share of the partnership's profits, which generally ranges from 10 percent to 30 percent of the total. A 20 percent carried interest is the industry norm for private equity.

CO-INVESTMENT – A co-investment is any direct or indirect investment into a single asset or group of assets alongside or otherwise in connection with an investment in such asset(s) made by a private investment vehicle (typically a private fund). Co-investments are investments made alongside an investment vehicle general partners in underlying assets and securities, usually with lower management fees and carried interest. Co-investment may also refer to a capital investment and ownership share by the Investment Manager in the underlying investment vehicle.

CO-INVESTMENT ADVISOR – A co-investment advisor is an investment manager who manages a Separately Managed Account of co-investments on behalf of ERS. Such an advisor may act as an Independent Fiduciary for co-investments that are outside of the Separately Managed Account if at least $25 million is invested in such transaction through the Separately Managed Account that is being managed on behalf of ERS by such Co-investment Advisor.

CO-INVESTMENT TRANSACTION – A financing or series of financings that have an initial close on a given date and a final close no later than 365 days thereafter. Subsequent to the initial close, financings must have essentially the same terms or better to be considered a single transaction.

COMMINGLED FUND – A term applied to all open-ended and closed-ended pooled investment vehicles designed for institutional tax-exempt investors. A commingled fund may be organized as a group trust, partnership, corporation, insurance company separate account, private real estate investment trust, or other multiple ownership entity.

- Open-ended Fund – A commingled fund with no finite life, which allows continuous entry and exit of investors, and typically engages in ongoing investment purchase and sale activities.
- Closed-ended Fund – A commingled fund with a stated termination date, with few or no additional investors after the initial formation of the fund. Closed-ended funds typically purchase a portfolio of properties to hold for the duration of the fund and, as sales occur, typically do not reinvest the sales proceeds.

DEBT-RELATED INVESTMENT STRATEGIES – Debt-related investments (as applied to the Private Equity asset class) involve the purchase and ownership of private securities that are debt-oriented (rather than equity-oriented). There are many different types of debt-related investment strategies including but not limited to mezzanine debt, distressed debt, direct lending, and convertible debt.

DEVELOPED MARKETS – Countries with advanced economies and capital markets as designated by Dow Jones or Standard & Poor’s.

DIRECT INVESTMENTS – Direct investments are those made outside of a limited partnership structure. While a co-investment is made alongside a limited partnership investment, a direct investment is not. Direct investments require a greater level of due diligence and involve a greater level of risk in comparison to a co-investment.

DISTRIBUTIONS – Cash and/or securities paid out to the limited partners from the limited partnership.

EMERGING MANAGER – Private professional investment managers with assets under management of $2 billion or less.

FAIR MARKET VALUE – The highest price a property would bring if exposed for sale in the open market by a willing seller to a willing buyer with both parties being fully informed of all the uses and purposes to which the property is reasonably adaptable and available.

FIRST TIME LIMITED PARTNERSHIPS – A fund from a management team that has not previously been in an ERS portfolio.

FIRST TIME SEPARATELY MANAGED ACCOUNT – An investment in a vehicle managed for one investor rather than many with a management team that has not previously been in an ERS portfolio.

FOLLOW-ON LIMITED PARTNERSHIPS – The second and all subsequent funds raised by a management team that are included in an ERS portfolio.

FOLLOW-ON SEPARATELY MANAGED ACCOUNT – The second and all subsequent separately managed accounts invested by ERS and managed by a particular general partner.

FUND-OF-FUND (FOF) – An investment strategy of holding a portfolio of other investment funds rather than investing directly in stocks, bonds, or other securities.

GENERAL PARTNER – Managing partner of a limited partnership responsible for performing the day-to-day administrative operations of the partnership and acting as investment advisor to the partnership.

GLOBAL INDUSTRY CLASSIFICATION STANDARD (GICS) – Industry taxonomy developed in 1999 by MSCI and Standard & Poor's (S&P) for use by the global financial community.

INDEPENDENT FIDUCIARY – A third party organization that provides non-discretionary specialized advisory services to Staff and acts as a fiduciary to ERS and who by law must act in the best interests of ERS and put the interests of ERS above their own.

INITIAL PUBLIC OFFERING (IPO) – The sale or distribution of a stock or a portfolio company to the public for the first time.

INTERNAL RATE OF RETURN (IRR) – The discount rate at which the present value of future cash flows of an investment equals the cost of the investment. It is determined when the net present value of the cash outflows (the cost of the investment) and the cash inflows (returns on the investment) equal zero, the rate of discount being used is the IRR.

INVESTMENT MANAGER – A company that, by contractual agreement, provides investment opportunities and/or asset management services.

