INDEPENDENT FIDUCIARY SERVICES, INC.

INDEPENDENT FIDUCIARY SERVICES, INC.
OPERATIONAL REVIEW REPORT
TO THE STATE TREASURER
REGARDING THE INVESTMENT PROGRAM
OF THE
NEW JERSEY DEPARTMENT OF THE TREASURY
DIVISION OF INVESTMENT

September 2003

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OPERATIONAL REVIEW REPORT OF THE NEW JERSEY DEPARTMENT OF THE TREASURY DIVISION OF INVESTMENT

Introduction

The State of New Jersey, Office of the State Treasurer (the "Treasurer"), retained Independent Fiduciary Services, Inc. ("IFS") through a competitive process to objectively evaluate various aspects of the Department of the Treasury, Division of Investment (the "Division"). The review included an examination of the following six broad task areas:

- the efficiencies and effectiveness of the Division's organizational structure and resources;
- the Division's ability to attract and retain personnel;
- the Division's controls over risk and brokerage;
- the Division's investment policy statement ;
- asset allocation and portfolio risk (based on a representative sample); and
- investment management structure.

The specific nature, scope, and depth of these task areas are defined by the Scope of Work, in our contract with the State Treasurer, dated December 23, 2002.

Independent Fiduciary Services has conducted many comparable studies of public pension funds across the United States. An overview of IFS is included at Exhibit 1.

Methodology

In conducting this study, IFS proceeded through several steps.

First, was collection of information. We prepared an extensive request for information, to which the Division responded in detail. This included, for instance, numerous policy and procedural documents, statutory materials and a great deal of other information. We collected further information through a series of on site personal interviews with numerous parties, including the Treasurer, the majority of the State Investment Council members (the "Council") and various key Division staff members, etc. We also met with representatives of several unions, representing participants covered by the Retirement Systems and employees of the Division. We reviewed several previous reports on the activities of the Division and collected survey and empirical data regarding the practices of a range of other similar public investment entities.

We prepared initial lines of analysis and tentative conclusions across the range of subjects included in the Scope of Work. In generating the final report, we considered observations and clarifications from various designated parties. However, the final form and content of this Report reflects the ultimate, independent judgment of IFS.

Caveats

This Report is subject to several caveats. First, many of the subjects addressed are judgmental and not susceptible to definitive or absolute conclusions. Second, we relied on information provided to us, including, to some extent, oral and written representations. Our conclusions are based on the information we considered as of the time we performed our work. Nevertheless, we did attempt to acknowledge changes that transpired during the course of our review. While we sought to cross-verify certain information, the process of cross-verification was limited. We were not hired to, and did not attempt to conduct a formal or legal investigation, to use judicial processes or evidentiary safeguards in conducting our review, or to seek to detect misrepresentations or fraud. Our findings and conclusions are based upon our extensive review of documents, the numerous interviews we conducted, our independent analysis, and our experience and expertise. Third, although the Report considers various legal matters, it does not purport to provide legal opinions or supplant the need for legal advice on such matters. Fourth, this Report cannot and does not attempt either to assess the manner in which any of our recommendations may be implemented or observed in the future, or predict whether the Division's practices, as represented to us, will be observed in the future. Finally, this Report does not supplant or reduce the ongoing independent duty of the Treasurer, the Council or the Division to structure and evaluate the Division's policies, procedures and investment program.

Format

This Report consists of four major parts: this Introduction, the Executive Summary, the fuller body of this Report (the "Discussion"), and the Exhibits. The Discussion section sets forth our analysis, findings and recommendations regarding each of the task areas. Findings are set forth in colored italics. Recommendations are set forth in a box format. Exhibit 2 summarizes our recommendations. In the summary, each recommendation is assigned a priority level (high, medium, and low). Recommendations that have been designated as high priority should be viewed as critical matters, and/or fundamental prerequisites, that should be addressed in the near term in order to effectuate the mission of the Division. Recommendations that have been designated medium or low priority should not be viewed as unimportant. Instead, they should be viewed as emanating from or ancillary to the high priority recommendations.

Executive Summary

This section of the Report summarizes IFS' key findings and salient recommendations across the six major task areas that comprised this project's scope of work.

We found that taken as a whole, the Division has enjoyed a number of strengths, including:

- a group of capable, dedicated investment professionals;
- an experienced trading desk;
- access to some valuable sources of information and analytical tools;
- daily investment management team meetings (implemented during the process of our review) to discuss strategies and the "Approved List"[1];
- an organizational structure with checks and balances, namely, separation of the policy-making body (the Council) from implementation and daily operations (the Treasurer and Division of Investment); and
- ethics guidelines (beyond the provisions applicable to State Government as a whole) tailored to the Division, as a distinct organization.

However, many aspects of the Division require enhancement. Beginning in the fall of 2002, the Treasurer, upper management at the Division and the current Investment Council

[1] For purposes of this Report the term "Approved List" means the list of securities the Council has pre-approved from which the Division staff must select the investments it purchases.

began significant efforts to identify and solidify its strengths and upgrade its investment practices. This Operational Review is a part of that process.

Key Findings and Recommendations

The majority of our findings and recommendations revolve around five primary themes: (1) the Division's investment program is unique, compared to other statewide public pension funds insofar as it actively and internally manages all its assets, and does not diversify into any real estate or alternative assets; (2) enhanced documentation and systematization of many of its practices are needed; (3) the Division's organizational structure and resources need enhancement; (4) the roles and responsibilities of those involved in the Division's investment program and governance should be more fully described; and (5) the Division and Council are aware of many of the issues identified during the course of this Review and have started to address many of them. We encapsulate each of these observations below.

The Division's Investment Program Is Unique

The Division of Investments is highly unique among public pension funds insofar as it combines all three of the following key features:

- the Division internally manages all its assets (no external management at all);
- it manages all those assets actively (no passive or indexed management); and
- it manages only traditional, publicly-traded securities (no real estate, private equity, hedge funds, high yield bonds or other "alternative assets").

This combination of key features significantly influences the Division's current organizational structure and investment program and leads to many of our recommendations for change.

More Diversification, External Asset Management, Enhanced Internal Asset Management and Passive Management Should be Utilized

Recommendation: In light of its public pension fund peers and industry best practices, the Division should more broadly diversify its investment portfolio.

This recommendation has several implications. First, this means adding further, nontraditional asset classes and strategies which are designed to lower volatility of returns (risk), enhance risk adjusted returns and potentially increase absolute returns. Subject to the Council's judgment and related decisions regarding organizational structure, resources and governance, these new assets and strategies could include, for example, real estate equity, private equity, appropriate hedge fund strategies and greater use of high yield bonds. A second implication is that, under the current circumstances, additional diversification along these lines is practical only with use of external investment managers. The use of external management becomes even more necessary to the extent that other important enhancements to governance, controls, staffing, compensation and related resources are not promptly implemented. To the extent governance and resources are sufficiently enhanced, it is reasonable to continue to internally manage a substantial portion of the assets.

Recommendation: We recommend more carefully crafting the Division's use of active asset management, including tighter standards for active risk and passive management in efficient securities markets. Used in combination with a well-designed and operated active portfolio, passive management can help diversify the overall investment program, control risk and contain costs.

Fundamental Policies & Procedures Are Needed

Traditionally, the Division had managed its investment program and practices without many fundamental types of policies and procedures that comparable public pension funds employ.

Recommendation: The Division should lay the groundwork for expanding and refining its investment program (e.g., diversifying into new asset classes and strategies), by adopting a number of policies and processes regarding asset management and governance. These include, for instance:

- a comprehensive investment policy statement for the whole portfolio;
- systematic risk management, including developing procedures to identify, control and remedy undue investment risk;
- a rigorous asset allocation process;
- clearly articulated investment guidelines and procedures for each account the Division manages, e.g., for domestic equities, domestic fixed income, etc.;
- the ethics and conflict of interest policies and procedures applicable to members of the Division and Council (as recently recognized by the Office of Government Integrity) should be enhanced;
- enhanced internal controls, including appropriate separation of functions;
- adopting an annual investment plan;

- developing electronic capabilities in trade/settlement (the Division is not yet ready for straight-thru-processing of securities transactions); and

- obtaining relief from certain legal impediments that constrain the Division's ability to operate in an efficient, effective manner

Improve Organizational Structure & Resources are Needed

To facilitate improvements to the investment program and practices, the Division's organizational structure and resources should be enhanced to be more reflective of best practices. These specific areas the Division should enhance include:

- its personnel practices, to facilitate increased compensation to its staff;

- its number of staff, especially regarding certain key functions in portfolio management and analysis; and

- its budgetary process to assure the Division sufficient analytical tools, information and other resources.

Recommendation: We recommend upgrading the Division's organizational structure and resources to be more reflective of best practices.

These enhancements are particularly important insofar as the parties seek to preserve and improve the Division's ability to internally manage assets. However, they also are important to help the Division broaden its diversification by adding other asset classes and strategies, and to upgrade its risk management.

Improve Governance

For the same reasons, the parties should improve the governance of the Division. This includes more fully articulating the respective roles and responsibilities of the Treasurer, Division and Council regarding such matters as determining the extent of internal versus external asset management and active vs. passive management, establishing rebalancing policy and procedures, effectuating rebalancing, monitoring adherence to guidelines, selecting investment service providers and related matters.

Recommendation: We recommend that the parties develop and promulgate a formal "Statement of Governance" addressing the respective roles and responsibilities the key parties involves in the governance and operations of the Division.

Recent Enhancements

The current Treasurer, Division Director and Investment Council have recently initiated many significant improvements to the traditional investment program and practices, by building on existing strengths and identifying and beginning to address traditional weaknesses. Those parties are awaiting finalization and presentation of this Report before taking or further considering additional steps, along the lines of recommendations listed above.

Regarding Our Recommendations

Collected at Exhibit 2 is a summary of our many recommendations.

The Division's ability to respond to these recommendations set forth in this Report will largely depend on the adequacy of its resources. Furthermore, the relevance of some recommendations will depend on policy decisions the Council makes regarding other matters, e.g., if the Council decides not to add any appraised assets to the portfolio (e.g., real estate or private equity), other recommendations regarding such assets will become moot.

I. Organizational Structure and Resources

The scope of work, set forth in our contract with the Treasurer, calls for an assessment of the reasonableness of the size of the Division's staff relative to other large public pension funds.

Conclusions Regarding Staffing Levels

In performing our evaluation of this task area we used three different comparative approaches – a general comparison, a peer group comparison, and a comparison based on functional requirements. We used multiple approaches in order to provide a more comprehensive assessment of a task area that tends to be fairly subjective.

We conclude that:

- based on its particular investment program, the Division is understaffed in a number of key aspects of portfolio management, but may be overstaffed in some support functions; and

- compared to its public pension fund peers, the Division has a reasonable (and by some measures, a low) number of total staff.

The following discussion addresses these main points:

- general methodological problems with assessing adequacy of staffing;

- key features of the Division that affect staffing;

- definition of the Division's peer group; and

- conclusions concerning total staff size and staffing by function.

Discussion Regarding Reasonableness of Staffing Levels

Comparative Information Should Be Utilized Only as General Background

We caution that making comparisons to staffing levels at other public investment entities is not an ironclad basis for determining what the Division needs, particularly if the goal is to operate in an efficient and effective manner consistent with best practices. Staff size comparisons regarding public investment entities are often skewed because (a) budgetary pressures and/or the inability to attract and retain productive, qualified staff often generate lower than adequate staffing levels and – on the other hand – (b) civil service protections can produce artificially inflated staffing levels. All the same, this type of comparative information is typically used as a reference point by oversight entities. Consequently, since such comparisons are predictable, the Office of the Treasurer should be informed of how the Division compares to its "peers" and knowledgeable of the distinctive features that may necessitate nonconforming staffing levels.

Comparisons Based on Asset Size Alone Can Be Misleading

Asset size is typically used as the principal indicator of comparability (e.g., Washington State Investment Board statute requires a periodic compensation study of comparable pension funds, based on similar asset size). Since no two pension funds are identical, some believe that asset size is a practical measure of comparability because the various differences among the pension funds cancel each other out. However, we believe that relying solely on asset size (e.g., all pension funds over $1 billion) is ill considered.

While no two pension funds are identical, some have more characteristics in common than others. The greater the number of shared characteristics, the greater the level of comparability. Use of asset size alone does not take into account levels of comparability nor does it recognize the fact that staffing needs are driven by required functions.

A number of factors affect comparability and influence the functions and skill set required of staff. These factors include:

- the type of investment fund (public versus private);
- whether the entity is responsible solely for investments (as opposed to benefit administration);
- the degree of internal vs. external investment management (all other things being equal, more internal asset management tends to require more staff[2]);
- the degree of active vs. passive management (active management requires additional staff[3]); and
- the labor intensity and specialization of investment strategies (e.g., real estate and private equity).

[2] An investment staff that serves only to assist in the selection and monitoring of external managers, i.e., whose funds use significant external management, has a narrower set of functions and required expertise than those who solely or also manage assets themselves (as well as less impact on the ultimate investment results of an organization).

[3] Active investment management requires fundamental research and quantitative analysis. Using these tools, active managers make investment management decisions, seeking to build portfolios that provide a rate of return (after costs) in excess of an appropriate market benchmark. Passive managers, on the other hand, construct portfolios designed to track a market benchmark closely. Since this process does not involve active investment management decisions, passive portfolios require a much smaller staff.

A Pension Fund's Method of Management Drastically Influences Required Staffing Levels

Survey information reflects that while there is a moderate correlation between the size of the fund and the number of professionals responsible for administering its investment portfolio (0.42), there is a much higher correlation between the percent of the fund assets managed internally and the number of professionals responsible for these investments (0.75).[4]

Consequently, an entity with fewer assets, but a labor intensive, actively managed, internal investment program would be expected to have a higher staffing level than a large entity with a "plain vanilla," externally managed, passive investment program.

General Comparison of Staffing Levels

The Division's Current Total Staff Size of 68 is Significantly Below the Average for Internally Managed Large Public Pension Funds[5]

Utilizing a nationally recognized survey of over 40 public pension funds (the "Survey"), we examined staffing levels generally in light of the most commonly used measures of comparability – asset size and method of management, jointly and individually.

Asset Size & Method of Management – Using both factors, we found a significant disparity between the Division's current staff size of 68 and large public pension funds that utilize primarily internal management. Larger pension funds that utilize significant internal management generally have much larger investment staffs. The Division utilizes 100% internal management. We are not aware of another public pension fund that utilizes 100% internal management.

[4] Callan Associates Inc., "Fund Sponsor Cost of Doing Business Survey." A correlation of 1.0 is perfect correlation.
[5] For the purpose of this comparison, internally managed large public pension funds are defined as those with more than $50 billion but less than $100 billion in assets.

- The average total investment staff size for internally managed funds, with more than $50 billion but less than $100 billon in assets is 110.8 v. 68 at the Division.

Method of Management – Using method of management as the sole measure of comparability, without regard to asset size, we found that the Division's staff size was considerably below other public pension funds that utilize primarily internal management. Public investment funds that utilize significant internal management generally have much larger investment staffs.

- Total investment staff size average for internally managed funds is 91.3 v. 68 at the Division.

Asset Size – Using just asset size as the measure of comparability, without regard to method of management, we found the Division's staffing level was below average.

- Public pension funds with over $25 billion in assets have an average total investment staff size of 70 v. 68 at the Division.

Comparison of the Division's Staffing to Staffing of the Ten Largest Public Funds

Some may find it instructive to further narrow the asset size comparison to the largest pension funds. For that reason, in Chart I-1, we compare the Division to the ten largest U.S. public investment organizations.[6] The median asset size of this group ($73.6 billion) is very comparable to that of the Division.[7] However, as explained below, assessing the Division's staffing in light of staffing at these other large organizations, does not produce definitive conclusions.

[6] For purposes of our comparison, the Division was not included in the calculation of the average or the median.
[7] As of approximately June 30, 2002.

Taken as a whole, we found the following:

- while the ten largest public pension funds used varying levels of internal management, notable levels of external management were also used. The median level of external management was 47.2% of the assets and the average 49.8%;

- although the median was 100% active management for the internally managed fixed income assets (the average was 76.4%), the bulk of the domestic equity assets were passively managed. The median for internally managed domestic equity was 81.5% and the average was 60.7%; and

- with respect to international asset classes, few of the largest public pension funds use internal management; however, those that do tend to actively manage the assets.

Given the Division's use of 100% internal management and the conventional correlation between the percent of the fund managed internally and the number of professionals typically responsible for the investment program, one would expect the Division's staffing levels to be much higher than the average staff size of the ten largest public pension funds. In fact, the Division's total staff level is above the median for the ten largest funds, but below the average. Furthermore, the Division's total staff level tends to be above the levels at the ten largest public pension funds with the highest percentages of internal management (e.g., Texas Teachers, New York State Teachers, New York State Common and Ohio Public; the exceptions are Florida and Wisconsin) (Chart I-1).

These results suggest that analyzing the reasonableness of the Division's total staff in light of asset value (compared to the ten largest funds) does not lead to definitive conclusions, even after considering the degree of internal management. Thus, we further refine the analysis below, by using a more tailored "peer group," based on additional characteristics beyond asset value and degree of internal management.

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CHART I-1: TEN LARGEST PENSION FUNDS[8] COMPARISON - BY METHOD OF MANAGEMENT, INVESTMENT STYLE & ASSET CLASS – RANKED BY TOTAL ASSETS

			% of Total Assets by Management Style		ACTIVE/PASSIVE SPLIT OF INTERNALLY MANAGED ASSETS: Domestic Equity		International Equity		Domestic Fixed Income		International Fixed Income		% OF TOTAL ASSETS[9]: Domestic Equity	Domestic Fixed	Int'l. Equity	Int'l. Fixed	Real Estate	Alternatives
Public Funds	TOTAL FTE'S[10]	TOTAL ASSETS[11]	Internal %	External %	Passive %	Active %	Passive %	Active %	Passive %	Active %	Passive %	Active %						
New Jersey State Division of Investment	*68*	*$72.7*	*100*	*0.00*	*0.0*	*100*	*0.0*	*100*	*0.0*	*100*	*0.00*	*100*	*45.2*	*28.3*	*15.6*	*1.1*	*0.0*	*0.0*
California Public Employees	160	$143.8	20.14	79.86	83.80	16.2	62.10	37.90	0.00	100	0.00	100[12]	37.8	25.0	20.5	4.7	9.0	5.1
New York State Common	49	$106.1	64.19	35.81	100	0.00	0.00	0.00	100	0.00	0.00	0.00	44.2	33.5	10.7	0.0	3.2	6.3
Florida State Board of Administration	173	$116.7	55.61	44.39	98.63	1.37	0.0	0.0	35.6	64.4	0.00	0.00	53.1	18.7	11.8	0.0	3.8	3.5
California State Teachers	62	$95.5	40.20	59.80	100	0.00	0.00	0.00	100	0.00	0.00	0.00	35.5	30.8	20.6	0.0	5.5	4.9
New York State Teachers	27	$74.9	69.30	30.70	95.00	5.00	0.00	0.00	0.00	100	0.00	0.00	56.5	19.2	8.0	0.0	6.9	1.5
Texas Teachers Retirement System	63	$72.3	95.50	4.50	50.00	50.00	31.00	69.00	0.00	100	0.00	0.00	53.7	28.3	13.0	2.7	0.0	4.5
State of Wisconsin Investment Board	112	$61.2	50.00	50.00	0.0	100	0.0	100	0.00	100	0.00	0.00	37.0	21.7	16.2	6.4	4.5	4.6
New York City Retirement[13]	51	$54.5	0.30[14]	99.70	0.00	0.00	0.00	0.00	0.00	100	0.00	0.00	50.6	32.0	16.0	0.0	0.0	0.4
North Carolina	12	$52.6	46.00	54.00	0.00	0.00	0.00	0.00	0.00	100	0.00	0.00	46.90	45.40	4.60	0.0	2.9	0.2
Ohio Public Employees	59	$50.9	60.40	39.60	79.1	20.9	0.00	0.00	0.00	100	0.00	0.00	47.5	20.9	19.4	0.7	9.9	0.5
AVERAGE	76.8	$82.9	50.2%	49.8%	60.7%	19.3%	9.3%	20.7%	23.6%	76.4%	0.0%	10.0%	46.3	27.6	14.1	1.5	4.6	3.1
MEDIAN	60.5	73.60	52.8%	47.2%	81.5%	3.2%	0.0%	0.0%	0.0%	100%	0.0%	0.0%	47.2	27.1	14.6	0.0	4.2	4.0

[8] Source: Empirical research by IFS and Pension & Investments, Crain Communications, *Top 1,000 Pension Funds*, January 21, 2002.
[9] Based on the most recent information we were able to obtain from the pension funds and third party research.
[10] Total FTEs identified represents investment staff (professionals and support) only. The funds which are not lighted are responsible for benefits and investments.
[11] All assets under management as of approximately June 30, 2002.
[12] Rather than domestic or international separately, CALPERS has an allocation to global fixed income. The figures represent their global allocation.
[13] Aggregate of the 5 City Retirement Systems – City Employees, Teachers, Police, Fire, and Board of Education
[14] Cash management only.

Peer Group Comparison

A "Peer Group" Assessment is Normally More Useful Than a General Comparison

We believe that commonality of characteristics is a more accurate comparative measure than asset values. Therefore, we augmented our assessment of the reasonableness of the size of the Division's staff relative to other large public pension funds by identifying a group of public investment entities with characteristics comparable to those of the Division. We defined this group as the Division's "peers."

In order to define the Division's "peer group[15]," first, we ascertained:

- whether the organization was a statewide entity;
- whether its governing board (or sole trustee) has responsibility only for investment functions, i.e., is not responsible for benefits management; and
- whether the organization is responsible for the investment of other state assets (including, but not limited to, pension fund assets).

Organizations responsible only for investment of public fund assets are classified as "Boards of Investment" ("BOIs"). BOIs are statewide investment organizations responsible for only the "asset investment" of pension and other funds, without responsibility for the "liability side" of benefit claims processing and benefits administration. Using just these criteria we identified 13 "peers" across the country. See Exhibit 3 – List of Boards of Investments.

[15] The terms "peers" and "peer group" are used interchangeably throughout the discussion.

As a second step, we then used the following characteristics to more accurately pinpoint the Division's "peers":

- **Asset Size** – Asset values comparable to the value of assets the Division manages.

- **Level of Internal Management** – Internal management requires a much broader set of functions and expertise. Consequently, it requires more investment professionals with capable skills to perform the functions.

- **Active versus Passive Investment Style** – More active management requires more staff, for, e.g., research and risk management with specialized knowledge.

- **Range and Complexity of Asset Classes** – All other things being equal, a fund investing in only publicly traded securities should probably employ fewer staff than a fund that also invests in appraised assets such as real estate and private equity. The latter types of assets are labor intensive to manage and monitor, and require distinct, specialized skills.

- **Client/User Base** – More discrete funds with more discrete investment policies and asset allocations typically require more staff. For example, all other things being equal, we would expect an organization that manages only a single defined benefit pension fund to maintain fewer employees than an organization that manages not only a pension fund, but also a defined contribution plan, a workers compensation fund, a lottery fund and a college savings fund. However, if the number of funds is nominally greater, but managed according to similar or identical policies and asset allocations, more staff may be unnecessary.

Chart I-2, entitled "Peer Group Comparison", set forth below, reflects the state investment entities that we believe are comparable for purposes of our analysis.[16] The Peer Group Comparison is comprised primarily of BOIs that have either asset values or investment management styles comparable to the Division.[17]

One BOI (the Florida State Board of Administration) with considerably greater assets under management than the Division and three BOIs (the Alaska Pension Investment Board, the West Virginia Investment Management Board, and the Massachusetts Pension Reserves Investment Management Board) with considerably fewer assets under management and minimal or no internal management, are included for purposes of contrast and analysis. Including organizations at both ends of the spectrum may help distinguish which factors appear to influence staffing levels across the entire peer group. Chart I-2 also includes two other organizations – the Texas Teacher Retirement System and Ohio Public Employees Retirement System – that, although not BOIs, share many key characteristics with the Division. The organizations listed in Chart I-2 that are most comparable to the Division, in terms of shared characteristics, are highlighted in bold.

[16] In 2001, we conducted a survey of the investment programs and staffing of BOIs and succeeded in obtaining detailed information on 10 BOIs, including New Jersey.
[17] Omitted from the group are four BOIs with relatively modest asset values – Montana, Nebraska, North Dakota and South Dakota.

CHART I-2: PEER GROUP COMPARISON – BY METHOD OF MANAGEMENT, INVESTMENT STYLE & ASSET CLASSES – RANKED BY TOTAL FTE'S

			% of Total ASSETS		ACTIVE/PASSIVE SPLIT OF INTERNALLY MANAGED ASSETS								% OF TOTAL ASSETS	
					Domestic Equity		International Equity		Domestic Fixed Income		International Fixed Income			
STATE INVESTMENT ENTITY	TOTAL FTE'S	TOTAL ASSETS[18]	Internal %	External %	Passive %	Active %	Passive %	Active %	Passive %	Active %	Passive %	Active %	Real Estate	Alternatives
New Jersey State Division of Investment	*69*	*$72.7*	*100.00*	*0.00*	*0.0*	*100*	*0.0*	*100*	*0.0*	*100*	*0.0*	*100*	*0.0*	*0.0*
Florida State Board of Administration	**173**	**$116.7**	**55.61**	44.39	98.63	1.37	0.0	**0.0**	35.59	**64.41**	0.0	0.0	3.8	3.5
State of Wisconsin Investment Board (SWIB)	**112**	**$61.2**	**50.00**	50.00	**0.0**	**100**	**0.0**	**100**	**0.0**	**100**	**0.0**	**100**	4.5	4.6
Michigan State Board of Investments (MBOI)	**78**	**$42.2**	**82.77**	17.23	**33.3**	**66.7**	100	0.0	0.0	**100**	0.0	0.0	**8.5**	**14.3**
Texas Teachers Retirement System (TRS)	**63**	**$72.3**	**95.5**	4.5	50.00	**50.00**	31.00	**69.00**	0.0	100	0.0	0.0	0.0	4.5
Ohio Public Employees Retirement System (OPERS)	**59**	**$50.9**	**60.40**	39.60	79.1	20.9	0.0	0.0	0.0	100	0.0	0.0	**9.0**	.60
Washington State Investment Board	**57.5**	**$50.9**	37.68	62.32	0.0	0.0	0.0	0.0	0.0	**97.1**	0.0	0.0	**7.9**	**13.3**
Oregon State Treasurer – Investment	**37**	$34.9	26.68[19]	73.32	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	4.9	**12.5**
Alaska State Pension Investment Board	**29**	$11.2	38.36	61.64	0.0	0.0	0.0	0.0	0.0	**95.7**	0.0	**100**	**6.4**	2.6
Minnesota State Board of Investments	**25**	$44.6	16.90[20]	83.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	4.7
West Virginia Investment Management Board	**22**	$5.1	0.00	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Massachusetts Pension Reserves Investment Management Board	**15**	$28.1	0.00	100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	5.5
Average	**60.95**	$47.10	42.17	**57.82**	23.73	21.72	11.90	15.36	3.23	**59.74**	0	18.18	4.78	**6.00**
Median	**58.25**	$45.85	40.26	**59.73**	0	0.68	0	0	0	**80.05**	0	0	4.84	4.65

Among the peer group, we consider the entities in bold to have the highest level of comparability to the Division.

[18] As of approximately June 30, 2002.
[19] Oregon currently manages about $8B in short term funds internally.
[20] Minnesota manages approximately 49, non-defined benefit, funds internally, totally roughly $6B.

The Division's Investment Program Has a Number of Characteristics that Distinguish it from its Peers and Impact its Staffing Needs

Our analysis established that the following characteristics of the Division's investment program differentiate it from its peers and impact its staffing needs[21]:

- **Internal Management**: The Division is the only entity that manages 100% of its assets internally. The peer group's median level of internal management is only 40.2% and the average is only 42.17% (see Chart I-2). The Division is also the only fund among the ten largest public pension funds that internally manages all of its assets (see Chart I-1).[22]

- **Active/Passive Management**: The Division is the only entity that uses 100% active management for all asset classes employed, i.e., it uses no passive asset management. While the peer group uses significant active, internal management for domestic fixed income assets (the median level is 80% and the average is 59.7%), the peers do not tend to internally manage the other asset classes. Where they do, the staffing levels tend to be higher (see Chart I-2).

- **Domestic Equity**: The Division is one of two organizations in the peer group that uses 100% active internal management for its domestic equities (see Chart I-2).

- **International Equity**: The Division is one of only two organizations in the peer group that internally manage all international equity (Exhibit 4) and one of three that uses internal, active management for a portion of its international equity (Chart I-2).

[21] Chart I-2 is supplemented by more detailed data in Exhibits 4, 5 and 6 regarding peer group members' asset allocation, percentage of internal and external management for a given asset class, and staff size ranked by a number of factors (e.g., asset size, degree of internal management, etc.).
[22] It should be noted that the use of internal management by some pension funds is not a discretionary decision, rather it is driven by whether delegation of investment discretion is legally permissible (e.g. Texas Teachers).

- **Emerging Markets Equity**: The Division is unique among the peer group in its use of 100% internal management for emerging markets equity and is below average in its allocation to such assets. The average allocation among the peer group to this asset class is 1.11% and the median is 1.00% (See Exhibits 4-3 and 5).

- **Fixed Income**: The Division is one of only two peer group organizations that completely internally manage domestic fixed income. However, there are 4 organizations that manage in excess of 95% of their fixed income assets internally. Most of the organizations in the peer group use active, internal management for this asset class. (See Exhibit 4-5)

- **Private Equity**: The Division has a zero percent allocation to domestic private equity, buyouts, and international private equity. The average total allocation (based on the defined benefit assets) among the peer group is 5.29% to domestic private equity and 0.38% to international private equity. The median is 3.51% and 0.03%, respectively (see Exhibit 5). The average allocation reported by the peer group for the "alternatives" assets class is 6.00% and the median is 4.65% (see Chart 1-2). The ten largest public pension funds have an average allocation to alternatives of 3.1% and a median of 4.0% (see also Chart I-1).

- **Real Estate**: The Division, like two other members of the peer group, has a zero percent allocation to real estate (other than public REITS). The average allocation to real estate equity among the peer group is 4.78% and the median is 4.84% (see Chart I-2). Among the ten largest public pension funds, the average allocation to real estate is 4.6% and the median is 4.2% (see also Chart I-1).

- **Ratio of Support Staff to Professional Staff**: The Division has almost a 2:1 ratio of professionals to support staff. With the exception of Michigan, this is a much higher ratio than most of its peers (see Exhibit 6A).

Our analysis of staffing levels of the peer group indicates that (a) certain features seem to have a higher correlation to staffing levels than others, and (b) that in light of these features, on balance, the Division has a reasonable number of total staff.

- **Total Assets:** As a general proposition, organizations responsible for fewer assets tend to have fewer employees (in absolute numbers) and those responsible for more assets tend to have more employees (see Exhibit 6 A-B). However, based on the empirical information regarding the peer group, there is little correlation between the value of assets and the number of staff relative to assets managed (see Exhibit 6C).

  The Division ranks second highest in the peer group for total assets and thus, that factor intuitively suggests it should have the second highest number of FTEs. However, in fact, New Jersey has only the fourth highest number of FTEs (see Chart I-2 and Exhibit 6A). On the other hand, the Division ranks sixth highest among the ten largest public pension funds for total assets, but has the fourth highest number of FTEs (see Chart I-1).

- **Internal versus External Asset Management:** Based on the peer group data collected, we perceive a correlation, albeit somewhat limited, between the extent of internal vs. external asset management and the number of FTEs.[23] Public pension funds with a higher degree of internal management should tend to have a higher absolute number of FTEs.

[23] The Callan Associates Inc., "Fund Sponsor Cost of Doing Business Survey" reported a higher correlation between the percent of the fund managed internally and the number of professionals responsible for the investment aspects of the fund.

We found that among the peer group, funds with the highest percentages of internal management tend to have the highest number of total FTEs and those with the lowest percentages of internal management tend to have the lowest number of FTEs, although (again) this does not follow a one to one correlation (see Chart I-2 and Exhibit 6A). However, this line of reasoning does not appear to hold true for the ten largest public pension funds – those with the most significant internal management (greater than 50%), with one exception, have significantly fewer FTEs than several (e.g., CalPERS, CalSTRS, Wisconsin, Florida) with lower levels of internal management (see Chart I-1).

- **Active versus Passive Management**: A refinement on the degree of internal vs. external management is the degree of active vs. passive (indexed) management. As noted earlier, among the peer group, the Division is unique in actively managing 100% of its domestic equity internally. This imposes an unusually heavy burden on the Division's staff to conduct the research and make the decisions regarding security selection and portfolio structure necessary to actively manage an equity program. Yet, the Division has significantly less staff than several other members of the peer group and of the ten largest public pension funds that utilize much less active management.

- **Use of Private Market Assets:** One factor that somewhat weakens the correlation between extent of internal vs. external and active vs. passive asset management and number of FTEs is the degree to which private market assets (e.g., real estate equity, private equity, buyout funds and other "alternative" assets) are used. Private market assets are typically very labor intensive, requiring significant specialized staff and resources. For example, two of the peer group organizations with the highest exposure to alternative assets – the Washington State Investment Board and Wisconsin State Board of Investments (Exhibits 5 and 6F) – have significantly higher numbers of staff than the degree of internal vs. external management alone would suggest. Organizations with private market assets tend to assign at least several – and oftentimes, many – staff to manage or oversee those assets (Exhibit 6F). The Division is one of only three organizations with a zero allocation to private (i.e., not REITs) real estate equity.[24]

Compared to its Most Comparable Peers, the Division's Current Level of Total Staffing Appears to be Within an Acceptable Range

Four of the 11 state investment entities listed in Chart I-2 are highly comparable to the Division – Texas Teachers, Michigan, State of Wisconsin, and Ohio Public Employees. When compared to these entities, on its face, the Division appears to have a reasonable total number of FTEs. For example, Texas TRS has 63 FTEs, total assets of $72.3 billion, is 95% internally managed (approximately half of which is actively managed) and includes 4.5% in alternative assets; Ohio PERS has 60 FTEs, total assets of $50.9 billion, is 60% internally managed (most of which is passively managed) but includes 9.6% in real estate and alternatives.

Staff Size Comparison Based On Key Functions

The Reasonableness of a Public Investment Organization's Staff Size Should Ultimately Depend on its Unique Characteristics and Required Functions

To further test the reasonableness of staffing levels, we compared the Division's staffing by function relative to other large public pension funds. In our opinion, staff size should be dictated by the duties and functions an investment organization is required to perform. Therefore, a function-by-function analysis is very compelling when determining whether an organization's staff size is appropriate.

[24] We were informed that the Division does not have investment authority over the New Jersey private home mortgage portfolio. The Division does invest in publicly traded real estate investment trust equity securities (REITs), but these assets are classified as equities by the Division, not as real estate per se.

In addition to the degree of internal vs. external and active vs. passive management and the degree to which specialized investments (e.g., real estate and private equity) are utilized, the following interrelated factors also influence the appropriate size and functions of staff, including:

- the complexity of administrative functions (e.g., performing internal daily valuations);

- the impact of civil service requirements (or freedom from such requirements) that may affect work loads, flexibility of work flow, and other personnel practices – and thus, necessary staffing levels;

- the adequacy and efficiency of technology, investment accounting and computerized systems (i.e., maintaining additional staff is one way to compensate for ineffective information systems, weak custody, or poor communication systems); and

- the number and type of discrete pools of assets the organization manages (e.g., not only pension funds, but also perhaps defined contribution plans, lottery funds, workers compensation funds, education funds, etc.) which can impose additional accounting and reconciliation duties on staff.

Based on a Functional Analysis, the Division Is Understaffed In Major Portfolio Management Functions, but Overstaffed in Some Support Functions

Although, on its face, when compared to its peers, the total number of staff employed by the Division seems to be within a reasonable range, a more systematic comparison reveals that some functional areas appear understaffed while others appear overstaffed.

To conduct the functional comparison, we prepared a matrix of investment related functions which the Division completed. The matrix categorizes the Division's personnel across a broad range of specific positions. We then compared the Division's staffing by function against the staffing by function of the Division's "peer group."[25]

Based on the functional comparison reflected in Exhibit 7 (Comparison of Staff Size by Function), several points are evident:

- **The Division has Fewer Equity Portfolio Managers[26]:** Compared to other public investment entities with significant internal asset management, the Division has fewer portfolio managers for publicly-traded equities.

  Despite managing 100% of its equities internally and actively, the Division has only one Senior Investment Officer ("SIO") for public equity and six Portfolio Managers ("PMs"). By comparison, the Michigan Bureau of Investments – with nearly all of its publicly equity managed both internally and actively – has an SIO and ten PMs. The Florida State Board of Administration – with less than half of its domestic equities managed internally – has only one SIO and two PMs. While this is fewer than New Jersey, two thirds of Florida's domestic equities are passively managed. Texas TRS, which manages all of its public equity internally (with half of the domestic equity managed passively), has one SIO and 11 PMs.

- **The Division has Fewer Fixed Income PMs:[27]** Compared to other public investment entities with significant internal fixed income management, the Division has fewer PMs for fixed income securities and is one of two funds with a single fixed income portfolio manager that uses internal management.

[25] For purposes of this comparison we obtained information from nine of the 11 members of the "peer group."
[26] For purposes of domestic equity, TRS and MBOI are the most comparable members of the peer group.
[27] For purposes of fixed income, Texas TRS , Michigan BOI, and OPERS the most comparable members of the peer group.

Despite managing all of its fixed income internally, the Division does not have an SIO for fixed income and only has a single PM, although the Deputy Director devotes part of his time to fixed income. Oregon also has only one PM in fixed income and it manages approximately two-thirds of its fixed income allocation internally (however, some of that is passively managed). Oregon also has an SIO for fixed income, so even that (a total of two) is more than the one full-time employee New Jersey assigns.

By comparison, Michigan – which manages its fixed income completely in-house – has an SIO and two PMs for fixed income management. Florida – which manages internally two-thirds of its fixed income – has an SIO and seven PMs; while Washington State – which internally manages virtually all its fixed income – has an SIO and five PMs. Wisconsin manages approximately half of its fixed income internally (plus approximately half is managed passively) and reports having an SIO and seven PMs. Massachusetts does not have an SIO nor a PM for fixed income (the CIO is responsible and there is an analyst), but none of its fixed income assets are internally managed and about a third of its external fixed income assets are passively managed.

- **Historically the Division had Fewer Analysts:** For both publicly traded fixed income and equity, the Division traditionally had fewer research analysts and only one person (a PM) devoted entirely to fixed income.

- **Fixed Income Analysts**: Though many fixed income PMs do their own credit analysis, several members of the peer group also have designated fixed income analysts. When the review was initiated, the Division did not have a credit analyst. It has recently added two new credit analysts. Massachusetts has one fixed income analyst, Michigan has two, Wisconsin has five and Texas TRS has four. These staff members are in addition to the SIO and PMs referenced above. Although the number of credit analysts the Division now utilizes appears reasonable, the Division continues to be understaffed in fixed income compared to its peers.

- **Public Equity Analysts**: For publicly traded equity, the Division has eight research analysts, who also have portfolio management responsibilities, for a total of 14 PMs and analysts, plus an SIO. This is a relatively low total of PMs and analysts, compared to the other funds that use internal management. Michigan has 13 public equity analysts for a total of 23 analysts and PMs, plus an SIO. Wisconsin has approximately 19 public equity PMs and analysts in addition to its SIO, while Texas TRS has 28 public equity PMs and analysts plus an SIO. While Florida does not have any public equity analysts, it manages only half of those assets internally and about two-thirds passively.

