

STATEMENT OF INVESTMENT POLICY

I. INTRODUCTION

A. Program Overview

The North Carolina Retirement Systems include the Teachers' and State Employees' Retirement System, the Consolidated Judicial Retirement System, the Firemen's and Rescue Workers' Pension Fund, the Local Governmental Employees' Retirement System, the Legislative Retirement System, and the North Carolina National Guard Pension Fund (collectively, the "Retirement Systems" or the "NCRS"). The Treasurer of the State of North Carolina ("Treasurer") maintains the investment program for the Retirement Systems (the "Fund" or "Pension Fund Program"). The Investment Management Division (the "IMD") of the North Carolina Department of State Treasurer (the "DST") serves as the investment arm of the State Treasurer. Under the direction of the Treasurer, IMD manages the Fund and ancillary programs.

B. Purpose of This Policy

The Treasurer sets forth this Statement of Investment Policy (the "Policy" or the "Investment Policy"), which states the long term objectives and guidelines for the IMD with respect to Fund investment portfolio management. The Policy's purpose is to capture strategic considerations for the total Fund and individual asset classes. The IMD staff shall recommend revisions to this Policy to the Treasurer on an as needed basis, but will review the Policy no less frequently than annually.

C. Related Laws and Policies

Article 5, Section 6. (2) of the North Carolina Constitution reflects the establishment of pension funds. North Carolina General Statute ("NCGS") §147-69.2 prescribes eligible investments for Fund assets and sets maximum percentages certain asset classes can comprise of total invested assets of the Fund. North Carolina General Statute §147-69.3 contains certain provisions regarding administration of the investment programs of the Treasurer, including the Pension Fund Program.

The investments of the Pension Fund Program include investments pursuant to (i) NCGS §147-69.2(b)(8) (the "Public Equity Portfolio"), (ii) NCGS §147-69.2(b)(1) through (b)(6b) (the "Fixed Income Portfolio"), (iii) NCGS §147-69.2(b)(7) (the "Real Estate Portfolio"), (iv) NCGS §147-69.2(b)(6c) (the "Credit Strategies Portfolio"), (v) NCGS §147-69.2(b)(9a) (the "Inflation Protection Portfolio"), and (vi) NCGS §147-69.2(b)(9) (the "Alternative Investment Portfolio"). Collectively, the systems and funds constituting the Retirement Systems each have a proportionate share of these portfolios.

The Treasurer is the sole fiduciary with respect to investment of the assets of the Fund, and the Treasurer is obligated to discharge his or her duties solely in the interest for the participants and beneficiaries of the Retirement Systems and otherwise in accordance with NCGS §147-69.7. The Treasurer has adopted a Signatory Authority Policy (revised effective November 22, 2011) that sets forth the authorizations for IMD staff to act on behalf of the State Treasurer with regard to investment-related matters. The Signatory Authority Policy defines what authority the State Treasurer has delegated and what authority the State Treasurer has retained. Notwithstanding anything in this Policy to the contrary, any action by IMD staff under this Policy shall be subject to compliance with the Signatory Policy, including execution of documents by the Treasurer and/or such person designation under the Signatory Policy.

This Policy and the Signatory Authority Policy are intended to cover all investment related matters. However, additional policies may be written which are not investment related, are only indirectly related to the Fund, or cover other aspects of the IMD or DST. Additionally, procedures will be utilized outside of this Policy to document processes which are routine in nature.

II. ROLES AND RESPONSIBILITIES

The fiduciary responsibility to manage the plan assets in a prudent manner rests with the State Treasurer and IMD. The Treasurer may delegate certain investment responsibilities to the IMD as outlined in the roles and responsibilities below. The IAC shall act in an advisory capacity and have roles and responsibilities as outlined in this section.

The General Assembly established the Investment Advisory Committee ("IAC") to advise the State Treasurer with respect to investments of NCRS. The statute states, "The committee shall have advisory powers only and membership shall not be deemed a public office within the meaning of Article VI, Section 9 of the Constitution of the North Carolina or NCGS §128-1.1."

A. Investment Advisory Committee

- i. Advise and provide oversight of the Fund's fiduciaries
- ii. Assist in selection and evaluation of the Chief Investment Officer
- iii. Review statutory revisions being recommended to the General Assembly
- iv. Review and provide comments on all Investment Policies
- v. Review and advise on asset allocations and benchmarks
- vi. Review and evaluate the process for the selection and monitoring of investment managers
- vii. Monitor the implicit and explicit costs of the Fund
- viii. Evaluate the risk analytics of the Fund over various time periods
- ix. Review the selection and retention of the custodial bank
- x. Review and evaluate the use of investment consultants and third party service providers
- xi. Review and comment on performance, portfolio summary and risk reports

B. State Treasurer

- i. The Treasurer serves as the sole fiduciary of the Fund
- ii. Select and evaluate the Chief Investment Officer
- iii. Recommend statutory revisions to the General Assembly
- iv. Approve all Investment Policies and any revisions thereto; Ensure all policies are followed
- v. Approve asset allocation targets and benchmarks as recommended by the IMD/IAC
- vi. Approve and terminate investment managers as recommended by the IMD
- vii. Approve investment recommendations that maximize the cost effectiveness of the Fund
- viii. Review the risk analytics of the Fund over various time periods
- ix. Approve selection and retention of custodial bank
- x. Approve selection and retention of consultants and third party service providers as recommended by the IMD
- xi. Review performance, portfolio summary and risk reports
- xii. Consult with legal regarding documents, securities litigation, and other legal matters
- xiii. Appoint IAC members and chair the committee

C. Investment Management Division

- i. IMD assumes a fiduciary duty in its role of Fund management

- ii. Have clearly defined responsibilities for the Chief Investment Officer and other team members
- iii. Recommend statutory revisions to the Treasurer
- iv. Draft and make recommendations to the Investment Policy; Ensure compliance with policies and guidelines for all investment related activities and third party service providers
- v. Research and recommend asset allocation targets and benchmarks
- vi. Source and conduct due diligence on attractive investment opportunities; Make investment manager hire and termination recommendations to the Treasurer
- vii. Give investment recommendations that maximize the cost effectiveness of the Fund
- viii. Generate and review the risk analytics of the Fund at various time periods
- ix. Manage and monitor the custodial bank relationship
- x. Review resources and make recommendations for the retention of investment consultants and third party service providers
- xi. Prepare performance, portfolio summary and risk reports for Treasurer and IAC
- xii. Consult with legal regarding documents, policy, securities litigation, and other legal matters
- xiii. Prepare data and presentations for the IAC
- xiv. Assist the Treasurer with respect to all matters related to the Pension Fund Program, including: requests from the Board of Trustees and considerations of the Financial Operations Division

III. INVESTMENT OBJECTIVES

It is the policy of the Treasurer to invest in a manner which is designed to:

- A. Primary focus on principal protection through diversification
- B. Stability and consistency of returns is paramount; avoid extreme portfolio losses
- C. Determine an appropriate level of risk for Fund investments
- D. Maximize Fund investment returns for the stated level of risk
- E. Ensure returns meet or exceed the actuarial assumption over a long time horizon
- F. Exceed composite benchmark return for the total Fund and individual asset classes
- G. Ensure sufficient liquidity to meet the Fund's obligations
- H. Comply with all governing statutes

IV. PENSION FUND PROGRAM DESIGN AND IMPLEMENTATION

A. Liabilities

It is the primary objective of the Fund to ensure that all liability payments and obligations are met. The Retirement Systems' actuary advises the Retirement Systems' Board of Trustees with respect to setting the actuarial rate of return and annual required contributions. The Board of Trustees has been granted the authority by the legislature to set the actuarial rate of return for the Fund, which is currently 7.25%.