JOINT VENTURE – A structure wherein ERS and a partner form a partnership to purchase and/or operate an investment, or investments.

LEVERAGE – The use of borrowed funds to increase purchasing power and, ideally, to increase the profitability of an investment.

LIMITED PARTNER – The investors in a limited partnership, generally providing 99 percent of the capital and receiving 80 percent of the profits. Limited partners do not participate in the management of the partnership's activities. However, they normally have the right to vote to approve or disapprove amendments made to the limited partnership agreement.

LIMITED PARTNERSHIP – A partnership with both general and limited partners in which the general partner manages the business and assumes full liability for the partnership obligations with the liability of the limited partners generally restricted to their capital contributions.

LIMITED PARTNERSHIP – Organization made up of a General Partner, who manages the operations, and limited partners, who invest capital but have limited liability. Limited partners are not involved in the day-to-day management of the partnership and generally cannot lose more than their capital contribution.

LONGER-TERM STRATEGIES – Private equity investments that are expected to have lower risk and reward profiles than traditional private equity investments. Such investments will likely be held for longer periods of time than traditional private equity investments. Management fees and carried interest will generally be lower than for traditional private equity investments.

NON-DEVELOPED MARKETS – Countries with developing economies and capital markets as designated by Dow Jones or Standard & Poor's.

NCREIF INDEX – National Council of Real Estate Investment Fiduciaries Index; a property- level performance benchmark for institutionally owned real estate, calculated on a quarterly basis.

NET ASSET VALUE (NAV) – Represents total assets at fair market value minus liabilities.

NEW FIRM - Investment Manager with whom ERS has a contractual relationship of less than one year.

ODCE - The ODCE Index is comprised of open-end funds, with investments in equity positions in stable properties in the United States across diversified regions and property types. These investments typically reflect lower-risk strategies which utilize low leverage, and also provide a degree of liquidity due to being open-ended.

OPPORTUNISTIC REAL ESTATE – A phrase characterizing an investment in underperforming and/or undermanaged assets typically purchased from distressed sellers, utilizing high levels of leverage with the expectation of near-term increases in cash flow and value.

PORTFOLIO COMPANIES – Portfolio companies are the companies in which the Limited Partnership has an investment.

PREFERRED RETURN – A rate of return that must be met before the General Partner can earn carried interest.

PROGRAM ADVISOR –A Program Advisor provides expertise, advice and recommendations to support staff in the management and monitoring of an asset class or classes including, but not limited to, screening the universe of general investment opportunities and identifying those meeting the selection criteria of ERS, assisting staff in performing due diligence on prospective investment opportunities, issuing investment recommendations, and maintaining a deal log of investment opportunities. A Program Advisor is also an Independent Fiduciary.

SECONDARY LIMITED PARTNERSHIP INTERESTS – Limited Partnership interests that have been transferred from the original limited partner who made the original capital commitment to a limited partnership fund.

SEPARATELY MANAGED ACCOUNT – An investment vehicle managed for one investor rather than many. The vehicle may have a specialized mandate or may invest alongside a Limited Partnership.

SECONDARY MARKET TRANSACTIONS – Secondary Market Transactions are purchases or sales of private equity related interests in which one or more of the original parties divests (or has divested). Such private equity interests may involve a single interest or pools of interests. Pools may be diversified (greater than three interests in a single transaction) or non-diversified (three or less interests in a single transaction).

TOTAL RETURN – The sum of the income and appreciation returns.

VALUE-ADDED – A phrase commonly used by investment managers to describe a management approach to a property with the connotation that their skills will add value, which otherwise would not be realized.

VENTURE CAPITAL – Venture capital refers to investments in young, emerging growth companies in different stages of development. The stages of venture capital investing include the following:

- SEED STAGE - An entrepreneur seeking capital to conduct research or finish a business plan;
- EARLY STAGE – A company developing products and seeking capital to commence manufacturing;
- LATE STAGE – A profitable or near-profitable high growth company seeking further expansion capital. The common theme underlying all venture capital investments is the high-growth nature of the industries in which the investee companies operate and the active role played by the investor to identify additional management expertise and provide general business advice.

VINTAGE YEAR – Vintage Year can be defined in three ways: 1) For the purpose of ERS capital planning, a vintage year is the fiscal year for which ACIC approval is secured; 2) For the purpose of investment pacing analysis, a vintage year is the calendar year for which a fund commitment is closed; or 3) For the purpose of benchmarking, a vintage year is the calendar year an investment first draws capital. By placing an investment into a particular vintage year, the investor can compare the performance of a given investment with other similar investments that have first drawn capital during that calendar year.