- **The Division has More Traders:** The Division appears to have more staff responsible for trading than other members of the peer group. The Division has 5.5 public equity traders as well as a head trader, which is more than any other fund in our survey. Texas TRS has the second most with four public equity traders plus a chief trader. Oregon has two public equity traders and both Florida and Michigan each have one, in addition to their chief traders. The Division's fixed income trader is also the PM for fixed income and there is an assistant trader who works with money market securities. The other funds do not have separate traders for fixed income as this function is typically fulfilled by the fixed income PMs and analysts. The number of traders at the Division may be relatively high because the Division uses less advanced trade order management systems and because internal management of international securities creates distinct trading demands.

- **The Division has More Accountants:** Another functional area where the Division has noticeably more staff is investment accounting. The Division has 11 investment accountants and two supervisors. All of the other funds, whether internally or externally managed, (except for Texas TRS) had a controller, a supervisory accountant and one investment accountant. Both the Division and Washington State have a trade and settlement supervisor and Washington State also has two settlement accountants and a portfolio administrator.

The Division is Understaffed in Portfolio Management But Over Staffed in Equity Trading and Investment Accounting

Based on the above comparisons, we conclude that the Division is understaffed in portfolio management, for both public traded equities and fixed income, given its heavy emphasis on internal, actively managed strategies. However, the Division appears to be somewhat overstaffed in equity trading and investment accounting.

Insofar as the Council, Treasurer and Division change the current investment program over time, the adequacy of staffing in specific areas may change as well. For example, to the extent the Division shifts to some external asset management, then that factor, in isolation, would suggest the need for internal staff with somewhat different functions, e.g., monitoring external managers rather than directly managing assets. Similarly, shifting to some passive management would suggest fewer internal staff. On the other hand, to the extent the investment program is expanded to include private markets (e.g., alternative asset classes), such expansion would create the need for additional staff with extensive knowledge and expertise to address the very specialized, labor intensive functions required. Members of the peer group that invested in private equity and real estate had at least four and as many as 19 investment staff dedicated to the management of these assets even though such assets are typically managed externally (Exhibit 6F).

The Division's Staffing Levels are Below those of the Private Investment Management Firms Surveyed

Since the Division manages 100% of its assets internally, we believe that another relevant comparison is the staffing level at "comparable" private investment management firms. We surveyed a few investment management firms that offer relatively uncomplicated product lines in U.S. and international equities and fixed income. We avoided surveying the very large investment management firms as they generally offer too many products and have too many offices to be comparable to the Division, which has essentially only one "product" for each asset class under management and one office.

As can be seen in Chart I-3 below, the Division has far fewer U.S. equity portfolio managers and research analysts than firms who manage comparable (or even lower) amounts of U.S. equity assets. Similar to Firm 4, the Division's research analysts also perform a portfolio management function; however Firm 4 has 20 portfolio managers and analysts (excluding "upper management") to manage U.S. equity and fixed income and the Division only has 11 (including the fixed income portfolio manager/trader) or 12 (if the Deputy Director is included). The other investment firms shown below – with less in equity value under management – have an even greater number of individuals devoted to U.S. equities, ranging from 22 to 58 (this number includes the international investment staff). The Division also has fewer investment staff devoted to international equities than do the investment management firms – 5 total versus 6 to 11 at other firms, or 58 at Firm 1 which takes a global approach. In addition, the Division only has 1 full time person devoted to fixed income portfolio management and trading (with help from the Deputy Director) while the investment management firms surveyed, with far fewer fixed income assets under management, have 3 or 4 fixed income investment staff.

The data supporting the number of equity traders is less clear; the Division has a few more traders than 3 of the 4 firms surveyed, but 6 less than one of the firms. The relatively high number of traders may be due to the types of trading systems employed by the Division.[28] We only have limited data regarding portfolio accounting staff, but here too, the number of staff appears appropriate when compared to external investment management firms.

Chart I-3: Survey of Staffing Levels, by Function, of Private Sector Investment Management Firms[29]

Asset Categories	Firm 1	Firm 2	Firm 3	Firm 4	The Division
Asset Classes	All	All	U.S. and Int'l	U.S. and F.I.	**All**
Total Assets Under Mgmt	$45.5B	$19.5B	$22B	$26.2B *(c)*	**$55.7B**
U.S. Equity	$2.2B	$10.2B	-	$25.0B	**$26.1B**
Global Equities	$20.1B	NA	NA	NA	**NA**
International	$23.1B	$981mm	-	NA	**$8.8B**
Balanced Accounts	NA	$6.2B	NA	NA	**NA**
Fixed Income	$146.6 mm	$2.1B	NA	$1.2B	**$19.1B**
Int'l Fixed Income	NA	NA	NA	NA	**$723 mm**
Staff Categories					
Upper Mgmt	1	3	-	1	2
U.S. Equity PMs	36	6	9	16 *(d)*	5
U.S. Research Analysts	22	16	17	4	5
International PMs	*(a)*	1	3	NA	2
International Analysts	*(a)*	5	8	NA	3
Equity Traders	15	4	6	6	9
Fixed Income PMs	4	3	NA	*(e)*	1
Fixed Income Traders	NA	(PMs do trading)	NA	*(e)*	*(f)*
Fixed Income Analysts	0	NA	NA	NA	NA
Investment Subtotal	**78**	**38**	**43**	**27**	**27**
Portfolio Accounting	15	NA *(b)*	NA	23	14

[28] Review of transactional operations and the quality, timeliness, and comprehensiveness of information and systems currently used by the Division is not part of this assignment.

[29] (a) PMs and security analysts work across all equity products. Four PMs also have analyst duties.
(b) P.A. staff is at parent company level.
(c) Includes only discretionary clients over $5.0 million, excludes advisory relationships as well.
(d) Research and portfolio management for equity and fixed income are conducted by 21 principals and associates. In addition, there are 3 research interns at the firm.
(e) Three Equity PMs also manage & trade F.I.
(f) F.I. PM does own trading, some F.I. management done by deputy director as well.

As stated previously, we recognize that staffing levels of public pension funds are often lower due to budgetary pressures and/or their inability to attract and retain productive staff. This additional comparison to private industry highlights the inadequacy of the Division's current staffing level for a fund of its size that is 100% internally and actively managed particularly in light of the fact that most of the private firms included in the survey have significantly fewer assets under management.

Recommendation
Assuming the continuation of the current investment program, we recommend that the Division hire additional staff or, insofar as feasible, reassign some current personnel to fortify the understaffed functions. As the investment program evolves over time, e.g., moving into some nontraditional asset classes or hiring external managers, the Division should consider further staffing changes necessary to meet functional requirements.

Roles and Procedures – Related to Overall Division Governance

The scope of work, set forth in our contract with the Office of the Treasurer, calls for an assessment of whether the roles and procedures among the Treasurer, the Council, and the Division work effectively or pose problems.

Good Governance Adds Value and Is Consistent with Best Practices

"Governance" refers to the structure and processes utilized by an organization for decision making, implementing its decisions, and for monitoring and assessing performance. Hallmarks of good governance include clearly defined roles, appropriate checks and balances, proper alignment of interests and other structured features. Improperly or weakly defined roles generally impair governance.

Some empirical research suggests that the value of poorly performing companies improved significantly after the institution of good governance practices.[30] We believe the same is true for public pension funds. The need for good public pension fund governance arises for the same types of issues that give rise to the need for good corporate governance. Poor governance unnecessarily creates the risk of poor investment performance.[31] Poor governance is typically ranked as the principal barrier to excellence within an organization, followed by inadequate resources and lack of focus or of a clear mission.[32]

Lack of Documentation and Communication Regarding Roles Poses Problems and Creates Potential Governance and Implementation Risk

Based on our review of several documents and information obtained during the interview process, we believe that several members of the Council and as well as some of the staff of the Division are unclear about the respective roles and authority of the Division, Treasurer and the Council regarding a number of critical fundamental issues.

The uncertainties we perceived amongst the parties regarding their respective roles, and the diverse historical information we obtained regarding those roles, creates the potential for governance risk and implementation risk. "Governance risk" is "the risk that the trustees, staff, or agents of the fund will, either intentionally or unintentionally through their management actions or lack thereof" cause the assets of the fund to underperform expectations.[33] "Implementation risk" is the risk that policies and procedures may not be implemented properly. The ideal asset/liability mix, asset allocation model, and investment policies and strategies may

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30 Wilshire study of "CALPERS effect."

31 Public Pension Systems Statements of Key Risks and Common Practices to Address Those Risks, July 2000. Endorsed by the Association of Public Pension Fund Auditors (APPFA), the National Association of State Retirement Administrators (NASRA), and the National Council of Teachers Retirement (NCTR).

32 Source: "Excellence Shortfall in Pension Fund Management: Anatomy of a Problem" by Keith Ambachtsheer, Craig Boice, Don Ezra and John McLaughlin – October 1995.

33 Source: "*Public Pension Systems – Statement of Key Risk and Common Practices to Address Those Risks*" – endorsed by the Association of Public Pension Fund Auditors, the National Association of State Retirement Administrators and the National Council on Teacher Retirement.

be adopted, but if the Division staff does not effectively implement the mix and strategies, because they are unsure of their roles, then assets may ultimately not support the liabilities owed by the System.[34]

The Parties Should Formulate a Statement of Governance

A "Statement of Governance" documents the understanding of the key parties regarding their respective roles and responsibilities in the management and operation of the organization (in this case the Division). Its purpose is to clearly define the appropriate roles, responsibilities, and permissible conduct of key parties in running an organization. Fundamentally, it should clearly describe who has authority over whom and who is responsible for what and when.

Based on our observations and information obtained during the interview process, we found that neither the Office of the Treasurer, Division, nor the Council have clearly documented or reached a clear consensus regarding their respective roles and responsibilities. However, we understand they are working toward this goal.

Recommendations
We recommend that the parties seek through a consensual process to formulate a Statement of Governance. The Statement should specify the respective roles and responsibilities of the key parties across a broad range of subjects and, more specifically, regarding investment practices.
If the parties, unaided, do not expect to achieve consensus, they may utilize a facilitator (as other public funds have done) to develop a Statement of Governance.
We recommend that the Statement of Governance be deemed a public document and distributed to all Division staff and interested parties.

Prior to developing a governance statement, the key parties involved in the decision making process related to the Division, must form a consensus regarding their respective roles. In Chart I-4 below we list many of the key subject matters related to management of the

[34] Ibid

Division. The governance statement should address each of the subjects identified. The Chart can be utilized as a mechanism to initiate the consensus building process. For the process to be effective, all affected parties should be given the opportunity to participate. For example, participation by the Office of the Attorney General is essential to the development of the statement of governance to insure that the document is consistent with New Jersey law.[35] If the process is not handled properly it can generate conflict and impair morale. To avoid challenges associated with the establishment of a statement of governance, many public investment entities retain an outside entity (e.g., an academician or a specialized consulting firm) to act as a facilitator.[36]

Chart I-4: List of Key Matters Affecting Management of the Division that a Statement of Governance Should Address

Budget Related Matters	**Investment Related Matters** *(See also Chart I-5)*
✓ Establishment of Division Budget	✓ Establishment of Investment Policy
✓ Use of Appropriated Fund	✓ Initiation of Periodic Fiduciary Audits
Personnel Related Matters	**Legal Determinations**
✓ Proposing Pool of Candidates for Director	✓ Obtaining Legal Advice
✓ Selection Director of Division	✓ Participation in Securities Class Action Litigation
✓ Evaluation of Director of Division	✓ Use of Outside Counsel
✓ Termination of Director of Division	**Select Actuary**
✓ Establishment of Director's Compensation (within statutory limits)	✓ Performing Asset/Liability Study
✓ Hiring of Division Staff	**Select of the Auditor**
✓ Termination of Division Staff	**Select of the Custodian**
✓ Establish Staff Compensation Levels	**Select Investment Consultant(s)**
Procurement Matters	

[35] **Disclaimer:** IFS will not, nor was it retained to, render legal interpretations regarding the State of New Jersey statutes.
[36] CALPERS, MOSERS, and OPERS are examples of public fund investment entities that have adopted a statement of governance and used a facilitator.

Broadly, we understand that the Council is responsible essentially for formulating, adopting and monitoring adherence to policy, whereas the Division and Treasurer are responsible for all else. However, determining the particulars of which key party is responsible as a matter of law for each specific investment function is important to the governance of the Division.[37] Accordingly, the statement of governance should address not only the general subjects listed on Chart I-4, but also a host of more specific functions regarding investment practices. To assist the key parties in formulating a consensus regarding such investment practices, we have created Chart I-5. Chart I-5 lists the key investment functions a public investment entity typically must perform.

Chart I-5: Division Investment Function

- ✓ Establish investment goals and objectives, including establishing risk levels, in light of investment time horizon
- ✓ Establish and periodically review asset allocation
- ✓ Establish extent of internal vs. external asset management and active vs. passive asset management
- ✓ Establish rebalancing policy and procedure
- ✓ Effectuate rebalancing
- ✓ Establish investment guidelines
- ✓ Monitor adherence to guidelines
- ✓ Measure and evaluate investment performance
- ✓ Establish policies and criteria regarding selection, monitoring, and termination of investment service providers
- ✓ Conduct searches and select investment providers, e.g., external managers, general partners for private equity, investment consultant, custody, broker- dealers, etc.
- ✓ Manage custody bank(s) relationship(s)
- ✓ Action regarding securities class actions
- ✓ Select investment software, analytics, sources of information

[37] See footnote 32. Determining which party is responsible as a matter of law for each specific function is beyond the scope of our assignment.

Roles and Procedures – Related to Division Staff

The scope of work, set forth in our contract with the Office of the Treasurer, calls for an assessment of whether the roles and procedures related to the decision making process within the Division, between the Division Head and Staff, work effectively or pose problems.

Documentation of Roles and Reporting Lines of Authority Within the Division Should be Clarified and Revamped

Based on the interviews conducted, it appears that Division staff generally understands their roles and basic reporting lines of authority. However, the basis for their understanding has not been clearly and sufficiently documented. The absence of such documentation exposes the Division to potential implementation and governance risk, particularly in the event of staff turnover.

Examples of areas that would benefit from clarification and revamping include:

Position Titles: The titles used in the organization chart do not always adequately reflect the duties performed and some positions appear improperly assigned to certain organizational units. For instance, some individuals designated as investment analysts actually have portfolio decision making authority (e.g., act as portfolio managers) and an individual with a portfolio manager designation is assigned to the trading unit.

We understand that official titles may be dictated by personnel guidelines and may not impair the understanding of current Division staff. However, misleading titles are inconsistent with good governance because they impair the ability of interested parties, as well as new employees, to understand the actual roles and responsibilities of misnamed positions. Furthermore, peer group comparisons are problematic because titles do not reflect actual duties. When faced with this problem, some public organizations have opted to supplement official personnel titles with functional internal titles.

Allocation of Portfolio Responsibilities: In our opinion, duties across portfolio managers ("PMs") seem uneven. For example, while a single PM handles all small cap stocks, various PMs (including the small cap PM) are responsible for various sectors across the universe of large cap stocks.

Reporting and Communication: Lines of reporting and communication should be improved. For example:

- although the former head trader retired in summer 2002, by the time of our field work, some staff remained unclear about who has been appointed the new head trader; and

- PMs/Analysts typically have not communicated with the traders regarding progress in filling a trade, (e.g., whether – in the face of trading problems – the PM/Analyst wants to revise the order, etc.). We understand upper management has taken steps to rectify this since the time of our field work.

Regular, clear communication among staff is a key element of good governance and is consistent with best practices. In our opinion, it is essential to an organization's overall effectiveness.

Recommendation
The Division should update and sharpen its position descriptions (including supplemental functional position descriptions), revamp its organizational chart, and enhance communication between interconnected functions.

Position Descriptions are an Essential Component of Good Governance and Should Reflect Best Practices

A position description (PD) is the official written record of the major duties and responsibilities management assigned to a position or group of positions in order to accomplish a specific job. PDs are an essential component of good governance because they facilitate clarity of roles and responsibilities. To revamp the PDs to be reflective of "best practices," we believe at least the following elements should be included:

- a mission statement/introduction;
- an explanation of reporting lines of authority;
- work unit objectives;
- job duties and responsibilities;
- a determination of what duties and responsibilities constitute significant functions of the position, and a description of them in order of importance;
- the percentage of time spent on each major job function (the percentage of time spent on each job function should correlate with the importance of the job function);
- working conditions;
- required skill set; and
- ongoing educational and training requirements.

We recognize that the Division operates within a governmental personnel structure. Accordingly personnel requirements must be taken into account when revamping the PDs. For example, the trend in personnel management is to use the Factor Evaluation System (FES).[38] The FES uses a standardized format. The PD elements we suggest above are consistent with a standardized format.

Division Staff's Understanding of their Respective Roles, Duties and Responsibilities Is Facilitated by the Performance Assessment Review Process

The Division's classified employees are evaluated annually on a Performance Assessment Review (PAR) form. There are three non-supervisory evaluation forms and two supervisory forms. The employee's job title determines the particular form that is used.

The Division utilizes the Performance Assessment Review (PAR) process to develop and communicate goals to its employees. The PAR process requires the identification of major job responsibilities and expectations and the essential criteria for successful performance and advocates including the ratee in the development of the goals. This process is an excellent tool to insure that employees understand their roles and responsibilities. However, the PAR process does not replace the need for enhancing the PDs. PAR forms are part of the employee review process and therefore are likely treated as confidential documents. Thus, they cannot be used to communicate duties and responsibilities related to a particular position to future employees or the general public.

[38] The Factor Evaluation System (FES) has a precise structure to be followed regardless of the particular occupation or job involved. It uses a point system for rating the position. It contains nine factors or areas which are compared to: a base of thousands of positions; classification standards; and benchmarks (point rated position descriptions, each representing a class of positions). The FES uses a standardized format. The PD is graded based upon the highest level of work performed, whether technical or supervisory.

Purchase and Sale Decisions Had Historically Been Made Without a Clear "Top-Down" Structure for each Overall Asset Class

PMs have traditionally enjoyed considerable latitude in shaping their respective portfolios, without adhering to a discipline articulated and imposed by upper management, e.g., valuation methodology, financial and risk characteristics, tracking error, etc. Some PMs do not seem to follow – or often are unable to articulate – a consistent investment discipline, e.g., a value or a growth discipline based on clear criteria and process.

Articulating consistent investment criteria would help the Division structure and coordinate the overall investment program.

Recommendation
We recommend that the Division Director continue recent steps to develop and impose on the PMs specific investment disciplines, based on measurable criteria, so the overall design of each asset class is clear and coordinated.

The Division Should Adopt an Internal Investment Manual of Guidelines and Procedures

We found that historically, prior to recent noteworthy improvements, the Division had lacked many basic procedures and criteria that we would expect of a well-run investment organization.[39] Examples include:

- agreed upon benchmarks for evaluating the investment performance of each PM;

[39] The Division's upper management and the current Council are undertaking initials steps to identify and correct these weaknesses.

- high level monitoring of the extent and possible impact of significantly overweighting or underweighting sectors, industries or individual positions, relative to an applicable market index; and

- measuring and monitoring other key portfolio characteristics relative to the applicable market index, such as style (growth or value) and capitalization.

For example, within Common Fund A, a domestic PM may have overweighted stocks that are highly correlated or commonly defined in terms of global industry or sector (such as pharmaceuticals or automotives), whereas in Common Fund D an international PM underweighted the same sector or industry. Even within a single Common Fund, a PM who was responsible for one part of the portfolio might follow one investment discipline (e.g., in terms of valuation and tracking error) while another PM responsible for another part of the portfolio followed another discipline without the Division's upper management systematically shaping an integrated whole portfolio. We understand that newly installed upper management is now taking steps to address this.

The Internal Investment Manual Should Document Who Is Responsible for which Investment Functions, Based on What Criteria and When

Adoption of a written investment manual of guidelines and procedures, specifying who – within the Division and consistent with their respective position descriptions – is responsible for which functions, based on which criteria, reporting to whom, and how often, would promote clarity and diminish the potential for governance and implementation risk. The operating manual should include, for example, the criteria (discussed above) for purchase and sale decisions regarding each part of the portfolio, for each PM.

Recommendation
We recommend that the Division prepare and adopt an internal investment manual, setting forth in detail the Division's guidelines, procedures, practices and work flow for the investment program.

The Division's Operations Would Benefit from Establishing a "Middle Office"

The Division would benefit from a more systematic independent and centralized function for monitoring trading compliance with investment policies and guidelines and aspects of investment performance and risk management. This could be addressed by establishing a "middle office."

The term "middle office" implies an organization or process that fits between the standard concepts of "front office" (portfolio management and trading) and "back office" (clearance, settlement, accounting, and reporting). The "middle office" is a forward-looking concept that we believe reflects best practices. It has been implemented (or is being implemented) by several pension funds, including the New York State Teachers' Retirement System, the Ohio Public Employees Retirement System, the Texas Teachers Retirement System, and the Alaska State Pension Investment Board (see Exhibit 8 – Section 1: Public Pension Funds and Investment Boards That Have Adopted the Middle Office Concept). We believe that the middle office functions we describe below would be valuable to the Division and that maintaining a middle office is a sound practice for an organization with substantial internal asset management.

The middle office is a support unit for the portfolio management team. Its primary goals are to help management monitor operations, reduce risk, and enhance efficiency. Its fundamental functions revolve around investment compliance and risk management.

The Middle Office Should be Independent of Portfolio Management

A middle office that is independent of portfolio management provides a means of independent monitoring of various functions of the front and back offices. As an example, the middle office can be responsible for monitoring (1) trading compliance with investment policies and (2) guidelines, and aspects of investment performance and risk measurement.

The general rule for a unit whose function is to monitor compliance is to report outside the functional group being monitored. Thus, the middle office should report to someone independent of portfolio management.[40] In general, the staff person with supervisory authority for the middle office compliance functions (the "compliance monitor") would report to the organization's Director. However, in the case of the Division, the Director also has portfolio management responsibilities that may be incompatible with the role of independent compliance monitoring. Therefore, the Division should take steps to identify and mitigate control weaknesses that may result from this incompatibility. Since the compliance monitoring function involves oversight of the Council's policies and guidelines, it is logical for the compliance monitor to report to the Chair of the Council or a Committee of the Council. Another option is for the compliance monitor to report to someone in a sufficiently senior position in the Office of the Treasurer that is not involved in the investment management process. Provided that the "solid line" reporting function runs to someone independent of the Director, the compliance monitor could also have a "dotted line" reporting obligation to the Director. This could assist the Director in understanding and promptly taking steps to remedy problems the compliance monitor detects.

Recommendation
We recommend that the Division enhance its monitoring processes by establishing a "middle office" that reports independently of investment management and includes the responsibilities set forth in Exhibit 8 – Section 2: Potential Duties and Responsibilities of a Middle Office.

[40] To the extent the middle office performs support services for other internal units, independence is less important.

The chart below sets forth a list of potential duties and responsibilities that could be performed by the middle office, if established at the Division. The details related to each of the potential duties listed in Chart I-6 are set forth in Exhibit 8–Section 2: Potential Duties and Responsibilities of a Middle Office at the Division.

Chart I- 6: List of Middle Office Duties

- **Monitoring of Investment Compliance**
  - Soft Dollars
  - Proxy Voting
  - Performance Measurement
  - Securities Lending
  - Attribution Analysis
  - Operating Guidelines, Procedures, Controls, Reports
  - Corporate Actions
- **Special Research Projects**

An Automated Trade Order Management System Could Enhance the Division's Portfolio Trading Operations

Whether or not the Division adopts a middle office, the Division should enhance its investment compliance monitoring tools. Division management currently has a few post-trade compliance monitoring tools such as *ad hoc* queries performed on the QED system and reports from Indata. However, this is not sufficient for an investment organization such as the Division. We are aware that the Division is currently in the process of evaluating a new automated order management system that would include automated pre and post trade compliance tools. The Division should make acquisition of a new system a priority.

Recommendation
We recommend that the Division obtain an automated trade order management system with pre- and post-trade compliance capabilities.

An Annual Investment Plan Can Be an Effective Strategic Management Tool

For some time now, each January, upper management at the Division has presented the Council with a critical issues and strategic planning memo.[41] The purpose of the memo is to outline for the Council what the Division perceives to be the critical issues for the calendar year. The memo's major areas of focus involve:

- a historical perspective of the Council's role and the Division's capabilities;

- operations and resources of the Division, including:

  - staffing issues (e.g., compensation, staffing needs),
  - technology needs,
  - custody bank issues; and

- asset allocation, including:

  - information regarding financial and operational aspects associated with various asset classes,
  - potential new asset classes for inclusion in the portfolio (e.g., real estate, high yield bonds, private equities and/or venture capital, emerging markets equities),
  - benchmarks.

Fiscal year goals and objectives for the upcoming year are also presented (in July) to the Incentive Compensation Committee of the Council. Later, a summary of the progress toward

[41] We reviewed memos for the last four years – January 2000 through 2003. For the current year, the Division utilized an abbreviated outline format for presenting its perception of the strategic plan and critical issues. It then used the outline to make an oral presentation to the Council.

meeting the prior year's goals and objectives is submitted to the Incentive Compensation Committee. The information is used by the Committee in conjunction with the evaluation of the Director and Deputy Director.

In effect, the approach the Division utilizes is somewhat akin to an annual investment plan (the "Plan"). The purpose of the Plan should be to aid the Division in focusing its attention on and implementing its strategic goals for the coming year and the long-term, and help the Division plot a course to achieve those goals, identify and obtain the necessary resources and evaluate its progress.

The Development of the Annual Investment Plan Should be a Collaborative Effort that Produces an Action Plan

The current approach to strategic planning and identification of critical issues is somewhat limited in that it presents only the perspective of the Division, presumably influenced by what has been articulated by the Council during their meetings and discussions. Instead, the Plan should be a collaborative effort – developed by the Division for approval by the Treasurer and Council. The effort should result in a written, consensual "action plan" that sets forth specific goals, strategies, and initiatives for the coming year and the practical steps necessary to accomplish them. This would constitute a "blueprint" for concrete actions during the course of the year.

We believe it is more useful for the Plan to be constructed using a succinct narrative format, rather than an outline format[42], and include sections on the total Fund, each major asset class and its components, as well as transition management. The total Fund and asset class sections should all follow the same general outline, with the total Fund plan being an aggregation of all the individual plans.

[42] In the past several years, the Division has used both formats – narrative and outline.

The Plan should, at a minimum, address the following key elements:

- ***Asset Management***

  - **Portfolio financial characteristics** (insofar as those may materially change in ways likely to affect staffing, resources, or budget), including material changes in:

    - asset values;
    - composition of the asset class, e.g., active/passive, internal/external management, publicly-traded securities vs. private market assets; and
    - expected fees, if any.

  - **Strategies**, including:

    - performance objectives, e.g., benchmark and expected outperformance;
    - use of various styles, e.g., growth and value for equities; and
    - risk control, e.g., tracking error, volatility of returns.

  - **Transition management,** including:

    - asset allocation and rebalancing; and
    - manager searches, if any.

- ***Resources***

  - Staffing, including:

    - target vs. actual; and

        - estimated salary and benefit costs.

    - Operating Budget, including:

        - software and hardware needs;
        - professional fees;
        - research services/subscriptions; and
        - travel.

- ***Initiatives***

    - Key initiatives, e.g., creating Investment Policy Statement, formalizing investment strategies.

    - Human Resource actions, including:

        - training and development; and
        - succession planning.

The critical issues and strategic planning memo that the Division has prepared in recent years contains most of the key elements identified above. However, it should be expanded to more specifically address the other elements identified above (e.g., budgetary considerations) and offer specific steps to address the issues presented.

Recommendation
We recommend that the Director prepare an annual investment plan at the outset of each year, and present it to the Treasurer for his approval (on matters as to which he has authority) and to the Council for its approval on policy matters. The Plan should constitute an agreed-upon blueprint for major actions the Division expects taking during the course of the ensuing year.

An Ethics Policy and Procedure is a Tenet of Good Governance and Best Practices

The Division of Investment is subject to the Code of Ethics of the Department of the Treasury ("the Code"[43]). The Code is intended to complement the New Jersey Conflicts of Interest Law.[44] The Code is an approved comprehensive manual that provides guidance to employees and officers of the Department of the Treasury.

In addition to its general applications to employees and officers of the Department of Treasury, the Code provides specific guidance for employees, officers, and *special State officers*[45] of the Division of Investment.[46] We understand that "special State officers" includes members of the Council. In addition, the Executive Commission on Ethical Standards issued separate guidelines and interpretations that address the application of the conflicts of interest law to special state officers. Consequently, although the standard for ethical conduct for Council members appears quite generally defined in NJSA 52:18–83,[47] it is supplemented by the Executive Commission on Ethical Standards guideline.

The State of New Jersey also has imposed personal financial disclosure requirements on every public employee and public officer.[48] The Division had previously adopted supplemental ethical guidelines. However, it is our understanding that the 2001 Code superseded the Division's supplemental ethical guidelines. On January 16, 2003, the Division adopted a "Policy for Obtaining Approval to Transact in Securities on the Approved Lists" (the Personal Trading

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[43] Approved by the Executive Commission on Ethical Standards on December 6, 2001. The 2001 Code "superseded all previous codes of ethics of the Department of Treasury, including those of the Division of Investment……"
[44] N.J.S.A. 52:13D-12 et seq.
[45] **"Special State officer or employee"** - *means (1) any person holding an office or employment in the Department for which office or employment no compensation is authorized or provided by law, or no compensation other than a sum in reimbursement of expenses, whether payable per diem or per annum, is authorized or provided by law or (2) any person holding a part-time elective or appointive office or employment in the Department.*
[46] Section V-G (acceptance of gifts) and Section VII – F (Outside Employment)
[47] The relevant provision states, "[n]o member of the Council shall hold any office, position or employment in any political party nor shall any such member benefit directly or indirectly from any transaction made by the Director of the Division of Investment…"
[48] State of New Jersey, Executive Order #10, issued by Governor James E. McGreevey, issued February 28, 2002.

Policy).[49] The Personal Trading Policy is designed to supplement the provisions set forth in the Code and to further clarify the standards of conduct as addressing "obvious *potential* areas of conflict [emphasis added] with the ethical standards of the Division."

The Code Used by the Division and Council Appear Reasonable in Most Respects

We found the 2001 Code reasonably designed to encompass most of the types of conduct that an ethics policy should address.[50] For example, the 2001 Code seeks to prevent "insiders", including Council members, from taking personal advantage (in their own investment portfolios) from their knowledge of "present or future department business." Thus for example, the Code would prohibit an insider who learns that the Division is on the verge of purchasing a large block of an illiquid stock, from "front running" the Division – i.e., from purchasing the stock in anticipation of its rising in price, once the Division enters the market. On the "flip side" of the example, the 2001 Code would bar an insider from selling his/her own personal positions in advance of the Division selling a major position that might move the market (downward).[51]

The Office of Government Integrity ("OGI") has evaluated ethics provisions that apply to both the Council and Division and has recommended a range of more rigorous provisions. See "Review of Potential Conflicts of Interest in the State Investment Council," October 28, 2002 and "Review of Ethical Practices and Procedures at the Division of Investment," August 2003 (the OGI 2003 Review). Set forth below are further (and in some respects, overlapping) observations and recommendations for enhancing the relevant ethics provisions and enforcement.

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[49] The Policy specifies procedures for requesting and obtaining approval to transact in securities on the "approved list", and includes a prescribed form to facilitate the process.
[50] Our conclusions here are subject to the caveat that we are not in a position definitively to opine on New Jersey law.
[51] Code of Ethics, Sec. VI. D, page 17.

A Mandatory Reporting and Compliance Process Should be Instituted

The Code and the Personal Trading Policy currently rely entirely on voluntary compliance by employees concerning personal trading. Neither requires Council members or Division employees to arrange for transmission of duplicate brokerage account statements directly from a covered person's broker to a designated Division compliance officer. Consequently, we believe the process should be enhanced by requiring individuals with personal securities accounts (PSA's) to provide third party notification from their brokers directly to a designated compliance officer within the Division. The OGI 2003 Review recommends a similar set of steps.[52]

The Division's upper management appreciates the need to upgrade the ethics guidelines and procedures governing reporting and compliance and has begun addressing this need.

Recommendation
We recommend the adoption of additional supplemental guidelines that would require Council members and Division employees with a personal securities account ("PSA") to direct each financial institution with whom they maintain such an account to send monthly statements directly to a designated compliance officer within the Division [the Compliance Officer] for accounts in which the Council member or employee has a direct or indirect beneficial ownership interest. All such statements of account should be kept strictly confidential.

It May be Necessary to Expand the Code to Cover other Asset Classes

As we read them, the Code and guidelines appear to primarily address publicly traded equity securities. The OGI 2003 Review confirms this stating that "the Department Code of Ethics does not address private placements." Over the past several years, the Division has

[52] OGI 2003 Review, pp. 1-2, 28-29

considered expanding its current asset allocation to include other asset classes.[53] Insofar as the Division begins investing in additional asset classes (e.g., real estate equity, private equity, hedge funds, etc.), we believe the parties should first lay the appropriate "ethical groundwork" by requiring reporting and disclosure associated with investing in non-publicly traded investments.

Non-publicly traded investments, such as private equity and real estate, involve considerations beyond those involved with publicly traded equity securities. First, the investor in an alternative investment (such as private equity) is, in essence, investing capital (often through a limited partnership) in the underlying company.

By contrast, the investor that buys a publicly traded equity security is not (except in an initial public offering) infusing capital into the company; but rather, indirectly (through a broker) paying the seller of the stock on the secondary market. Second, whereas the investor in a private equity investment is typically purchasing its interest directly from an identifiable party, the buyer of a publicly traded stock on the secondary market is buying from an anonymous seller, through a broker as intermediary. The recipient of the pension fund's money is identifiable in advance and the transfer of that money to the recipient is more direct. To manage the considerations associated with non-publicly traded investments, the Division should add to the safeguards it currently has in place.

Examples of additional safeguards the Division should consider when updating its supplemental ethics guidelines include:

- Investment policies and procedures that require appropriate disclosures from any Council members or Division staff when such persons know or should have known they are financially or personally related to the general partner, underlying

[53] See discussion in annual strategic planning and critical issues memos.

portfolio company management or other recipient of the investment (e.g., a borrower on a mortgage loan).

- Policies and procedures designed to prevent investments that are motivated by undue inappropriate outside factors, e.g., investments unduly affected by concern over supporters of "pay back" New Jersey governmental officials with influence over the Division's investment program.

Arguably, the breadth and generality of the current Code may extend to these types of potential abuse. However, because the Code's terms are somewhat general and were adopted before participation in certain asset classes or used of external management was envisioned, an updated and particularized document would be more favorable.

Recommendation
We recommend the Division adopt a supplemental policy to address non-publicly traded investments.

The Current Ethics Code and Guidelines Do Not Appear To Extend to Service Providers

While parts of the New Jersey statutes[54] and Executive Order 189[55] do apply to the conduct of service providers, the Code does not apply to outside contractors ("service providers"). Further, political contributions are permitted.[56]

In recent years, the potential influence of political contributions has become an issue with public investment organizations. We have not observed attempts by current or prospective investment service providers to impose undue influence over the Treasurer, Council or Division by way of political contributions. Nevertheless, the potential exists for would-be external

[54] E.g., Section 52:34-19 prohibits payment of compensation or gratuity to state employees.
[55] Issued July 20, 1988.
[56] They are excluded from the definition of "gift."

investment firms and investment service providers to make political contributions to governmental officials with direct or indirect influence over the process of selecting such investment firms. To insure safeguards are in place, some statewide funds are including contractual provisions that impose appropriate written disclosures, representations and warranties from the investment firm.[57]

In this regard, the Division should adopt supplemental guidelines to require any service provider the Division utilizes – including investment managers, consultants, brokers, general partners or comparable managers of an investment entity (whether involved with private equity, real estate or otherwise), etc. – to disclose any political contributions made to New Jersey State governmental officials, or to the campaigns of announced candidates for elective public office, with a direct or indirect material degree of influence over the Division's investment program. A heightened standard would require disclosure of solicitations for political contributions. Prospective service providers should be required, during the due diligence process, to disclose any political contributions. A clear, systematic process for reviewing such disclosures should also be installed.

We believe that addressing the issue of the impact of political contributions on the investment program is especially critical, given that the Treasurer, Council and Division may soon consider external asset management in its various forms. Public confidence in the integrity and impartiality of the process will be enhanced if reporting and disclosure safeguards are firmly in place before the search and selection process begins. Conversely, without a clear written requirement and procedure for disclosure of political contributions from prospective investment service providers, the Treasurer, Division and the Council could be subject to otherwise unnecessary public criticism of its investment search and selection practices.

[57] For example, the Washington State Investment Board, which has a significant allocation to private equity and real estate, has imposed this type of safeguard.

Recommendations
We recommend requiring prospective and existing service providers to disclose when they provide financial support within the relevant past to governmental officials or campaigns of announced candidates for elective public office with a direct or indirect material influence over the Division's investment programs.
We recommend the use of a contractual warranty that requires immediate notification to the Division's designated compliance officer, in writing if and when the service provider makes any such contribution.
We recommend the Division install a systematic process for reviewing service provider disclosures.

Whether Laws Constrain Investment Program

The scope of work, set forth in our contract with the Office of the Treasurer, calls for an evaluation of whether the statutes and administrative rules in relationship to any of the subject of this review constrain the Council and/or staff from meeting their responsibility.

The Council and the Division have historically operated pursuant to legal interpretations of several statutory provisions governing their investment authority which, in our opinion, have constrained their ability to operate consistent with "best practices." The parties historically had understood that prior to 1997 they did not have authority to delegate investment discretion. Such understanding has apparently served as the basis for the Approved List and for not delegating authority to external investment managers. In our view, both practices unnecessarily constrain the investment program.

Unlike private retirement systems that are governed principally by the federal Employee Retirement Income Security Act (ERISA), the investment and operation of statewide public pension funds are governed by their respective state laws. Many of these state laws have not kept pace with and do not reflect modern investment practices. As a result, although the supervising fiduciaries are required to prudently invest the assets of a pension fund, they may be unable to (a) optimize returns at an appropriate level of risk and (b) effectively and efficiently operate their investment organizations because of outdated statutory requirements.

In recognition of the changing environment faced by public retirement systems, the National Conference of Commissioners on Uniform Laws (NCCUL) has developed two uniform laws.[58] The Uniform Prudent Investor Act (UPIA) was approved and recommended to all states August 5, 1994, and the Uniform Management of Public Employees Retirement Systems Act (UMPERSA) was approved and recommended to all states August 1, 1997. (UPIA and UMPERSA are collectively referred to as the "Acts.") These two uniform laws effectively incorporate the major principles of portfolio management developed over the past 50 years of financial research. The concepts set forth in these uniform laws are often used as models by pension funds and investment boards to modernize their governance and investment standards.

A number of model practices related to governance are identified in UMPERSA and UPIA.[59] These standards are viewed as "best practices" in the administration of a public pension entity. They include (but are not limited to):

- use of whole portfolio theory;
- no categorical restrictions on investments;
- consideration of asset diversification and risk/return correlation when making investment decisions; and

[58] "Uniform" designation indicates that there is a substantial reason to anticipate enactment in a large number of jurisdictions and standardization is the principal purpose. By contrast, a "model" designation means uniformity is not the principal objective and a significant number of jurisdictions are not expected to adopt the Act in its entirety since its purpose can be achieved by adoption of its principles.
[59] See, National Association of State Retirement Administrators, *Outline of Governance Practices.*" www.nasra.org

- authority to:
  - o delegate functions when executing fiduciary duties; and
  - o make budget, personnel and procurement decisions (including salary levels for personnel and obtaining professional services and resources) solely in the interest of pension fund participants and beneficiaries, not in response to a more wide-ranging set of interests.