B. Asset Allocation and Rebalancing

i. Asset Allocation Target and Ranges

It is the desire of the Fund to maintain stable contribution rates and benefit levels by providing consistent risk-adjusted returns through a diversified investment approach. The strategic asset allocation will be developed based on an analysis of optimized portfolios, utilizing risk and return characteristics of eligible asset classes, and selecting the most efficient portfolio for a given level of risk. Careful consideration will be given to the Fund's liabilities, liquidity needs, risk tolerance

and return objective. Each asset class will have a targeted percentage of total Fund assets. The optimal asset mix is not necessarily the one that produces the highest absolute return, but rather the optimal asset mix attempts to achieve the least amount of risk given the desired level of return and other objectives of the Fund.

The strategic asset allocation will be reviewed no less than annually with a detailed analysis conducted triennially. The current strategic asset allocation targets are detailed below.

Asset Class	Target
Fixed Income	36.0%
Global Equity	40.5%
Real Estate	8.0%
Alternatives	6.5%
Credit	4.5%
Inflation Protection	4.5%

ii. Portfolio Rebalancing

In order to maintain the proper asset allocation ranges over time, a sound rebalancing plan is essential. The IMD staff anticipates that the ongoing natural cash flows of the Fund (contributions and withdrawals) will be the initial and most cost effective way to maintain the asset allocation of the Fund within policy guidelines under most market conditions. However, when a liquid asset class falls below or exceeds a boundary of +/- 2.5% relative to its target weight, the IMD Staff will initiate rebalancing and rebalance the portfolio as soon as practicable. The IMD Staff may utilize, within the appropriate asset class, physical securities and derivatives, including options, to accomplish rebalancing to the extent otherwise consistent with applicable statutes, benchmarks, and this Policy.

C. Total Plan Policy Benchmark

The total plan policy benchmark will be used to measure the relative performance of the Fund as a whole and the Fund's total risk-adjusted returns. The total plan policy benchmark will be comprised of the weighted performance of the individual asset class benchmarks. Individual benchmarks for asset classes will be outlined in each respective section later in this document.

D. Risk Management

i. Return Volatility

The investment risk of the Fund is measured by return volatility, which is the annualized standard deviation of returns. The volatility of returns is expected to be consistent with the overall mix of assets within the Fund and risks inherent in the various investment strategies employed. Utilizing the Fund's risk management system, volatility will be measured ex-ante and ex-post both on an absolute and relative basis. Risk-adjusted returns are measured primarily by the Sharpe and Information Ratios. The table below illustrates the IMD's expectation with regard to absolute risk for each asset class.

Asset Class	Relative Volatility
Fixed Income	Low
Global Equity	High
Real Estate	Moderate to High
Alternatives	Moderate to High
Credit	Low to Moderate
Inflation Protection	Moderate to High

ii. Diversification

Diversification is important in reducing portfolio risk and accomplishing superior risk-adjusted returns. The impact of investments on portfolio diversification, portfolio risk, and risk-adjusted returns shall be considered when evaluating prospective investments. The Fund will be properly diversified across asset classes, systematic risk exposures and external investment managers. The IMD will continually source and evaluate new investments which may offer diversification benefits.

iii. Liquidity

The Fund will maintain a liquidity profile that will allow it to meet cash flow needs and obligations. The liquidity profile will be monitored regularly and evaluated annually.

iv. Risk Metrics

While achieving the return objectives, the Fund will target certain levels of risk which include:

- a. A long-term total fund volatility (standard deviation of total returns) of 10% or less, which will be targeted through the Fund's asset allocation. There may be periods in which the total Fund's volatility exceeds 10% due to tracking error (active risk) from the various asset classes or extreme market events
- b. A long-term total fund tracking error (standard deviation of the total Fund's returns relative to the total Fund custom benchmark returns) of 2% or less, which will be targeted through a total fund risk budgeting process

The Fund will be measured against various risk/return ratios to evaluate the risk-adjusted returns and the effectiveness of its portfolio construction. The primary ratios will include the Sharpe and Information Ratio, and will be evaluated on a rolling three year basis.

E. Investment Structures

Investments within the Fund may be made through any structure permitted by statute, including, without limitation, separately managed accounts, single investor limited partnerships and limited liability companies, or open and closed-end commingled investment vehicles. Each investment will be governed by a set of legal agreements that are specific to the investment structure.

F. Internal and External Investment Management

i. Internal Investment Management

The IMD will manage certain portions of the portfolio internally with the objective of outperforming the asset class policy benchmark in accordance with established risk parameters and at a reduced investment management cost. The benefits of internal investment management include lower investment costs, liquidity and transparency. Given the operational complexity of managing many strategies as permitted by statute, including illiquid strategies, the Fund will only manage public market securities internally. Currently, the Fund has statutory authority to manage investment grade fixed income and passive public equity internally. The Investment Director of the respective asset class retains the ability to pursue their investment strategy within their portfolio's stated guidelines.

ii. External Investment Management

The IMD Staff will utilize external investment managers to manage certain portions of the Fund's portfolio. All external managers will have a fiduciary responsibility with respect to the assets under management. The terms and conditions of the investment relationship will be governed by the set of investment documents specific to the investment. External investment management will reside primarily in the active portions of the Fund including active global equity, alternatives, real estate, credit and inflation. The external managers will operate within an established set of guidelines with the objective of outperforming their specific benchmark. The IMD will identify, perform due diligence and monitor the external investment managers.

G. Selection and Monitoring of Investment Managers

IMD Staff will strive to source managers to recommend to the Treasurer through all means possible, including: manager database searches, publications, professional referrals, consultants, conferences, and published requests for information. By utilizing all sources and considering all managers, IMD Staff will be able to best ensure that only the managers offering the best combination of risk and reward are being utilized for the fund. Because the nature of the investment mandates for each portion of the portfolio are so different, preparing a comprehensive, Fund-wide policy for the sourcing and selection of managers is not feasible. In lieu of a Fund-wide policy, IMD Staff will document the basis for each manager selection on a search by search basis.

