Section 4.0 RISK MANAGEMENT

4.2 INVESTMENT RISK MANAGEMENT POLICY

Adopted: December 27, 2011

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I. PURPOSE

A successful investment process fully integrates practical risk management concepts into a comprehensive framework that applies to all parties that monitor or manage assets on behalf of the plan, including the Board of Administration, General Fund Consultant (Consultant), Staff, asset managers, and other third parties involved in the investment of plan assets. Investment risk management is essential to prudent investment of pension plan assets because it improves the likelihood that the Fund is adequately compensated for the risks taken, and helps to avoid unexpected and unintended investment risk.

The purpose of this Policy is to provide a comprehensive framework for the management of investment risk of the Fund assets in support of the fiduciary obligations of the Board and consistent with governing principles and other policies of the plan. It specifically defines responsibilities, objectives, processes, and risk measures pertinent to investment risks incurred when investing plan assets to meet or exceed stated pension goals and objectives.

This Policy is dynamic and expected to be updated periodically with LACERS plan objectives, technology, and regulatory and/or market environment changes.

II. POLICY ROLES AND RESPONSIBILITIES

The Investment Risk Management Policy is reviewed and adopted by LACERS Board of Administration. Consultant and Staff are responsible for the risk management process described herein, which includes monitoring the sources, levels, and trends of aggregate investment risks relative to risk targets and budgets set in this policy. Consultant and Staff will recommend risk management actions and propose revisions to this policy as needed.

Risk objectives are effective when they relate to the specific investment decisions within the domain of the Board. Therefore, this Policy highlights the key investment decisions as outlined in LACERS Investment Policy Statements (“IPS”):

1. The Board adopts and implements the long-term investment strategy through the Fund’s asset allocation policy. This decision drives the long term performance, exposures, and risk of the Fund. The asset allocation decision provides the basis for monitoring strategic (“beta”) investment risk.

2. The Board is also responsible for structuring investment managers within asset classes. This decision drives the long term excess performance and excess risk of the Fund. The manager selection decision provides the basis for monitoring active (“alpha”) investment risk.

The risk management processes and guidelines established below determine the amount of risk the Board may use to implement these key decisions. Consultant and Staff will establish monitoring standards and periodically update these standards as conditions warrant.

III. RISK GUIDELINES

Strategic Risk Target

The most important decision that the Board must make is the strategic asset allocation decision. This decision explains most of the long-term performance and risk (defined as the annualized standard deviation of policy benchmark returns) of a Fund. The Board selects its asset allocation policy objective via the industry standard methodology of mean variance optimization to determine the optimal allocation of multiple asset classes having varying risk and correlation assumptions. The Board selects the policy based on an assets/liabilities valuation process provided by its Consultant, its risk tolerance (based upon the combination of variability of investment returns, particularly downside or “tail” risk and the risk of funding shortfall), and considerations from Staff. The selected policy provides long-term return and risk expectations for the Fund. As new asset allocation policies are adopted in the course of periodic review, or as economic or other conditions of the Fund change, new return and risk expectations may be set.

<u>Framework for Policy Implementation</u>

For the purposes of setting explicit strategic risk targets, we define expected strategic risk as the projected annualized standard deviation of the Fund’s asset class and policy returns. These expectations are based on the most recent strategic asset allocation study.

Asset Class Risk Budgets

The second most important strategic decision the Board must make after the establishment of the System’s asset allocation policy objective is the asset class structure decision. While the asset allocation policy is responsible for the majority of the Fund’s return and risk experience, the next greatest driver of the Fund’s return and risk is the asset class structure. Asset class structure decisions involve setting the active versus passive exposure, determining which strategies will be included within the asset class, and what the allocations to these strategies will be. A “risk budget” represents the amount of active risk the Board is willing to take for each asset class. As fiduciaries, the Board recognizes the need to manage and monitor risk at the asset class level in addition to the total fund and individual manager/strategy levels. Additionally, the Board is aware it is considered a best practice to set risk limits at all relevant measurement levels (i.e., total fund, asset class, and individual manager). The Board has adopted a risk budgeting approach to constructing, measuring, and monitoring public markets asset classes. The Board believes that this approach provides an objective and systematic yet flexible means of constructing asset classes in a way which will maximize the probability of meeting long term asset class objectives while managing the risk of its public markets asset classes in a proactive manner.

LACERS’ Risk Budgeting Process

In order to arrive at the optimal risk budget objective for each asset class, the Board will engage in an objective, disciplined process that will be uniformly applied to all public markets asset classes. This process will involve a mean variance optimization approach which will employ the following inputs for each strategy under consideration by the Board:

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1. Expected excess return over the asset class benchmark
2. Expected excess risk over the asset class benchmark
3. Expected correlations between strategy excess returns
4. Constraints to ensure prudent exposures to strategies and risk factors

The objective of this mean variance optimization exercise is to arrive at a target excess risk (i.e., the risk budget) which will maximize the excess return desired by the Board. The risk budget will reflect the amount of excess risk the Board is willing to take for that desired excess return.