We found that New Jersey has adopted many of the UPIA principles but not the UMPERSA standards of "best practices". "Best practices" commonly are an ideal – the model that parties should take into consideration. Nevertheless, fully achieving and implementing best practices are often not practical or feasible. In the remainder of this section, we review relevant provisions governing New Jersey's investment operations in relationship to "best practices."

The New Jersey Prudent Investor Act Incorporates Many of the Principles of the Uniform Prudent Investor Act (UPIA)

The New Jersey Laws of 1997, Chapter 26, approved March 7, 1997 (*The New Jersey Prudent Investor Act*) incorporated many of the provision of the UPIA. Legislative adoption of UPIA principles modernized New Jersey's fiduciary law and as we understand it, removes most of the perceived restrictions previously affecting the Division's investment authority.

The New Jersey Prudent Investor Act:

- adopts "modern [whole] portfolio theory;"
- repealed the prudent man rule and established a 'prudent investor' standard for fiduciaries, although it appears to maintain the prudent person standard for the Director of the Division; and

- provides that "a fiduciary may delegate investment and management functions that a prudent fiduciary of comparable skills could properly delegate under the circumstances," subject to certain enumerated standards of prudence.

We found no specific, explicit provision addressing on the applicability of the New Jersey Prudent Investor Act of 1997 to the investment authority of the Division. Accordingly, assuming the Act applies to the Division, and subject to Council policy, and the duty to act solely in the interests of the beneficiaries of the portfolio, it appears that, as a fiduciary, the Director of the Division, for example, may be authorized to delegate investment management functions. This would include delegation of investment functions to staff (arguably eliminating the concerns that we understood led to adoption of the "Approved List)" as well as qualified agents (e.g., external money managers). However, we caution that IFS will not, nor was it retained to, render legal interpretations regarding the State of New Jersey statutes. Our conclusions are based on a plausible reading of the relevant language and the practices of virtually all other public pension funds.

Recommendation
To the extent the Treasurer, Division or Council believe there is a need for confirmation regarding authority to delegate investment discretion, we recommend they request a suitable legal opinion regarding that authority.

The "Approved List" is a material, administrative burden on the Division. Prior to 1997, when delegation by a fiduciary was not expressly authorized, the conservative view was taken that the Division could make investment decisions solely based on the policies – including specifically authorized individual securities – prescribed by the Council. However, it is neither feasible nor prudent for the Council to make decisions about individual securities eligible for investment by an enormous fund like the Division.

Realistically, an investment organization (like the Division) that internally manages all its assets must use investment staff and give that staff considerable investment discretion, within the framework of policies and procedures adopted by the Council. This is implicit in the fact that the Council is a part-time, uncompensated body. Arguably, an Approved List exposes the Council, and ultimately the Treasurer, to needless liability for supposedly approving individual investments as to which they cannot possibly have actual detailed knowledge.

The staff should be the trained and qualified instrument through which the Council exercises its investment authority by adopting policies and exercising oversight. The Council should be able to give specific or general authority to the staff without concern over improper "delegation," thus eliminating the need for the Approved List. Seemingly, they now have that ability in light of the 1997 Prudent Investor Act, assuming the Act applies to the Division.

Another problem the Approved List creates is in benchmarking investment performance. To the extent the Approved List differs from the market index, the market index becomes a less applicable benchmark.

Recommendation
Subject to confirmation by the Attorney General that current law renders the Approved List obsolete, we recommend discontinuing it.

Delegation is Consistent with Best Practices

UPIA and UMPERSA advocate the power of a fiduciary to delegate investment and management functions. Virtually all public pension funds (statewide and local) are permitted to delegate at least some investment discretion to external investment firms. New Jersey's current practice is unique in this regard. However, it is difficult to obtain the necessary resources and hire and retain qualified investment staff expert in all the forms of investment required to prudently diversify a multi-billion dollar portfolio. The absence of any delegation both unduly burdens the Division and precludes selective use of external management when warranted.

If delegation to external managers is determined to be lawful in light of the statutory changes resulting from Prudent Investor Act, the parties as a matter of investment policy must decide whether and to what extent to exercise that authority. The Division need not delegate its entire investment program to external firms to benefit from external management. Among very large public funds, internal asset management is common for a significant portion of the funds. So, for a substantial portion of its investments, we believe the internal management can be a sound approach. However, certain investment strategies with substantial prospects of materially outperforming (or under-performing) the relevant targeted return benchmark are often better managed externally given the level of resources, knowledge and corresponding expense required to invest prudently. (See discussion and accompanying data in Section IV.)

Enhancing the Current Budgetary Process and Access to Legal Counsel Would Assist the Division's Operations

As discussed earlier, good governance adds value. The Division's ability to effectively and efficiently internally manage assets is affected by its governance. For that reason, we believe that enhancements to its governance will in turn put the Division in a better position to more effectively and efficiently internally manage the assets under its authority. To the extent enhancements are not fully and promptly adopted, the need for external management increases and the Division's ability to diversify into new asset classes and investment strategies is impaired.

We found New Jersey's investment operations would benefit from more closely approaching governance "best practices" in the following areas:

- personnel;
- compensation;
- budget; and
- legal counsel.

Personnel and compensation are discussed in Section II of this Report. We discuss budget and legal counsel below.

Budget: The Division's budget is developed by the Treasurer and paid out of trust fund assets. However, the budget is subject to the normal legislative appropriations process. Consequently, it is subject to a more wide-ranging set of interests, beyond those of the pension fund participants and beneficiaries. Consistent with best practices, public pension investment organizations should enjoy a more flexible, protected budgetary process, subject however, to careful legislative scrutiny after the fact (e.g., reporting, disclosure and oversight). To be consistent with best practices, the Division requires a sufficient and reliable annual budget to develop and maintain essential staff, hardware, research tools and other resources. Without sufficient budget and resources, the Division will not be in a position to effectively manage its portfolio. To the extent it is not able to obtain adequate personnel and resources, it should delegate more investment management authority to external firms.

Legal Counsel: The Division, Treasurer and Council all rely upon attorneys assigned by the Division of Law to provide them legal services. Although this may be satisfactory in most situations, it raises two potential concerns. First, the interests of these three "constituents" may differ, e.g., where the Treasurer and Council do not entirely agree on an issue or proposed course of action. Second, insofar as the Division begins investing in new asset classes or investment strategies, such as private equity, various types of hedge funds or real estate, it will need specialized legal counsel with sufficient time and resources. In order to address both of these types of concerns, public pension organizations often adopt (and we suggest that the parties here seek to develop) a consensual arrangement, defining when use of outside legal counsel is appropriate.

Recommendation
We recommend that parties seek to assure that the Division has a sufficient and reliable budget.
We recommend that the parties seek to assure that the Division has sufficient, specialized legal services to facilitate both the existing, internal asset management program and whatever private market assets the Division may employ in the future.

Other Legal Limitations that Constrain the Division

Requiring the Council to Adopt Investment Guidelines Pursuant to the Administrative Procedures Act Is Unduly Burdensome

The Council's investment guidelines are promulgated as "regulations" under the Administrative Procedures Act (the "APA"). This means the Council must propose the guidelines, publish them, subject them to public comment, and adhere to extended time frames before they are adopted. This is unduly protracted and cumbersome. We are not aware of any other statewide public pension fund with comparable obligations when developing or adjusting investment guidelines. (See discussion of Guidelines in Section III.) Either through an opinion from the Attorney General or through legislation, if necessary, we suggest the parties seek authority to adopt investment guidelines without the burden of the APA.

Recommendation
We recommend that the parties seek authority to adopt reasonable investment guidelines without complying with the APA.

II. Ability to Attract and Retain Employees

Analyze whether compensation levels are sufficient to facilitate the Division's ability to attract and retain qualified pension fund professionals and in turn, diminish its exposure to risk.

The Primary Tools Employers Use to Attract and Retain Qualified Employees and Stem Turnover Are A Positive Work Environment and Competitive Compensation

The question of adequate and appropriate staff compensation at a public pension fund is common. Public pension funds operate in a public environment – a fish bowl – where compensation levels are widely known and carefully scrutinized by people who usually do not fully understand all the cost/benefit implications and industry competition. Private sector professionals are much better compensated than public sector professionals relative to the value they create. Yet, government investment organizations, particularly those that utilize internal asset management, need management and investment expertise analogous to the private sector, and operate on the same potential multiples of cost and benefit. The problem is simple to understand but often difficult to solve.

Historically, public pension funds have sought to address this problem through intangible benefits, such as employment stability, an attractive work environment, educational opportunities, and the challenge of managing very large pools of assets. However, non-competitive compensation has become a serious problem that public pension funds have been forced to address. The costs of employing less qualified professionals (i.e., foregoing investment returns that could reduce public expenditures) far outweigh the incremental cost of providing competitive salaries. Over the past several years, salaries in the public pension sector, although still not comparable with the private sector, have started to significantly improve. However, public funds still have significant political difficulty supporting salaries that are competitive with the private sector.

The Use of 100% Active, Internal Asset Management Heightens the Division's Need to Maintain a Staff of Highly Qualified Investment Professionals

To the best of our knowledge, the Division is unique among statewide investment entities, in its use of 100% active, internal investment management. This characteristic, in our opinion, makes the Division's personnel needs more similar to those of large asset management firms than other statewide investment entities, which tend to rely more on significant levels of external and/or passive management (see Charts I-1 and I-2 and Exhibit 4). The Division has long noted that its total costs of internal management are a fraction of the costs that would be incurred to engage external managers. Then again, the State and the beneficiaries and participants of the Pension Funds are well served by this investment management approach only so long as the Division has the ability to retain (and attract) a qualified staff and necessary resources to effectively and efficiently manage the investment program.

Asset management, particularly active management, requires fundamental research and quantitative analysis in order to build portfolios that provide a rate of return (after costs) in excess of an appropriate benchmark. Effective internal asset management can produce desirable economies of scale. However, this is true only insofar as the organization using internal management can attract and retain highly qualified professionals with very specialized skills to invest the assets. People with these skills are highly employable and therefore difficult to attract and retain. Yet, it is this type of professional that the Division requires given its management style.

To obtain competent investment staff, the Division must compete not only with public pension funds and statewide investment entities, but also with private institutional investors, such as investment management firms, private pension funds, banks, and insurance companies. The Division's proximity to a major financial center underscores this.

If a statewide investment entity, such as the Division, does not provide competitive compensation, it runs the risk of serving as a training ground for the private sector. This is a costly situation in that the Division could have an investment staff composed largely of employees in training – with lower skills and productivity – and then lose them as they achieve greater productivity and skill. An inability to fill positions exposes the Division to investment management risks that should be avoided.

Significant Turnover Would Subject the Division to "Governance Risk"

As discussed in Section I, governance risk refers to the risk that staff (or the board or agents of a public pension fund) will, either intentionally or unintentionally, through their management actions or lack thereof, cause the assets of the pension fund to underperform expectations. New staff must be trained to become well-versed in the processes, policies and procedures used by the Division. During this learning period, a new employee's (even a highly qualified one) lack of knowledge would place the Division at risk. Further, it distracts the employees who must provide the training from their normal functions, which would subject the Division's operations to further risk.

Relationship Between Turnover and Compensation

Although other factors contribute to turnover,[60] non-competitive compensation is typically viewed as the key reason. We examined the Division's turnover rate over the last three years. Turnover for the period was calculated by dividing the number of separations from service by the average number of employees on the payroll for the measurement period.

[60] Examples include, high stress, lack of job challenge (e.g., monotony), dealing with government bureaucracy, insufficient resources, and poor supervision.

We note that this method does not take into account the time-weighted impact on the Division's professional experience base.[61]

Chart II -1 below reflects that turnover at the Division was relatively low for fiscal year 2000 and 2001, but comparatively high for 2002. Despite fiscal year 2002 turnover, which was primarily attributable to retirements, based on the last three years collectively and in light of information obtained during the interview process regarding historical minimal turnover, we conclude that the Division has been able to retain qualified, dedicated investment professionals. The concern is whether the percent of turnover in 2002, as well as the time we have been told it takes to fill positions, is the beginning of a trend.

Chart II – 1: Division Turnover Compared to Most Comparable Members of Peer Group			
Division Turnover	**Fiscal Year 2002**	**Fiscal Year 2001**	**Fiscal Year 2000**
Total Staff	62	70	68
Staff Departures	10[62]	3[63]	4[64]
Percentage of Turnover	**16%**	**4%**	**6%**
Percentage of Turnover for Most Comparable Members of Peer Group[65]			
Fund 1	6.63%	12.32%	9.43%
Fund 2	6.75%	0.0%	0.0%
Fund 3	3.0%	8.0%	25%
Fund 4	7.7%	0.0%	0.0%
Average	***6.02%***	***5.08%***	***8.61%***
Median	**6.69%**	**4.00%**	**4.72%**

[61] A more advanced method would take into account whether retirements over the last three years were senior investment professionals.
[62] 7 retirements, 2 transfers, and 1 release.
[63] 2 retirements, 1 resignation (stated reason - 2 times salary increase)
[64] 3 retirements, 1 resignation (stated reason – 3 times salary increase)
[65] To comply with the request of some funds, the identity of the funds has not been disclosed.

Compensation Comparisons

Compared to its Peers, and Given its Use of Entirely Active, Internal Asset Management, the Division's Compensation Levels Are Not Competitive for Many Positions

Determining the competitiveness of compensation at a given public pension fund requires reference to empirical data, along with considered judgment. Some of the data cited below suggest that New Jersey's compensation for some positions in the Division[66] is reasonably competitive. However, the weight of the data suggests that New Jersey does not pay competitive compensation for many of the Division's positions, especially in light of its reliance entirely on internal, active asset management.

The Division has a median compensation salary range of $94,292 for its investment professional positions. (See Exhibit 7A.[67]) The median for <u>all</u> employees within the Division is $57,648.[68]

We used the 2002 Greenwich Associates information regarding public fund compensation[69] as a starting point. A review of the 2002 Greenwich survey reveals that investment-related positions at the Division are non-competitive. The 2002 Greenwich Associates Survey reported that total compensation ("total compensation" is defined as mean salary and mean bonus) for employees at large public pension funds (defined as having assets greater than $5 billion) is about $134,900 per year[70] – significantly above the Division's mean reported actual compensation salary for its employees of $64,401.[71]

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[66] The compensation of the key Division positions is presented in Exhibit 7A.
[67] Based on the 13 positions identified in Exhibit 7A, using actual base compensation were there was only one incumbent in the position and median compensation were there was more than one incumbent in the job function.
[68] Based on actual compensation reported for all Division employees.
[69] The survey includes the results from 175 public funds around the country
[70] Based on a Greenwich Associates Survey compensation respondent base of 42.
[71] Based on reported current compensation of Division employees provided to IFS in late 2002.

The total compensation reported in the 2002 Greenwich Associates Survey for the Chief Investment Officer job function is $174,300,[72] higher than the current base salary of the Division job function, but lower than the statutory mandated maximum salary of the Director of the Division ($200,000). About 25% of the large statewide public funds responding to the survey are eligible for bonuses (slightly up form 23% in 2001). Bonus eligibility is much more widespread in the private sector, with 59% of the corporate funds awarded bonuses in 2002, up slightly from 2001.

On the other hand, another survey of large statewide public retirement systems, issued in 2002,[73] reported an average CIO salary of $135,549, with a low of $57,000 and a high of $350,000. Eleven of the funds reported bonus eligibility for the CIO position ranging from 5% to 100%. This average is more consistent with the salary of the Division Director. However, unlike the Division, none of the surveyed retirement systems use entirely active, internal asset management.

Chart II-3 (below) provides further compensation information on a mix of private and public sector investment entities.

Private Sector: All Division staff compensation levels are significantly below total private sector compensation. With the exception of the Division's Investment Analysts and the Traders, all positions lag the 50th percentile, some more significantly than others. The Division's proximity to the financial center of New York City heightens the competitive lure of the private sector.

[72] Based on a Greenwich Associates Survey compensation respondent base of 76 corporate, public, and endowment funds. For corporate funds the total compensation average is $206,700. For public funds it is $127,500.
[73] 2002 Statewide Retirement System Key Position Pay Survey, issued September, 2002, issued by the Missouri State Employees' Retirement System.

Texas TRS Survey: New Jersey's Division Director and Senior Investment Officers lag the median compensation reflected in the customized public fund survey conducted by Watson Wyatt for the Texas Teachers Retirement System.[74] However, the Division's Investment Analysts, Traders, and Senior PM (but only very slightly) are above the median, while the Traders are in line with the median.

Since the Division uses 100% active, internal management, the Division's investment positions generally have greater duties and responsibilities than the typical positions in an externally managed public sector funds (four of the 18 survey participants in the Texas Survey use exclusively external management). Due to the higher level of responsibility placed on them, the Division positions should be compensated at a correspondingly higher level than public sector funds positions that utilize primarily external management.

Peer Group: A further reference point is the peer group data our firm collected, as reflected in Chart II-3, below. Of the five funds included in the peer group, with the exception of Fund 1, the Division's compensation levels are generally above or comparable. However, relative to Fund 1 – whose investment program is quite comparable to the Division's – compensation for only the Division's Analysts and Traders is within a reasonable range; compensation for all other Division positions significantly lags.

[74] The survey consisted of 18 public pension funds; California Public Employees Retirement System, Florida Board of Administration, Minnesota State Board of Investment, New York State Teachers Retirement System, Pennsylvania Public School Employees Retirement System, Public Employees Retirement System of Ohio, State of Wisconsin Investment Board, Teachers' Retirement System of Louisiana, Virginia Retirement System, California State Teachers Retirement System, Michigan State Retirement System, New York State Common Retirement System, Oregon State Treasury, Pennsylvania State Employees Retirement System, South Dakota Investment Council, State Teachers Retirement System of Ohio, New York City Teachers Retirement System, and the Washington State Investment Board. The median total assets of the 18 funds was $45.9 billion and the average, $56.3 billion. Seven of the 18 are identified as Division peers in Chart I-2. Nine of the 18 are included in Chart I-1.

Recommendation[75]

We recommend that, if feasible, the Treasurer and Council seek creation of a separate pay schedule for Division staff in order to provide more competitive compensation to its investment professionals. The salary levels at Fund 1 could be used as points of reference to generate the new schedule.

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[75] We recognize that this may require a legislative amendment.

Chart II - 3: Compensation Survey Data

Position Title	Private Sector Compensation[77]		Public Fund Survey[78]	Select Peer Group Members' Compensation[76]				
	50th % tile	Total Cash Compensation	Median Compensation	Fund 1	Fund 2	Fund 3[79]	Fund 4	Fund 5
Chief Investment Officer (*Division Director*)	$428,469	$1,111,876	$152,721	$352,222	$107,899	$195,360	$129,171	$130,100
Senior Investment Officer – Equity	$321,351	$1,280,050	$131,155	$202,732	$100,762	$164,983	$111,357	$136,725
Senior Investment Officer – Fixed Income	$321,351	$1,071,172	$131,011	$174,063	$100,762	$150,775	$111,357	$141,786
Senior Portfolio Manager – Equity	$267,793	$823,517	$89,420	$99,425 to $194,930	$69,889	N/A	$76,915	$50,171 to $69,625
Senior Portfolio Manager – Fixed Income	$202,452	$384,551	$96,569	$99,425 to $154,101	$ 69,889	N/A	$76,915	$52,219 to $78,840
Portfolio Manager – Public Equity	$144,608	$253,867	N/A	$78,722 to $122,008		N/A		
Portfolio Manager – Fixed Income	$63,199	$70,697	N/A	$61,569 to $95,432		N/A		
Chief Trader	$137,110	$281,484	$89,316	$99,425 to $154,101	$79,401	n/e	$63,105	$104,438
Trader	$69,626	$85,158	$68,235	$54,259 to $107,866	$52,251	$90,898		$44,028
Investment Analyst - Senior	$144,608	$242,513	$69,637	$61,569 to $122,008	$59,086			
Investment Analyst	$58,862	$70,162	$45,854	$42,291 to $78,943	$38,760			
Investment Compliance			$59,267	$50,929 to $78,943				
Investment Accounting - Supervisor			N/A	N/A	$61,571	$65,919	$66,594	$87,880
Investment Accounting - Accountant			N/A	N/A	$69,888	$47,707	$33,789	$40,956
Internal Auditor			N/A	$44,000 to $119,000		$50,858	$67,209	

[76] The data regarding Funds 1 through 5 was collected by IFS from statewide funds that use significant internal active management.
[77] **Source**: McLagan Investment Management Survey. Data from survey has been aged by an inflation factor.
[78] **Source**: Watson Wyatt Survey customized survey, prepared for the Texas Retirement System, of 18 public pension funds (see description in earlier footnote). The Division did not participate. The funds included had varying degrees of internal and external management. Only one used almost exclusive internal management and four used 100% external management. The survey data has been aged by an inflation factor.
[79] This investment entity classifies all of its portfolio managers as investment officers. Data has been aged by an inflation factor.

Concern was Expressed During the Interview Process Regarding the Division's Ability to Attract Qualified Investment Professionals

The Treasurer and the Council recognize that their staffing levels lag the average and that they must offer competitive compensation in order to attract and retain qualified, high caliber, skilled professionals. However, their ability to offer competitive compensation is constrained by current budgetary and personnel limitations. In order to enhance compensation, rather than establishing a separate classification pay schedule for the Division, an incentive compensation program has been implemented. However, currently only two employees of the Division are eligible for the program – the Director and the Deputy Director. Further, as we understand it, the salary levels for these individuals is capped, for the Director at $200,000 and for the Deputy Director at 95% of the Director's salary.[80]

Extending Incentive Compensation to Other Employees Would Enhance the Division's Ability to Attract and Retain Investment Professionals

Expanding the incentive compensation plan beyond just the Director and Deputy Director may be financially attractive from the perspective of public policy. The improvements to net investment returns that qualified, motivated personnel can deliver may far exceed the incremental cost (paid only to the extent of sufficiently favorable investment results).

We understand that the Treasurer and Council had expressed a desire to extend the incentive compensation plan. But, the majority of the employees of the Division are classified as career service and subject to the State's civil service laws and Office of Personnel requirements. We were informed that incentive compensation could be offered to classified employees, consistent with existing New Jersey law, if pursuant to collective bargaining agreements. That is to say, it is our understanding that the Division's ability to offer competitive compensation to virtually all of the Division's staff (with the exception of the Director and the Deputy Director) is

[80] N.J.S.A. 52:18A-84

a subject of collective bargaining. The right of public employees to organize and acceptance of the principles and procedures of collective negotiation are recognized in many states. To the best of our knowledge, about 29 states have specific provisions authorizing collective bargaining for state employees.[81] The subjects of bargaining vary, however, i.e., some states exclude wages and benefits, other are limited to hours and conditions of employment, etc. Conversely, about 21 states do not authorize collective bargaining for state employees.

The State of New Jersey has long recognized the benefits of collective bargaining. Based on our knowledge, New Jersey is one of only a few states where investment professionals are subject to collective bargaining or civil service requirements. By contrast, the investment professionals of many, if not the majority, of statewide investment entities are excluded from civil service and collective bargaining.

To enhance the Division's ability to offer competitive compensation, the Division and the union representing its personnel could seek to negotiate an incentive compensation agreement applicable to an agreed upon group (either certain designated positions or to all Division personnel). The agreement would be based upon the unique mission of the Division and the special issues arising from its work. As a alternative, the parties may wish to explore with the union representing the Division's personnel the appropriateness of exempting compensation from collective bargaining. The latter approach would require the parties to balance the benefits of having compensation as a subject of collective bargaining against the Division's critical need to offer competitive compensation in order to attract and retain qualified, experienced investment professionals. We acknowledge that the latter approach could be controversial and may well require a legislative amendment. However, given the Division's active, internal approach to investment management, the pros and cons of the issue should be discussed.

[81] New Jersey, Alaska, Connecticut, Hawaii, Massachusetts, Nebraska, Ohio, Vermont, California, Illinois, Michigan, New Hampshire, Oregon, Washington, Iowa, Minnesota, Pennsylvania, Wisconsin, Delaware, Kansas, Missouri, New Mexico, Rhode Island, Florida, Maine, Montana, New York, South Dakota, Indiana.

Recommendation
We recommend that the incentive compensation program be expanded to cover other Division personnel.

Use of Incentive Compensation

The incentive compensation program was instituted in 1999. The first awards were paid in January 2001. Currently the Division's incentive compensation is administered by the Incentive Compensation Committee of the Council. Awards are approved by the Treasurer. The Council has adopted a detailed written plan that identifies the criteria that must be achieved to receive an award. Awards are based on level of achievement relative to certain predetermined goals. The current criteria governing the incentive program are threefold: (1) a quantitative comparison of the Division's rate of return compared to the Division peers (defined as public funds with assets over $20 billion); (2) a quantitative comparison compared to its own internal benchmarks (total fund return minus policy target return); and (3) qualitative criteria linked to accomplishment of strategic goals and objectives. A target pool was established based on 15% of the total base salaries of the participants in the plan (currently the Director and Deputy Director). The maximum percentage of salary that can be realized is 30%.

Use of Incentive Compensation by Statewide Investment Entities Is Still Limited

There are few absolute statements that can be made concerning incentive compensation plans at public employee retirement systems, nationwide. However, a few observations may be made:

- A number of statewide pension funds with substantial internal asset management now offer incentive compensation and offer it to numerous members of the investment staff (e.g., State of Wisconsin Investment Board, Oregon Investment Division, and Ohio PERS).

- Incentive compensation plans at state-wide investment entities tend to have a qualitative component in addition to a quantitative component. Where a qualitative component was lacking in the original plan design, it was generally later added as a key plan feature.

- Quantitative performance tends to be based on rolling multi-year periods, although there are many notable exceptions that base rewards on only the current fiscal year performance relative to a pre-determined benchmark.

- Not only do the absolute sizes of the awards paid out under the plans increase with greater employee investment authority, but the percentage of pay awarded under the plans is significantly higher at these greater levels of responsibility.

Key Elements an Incentive Plan Should Include

To reflect best practices, an incentive plan should contain at least the following elements listed below. The Division's current plan already contains many of these elements.

- **Plan Objective** – Identify the purpose of the plan (e.g., staff attraction and retention).

- **Eligibility** – The plan should specify the eligible group of employees who may participate in the plan. Eligibility does not necessarily mean employees will participate in every distribution paid. Rather, in order to participate, the employee must meet other criteria.

- **Participation** – The plan should specify the participation criteria. Participation criteria may include, for example:

- continued employment in a covered position; and

- achievement of minimum job standards.

- **Plan Components**

  - **Initial quantitative component** – Non-discretionary award for beating a predetermined investment benchmark, based strictly on quantitative criteria.

  - **Quantitative component** – If performance exceeds the predetermined benchmark, a further discretionary award may be granted for superior investment performance based upon such further quantitative measures as: the degree the performance exceeds the benchmark, considering the risk associated with the performance; the difficulty of achieving performance relative to a peer group; and the economic value the performance added to the fund.

  - **Qualitative component** – Discretionary, based upon predetermined goals and objectives, consistent with the employee's position description (discussed above).

Pitfalls to Avoid

- **An overly complex plan:** The plan should be simple and easy to understand and administer.

- **Uncertainty regarding the application of the program:** Some programs grant senior management the authority to annually identify the positions which will be eligible for the program for the year. In our opinion, the uncertainty associated with this practice is counterproductive to the purpose of such programs. Although the Division's current plan provides that it will be reviewed annually and may be amended, suspended, or terminated, it indicated that any plan already underway will be completed.

- **Program components that promote undue risk taking:** For example, using a single year as a measuring period may permit an investment professional who caused significant underperformance by taking undue investment risk in a given year to qualify for incentive compensation in a later year. On the other hand, including the first year underperformance in a multi-year period would discourage excessive risk-taking.

- **Using performance driven benchmarks that are difficult to determine or misleading**: Currently, one part of the Division's three-prong performance criteria is a peer group comparison based solely on asset size. This results in an "apples to oranges" comparison. For example, although the majority of the investment entities in the staffing level peer group comparison (*See, Section I*) had assets in excess of $20 billion, many have very different asset allocations and management styles. Consequently, such comparisons are misleading. The second part of the Division's performance criteria is a policy target return comparison. However, the Council has not formally established strategic targets for each asset classes (it set a maximum for equities, but not a target, minimum or range). Thus, the policy target return used in the incentive plan does not correspond (as it should) to formal, policy targets for the portfolio. (See discussion in Section V, regarding asset allocation.)

- **Failure to independently verify performance**: This pitfall allows the possibility of manipulation by staff or at a minimum, and leaves the staff open for criticism on this point. An individual independent of the process should verify performance based on rates of return obtained directly from the custodian. The Division's plan does not speak to the process for verification of performance.

- **Failure to apply the plan department-wide**: Like the Division, several pension funds offer incentive compensation only to the highest level of senior management (Executive Director, CIO, Senior Investment Officers, etc.). The valuable contributions of support staff should be evaluated and rewarded when appropriate. Often, but for them, upper management would not have the backing necessary to generate superior performance.

Recommendation
We recommend that the Treasurer and Council revise and upgrade the incentive plan criteria.

The Division Should Have the Tools to Encourage Superior Performance

In our opinion, upper management at the Division lacks effective tools for managing key investment personnel in order to avoid undue risks and to seek attractive, risk-adjusted returns.

Some PMs and Analysts in the Division have historically sought and maintained more latitude in running their respective portfolios than upper management has desired. As management seeks to install and enforce greater systematic risk control (e.g., uniform criteria for purchases and sales, adherence to sector weightings, etc.) some PMs and Analysts may still resist such controls. In our opinion, upper management lacks the tools to properly motivate PMs and Analysts and insure that their interests are aligned with the mission and objectives of the Division. All employees are classified and thus protected under civil service rules, and so far (beyond the Director and Deputy Director) none has been offered incentive compensation. Thus, upper management has only limited ability to reward outstanding job performance (e.g., through awards of incentive compensation, because of civil service protections) or reinforce required employee competencies and behavior. Consequently, we believe the Treasurer should seek latitude to suspend these rules in appropriate cases, so the Director and Deputy can more effectively enforce investment disciplines.

Unlike the Division, numerous BOIs across the country have independent personnel authority, meaning their respective boards are not subject to statewide civil service rules on compensation and supervision. See Exhibit 10, entitled "Governance of Boards of Investment." A parallel observation is supported by the recent MOSERS survey[82] which found that Boards with independent authority to establish their own budgets had much higher staff compensation levels than Boards that did not.

Recommendation
We recommend that the Treasurer and Division seek authority to use managerial tools designed to motivate key personnel and align their interests with those of the investment program.

Compensation is Not the Sole Attraction and Retention Factor

Just as noncompetitive compensation is not the sole reason for turnover, competitive compensation is not the sole reason employees come to an organization or stay there. The Division should make efforts to address these other factors, including insuring that its investment professionals have a favorable work environment, that they are motivated, sheltered from bureaucratic distractions, and that they have the necessary resources to accomplish their duties.

[82] 2002 Statewide Retirement System Key Position Pay Survey, issued September, 2002, by the Missouri State Employees' Retirement System.

III. Controls

The scope of work, set forth in our contract with the Office of the Treasurer, calls for an assessment of the Division's controls related to investment monitoring, including adequacy of authority and resources, sufficiency of information, performance reporting, compliance, use of its consultant, etc.

General Conclusions Regarding Controls

The Division would benefit from:

- a more systematic investment monitoring process;
- enhancements to the regulations governing the investment program;
- increased separation of functions;
- documented operational policies and processes;
- an internal audit function and a "middle office"; and
- additional resources.

The Treasurer, Division management, and the Council recognize the need for adjustments in these areas and have already started to address many of them.

Discussion Regarding Reasonableness of Controls

Adequacy of Authority and Resources to Monitor Investments

Additional Resources are Needed to Appropriately Monitor Investments

We believe that the combined statutory authority of the Treasurer, Division, and Council sufficiently empowers them to effectively monitor investments. (However, as mentioned above, the relative roles of these three parties should be better communicated and matters of personnel and procurement should be upgraded). The deficiencies in monitoring the investment program arise essentially from inadequate resources, not inadequate authority to obtain or apply such resources.

Common Practices for Managing an Investment Program

Public pension funds commonly collect, monitor and analyze extensive information regarding the nature, operation and risks associated with their investment programs. This includes information regarding activity (e.g., purchase and sales transactions over various time periods) and the asset structure at various specific points in time. This also includes information at various levels:

- the portfolio taken as a whole;
- each asset class; and
- each individual account.

Regarding the portfolio as a whole, this includes, for example:

- the consolidated market value;

- the market value of – and percentage of the whole portfolio invested in – each asset class (e.g., publicly-traded equity securities, publicly-traded fixed income securities and cash); and

- those asset class percentages (the overall asset allocation) relative to the long term or "strategic" policy weightings, according to the investment policy statement.

Regarding the equity allocation as a whole, the information monitored and analytics undertaken typically include, at a minimum:

- the weighted average capitalization;

- sector and industry weightings;

- the dividend yield;

- price to book ratio;

- price to earnings ratio;

- beta;

- earnings growth over relevant time periods;

- number of individual securities and their respective weightings (or "position size");

- all of the foregoing statistics compared to relevant market indices;

- the overall style of the portfolio, based on various measures of "growth" vs. "value" vs. "core" styles and the overall market indices;

- portfolio transactions, including purchases, sales and associated "turnover" ratios;

- commissions and transactions costs, both in total and by broker-dealer; and

- the extent to which all the foregoing features comply with relevant aspects of the investment policy statement governing the asset class of equity securities.

Regarding fixed income allocation as a whole, the information monitored typically includes, at a minimum:

- total number of securities;

- yield to maturity;

- time to maturity;

- current coupon;

- duration;

- effective duration;

- convexity;
- effective convexity;
- sector weightings;
- credit quality;
- all of the foregoing relative to applicable broad market indices;
- purchases and sales and broker-dealers utilized; and
- the extent to which all of the foregoing features comply with relevant aspects of the investment policy statement governing the fixed income allocation.

Regarding individual accounts or portfolios (e.g., large capitalization domestic equities or high yield bonds), public funds typically monitor and analyze the same essential data as at the level of the respective asset classes.

At the level of asset classes as well as individual accounts, the typical public pension fund also undertakes various forms of performance measurement and evaluation, including at a minimum:

- performance measurement (e.g., rates of return vs. various benchmarks);
- predictive ("ex ante") measure of expected tracking error (relative to market benchmark return);

- performance attribution (e.g., the primary factors that explain or generated the investment results, e.g., favorable decision to "overweight" the automotive sector or unfavorable decision to underweight large cap growth stocks, etc.); and

- analysis of transactions costs.

Analysis of Portfolio Characteristics, Risk Management, and Compliance Monitoring Should be More Systematic

Compared to public pension fund norms as well as best practices, the Council and Division had historically not adopted formal positions regarding many essential financial and risk characteristics related to the management of its portfolios, i.e., formally established objective reference points, such as broad market indices. For example, the Council and Division traditionally had not adopted guidelines specifying the permissible or desirable sector weightings or weightings for individual stocks in its equity accounts, relative to the S&P 500, Russell 3000 or other applicable equity market indices.

During our on site work in December 2002, we did not find a formal, systematic process for monitoring or analyzing many of the essential investment characteristics and risks. At that time, the Council and Division had adopted only a limited range of formal, written investment policies and risk measures against which staff could compare the portfolios. Consequently, the process staff utilized for monitoring their respective portfolios was generally ad hoc, often through discussions among Division analysts and management, rather than pursuant to a prescribed policy and procedure. More recently, however, the Division and Council have begun to address these issues and begun installing new systems to more systematically monitor and analyze investment portfolios. Over the course of our preparation of this report, the Division reports that it made substantial improvements to the investment process and that it resolved many of the problems we identified earlier in our review. The Division further notes that the Council also considered these matters during the first half of 2003 but chose to defer action awaiting completion of the review process and issuance of this Report.

The Division Appears Well-Positioned to Revamp Investment Guidelines and Risk Controls

The current Treasurer, current Director and the current Investment Council have taken significant steps to revamp the Division's operations. These steps include:

- identifying deficiencies;
- reviewing investment policies and procedures;
- acquiring and utilizing the sources of data, analytics and other information technology necessary to improve the Division's risk management program;
- adjusting the organizational chart to staff the Division accordingly;
- improving communication among the parties; and
- undertaking this Operational Review.

For example, Division management has already increased the frequency of meetings needed to (a) facilitate communication between the investment professionals whose individual decisions are crucial to the investment success of the entire portfolio, and (b) help them more thoroughly evaluate the components of the portfolios they manage. They have also improved the depth of the information provided to the Treasurer and Council. We found that the Investment Report of the Division to the Investment Council, dated May 7, 2003, was thorough and detailed. It provided the Council with valuable information about the holdings of each of the Funds and was annotated with comments that explained the Division's investment strategy and decisions. This heightened the Council's ability to fulfill its fiduciary oversight responsibility

The Division Has Many of the Tools Necessary To Effectively Monitor the Portfolios

The Division has several of the commonly utilized data sources and software packages for investment analysis and risk management.

Examples include:

- Factset;
- Indata;
- Lehman's PC-based System;
- Bloomberg; and
- Stock Val.

These tools provide Division management with the ability to monitor significant risks in a disciplined and systematic way. For example, using FactSet the Division has the ability to:

- evaluate an equity portfolio against a relevant market index;
- measure the sector weightings of a portfolio and compare those to a relevant index;
- measure portfolio characteristics (like P/E, P/B, dividend yield and earnings growth rates) and estimate the "style bets" embedded within the portfolio; and

- perform attribution analysis that decomposes the impact of industry weightings from stock selection.

Criteria and Tools for Monitoring the Portfolio

Historically, the Division and Council had not monitored or analyzed many essential financial and risk characteristics that – according to common (as well as best) practices – a large public fund should evaluate. More recently, the Division's upper management and Council has instituted more careful assessment of the portfolio; the Division now appears to monitor and analyze most of the features we would expect it to.

To assist the Division in further enhancing its monitoring processes, we have prepared several matrices. These identify the criteria (listed above) at the various levels of the portfolio – as a whole, each asset class, and individual accounts – that the Division currently monitors and analyzes, those it does not monitor and analyze, the analytical tools and software it currently uses and other tools available in the marketplace that it might consider. Our determination of whether or not the Division monitors and analyzes a particular criterion is based on information provided by the Division.[83]

[83] We did not attempt to cross check or audit the representations made to us.