Each manager selected to manage assets on behalf of the Fund will be evaluated and monitored on an ongoing basis. Review frequency for each manager will be dependent on the nature of the investment; however, a comprehensive review will be done no less frequently than annually. In-person reviews in either the IMD offices or managers' offices are always preferred to the extent possible, given staffing levels and budget considerations. It will be the policy of IMD Staff to see removal of managers when feasible whenever there has been a material change in the original investment thesis or confidence is lost in the ability of the manager to perform.

V. REPORTING REQUIREMENTS

While monthly data will be maintained internally, our custodian shall calculate, in compliance with industry standards, quarterly performance measurement reports which reasonably describe the Total Fund performance, compared to the benchmarks previously outlined. The quarterly reports shall compare benchmarks established for the portfolio and investments to actual performance, with a focus on performance variances. Quarterly reports shall monitor the risk factors previously described and evaluate compliance with portfolio guidelines including asset allocation targets, asset valuation, and performance and portfolio statistics for the Fund and individual asset classes and strategies.

PUBLIC EQUITY

I. INTRODUCTION

The Public Equity Portfolio is categorized into four major categories: U.S. Equity, Non-U.S. Equity, Global Equity, and Hedged Equity. The portfolio may include internally and externally managed portfolios of publicly traded equity securities. The externally managed portfolios include both active and passive equity managers, and hedge funds which invest primarily in publicly traded equity securities.

II. INVESTMENT OBJECTIVES

The Fund is investing in public equities to accomplish the following objectives:

- A. **Attractive Returns.** Provide an attractive equity return over the long term by making investments with expected returns commensurate with their respective risk levels. Achieving attractive returns commensurate with an appropriate level of risk should be accomplished using both long-only and hedged equity strategies. Hedged equity strategies are expected to reduce downside risk of the global equity portfolio while achieving equity-like returns.
- B. **Portfolio Diversification.** Use publicly traded equity to enhance the diversification of the Fund's total investment portfolio.
- C. **Liquidity.** Provide a source of liquidity to the pension Fund and other asset classes through the publicly traded asset types in the portfolio.

III. INVESTMENT STRUCTURES

- A. **Investment Vehicles and Contracts.** The Public Equity investment vehicles and contractual arrangements should be based on achieving the most cost effective structure that ensures the safekeeping of assets while providing accurate, timely, and transparent valuation of assets. These structures can include: separately managed accounts, commingled accounts of the custodian/trustee, limited partnership interests in a limited partnership or any other vehicle or contractual arrangement permitted by statute. Investments can be made directly to a single strategy or indirectly to multiple strategies via a "fund of funds" structure.
- B. **Types of Equity Securities.** The Public Equity Portfolio can be divided into subcategories based on market capitalization: large-cap, mid-cap, and small cap; style categories: growth and value; and regional categories to include but not limited to: U.S., Developed Non-U.S., Emerging Market, etc. Each of these subcategories can include passive or active strategies. The Public Equity Portfolio can also include various equity-based hedge fund strategies.

The IMD staff shall periodically review the actual portfolio structure and compare to the policy benchmarks. Adjustments can be based on various factors including materiality of the variance, market conditions, and expectations of future market returns for different categories and liquidity.

- C. **Restricted Securities.** A manager may be restricted from purchasing certain securities based on state or federal legislation, state policy, or Treasurer directives.

For each external investment manager, permissible investments and objectives will be clearly defined in the investment management agreement or governing agreements of the investment vehicle. IMD staff will monitor the investment manager's performance to ensure the manager is adhering to the guidelines.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Public Equity Portfolio shall be consistent with the following guidelines:

- A. Return Volatility. An investment's risk exposure is generally defined by return volatility. The volatility of returns is expected to be consistent with the investment strategy employed and relative to other investment managers with similar investment objectives.
- B. Total Return Mix. The publicly traded equity investments offer varying proportions of expected income and appreciation returns depending on their strategy.
- C. Diversification. Diversification is important in reducing risk in the Public Equity Portfolio and accomplishing superior risk-adjusted returns. The impact of investments on portfolio diversification, portfolio risk, and risk-adjusted returns shall be considered when evaluating prospective investments.
- D. Investment Firm Concentration. No firm shall manage more than 25% of the total Public Equity Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.
- E. Investment Manager Concentration. No individual investment manager shall exceed 10% of the Public Equity Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer. This limitation does not apply to passive investment strategies.
- F. Fund Concentration. IMD staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Public Equity Portfolio's investment in a vehicle shall constitute less than a 25% economic interest of the vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.

V. PERFORMANCE AND REPORTING GUIDELINES

The U.S. Equity portion of the Public Equity Portfolio is to be designed to achieve a rate of return in excess of the U.S. equity market as measured by the Russell 3000. The Non-U.S. Equity portion of the Public Equity Portfolio is to be designed to achieve a rate of return in excess of the international equity market as measured by the Morgan Stanley Capital International All Country Investible Market Index ex-U.S. ("MSCI ACWI Ex-U.S. IMI"). The Global Equity portion of the Public Equity Portfolio is to be designed to achieve a rate of return in excess of the MSCI ACWI World Index. The Hedged Equity portion of the fund portfolio is to be designed to achieve a rate of return comparable to the policy return for the U.S. and Non-U.S. long-only portion of the portfolio however at lower volatility.

The Custom Equity Benchmark shall consist of a dynamically weighted combination of four components including the Russell 3000 Index, MSCI ACWI Ex-U.S. IMI Index, MSCI ACWI Index, and custom hedged equity benchmark.

Monthly, the IMD staff will review the absolute and relative return performance of the Public Equity Portfolio. The performance analysis will be calculated in compliance with industry standards and compared to the benchmarks previously outlined. In addition, the Staff will review various risk factors associated with the Public Equity Portfolio. These can include volatility, stock, sector and country allocations.

VI. VALUATION POLICY

Generally, for publicly traded equity securities, the IMD will rely on the valuation of investments as reported by the custodian or third party administrator based on market prices. These third party vendors are used to provide a variety of Pension Fund Program services including independent valuation and return calculations for total Fund assets.

VII. OTHER

A. Proxy Voting

Due to the significant volume of proxies and numerous issues for each proxy, research and voting activities for U.S. proxies are performed by a third party vendor. For Non-U.S. proxies, the investment managers are responsible for performing this activity.

B. Securities Lending

The Public Equity portfolio may maintain a securities lending program designed to earn incremental income by taking advantage of the market demand for securities held in the Public Equity Portfolio. The incremental income can help offset custodial costs and improve the overall return on Fund assets. Securities Lending is governed in a separate policy adopted by the Treasurer.