Expected Excess Return

The expected excess return (i.e., "alpha") is the excess return a strategy should produce over a market cycle net of fees. This excess return will be forward looking based upon the following criteria:

1. Market efficiency
2. Manager's historical information ratio
3. Strategy characteristics
4. Peer universe historical excess return

Expected Excess Risk

The expected excess risk (i.e., "tracking error") is the excess risk of a strategy as measured by standard deviation of the excess return. This excess risk assumption can be either forward looking or based upon historical actual excess risk as produced by the strategy under consideration versus the asset class benchmark. In order for historical excess risk to be employed in the risk budgeting process, the strategy must have at least 60 months of data points. If the strategy under consideration does not have 60 months of data points, then a forward looking expected excess risk assumption will be employed. This assumption can be arrived at risk models (detailed in the next section, "Measurement and Monitoring of LACERS' Risk Guidelines") from two different sources: either from Consultant / Staff or be based upon the target excess risk for the strategy as articulated by the manager. The latter should only be used as a basis for this assumption in the event there is insufficient strategy history (i.e., < 60 months of data) or if Consultant and Staff are unable to independently model the strategy excess risk using their respective risk analytics.

Expected Excess Correlations

Correlation is a measure of the degree to which asset class returns move together. In structuring asset classes, the Board seeks to avoid having too much exposure to common factor risks and to maximize the diversification potential of the strategies ultimately employed within the asset class. Expected excess correlations will be calculated using historical excess (versus the asset class benchmark) returns when available. If an insufficient excess return history exists (i.e. less than 60 months of data), then Consultant or Staff will employ their respective risk analytics to determine a reasonable excess correlations on a forward looking basis.

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Framework for Policy Implementation
The risk budgeting process outlined above will be conducted in conjunction with the Board's asset/liability valuation process. The frequency of this process will be at least every three years or sooner if warranted based upon changes in market conditions or benefits to plan participants. The Board may choose at that time to revise or retain its existing risk budget as a result of this process.

The risk budgeting process will also be conducted at any time a strategy or manager change is contemplated as a result of manager/strategy termination or otherwise so that alternative strategies or managers can be evaluated in the context of the entire asset class structure to determine the impact on the Board's asset class risk budget. This will be done in order to objectively evaluate alternatives in a disciplined, holistic fashion. The Board may choose to revise its risk budget target as a result of this evaluation process. Additionally, the risk budgeting process will be conducted when actual excess risk has been outside of the target risk budget range for four rolling 60-month periods in order to determine whether strategy/manager allocations should be altered or replaced altogether.

IV. MEASUREMENT AND MONITORING OF LACERS RISK GUIDELINES

The Board will periodically monitor actual strategic and active asset class risks versus the Board's respective risk target and asset class risk budgets. The Board will also be provided periodically a Fund Risk Report which will be used to analyze, evaluate, and detail exposures and drivers of Fund risks.

The focus of the Board's monitoring activity will be rolling 60-month periods. The Consultant and Staff will independently measure and monitor strategic and active asset class expected risk and return on a quarterly basis, but with a focus on rolling 60-month periods, and report to the Board its findings, including the key drivers of risk and return, as part of the quarterly performance report.

The risk model employed by Staff will be holistic and thus analyze risk measurements for both public and non-public asset classes. Public equity and fixed income risk will be modeled directly from holdings data at the manager level. Private equity and real estate risk will be proxied using public market equivalent exposures or indices. For private equity, a broad base of small market capitalization stocks (between $5 and $250 million) will be utilized to replicate the actual economic sector weightings of the private equity portfolio. For real estate, a broad REIT index will serve as the basis for mirroring the actual segment weightings within the real estate portfolio. Risk measurement for additional non-public asset classes will incorporate the same methodology as outlined above.

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NOTE: Below are examples of risk targets and ranges which will be completed upon the January 2012 asset allocation review and established risk budget.

Summary of Strategic Targets
Currently, the long-term expected strategic risk target of the Fund is approximately X%. Exhibit 1 summarizes the current target asset allocation, expected returns, standard deviation, and Return/Risk ratios for all asset classes in which LACERS invests:

Exhibit 1
Summary of Strategic Risk Targets

Asset Class	Target Asset Allocation	Target Expected Return	Target Standard Deviation	Target Value Added (Return/Risk)
Domestic Equities				
International Equities				
Global Fixed Income				
Domestic Fixed Income				
International Fixed Income				
Credit Opportunities				
Alternatives				
Real Estate				
TOTAL FUND				

Summary of Active Risk Budget Targets and Ranges
Exhibit 2 summarizes the current active risk budget targets and ranges for the public markets asset classes in which LACERS invests.

Exhibit 2
Summary of Active Risk Budget Targets and Ranges

Asset Class	Risk Budget Target	Minimum	Maximum
Domestic Equities			
International Equities			
Global Fixed Income			
Domestic Fixed Income			
International Fixed Income			
Credit Opportunities			
Alternatives			
Real Estate			
TOTAL FUND			