Whole Portfolio

Commonly Monitored Criteria	Whether the Division Currently Monitors This	Current Tools Available to Monitor This	Other Tools the Division Could Acquire
Consolidated market value	Yes	FactSet	Advent Princeton Indata Sungard
Market value and percentage of whole portfolio invested in each asset class	Yes	FactSet	Advent Princeton Indata Sungard
Asset class weightings relative to strategic policy targets and ranges	Yes, but Council has not adopted specific ranges above and below target equity exposure	FactSet	Advent Princeton Indata Sungard
Performance relative to peer group	Through internal resources – no; external – yes	NEPC Russell Mellon	Wilshire Compass TUCS

Equity Asset Class

Commonly Monitored Criteria	Whether the Division Currently Monitors This	Current Tools Available to Monitor This	Other Tools the Division Could Acquire
Equities pricing	Yes	FactSet (via Marquee Quote) Bloomberg Bridge/Reuters	
Weighted average capitalization	Yes	FactSet	BARRA
Sector weightings relative to market benchmark	Yes	FactSet	BARRA
Industry weightings relative to market benchmark	Yes	FactSet	BARRA
Dividend yield	Yes	FactSet	BARRA Multex ValueLine
Price to book ratio	Yes	FactSet	BARRA Multex ValueLine

Commonly Monitored Criteria	Whether the Division Currently Monitors This	Current Tools Available to Monitor This	Other Tools the Division Could Acquire
Price to earnings ratio	Yes	FactSet	BARRA Multex ValueLine
Beta	Yes	FactSet	BARRA Multex ValueLine
Earnings growth over relevant time period	Yes	FactSet	BARRA Multex ValueLine
Number of individual securities and respective weightings	Yes	FactSet	BARRA Multex
All foregoing stats compared to relevant market indices	Yes	FactSet	BARRA Multex
Style (e.g. "growth vs. "value" vs. "core") of individual portfolios/ subasset classes	No		BARRA FactSet (via Northfield Optimizer)
Fundamental accounting and earnings research	Yes	FactSet (avail. in FactSet: Compustat FirstCall I.B.E.S.)	Zacks
Valuation	Yes	FactSet StockVal	Holt Baseline
Portfolio transactions, including purchases and sales and associated "turnover" ratios	Division investment staff regularly reviews all transactions, but does not consider turnover, separated by each analyst, to be essential.	FactSet	Advent Princeton Indata Sungard
Commissions and transactions costs, both in total and by broker-dealer	Division management reviews transactions costs at the total portfolio level, but does not discuss transactions costs with Division analysts on a regular basis.	Abel-Noser	Advent Axyis Elkins-McSherry Plexus Group
Extent to which all foregoing features comply with relevant aspects of IPS	No		Top tier custody bank, staff's middle office or external consultant

Fixed Income Asset Class

Commonly Monitored Criteria	Whether the Division Currently Monitors This	Current Tools Available to Monitor This	Other Tools the Division Could Acquire
Bond pricing	Yes	Lehman PC Bloomberg IDC	TradeWeb Market Axess BondEdge SSB Yield Book CPMarket.com Muller JP Morgan
Total number of securities	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Yield to maturity	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Time to maturity	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Current coupon	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Duration	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Effective duration	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Convexity	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Effective convexity	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Sector weightings	Yes	Lehman PC IDC	WilshireAxiom BondEdge Yield Book

Commonly Monitored Criteria	Whether the Division Currently Monitors This	Current Tools Available to Monitor This	Other Tools the Division Could Acquire
Credit quality	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Number of individual securities and respective weightings	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
All foregoing stats compared to relevant market indices	Yes	Lehman PC Bloomberg IDC	WilshireAxiom BondEdge Yield Book
Scenario analysis (impact of interest rate changes or curve shifts on portfolio)	No	Bloomberg	WilshireAxiom BondEdge Yield Book
Horizon analysis	No	Bloomberg	WilshireAxiom BondEdge Yield Book
Regression analysis (valuation of securities against UST curve)	No	Bloomberg	WilshireAxiom BondEdge Yield Book
Portfolio transactions, including purchases and sales and associated "turnover" ratios	Yes (but no emphasis on turnover)	FactSet	WilshireAxiom Advent

Performance Measurement and Evaluation

Commonly Monitored Criteria	Whether the Division Currently Monitors This	Current Tools Available to Monitor This	Other Tools the Division Could Acquire
Rates of return compared to applicable benchmarks	Yes – rates of return. No – no agreed-upon benchmarks	FactSet	BARRA
Expected tracking error	No	FactSet	BARRA
Performance attribution	Through internal resources – no; External – yes	FactSet NEPC Russell Mellon	BARRA

Commonly Monitored Criteria	Whether the Division Currently Monitors This	Current Tools Available to Monitor This	Other Tools the Division Could Acquire
Monitoring manager compliance with guidelines	DOI management reports that it has instituted a periodic review of compliance, but not on a regularly scheduled, formal basis.		Eze Castle Custodian system
Analysis of transactions costs	Internal resources – no; External – yes	Abel-Noser	Elkins-McSherry Plexus

Recommendations
We recommend that Division management arrange to analyze equity portfolio characteristics (including style) and to integrate such analysis into its internal review process with the Division's Portfolio Managers and Analysts.
We recommend the Division implement a systematic compliance monitoring process. (See discussion below, regarding internal controls.) The Division can accomplish these steps through a combination of better utilizing its existing resources and acquiring some additional resources.

Usefulness of Performance Reports

Performance Evaluation Reports Can Be Used As An Effective Tool for Monitoring the Portfolios

The Division and Council receive performance evaluation reports (including a range of analytics and performance attribution analysis) from New England Pension Consultants and Russell-Mellon Analytics. These reports, appropriately from a source independent of the Division, serve as a valuable tool for objectively assessing and monitoring the Division's investment management of the assets under its control[84].

[84] The data to compile the reports should also be obtained from a source independent of staff such as the custody bank.

Performance reports prepared by consulting firms typically try to strike a balance between too much and not enough information. The reports should be designed to answer the questions most important to pension fund decision makers (in this case the Council and management of the Division). Consequently, the performance reports should evolve through time as the concerns of the client change and as new investment issues emerge.

Performance Reports Appear Comprehensive[85]

IFS reviewed the report prepared by New England Pension Consultants for the 4th Quarter of 2002. The report is lengthy and covers the combined holdings of the Division, with details on Common Funds A, B, D, and Mortgages. Overall, the format of the NEPC report is comprehensive and thorough. The format appears to strike an appropriate balance in the amount of detail it provides: the reader can clearly identify how the Division as a whole has performed and get insight into the contribution made by the internal managers responsible for each major asset class. The reports combine information on the most recent quarter and longer term periods, allowing the reader to assess both short and long term performance. The report distinguishes between "systematic" or market-driven returns and manager-driven returns. The report measures the major investment decisions made by the Division and provides a high-level view of the investment risks embedded within the total portfolio of holdings. In our opinion, the format of the report meets consulting industry standards. However, we cannot comment on the quality of the data underlying the report or whether the analysis or the determinations contained in the report accurately measures the performance as well as the risks related to the Division's investment strategies.

[85] Our discussion focuses only on the NEPC report, not Russell-Mellon Analytics.

Specifically, the NEPC reporting format addresses a number of essential issues related to investment performance:

- returns achieved by major asset class indexes in recent and longer term periods;
- Division assets measured in dollars and the sources of growth (or decline) in those assets;
- the allocation of Division assets between major asset classes, both in dollars and as percentages of the total;
- the changes in asset allocation over the past ten years;
- returns generated by asset allocation or policy versus the returns attributable to active management by the Division;
- comparison of the Division's total investment returns to those of a public pension fund universe;
- returns achieved by each major asset class compared to appropriate market indexes and comparable pension plans;
- risk (as measured by standard deviation) of the Division's total portfolio of holdings, compared to market benchmarks and the Division's policy targets;
- style analysis of the Division's total equity holdings;
- returns, portfolio characteristics and sector weights for each of the Common Funds;

- rankings of each Common Fund's returns compared to the appropriate market index and peer managers; and

- country weights for the equity and fixed income components of Fund D.

Additional Performance Analytics May be Useful

Despite our overall conclusion that the NEPC report meets industry standards, we have several further observations and suggestions regarding that report.

Total Fund Level vs. Individual Managers Level Analysis: The report concentrates on the total Common Fund level in the case of each of the separate Common Funds. For example, NEPC asserts that the investment style of Common Fund A closely resembles that of the S&P 1500 Index[86], the policy benchmark for domestic equity. However, the report does not enable the Council to observe any potential style differences among the Division's equity analysts. In pension funds that employ external investment managers, a key function of the consultant is to evaluate each manager separately, identifying the returns earned by each, the style or strategy employed, and the risks incurred in achieving those returns. We believe the Council and Division may benefit from this type of detail (e.g., by sector or capitalization), whether produced internally by the Division or externally through the consultant.

The consultant's expertise in evaluating external investment management firms should be drawn upon to help the Council and Division management determine how more thoroughly to evaluate the Division's internal equity investment process.

[86] See the Equity Style Spectrum Analysis on page 18 of the NEPC Fourth Quarter 2002 Performance Review report and the table of portfolio characteristics on page 20.

Recommendation
We recommend that the Council and Division consider using a consultant's expertise in evaluating investment management firms to help determine how best to more thoroughly evaluate the Division's internal equity investment process.

Portfolio Characteristics: Regarding Common Fund B, the NEPC report compares the Fund to the Lehman Aggregate Index on key fixed income characteristics like yield to maturity, coupon, average maturity, duration and quality.[87] It also provides the portfolio's distribution of each characteristic. However, the report does not provide the distribution of the same characteristics for the Lehman Aggregate Index. (By contrast, the NEPC already provides a detailed comparison of the portfolio's sector distribution against that of the Index.) Providing additional information could be useful; however, it might cross the line into "too much" information for the Council. The Council and Division management should discuss the subject with the consultant to determine how much detail is required.

With respect to Common Fund D, the NEPC report is thinner. It provides information about the returns of the equity and fixed income components of the international portfolio and compares that performance to peer groups and market benchmarks. It also provides ample detail on one of the crucial risks in both international equities and bonds: country weights. However, the report would benefit from more detail on the portfolio characteristics of each component so that the Council could better observe other risks in the portfolio. Some measure of style "bets" in the international equity component would help (as represented by the fundamental financial statistics of the portfolio). Similarly, the equity component would benefit from an analysis of the industry concentrations within the international equity portfolio. International equity analysis by external investment management firms increasingly focuses on comparing stocks within global industries and across national borders. This analysis would be particularly helpful to the Council since it relies entirely on internal management. Comparing sector exposures in the domestic

[87] Ibid, page 25.

portfolio to those in the international portfolio may also provide a helpful global perspective on risk and diversification.

Detail Regarding International Fixed Income Risk Exposure. Typical risk analysis in bonds starts with a comparison of the characteristics of the portfolio to the characteristics of the Index. However, when it comes to risk measures such as duration, convexity and yield, the results for international bonds depend on the level of interest rates and the shape of the yield curve in each country considered separately. Consequently, the NEPC report should incorporate more detail on the risk exposures for at least the dominant countries or currency blocks within the portfolio.[88]

Currency Positions: The Division has discretion to engage in currency hedging transactions, although we understand that hedging would be done only under unusual circumstances. The NEPC Report should include data on the currency positions within the international portfolio if these currency positions differ from the country weights of the bonds in the portfolio.

Recommendation
Although the performance report meets consulting industry standards, we recommend that the Council work with the consultant and Division staff to determine: • *what additional performance analytics could and should be provided to better manage the assets and control risks across both the domestic and international equity and fixed income portfolios, and* • *the criteria to be used to compose a comparable peer group universe.*

[88] Data available on stocks and bonds outside the U.S. is limited and thus, it may not be feasible to create an accurate picture of the composite characteristics across all countries and holdings.

Sufficiency of Manager Guidelines [89]

The Council's Investment Regulations Should Be Enhanced

The regulations[90] provide a useful framework for an effective set of investment guidelines; however they should be enhanced. We found that in their current state, many of the regulations unduly restrict the Division's investment discretion. For example:

- the regulations prohibit purchase of Yankee corporate bonds (bonds issued by foreign-based companies, traded in the U.S. and issued in U.S. dollars), regardless of their rating. Bonds from such major corporations as Deutsche Telecom and Toyota are thus off limits;[91]

- the limitation of a 60% debt/total capitalization ratio precludes purchase of many investment grade utility securities; and

- equity futures have traditionally been prohibited. When the Division wants additional equity exposure, but purchasing individual securities would take an undue period of time, purchasing equity index futures is a quick and inexpensive way of gaining the desired exposure – but has been prohibited.[92]

[89] See also the discussion in this section entitled "Separation of Duties and Section IV regarding Investment Policy and Section V regarding Asset Allocation.
[90] We use to term "regulations", rather than policy or guidelines, because these provisions are subject to New Jersey's administrative rulemaking process.
[91] Division staff recently informed us that the Division proposed a relaxation of these regulations at the Council's March 2003 meeting. The proposal was tabled by the Council, pending completion of this Report
[92] Division staff recently told us that the Council eliminated this prohibition.

Recommendation

We recommend that the Division prepare a list of proposed adjustments to the current regulations for consideration of the Council.[93] *Subsequent amendments could be identified as part of the annual strategic plan.*

The relatively small size of the Division's portfolio staff enables management in an informal way to stay in close touch with the portfolio managers and to monitor trades and positions in the various asset classes. However, as noted earlier, a more systematic process would be more prudent. Therefore, the regulations should be revamped to establish a more systematic process within which each of the portfolio managers and analysts are expected to operate. The procedures should define acceptable risks for each portfolio within each Common Fund and prohibit securities or strategies that introduce risks considered inappropriate by the Council and Division management. A series of regular position and risk reports should also be required, to document the Division's strategy through time and demonstrate its compliance with the regulations.

Recommendation

We recommend developing investment regulations (guidelines) for each investment strategy and/or subasset class. *(See comparable recommendation on page 121.)*

Adequacy of Internal Controls

The Internal Control Assessment Should Be Customized to Address Investment Management Issues

Each year the Office of the Treasurer requires each division, including the Division of Investments, to complete the Annual Internal Control Assessment. The Annual Internal Control

[93]The Division has already identified a number of regulations that require change and presented them to the Council for action. The Council adopted some and the staff is awaiting Council action regarding others.

Assessment (AICA) consists of a series of "yes", "no", or "not applicable" type questions modeled after the Committee of Sponsoring Organizations of the (SEC) Treadway Commission (COSO) framework for internal controls. The COSO framework categorizes internal controls into five areas: control environment, risk assessment, control activities, information and communication, and monitoring. The questionnaire also serves an accountability function for top management. However, the questionnaire is fairly generic by nature since it applies to all ten divisions within the Office of the Treasurer. Only two sections of the questionnaire deal with cash management and investments and address questions regarding safekeeping, authorization, recording, ownership, reconciliation, comparison, and supervision and review. The internal control assessment by the Office of the Treasurer identifies general weaknesses in internal controls. However, its generic nature does not address specific areas pertinent to an investment bureau.

Recommendation
We recommend that the Division consider implementing its own internal control questionnaire tailored to the specific operations and activities of an investment bureau.

The external auditors issued their report on internal control and related recommendations, dated August 22, 2002. The entire contents of that report addressed issues related to information technology and data processing. The external auditors identified significant findings that, although not considered material weaknesses, should be addressed according to their recommendations. However, we understand that information technology and data processing are primarily the purview of Treasury Management Information Services ("TMIS"). Consequently, the Division does not have direct control over implementation of the recommendations contained in the external auditors' report on internal control.

Recommendation
The Division should continue to ensure that TMIS implements the recommendations of the external auditors.

We understand from discussions with Division management that all the recommendations of the external auditors have now been implemented by TMIS. Further, IFS has been assured that the Division has, and will continue, to see that TMIS resolves these issues.

The Division Observes Some Separation of Duties

Separation of duties within the Division does exist. For example, as a general rule, the individuals responsible for making trading decisions for the portfolio are, appropriately, not responsible for affirming the trades or entering the trade into the accounting system. Additionally, the portfolio managers are not involved in the monthly reconciliation process between the internal investment accounting system and the custodial system, nor do they have the authority to transfer funds from the custodial accounts.

Separation of Duties within the Division Should be Improved

The Division should improve its separation of duties between the management of the portfolio and the record keeping or accounting function associated with the portfolio. For example, while accounting functions ordinarily report properly to the Director, in the Division's case the Director also has functional, as opposing to purely oversight, portfolio management responsibilities that may be incompatible with the accounting oversight role.

Recommendation
The Division should take steps to identify and mitigate control weaknesses that may result from incompatibility between investment accounting and portfolio management.

The Chief Trading Officer reconciles the soft dollar accounts balances. Reconciliation of soft dollar accounts should be done independently of the trading function, although the trading desk should be involved in providing information to those doing the reconciliation. Additionally, the trading desk needs to be apprised of the reconciliation promptly in order to manage the soft dollar budget. In similar pension fund organizations, the reconciliation of soft dollars typically is performed by the investment accounting department or the middle office. The Division subsequently reported that in 2003 this responsibility for soft dollar reconciliations was reassigned from the Chief Trading Officer to the Manager of Auditing.

Recommendation
We recommend that the reconciliation of soft dollar balances be performed by someone independent of the Trading Department.

The Division does not have a compliance monitoring function that is independent of the portfolio management process. Portfolio Managers are responsible for ensuring that their portfolios are in compliance with investment policies, guidelines, and regulations. In some leading pension fund investment organizations, such independent monitoring is performed by a "middle office," in between the "front office" (portfolio management and investment policy) and the "back office" (trading, settlement and accounting).

Recommendation
We recommend that the Division implement a real-time pre-trade compliance monitoring function designed to generate exceptions to the investment guidelines and risk controls, prior to execution of trades.[94]

The Division Would Benefit From Additional Internal Controls

The following is a list of additional areas where we believe internal control could be improved:

- In most areas of the Division there is a significant and notable absence of operational policy and procedural guidelines documentation.

[94] We recognize that real-time compliance monitoring requires electronic trade entry systems that the Division does not currently have in place. In other sections of this report, we recommend real-time electronic trade entry systems to support straight-thru-processing. Division management agrees with the need for an order management system.

Recommendation
We recommend that the Division begin the process of documenting those areas that have a higher risk potential. Risk should be assessed in conjunction with an enterprise risk assessment process and the internal auditor's audit universe assessment.

- The Division has a transactional review process that it refers to as "Auditing", but lacks a true Division level internal audit function. (The benefits of establishing an internal audit function and the duties of the position are discussed in Exhibit 11 – entitled "Establishing an Internal Audit Function.")

Recommendation
We recommend that the Division establish an internal audit function (an Internal Auditor) that follows the standards for the professional practice of internal auditing. The internal audit function would include the annual audit universe assessment cited in the recommendation immediately above.
We recommend that the internal auditor report to someone independent of the process he is responsible for evaluating (e.g., the Chief Auditor in the Office of the Treasurer, with dotted reporting authority to the Division Director).

- While the Division follows the Department's annual internal control assessment, it does not have its own enterprise risk assessment process. An enterprise risk assessment process is a rigorous and coordinated approach to assessing and responding to all risks that affect the achievement of the Division's strategic and financial objectives.

Recommendation
We recommend that the Division implement an enterprise risk assessment process.

- Soft dollar purchases are not included in the administrative expense budgeting and reporting process.

Recommendation
We recommend that soft dollar purchases be included in the administrative expense budgeting and reporting process for management, and soft dollar purchases should be reported annually in the financial reports of the Division.

- The workflow in trade/settlement is manual and paper intensive. During the interview process we learned that the Division's efforts to implement electronic processes to speed up workflow in the trading and settlement area, and to eliminate much of the paper involved in the process, had been hampered by delays associated with the Office of the Attorney General's approval process. We caution that as the securities industry moves rapidly toward straight-through-processing (STP) the Division is increasingly at risk of not being ready for STP.

Recommendation
We recommend that the Division seek to implement electronic processes designed to facilitate straight-through-processing of trades. The implementation should be given priority status.
We recommend that the Office of the Treasurer and the Division work with the Office of the Attorney General to implement a process that facilitates the Division's procurement of goods and services that are critical to prudently managing the assets.

Trading Procedures and Brokerage Practices

The Process for Selection and Evaluation of Broker-Dealers Should Be More Systematic and Documented

We found the selection of broker-dealers for trading equity and fixed income securities is based on an informal, undocumented process, although the results of the process are documented and execution costs generally appear to be very low (favorable to the Division).

First, PMs, Analysts and Traders through a "group effort" (as one interviewee put it) develop a budget for the coming six months covering three categories of trades: (1) trades that compensate broker-dealers for research, a "first call", or other valuable services; (2) trades where a portion of the commission is remitted to a third party to compensate for research, software or other services ("soft dollars") otherwise directly paid in "hard dollars"; and (3) trades involving only securities execution. Approximately 20% of the domestic equity trading budget is reserved for trades in the first category ("soft dollar trades"). Included in the budget are some "step-out" trades, where an execution-only broker agrees to surrender a portion of the commission to another broker that the Division wishes to compensate in exchange for some product or service. We understand the Division's upper management approves the commission budget and provides the Council with information about it.

Second, the Traders identify and utilize the brokerage firms they believe – based on their general experience – provide best execution for the various types of trades involved.

Third, the trading desk utilizes minority and in-state brokerage firms to some extent, subject to review by the Council, after the fact.

The documentation we reviewed plus interviews regarding selection of broker-dealers and development of the commission budget, indicate that the Division considers numerous, specific criteria in developing that budget and selecting brokerage firms; that the Division keeps accounts of the commissions paid over various periods to specific brokers; and that the Council reviews much of this process. However, precisely which criteria are utilized, their relative importance, the exact process followed and the overall policies that guide the process are not, in our opinion and compared to best practices, sufficiently clear and documented.

Recommendation

We recommend that the Division – subject to review and approval by the Council – develop a formal, documented process for selecting brokerage firms and evaluating the quality of services they provide. Such a process should address selection of minority and in-state brokers, use of step-outs, and monitoring execution costs. The document should include the following key elements:

1. *due diligence process for initially evaluating broker-dealers;*
2. *monitoring and tracking commissions and execution; and*
3. *current broker database and internal files.*

Each of these elements is discussed in more detail in Exhibit 12, entitled "Key Elements for Policy & Procedure regarding Selection of Broker-Dealers."

Use of Soft Dollars Should Not Be Compelled by Budgetary Constraints

The Division does not have a detailed policy and procedure on soft dollar expenditures, including their analysis and impact on trade execution. We found indications that some soft dollar trades are done because of inadequate "hard dollar" budgetary resources and that such soft dollar trades may be unduly costly. In other words, given scarce budgetary dollars, the Division sometimes purchases necessary products through brokerage transactions that are relatively expensive, compared to execution-only trades and compared to direct purchases in "hard dollars." This is a common problem across the world of public pension funds, where ostensible costs are kept low, while less transparent expenditures are higher.

Recommendation

We recommend that the Division develop a detailed policy and procedure on soft dollar purchases. That document should include provisions regarding the following key elements:

1. *introduction, definition, and organizational policy statement regarding the use of soft dollars;*
2. *applicability of soft dollars to equity vs. fixed income securities transactions;*
3. *duties and responsibilities;*
4. *policy guidelines;*
5. *procedures; and*
6. *interaction with the policy on broker selection.*

Each of these elements is discussed in more detail in Exhibit 13 (containing key elements of a soft dollar policy).

Evaluation of the Quality of Trade Execution

The Division evaluates the quality of its securities execution through the transaction cost analysis firm/broker-dealer, Abel Noser. Abel Noser utilizes a relatively simple conventional method of measuring and evaluating transaction costs, based on the "volume weighted average price." The Division measures and evaluates its transaction costs based on a method that is not as advanced as the methods many of its peers use. Other methods, such as the "opportunity shortfall" method, are more sophisticated and may provide the Division with better diagnostics. (See Exhibit 14 for a discussion of the different methods of transactions costs analysis.)

According to the latest Abel-Noser study we reviewed, the Division's total transaction costs (commissions paid plus cost of execution) are quite low, compared to the peer group Abel-Noser identified.

Recommendation
We recommend that the Division consider the cost/benefit of using a more sophisticated method of measuring and evaluating transaction costs.

The Division provides the Council with copies of the Abel Noser reports every six months. However, it is unclear to what extent the Investment Council systematically utilizes the Abel Noser reports to critically evaluate transaction costs or otherwise monitors the effectiveness of the Division's trading functions. We understand that the Division's traders use the reports, but that no one independent of the traders systematically uses them.

Recommendation
We recommend that the Division advise the Council on the use and interpretation of the Abel Noser reports. The Division should also assign responsibility to someone independent of trading to use the reports to evaluate and suggest enhancements to the trading function.

The Division's Use of its Investment Consultant

The Division currently does not use a traditional full-serve retainer consultant. Rather, it uses investment consultants solely for measurement and evaluation of investment performance. The current primary consultant has been in place for over 15 years. The Division is that consultant's largest client.

In our experience, the majority of statewide investment entities utilize an investment consultant. Although the investment consultant's role varies from fund to fund, the role typically includes advising on investment policy and guidelines, assistance with asset allocation, evaluating additional investment strategies and types of assets, selection and monitoring of investment managers and measuring and evaluating risk and return for the overall portfolio, each asset class and each investment account.

The Division Would Benefit From an Expanded Relationship With its Current Investment Consultant

We believe that the Division should consider an expanded role for its primary investment consultant, particularly insofar as the parties evaluate essential changes in the overall investment program (e.g., use of external management, passive management and/or alternative assets).

The following is a list of services that a pension fund's primary investment consultant commonly performs (often in conjunction with the client's in-house staff):

- proposing and periodically recommending revisions to the investment policy statement (including recommending investment objectives and target asset mix, analyzing investment characteristics of available asset alternatives, and recommending an asset allocation strategy);

- performing asset allocation analysis and asset-liability studies (including working with the pension fund's actuary on asset allocation modeling linked to funding and liability management);
- providing advice on manager guidelines;
- providing at least quarterly performance measurement;
- providing at least quarterly performance evaluation and performance attribution, based on data independent of managers or otherwise;
- performing periodic compliance monitoring, based on data independent of managers or otherwise;
- evaluating the effectiveness of the investment management structure and recommending changes under different market conditions;
- evaluating the effectiveness of rebalancing;
- suggesting new investment ideas and strategies, as well as analyzing "big picture" issues, e.g. use of active vs. passive management, use of external vs. internal management, use of performance fees, etc.;
- providing advice on custody search and evaluation, including, e.g., cash management, reporting, securities lending, systems, etc.;
- monitoring and providing advice regarding transactions costs, soft dollar policies and related trading issues;

- providing advice on various miscellaneous matters regarding investment practices and documentation, e.g., proxy voting policies, internal controls, an internal investment policy manual, etc.;

- providing advice on the latest software and electronic data processing systems regarding investment matters;

- being available for general discussion and meetings with the Board/Council and investment staff;

- providing ongoing trustee and investment staff training, e.g. education about new investment vehicles/strategies being considered by the Division, an annual educational seminar; and

- assisting with risk management.

The following is a list of additional functions that an investment consultant may provide to entities that utilize external management:

- advising on manager searches and terminations (responsibility for searches should include development of evaluation factors, screening prospective managers for suitability, preparation of background material, and interviewing managers);

- assisting in the negotiation, structure and amount of manager fees; and

- assisting with manager transitions.

Recommendation
We recommend that the parties consider expanding the role of an investment consultant to include the services discussed in this Report that are not called for in the investment consultant's current scope of work.

IV. Investment Policy Statement

The scope of work, set forth in our contract with the Office of the Treasurer, calls for an examination of the current investment policy statement utilized by the Division to determine: whether the Investment Policy Statement ("IPS") takes into account investment policies of individual pension funds; whether it reflects the Division's financial and actuarial characteristics, established investment goals and risk tolerances; whether it sufficiently delineates the lines of reporting and responsibility over the investment program; whether it includes all critical elements in light of best practices; and whether the policy specifies to what extent the basis for particular investment decisions should be articulated in writing by the Council or the Division's staff.

Components of an Investment Policy Statement

Although a comprehensive IPS as a distinct document does not exist for each of the New Jersey Pension Funds, the Council's major policy positions are outlined in the Investment Section of the Annual Report (the "Policy" document). (The "Pension Funds" are defined as those New Jersey Pension Funds for which the Division has investment responsibility.) However as explained below, these policy positions are not sufficiently detailed or comprehensive. A more definitive IPS for each Pension Fund could assist in sharpening the investment program in terms of risk control, asset allocation and many other essentials.

An IPS is the framework for the entire investment program. The IPS should be a practical document with "real world" impact on the nature and strategies used – and not used – in the investment program. Generally speaking, the purpose of an IPS is first, to articulate the applicable "fiduciary standard", and second, to articulate the Council's consensus view of the

Pension Fund's mission and purpose, investment objectives, risk tolerance, liquidity needs and decision making process.

We examined the Policy document in terms of each of the components typically included in an IPS, such as the following:

- the purpose of the IPS, e.g., to articulate the consensus view of the Council regarding the overall investment program and its major components, procedures and policies;

- investment objectives of the Pension Fund;

- the roles and responsibilities of essential parties;

- total Pension Fund investment guidelines;

- the strategic (or long-term) asset allocation and rebalancing policies and process, based on the analysis and advice of staff, advisors and consultants;

- permissible and impermissible asset classes, investment strategies and instruments, e.g., use of derivatives, below investment-grade fixed income;

- reasons and general parameters for each major asset class;

- process for monitoring and evaluating investment performance of the overall Pension Fund, internal and external investment managers;

- other criteria and procedures for evaluating performance; and

- criteria and procedures regarding specific miscellaneous subjects, such as securities lending, proxy voting and brokerage practices.

Investment Objectives

Investment objectives should grow out of – and conform to – the investment horizon of the Pension Funds, their current and expected future cash flow needs and liability streams. Establishing clear total fund performance objectives, (e.g., "earn a rate of return in excess of inflation, which meets or exceeds the Pension Fund's assumed actuarial rate and is consistent with the Retirement System's long-term Policy Index"), can help shape the entire investment program. Establishing objectives for each asset class and strategy likewise can help shape their nature and structure.

The Investment Objectives in the Policy Document Do Not Include Market Based and Peer Universe Benchmarks

The Annual Report states *"the primary investment objectives are the preservation of capital and the realization over time of earnings sufficient to meet or exceed the regular interest rate established for the actuaries in their determination of the assets and liabilities of each pension fund system. The Council sets as a further investment objective the realization of the greatest possible returns on investment commensurate with the standards of risk and prudency set forth within the Regulations of the Council."* New Jersey's prudency laws were amended in 1997 to allow for investment according to the "whole portfolio" principle, where the investments of the whole plan are considered when evaluating risk and return, rather than any one asset class in isolation. This change also expanded the universe of eligible investments to include, for example, limited partnerships. We understand that the Council adopted a new investment objective in mid-2003, which states "the objective of the investment policies of the Investment Council is, consistent with the preservation of capital, to achieve high long-term average total returns subject to prudent, diversified investment risk."

In developing investment objectives for each Pension Fund, the Council should also evaluate and note certain criteria that they do not directly control (because they arise from the "liability side" rather than the asset side), but which nevertheless should be considered. These criteria are discussed below regarding asset allocation (Section V), namely, funded ratio and employer contributions.

As discussed further below under Evaluation of Investment Performance, we believe that the Council should reconsider amending their investment objectives. The Annual Report states that the "Council discussed the possibility of amending [the stated objectives] to include reference to specific market indices, the rate of inflation or percentile rankings of other managers." However, the Council has not yet incorporated these items into the investment objective, focusing instead on the preservation of capital and income.

Recommendation
We recommend that the Council consider further amending their investment objectives to include relative investment performance measured against additional market based benchmarks as well as possibly peer universe comparisons. The Council should also have the goal of at least beating the rate of inflation in order to achieve positive real returns.

Roles and Responsibilities

The Policy Document does not Adequately Define the Roles and Responsibilities of the Council and the Division

The IPS should address fiduciary responsibility where applicable. The Policy document mentions, but does not explicitly define, what, if any, fiduciary standards apply to the Council. It should also be used to outline the assignment of responsibilities and to clearly distinguish the roles and responsibilities of the essential parties. The Policy document does not specify roles and responsibilities in more than a general manner, e.g., it states "the role of the Council is to formulate investment procedures and policies to be followed by the Director [of the Division]." It also discusses the regulations and meeting requirements of the Council.

Recommendation
Once the parties have arrived at a consensus regarding their respective roles and responsibilities (see Section I), we recommend that they specifically outline those roles and responsibilities in an IPS.

Total Pension Fund Investment Guidelines

The Investment Program Would Benefit from Additional Investment Guidelines

The IPS should reflect policy criteria that apply to all portfolio managers, e.g., prohibited securities or strategies. In order to diversify the portfolio and properly manage risk, the Council should adopt customized guidelines for each strategy (whether internally or externally managed – in all asset classes) to articulate and manage the particular risks associated with its unique investment process, strategy and risk characteristics. Many institutional investors distinguish investment policy provisions applicable to the Pension Fund as a whole from more particularized investment guidelines for individual portfolios and investment managers (internal or external). Consistent with those institutional investors, we believe individual investment manager guidelines should be separate and distinct from the IPS.

An IPS should also indicate the types of investment strategies, vehicles and sub-classes that, as a matter of policy, are permissible and those that are prohibited across the entire Pension Fund. New Jersey's Policy document does set forth the permissible asset classes and some limits on investment, where applicable. For example, equity investments are limited to 70%, including both domestic and international. However, the Policy does not address whether equities should be maintained at the limit or at some lower target, or what (if any) minimum exposure applies (e.g., a range of 60-70%, with a target of 65%). Nor does the Policy state what amount should be in international versus domestic equity. There is a limit of 22% on international investment, including both stocks and bonds. Investments in corporate bonds are limited to Baa/BBB or better, but the Policy does not address what the minimum average credit quality should be or what the Division should do with securities that are downgraded to below Baa/BBB. We understand the Council and Division have recently taken steps to address this.

Recommendation
We recommend that the Division adopt individual investment guidelines for each investment strategy, which are distinct from the IPS or Policy document.

The "Approved List" Constrains the Investment Process

The Council also sets standards for the Division's selection of stocks. The Council must approve stocks, upon recommendation by the Division, in order for them to be purchased into the portfolio. The Division can purchase only stocks that are on the "Approved List" (see definition in the Executive Summary). This is a constraint on the investment process. We understand that the list is quite broad and that there is no incentive to take a name off the list once it is sold out of the portfolio. The list is updated periodically, so a portfolio manager may be forced to wait to buy a name in which he/she is interested. We understand that again, the Council and Division recently took steps to address this.

As recommended in Section I, we believe the Council should discontinue using the Approved List.

Asset Allocation

Another fundamental purpose of an IPS is to establish each Pension Fund's strategic (or long-term) asset allocation. The targets for each asset class should be based on and generally consistent with the results of the Pension Fund's most recent asset allocation study. The asset allocation should reflect the balance between the Council's risk tolerance (e.g., willingness to accept short-term volatility of returns and the possibility of negative total return over short periods, as well as risk of long-term shortfall in value of assets relative to liabilities) and the desire to achieve the Pension Fund's long-term investment objectives. To further control risk, the Pension Funds should also be diversified within each asset class by style, capitalization, sector, etc.

The Pension Funds Do Not Have Individual Asset Allocation Policies

Although the Council has adopted some general asset class guidelines (as discussed above), the existing Policy does not outline the individual asset allocation(s) for the various individual Pension Funds. The Pension Funds do not have identical funded status or liability streams so different risk levels and investment objectives may be appropriate for the various Pension Funds and, therefore, different asset allocation policies. These policies should be documented in the IPS.

The IPS might also specify the frequency with which the asset allocation and/or asset liability studies should be conducted, e.g., at least every three to five years. To minimize "drift" in asset class weightings relative to long-term targets, the IPS should describe the process for rebalancing to target when asset classes fall outside their ranges.

Recommendation
We recommend that the Council develop and document asset allocation policies for each Pension Fund.

Evaluation of Investment Performance

An IPS should establish the standards and measures of investment performance, including designating benchmarks that reflect performance expectations for each asset class and for the Pension Funds as a whole. Although the Council has some broad policy investment objectives as discussed above, it has not formally adopted specific, percentage, target strategic weightings for the market index based benchmarks to evaluate the performance of the total Pension Funds or the individual asset classes. Nevertheless, the Council uses percentage weightings in market indices for various asset classes to evaluate monthly and annual performance. We understand that the Council has considered amending the policy objectives "to include reference to specific market indices, the rate of inflation or percentile rankings of other managers" but it has not yet done so. (The Council has reportedly consciously deferred acting on this matter until it has reviewed this report.) We understand that the Council does measure the Division's performance versus a market index based benchmark, adopted in 1999, for purposes of determining incentive compensation. However, this practice is not spelled out as policy. "Best practices" suggest that the Council should establish a Total Fund Policy Index and a Total Fund Asset Allocation Index, as explained below.

A "Policy Index" Would Provide an Objective Measure of Total Fund Performance

In order to create a "Policy Index," published market indices are weighted to create a benchmark that matches the Pension Fund's long-term target asset allocation and the weights remain fixed over time. Differences in performance between the Pension Fund's actual return and the Policy Index can be attributable to:

- asset allocation "drift" from the long-term target;
- over or under-performance by the Pension Fund's investment managers; and
- differences between the investment characteristics ("style") of the components of the Policy Index vs. the individual manager accounts e.g., S&P 500 for equity component of Policy Index may vary from the combined styles of the equity managers.

An "Asset Allocation Index" Would Provide an Additional Objective Measure of Total Fund Performance

As an additional measure, many funds also (as a matter of policy) establish an "Asset Allocation" index, which is also constructed using published market benchmarks. In contrast to the Policy Index, the Asset Allocation Index's asset class weights change to reflect a fund's actual asset allocation as it "drifts." This benchmark adjusts for the asset allocation drift over time. Excess or under-performance versus the Asset Allocation Index is attributable solely to the performance (including security selection) of the underlying investment.

Recommendation
We recommend that the Council develop a Policy Index and an Asset Allocation Index for each Pension Fund.

Other Investment Related Issues

In developing its IPS, the Council and Division should also address the following topics:

- **Securities Lending** – The IPS should indicate whether the Pension Fund is allowed to participate in a securities lending program, as well as the broad parameters of the program, e.g., collateral should have a market value of 102% for U.S. securities and be marked to market daily.

- **Proxy Voting** – The IPS should address proxy voting and, at a minimum, should indicate who has responsibility for voting proxies. The proxy policy should indicate whether managers are permitted to "abstain" from voting on any issue or whether votes should be either "for" or "against." Voting reports to the Council should summarize each proxy issue and indicate whether the vote was for or against management's recommendation, which we understand is the case.

- **Brokerage** – The IPS should acknowledge that brokerage commissions are a plan asset and that, as such, the Division will monitor them, if necessary, with the assistance of an outside investment consultant. It should indicate that the Division (as well as any external equity manager) is obligated to seek best execution (i.e., best trade based on share price, commission, available research, etc.) on all trades. The IPS should also specify whether soft-dollar arrangements are permissible, provided that:

  - such arrangements are consistent with applicable law and best execution obligations; and

  - all amounts paid for brokerage and related services are reasonable.

The IPS should also address the Pension Fund's policies regarding commission recapture or directed brokerage, if any, and should establish a process by which the Division will monitor brokerage commission activity and practices. None of the above policy issues is currently addressed in the Policy document.

Recommendation
We recommend that the Council adopt a distinct, comprehensive and detailed IPS for each Pension Fund that considers the many detailed recommendations and suggested elements discussed in this section of this report.

Division Policy Review

Establishing a Process to Review the Written Policies, Guidelines and Procedures is Consistent with Best Practices

We believe that in accordance with best practices, there should be a systematized process to review the IPS for each Pension Fund at least annually. We understand that the Council considers policy issues on at least an annual basis; however, a requirement to review policies, guidelines and procedures should be documented.

Recommendation
We recommend that the Council be required to review the IPS and investment guidelines and procedures on an annual basis – with the assistance of Division staff.

V. Asset Allocation and Portfolio Risk

The scope of work, set forth in our contract with the Treasurer, calls for an assessment of: how the asset allocation ties to the Investment Policy Statement; the methodology, inputs and assumptions for risk/return and correlation used to determine the asset allocation; whether the present asset allocation targets are reasonable; the mechanisms utilized for periodically reviewing and rebalancing its asset allocation; whether the Council is aware of the risks associated with the asset allocation it has adopted; and asset allocation modifications reasonably designed to enhance returns, including possible additional asset classes or types that may assist in enhancing longer term expected return or reducing risk.