FIXED INCOME

I. INTRODUCTION

The Fixed Income Portfolio is comprised of publicly traded investment grade fixed income securities. The majority of the exposure will be through an internally managed core fixed income portfolio. A core portfolio is defined as a diversified investment grade portfolio that has exposure across multiple fixed income asset types, including Treasury, agency, corporate and mortgage securities. The fixed income allocation may also include investment grade non-core exposure used based on liquidity needs and/or market environment. Non-core allocation may include more concentrated strategies than core, as well as allocations to the internally managed Short Term Investment Fund (STIF). The STIF portfolio is a high quality short term fixed income portfolio consisting primarily of Treasury, Agency and AAA rated corporate obligations.

II. INVESTMENT OBJECTIVES

The Fund is investing in public fixed income to accomplish the following objectives:

- A. Diversification. Exposure to fixed income provides significant diversification to the total Fund due to differences in correlation with other asset types. Fixed Income assets historically have the lowest volatility among statutory eligible asset types. As such, the exposure to the asset class will lower total pension risk over the long term.
- B. Capital Preservation. Exposure to Treasuries and other investment grade fixed income assets have historically provided limited risk of principal loss.
- C. Liquidity. Provide a source of liquidity to the Fund and other asset classes through the high quality and publicly traded asset types in the portfolio.
- D. Attractive returns. Enhance total Fund returns by making investments in a diversified portfolio of fixed income securities with attractive risk adjusted returns.
- E. Deflation protection. The structure of fixed income assets should provide a direct hedge against deflation.

III. INVESTMENT STRUCTURE

A. Investment Structures

- i. Core Fixed Income. The primary means for fixed income exposure will be an internally managed core fixed income portfolio that strives to provide superior returns at much lower costs than an external account. The expected total costs for managing core fixed income assets are 1-3 basis points. The internally managed Short Term Investment Portfolio ("STIF") will be the cash vehicle for the core portfolio.

- ii. Non-Core Fixed Income. Any non-core exposure would be through the STIF portfolio and/or separately managed external accounts.

B. Types of Fixed Income Investments

- i. U.S. Treasuries
- ii. U.S. Agencies (FNMA, FHLMC, FHLB, FFCB, GNMA, etc.)
- iii. Corporate securities
- iv. Asset backed securities, including Mortgage pass through securities
- v. Other securities as defined by N.C.G.S. § 147-69.2(b)(1) through (b)(6b)

IV. INVESTMENT GUIDELINES

- A. Quality. Securities shall bear an investment grade rating at the time of purchase by at least one nationally recognized rating agency as outlined in the statutes.
- B. Return Volatility. An investment's risk exposure is generally defined by the return volatility. The volatility of the return is expected to be consistent with the investment strategy for core fixed income assets.
- C. Leverage. No leverage is allowed in the fixed income allocation
- D. Allocation. Guidelines by asset type for Core Fixed Income (excluding cash)

	Min	Target	Max
Government (U.S. Treasury & Agency)	35.0%	40.0%	45.0%
Corporate	30.0%	35.0%	40.0%
Mortgage	20.0%	25.0%	30.0%

- E. Duration. The duration target for the core fixed income is expected to be approximately five to ten years to hedge against interest rate risk from the NCRS's long term liabilities. The core portfolio should be within one year (+/-) of the benchmark duration.
- F. Currency. While geographic exposures may be global, all the securities will be U.S. dollar denominated.

V. PERFORMANCE AND REPORTING GUIDELINES

The benchmark for the Fixed Income Portfolio is a custom Bank of America Merrill Lynch (BOAML) Index comprised of 5+ year maturity Investment Grade Government, Corporate and Mortgage securities. The benchmark is comprised of the following weightings: 40% BOAML 5+ years Governments, 35% BOAML 5+ years Investment Grade Corporates, and 25% BOAML Mortgage Master.

Monthly performance measurement reports, which reasonably describe the Fixed Income Portfolio performance, shall be calculated in compliance with industry standards and compared to the benchmarks previously outlined.

VI. VALUATION POLICY

The securities in the fixed income allocation are priced by the custodian based on market prices using a nationally recognized pricing vendor.

VII. OTHER

A. Securities Lending

The Fixed Income Portfolio may maintain a securities lending program designed to earn incremental income by taking advantage of the market demand for securities held in this portfolio. The incremental income can help offset custodial costs and improve the overall return on Fund assets. Securities Lending is governed in a separate policy adopted by the Treasurer.

REAL ESTATE

I. INTRODUCTION

The Real Estate Portfolio may include global investments in real estate, including certain timber and agricultural assets. All investments are externally managed as mandated by general statutes.

II. INVESTMENT OBJECTIVES

The fund is investing in the Real Estate Portfolio to accomplish the following objectives:

- A. **Attractive Returns.** Provide an attractive total return over the long term by making investments with expected returns commensurate with their respective risk levels. Also, make investments which provide reasonable levels of income return as a percentage of the total return. Overall the Real Estate Portfolio is expected to achieve core plus returns.
- B. **Inflation Protection.** Make real estate investments that are likely to provide a reasonable hedge against price inflation.
- C. **Capital Preservation.** Make real estate investments that are designed to preserve investment capital through structures that minimize downside risk and provide an acceptable level of current cash flows.
- D. **Portfolio Diversification.** Use real estate to enhance the diversification of the Funds' total investment portfolio given the low or negative return correlations historically of real estate with other asset classes (e.g., fixed income). Portfolio diversification should reduce volatility.

III. INVESTMENT STRUCTURE

A. Investment Vehicles

The investment vehicle and structure shall be used to mitigate portfolio risk by enhancing portfolio liquidity. The Real Estate Portfolio may invest through open-end or closed-end funds or fund-of-funds. The vehicle may be structured as a direct limited partnership, limited liability company, real estate investment trust (REIT), real estate operating company (REOC), investment management agreement, co-investment account, separate account, and/or other vehicles or arrangements determined to be consistent with the portfolio's investment objectives and permitted by statute.

REITs and REOCs can be structured as either a public security or a private entity. The primary difference between the two entities whether public or private is that a REIT structure must distribute 90% of its earnings to its unit holders to have a lower corporate tax structure. A REOC invests directly into real estate and reinvests its earnings back into the business. The reduction of distribution concern allows a REOC to invest in value opportunities, while REITs are typically core-oriented.

B. Types of Real Estate Investments

Private Equity <ul style="list-style-type: none">• Core• Value-added• Opportunistic	Private Debt <ul style="list-style-type: none">• Core• Value-added• Opportunistic
Public Equity (REITs, REOCs) <ul style="list-style-type: none">• Core• Value-added	Public Debt <ul style="list-style-type: none">• Core• Value-added• Opportunistic

Risk/Returns. The risk/return categories utilized to classify investment risk/return levels are:

- i. **Core.** Investment in operating and substantially-leased institutional quality real estate in the traditional property types (Office, Retail, Industrial, and Residential). Returns historically have been in the 4% to 7% range (inflation-adjusted and net of fees or 8% to 11% on a nominal and gross of fees basis) and are typically comprised of greater levels of income (65% to 90% of total returns) with appreciation matching or exceeding inflation. This greater level of income return reduces risk by providing a higher degree of certainty and stability of return. Core investments typically have a lower level of leverage, ranging from 0% to 50%.
- ii. **Value.** Value investments typically require rehabilitation, redevelopment, development, lease-up, or repositioning. Net returns historically have been in the 7% to 11% range (inflation-adjusted and net of fees or 12% to 16% on a nominal and gross of fees basis). Investments may also include non-traditional property types which may contain greater risk. Value investments typically have a higher level of leverage than core investments, ranging up to 70%.
- iii. **Opportunistic.** Opportunistic investments involve significant investment risk. Risk may include real estate, financial restructuring, operating company, and non-real estate risk. Net returns have been in the 12% or higher range (inflation adjusted and net of fees or 18% on a nominal and gross of fees basis). Investments may also include non-traditional property types which typically contain greater risk. Opportunistic returns typically require even greater appreciation returns than value and in many cases are originated with minimal income in place. Opportunistic investments typically have a higher level of leverage than value investments, ranging up to 75%.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Real Estate Portfolio shall be consistent with the following guidelines:

- A. **Return Volatility.** Private equity real estate investments are typically valued through regularly scheduled appraisals. As a result, private equity real estate returns are less volatile than public equity real estate returns, which are based on daily market valuations. Return volatility is also influenced by the type of return generated by a given investment (i.e., income vs. appreciation returns) as well as the level of leverage.

- B. **Income and Appreciation Return Mix.** Real Estate investment risk is categorized by the balance between income and appreciation expectations of each investment. The higher the income projected, the lower the risk. Core or low risk assets have return expectations largely driven by income. Value investments are expected to have a balance of income and appreciation. Opportunistic investments have return expectations based on property improvements or development whereby most of the return is expected to be generated from capital appreciation. The Real Estate Portfolio seeks a risk/return balance of a core-plus nature.
- C. **Geography.** The Real Estate Portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has demonstrated ability to be successful in meeting the intended investment strategy objectives. The portfolio will invest in various geographies to take advantage of relative value opportunities and diversify the portfolio.

NCREIF Regions	Ranges
West	20.0% - 45.0%
South	15.0% - 35.0%
Midwest	5.0% - 25.0%
East	20.0% - 40.0%
Foreign	0.0% - 50.0%

- D. **Sector.** Property type diversification is one of the most important diversification features in terms of impact on returns. The property sectors have historically performed differently over the market and economic cycles. The following table provides a target range with respect to the Real Estate Portfolio property type diversification.

Property Type	Ranges
Office	10.0% - 45.0%
Retail	10.0% - 40.0%
Industrial	10.0% - 40.0%
Residential	10.0% - 40.0%
Hotel	0.0% - 15.0%
Other*	0.0% - 40.0%

*Denotes sectors such as senior housing, self storage, student housing, parking, medical office, debt, agriculture and timber.

- E. **Duration.** The average investment holding period will be approximately five to ten years for Real Estate Portfolio investments. Some investments such as public securities and open-end fund holdings have more flexible durations. The Portfolio is expected to have a blend of both longer and shorter term investments.
- F. **Liquidity.** Traditionally real estate is an illiquid asset class with the exception of investment structures such as public real estate securities and open-end fund vehicles that provide liquidity on-

demand or within one quarter. The Portfolio will diversify among the various liquidity vehicles but seeks to have at least 20% of the Portfolio in liquid and/or modestly liquid structures at all times.

- G. Leverage. The total Real Estate Portfolio leverage shall not exceed 55%.
- H. Investor Control. Control is materially defined through the Fund's ability to exit or sell an investment. The IMD Staff acknowledges that the nature of real estate investing prohibits owning real estate directly and having direct discretion over decision-making. Therefore, all real estate investments are owned or managed through third party managers.
- I. Investment Firm Concentration. No firm shall manage more than 25% of the total Real Estate Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.
- J. Investment Strategy Concentration. No individual investment strategy shall exceed 10% of the Real Estate Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.
- K. Fund Concentration. IMD Staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Real Estate portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.
- L. Vintage Year. The IMD staff will seek to diversify investment exposure across vintage year and, correspondingly, economic and credit cycles. The timing of investments during economic cycles can be a primary driver of real estate returns.

V. PERFORMANCE & REPORTING GUIDELINES

The Real Estate Portfolio's custom benchmark is static-weighted. It is comprised of 90% weighting of the National Council of Real Estate Investment Fiduciaries Open-End Diversified Core Equity Fund Index ("NCREIF ODCE Index") and 10% weighting of the Financial Times and London Stock Exchange ("FTSE") European Public Real Estate Association ("EPRA") and the National Association of Real Estate Investment Trusts ("NAREIT") Global Index ("FTSA/EPRA/NAREIT Global Index"). The portfolio's objective is to outperform this Custom Real Estate Benchmark over a three-to-five-year period. In addition the performance of each investment shall be measured relative to the performance of investment managers employing similar investment strategies and using data provided by relevant, reputable sources.

VI. VALUATION POLICY

Generally, the IMD will rely on the valuation of investments as reported by the investment managers and based on a combination of third party appraisals and internal valuations. IMD staff along with its real estate consultant shall seek to comply with industry best practices with respect to monitoring the valuation policy used by the investment managers. Investment managers shall be contractually obligated

to provide annual financial statements audited to be compliant with United States generally accepted accounting principles ("GAAP"), or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. If the investment manager is not fulfilling its obligation to provide compliant statements to IMD staff in a contractually timely manner or within a reasonable period shortly thereafter, the Treasurer may engage special service providers to assist IMD staff in assessment of current fair market value.

ALTERNATIVE INVESTMENT PORTFOLIO

I. INTRODUCTION

The Alternative Investment Portfolio may include global investments in private equity (the “Private Equity Portfolio”) and investments based on absolute return strategies (the “Absolute Return Portfolio”). The Alternative Investment Portfolio consists entirely of externally managed portfolios as required by statute. Under the applicable statute, the Alternatives Investment Portfolio may also include investments that do not expressly fit within any other category of authorized investments.

II. INVESTMENT OBJECTIVES

The Fund is investing in the Alternative Investment Portfolio to accomplish the following objectives:

- A. **Attractive Returns.** Provide an attractive total return over the long term by making investments with expected returns commensurate with their respective risk levels.
- B. **Portfolio Diversification.** Use private equity and absolute return strategies to enhance the diversification of the Fund’s total investment portfolio.