To perform our evaluation, we reviewed the overall asset allocation of the five Pension Funds, which are invested collectively in Common Pension Fund A, Common Pension Fund B and Common Pension Fund D, as well as in the Mortgage Fund and the State of New Jersey Cash Management Fund (Public Employees' Retirement System, State Police Retirement System, Teachers' Pension and Annuity Fund, Police & Firemen's Retirement System and Judicial Retirement System of New Jersey).

Asset Allocation Should Be Aligned with Investment Policy Statement Objectives

"Asset allocation" is the process of diversifying an investment portfolio among asset classes (stocks, bonds, real estate, etc.) in order to have a high probability of achieving a particular investment objective, such as consistently attaining a certain level of total return while controlling risk. Considerable (though not all) empirical research suggests that asset allocation generally has a far greater effect on investment performance than does the selection of investment managers or individual securities.

Allocation decisions should be made or approved at the Council level, where they can be coordinated with other relevant factors, such as the investment policy, which is not clearly specified at this time. The Council has set a target asset allocation benchmark, however the Division is permitted to invest outside this benchmark, e.g., through investment in emerging markets, international bonds, REITs – asset classes, or subclasses, not included in the benchmark, but permitted by policy. Therefore, there is a degree of mismatch possible between the actual investments of the Funds and the target benchmark. We understand that the Council has discussed revising its asset allocation policy several times over the last couple years, but it reaffirmed its current policy, which was developed in 1999 as a basis for the incentive compensation benchmark and is not strictly tied to the actual asset allocation.

We believe that an asset allocation/asset liability study should be conducted periodically, at appropriate times, and should consider the following factors. We also believe that, in developing asset allocations, the Council should be cognizant of the following factors (many of which are outside the Council's control, but affect – and are affected by – the investment program):

- **Funded Ratio** (assets/liabilities) – What is the probability that the proposed asset allocation will result in the funded ratio falling below 1.0 over the next 10 years? What is an acceptable probability?

- **Minimizing Employer Contributions** – What is the cost as a percentage of payroll over the coming years? How important is it, on a relative basis, to minimize contributions?

- **Range in Employer Contributions** – What is the probability of increases (beyond some specifically defined material level) in the annual required employer cost in any single year over the next 10 years? I.e., what is the probability of a negative surprise in cost? What is the impact of the most probable set of future returns on the level of employer contributions? What is the impact of less likely future returns? (Higher risk portfolios usually suggest greater risk of significant losses and thus larger employer contributions to cover the shortfall, if funded status is to remain stable.)[95]

- **One-Year Performance Relative to a Peer Group** – What is the probability of performing in the top quartile versus peer universe plans? What is the probability of performance in the bottom quartile versus peer plans? The Council could use a model to determine the probability in advance or could instead set a goal of beating a specific benchmark by a certain percentage. The identity of the peer group/universe is crucial.

These criteria should be consistent with those set forth in the respective IPSs (as previously recommended in Section IV).

Recommendation
After developing and documenting the Pension Funds' investment policy statements, the Council should, at an appropriate point, conduct an updated asset allocation (or preferably an asset liability) study which takes into account the specific investment objectives and risk tolerances of the Council and the detailed recommendations contained in Section V of our Report.

[95] Funding and contribution levels are influenced by various features outside the Council's control, such as the actuarially assumed rate of return, the actuarial valuation (with smoothing or not) and the funding methodology (e.g., entry age normal vs. projected unit credit).

Discussion of the Methodology, Inputs and Assumptions

Asset Allocation Is Not an Exact Science

Determining the appropriate balance of asset classes is not an exact science. However, the use of computer modeling techniques and appropriate assumptions about the expected risk and return of various asset classes can increase the probability of achieving long-term investment objectives.

The asset allocation process should also take into account the Pension Funds' particular:

- Actuarial condition, (as reported to the Council by the actuaries, including issues such as its funded status and the demographic characteristics of its participant population);
- Investment policy statement, including expressed tolerance for various types of risk;
- Cash flow projections and liquidity needs.

Asset Allocation Methods

Mean variance optimization ("MVO") continues to be the quantitative method for asset allocation modeling most widely used by sophisticated institutional investors, although newer approaches such as "risk budgeting" are gaining popularity. Based on forward-looking assumptions for asset class risk, return and correlation, MVO identifies a set of asset class mixes that provides a series of "efficient" portfolios for various combinations of risk and return. The series of efficient portfolios is called the "efficient frontier." A portfolio is considered "efficient" when, compared to all other possible combinations of permissible assets, it produces the highest expected return for a given level of expected risk (or, conversely, the lowest level of risk given a desired level of expected return). The optimal portfolio is the efficient portfolio that best matches the Council's requirements regarding return, cash flow, risk and other essential criteria.

Risk budgeting is the process of allocating a certain level (or "budget") of active risk to various investment strategies. The plan sponsor sets an overall risk budget for the total plan as well as constraints for each strategy or asset class to come up with an optimal allocation of risk. For example, a plan may choose to allocate only a small portion of its active risk to large cap domestic equities if it believes that it is less likely to achieve excess returns in that asset class. In this way, risk budgeting can be used to help determine how much of an asset class should be passively managed. Risk budgeting uses the same set of expected return, risk and correlation inputs as asset allocation with the emphasis on risk and changing volatilities and correlations.

Capital Market Assumptions are Critical to the Outcome of the Asset Allocation Process

Background

Asset allocation modeling is only as sound as the quality and objectivity of the inputs employed in the process. The assumed levels of risk, return and correlation for each asset class are critical to the process. Small adjustments to any of the assumptions can profoundly alter the conclusions as to which portfolios are efficient. Asset allocation inputs should be forward looking, i.e., they should in effect project how each asset class may be expected to perform in the future. Thus, uncertainty exists and simple mechanistic extrapolations of past data may ignore changed environments and may fail to consider where various markets currently are within their cycles.

Asset classes may be defined very broadly in formulating assumptions for risk, return and correlation, or more narrowly with segregation into sub-asset classes. For example, some firms may separate small cap and large cap stocks. On the other hand, other firms may treat private equity, for example, as a subset of equities in general, and not as a distinct asset class. International equities may also be divided between developed and emerging markets with distinct risk, return and correlation projections for each.

Thus, some funds and consultants would not quantitatively model these subclasses, but would stop the modeling at the "higher" level of the asset class. In other words, they distinguish between asset allocation and portfolio structure, the former of which can be modeled using MVO, while the latter includes various policy judgments and some quantitative work, but not full-blown MVO. For instance, many boards of trustees determine the weighting amongst large, mid and small cap stocks in their domestic equity portfolio not by asset allocation analysis, but by referring to the weighting in the Wilshire 5000 Index for each of those categories and then deciding, as a matter of policy, to what extent they want their portfolio to resemble that broad standard.

When a broad definition of asset classes is used (i.e., only the "major" asset classes are quantitatively modeled), allocations to asset subsets are considered "policy" decisions rather than asset allocation decisions. When asset classes are defined very narrowly for purposes of modeling, it can be difficult to develop reliable risk, return and correlation statistics for some classes due to various factors, including:

- lack of historical data;
- lack or insufficiency of an index or benchmark; and
- lack of public market valuations, e.g., some real estate data is appraisal based and is therefore subject to smoothing, which may artificially decrease its correlation with other asset classes, if judged in isolation.

In our view, the ultimate fiduciary decision maker should seek to understand the process used to develop the assumptions and to assure that the process is reasonable and fundamentally sound. Nevertheless, fund boards should consider the process an art, not a science. We believe there is a *range* of acceptable inputs, rather than a single, precise set of "correct" inputs for each asset class. Modeling techniques can use ranges as well as specific points to generate expected future results. We believe expected returns should be developed using both historical analysis and forward-looking observations, given various historical and current market valuation measures.

The Capital Market Assumptions Used For Many Asset Sub Classes Appear Overly Aggressive

Part of the purpose of our report is to illustrate additional approaches to asset allocation and to demonstrate sensitivity to alternative approaches to the "optimal" asset allocation. Annually, Division staff presents a review of the asset allocation to the Council with recommendations for enhancements. We believe that the Division used an appropriate industry standard process (MVO) in its asset allocation study by using Ibbotson data and software. However, we also believe the Council should recognize that on some points, other reasonable approaches might be used and that small differences in assumptions and constraints can meaningfully affect the results of the analysis. For example, the Division's capital market assumptions are based on asset subclasses rather than broader classes and they appear to be overly aggressive.

Risk and Return Assumptions

The January 2002 asset allocation study for the Pension Funds was based on capital market assumptions for the ten different "asset classes" in which the Division currently invests. IFS' long-term assumptions for risk and return are quite different from those the Division collected from Ibbotson and NEPC, even allowing for differences in the asset classes considered. The greatest differences are that the return assumptions used in the New Jersey study are higher for virtually all asset classes. The return assumptions are also much higher than others we have seen in the industry, as used by various other pension plans and investment consultants.

The 2002 asset allocation study was also based on monthly data for risk and return. We believe annual numbers are preferable for practical purposes, especially with regard to standard deviation, as monthly numbers look quite high when compared to the annual numbers. Standard deviations of monthly returns are less robust and give a distorted view of the volatility of the funds' annual returns. We understand that the Ibbotson data was available in monthly form, which is why the Division used monthly numbers, but it is not common practice to perform an asset allocation study with monthly projections.

Asset Classes Modeled

Distinct inputs for each asset class or sub-class, including large, mid and small cap domestic equities were used in the asset allocation model. By contrast, we do not consider small, mid and large cap stocks to be distinct asset classes for modeling purposes because, in our opinion, the basic characteristics of risk, return and correlation among these three are not sufficiently distinct or fundamental to use different inputs in a quantitative model. In addition, in our opinion, the total core bond market should be viewed as one asset class. However, the model used by the Division considered the government/credit and mortgages sectors individually, although the Policy benchmark for fixed income is the Lehman Brothers Government Credit Index, which does not include mortgages.[96]

A comparison of the IFS and New Jersey assumptions is set forth in Chart V-1 below:

[96] Benchmarks are not included in IFS' current scope of work.

Chart V-1 Capital Market Assumptions					
	IFS' 2003 Long-Term Assumptions		New Jersey*		
Asset Class	Annual Return (%)	Annual Risk (%)	Annual Return (%)	Monthly Risk (%)	Holding as of 12/15/2001 (%)
U.S. Stocks	9.0	17.0			
Large Cap			12.8	5.6	40.96
Mid Cap			18.2	4.9	3.35
Small Cap			15.8	5.7	3.54
Non U.S. Stocks	9.0	17.0	12.6	4.9	12.99
Emerging Markets			11.2	6.8	0.42
Fixed Income	5.0	5.0			
Govt/Credit			9.0	1.8	26.79
Mortgage			9.8	2.2	4.04
Non-US$ Fixed			10.9	3.0	1.89
Cash	3.9	1.5	3.8	0.3	5.49
Alternative Assets					
Hedge Funds	8.0	9.0			
Venture Capital/PE	11.7	30.0			
Equity Real Estate	7.5	10.0	10.7	4.5	0.53

* In 2002, New Jersey also used Ibbotson monthly expected return and volatility assumptions; we annualized the return assumptions in order to compare them with our capital market assumptions, but did not annualize the volatility assumptions.

In 2001, the Division used capital market assumptions provided by NEPC which were somewhat lower than those used in 2002, but still relatively high when compared to our risk and return assumptions.

We reviewed the correlation assumptions used in the 2001 asset allocation study (the 2002 assumptions were not available). Correlation statistics can vary dramatically depending upon the time period considered and the proxy used for each asset class or sub-class. For example, the correlation statistics used by the Division for international equities relative to domestic equities ranged from 0.30 (for small cap domestic equities) to 0.35 (for large cap). The correlation statistic IFS adopted for the relationship between domestic and international equities is 0.70. On the other hand, correlation statistics used by the Division for the relationship between domestic equities and real estate were quite high (0.75 to 0.85) compared to IFS' assumption of 0.20. The difference may be at least partly attributable to the fact that our assumptions for real estate are based on ownership of real estate properties through private, commingled real estate equity funds rather than publicly traded REITS, or some combination of public and private real estate, which would be more highly correlated with publicly-traded equities.

The rate of return assumptions used in the New Jersey asset allocation study were also much greater than those of the average public pension plan. The Greenwich Associates survey data[97] of 332 public pension funds showed the mean public fund rate of return assumptions for 2001 were as follows:

Chart V-2 Survey of Rate of Return Assumptions	
Asset Class/Category	**ROR Assumption**
Actuarial Earnings Rate	8.3%
90-day Treasury Bills	4.3%
Actively Managed Bonds	6.5%
S&P 500 Stock Median	8.8%
Equity Real Estate	9.1%
International Equity	9.0%
Private Equity	13.5%
Expected Rate of Inflation	3.3%

If our expected returns are more realistic, then the portfolio's overall expected return is lower than projected by the 2002 analysis. If that is true and if the Council wishes to enhance the trade-off between expected return and expected risk and to potentially increase its overall return, we believe it should add exposure to other asset classes and strategies (e.g., real estate equity, private equity, some forms of hedge funds, treasury inflation protected securities). Adding some measure of those additional asset classes and strategies may also reduce expected volatility of returns.

[97] *"Flow of Funds: Chasing Returns Outside the Core," Greenwich Associates, Inc. 2002.*

Recommendation
We recommend that the Council and Division reconsider the capital market assumptions used in asset allocation decisions.

Discussion of the Division's Asset Allocation Process

The Division's Asset Allocation Process Resulted in High Expected Returns

We understand that working in coordination with the investment consultant and relying on certain information from the consultant, the Division used MVO to develop expected risk and return assumptions for the three portfolios that were modeled. This process included a comparison of the then current portfolio with the benchmark portfolio, as well as a less aggressive benchmark portfolio. The analysis showed an expected return of 11.4% on the current portfolio, 11.3% for the benchmark portfolio and 11.2% for the less aggressive portfolio. These numbers are quite high when compared to the expected returns generated by our analysis, using IFS' capital market assumptions. Our assumptions predict significantly lower expected returns of 7.55% for the benchmark portfolio and 7.48% for the current portfolio (as of December 31, 2002). In addition, our expected returns do not come close to the actuarially assumed rate of 8.75%, which is also significantly higher than the 8.3% average for public funds reported above by Greenwich Associates for 2001. We note that the Legislature, not the Council, sets the actuarially assumed rate and that one must also look at the components of that assumption (e.g., the liability inflation assumption) to determine if the spreads are reasonable. The actuarial rate is one factor in an asset allocation study and a new asset allocation study or asset liability study (discussed below) may show that the current rate is unachievable at an acceptable risk level.

The probability of attaining the assumed actuarial rate (8.75%) over one, three, five, 10 and 30-year periods is a matter that the Council and Division should address as part of their asset allocation process. We believe it would also be useful to show the probability of achieving a negative return over those same time periods. In 2001, the Division did a VAR (value at risk) analysis that showed the maximum loss with 95% probability over one, five and 10 years, which may be useful as an additional tool.

The 2002 asset allocation report to the Council did not include an efficient frontier analysis, which would show whether the current and/or benchmark portfolios were achieving the optimal level of return for the amount of risk they are taking. In 2001, the asset allocation study did include an analysis along these lines, without showing the actual efficient frontiers.

Conducting an Asset Liability Study on a Periodic Basis Would Benefit the Pension Funds

We believe a full asset liability study (ALM) is superior to a "plain vanilla" asset allocation, although it is not necessary to perform such a study as frequently as a asset allocation study. We understand that the last asset/liability study was completed around 1990-91 for all the plans. Compared to an "asset only" approach, an ALM allows the Council to consider, among other items:

- a probability analysis of the expected impact of the investment portfolio on future contribution levels and funding ratios;
- the impact of benefit policy changes, changing demographics and COLAs on funding levels and cash flow; and
- the amount of downside protection across various time periods.

Moreover, an ALM analyzes the effect of these elements based not only on the expected average long-term investment returns, standard deviation and correlations for the asset classes which comprise the whole portfolio, but also on many different economic scenarios which incorporate the behavior of inflation and long bond yields over time. The asset allocation studies for the Pension Funds, which we evaluated, did not address the types of elements considered in an

ALM, e.g., future cash flow requirements, benefit changes, demographics, or other economic scenarios.

Reasonableness of the Present Asset Allocation Targets

The reasonableness of the asset allocation targets depends on several factors. These include the investment objectives of the fund and the risk tolerances of the Council – which have not yet been quantified.

The Level of Risk the Council is Willing to Accept Should be Influenced by the Funded Status of the Pension Funds

Two major forms of risk are in tension: short term volatility of returns (which may affect state contribution levels and generate "real world" anxiety about value of assets) versus the long term risk of not generating sufficient assets to meet liabilities. A willingness to accept more near term volatility generally implies a higher probability of meeting long term goals. Council members may be more or less aggressive in setting asset allocation targets given the expected volatility of returns and the short and long-term impact of returns on the funded status. Considering this matter is highly subjective but can be facilitated by quantitative analyses. The four quadrant chart set forth at Exhibit 15 may assist Council members in conceptualizing how funded status interrelates with the degree of investment risk they wish to assume.

The Council's asset allocation policies for the Pension Funds set an upper limit on equities (U.S. and international) of 70% and an upper limit on international securities (equities and fixed income) of 22%, allowing for up to 2% of the total fund in emerging markets equities. The Council's current asset allocation/policy target benchmark for the Pension Funds is as follows:

Chart V-3 Policy Benchmark	
Index	**Benchmark Allocation**
S&P 1500	50%
MSCI EAFE	15%
Lehman Govt/Credit	30%
90-day T-Bills	5%
	100%

The Division and Council Would Benefit from Reevaluating the Asset Allocation Targets and the Use of Additional Asset Classes

We used our own updated 2003 long-term capital markets assumptions for risk, return and correlation to develop an efficient frontier through MVO and to plot the policy benchmark (the "Policy") and the current portfolio as of December 31, 2002 ("Current") on that frontier. Those capital markets assumptions are set forth in Chart V-1 above.

We performed three different efficient frontier analyses to demonstrate how changes to the constraints as well as the use of additional asset classes affect the results of the MVO. We plotted both the Policy and the Current portfolios. In our analysis, we aggregated the international fixed income with U.S. fixed income since there is no policy allocation to international fixed income securities. The allocation as of December 31, 2002 was quite small at 1.3% of the total Fund as these securities are used opportunistically within Common Fund D as part of the overall allocation to international securities. In addition, we included the allocation to the mortgage fund as part of the allocation to U.S. fixed income since they are a fixed income version of real estate securities. In the first two scenarios, we limited the allocation to cash to 5% so that the resulting portfolios would be more realistic. As can be seen in the scenarios below, the Division's asset allocation targets appear reasonable, at the present stated risk level, given the asset classes currently employed; however the Division could likely achieve a better return/risk ratio through the use of additional asset classes.

Scenario 1: Current Asset Classes, Cash Up to 5%

For the first scenario, we used the same asset classes as are included in the policy benchmark: U.S. equity, non-U.S. equity, U.S. fixed income and cash (limited to 5%). This analysis showed that both the Policy and the Current allocations lie very close to the efficient frontier. Those allocations are fairly similar to Portfolio F in the graph and table below, which has a higher allocation to international equities and no cash. Therefore, when only these four asset classes are considered, the Current and Policy portfolios are fairly efficient. (However, until the Council expressly articulates its risk and return objectives, we are unable to state which particular points on the efficient frontier are suitable from the Council's policy perspective). In addition, none of the portfolios on this efficient frontier meets the actuarially assumed rate of 8.75% set by the Legislature. This implies that even if the portfolio were at the 70% maximum permitted in equity securities, the Division would not achieve the actuarial rate. We recognize that the actuarially assumed rate is not, and should not be, the sole factor in the Council's determination of the policy mix with the most appropriate risk/return relationship.

Efficient Frontier
Current Asset Classes

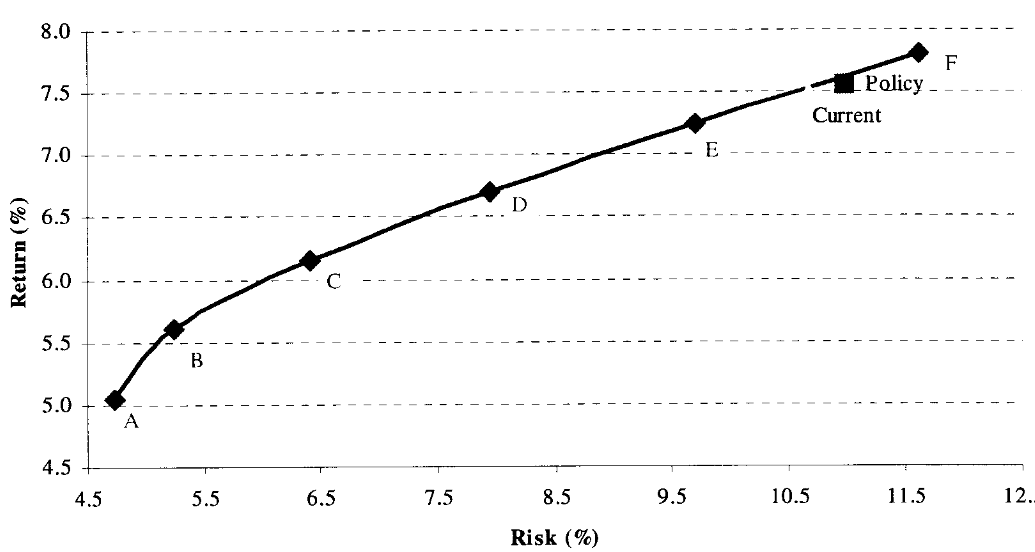

Chart V-4 Efficient Frontier Scenario 1 Portfolios								
Asset Class	*Policy*	*Current*	*Portfolio A*	*Portfolio B*	*Portfolio C*	*Portfolio D*	*Portfolio E*	*Portfolio F*
U.S. Equity	50.0	46.8	0.0	4.4	11.9	20.6	34.3	48.0
Non U.S. Eq.	15.0	15.8	2.7	12.1	18.3	22.0	22.0	22.0
Real Estate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U.S. Bonds	30.0	35.5	92.3	78.5	64.8	57.4	43.7	30.0
Cash	5.0	1.9	5.0	5.0	5.0	0.0	0.0	0.0
Private Eq.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hedge Funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Return	7.55	7.48	5.05	5.60	6.15	6.70	7.25	7.80
Risk	10.98	10.68	4.74	5.24	6.41	7.94	9.70	11.62
Return/Risk	0.69	0.70	1.07	1.07	0.96	0.84	0.75	0.67

Scenario 2: Real Estate, Private Equity and Hedge Funds up to 10%, Cash Up to 5%

For the second scenario, shown in the graph and table below, we added three asset classes to the model: private equity (or "alternatives"), hedge funds and real estate, up to a maximum of 10% for each asset class. This scenario results in both the Policy and Current portfolios lying below the efficient frontier.

However, there are certain limitations involved with modeling private equity and hedge funds as distinct asset classes. As discussed above in Section b), narrowly defining asset classes for modeling purposes can necessitate the use of less reliable risk, return and correlation statistics, which is the case with these two asset categories. IFS' private equity assumptions encompass such "alternative" private market sub-asset classes as venture capital, buyouts, distressed debt and opportunistic real estate[98]. There is no one reliable index that represents the entire asset category, like the Wilshire 5000 does for domestic publicly traded equities. However, several firms publish data on this asset type (e.g., Cambridge Associates publishes venture capital and buyout indexes) which is useful in developing assumptions. In addition, one

[98] By "opportunistic real estate" we refer to real estate limited partnerships that pursue a more aggressive and highly leveraged business strategy than would or most separate accounts and commingled funds.

can also look at private equity as a more highly levered form of small cap stock – causing it to be quite highly correlated with publicly traded equities but at a higher level of expected risk and return. There are many different types of hedge funds strategies with varying levels of expected risk and return. Our assumptions for this asset category are based on "fund of funds," which are diversified and include several types of hedge funds. Reliable hedge fund index data only goes back about 10 years. Some funds and consultants would not choose to model these asset categories separately and would instead make a strategic allocation to them as part of the overall equity or fixed income allocation.

Notwithstanding these caveats, this MVO analysis suggests that using combinations of these additional assets the Division may achieve a higher expected level of return at a lower projected risk level. For instance, Portfolio D offers an expected return of 7.61%, slightly higher than that projected by the current allocation of 7.48%, at a lower risk level: 9.24% versus 10.68% for a return/risk ratio of 0.82 versus 0.70. Alternatively, Portfolio E offers a similar return/risk ratio of 0.72 with a significantly higher expected return of 8.32%. Therefore, if the Council kept the assumed risk tolerance unchanged, it could improve its expected return. Conversely, the Council could decide to keep the expected return unchanged and take on less than the current level of expected risk. In order to achieve the current actuarially assumed rate of 8.75% however, it would be necessary to move further out on the efficient frontier, i.e., increase the risk level from current levels.

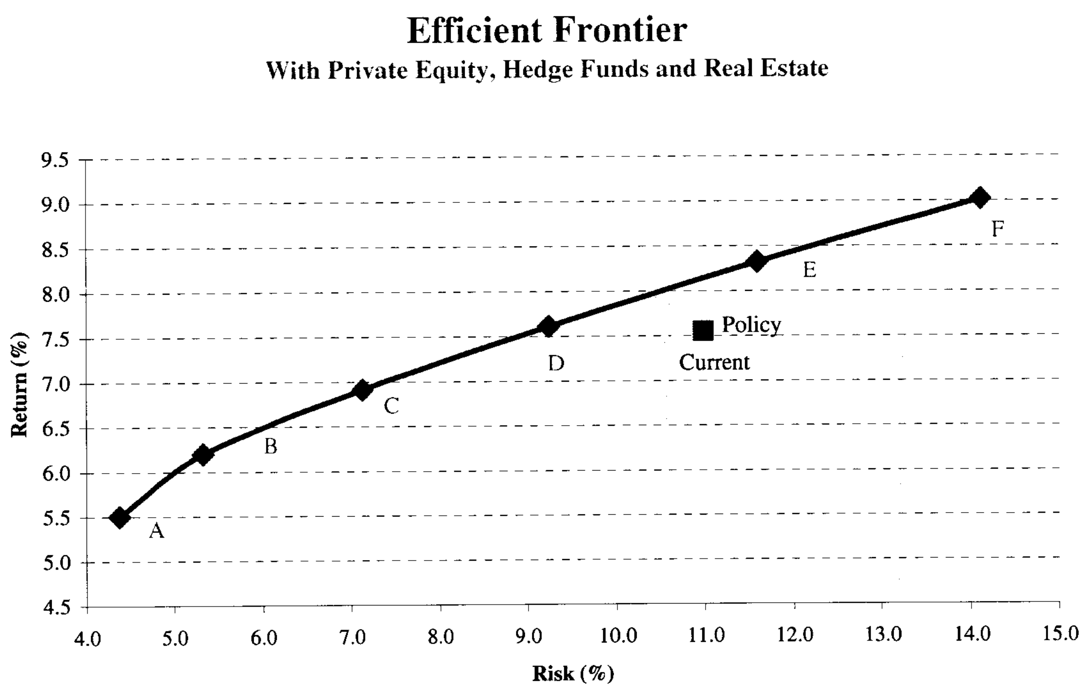

Chart V-5 Efficient Frontier Scenario 2 Portfolios								
Asset Class	*Policy*	*Current*	*Portfolio A*	*Portfolio B*	*Portfolio C*	*Portfolio D*	*Portfolio E*	*Portfolio F*
U.S. Equity	50.0	46.8	0.0	5.8	9.6	16.8	30.4	48.0
Non U.S. Eq.	15.0	15.8	0.0	11.6	18.4	22.0	22.0	22.0
Real Estate	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0
U.S. Bonds	30.0	35.5	75.0	57.5	48.5	33.6	17.6	0.0
Cash	5.0	1.9	5.0	5.0	0.0	0.0	0.0	0.0
Private Eq.	0.0	0.0	0.0	0.1	3.5	7.6	10.0	10.0
Hedge Funds	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0
Return	7.55	7.48	5.50	6.20	6.91	7.61	8.32	9.02
Risk	10.98	10.68	4.38	5.33	7.13	9.24	11.59	14.12
Return/Risk	0.69	0.70	1.25	1.16	0.97	0.82	0.72	0.64

Scenario 3: Unconstrained

For the third scenario we did a more unconstrained analysis (except for the 70% maximum constraint on U.S. and international equities and the 22% maximum constraint on international securities, which were incorporated in all the scenarios). This analysis produced portfolios that range from nearly 100% cash, the least risky asset class, to 100% private equity, which offers the highest expected return.

None of these portfolios would be practical to implement, for example, because of concerns over liquidity (MVO does not directly account for liquidity) and possibly because the resulting portfolios are very unconventional. Nevertheless, this scenario underscores the expected impact of nontraditional asset classes. It also demonstrates the impact of constraints on the MVO analysis and the importance of taking care in using such constraints.

The relatively low risk levels and correlations associated with real estate and hedge funds lead to very large allocations to those asset categories. Private equity offers a much higher expected return than any of the other asset classes. Despite the very large standard deviation estimate, the model will allocate a large amount to this category in order to maximize expected return.

Efficient Frontier
Unconstrained

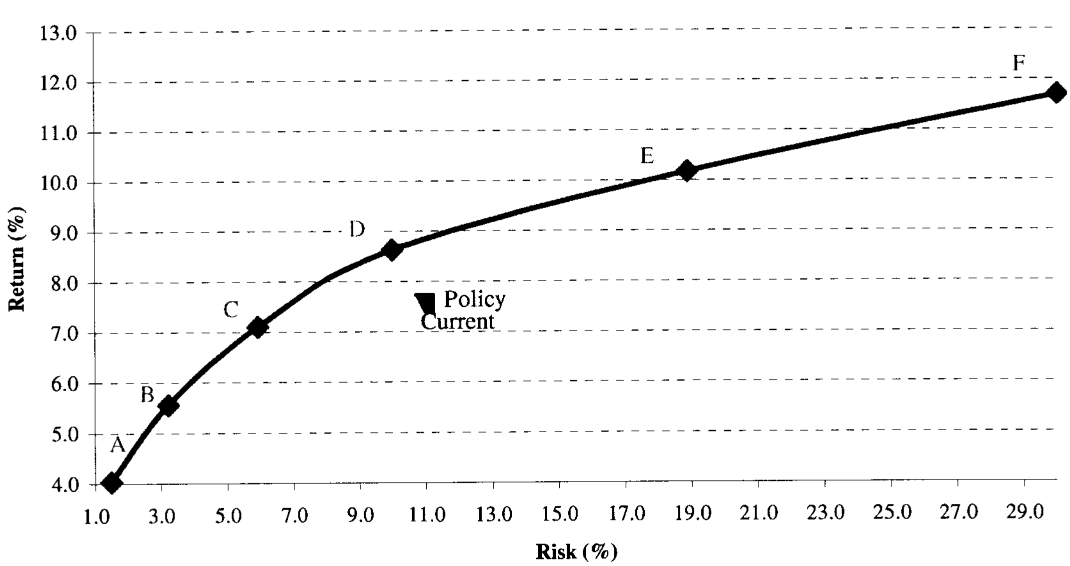

Chart V-6 Efficient Frontier Scenario 3 Portfolios								
Asset Class	*Policy*	*Current*	*Portfolio A*	*Portfolio B*	*Portfolio C*	*Portfolio D*	*Portfolio E*	*Portfolio F*
U.S. Equity	50.0	46.8	0.0	0.2	0.6	0.0	0.0	0.0
Non U.S. Eq.	15.0	15.8	0.0	1.4	2.7	7.6	16.4	0.0
Real Estate	0.0	0.0	0.1	14.2	28.3	14.8	0.0	0.0
U.S. Bonds	30.0	35.5	2.1	11.4	20.7	0.0	0.0	0.0
Cash	5.0	1.9	95.4	49.8	4.3	0.0	0.0	0.0
Private Eq.	0.0	0.0	0.0	0.0	0.0	17.0	54.1	100.0
Hedge Funds	0.0	0.0	2.4	23.0	43.5	60.6	29.5	0.0
Return	7.55	7.48	4.03	5.56	7.10	8.63	10.17	11.70
Risk	10.98	10.68	1.48	3.22	5.92	10.0	18.88	30.00
Return/Risk	0.69	0.70	2.73	1.73	1.20	0.86	0.54	0.39

Recommendation
We recommend that the Council include additional asset classes in its next asset allocation and/or asset liability study and adopt revised asset allocation targets that would offer a higher expected level of return for their stated risk tolerance.

New Jersey Pension Funds' Asset Allocation Is Less Diversified than Average Public Fund

The asset allocation of the New Jersey Pension Funds is less diversified than the average public fund and lacks several asset classes and strategies that large, sophisticated public fund investors typically include to increase expected return and reduce expected risk.

As mentioned earlier in the report, finding a large universe of pension funds that are truly comparable is challenging. The 2001 Greenwich Associates survey includes a universe of 447 public funds, of which 121 are reported to be state funds and 304 are reported as municipal funds (note: numbers do not add due to survey methodology).[99] As can be seen in the table below, the Pension Funds' policy portfolio has a total weighting to publicly traded common stocks higher

[99] *"2001 Investment Management Market Dynamics Report," Greenwich Associates, Inc.*

than the average public fund – 65% versus 57.7%. The allocation to non-U.S. stocks is slightly higher at 15% versus 12.3. The Pension Funds' allocation to fixed income is in line with the average public fund, but it does not have allocations to equity real estate or alternatives. The "other" category includes real estate mortgages, guaranteed investment contracts and short-term securities. The non-U.S. portion of fixed income is not broken out in the Greenwich Associates study. The asset allocations of the state and municipal funds are very similar and differ primarily in the amount invested actively versus passively (please see Section VI on Investment Management Structure).

Wilshire Associates prepared a survey report in August 2002 on funding levels and asset allocation of State Retirement Systems.[100] They used data provided by 93 retirement systems sponsored by the 50 states and D.C. We show the average asset allocation for the funds surveyed in Chart V-6. Wilshire's survey also showed a wide variation in the level of total publicly traded domestic equities: from a low of 21.7% to a high of 63.3%. The allocation to international equities ranged from 0% to 23.0%, while the allocation to domestic bonds ranged from 10.2% to 78.3%.

Results of another survey of 99 large public funds conducted by R.V. Kuhns and Associates in June 2002 are also shown in Chart V-6.[101] Their sample includes 15 plans with over $20 billion in assets, 14 between $10 and $20 billion, 49 between $1 and $10 billion and the remainder between $100 million and $1 billion. Fifty-two are state government plans, 46 are local government plans and one is a special district plan.

[100] *"2002 Wilshire Report on State Retirement Systems: Funding Levels and Asset Allocation," August 12, 2002, Wilshire Associates, Inc.*
[101] *"Public Fund Universe Analysis Report,"* for the fiscal year ending June 30, 2002, R.V. Kuhns & Associates, Inc.

Chart V-6 Asset Allocation Surveys				
Asset Class	**New Jersey Policy Portfolio (%)**	*Greenwich Public Funds Surveyed (%)*	*Wilshire State Funds Surveyed (%)*	*RV Kuhns Public Funds Surveyed (%)*
U.S. Stocks	50	45.4	43.8	41.3
Non-U.S. Stocks	15	12.3	12.5	12.0
Emerging Markets	-	-	-	0.8
Global Equities	-	-	-	2.6
Total stocks	65	57.7	56.3	56.7
U.S. Fixed Income	30	31.4	34.6	30.2
Non-U.S. Fixed Income	0	-	1.6	1.6
Equity Real Estate	0	3.8	3.4	5.4
Alternatives/Private Equity	0	2.9	3.9	4.0
Hedge Funds	0	0.2	-	-
GICs	0	0.4	-	-
Stable Value Investments	0	0.2	-	-
Short-Term/Cash	5	-	-	1.6
Other	0	3.4*	0.1	0.4

**Includes real estate mortgages and cash & short-term securities.*

The asset allocation of the Pension Funds appears somewhat consistent with those of its peers, in many respects, without considering the structure and amount of their peers' particular liabilities, and subject to one major exception: the lack of any real estate equity or "alternative" asset classes. The Pension Funds have a significantly greater allocation to equity (primarily domestic) securities than many of their peers, presumably in lieu of a dedicated allocation to real estate or any alternative investment classes, e.g., private equity, absolute return strategies, etc.

By contrast, according to the survey of other boards of investment and funds conducted by IFS (See Chart V-7 below), the 11 other comparable pension funds have, on average, a 4.8% allocation to real estate and a 6.0% allocation to alternatives. Those funds with real estate portfolios have allocations ranging from 2.2% to 9.0% of the total fund, while those funds with alternatives portfolios have allocations ranging from 0.6% to 14.3% of the total fund. All but two have an allocation to real estate and all but one have an allocation to private equity; West Virginia is the only other fund without an allocation to either private equity or real estate. The eleven funds in the survey also have an average of 43.6% allocated to domestic equity, 15.3% allocated to international equity, 26.4% to domestic fixed income and 1.2% to international fixed income. Only three of the funds surveyed have an allocation to international fixed income, ranging from 2.0% to 6.4%.

The three funds with the smallest allocations to domestic equity (Oregon, Washington and Wisconsin) all have considerable allocations to both alternatives and real estate. This smaller more targeted IFS survey of BOIs reflects a slightly higher allocation overall to alternatives than the larger survey groups and a smaller allocation to domestic fixed income; therefore New Jersey looks like more of an outlier with regards to these asset classes than it does when compared to the other, more general surveys.

Chart V-7 IFS Asset Allocation Survey

	Asset Class					
State Entity	Dom. Equity	Int'l Equity	Dom. Bonds	Int'l Bonds	Real Estate	Alternatives
New Jersey**	**46.8**	**15.8**	**34.3**	**1.3**	**0.0**	**0.0**
Alaska PIB	41.0	18.6	26.6	4.9	6.4	2.6
Florida BOA	54.4	11.7	24.1	0.0	3.8	3.5
Mass PRIM	42.9	17.8	27.5	0.0	5.4	5.5
Michigan BOI	44.3	6.4	19.8	0.0	8.5	14.3
Minnesota BOI	45.9	15.0	29.4	0.0	2.2	4.7
Ohio PERS	45.1	20.7	23.1*	0.0	9.0	0.6
Oregon Treasurer	37.0	16.0	25.0	2.0	4.9	12.5
Texas TRS	52.5	13.0	29.5	0.0	0.0	4.5
Washington State	36.1	15.0	27.4	0.0	7.9	13.3
West Virginia IMB	43.5	17.2	35.8	0.0	0.0	0.0
State of Wisconsin	37.0	17.2	21.7	6.4	4.5	4.6
Survey Average	43.6	15.3	26.4	1.2	4.8	6.0

** Aggregate active domestic and international fixed income.*
***As of December 31, 2002.*

In addition, we looked at the asset allocation of the ten largest public pension funds (see Chart I-1). This survey shows that these top ten funds had an average of 46.3% invested in domestic equity, 14.1% in international equity, 28.2% in domestic fixed income, 1.5% in international fixed income, 4.6% in real estate and 3.1% in alternatives. Four of the ten invest in international fixed income, ranging from 0.7% to 6.4%, all but two of these top ten funds invest in real estate, ranging from 2.9% to 9.9%, and all of them have at least a minimal allocation to alternatives, ranging from 0.2% to 6.3%.

Many other funds, e.g., large corporate pension plans and endowments, invest extensively in alternative asset classes and strategies. The 2001 Greenwich Associates survey shows that endowments in particular invest in alternatives to a greater degree than other types of funds, for an average of 7.7% in private equity and 5.1% in hedge funds. Despite the availability of this information, we believe it should be considered judiciously because corporate funds and endowments differ in significant ways from public pension funds.

Despite all the preceding comparative information, we believe the appropriate asset allocation for a given pension fund depends less on what its peers are doing and more on its own, often unique, attributes. These include, for example, the timing and amount of its liabilities, legal constraints (limiting or prohibiting certain types of investments), need for cash flow and liquidity, and legitimate policy judgments by the Boards.

Reviewing and Rebalancing the Asset Allocation

The Division and Council Do Not Have a Documented Rebalancing Program

Rebalancing is the process of re-adjusting the proportion of a portfolio invested in each of the major asset classes back within the permissible range around long-term targets. A rebalancing program is consistent with best practices and should be implemented and followed on a regular basis, e.g., quarterly, semi-annually, and annually. On the other hand, forced, inflexible rebalancing to target weights can create unnecessary transaction costs and is not advisable as long as the asset classes are within policy ranges. However, over time, disciplined rebalancing can enhance performance and manage overall risk. Rebalancing ranges around long-term targets should be designed to ensure that asset allocation "drift" is controlled in a cost-effective way.

We found that the Council does not have a clear documented rebalancing policy for the Division to follow. However, we understand that Division staff reviews asset class weightings monthly at strategy meetings to determine if rebalancing is needed. The Division has set informal ranges around the fund's asset class targets, e.g., 60-70% for equities, but there is no hard and fast rule that requires rebalancing, unless the allocation goes above the Policy upper limits (70% for total equities).

Responsibility for making rebalancing decisions appears to rest with the Director and Deputy Director and is discussed at the strategy committee meetings. The importance of the "tactical" decisions associated with rebalancing is such that final authority ought to be clearly assigned by Policy to an appropriate executive officer within the Division. The Council should adopt a policy requiring the Division to re-balance if an asset class falls outside of an approved range, unless the Council directs otherwise. Ranges around the targets should not be so narrow as to require constant "rebalancing" or so wide as to permit significant deviation from the Pension Funds' long-term targets. Alternatively, the Council could choose to maintain approval authority over each rebalancing decision, or to require the Division to seek approval from the Council if it desires to pursue a more intrusive form of rebalancing, e.g., rebalancing to target or when the asset classes are not outside their ranges.

Recommendation

We recommend the Council:

- *develop a policy requiring systematic rebalancing to within asset allocation ranges;*
- *document the policy; and*
- *follow it on a regular basis, e.g., quarterly, semi-annually.*

The policy should identify ranges around the targets, specify the level of judgment vested in Division staff, and clearly assign rebalancing responsibility to an appropriate executive officer within the Division.

Awareness of the Risks Associated with the Asset Allocation

Although we understand that the Council has become increasingly aware of the risks associated with the current asset allocation, there does not appear to be a clear recommendation by the Council as to where the Division should fall on the risk scale or what amount of near-term volatility is acceptable. We understand that the Council has become more sensitive to the Pension Funds being adequately compensated for the risk they take, rather than focusing solely on absolute levels of return. This became a topic of discussion with the Council in 2002.

High Equity Allocation Tends to Lead to Potentially High Volatility

As shown above in the survey comparisons, the Pension Funds have a higher than average allocation to publicly traded equities. Since publicly traded equities have a larger standard deviation (or volatility) than most other asset classes (except private equity), a large equity allocation would cause the Pension Funds to have potentially higher volatility, at least over the shorter term. The Pension Funds may have this high equity allocation in part because of their relatively high actuarially assumed rate of 8.75%. The Greenwich Associates 2001 survey showed the average rate of return assumption was 8.3% for public pension funds.

The NEPC Fiscal Year 2002 Plan Review shows that versus NEPC's universe of large funds, the New Jersey composite has had above median risk levels for the last three and five year periods, while the returns were fourth and third quartile, respectively. This suggests that the Pension Funds have not been properly compensated for the amount of risk they have taken.

As demonstrated above in our efficient frontier analysis however, even though the current risk level of the portfolio is relatively high, it would need to be even higher in order to achieve the 8.75% actuarially assumed rate. Therefore, if the Council were to use the goal of meeting the actuarial rate as its primary factor in determining what would be an appropriate risk tolerance for the Pension Funds, the Council would need to adopt a more aggressive risk level than if the actuarial rate were lower. As mentioned above, however, the actuarial rate should not be the primary factor considered in an asset allocation study and in setting an acceptable risk level for the Pension Funds.

In addition, although the Council has considered some additional asset categories over the past few years (e.g., private equity, real estate, etc.) it has not approved any as permissible investments for the Division. The Council now appears cognizant of the fact that excessive reliance on publicly-traded securities may be risky and careful investing in alternative asset classes may enhance diversification, thereby decreasing the overall risk level.

Risk Monitoring would be Enhanced with Additional Guidelines and Parameters

We understand that the Council is now aware that New Jersey has not generated a level of return commensurate with the level of risk it has assumed, lagging its peers. We understand that the Council is attempting to address this issue. The Council has become mindful of the fact that New Jersey is unique in managing 100% of its assets internally and actively and that approach generates some risks that other public funds do not face. As noted in Section VI on Investment Management Structure, the approach the Division has taken (until some recent changes) to managing its domestic equity portfolio has allowed an uneven distribution of deviations from the benchmark as portfolio managers had historically been given a great deal of latitude, i.e., some PMs have maintained a more "index-like" portfolio while others take more aggressive "bets," leading to a potentially more volatile (or "risky") portfolio. We were informed that, historically, the Council had not monitored the Division's investment strategy strictly, e.g., it had not required the Division to report the effects of above benchmark positions it had taken on individual companies, sectors or countries in the equity portfolio. Consequently, we understand that the Council had historically been unaware of large losses (or gains) and it had not required the Division to report many important portfolio characteristics. The current

Council, however, has taken steps to monitor the investment strategy more closely. Since the Division internally manages all of its assets, it is essential to give staff appropriate guidelines, monitor them for compliance, and perform and evaluate an attribution analysis.

Recommendation
We recommend that the Council determine the appropriate level of risk for the Pension Funds, taking risk into account in the next asset allocation study and in making decisions regarding the asset classes to include and the active/passive allocation.
We recommend that the Council increase its monitoring of risk levels.

Possible Asset Allocation Modifications

The Use of Additional Asset Classes Would Enhance Diversification

We understand that the Council has considered, but deferred action, on permitting the Division to invest in additional types of asset classes and strategies, such as private equity, high yield bonds and real estate equity. According to the 2001 Annual Report, in 2000, the Council increased the maximum allocation to international securities to 22% from 20% and approved a maximum allocation to emerging markets of 5% of Common Fund D, initially not to exceed 2% of assets, pending further action by the Council. This translates to less than 1% of the total Pension Funds' assets, however.

In addition, at a meeting on April 17, 2003, on the advice of Division staff, the Council approved a modification to the regulation that covers permissible investments in U.S. common and preferred stocks and issues convertible into common stock to allow the following:

> "Purchase a debt issue of a company, the common stock of which qualifies for investment and is on the "Approved Common and Preferred Stock and Convertibles List"; for the purpose of this rule

all such debt purchased shall be considered as common stock in determining all applicable limitations contained herein…"

The Division reports that this new regulation takes effect on September 2, 2003. We understand that this regulation implicitly permits the purchase of high yield debt in lieu of equity (in Common Fund A) and that the equity analyst will make the recommendations to purchase the debt. The Division also informed us that all purchases of high yield debt securities together can only make up 3% of Common Pension Fund A.

We further understand that the Council deferred considering high yield debt as a separate asset class at the April 2003 meeting until a new asset allocation analysis can be completed. Allocating a portion of the domestic equity portfolio to high yield debt, rather than including high yield in the fixed income portfolio, is somewhat unconventional. Because investing in high yield debt represents a departure for the Division, we question whether the Division's domestic equity staff has the resources and expertise to effectively manage a high yield bond portfolio. IFS did not investigate the Division's capabilities with regard to high yield debt, because at the time of our on-site interviews and subsequent examination through August 2003, the Division did not invest in these types of bonds. The Division will need to develop guidelines and procedures to govern the selection, distribution and quality of the high yield securities it purchases. It may also need to acquire additional sources of credit research on high yield debt.

As discussed above, the average public pension fund invests in asset classes other than publicly traded equities and fixed income. For example, the R.V. Kuhns survey showed that 67 of the 99 funds surveyed invest in real estate equities with a median allocation of 6.3% and 53 out of the 99 funds invest in alternative investments with a median allocation of 4.2%. IFS' survey of BOIs showed that 10 of 11 invested in private equity and nine of 11 invested in real estate equity (other than REITS).

Most institutional investors allocate a portion of their fund to equities with the expectation for "real" portfolio growth over time, whereas an allocation to bonds is often viewed as the counter-balance to equities. Investment in only publicly-traded equities and bonds may not be enough to produce the desired risk/return relationship for the Pension Funds. Even if equities return in the future to their long-term historical average annual return of around 9-10%, equities are inherently relatively volatile. In addition, historically high bond returns over the past few years have been largely attributable to an overall, secular decline in the level of interest rates and low inflation. These declines cannot continue indefinitely. IFS' efficient frontiers, above, show how it is possible to achieve a better return/risk ratio, i.e., improve diversification, with the use of additional, less-correlated asset classes.

Recommendation
We recommend that the Council approve investment in additional asset classes and strategies in order to achieve better diversification.

We discuss below four asset classes/strategies that the Council should consider:

- **Private Equity**

Compared to more conventional investments in publicly traded securities and real estate, "alternative investments" offer an opportunity for relatively high long-term returns and further portfolio diversification (limited correlation to public security markets). Negatives associated with alternatives include: (1) lower liquidity, (2) potentially low or negative initial returns in some cases (for example, the j-curve effect of private equity), (3) the demands of significant time, resources and expertise to prudently assess, manage, measure and oversee the more complicated strategies and structures, and (4) difficulty of valuation.

Illiquidity is a disadvantage relative to public market assets if funds are needed for benefit or other types of payments. While secondary markets exist in private equity (where private equity investments can be sold prior to their maturity), this is typically not an efficient way to raise cash. An advantageous flip side of illiquidity is that it forces an investor to take a long-term perspective. Approaching investing from a long-term perspective often produces better long-term returns.

- **Hedge Funds**

Many pension funds also have an allocation to hedge funds or absolute return strategies. Diversified hedge fund portfolios may offer the opportunity to earn "equity like" returns over time, with less volatility than the equity market. Hedge fund-of-funds have shown annual returns near those of the equities with far lower annualized risk or standard deviation. There are many different types of hedge fund strategies, some of which (the "non-directional" strategies) are less correlated with the movement of the overall market than others (the "directional" strategies). "Non-directional" strategies are relative value strategies and include equity market neutral and convertible and fixed income arbitrage. "Directional" strategies include the macro funds, long/short equity, short selling, etc. So-called "managed futures" funds are another variety within the general, larger category of hedge funds. These vehicles take long and short positions in a wide range of futures contracts (e.g., metals, energy, agricultural products, financial instruments, etc.).

Due to the relatively limited historical record of performance (less than 20 years) and the lack of transparency of the portfolios, hedge funds have risks unlike other public market asset classes. Risks due to leverage, derivatives and improper hedging are also factors. It is therefore important to monitor closely the risk level of the portfolio and for the investor to perform significant due diligence. Hedge funds have also become increasingly popular in recent years so there is the possibility of too much money chasing too few good funds and strategies. In addition, the impact of the high fees must be taken into account (typically 1% flat fee plus 20% incentive fee), when compared to the low costs associated with the Division use of internal management.

- **Real Estate**

Equity real estate is another asset class with historical and expected returns that fall between those of equity and fixed income. Real estate has traditionally offered low to slightly negative correlation with both the equity and bond markets, therefore providing pension plans with increased diversification and lower overall portfolio risk. Real estate equity also acts as a hedge against inflation and can be a steady source of income. Pension plans can invest in real estate equity in a number of ways: direct investments through a separate account, indirect investments through commingled investment vehicles, and investing through publicly traded securities in the form of REITs (real estate investment trusts). Although REITs offer the advantage of greater liquidity than the other forms of real estate, their returns also tend to be somewhat more highly correlated with those of the equity market.

Investing in real estate does pose particular risks, such as limited liquidity, transaction costs, long holding period, possible use of leverage, political/economic factors and vagaries of valuation, among others. However, many investors conclude that the diversification benefits of adding a well managed real estate portfolio to a pension fund outweigh these factors.

- **High Yield Bonds**

High yield bonds are a sub-asset class of the U.S. fixed income market in which the Division does not currently invest, but is now able to do as part of Common Fund A (see discussion at the beginning of this Section). High yield bonds have limited correlation with investment grade fixed income, but higher correlation with equities than other bonds. By itself, the high yield market has produced some volatile returns, but empirical evidence shows that over many time periods, adding high yield to a purely investment grade portfolio is likely to improve average returns and reduce the overall risk of the portfolio.

VI. Investment Management Structure

The scope of work, set forth in our contract with the Treasurer, calls for an evaluation of the Division's current investment management structure for the Pension Funds. This includes the advantages and disadvantages of active versus passive, internal versus external, commingled funds versus separately managed accounts, higher or lower levels of risk in various investment classes, and the appropriate number and types of external managers.

Definition of "Investment Structure"

Background

The terms "investment structure" and "asset allocation," while interrelated, are not synonymous. Asset allocation, discussed in Section V, refers to the process of determining the optimal amount a fund should allocate to various asset classes, based on assumptions regarding expected asset class risk, return and correlation. Investment structure refers to the deployment of and mechanisms for managing assets within an asset class.

Like the asset allocation decision, the investment structure decision involves both objective and subjective considerations. The major investment structure issues that institutional investors, such as the Council, typically address include:

- active vs. passive management;
- internal vs. external management;
- manager styles; and
- number of managers.

Active Versus Passive Management

The Use of 100% Active Management Is Atypical for a Public Investment Entity

The use of active versus passive investment management is a major issue for institutional investors. Most public plans use passive management for at least some portion of their assets. To the best of our knowledge, the New Jersey Division of Investment is unique in using exclusively active internal investment management, as detailed below.

Active investment managers, through fundamental research, quantitative analysis or a combination of both, seek to build portfolios that provide a rate of return (after fees) in excess of an appropriate market benchmark. Passive managers, on the other hand, construct portfolios designed closely to track a market benchmark. Since they involve no active investment management decisions, passive portfolios are implemented at very little cost and require a much smaller staff. (See also discussion in Section I.)

Passive Management Can Be a Useful Strategy in Efficient Markets

Empirical research suggests that for developed, "efficient" markets, passive investing can play a useful role for some portions of a total portfolio. Efficiency is the concept that market information is so quickly disseminated that, in the absence of illegal insider information, no investor can achieve a greater than market return consistently over time. This leads to the premise that investing in such markets is a "zero-sum" game wherein for every winner who beats the market, there must also be a loser. Research suggests that, over the long term, after investment-related fees and transaction costs are paid, the majority of active investment managers are unlikely to provide added value over a passive portfolio, especially in large cap equities. Nevertheless, many institutional investors still believe they can identify investment management organizations, or develop a team internally, with the active management skills necessary to provide above-benchmark performance.

Survey Comparisons

Most of New Jersey's Peers Use a Mix of Active and Passive Management

To varying degrees, institutional investors typically utilize passive management for at least a portion of their investment portfolios. According to the 2001 Greenwich Associates survey of pension funds, the percentages of total public fund defined benefit assets invested passively and actively in various classes of assets were as follows:

Chart VI-1 Greenwich Associates Active-Passive		
Asset Class	% of Total Fund Assets Invested Passively	% of Total Fund Assets Invested Actively
Domestic Equities	24.0%	20.9%
International Equities	3.9%	9.4%

The percentages above suggest that many public funds believe that significant segments of the domestic equity markets are fairly efficient, as represented by the fact that over 50% of the domestic equity portfolios are passively managed (24% of the 44.9% total in domestic equities shown above). Conversely, they also suggest that public funds tend to believe greater value added can be achieved by actively managing portfolios of international equities, traded in less efficient markets.

Greenwich Associates also reports that "jumbo funds" (defined as those funds, public and private, with more than $10 billion in assets under management) index 44% of their total domestic stock assets and use enhanced indexing for 8.6%.

The R.V. Kuhns survey shows that 37 of the 99 funds actively manage 90%-100% of their portfolio, 55 actively manage 50%-89% and 7 actively manage between 10% and 49%, for an average of 78.8% actively managed. The average amount actively managed for funds over $20 billion was 67.4%.

IFS Peer Universe Comparison

IFS' survey of public plan boards of investment and other pension funds (see Chart VI-2 below and Exhibit 4 – Peer Group Allocation and Structure) shows that all of them, except for New Jersey, utilized passive management for at least a portion of their domestic equity, ranging from 20.0% to 100% of this asset class, for an average of 52.9% passively managed. Most (nine out of 11) also passively manage a portion of their total international equity (numbers include emerging markets), ranging from 19.7% to 100% (one fund) of this asset class, for an average of 33.1% passively managed across the 11 funds surveyed. Five of the 11 investment boards surveyed passively manage some domestic fixed income (from 12.0% to 46.1% of this asset class) for an average of 14.5% across all 11 funds. Only one fund surveyed passively manages a small portion of their international fixed income – 6.3%.

Chart VI-2 IFS Survey of Passive/Active Management								
	Domestic Equity		International Equity		Domestic Bonds		International Bonds	
State Entity	% Passive	% Active	% Passive	% Active	% Passive	% Active	% Passive	% Active
New Jersey	**0.0**	**100.0**	**0.0**	**100.0**	**0.0**	**100.0**	**0.0**	**100.0**
Alaska PIB	20.0	80.0	0.0	100.0	0.0	100.0	0.0	100.0
Florida BOA	65.4	34.6	48.7	51.3	32.4	67.6	0.0	0.0
Mass PRIM	64.8	35.2	19.7	80.3	26.2	73.8	0.0	0.0
Michigan BOI	33.4	66.6	100.0	0.0	0.0	100.0	0.0	0.0
Minnesota BOI	29.6	70.4	34.0	66.0	0.0	100.0	0.0	0.0
Ohio PERS	90.2	9.8	27.9	72.1	0.0	100.0*	0.0	0.0
Oregon Treasurer	45.9	54.1	31.3	68.8	12.0	88.0	0.0	100.0
Texas TRS	50.0	50.0	30.8	69.2	0.0	100.0	0.0	0.0
Washington State	100.0	0.0	50.0	50.0	0.0	100.0	0.0	0.0
West Virginia IMB	47.1	52.9	0.0	100.0	42.7	57.3	0.0	0.0
State of Wisconsin	35.1	64.9	22.1	77.9	46.1	53.9	6.3	93.8
Survey Average	52.9	47.1	33.1	66.9	14.5	85.5	N/M	N/M

** Aggregate active domestic and international fixed income.*

Recommendation

We believe that passive management is appropriate for a material portion of the Division's portfolio of publicly-traded securities, especially in the most efficient markets. We recommend that the Council and Division explore how to implement passive management of some portion of domestic stocks and bonds.

Similarly, among the ten public pension funds in the country with the largest value of assets (excluding New Jersey), passive management is very prevalent. For example, among those funds, on average, nearly 61% of domestic equities and nearly 24% of domestic bonds are passively managed (see Chart I-1).

The Acceptable Amount of Active Risk Has Not Been Determined

Regardless of whether and how much passive management the Council implements, the Council should adopt a position on the amount of "active risk" allowed in the domestic equity portfolio. For example, the Council has not addressed whether at least a portion of the domestic equity assets should be passively managed or what the expected tracking error should be versus the benchmark. Although the portfolio is 100% actively managed, we understand that some portfolio managers' sectors track very close to the index while, other portfolio managers may take more significant "bets." Given this situation and the very large pool of assets under management, once the Council and Division have determined the appropriate level of active risk, the Division could index a portion of the assets and allow the portfolio managers to take more aggressive "bets" with a smaller pool of assets across all of the sectors.

Recommendation

We recommend that the Council and the Division determine the degree of active management risk appropriate for the actively managed portion of the portfolio. We also urge the Council's Investment Committee to obtain the Division's analysis and opinion on these and other essential aspects of the investment program, before the Committee makes its recommendations to the full Council.

Internal Versus External Management

General Considerations: In determining whether and to what extent a public fund's assets are better managed internally or externally, four general considerations are essential. These are cost, continuity, control and investment performance. Each is discussed below.

Cost: Whereas external asset management requires fees to cover a private firm's marketing, client services and profit, internal asset management does not. In this regard, internal asset management is likely to be substantially less expensive than external management, at least in terms of visible, out of pocket expense. External management also entails some cost for the internal staff and resources a pension fund requires in order to prudently structure and oversee outside investment firms.

Cost considerations may differ for a very large fund versus a smaller fund. As the value of fund assets increases, the possibilities of enjoying substantial economies of scale from internal management also increase. These economies may include:

- greater clout in negotiating and controlling transactions costs;
- lower unit costs for acquiring and maintaining investment hardware and software; and
- staffing costs and related matters.

Continuity: One significant factor in determining the appropriate degree of internal vs. external investment management is the ability of the public fund to attract, retain and train its investment personnel. Because of political and statutory constraints, public pension funds are often unable to pay the competitive compensation needed to attract and retain talented investment professionals. Investment managers who have proven their ability to achieve good performance can command large compensation packages in the private sector and, accordingly, often are lured away from public fund positions. For a public fund to lose and then replace key investment personnel is typically disruptive and time-consuming. Changes in staff also may pose serious investment risks, insofar as new personnel are involved in learning their way around the organization. One solution to the problem of insufficient compensation is obvious: Increase such compensation in an effort to attract and retain qualified investment personnel. Several PERS with primarily internal management have done this over the past few years, including for example, Texas TRS and Ohio PERS. However, for a public entity, increasing compensation is often very difficult. [See the discussion on Ability to Attract and Retain Employees, in Section II.] Recognizing political realities, many public funds delegate authority to external investment managers, rather than taking on the "governance risk" of limited resources, high turnover and limited ability to attract qualified investment professionals.

Control: Internal asset management in some ways enhances control over the investment process, but in other ways may threaten it. Compared with management by external firms, internal asset management potentially facilitates greater and more direct control over the investment process by the Council as a matter of policy and directly by the Treasurer/Division. On the other hand, effectively controlling an internal asset management department requires significant internal discipline and organization, including proper separation of functions and internal controls, e.g., portfolio management versus measurement and evaluation, and portfolio management (front office) versus accounting and settlement (back office). It also entails significant fiduciary liability. Arguably the more direct control a fiduciary retains, the more liability exposure it assumes. Greater direct control over the investment process also may create greater potential for political interference. Internal asset management also requires sufficient securities processing, order management/routing systems, trade entry systems and overall investment accounting systems.

Investment Performance: For certain types of assets and strategies, the performance of external managers (net of all fees and expenses) is often disappointing relative to index returns. For certain types of assets and strategies, internal management can reasonably be expected to do as well, but only if properly structured and administered. On the other hand, achieving attractive returns in other types of assets and strategies requires resources and skills that a public investment organization is unlikely to develop and maintain.

One example of how a pension fund with limited resources may choose to do some internal asset management can be seen in the management of domestic equity securities of companies with substantial capitalization. Some large public funds with internal management pursue an active, but highly structured and quantitative investment strategy, which an internal investment department can manage with relative ease, and which may be very effective for this segment of the market. Large cap domestic stocks trade in very efficient, liquid securities markets, where – after considering external investment management fees and related expenses – an external, actively managed approach may well fail to outperform the applicable benchmark, e.g., the S&P 500 Index.

Some Investment Strategies May Be More Effectively Managed Externally

As noted above, most of the Division's internally managed assets consist of publicly-traded domestic stocks and bonds, relatively traditional and straightforward assets, traded in relatively efficient markets. By contrast, strategies that require more esoteric expertise or research to invest prudently, with substantial prospects of materially outperforming (or under-performing) the relevant targeted return benchmark are often better managed externally. One example is a portfolio of international emerging market stocks. While this asset class offers the potential for enhanced returns and added diversification, it also poses commensurately additional risk. In order to mitigate such risk, appropriate research and due diligence is essential, including knowledge of a range of local international markets, laws and social conditions. Such due diligence, often necessitating frequent international travel, is generally quite expensive. Even the largest most sophisticated public pension funds have difficulty acquiring the resources and maintaining the expertise necessary to prudently manage this asset class internally. Another example is a stock portfolio comprised of fast growing, newly formed companies with very low capitalization ("micro-cap growth" stocks), where very prompt, specialized information may be essential to success. In that instance, purchased research may not be sufficiently prompt, detailed or insightful, and the cost of maintaining a capable, in-house research staff may be prohibitive. More specialized, nontraditional strategies, such as real estate or private equity, or high yield fixed income requiring extensive credit research are often more efficiently managed externally.

Less competitive compensation tends to suggest (a) less aggressive and innovative investment strategies (because of less ability to attract and retain talented investment professionals) and (b) commensurately, a potentially greater role for external asset management. For example, if a very talented professional leaves the Division and the investment portfolio he/she manages is particularly specialized and judgmental, the Division's investment performance is more at risk than if the strategy is tightly, quantitatively and mechanically constrained, e.g., an index or enhanced index approach. Similarly, if the Division has a "deep bench" of investment professionals, then it should be in a position to maintain a demanding and (let us assume, successful) portfolio strategy, even if that particular professional then leaves the Division.

New Jersey Needs Additional Resources to Continue its Use of 100% Internal Management

We believe that over the near and medium term future, the Council should carefully consider the appropriate degree of internal versus external investment management by weighing all these interrelated factors and their progress on the many different fronts discussed throughout this Report. For example, to the extent the Division makes significant progress in developing clear position descriptions, an effective operating manual, strong risk management and enhanced staffing and employee compensation, continued use of internal management may remain attractive. On the other hand, to the extent progress on those fronts is limited and/or the Council decides to expand permissible investments in additional asset classes and strategies that require special resources and expertise (e.g., real estate equity, private equity, hedge funds, individual securities in emerging markets), the need for additional investment expertise and resources warrants some external management.

Recommendation

We recommend that as the parties consider how best to enhance the investment program, including investing in additional asset classes, they should utilize external investment management where the Division lacks sufficient resources or expertise to effectively internally manage assets. They should weigh the many interrelated factors that influence the advisability of external vs. internal asset management, including, e.g., complexity of each relevant asset class and strategy; adequacy of the Division's position descriptions, risk management, resources, and staff compensation; out of pocket fees and costs; and other factors. If the Division obtains sufficient resources and improves its governance over its investment management function to meet best practices, it could continue to internally manage a substantial portion of the assets; failure to enhance resources and governance warrants greater use of external investment managers.

Peer Universe Comparisons

New Jersey is Unique in Its Use of 100% Internal Management

The Division manages 100% of its assets internally for all asset classes. Based upon a survey of eleven state boards of investments and other comparable funds conducted by IFS, as well as our knowledge of public pension funds generally, (see Chart I-1 in Section I – Organizational Structure, and Exhibit 4), the Division is the only such entity to manage 100% internally. We found that most (nine of the 11) of the funds surveyed manage a portion of their assets internally, but no other manages all of its assets internally. The degree of internal asset management for the other BOIs and state funds ranges from 16.9% (Minnesota) to 95.5% (Texas Teachers) of the defined benefit assets, with an average of 42.2% managed internally.

Four of the funds surveyed manage a majority of their assets internally: Texas Teachers (95.5%) Michigan Bureau of Investments (83%), Ohio PERS (60%) and Florida State Board of

Administration (56%). The State of Wisconsin Investment Board manages 50% internally and 50% externally. Massachusetts PRIM and West Virginia Investment Management Board use only external management. New Jersey is more of an "outlier" when one takes into consideration the fact that all the assets it manages internally are actively (not passively) managed. For example, although Texas TRS manages 100% of its domestic equities internally, 50% are passively managed. Michigan BOI is the only other fund that actively internally manages 100% of its domestic fixed income, although most of the peer group manages at least a portion of their domestic fixed income portfolio internally. As discussed in Section I, the Division is one of only three organizations that internally manage 100% of its international equity assets and one of three that actively manages 100% of its international equity assets, with the other two funds using external active managers.

According to the 2001 Greenwich Associates survey, of the public funds over $5 billion, 56% used some internal management. Those funds that used internal management managed 41% of their assets internally. The 2002 R.V. Kuhns survey of 99 public funds showed an average of 85.0% of assets managed externally. Seventy-three of the funds surveyed used external management for between 90 and 100% of their assets, 11 used external management for between 50 and 89% of their assets, 13 externally managed 10 to 49%, while two externally managed less than 10% of their assets. The average amount externally managed for funds over $20 billion was 61.8%.

New Jersey Would Need Additional Resources or Should Consider External Management to Invest in Alternative Asset Classes

If the Council expands the Division's investment universe to include additional asset classes and strategies, such as private equity, real estate, hedge funds, etc. (as we recommend above in Section V) it would be prudent for the Division to consider external management of those portfolios. We understand that even without further clarification of existing law this would be legally permissible through limited partnerships and unit trusts. The Division presented a memo to the Council in May 2002 on "Alternative Investments and Resource Planning," which outlined how long it would take and the resources required to fully fund an allocation to alternatives (i.e., private equity/venture capital). They determined that the Division would need to hire two professional FTEs and one additional support FTE to start the alternatives program, and additional staff would need to be hired in later years as the Division made investments. This analysis included the use of an alternative investment consultant in the process.

The January 2001 annual "Critical Issues and Strategic Planning" memo from the Division to the Council discussed the need for additional personnel with respect to real estate, high yield and alternatives. In our opinion, the Division could more quickly and effectively invest in these additional asset classes through the use of external investment managers rather than hiring additional professional and support staff, although staff would still be required to monitor such investments. The Division indicated it would require only an additional trader or portfolio manager for high yield bonds, but we believe that additional staff would be advisable since relying strictly on Wall Street for credit research could be problematic and especially difficult to manage downgrades and default issues. For real estate, the Division indicated that it would need "at least four high-level professionals with legal skills and experience in the area." Instead, the Division could choose to invest in commingled real estate funds or, if allowed, hire a separate account manager(s) to directly invest in properties, again with staff required to perform a monitoring function.

Whether assets are managed internally or externally, all of these strategies require some staff with appropriate expertise, if only to manage and monitor the external investment managers. If external managers are hired *in lieu of* a portion of the current internally managed portfolio, the responsibilities of at least some of the Division staff would change significantly. Instead of developing investment strategy and selecting securities, the role of those staff would be to focus on selection of managers, measure "alpha" or excess return achieved by these managers and monitor the risk of a multi-manager structure. We anticipate that this approach would not necessarily require any additional personnel (although the skills required and position descriptions would change, current staff presumably possesses such skills) or any additional resources (aside from additional fees incurred) or systems. The Division's investment consultant would be expected to play a larger role because of expertise in manager selection and monitoring. If external management is employed in addition to the current internally managed portfolios (e.g., through investment in new asset classes or using external management for only a portion of the equity and/or fixed income portfolios), additional staff would be needed to focus on the new asset categories and/or monitor the new external managers. The roles and number of such staff would depend on the scope of the consultant's duties, the types of assets externally managed, the investment disciplines involved and related matters. We believe, however, as stated in Section V, that the Council should add other asset classes and/or strategies in order to diversify the asset allocation and improve its the risk/return profile.

Structure of Division Asset Classes

As noted earlier, the equity and fixed income investments managed by the Division for the five Pension Funds are split into Common Pension Fund A (domestic equity), Common Pension Fund B (domestic fixed income), and Common Pension Fund D (international equity and fixed income). The Division also manages a Cash Management Fund for the Pension Funds and other state and municipal funds to make short-term investments. Mortgages are managed in a separate fund.

The Division's Investment Strategy Committee meets regularly to oversee the asset allocation of the Pension Funds as a whole and to determine how to deploy cash flows coming into the retirement funds. The committee is composed of the Director, Deputy Director, the Director of domestic equities, the Director of international equities, the head trader and the international fixed income portfolio manager ("the IFI portfolio manager"). This committee prepares a monthly outlook to guide the Division's investment decisions and this outlook includes commentary on fixed income and equity markets.

In the remainder of this Section, we discuss the investment structure and process of each of the asset classes the Division utilizes.

Domestic Equity

Overview

The domestic equity portfolio (Common Pension Fund A) is 100% internally actively managed and structured upon the S&P 1500 Index, the Policy benchmark. This portfolio also contains REITS, as does the index, but there is not a dedicated real estate equity portfolio. As discussed in Section I – Organizational Structure, the Division does not have as many portfolio managers and research analysts as comparable pension funds and/or investment management firms, although 100% of this portfolio is internally and actively managed. According to NEPC's Fourth Quarter 2002 Performance Review, the overall portfolio characteristics are relatively neutral to the policy benchmark – the S&P 1500. Although the Council does not have a policy regarding style bias in the domestic equity portfolio, in years prior to 2002, the domestic equity portfolio reportedly has had a slight overall growth bias.

Investment Process

The Division uses primarily a bottom-up stock selection process for its domestic equity portfolio. Individual analysts and portfolio managers are assigned specific sectors, over which they have buy/sell discretion. The Division's domestic equity investment staff uses Factset, Stock Val, Bloomberg, Indata, Lehman PC and NEPC and Russell Mellon performance reports to manage and monitor their portfolio. We learned in the interview process that in the past, this information was not used to actively manage individual staff and their "bets" but that this is now changing. The total portfolio was measured against the S&P 1500, but individual stock and industry bets were not, and therefore their impact on performance was also not measured. We understand that the investment process is now becoming more structured and more controls are being put on the analysts' buy/sell decision process. As discussed in Section III – Controls, since the arrival of the new Director, management has installed new systems to monitor and analyze these decisions and recent examples of performance reports exemplify improvements in the monitoring process. The Division's domestic equity staff meets to discuss sector weights following the decision by the monthly Strategy Committee meeting regarding asset transfers or reallocation, with the stated general goal of being relatively sector neutral.

A Well-Defined Investment Philosophy is Consistent with Best Practices

Similar to an external investment management firm, the Division should have a well-defined investment philosophy and process, including, for example, a clearly articulated approach (or set of approaches) to valuation, to which its portfolio managers and analysts subscribe. Until the arrival of the new Director, portfolio managers and analysts had significant flexibility in the investment process they employ. The process each individual PM or analyst traditionally used depended upon the segment of the market they were assigned and their personal approach, e.g., some analysts did a significant amount of fundamental analysis while others did not, while some took big bets away from the benchmark while others did not. Individual portfolio managers and analysts could also have a growth or value bias or a capitalization bias. Weekly meetings were used to discuss buy/sell orders, but the subsequent impact on the overall portfolio was not analyzed.

We understand that since the initiation of our review, the investment process has become more structured. Division domestic equity staff meetings are now held daily (with more lengthy weekly meetings); traders report on the status of open orders and analyst share ideas and discuss the market. Analysts also now must have limit and target prices for the stocks they buy.

Recommendation
We recommend that the Division continue to develop and formalize a well-defined investment philosophy, which governs the investment of the domestic equity portfolio.

The Division and Council Should be Aware of Biases in the Portfolio

The Council and Division management should be aware of any intentional or unintentional biases in the domestic equity portfolio. The Council may prefer to take on a lower level risk with a portfolio that closely tracks the stated benchmark(s) or they may allow or direct the Division staff to make strategic bets towards value or growth stocks as they deem appropriate. The Council and Division could also choose to manage two portfolios – one managed toward growth and one towards value. To the best of our knowledge, the Council has not squarely addressed or expressly adopted a position regarding the style structure it desires for the Funds' portfolio, including whether it desires to limit style biases, and previously, did not monitor the components of the total portfolio. As the portfolio had historically been managed, each individual portfolio manager may have his/her own particular style tilt which cannot be readily determined by analyzing the overall characteristics.

The enhanced investment reporting process instituted by the Division in early 2003 should improve the Council's awareness of any bias in the portfolio. We understand that the Council is awaiting this Report and the accompanying recommendations before undertaking revisions to the investment structure of the Pension Funds.

The Division Has Minimal Coverage of Small Cap Equities

The overall domestic equity portfolio has been divided into a large cap segment and a small cap segment – which is defined as the smallest 5% of the Approved List (currently market capitalization under $2 billion). This "allocation" to small cap is made only once per year, as of

December 31 and does not allow for reclassification throughout the year. In addition, as stocks move back and forth between small and mid/large cap, the analyst/portfolio manager responsible for covering those stocks changes. Small cap stocks are managed by a sole generalist portfolio manager. We question whether, given the large of number of stocks in this 5% allocation, this is adequate coverage, especially when one considers that there is generally less "Street" research produced and available for small cap stocks.

We understand that this method of dividing coverage responsibility has led the portfolio to be unintentionally underweighted in mid cap stocks, as one portfolio manager manages the small cap portfolio while the other analysts and portfolio managers manage portions of the large cap portfolio and the mid cap stocks are sometimes overlooked. Devising an overall active strategy and structure for the portfolio should help alleviate this problem. Alternatively, dividing the portfolio into two portfolios, an actively managed portfolio and an indexed portfolio, would force at least part of the total portfolio to be invested across the range of capitalizations.

Recommendation
After considering this Report, the parties should coordinate the structure and staffing of the Division to assure adequate coverage of all ranges of equity capitalization.

The Division's Overall Domestic Equity Portfolio Resembles the Broad Market

IFS performed an analysis of the holdings of Common Fund A as of September 30, 2002. We plotted the portfolio on a style map using Wilshire Compass size and style metrics (see Exhibit 16). This showed that the total portfolio plots between the S&P 500 and the Russell 3000 on the scale from large cap to small cap and in line with those indices on a growth/value scale. This would imply that the domestic equity portfolio as a whole does not have a style tilt or bias but that it has a slight bias to larger cap stocks. As of September 30, 2002, the Wilshire 5000 (the most inclusive measure of the domestic equity market) plots very slightly more growth oriented and is slightly smaller cap than the Russell 3000. Both the Russell 3000 and the Wilshire 5000 are broader measures of the domestic equity market than the S&P 1500, the Division's policy benchmark. The following chart shows some summary characteristics:

Characteristic	Common Fund A	Russell 3000	Wilshire 5000
Beta	1.01	0.98	0.98
Dividend Yield	1.92	1.96	1.84
P/E Ratio	22.63	23.50	24.33
R Squared	0.90	0.90	0.91
Avg. Cap Size ($mm)	$67,902	$59,088	$57,944
Median Cap Size ($mm)	$1,284	$495	$101
No. of Holdings	1,087	2,973	5,732

When we looked at the sector breakdowns for the portfolio as compared to the Russell 3000, there were no major variances. The largest overweight was a 2.08% overweight to energy (7.99% versus 5.91%), and the largest underweight was a 1.52% difference in industrials (10.07% versus 11.59%). This affirms our understanding that the Division is quite index-like in its overall structure and characteristics, aside from the slight large cap tilt, which one would also expect given the very large number of holdings – 1,087.

Recommendation
We recommend that the Council and the Division review the current investment program for any unintended style or capitalization biases. This should facilitate deciding whether to employ any strategic or tactical over and underweightings in style or capitalization and establishing a process for implementing those decisions. (We understand the Council is currently addressing this.)

Additional Resources are Needed to More Effectively Manage the Domestic Equity Portfolio

During the interview process, some analysts expressed the need for additional tools and resources. Most analysts rely on Wall Street research rather than generating independent research reports, due in large part to the number of companies assigned to each analyst. Given New Jersey's close proximity to New York City, i.e., Wall Street, the Division's analysts have the opportunity to attend innumerable road shows and other meetings. They do not appear to have sufficient resources to do much other travel for research or due diligence on portfolio companies, although the travel budget has reportedly become more flexible in the last year.