III. INVESTMENT STRUCTURE

- A. **Investment Vehicles.** The Alternative Investment Portfolio may include direct limited partnership, limited liability company, or other limited liability investment vehicles, standardized and customized funds of funds, co-investments, separate accounts, and/or other vehicles determined to be consistent with the investment objectives and permitted by statute.
- B. **Types of Alternative Investments.** The Private Equity Portfolio will consist of vehicles that primarily invest in equity securities that are not publicly traded, such as preferred stock, common stock, or other equity-related investments. Investments by such private equity vehicles may also be made into public companies, where a private investment into public equity allows a fund manager to implement their investment strategies. Absolute return strategy investments could involve a broader range of exposure to investments through options, futures, short interests, ETFs, structured equity and debt securities, and public equity.
- C. **Subcategory Strategy.** The Alternative Investment Portfolio includes strategic subcategory classifications in both private equity and absolute return strategies. The Private Equity Portfolio strategic subcategory classifications include buyout, growth (venture capital and growth equity), and special situations (distressed for control, secondary strategies, co-investment and other categories not classified into buyout or growth). The Absolute Return Portfolio strategic subcategory classifications include multi-strategy, equity hedge, event driven, macro, relative value, and fund of hedge funds. The following table outlines these subcategory strategies and their respective ranges. The IMD staff shall periodically review policy range targets and portfolio structure for adjustments on an as-needed basis or due to statutory revisions. Due to market movements or exogenous factors, the portfolio may deviate from the below ranges and will be rebalanced accordingly as soon as practical.

Private Equity Subcategory	Target	Min	Max
Growth	25.0%	15.0%	35.0%
Buyout	50.0%	35.0%	65.0%
Special Situations	25.0%	15.0%	35.0%

Absolute Return Subcategory	Target	Min	Max
Diversified	0.0%	0.0%	100.0%

The IMD staff primarily recommends investments in direct limited liability investment vehicles; however, the IMD staff considers fund of funds investments due to limited resources and access constraints. Private Equity Portfolio fund of fund investments are subcategorized into growth, buyouts, and special situations based on the market value underlying investment strategy.

- D. Secondary Investments. The Private Equity Portfolio may invest in primary funds and equity interests purchased from the owners thereof, otherwise known as “Secondaries.” Secondaries are typically purchased to provide the Private Equity Portfolio with additional diversification, provide access to certain investment managers, and improve the risk-adjusted returns of the Private Equity Portfolio.
- E. Restricted Securities. IMD staff may restrict a manager from purchasing certain securities based on state or federal legislation, state policy, or IMD directives.

For each external investment manager, permissible investments and objectives will be clearly defined in the Investment Management Agreement. IMD staff will monitor the investment manager’s performance to ensure the manager is adhering to the guidelines.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Alternative Investment Portfolio shall be consistent with the following guidelines:

- A. Return Volatility. An investment’s risk exposure is generally defined by return volatility. Due to the inclusion of illiquid investments, volatility guidelines are not well defined herein because of a lack of available information, particularly with respect to private investments.
- B. Geography. The Portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has a demonstrated ability to be successful in meeting the intended investment strategy’s objectives.
- C. Duration. The average investment holding period will be approximately ten to twelve years for the Private Equity Portfolio. The Absolute Return Strategy portfolio will generally maintain, at most, an annual liquidity schedule after a one to two year lock-up period. The range of holding periods for underlying investments may vary considerably across subcategory strategies. The portfolio will diversify among various types of investments to reduce duration risk.
- D. Illiquidity. The holding period for the various alternative investment vehicles may range widely. Private equity strategies are highly illiquid, in general only offering liquidity upon the realization or

partial realization of an investment. Absolute return strategies will generally maintain a monthly, quarterly, semi-annual, or annual liquidity after a one- to two-year lock-up period. Distressed Credit, Structured Credit, and Mezzanine investments may have holding periods generally ranging from five to twelve years. The portfolio will diversify among various liquidity vehicles.

- E. **Income and Appreciation Return Mix.** Private equity and absolute return investments offer varying proportions of expected income and appreciation returns depending on their strategy. Growth and buyout investment returns are almost exclusively related to appreciation. The absolute return strategy portfolio is expected to provide an uncorrelated return stream that can act as a buffer for the overall portfolio during periods of dislocation in the equity or credit capital markets. The bulk of the return mix from the Absolute Return Portfolio is expected to come from appreciation rather than income. The IMD staff will attempt to appropriately balance the portfolio between income- and appreciation-based investments.
- F. **Leverage.** Leverage is an important risk factor, particularly within the private equity buyout subcategory and across absolute return strategy subcategories. The IMD staff shall review the use of leverage to determine the reasonableness in the context of investment strategy.
- G. **Investor Control.** Control is materially defined through the ability to exit or sell an investment. The IMD staff acknowledges that the nature of private equity investing severely limits discretionary control over such investments. In exceptional circumstances, the IMD staff may seek to gain liquidity through the sale of interests in the secondary market or may act to dissolve a partnership or other investment vehicle in the event the contractual agreements are violated.
- H. **Investment Firm Concentration.** No firm shall manage more than 25% of the total Alternative Investment Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.
- I. **Investment Strategy Concentration.** No individual investment strategy shall exceed 10% of the Alternative Investment Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.
- J. **Fund Concentration.** IMD staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Alternative Investment Portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.
- K. **Vintage Year.** For closed end funds, the portfolio may diversify across vintage years to help protect the portfolio from concentration risk in any one year.

V. PERFORMANCE & REPORTING GUIDELINES

The total Private Equity Portfolio's custom benchmark shall be derived from the Cambridge Associates LLC benchmark, net of all fees and expenses (the "Custom Private Equity Benchmark"), comprised of the following: U.S. Private Equity Buyouts and Growth Equity, U.S. Venture Capital, Global (Ex. U.S.) PE and VC, Distressed Securities, and Fund-of-Funds. The total Absolute Return Portfolio's custom benchmark shall be the HFRI Fund-of-Funds Conservative Index, net of all fees and expenses (the "Custom Absolute Return Benchmark"). The combined Alternative Investment Portfolio's benchmark shall be dynamically weighted between the Custom Private Equity Benchmark and the Custom Absolute Return Benchmark.

Quarterly performance measurement reports, which shall reasonably describe the performance of the Alternative Investment Portfolio, shall be calculated in compliance with industry standards and compared to the benchmarks previously outlined.

VI. VALUATION POLICY

Generally, the IMD will rely on the valuation of investments as reported by the investment managers. IMD staff shall seek to comply with industry best practices with respect to monitoring the valuation policy used by the investment managers. Investment managers shall be contractually obligated to provide annual financial statements audited to be compliant with United States generally accepted accounting principles ("GAAP"), or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. If the investment manager is not fulfilling its obligation to provide compliant statements in a contractually timely manner or within a reasonable period shortly thereafter, the IMD staff may engage special service providers in assessment of current fair market value.