We understand that most analysts do not have an assigned back-up staff member. The Division should have sufficient resources, in terms of staff and technology, to provide a back-up for the analysts and portfolio managers when they are on travel, sick leave or vacation. Nor are investment staff members regularly equipped to check their portfolio companies or e-mail remotely, e.g., they are not provided with laptop computers, cell phones or PDAs by the Division (although we understand that some have acquired phones and PDAs at their own expense). Given that most analysts do not have an assigned back-up staff member, having the technology to follow their portfolio while on travel or vacation would benefit the investment staff, and presumably lead to more efficient operation of the investment program.

A Strategic Approach for the Future Course of the Domestic Equity Portfolio is Needed

As noted earlier in the report, large public pension funds commonly internally manage domestic equities, especially large cap equities. We believe it reasonable for the Division to continue managing these domestic equity assets internally as long as the issues discussed in this Report, e.g., applying adequate resources, implementing risk controls, and an appropriate compensation structure, are addressed. As stated earlier in this section, insofar as the Division does not receive appropriate resources and implement risk controls, use of external management for a portion of the domestic equity assets is even more warranted.

We believe that the Division has three distinct paths open to it for the domestic equity portfolio. It may choose to pursue any one of these or some combination of them. It can:

i) continue to actively manage the domestic equity portfolio by adding internal staff and substantial resources. Expanding the Division's domestic equity staff to levels discussed in Section I – Organizational Structure, increasing the travel budget, purchasing additional technology, etc., would involve some costs, but would be far less expensive than the incremental cost of hiring external investment managers. We understand that the Division's investment costs are approximately one basis point annually, much lower than the approximately 30-80 basis points (depending on investment style and size of account) commonly charged by external, active domestic equity managers;

ii) adopt a passive strategy and manage the portfolio internally; the Division could shift its strategy to a tightly controlled index or enhanced index strategy which would not require the additional staff and resources of an actively managed portfolio; and

iii) Employ external manager(s) to pursue active or passive management strategies for all or a portion of the portfolio. As noted above, this would be significantly more expensive in terms of fees, but – especially for more esoteric or specialized strategies – is probably the more feasible approach.

Recommendation
We recommend that the Division consider the various approaches to domestic equity management that are available. The Division can: *i) continue to actively manage the domestic equity portfolio if it adds resources in terms of staffing as well as its travel and technology budget, and develops and implements additional risk controls and investment policies;* *ii) continue to manage the portfolio internally through a passive approach; or* *iii) employ external manager(s) to pursue active or passive management strategies, for all or a portion of the assets.* *The Council and Division should determine which of these three approaches to domestic equity management (or combination of approaches) is preferable, in light of related policy decisions and budgetary, operational and organizational developments.*

Domestic Fixed Income

Overview

The fixed income portfolio is managed entirely by internal staff of the Division. It is divided into two segments – one managed versus the Lehman Government/Credit index (Common Fund B) and one that is purely mortgage backed securities (the "Mortgage Fund"). Although the Mortgage Fund is treated as though it was a commingled fund, it consists of separate investments for each Pension Fund.

Sufficient Resources Would Enhance Coverage of the Domestic Fixed Income Asset Class

The fixed income section has more limited staff than some of the other asset classes. Domestic fixed income is managed by the Deputy Director in consultation with the Head Trader for Fixed Income, and subject to strategic oversight and review by the Fixed Income Strategy Committee composed of top managers in the Division. Given the Deputy Director's numerous other responsibilities, he is able to devote only a portion of his time to this asset class. Faced with limited time, staff and resources, the Deputy Director appears to have done a reasonable job of managing a basic portfolio of fixed income securities by pursuing a sensible, modest risk strategy. However, the size of the Common Pension Fund B and the role that fixed income plays as a source of essential diversification for the Division's total portfolio, a different approach to fixed income is clearly required.

Fixed Income Investment Process

The Division describes its fixed income strategy as having several key elements:

- the Division's strategy is clearly active: it compares its portfolio to the Lehman Government/Corporate Index but it takes positions that deviate from the composition of the index;

- the Division reports that it pursues a "core" strategy, but employs different approaches at different times depending on the market outlook of the Division;

- the Division adopts a high-quality approach to credit risk to minimize the need for extensive credit research;

- the Division avoids significant interest rate risk by holding the portfolio's duration to within +/- five percent of the duration of the Lehman Government/Corporate Bond Index (but it also reports that it will make modest deviations from the benchmark's duration within sectors of the portfolio);

- the Division confines its use of mortgage securities to agency pool securities and does not generally own more complicated and risky securities like Collateralized Mortgage Obligations, Planned Amortization Class bonds, Interest Only securities, Principal Only securities, or more esoteric securities;

- the Division actively manages the sector weightings within its fixed income portfolio by varying the amount invested in Treasuries, corporates and mortgage bonds through time;

- the Division actively manages the credit quality of the corporate bonds by varying the amount invested in each category of investment grade bonds; and

- the Division does not currently invest in below-investment grade, "high yield" corporate bonds.

The Division's Fixed Income Strategy Committee meets to review the Pension Funds' fixed income holdings and exposures following the decision by the Strategy Committee regarding asset transfers or reallocation. This group serves as a form of peer review for the Deputy Director and the Head Fixed Income Trader and discussion within this committee guides the portfolio management decisions of the fixed income team, especially with respect to duration, sector allocation and credit quality. The committee has at its disposal reports on the portfolio regarding the shape of the U.S. Treasury curve, sector spreads along the curve, Wall Street research on corporate credits, and essential portfolio risk characteristics such as effective duration, average maturity, convexity, credit quality, and detail on sectors within the fixed income market. Security selection decisions are made by the Deputy Director with input from the trader.

The Deputy Director and the Head Bond Trader speak regularly, often several times a day, to discuss activity in the overall bond market, price changes in securities held by the Division and trades for the portfolio. The Division uses industry-standard sources of market information and real-time bond pricing such as Bloomberg and Reuters, and the trading desk monitors televised news during the day. The Division uses the Lehman PC software package to monitor its holdings, to perform analysis on the portfolio and to consider the impact of individual trades. The Division uses the analytical capabilities of Bloomberg to supplement the Lehman program. Most analysis is done by the Head Bond Trader and shared with the Deputy Director.

Trades are implemented by conventional methods (phone calls to bond brokers), but the Division is seeking to obtain a new trading platform called TradeWeb. This new trading platform offers a dramatic improvement in the ways in which bond traders can view available inventory held by major dealers in the bond market and can test the market's demand for securities that the trader may wish to sell. It speeds up the process of trading while making much more information available on the traders screen (as opposed to conventional techniques that required a series of phone calls to brokers). The Division uses QED for portfolio accounting.

The Division's Fixed Income Management Faces Two Specific Organizational Risks

Although the Division has followed this approach to managing fixed income without significant problems, there are significant risks involved that should be addressed:

- **Key Man Risk**: The fixed income decision making process is driven by the Deputy Director (although the fixed income trader has portfolio management experience as well). The Deputy Director prepares the market and portfolio analysis for consideration by the Fixed Income Strategy Committee. He decides how to implement the strategic decisions of the committee. He has final decision on the selection of securities and the general timing of trades. He reviews and reports the portfolio's risk exposures. He plays a central role both in developing the strategy and in monitoring its success. In the event that the Deputy Director is absent, the Division could cobble together an alternative process, but we have little confidence that such a stop-gap response would succeed over any period longer than a few weeks. The Division lacks sufficient professional back-up to deal with this personnel risk.

- **Separation of Functions**: The Deputy Director currently is responsible for developing the bond strategy, implementing it, and monitoring the associated risks. Given the complexities of the fixed income market, it is not clear that the current process would catch any errors or bad portfolio decisions until well after the fact. The essential insight here is that the responsibility for risk monitoring should be separated from portfolio management in order to avoid the kinds of problems that have occurred in some other financial institutions.

Recommendation
We recommend that sufficient resources be committed to enhance the Division's ability to manage fixed income. In the absence of sufficient resources, the Division should take steps to mitigate the risks arising from limited fixed income staffing and insufficient separation of functions.

Despite Lack of Division Resources, NEPC Reports That Fixed Income Performance Has Been Strong

Although performance is not covered by our current scope of work, and we did not independently evaluate it, according to the December 31, 2002, performance report prepared by New England Pension Consultants, Fund B has earned strong relative and absolute rates of return over the past five years. According to NEPC, Fund B ranked in the top decile of fixed income accounts in 2002, ranked in the top quartile of fixed income accounts over five years ending 12/31/02, and ranked above median over the ten years ending 12/31/02. Fund B has exceeded the returns of its benchmark, the Lehman Government/Corporate index (the "Index"), over most reported periods.

The Division Has Benefited from the Forces in the Economy and the Bond Market in Recent Years

The Division's investment performance in fixed income may partly be attributable to the constraints imposed on it – limited staff and resources – and market conditions that have favored the type of resulting portfolio. Lacking a team of fixed income credit analysts, the Division sensibly chose to avoid lower-rated corporate bonds, which suffered mightily in the economic downturn of 2001 and 2002, in favor of high quality corporates which gave the Division a "structural" advantage over the Index. In addition, however, investment in high yield bonds would have required additional resources – at least one analyst to do credit research and the associated compensation and budget. The Division's preference for U.S. Treasury securities also proved to be advantageous as interest rates continued to fall further than most bond market participants expected. The philosophical posture of the Division towards fixed income and its practical implementation placed the Division squarely in front of the trends in the bond market in a way that boosted returns. Nevertheless, we believe that it would not be prudent for the Division to count on a similar convergence of circumstances favoring its bond strategy in the coming years.

The Division Needs Additional Resources to Further Diversify the Fixed Income Portfolio

Although we believe that the Division has been wise in avoiding those securities and sectors of the bond market that it does not have resources or expertise to analyze and manage, it may well incur substantial opportunity costs in doing so over the long run. Two areas stand out in particular. First, the Division should consider the merits of the dramatic proliferation of mortgage and asset-backed securities, particularly the CMO, PAC, IO, PO and other "pieces" carved out of the agency "pie". These securities are more complex than conventional mortgages and can behave in ways that are difficult to predict if one lacks deep experience in the mortgage market. None of these securities is an inherently better investment than the more conventional mortgages and pass-throughs owned by the Fund, but in certain periods these securities can offer higher returns and attractive diversification. Second, the Council historically has prohibited the use of below-investment grade bonds and allowed the Division to own only certain types of "BBB" rated bonds (such as investment-grade industrial bonds). As a result, the Division has limited its use of investment grade corporate securities to only the top-most tiers and has relied heavily on the rating agencies to assess credit risk. As discussed previously in the Section on asset allocation, adding below investment grade or high yield securities can often provide a welcome degree of diversification to the bond portfolio. As noted previously, we understand that high yield securities are now permitted in lieu of equity securities in Common Fund A, but there is still no distinct allocation to high yield debt.

The bond markets continue to evolve at a rapid rate. New securities constantly enter the market and new hedging and risk management tools emerge. The Division's excessively lean structure in fixed income makes it virtually impossible for the Division to keep up with these developments and to benefit from innovations. The Division has adopted a sensible strategy in response to these deficiencies by limiting its ambition and by avoiding significant sectors of the bond market. Although its investment performance over the past several years indicates that this approach has been "cost-less" to the Fund, we are not confident that this will continue to be the case in the future. Any improvement, though, requires commitment of additional resources in staff, research and administrative support. We are confident, however, that these additional costs would be amply justified by the benefits of greater diversification in the investment portfolio.

A Strategic Approach for the Future Course of the Domestic Fixed Income Portfolio is Needed

Similar to the domestic equity portfolio, the Division has three distinct paths open to it for the domestic fixed income portfolio. It may choose to pursue any one of these or some combination of them. The first path, continuing to actively manage the domestic fixed income portfolio internally, involves building a larger team of fixed income professionals. Best practices among other institutional investors and money management organizations indicate that this approach would involve hiring three to five more professional staff. Fixed income deserves a dedicated, full time director. The director should be supplemented by a credit specialist and a mortgage specialist. Depending on the investment philosophy or process adopted by the Division, this team may also require one or two professionals with experience in economic analysis, multi-sector portfolio construction or statistical analysis and risk modeling. The other resources required (data sources, economic analysis, portfolio management systems, risk monitoring systems) appear to be in place (but could probably benefit from an additional system or two depending on the type of analysis the team seeks to do). Trading systems and expertise appear to be sufficient even as the Division may scale-up its professional roster. The total cost of this approach would be substantially more, relative to what the Division currently spends in this area.

The second path heads in the opposite direction. The Division, subject to approval by the Council, might adopt a passive management approach rather the present active one. Instead of monitoring the economy and the bond market to build a portfolio that contains active "bets" on interest rates, credit spreads, and changes in the shape of the yield curve, the Division could attempt to replicate the structure of the existing bond market (typically represented by the components of a broad market index like the Lehman Universal, Lehman Aggregate or Salomon Broad). This approach would be a bit less focused on security selection and more focused on trading techniques and minimization of transaction costs. Since the Fund experiences significant cash flows, and since the bond fund is often used as a source of liquidity for the Fund, management of cash flows and trading would be the primary challenge facing the Division. It could implement this approach by hiring one or two specialists with experience in managing fixed income index portfolios. Additional resources would be modest, but would likely involve acquisition of a program or portfolio management system tailored to the particular needs of indexing.

The third approach would be to employ external managers to manage bonds for the Division. The general arguments for and against external management are addressed earlier in this section. With respect to fixed income, external management would offer the opportunity to diversify the portfolio by sector, security, and investment style. It would allow the Division to:

- tap deeper talent than it is likely to be able to build on its own;
- give the Division greater access to different sectors of the fixed income market (e.g., high yield); and
- access innovative techniques in bond management as such techniques become more widely known in the marketplace.

On the other hand, this third approach would clearly incur greater cost because of external investment manager fees. External investment management fees for high yield fixed income can be as high as 125 bps. As previously noted, we understand that the Division's investment costs are estimated to be approximately one basis point, significantly less than the fees charged by external managers.

Recommendation
We recommend that the parties consider the three distinct approaches to fixed income management available. The Division can: *i) continue to actively manage the fixed income portfolio by adding internal staff and substantial resources;* *ii) adopt a passive strategy and manage the portfolio internally with modest additional resources; or* *iii) employ external manager(s) to pursue active or passive management strategies.* *The Council and Division should determine which of these three approaches to fixed income management (or combination of approaches) is preferable.*

International Securities

Overview

The international portfolio (Common Pension Fund D) includes both international equity (both developed and emerging markets) and fixed income. We understand that this fund originally held primarily fixed income securities, but with the arrival of the Assistant Director, the fund's focus shifted to equities over the years. A small allocation to international fixed income remains. The policy benchmark for the international portfolio is the MSCI EAFE index (only equities), so therefore the allocation to international fixed income can be viewed more as a tactical or "opportunistic" decision rather than a policy decision.

Recommendation
If international bonds are to be a permanent sub-allocation within Common Pension Fund D, we recommend that international fixed income be incorporated formally in the Pension Funds' investment policy and policy benchmark.

The international securities section of the Division has limited staff and resources. International securities are managed by the Assistant Director, who has responsibility for European and Australian equities, while another portfolio manager is responsible for Asia (ex-Japan) and Canada. The international fixed income portfolio manager is also responsible for currencies, and equities in Latin America and emerging markets. Japanese equities are covered by the Deputy Director.

Role of Hedging

The Division and Council Do Not have a Comprehensive Hedging Policy

We understand that the Division has the formal authority to use hedging, but that in 1997, the Council limited hedging of international equities to unusual market circumstances, and stated that the objective of hedging international bonds was to improve and protect the inherent returns of the portfolio. The Division has sought exposure to foreign currencies on a long-term basis, in the belief that currency exposure is one of the primary drivers of the diversification associated with investing in foreign securities.

At the time of our on-site interviews, the Division was in the midst of a discussion of the role of hedging and attempting to determine whether a formal policy should be adopted. We were told that if a new policy were found to be necessary, the Division would present it to the Council for consideration. IFS concurs in the need to adopt such a policy (whether the policy approves or prohibits hedging transactions). We understand, however, that interpretation of the existing hedging policy has changed since the arrival of the new Director. The international fixed income portfolio manager discussed the Division's interpretation of the hedging policy with the Council in 2003. We understand that the Council extensively discussed this proposal, but that it did not adopt a new policy because it determined that the revision was merely a change to the interpretation of the existing policy.

Recommendation
We recommend that the Council, with advice from the Division, adopt a formal policy on the use of hedging in Common Fund D.

International Equities

International Equities Investment Process

The international equity portfolio is primarily actively managed through a bottom-up stock selection strategy for developed markets. For emerging markets, however, the Division takes a more top down approach, considering sovereign risk exposure. Allocations to emerging markets are made first on a country level and then stock specific, constrained by Division resources. The decision to allow investment in emerging markets was made in 2000, and is initially limited to five countries – Brazil, Mexico, Greece, Hong Kong and South Korea – deemed to be those with easier access and lower risk. The Division is permitted to gain exposure to emerging markets stocks through the purchase of a limited number of country funds; this is the only portfolio where the Division pursues a modified form of passive management. To date, the Division has only invested from time to time in the Hong Kong country fund.

The Division can invest up to 5% of Common Fund D in emerging markets, initially not to exceed 2% however. Emerging markets make up approximately 8-9% of the MSCI All Country World Index ex-US, so the Funds are underweight in emerging markets when compared to the overall non-US equity markets. The Division invests in only two emerging markets which are included in EAFE – Hong Kong and Greece. Emerging markets investments made up 2.8%

of the international equity portion of Common Fund D as of December 31, 2002. We understand that the Council will consider additional investments over time and currently uses the MSCI EAFE index as the benchmark for international equities.

The Division Does Not Have a Formal International Equity Investment Philosophy

The international equity portfolio is considered a broadly diversified portfolio, with over 500 names. From our observations, the international equity portfolio tends to track relatively close to the EAFE benchmark for most countries. The NEPC Fourth Quarter 2002 Performance Review showed significant differences in the weight to a few countries: 11.7% underweight in the United Kingdom, 5.6% underweight in Japan, 4.8% overweight to Sweden, as well as a 3.2% weight to Canada, which is not included in EAFE.

Division staff expressed the desire to have a value bias, rather than a growth bias. We understand that there was an attempt to create a team of global analysts/portfolio managers, but it had been achieved only with the healthcare sector, as of early 2003, so that the Assistant Director has focused on creating a strong international team. Ideally, the Division would have a team of global analysts, especially to cover global industries such as the auto industry, or oil and gas. We discuss the potential benefits of a "cross border" approach to international fixed income below. As with domestic equity, the Division should have a distinct investment philosophy and process, including for example a valuation methodology, to which all of its portfolio managers and analysts subscribe.

Recommendation
We recommend that the Division continue to develop and formalize a consistent investment philosophy, which governs the investment of the international equity portfolio.

The Division's International Equity Area Needs Additional Resources

Successful active internal management of international securities requires adequate resources for research as well as international travel. With an appropriate amount of staff and resources, it would also be possible to coordinate the international and U.S. research, which could benefit both the U.S. and international equity portfolios.

Staffing and Travel:

In prior years, Division staff had to limit their travel. Sufficient international travel is especially important for active international investment management in order to conduct due diligence, attend conferences and perform direct, independent research. As mentioned previously in the Domestic Equity Section, staff also needs suitable technology to monitor their portfolios while away from the office. In addition, each international staff person is responsible for covering a very large universe of companies, e.g., one person covers Europe and Australia, one covers Canada and Asia (except Japan), one handles international fixed income, currency and emerging markets, while the Deputy Director is responsible for Japan. Although there is not the same key man risk that exists in the fixed income areas, where a single professional is responsible for each strategy, there is still considerable risk involved with having so few professionals accountable for such a significant portfolio. This leads to each staff member being responsible for a large segment of the portfolio and the absence of back-up staff, as discussed in Domestic Equity above. As noted earlier in Section I – Organizational Structure, when compared to its peers, the Division appears understaffed in its number of portfolio managers and analysts.

Management Tools:

Staff also expressed the desire for additional tools, such as BARRA, to help measure portfolio risk. Since the Division employs an active stock-picking approach for most international markets the need for adequate resources is especially important. In their absence, the Division may wish to consider other methods of international investing, discussed below. Historically, the Division had taken steps to address problems that arise. For example, when the Japan portfolio was suffering, the strategy was changed to one resembling enhanced indexing until a solution could be found, but large active bets, or deviations from the benchmark, continue not to be taken in this country due to the high volatility of the market.

One large internally managed, statewide public fund uses a swap based strategy to replicate/exceed the return of the Salomon Brothers BMI-EPAC ½ US$ & ½ Local Currency index. We are not aware of other public pension funds that use this strategy. The "core" strategy of the program is to gain market exposure to non-US equity returns by "exchanging" or "swapping" the interest received on LIBOR notes it owns for the return on various non-US country index returns. The program is structured so that the notional amount invested in swap agreements for each country's non-US stock index generally matches the percentage of each country's weight in the BMI-EPAC index. We caution that if not managed carefully and expertly, a swaps program could pose a number of investment and operational risks. However, it does provide a cost effective way – with limited portfolio research and limited staff for investment management – to achieve market exposure to international equity by eliminating such costs as those involved with global custody.

NEPC Reports that the Division's Recent International Equity Performance Has Trailed Benchmarks

Although performance is not covered in our current scope of work, and we did not independently evaluate it, it is relevant to this discussion. According to NEPC's Fourth Quarter 2002 Performance Review, the equity portion of Common Fund D has trailed its peers and EAFE over the one and three-year periods and beaten EAFE but trailed the universe median for the five-year period. On a calendar year basis, the portfolio has lagged its benchmarks for 2000-2002, whereas it beat them from 1997-1999.

A Strategic Approach for the Future Course of the International Equity Portfolio is Needed

As discussed above regarding the domestic equity and fixed income portfolios, the Division has three distinct paths open to it regarding the international equity portfolio. The first alternative would involve increasing the international equity staff. As with fixed income, most of the other resources required appear to be in place (but could probably benefit from an additional system or two depending on the type of analysis the team seeks to do). The total cost of this approach would entail compensation for a few additional portfolio managers/ analysts as well as additional resources and permission for international travel. As a second alternative, the Division, subject to approval by the Council, might adopt a passive management or "enhanced index" approach rather than the present active one. The third approach would be to employ external managers to manage all or part of the international equity allocation for the Division. External management would offer the opportunity to invest more fully in emerging markets and potentially to diversify the portfolio by investment style. It would give the Division access to a greater pool of experts than it could acquire internally. External management would come at the cost of greater investment management costs or fees.

Recommendation
We recommend that three distinct approaches to international equity management be considered. The Division can: *i) continue to actively manage the international equity portfolio by adding internal staff and substantial resources;* *ii) adopt a passive strategy and manage the portfolio internally with modest additional resources; or* *iii) employ external manager(s) to pursue active or passive management strategies.* *The Council and Division should determine which of these three approaches to international equity management (or combination of approaches) is preferable.*

International Fixed Income

International Fixed Income Investment Process

The Division's approach to international fixed income bears strong resemblance to the Division's management of domestic fixed income. Allocations to the international fixed income portion (within Fund D) are made at monthly meetings of the Strategy Committee. The international fixed income process is managed by one Division professional who reports to the Assistant Director of International Securities. The international fixed income ("IFI") portfolio manager is the sole professional responsible for international fixed income, but he also contributes to the international equity process by serving as one of two emerging market analysts. The IFI portfolio manager covers equities in Brazil, Mexico, Greece, and the allocation between countries in the Division's emerging market equities holdings.

The IFI portfolio manager reports that once the commitment to international bonds is set by the Strategy Committee, he is responsible for:

- county selection;
- yield curve positions;
- duration of the total portfolio and within a given country;
- credit quality; and
- currency positions, including hedging strategies (if any).

The IFI portfolio manager takes a "top-down" approach to portfolio construction. That is, he starts by examining the macro-economic fundamentals in each country. In the case of European countries, he evaluates all countries in comparison with the dominant economic power, Germany. The IFI portfolio manager reports that he considers, in particular:

- economic statistics;
- inflation;
- economic growth;
- European Community Bank monetary policy;
- ECB inflation targets;
- monetary policy in countries outside the European Community;
- supply and demand for bonds;
- moving averages; and
- surveys of investor sentiment.

Security selection is a second order consideration after the investment strategy for each country is determined. The IFI portfolio manager explained that security selection and portfolio construction do not follow a formal strategy, but rather reflect his judgment at that point in time and his assimilation of all information available to the Division. We understand that oversight of the international bond holdings is provided by the International Committee that regularly reviews investment performance, holdings, country allocations and all recent transactions.

Some of the International Fixed Income Holdings Do Not Closely Track the Benchmark

One area that gave us concern is illustrated by several distinctive positions in international bonds. According to NEPC's report for the quarter ending December 31, 2002, the Division invested in several countries to a much greater extent than those countries are represented in the Salomon Non-U.S. World Government Bond Index. The Division held no Japanese or French bonds, while holding dramatic overweight positions in Luxembourg, Ireland and Italy.[102] Thirty-eight percent of the international portfolio was invested in Luxembourg, a country not included in the Salomon WGBI. We do not mean to suggest that these positions were not sensible investment decisions; we do not pass any judgment on portfolio holdings or strategy. We do note, however, that these are significant decisions away from the benchmark and assume that the IFI portfolio manager had strong and well-articulated reasons for these portfolio positions. The Division should clearly state in guidelines or an investment policy whether deviations from the index of these magnitudes are permissible and should provide in such documents a strategic framework in which such decisions can be understood.

Recommendation
The Council should review the international fixed income process and, with the advice of the Division, should develop clear guidelines for international bonds and suitably monitor that portfolio.

[102] Significant over- or under-weight positions here mean a deviation from the index's country weighting by more or less than 5% of the value of the entire index.

The Division's Domestic and International Fixed Income Investment Processes Would Benefit From Working Together Even More Closely

Both the IFI portfolio manager and his domestic counterpart (the Deputy Director) participate on the Division's Strategy Committee and share in asset allocation decisions and they clearly communicate frequently. The Division reports that these two frequently discuss macroeconomic outlook, investment strategy and recent transactions. However, during our on-site interviews, it was not apparent that the two portfolio managers make investment decisions based on a similar process. The Division's fixed income strategies do not appear to originate from a shared outlook and shared assumptions.

We believe that a comprehensive and coherent bond strategy in either the domestic or international markets requires knowledge of changes in interest rates around the world, an analysis of fiscal and monetary policy in the major countries of the developed world, evaluation of the flow of capital between nations, and an opinion about the import of changes in foreign exchange rates. There appears to be potential for greater synergy between the decisions made on behalf of the U.S. bond portfolio and the foreign bond portfolio. The small size of the Division's fixed income staff creates ample opportunity for interaction and strategic comparisons.

Some type of formal and systematic discipline could help implement such interaction. Whether it is joint evaluation of trends in global interest rates or shared responsibility for credit research or analysis of foreign exchange rates, closer collaboration between the domestic and international fixed income decision makers would achieve a greater degree of integration that could benefit the Pension Funds. For example, it would also be useful for the Division to develop a methodology to evaluate the impact of changes in interest rates and currency cross rates (especially with respect to the value of the U.S. dollar) on both the domestic and international bond portfolios simultaneously. Creation of a risk management framework, which recognizes that some negative developments in U.S. bond markets might be offset by positive gains in foreign bond markets, will help the Division and Council better appreciate the diversification benefits of holding both U.S. and foreign debt instruments.

Recommendation
We recommend that the portfolio strategies for the domestic and international fixed income portfolios become more integrated. The two investment processes do not need to be identical, but they should more closely integrate their investment strategies and risk management approaches.

Best Practices Among Bond Managers Suggest Distinguishing Between the Security Selection and Currency Decisions

One significant way in which managing international bonds is different from managing a domestic bond portfolio involves the role of currencies. We understand that, historically, the IFI portfolio manager had typically bought sovereign debt only in those countries whose currency he was willing to hold. That is, the country selection and currency decision were one and the same. This is one valid way to manage international bonds. However, private sector bond managers tend to employ a more sophisticated approach. Their approach recognizes that there may be circumstances in which it makes sense to decouple the security selection and currency decisions. This is accomplished by taking foreign exchange positions in addition to their purchase of non-U.S. bonds, typically to hedge against adverse changes in foreign exchange rates in those countries in which they have invested.

In interviews with IFS, staff reported that the Division has not historically employed such strategies to "decouple" the "interest rate" decision from the "currency" decision in a given country, and as discussed earlier, the Division historically had not entered into many hedging transactions. However, the Division reported to us that on occasion it purchases foreign bonds denominated in a currency different than that of the issuer (with the example given of an Italian government bond denominated in Japanese Yen). We understand that now, since the revised interpretation of the Council's hedging policy discussed above, currency is more emphasized today than was previously the case. The Division's reports to the Council now include substantially more information on international holdings and currency positions in international fixed income.

Best practices among bond managers distinguish the decision on currency from the decisions about the underlying security and allow managers to enter into foreign exchange transactions as a means of controlling currency risk. If the Division enters into hedging or foreign exchange transactions independent of any underlying holdings of foreign securities, the Division will need to strengthen its sources of information about currency markets and its analytical abilities. At present, we have no indication that the Division has resources appropriate to this task.

Recommendation
We recommend that the Council, with advice from the Division, formally adopt an explicit, written policy to permit currency positions distinct from securities, but only if the Division has adequate resources and investment discipline to successfully manage such investments.

The Division's International Fixed Income Area Needs More Resources

The IFI portfolio manager reported that he utilizes a somewhat different set of tools than does the domestic fixed income manager. In contrast to the domestic portfolio manager's reliance on the Lehman PC system for portfolio construction and analytics, the IFI portfolio manager said that he considers a broker-dealer product essential to his management process. The broker-dealers' reports are prepared for him on direct request to the broker-dealer on an occasional and as-needed basis. The IFI portfolio manager requested that the Division subscribe to the product, but was told by the previous administration at the Division that the cost was prohibitive. As a "work-around", he obtains assistance from the broker-dealer as a favor (presumably in recognition of the bond trades executed by the Division through the broker-dealer).

The broker-dealer product allows the IFI portfolio manager to evaluate individual securities and the total portfolio. In particular, the IFI portfolio manager uses the product reports to evaluate his portfolio's:

- yield curve positions;
- currency positions;
- duration;
- quality; and
- country holdings.

However, this informal arrangement with the broker-dealer does not enable the IFI portfolio manager to maintain a complete database on securities and on his portfolio. He reported that he is unable to execute the required downloads without help from staff at the broker-dealer. His ability to run updates is constrained by the availability of the broker-dealer staff.

Like all Division professional staff, the IFI portfolio manager uses the Division's portfolio accounting system, QED. This system allows the manager to track all individual holdings internally (within the Division). For individual securities, QED can provide data on average foreign rates at time of security purchase, maturity, cost in U.S. dollars, cost in local currency, gains and losses, and other typical accounting details. However QED does not allow the manager to compare his portfolio to an appropriate bond market index. QED is not designed to meet the needs of portfolio construction and risk evaluation.

The IFI portfolio manager also uses Bloomberg for market news and current bond prices. Bloomberg provides some useful analytical capabilities, but is not an adequate substitute for a portfolio management and analytics system. The IFI portfolio manager reports that he makes extensive use of information and research from Wall Street brokers (as evidenced in part by his reliance on the broker-dealer to provide reports). The manager is in regular communication with sell-side brokers for market intelligence, country assessments, and analysis of individual securities. He considers these sources of information reliable and adequate, and does not note a need for additional sources of third party research.

In discussion with the Director after completing our field work, we were told that the IFI portfolio manager no longer believes that the broker-dealer product is essential to managing the international fixed income portfolio. The conflicting reports we received suggest that the Director should closely examine the Division's investment process in international fixed income to determine whether the IFI portfolio manager has adequate analytical tools to manage his portfolio.

Recommendation
We recommend that Division management determine whether the IFI portfolio manager is adequately resourced and that the Division management has the necessary tools to monitor more closely the risk characteristics of the international bond portfolio.

There are Other Significant Risks Involved with the Division's Management of International Fixed Income

As with domestic fixed income, the international bond process has been constrained consciously by the Division's staff to reduce risk and to concentrate on those securities they know best. This approach has worked well over the last three years, but it carries risks similar to those of domestic fixed income that can and should be addressed:

- **Key Man Risk**: The international fixed income decision making process is run by a single professional. Oversight is available from the director for international securities and the Deputy Director, but the IFI portfolio manager indicated that he feels unable to take appropriate leave during the year because of lack of backup. Reliance on a single individual with an investment management strategy that is unwritten and unarticulated increases the likelihood that the Division would have difficulty generating the same strong performance were the portfolio manager to leave.

- **Limited Time**: The IFI portfolio manager's time is divided between analysis of bonds and emerging market equities. This broader exposure to country analysis and foreign markets is beneficial to the manager's ability to run the international bond portfolio, however it is not clear to IFS whether the manager is able to allocate sufficient time to either responsibility. We suggest that management of the Division satisfy itself that these overlapping responsibilities do not compromise the time required to meet the demands of either international bonds or emerging market equities.

Recommendation
The Division should clearly identify the professional backup for the international fixed income portfolio manager and get that backup staffer more closely involved in the decision making process.

NEPC Reports That Recent International Bond Performance Has Been Strong

Although performance is not part of our current scope of work, and we have not independently evaluated it, the NEPC reports we have seen show that recent performance has been strong, leading us to conclude that the Division has done an admirable job with the resources available to them. According to the December 31, 2002 performance report prepared by New England Pension Consultants, the fixed income portion of Fund D has earned strong relative and absolute rates of return over the past five years. Fund D ranked in the top third of fixed income accounts in 2000 and 2002, ranked in the top half of fixed income accounts in 2001, and ranked cumulatively in the top third of fixed income accounts over three years ending 12/31/02. Previous performance was not as strong, but the current IFI portfolio manager joined the Division in 1999.

According to NEPC, the fixed income portion of Fund D has exceeded the return of the Salomon World Government Bond Index ex-U.S. over each of the last three calendar years. This is a strong record of performance and one that appears to validate the active management approach adopted by the Division. However we share the same concern here that we noted in domestic fixed income: the Division has been wise in avoiding those securities and sectors of the international bond market that it does not have resources or expertise to analyze and manage, but it may well incur substantial opportunity costs in doing so over the long term.

Exhibit 1

Overview of Independent Fiduciary Services, Inc.

Introduction

Independent Fiduciary Services, Inc. ("IFS") offers extensive, combined expertise and experience regarding:

- Structuring, monitoring and analyzing pension fund investment portfolios and activities, including asset allocation, investment policies and procedures, controlling investment risk and expense, measuring and evaluating absolute and risk-adjusted returns and related matters; and

- Fiduciary responsibility in investment decisionmaking.

IFS has acted as an adviser or independent fiduciary/decisionmaker in connection with many complex portfolios and financial transactions, especially those involving (1) statewide public retirement systems and (2) substantial issues under the fiduciary responsibility provisions of the federal pension law, the Employee Retirement Income Security Act ("ERISA"). An SEC registered investment adviser, IFS is experienced with a variety of roles, including special consultant (as here), named fiduciary, investment manager and adviser, all as detailed below.

Further detail is provided at our website, www.IndependentFiduciary.com.

History

At its formation in January 1987, IFS was a wholly-owned subsidiary of The Bear Stearns Companies Inc. – the New York Stock Exchange listed holding company – and an affiliate of Bear, Steams & Co. Inc., the broker-dealer and investment bank. On October 1, 1996, the officers purchased the firm from Bear Stearns and changed the name to Independent Fiduciary Services, Inc. All employees (without exception) then continued to work for the re-named firm. *Thus, our firm is not owned, controlled or affiliated with any securities brokerage firm or investment manager; we truly are independent.*

Distinctive Features

What distinguishes IFS from other firms is that we specialize in evaluating complex investment programs with dual expertise in portfolio management and fiduciary responsibility. As detailed below, our staff includes investment professionals experienced in structuring and overseeing investment portfolios as well as ERISA experts sensitive to the standards of prudence and loyalty that apply to pension investment decisionmaking. With offices in Washington, D.C. and Newark, N.J., we have deployed and coordinated a wide variety of specialized professionals on numerous projects, involving equity and fixed income research and analytics, asset management, portfolio risk, transactions costs, futures, commodities and options, private placements, real estate and related matters.

Our specific distinguishing features are as follows:

Combined Expertise in Investment Management and Fiduciary Responsibility

IFS grew out of an investment firm, not a benefits consulting, actuarial or auditing firm. The firm's investment professionals include senior staff experienced in pension investment consulting, internal and external asset management and portfolio monitoring for large pension funds.

Senior personnel of IFS also are experienced in the legal and fiduciary standards involved in pension investment decisionmaking. These individuals have worked together on other similar evaluations of the investment practices and portfolios of large public pension funds. The combined perspective of these investment and fiduciary experts provides unparalleled expertise for addressing the combination of investment, procedural and fiduciary subjects of concern to any fund.

Unique Perspective of an Adviser and Fiduciary Decisionmaker

There is an old saying in the pension industry: "Those who can, do; those who cannot, consult." IFS regularly acts as a fiduciary, responsible for prudent and proper investment decision making, as well as an adviser to others. Even in the latter role, we frequently accept fiduciary responsibility for our advice that our clients adopt. This, we believe, clearly separates Independent Fiduciary Services from the average consulting firm, which often dispenses advice but doesn't "go on the line" as a fiduciary, with responsibility for actually making decisions.

This combined perspective as fiduciary and adviser guides us when undertaking detailed analyses and making recommendations regarding the sufficiency and prudence (or imprudence) of particular investment practices. Knowing how, in the real world, to apply prudent investment practices ourselves, when we are a fiduciary, adds credibility and insight to our analysis and advice to others. This is especially true where – and as is often the case in our assignments – we operate in a visible, public forum.

Independence

As an independent, employee-owned investment consulting firm, IFS is free from conflicts of interest that plague many other firms that receive "soft-dollar" commissions from investment management firms. Additionally, we do not provide consulting or sell any products to investment managers as do many other consulting firms. The independence and objectivity we bring to our consulting work is manifested in our "client first" approach. As an employee-owned firm, we strive to exceed our clients' expectations and reward our employees with a challenging work environment that promotes both employee and client stability.

Proactive and Accessible

While IFS recognizes "who the boss" is, we initiate new ideas, bring issues to a fund's attention, and routinely provide education on investment subjects.

Knowledge of Best Practices: The "Operational Review"

One unique service we have developed is our "Operational Review" – the financial equivalent of a physical examination for a fund's investment program and practices. This service, which IFS pioneered and developed, is designed to identify undue risks, to trim expenses, and recommend ways to upgrade a fund's investment program. In the Operational Review, we diagnose and evaluate in writing how the client fund compares to industry best practices, across a broad range of investment subjects, including asset allocation, risk controls, investment policies and procedures, expenses and related matters. Over the past ten years, we have performed Operational Reviews for numerous statewide retirement systems, other public funds and numerous ERISA-covered funds with combined assets exceeding $500 billion, including many of the largest, most sophisticated funds in the country. These Operational Reviews have covered subjects such as asset allocation, the sufficiency of risk controls, investment policies and procedures, investment guidelines, the prudence of unconventional investment strategies, real estate, organizational structure and related matters.

Exhibit 2 – Summary of Recommendations

Set forth below are summaries of all recommendations from the preceding report. They are listed in the order they appear in the report with corresponding page number. The Task Area of each recommendation or related series of recommendations is set forth for ease of reference.