CREDIT STRATEGIES PORTFOLIO

I. INTRODUCTION

The Credit Strategies Portfolio may include externally managed portfolios of credit-oriented investments. The externally managed portfolios include active long-only managers, open-end funds, and private debt closed-end funds, which primarily invest in debt securities.

II. INVESTMENT OBJECTIVES

The Fund is investing in the Credit Strategies Portfolio to accomplish the following objectives:

- A. **Attractive Returns.** Provide an attractive return over the long-term by making investments with expected returns commensurate with their respective risk levels.
- B. **Portfolio Diversification.** Use credit-oriented investments to enhance the diversification of the Fund's total investment portfolio.
- C. **Capital Preservation.** Protect investment capital through credit-oriented investments and investment activities that are designed to minimize downside risk.
- D. **Deflation Protection.** The structure of fixed income assets may provide protection against the detrimental effects of deflation.

III. INVESTMENT STRUCTURE

- A. **Investment Vehicles and Arrangements.** The Credit Strategies Portfolio may include direct limited partnership, limited liability company, or other limited liability investment vehicles, standardized and customized funds of funds, co-investments, separate accounts, and/or other vehicles and contractual arrangements determined to be consistent with the investment objectives and permitted by statute.
- B. **Types of Credit Investments.** The Credit Strategies Portfolio invests primarily in non-investment grade debt instruments including bank loans, high yield, asset-backed securities, mortgage-backed securities, convertibles, whole loans, mezzanine debt, credit default swaps, collateralized debt obligations, and sovereign debt.
- C. **Subcategory Strategy.** The Credit Strategies Portfolio includes strategic subcategory classifications including traditional corporate credit (i.e., high yield bonds and bank loans), distressed credit, structured credit (i.e., mortgage- and asset-backed securities), mezzanine and direct lending, and credit focused open-end funds. The following table outlines these subcategory strategies and their respective ranges. The IMD staff shall periodically review policy range targets and portfolio structure for adjustments on an as-needed basis or due to statutory revisions.

Subcategory Strategy	Min	Max
Traditional Corporate Credit	0.0%	25.0%
Distressed Credit	0.0%	50.0%
Structured Credit	0.0%	25.0%

Mezzanine/Direct Lending	0.0%	25.0%
Credit Open End Fund	0.0%	60.0%
Other	0.0%	25.0%

- D. Restricted securities. IMD staff may restrict a manager from purchasing certain securities based on state or federal legislation, state policy, or Treasurer directives.

For each external investment manager, permissible investments and objectives will be clearly defined in the Investment Management Agreement. IMD Staff will monitor the investment manager's performance to ensure the manager is adhering to the guidelines.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Credit Strategies Portfolio shall be consistent with the following guidelines:

- A. Return Volatility. An investment's risk exposure is generally defined by return volatility. Due to the inclusion of illiquid investments, volatility guidelines are not well defined herein due to a lack of available information, particularly with respect to private investments.
- B. Geography. The portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has a demonstrated ability to be successful in meeting the intended investment strategy's objectives. The portfolio will invest in various geographies to both take advantage of relative value opportunities and diversify the portfolio.
- C. Duration. Various holdings in the Credit Strategies Portfolio may be affected by interest rate movements. The portfolio will diversify among various types of investments to reduce duration risk.
- D. Illiquidity. The holding period for the various credit investment vehicles may range widely. Traditional corporate credit in high yield and bank loans may offer daily to monthly liquidity. Open end funds will generally maintain a monthly, quarterly, semi-annual, or annual liquidity after a one- to two-year lock-up period. Distressed Credit, Structured Credit, and Mezzanine investments may have holding periods generally ranging from five to twelve years. The portfolio will diversify among various liquidity vehicles. The IMD staff will attempt to appropriately balance the portfolio among various vehicles based on their liquidity structures.
- E. Income and Appreciation Return Mix. The credit-oriented investments offer varying proportions of expected income and appreciation returns depending on their strategy. The IMD Staff will attempt to appropriately balance the portfolio between income- and appreciation-based investments.
- F. Leverage. Leverage is an important risk factor as it can significantly impact return volatility. The IMD staff shall continuously review the use of leverage to determine the reasonableness in the context of investment strategy.
- G. Vintage Year. For closed end funds, the portfolio may diversify across vintage years to help protect the portfolio from concentration risk in any one year.
- H. Investor Control. Control is materially defined through the Fund's ability to exit or sell an investment. The IMD staff acknowledges that the nature of investing in illiquid assets severely limits discretionary control over such investments. In exceptional circumstances, the IMD staff may seek to

gain liquidity through the sale of interests in the secondary market or may act to dissolve a partnership or other investment vehicle in the event the contractual agreements are violated.

- I. Investment Firm Concentration. No firm shall manage more than 25% of the total Credit Strategies Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.
- J. Investment Manager Concentration. No individual investment manager shall exceed 10% of the Credit Strategies Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.
- K. Fund Concentration. IMD staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Credit Strategies Portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.

V. PERFORMANCE & REPORTING GUIDELINES

The Credit Strategies Portfolio's custom benchmark is comprised of 50% HFRX Distressed Securities Index, 20% HFRX Relative Value Index, 15% Credit Suisse Leveraged Loan Index, and 15% Merrill Lynch High Yield Index (the "Custom Credit Benchmark"). The portfolio's objective is to outperform the Custom Credit Benchmark over a three- to five-year period. In addition, the performance of investments may be measured relative to the performance of investment managers employing similar investment strategies, using data provided by Hedge Fund Research, Barclays Capital, and other reputable sources.

Monthly performance measurement reports, which reasonably describe the Credit Strategies Portfolio performance, shall be calculated in compliance with industry standards and compared to the benchmarks previously outlined.

VI. VALUATION POLICY

Generally, the IMD will rely on the valuation of investments as reported by the investment managers. IMD Staff shall seek to comply with industry best practices with respect to monitoring the valuation policy used by the investment managers. Investment managers shall be contractually obligated to provide annual financial statements audited to be compliant with United States generally accepted accounting principles ("GAAP") or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. If the investment manager is not fulfilling its obligation to provide compliant statements in a contractually timely manner or within a reasonable period shortly thereafter, the IMD Staff may engage special service providers in assessment of current fair market value.

INFLATION PROTECTION PORTFOLIO

I. INTRODUCTION

The Inflation Protection Portfolio may include externally managed portfolios of investments primarily focused on protecting against the detrimental effects of inflation. The externally managed portfolios include active long-only managers, open end funds, and closed-end funds.

II. INVESTMENT OBJECTIVES

The Fund is investing in the Inflation Protection Portfolio to accomplish the following objectives:

- A. Inflation Protection. Provide supplemental protection against periods of inflation.
- B. Attractive Returns. Provide an attractive return over the long-term by making investments with expected returns commensurate with their respective risk levels.
- C. Portfolio Diversification. Use inflation protection investments to enhance the diversification of the Fund's total investment portfolio.
- D. Capital Preservation. Protect investment capital through inflation protection investments and investment activities that are designed to add value during periods of inflation.

III. INVESTMENT STRUCTURE

- A. Investment Vehicles. The Inflation Protection Portfolio may include direct limited partnership, limited liability company, or other limited liability investment vehicles, standardized and customized funds of funds, co-investments, separate accounts, and/or other vehicles determined to be consistent with the investment objectives and permitted by statute.
- B. Types of Inflation Investments. The Inflation Protection Portfolio invests primarily in assets correlated to inflation including commodities-related instruments, Treasury Inflation Protected Securities ("TIPS"), real assets, natural resources equity, infrastructure, floating rate debt securities, and other investments that may be correlated with inflation.
- C. Subcategory Strategy. The Inflation Protection Portfolio includes subcategory classifications including liquid commodities (e.g., commodities futures, swaps, and public equities), natural resources private equity, TIPS, and other inflation protection investments. The IMD Staff shall periodically review the Inflation Protection Portfolio structure for adjustments on an as-needed basis or due to statutory revisions.

Subcategory Strategy	Min	Max
Liquid Commodities	30.0%	80.0%
Natural Resources Private Equity	10.0%	60.0%
TIPS	0.0%	25.0%
Other	0.0%	25.0%

- D. Restricted securities. IMD staff may restrict a manager from purchasing certain securities based on state or federal legislation, state policy, or Treasurer directives.

For each external investment manager, permissible investments and objectives will be clearly defined in the Investment Management Agreement. IMD staff will monitor the investment manager's performance to ensure the manager is adhering to the guidelines.

IV. INVESTMENT GUIDELINES

The portfolio management and monitoring of the Inflation Protection Portfolio shall be consistent with the following guidelines:

- A. Return Volatility. An investment's risk exposure is generally defined by return volatility. Due to the inclusion of illiquid investments, volatility guidelines are not well defined herein due to a lack of available information, particularly with respect to private investments.
- B. Geography. The Inflation Protection Portfolio may invest in opportunities wherein the vehicle or strategy is domiciled in the U.S. and/or outside the U.S.; provided the management team has a demonstrated ability to be successful in meeting the intended investment strategy's objectives. The portfolio will invest in various geographies to both take advantage of relative value opportunities and diversify the portfolio.
- C. Duration. Various holdings in the Inflation Protection Portfolio may be affected by interest rate movements. The portfolio will diversify among various types of investments to reduce duration risk.
- D. Illiquidity. The holding period for the various inflation investment vehicles may range widely. Commodities and TIPS may offer daily to monthly liquidity. Inflation-oriented open end funds will generally maintain monthly, quarterly, semi-annual, or annual liquidity after a one- to two-year lock-up period. Natural Resources equity investments may have holding periods generally ranging from five to fifteen years. The IMD staff will attempt to appropriately balance the portfolio among various vehicles based on their liquidity structures.
- E. Income and Appreciation Return Mix. The inflation protection investments offer varying proportions of expected income and appreciation returns depending on their strategy. The IMD staff will attempt to appropriately balance the portfolio between income- and appreciation-based investments.
- F. Leverage. Leverage is an important risk factor as it can significantly impact return volatility. The IMD staff shall continuously review the use of leverage to determine the reasonableness in the context of investment strategy.
- G. Vintage Year. For closed end funds, the portfolio may diversify across vintage years to help protect the portfolio from concentration risk in any one year.
- H. Investor Control. Control is materially defined through the Fund's ability to exit or sell an investment. The IMD staff acknowledges that the nature of investing in illiquid assets severely limits discretionary control over such investments. In exceptional circumstances, the IMD staff may seek to gain liquidity through the sale of interests in the secondary market or may act to dissolve a partnership or other investment vehicle in the event the contractual agreements are violated.

- I. Investment Firm Concentration. No manager shall manage more than 25% of the total Inflation Protection Portfolio on an allocation basis at the time of initial investment, unless specifically approved by the Treasurer.
- J. Investment Manager Concentration. No individual investment manager shall exceed 10% of the Inflation Protection Portfolio on an allocation basis at time of initial investment, unless specifically approved by the Treasurer.
- K. Fund Concentration. IMD Staff shall consider firm level risk in sizing an investment/commitment to invest for a given opportunity. Ordinarily, the Inflation Protection Portfolio's assets shall constitute less than a 25% economic interest of a given investment vehicle at the time of making the investment/commitment. This limitation does not apply to customized investment programs where the Fund is the sole investor other than the investment manager or its affiliate.

V. PERFORMANCE & REPORTING GUIDELINES

The Inflation Protection Portfolio's custom benchmark is a dynamically weighted return comprised of the Cambridge Energy Private Equity Index and the Dow Jones-UBS Commodities Index (the "Custom Inflation Benchmark"). The portfolio is expected to outperform the Custom Inflation Benchmark over a three- to five-year period. In addition, the performance of all investments shall be measured relative to the performance of investment managers employing similar investment strategies and using data provided by relevant, reputable sources.

Monthly performance measurement reports, which reasonably describe the Inflation portfolio performance, shall be calculated in compliance with industry standards and compared to the benchmarks previously outlined.

VI. VALUATION POLICY

Generally, the IMD will rely on the valuation of investments as reported by the investment managers. IMD Staff shall seek to comply with industry best practices with respect to monitoring the valuation policy used by the investment managers. Investment managers shall be contractually obligated to provide annual financial statements audited to be compliant with United States generally accepted accounting principles ("GAAP"), or similar principles if there are vehicles with significant foreign assets, preferably by a nationally recognized audit firm. If the investment manager is not fulfilling its obligation to provide compliant statements in a contractually timely manner or within a reasonable period shortly thereafter, the IMD Staff may engage special Service Providers to assist in assessment of current fair market value.

GLOSSARY

Absolute: can refer to the performance or volatility of an investment and is measured on a standalone basis

Ex-Ante: expected returns or expected volatility

Ex-Post: realized returns or realized volatility

Information Ratio: is a measure of the active return (portfolio return – benchmark return) per unit of relative risk (tracking error volatility) and is measured by dividing active return by the tracking error volatility

Relative: it is the performance or volatility of an investment measured against a stated benchmark

Risk-Adjusted Returns: refers to the return of an investment and accounts for the volatility of the investment over the same period of time

Sharpe Ratio: is a measure of active return (return – risk free rate) per unit of risk and is measured by dividing active return by the standard deviation of the investment

Tracking Error Volatility: the standard deviation of relative returns (portfolio returns – benchmark returns) over some period