Recommendation	Page	Priority
I. Organizational Structure & Resources		
Assuming the continuation of the current investment program, we recommend that the Division hire additional staff or, insofar as feasible, reassign some current personnel to fortify the understaffed functions. As the investment program evolves over time, e.g., moving into some nontraditional asset classes or hiring external managers, the Division should consider further staffing changes necessary to meet functional requirements.	34	High
We recommend that the parties seek through a consensual process to formulate a Statement of Governance. The Statement should specify the respective roles and responsibilities of the key parties across a broad range of subjects and, more specifically, regarding investment practices.	36	High
We recommend using a facilitator to assist in formulating the Statement of Governance.	36	Low
We recommend that the Statement of Governance be deemed a public document and distributed to all Division staff and interested parties.	36	Medium
The Division should update and sharpen its position descriptions (including supplemental functional position descriptions), revamp its organizational chart, and enhance communication between interconnected functions.	40	Medium
We recommend that the Division Director continue recent steps to develop and impose on the PMs specific investment disciplines, based on measurable criteria, so the overall design of each asset class is clear and coordinated.	43	High
We recommend that the Division prepare and adopt an internal investment manual, setting forth in detail the Division's guidelines, procedures, practices and work flow for the investment program.	45	Medium
We recommend that the Division enhance its monitoring processes by establishing a "middle office" that reports independently of investment management and includes the responsibilities set forth in Exhibit 8 – Section 2: Potential Duties and Responsibilities of a Middle Office.	46	High

Recommendation	Page	Priority
We recommend that the Division obtain an automated trade order management system with pre- and post-trade compliance capabilities.	47	High
We recommend that the Director prepare an annual investment plan at the outset of each year, and present it to the Treasurer for his approval (on matters as to which he has authority) and to the Council for its approval on policy matters. The Plan should constitute an agreed-upon blueprint for major actions the Division expects taking during the course of the ensuing year.	51	High
We recommend the adoption of additional supplemental guidelines that would require Council members and Division employees with a personal securities account ("PSA") to direct each financial institution with whom they maintain such an account to send monthly statements directly to a designated compliance officer within the Division [the Compliance Officer] for accounts in which the Council member or employee has a direct or indirect beneficial ownership interest. All such statements of account should be kept strictly confidential.	54	Medium
We recommend the Division adopt a supplemental policy to address non-publicly traded investments.	56	Low
We recommend requiring prospective and existing service providers to disclose when they provide financial support within the relevant past to governmental officials or campaigns of announced candidates for elective public office with a direct or indirect material influence over the Division's investment programs.	58	High
We recommend the use of a contractual warranty that requires immediate notification to the Division's designated compliance officer, in writing if and when the service provider makes any such contribution.	58	High
We recommend the Division install a systematic process for reviewing service provider disclosures.	58	High
To the extent the Treasurer, Division or Council believe there is a need for confirmation regarding authority to delegate investment discretion, we recommend they request a suitable legal opinion regarding that authority.	61	Medium
Subject to confirmation by the Attorney General that current law renders the Approved List obsolete, we recommend discontinuing it.	62	Low
We recommend that parties seek to assure that the Division has a sufficient and reliable budget.	65	High
We recommend that the parties seek to assure that the Division has sufficient, specialized legal services to facilitate both the existing,	65	Medium

Recommendation	Page	Priority
internal asset management program and whatever private market assets the Division may employ in the future.		
We recommend that the parties seek authority to adopt reasonable investment guidelines without complying with the Administrative Procedures Act.	65	Medium
II. Ability to Attract & Retain Employees		
We recommend that, if feasible, the Treasurer and Council seek creation of a separate pay schedule for Division staff in order to provide more competitive compensation to its investment professionals. The salary levels at Fund 1 could be used as points of reference to generate the new schedule.	73	High
We recommend that the incentive compensation program be expanded to cover other Division personnel.	77	Medium
We recommend that the Treasurer and Council revise and upgrade the incentive plan criteria.	81	Medium
We recommend that the Treasurer and Division seek authority to use managerial tools designed to motivate key personnel and align their interests with those of the investment program.	82	Medium
III. Controls		
We recommend that Division management arrange to analyze equity portfolio characteristics (including style) and to integrate such analysis into its internal review process with the Division's Portfolio Managers and Analysts.	96	Medium
We recommend the Division implement a systematic compliance monitoring process. The Division can accomplish these steps through a combination of better utilizing its existing resources and acquiring some additional resources.	96	High
We recommend that the Council and Division consider using a consultant's expertise in evaluating investment management firms to help determine how best to more thoroughly evaluate the Division's internal equity investment process.	100	Low
Although the performance report meets consulting industry standards, we recommend that the Council work with the consultant and Division staff to determine -- • *what additional performance analytics could and should be provided to better manage the assets and control risks across both the domestic and international equity and fixed income portfolios; and* • *the criteria to be used to compose a comparable peer group universe.*	101	Medium

Recommendation	Page	Priority
We recommend that the Division prepare a list of proposed adjustments to the current regulations for consideration of the Council. Subsequent amendments could be identified as part of the annual strategic plan.	103	Medium
We recommend developing investment regulations (guidelines) for each investment strategy and/or subasset class. (See comparable recommendation on page 121.)	103	High
We recommend that the Division consider implementing its own internal control questionnaire tailored to the specific operations and activities of an investment bureau.	104	Medium
The Division should continue to ensure that Treasury Management Information Services implements the recommendations of the external auditors.	104	Medium
The Division should take steps to identify and mitigate control weaknesses that may result from incompatibility between investment accounting and portfolio management.	105	Medium
We recommend that the reconciliation of soft dollar balances be performed by someone independent of the Trading Department.	106	Medium
We recommend that the Division implement a real-time pre-trade compliance monitoring function designed to generate exceptions to the investment guidelines and risk controls, prior to execution of trades.[1]	106	High
We recommend that the Division begin the process of documenting those areas that have a higher risk potential. Risk should be assessed in conjunction with an enterprise risk assessment process and the internal auditor's audit universe assessment.	107	Medium
We recommend that the Division establish an internal audit function (an Internal Auditor) that follows the standards for the professional practice of internal auditing. The internal audit function would include the annual audit universe assessment cited in the recommendation immediately above.	107	High
We recommend that the internal auditor report to someone independent of the process he is responsible for evaluating (e.g., the Chief Auditor in the Office of the Treasurer, with dotted reporting authority to the Division Director).	107	High
We recommend that the Division implement an enterprise risk assessment process.	107	High

[1] We recognize that real-time compliance monitoring requires electronic trade entry systems that the Division does not currently have in place. In other sections of this report, we recommend real-time electronic trade entry systems to support straight-thru-processing.

Recommendation	Page	Priority
We recommend that soft dollar purchases be included in the administrative expense budgeting and reporting process for management, and soft dollar purchases should be reported annually in the financial reports of the Division.	108	Medium
We recommend that the Division seek to implement electronic processes designed to facilitate straight-through-processing of trades. The implementation should be given priority status.	108	High
We recommend that the Office of the Treasurer and the Division work with the Office of the Attorney General to implement a process that facilitates the Division's procurement of goods and services that are critical to prudently managing the assets.	108	Medium
We recommend that the Division – subject to review and approval by the Council – develop a formal, documented process for selecting brokerage firms and evaluating the quality of services they provide. Such a process should address selection of minority and in-state brokers, use of step-outs, and monitoring execution costs. The document should include the following key elements: *1. due diligence process for initially evaluating broker-dealers;* *2. monitoring and tracking commissions and execution; and* *3. current broker database and internal files.* *Each of these elements is discussed in more detail in Exhibit 12, entitled "Key Elements for Policy & Procedure regarding Selection of Broker-Dealers."*	110	Medium
We recommend that the Division develop a detailed policy and procedure on soft dollar purchases. That document should include provisions regarding the following key elements: *1) introduction, definition, and organizational policy statement regarding the use of soft dollars;* *2) applicability of soft dollars to equity vs. fixed income securities transactions;* *3) duties and responsibilities;* *4) policy guidelines;* *5) procedures; and* *6) interaction with the policy on broker selection.* *Each of these elements is discussed in more detail in Exhibit 13 (containing key elements of a soft dollar policy).*	110	Medium
We recommend that the Division consider the cost/benefit of using a more sophisticated method of measuring and evaluating transaction costs.	111	Low

Recommendation	Page	Priority
We recommend that the Division advise the Council on the use and interpretation of the Abel Noser reports. The Division should also assign responsibility to someone independent of trading to use the reports to evaluate and suggest enhancements to the trading function.	111	Low
We recommend that the parties consider expanding the role of an investment consultant to include the services discussed in this Report that are not called for in the investment consultant's current scope of work.	115	High
IV. Investment Policy Statement		
We recommend that the Council consider further amending their investment objectives to include relative investment performance measured against additional market based benchmarks as well as possibly peer universe comparisons. The Council should also have the goal of at least beating the rate of inflation in order to achieve positive real returns.	119	Medium
Once the parties have arrived at a consensus regarding their respective roles and responsibilities (see Section I), we recommend that they specifically outline those roles and responsibilities in an IPS.	120	Medium
We recommend that the Division adopt individual investment guidelines for each investment strategy, which are distinct from the IPS or Policy document.	121	Medium
We recommend that the Council develop and document asset allocation policies for each Pension Fund.	122	High
We recommend that the Council develop a Policy Index and an Asset Allocation Index for each Pension Fund.	124	High
We recommend that the Council adopt a distinct, comprehensive and detailed IPS for each Pension Fund that considers the many detailed recommendations and suggested elements discussed in this section of this report.	125	High
We recommend that the Council be required to review the IPS and investment guidelines and procedures on an annual basis – with the assistance of Division staff.	126	Low
V. Asset Allocation		
After developing and documenting the Pension Funds' investment policy statements, the Council should, at an appropriate point, conduct an updated asset allocation (or preferably an asset liability) study which takes into account the specific investment objectives and risk tolerances of the Council and the detailed recommendations contained in Section V of our Report.	129	High

Recommendation	Page	Priority
We recommend that the Council and Division reconsider the capital market assumptions used in asset allocation decisions.	137	Medium
We recommend that the Council include additional asset classes in its next asset allocation and/or asset liability study and adopt revised asset allocation targets that would offer a higher expected level of return for their stated risk tolerance.	146	High
We recommend the Council: • *develop a policy requiring systematic rebalancing to within asset allocation ranges;* • *document the policy; and* • *follow it on a regular basis, e.g., quarterly, semi-annually.* *The policy should identify ranges around the targets, specify the level of judgment vested in Division staff, and clearly assign rebalancing responsibility to an appropriate executive officer within the Division.*	151	Medium
We recommend that the Council determine the appropriate level of risk for the Pension Funds, taking risk into account in the next asset allocation study and in making decisions regarding the asset classes to include and the active/passive allocation.	154	High
We recommend that the Council increase its monitoring of risk levels.	154	High
We recommend that the Council approve investment in additional asset classes and strategies in order to achieve better diversification.	156	High
VI. Investment Management Structure		
We believe that passive management is appropriate for a material portion of the Division's portfolio of publicly-traded securities, especially in the most efficient markets. We recommend that the Council and Division explore how to implement passive management of some portion of domestic stocks and bonds.	163	Medium
We recommend that the Council and the Division determine the degree of active management risk appropriate for the actively managed portion of the portfolio. We also urge the Council's Investment Committee to obtain the Division's analysis and opinion on these and other essential aspects of the investment program, before the Committee makes its recommendations to the full Council.	163	Medium
We recommend that as the parties consider how best to enhance the investment program, including investing in additional asset classes, they should utilize external investment management where the Division lacks sufficient resources or expertise to effectively internally manage assets. They should weigh the many interrelated factors that influence the advisability of external vs. internal asset management, including,	168	High

Recommendation	Page	Priority
e.g., complexity of each relevant asset class and strategy; adequacy of the Division's position descriptions, risk management, resources, and staff compensation; out of pocket fees and costs; and other factors. If the Division obtains sufficient resources and improves its governance over its investment management function to meet best practices, it could continue to internally manage a substantial portion of the assets; failure to enhance resources and governance warrants greater use of external investment managers.		
We recommend that the Division continue to develop and formalize a well-defined investment philosophy, which governs the investment of the domestic equity portfolio.	174	Medium
After considering this Report, the parties should coordinate the structure and staffing of the Division to assure adequate coverage of all ranges of equity capitalization.	175	Medium
We recommend that the Council and the Division review the current investment program for any unintended style or capitalization biases. This should facilitate deciding whether to employ any strategic or tactical over and underweightings in style or capitalization and establishing a process for implementing those decisions. (We understand the Council is currently addressing this.)	176	Medium
We recommend that the Division consider the various approaches to domestic equity management that are available. The Division can: *i) continue to actively manage the domestic equity portfolio if it adds resources in terms of staffing as well as its travel and technology budget, and develops and implements additional risk controls and investment policies;* *ii) continue to manage the portfolio internally through a passive approach; or* *iii) employ external manager(s) to pursue active or passive management strategies, for all or a portion of the assets.* *The Council and Division should determine which of these three approaches to domestic equity management (or combination of approaches) is preferable, in light of related policy decisions and budgetary, operational and organizational developments.*	178	High
We recommend that sufficient resources be committed to enhance the Division's ability to manage fixed income. In the absence of sufficient resources, the Division should take steps to mitigate the risks arising from limited fixed income staffing and insufficient separation of functions.	183	High

Recommendation	Page	Priority
We recommend that the parties consider the three distinct approaches to fixed income management available. The Division can: *i) continue to actively manage the fixed income portfolio by adding internal staff and substantial resources;* *ii) adopt a passive strategy and manage the portfolio internally with modest additional resources; or* *iii) employ external manager(s) to pursue active or passive management strategies.* *The Council and Division should determine which of these three approaches to fixed income management (or combination of approaches) is preferable.*	187	High
If international bonds are to be a permanent sub-allocation within Common Pension Fund D, we recommend that international fixed income be incorporated formally in the Pension Funds' investment policy and policy benchmark.	188	Medium
We recommend that the Council, with advice from the Division, adopt a formal policy on the use of hedging in Common Fund D.	189	Medium
We recommend that the Division continue to develop and formalize a consistent investment philosophy, which governs the investment of the international equity portfolio.	190	Medium
We recommend that three distinct approaches to international equity management be considered. The Division can: *i) continue to actively manage the international equity portfolio by adding internal staff and substantial resources;* *ii) adopt a passive strategy and manage the portfolio internally with modest additional resources; or* *iii) employ external manager(s) to pursue active or passive management strategies.* *The Council and Division should determine which of these three approaches to international equity management (or combination of approaches) is preferable.*	193	High
The Council should review the international fixed income process and, with the advice of the Division, should develop clear guidelines for international bonds and suitably monitor that portfolio.	196	Medium
We recommend that the portfolio strategies for the domestic and international fixed income portfolios become more integrated. The two investment processes do not need to be identical, but they should more closely integrate their investment strategies and risk management approaches.	198	Low

Recommendation	Page	Priority
We recommend that the Council, with advice from the Division, formally adopt an explicit, written policy to permit currency positions distinct from securities, but only if the Division has adequate resources and investment discipline to successfully manage such investments.	199	Low
We recommend that Division management determine whether the IFI portfolio manager is adequately resourced and that the Division management has the necessary tools to monitor more closely the risk characteristics of the international bond portfolio.	201	Medium
The Division should clearly identify the professional backup for the international fixed income portfolio manager and get that backup staffer more closely involved in the decision making process.	202	Medium

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Exhibit 3

List of Boards of Investments

	Asset Size[1]
Alaska State Pension Investment Board	$11.2 billion
Florida State Board of Administration	$116.7 billion
Massachusetts Pension Investment Management Board	$28.1 billion
Michigan State Board of Investments	$42.2 billion[2]
Minnesota State Board of Investments	$44.6 billion
Montana Board of Investments	$8.5 billion
Nebraska Investment Council	$7.6 billion
North Dakota State Investment Board	$3.6 billion
Oregon State Treasurer – Investment Division	$34.9 billion
Rhode Island State Investment Commission	$4.8 billion
South Dakota Investment Council	$5.8 billion
State of Wisconsin Investment Board	$61.2 billion
West Virginia Investment Management Board	$5.1 billion

[1] As of June 30, 2002
[2] As of July 2002

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Exhibit 4-1: Peer Group Allocation and Structure * - Domestic Equity

State Investment Entity	Domestic Equity				
	% of Total Fund	Internal	External	Active	Passive
New Jersey State Treasurer – Division of Investments	**47.1%**	**100.0%**	**0.0%**	**100.0%**	**0.0%**
Average	***43.94***	***32.91***	***66.84***	***48.71***	***51.29***
Median	***43.50%***	***0.00%***	***100.00%***	***52.90%***	***47.10%***
Alaska State Pension Investment Board	41.0%	0.0%	100.0%	80.0%	20.0%
Florida State Board of Administration	54.4%	47.0%	52.8%	34.6%	65.4%
Mass. Pension Reserves Investment Management Board	42.9%	0.0%	100.0%	35.2%	64.8%
Michigan State Board of Investments	44.3%	99.0%	0.9%	66.6%	33.4%
Minnesota State Board of Investments	45.9%	0.0%	100.0%	70.4%	29.6%
Oregon State Treasurer – Investment Division	37.0%	0.0%	100.0%	54.1%	45.9%
Washington State Investment Board (WSIB)	36.1%	0.0%	100.0%	0.0%	100.0%
West Virginia Investment Management Board	43.5%	0.0%	100.0%	52.9%	47.1%
State of Wisconsin Investment Board	37.0%	30.0%	68.0%	65.0%	35.0%
Ohio Public Employees Retirement System	47.5%	86.0%	13.5%	27.0%	73.0%
Teacher Retirement System of Texas	53.7%	100.0%	0.0%	50.0%	50.0%
New Jersey is unique in managing 100% of its Domestic Equities internally and 100% of those assets actively.					

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*
Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

Exhibit 4-2: Peer Group Allocation and Structure * - International Equity

State Investment Entity	International Equity				
	% of Total Fund	Internal	External	Active	Passive
New Jersey State Treasurer – Division of Investments	**14.8%**	**100.0%**	**0.0%**	**100.0%**	**0.0%**
Average	***14.19%***	***21.18%***	***78.73%***	***65.60%***	***34.4%***
Median	***14.40%***	***0.00%***	***100.00%***	***69.20%***	***30.80%***
Alaska State Pension Investment Board	17.7%	0.0%	100.0%	100.0%	0.0%
Florida State Board of Administration	10.6%	0.0%	100.0%	49.1%	50.9%
Mass. Pension Reserves Investment Management Board	14.4%	0.0%	100.0%	75.7%	24.3%
Michigan State Board of Investments	**6.4%**	**100.0%**	**0.0%**	**0.0%**	**100.0%**
Minnesota State Board of Investments	13.9%	0.0%	100.0%	63.3%	36.7%
Oregon State Treasurer – Investment Division	15.0%	0.0%	100.0%	66.7%	33.3%
Washington State Investment Board (WSIB)	14.1%	0.0%	100.0%	48.9%	51.1%
West Virginia Investment Management Board	15.4%	0.0%	100.0%	100.0%	0.0%
State of Wisconsin Investment Board	16.2%	33.0%	66.0%	76.5%	23.5%
Ohio Public Employees Retirement System	19.4%	0.0%	100.0%	72.2%	27.8%
Teacher Retirement System of Texas	13.0%	100.0%	0.0%	69.2%	30.8%
New Jersey is only one of two organizations that internally manage all of their International Equity assets. New Jersey is one of three that manage all such assets actively.					

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*
Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

Exhibit 4-3: Peer Group Allocation and Structure * - Emerging Equity

State Investment Entity	Emerging Markets Equity				
	% of Total Fund	Internal	External	Active	Passive
New Jersey State Treasurer – Division of Investments	**0.1%**	**100.0%**	**0.0%**	**100.0%**	**0.0%**
Average	***1.11%***	***0.00%***	***81.82%***	***76.31%***	***Not Meaningful***
Median	***1.00%***	***0.00%***	***100.00%***	***100.00%***	***0.00%***
Alaska State Pension Investment Board	0.9%	0.0%	100.0%	100.0%	0.0%
Florida State Board of Administration	1.1%	0.0%	100.0%	72.7%	27.3%
Mass. Pension Reserves Investment Management Board	3.4%	0.0%	100.0%	100.0%	0.0%
Michigan State Board of Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Minnesota State Board of Investments	1.1%	0.0%	100.0%	100.0%	0.0%
Oregon State Treasurer – Investment Division	1.0%	0.0%	100.0%	100.0%	0.0%
Washington State Investment Board (WSIB)	0.9%	0.0%	100.0%	66.7%	33.3%
West Virginia Investment Management Board	1.8%	0.0%	100.0%	100.0%	0.0%
State of Wisconsin Investment Board	1.0%	0.0%	100.0%	100.0%	0.0%
Ohio Public Employees Retirement System	1.0%	0.0%	100.0%	100.0%	0.0%
Teacher Retirement of Texas	0.0%	0.0%	0.0%	0.0%	0.0%
New Jersey is unique in using internal, active management for 100% of its Emerging Markets assets. Its allocation to the asset class is below the average.					

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*

Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

Exhibit 4-4: Peer Group Allocation and Structure * - Alternatives

State Investment Entity	Domestic Venture Capital			Buyouts			Other Dom. Private Equity		
	% of Total Fund	Internal	External	Total	Internal	External	Total	Internal	External
New Jersey State Treasurer – Division of Investments	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Average	*0.91%*	*Not Meaningful*	*45.45%*	*1.79%*	*Not Meaningful*	*41.7%*	*0.9%*	*Not Meaningful*	*36.36%*
Median	*.10%*	*0.00%*	*0.00%*	*.50%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Alaska State Pension Investment Board	0.9%	0.0%	100.0%	0.5%	0.0%	100.0%	1.0%	0.0%	100.0%
Florida State Board of Administration	0.01%	0.0%	100.0%	3.5%	0.0%	100.0%	0.0%	0.0%	0.0%
Mass. Pension Reserves Investment Management Board	1.7%	0.0%	100.0%	3.5%	0.0%	100.0%	0.3%	0.0%	100.0%
Michigan State Board of Investments	2.9%	100.0%	0.0%	3.9%	100.0%	0.0%	5.8%	100.0%	0.0%
Minnesota State Board of Investments	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Oregon State Treasurer – Investment Division	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Washington State Investment Board (WSIB)	4.0%	0.0%	100.0%	6.0%	0.0%	100.0%	2.0%	0.0%	100.0%
West Virginia Investment Management Board	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
State of Wisconsin Investment Board	0.4%	100.0%	0.0%	2.2%	100.0%	0.0%	0.0%	0.0%	0.0%
Ohio Public Employees Retirement System	0.1%	0.0%	100.0%	0.1%	0.0%	100.0%	0.0%	0.0%	0.0%
Teacher Retirement of Texas[1]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.19%	0.0%	100.0%

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*
Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

[1] Texas TRS has a negligible amount allocated to Buyouts and Venture Capital, the % cannot be determined based on information in the CAFR

Exhibit 4-4: Peer Group Allocation and Structure* - Alternatives (continued)

State Investment Entity	International Private Equity		
	% of Total Fund	Internal	External
New Jersey State Treasurer – Division of Investments	**0.0%**	**0.0%**	**0.0%**
Average	***0.6%***	***Not Meaningful***	***50.0%***
Median	***0.00%***	***0.00%***	***100.00%***
Alaska State Pension Investment Board	0.2%	0.0%	100.0%
Florida State Board of Administration	0.0%	0.0%	0.0%
Mass. Pension Reserves Investment Management Board	1.2%	0.0%	100.0%
Michigan State Board of Investments	1.7%	0.0%	100.0%
Minnesota State Board of Investments	0.0%	0.0%	0.0%
Oregon State Treasurer -- Investment Division	0.0%	0.0%	0.0%
Washington State Investment Board (WSIB)	1.3%	0.0%	100.0%
West Virginia Investment Management Board	0.0%	0.0%	0.0%
State of Wisconsin Investment Board	2.0%	100.0%	0.0%
Ohio Public Employees Retirement System	0.3%	0.0%	100.0%
Teacher Retirement of Texas	0.03%	0.0%	100.0%
New Jersey – like several of its peers - has zero allocated to Domestic Private Equity, zero to Buyouts and zero to International Private Equity.			

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*
Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

Exhibit 4-5: Peer Group Allocation and Structure* - Domestic Fixed Income

State Investment Entity	Domestic Fixed Income				
	% of Total Fund	Internal	External	Active	Passive
New Jersey State Treasurer – Division of Investments	**24.8%**	**100.0%**	**0.0%**	**100.0%**	**0.0%**
Average	***26.2%***	***63.3%***	***36.7%***	***87.7%***	***12.3%***
Median	***26.6%***	***68.5%***	***31.50%***	***100.00%***	***0.00%***
Alaska State Pension Investment Board	26.6%	**95.9%**	4.1%	100.0%	0.0%
Florida State Board of Administration	24.1%	68.5%	31.5%	67.6%	32.4%
Mass. Pension Reserves Investment Management Board	27.5%	0.0%	100.0%	73.8%	26.2%
Michigan State Board of Investments	**19.8%**	**100.0%**	**0.0%**	**100.0%**	**0.0%**
Minnesota State Board of Investments	29.4%	0.0%	100.0%	100.0%	0.0%
Oregon State Treasurer – Investment Division	22.0%	63.6%	36.4%	100.0%	0.0%
Washington State Investment Board (WSIB)	27.4%	**97.1%**	2.9%	100.0%	0.0%
West Virginia Investment Management Board	35.8%	0.0%	100.0%	57.3%	42.7%
State of Wisconsin Investment Board	21.7%	53.9%	46.1%	53.9%	46.1%
Ohio Public Employees Retirement System	21.0%	84.8%	15.2%	100.0%	0.0%
Teacher Retirement System of Texas	31.0%	**96.1%**	3.9%	100.0%	0.0%
New Jersey is one of two organizations that manage 100% of their Domestic Fixed Income internally managed. However, there are 4 organizations that manage in excess of 95% of their fixed income assets internally. Most of the organizations in the peer group use active, internal management for this asset class.					

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*

Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

Exhibit 4-6: Peer Group Allocation and Structure * - International Fixed Income

State Investment Entity	International Fixed Income				
	% of Total Fund	Internal	External	Active	Passive
New Jersey State Treasurer – Division of Investments	**2.2%**	**100.0%**	**0.0%**	**100.0%**	**0.0%**
Average	***1.4%***	*Not Meaningful*	***28.5%***	***41.2%***	*Not Meaningful*
Median	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***
Alaska State Pension Investment Board	4.9%	0.0%	100.0%	100.0%	0.0%
Florida State Board of Administration	0.0%	0.0%	0.0%	0.0%	0.0%
Mass. Pension Reserves Investment Management Board	0.0%	0.0%	0.0%	0.0%	0.0%
Michigan State Board of Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Minnesota State Board of Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Oregon State Treasurer -- Investment Division	2.0%	30.0%	70.0%	100.0%	0.0%
Washington State Investment Board (WSIB)	0.0%	0.0%	0.0%	0.0%	0.0%
West Virginia Investment Management Board	0.0%	0.0%	0.0%	0.0%	0.0%
State of Wisconsin Investment Board	6.4%	28.1%	71.9%	93.8%	6.2%
Ohio Public Employees Retirement System	0.7%	0.0%	100.0%	100.0%	0.0%
Teacher Retirement System of Texas	0.0%	0.0%	0.0%	0.0%	0.0%
New Jersey – like many of its peers – has a modest allocation to International Fixed Income.					

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*
Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

Exhibit 4-7: Peer Group Allocation and Structure * - Real Estate

State Investment Entity	Real Estate					
	Public REITS	Real Estate Equity	Int'l RE Equity	Real Estate Loans	Total Internal	Total External
New Jersey State Treasurer – Division of Investments	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Average	***0.4%***	*3.7%*	***0.1%***	***0.1%***	***Not Meaningful***	*58.3%*
Median	*0.00%*	*3.5%*	*0.00%*	*0.00%*	*0.00%*	*100.00%*
Alaska State Pension Investment Board	0.0%	6.3%	0.0%	0.01%	0.16%	99.8%
Florida State Board of Administration	0.3%	3.5%	0.0%	0.0%	0.0%	100.0%
Mass. Pension Reserves Investment Management Board	0.4%	5.0%	0.0%	0.0%	0.0%	100.0%
Michigan State Board of Investments	0.0%	9.2%	0.0%	0.0%	15.0%	85.0%
Minnesota State Board of Investments[2]	-	-	-	-	-	**100.0%**
Oregon State Treasurer – Investment Division	1.6%	3.3%	0.0%	0.0%	0.0%	100.0%
Washington State Investment Board (WSIB)	0.0%	6.8%	1.1%	0.0%	0.0%	100.0%
West Virginia Investment Management Board	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
State of Wisconsin Investment Board	0.0%	3.1%	0.5%	0.9%	100.0%	0.0%
Ohio Public Employees Retirement System	1.9%	7.8%	0.0%	0.2%	0.0%	100.0%
Teacher Retirement System of Texas	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
New Jersey is only one of four organizations with zero allocated to Real Estate Equity. The median allocation is 3.5%. Only three organizations manage some portion of their real estate allocation internally.						

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*
Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

[2] Minnesota has a 2.2% allocation to Real Estate. Breakdown of Real Estate sub-classes was not provided.

Exhibit 5 – Defined Benefit Asset Allocation *

State Investment Entity	Total Domestic Equity	Total International Equity	Emerging Markets Equity	Domestic Venture Cap.	Buyouts	Other Private Equity	Total Domestic PE	International Private Equity	Emerging Markets PE	Total Equity
Median	***43.48***	***14.40***	***1.00***	***0.10***	***0.47***	***0.00***	***3.51***	***0.03***	***0.00***	***65.00***
Average	***43.94***	***14.19***	***0.83***	***0.91***	***1.79***	***1.03***	***5.29***	***0.38***	***0.12***	***63.93***
Alaska State Pension Investment Board	**41.02**	**17.70**	0.87	0.94	0.47	1.01	**2.42**	0.16	-	**62.17**
Florida State Board of Administration	**54.42**	**10.62**	0.35	0.01	3.50	-	**3.51**	-	-	**68.90**
Mass. Pension Reserves Investment Mgmt Board	**42.90**	**14.40**	1.08	1.69	3.50	0.30	**5.49**	0.00	-	**67.43**
Michigan State Board of Investments	**44.30**	**6.40**	-	2.90	3.90	5.80	**12.60**	1.40	0.30	**65.00**
Minnesota State Board of Investments	**45.91**	**13.91**	1.11	-	-	-	**4.70**	-	-	**65.63**
New Jersey State Treasurer – Division of Investments	**47.10**	**14.83**	**0.13**	-	-	-	-	-	-	**62.06**
Oregon State Treasurer -- Investment Division	**37.00**	**15.00**	1.00	-	-	-	**12.50**	-	-	**53.00**
West Virginia Investment Management Board	**43.48**	**15.35**	1.79	-	-	-	-	-	-	**60.62**
State of Wisconsin Investment Board	**37.00**	**16.20**	1.00	0.40	2.20	-	**2.60**	1.00	1.00	**58.80**
Washington State Investment Board (WSIB)	**36.10**	**14.10**	0.90	4.00	6.00	2.00	**12.00**	1.30	-	**64.40**
Ohio Public Employees Retirement System	**47.50**	**19.40**	1.00	0.10	0.10	-	**0.20**	0.30	-	**68.40**
Teacher Retirement System of Texas	**53.70**	**13.00**	-	-	-	2.19	**2.19**	0.03	-	**68.90**

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*

Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

State Investment Entity	Total Domestic Fixed Income	International Fixed Income	Emerging Markets Fixed Income	Total Fixed Income	REITS - Public	Real Estate - Equity	Real Estate International	Real Equity Loans	Total Real Estate	Other Assets
Median	***26.61***	***0.00***	***0.00***	***27.50***	***0.00***	***3.49***	***0.00***	***0.00***	***4.92***	***0.00***
Average	***26.03***	***1.27***	***0.00***	***27.61***	***0.38***	***3.98***	***0.15***	***0.11***	***4.93***	***0.30***
Alaska State Pension Investment Board	**26.61**	4.88	-	31.49	-	6.34	-	0.01	**6.35**	0.00
Florida State Board of Administration	**24.08**	-	-	24.08	0.32	3.49	-	-	**3.81**	
Mass. Pension Reserves Investment Mgmt Board	**27.50**	-	-	27.50	0.40	5.00	-	-	**5.40**	
Michigan State Board of Investments	**19.80**	-	-	19.80	-	8.00	-	0.10	**9.20**	
Minnesota State Board of Investments	**29.39**	-	-	29.39	-	-	-	-	**2.20**	0.70
New Jersey State Treasurer – Division of Investments	**24.76**	**2.22**	-	**26.98**	-	-	-	-	-	-
Oregon State Treasurer – Investment Division	**22.00**	2.00	-	27.00	1.60	3.30	-	0.02	**4.92**	-
West Virginia Investment Management Board	**35.81**	-	-	35.81	-	-	-	-	-	2.56
State of Wisconsin Investment Board	**21.70**	6.40	-	28.50	-	3.10	0.50	0.90	**4.50**	-
Washington State Investment Board (WSIB)	**27.40**	-	-	27.40	-	6.80	1.10	-	**7.90**	-
Ohio Public Employees Retirement System	**21.00**	0.70	-	21.70	1.90	7.80	-	0.20	**9.90**	-
Teacher Retirement System of Texas	**31.00**	-	-	31.00	-	-	-	-	-	-

** Based on data IFS collected directly from each fund. Breakdown reflected is based on defined benefit asset only.*

Note: Data provided by respondents, and may contain some inconsistencies. Data for Other Private Equity, Other Assets and Cash allocations not presented. Figures may not add to totals due to rounding.

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Exhibit 6A
Full Time Employees *

State Investment Entity	Professional FTEs	Support FTEs	Total FTEs	Total Assets[1] ($bil.)	Total Assets[2] ($bil.)	Total FTEs/ Assets[3]	Total Programs Managed	Total FTEs/ Program
Florida State Board of Administration	145	28	173	$132.1	$116.7	1.3	150	1.2
State of Wisconsin Investment Board	95	17	112	$67.0	$61.2	1.7	8	14.0
Michigan State Board of Investments	55	23	78	$62.9	$42.2 [4]	1.2	62	1.3
New Jersey State Treasurer - Division of Investment	**42**	**26**	**68**	**$90.4**	**$72.7**	**0.8**	**27**	**2.5**
Washington State Investment Board	40.5	15	57.5	$56.8	$50.9	1.0	31	1.9
Oregon State Treasurer - Investment Division [5]	37		37	$47.2	$34.9	0.8	5	7.4
Alaska State Pension Investment Board	26	3	29	$19.9	$11.2	1.5	23	1.3
Minnesota State Board of Investments[6]	25		25	$52.3	$44.6	0.5	66	0.4
West Virginia Investment Management Board	18	4	22	$7.4	$5.1	3.0	21	1.0
Mass. Pension Reserves Investment Management Board	11	4	15	$30.3	$28.1	0.5	1	15.0
Average	***50.3***	***15.0***	***61.7***	***$56.6***	***$29.1***	***1.2***	***39.4***	***4.6***
Median	***37.0***	***16.0***	***47.3***	***$54.5***	***$44.6***	***1.1***	***25.0***	***1.6***

Numbers may not add up to 100 due to rounding.

**** Based on survey data IFS collected directly from each respondent board in 2001 and updated to the extent feasible.***

[1] Total assets were derived by aggregating the assets of each program under the management of the entity.

[2] As of June 30, 2002. Although absolute value of assets has dropped since 2001, the relative values of the funds remain similar.

[3] As of 2001

[4] As of July 31, 2002

[5] Breakdown between professional and support staff exceeded total. Therefore, to minimize confusion, professional and support staff were omitted.

[6] Breakdown between professional and support staff not provided.

Exhibit 6B - Full Time Employees
(Ranked By Total Assets) *

State Investment Entity	Professional FTEs	Support FTEs	Total FTEs	Total Assets[1] ($bil.)	Total Assets[2] ($bil.)	Total FTEs/ Assets[3]	Total Programs Managed	Total FTEs/ Program
Florida State Board of Administration	145	28	173	$132.1	$116.7	1.3	150	1.2
State of Wisconsin Investment Board	95	17	112	$67.0	$61.2	1.7	8	14.0
New Jersey State Treasurer - Division of Investment	**42**	**26**	**68**	**$90.4**	**$72.7**	**0.8**	**27**	**2.5**
Michigan State Board of Investments	55	23	78	$62.9	$42.2 [4]	1.2	62	1.3
Washington State Investment Board	40.5	15	57.5	$56.8	$50.9	1.0	31	1.9
Minnesota State Board of Investments [5]	25		25	$52.3	$44.6	0.5	66	0.4
Oregon State Treasurer - Investment Division [6]	37		37	$47.2	$34.9	0.8	5	7.4
Mass. Pension Reserves Investment Management Board	11	4	15	$30.3	$28.1	0.5	1	15.0
Alaska State Pension Investment Board	26	3	29	$19.9	$11.2	1.5	23	1.3
West Virginia Investment Management Board	18	4	22	$7.4	$5.1	3.0	21	1.0
Average	***50.3***	***13.4***	***60.9***	***$52.9***	***$44.1***	***1.3***	***40.8***	***4.8***
Median	***37.0***	***15.0***	***37.0***	***$52.3***	***$39.8***	***1.2***	***23.0***	***1.3***

Numbers may not add up to 100 due to rounding.

**** Based on survey data IFS collected directly from each respondent board in 2001 and updated to the extent feasible.***

[1] Total assets were derived by aggregating the assets of each program under the management of the entity.

[2] As of June 30, 2002. Although absolute value of assets has dropped since 2001, the relative values of the funds remain similar.

[3] As of 2001

[4] As of July 31, 2002

[5] Breakdown between professional and support staff not provided.

[6] Breakdown between professional and support staff exceeded total. Therefore, to minimize confusion, professional and support staff figures were omitted.

Exhibit 6C - Full Time Employees
(Ranked By Total FTEs / Assets) *

State Investment Entity	Professional FTEs	Support FTEs	Total FTEs	Total Assets[1] ($bil.)	Total Assets[2] ($bil.)	Total FTEs/ Assets[3]	Total Programs Managed	Total FTEs/ Program
Minnesota State Board of Investments[4]	25		25	$52.3	$44.6	0.5	66	0.4
Mass. Pension Reserves Investment Management Board	11	4	15	$30.3	$28.1	0.5	1	15.0
Oregon State Treasurer- Investment Division[5]	37		37	$47.2	$34.9	0.8	5	7.4
New Jersey State Treasurer - Division of Investment	**42**	**26**	**68**	**$90.4**	**$72.7**	**0.8**	**27**	**2.5**
Washington State Investment Board	40.5	15	57.5	$56.8	$50.9	1.0	31	1.9
Michigan State Board of Investments	55	23	78	$62.9	$42.2[6]	1.2	62	1.3
Florida State Board of Administration	145	28	173	$132.1	$116.7	1.3	150	1.2
Alaska State Pension Investment Board	26	3	29	$19.9	$11.2	1.5	23	1.3
State of Wisconsin Investment Board	95	17	112	$67.0	$61.2	1.7	8	14.0
West Virginia Investment Management Board	18	4	22	$7.4	$5.1	3.0	21	1.0
Average	***50.3***	***13.4***	***60.9***	***$52.9***	***$44.1***	***1.3***	***40.8***	***4.8***
Median	***37.0***	***15.0***	***37.0***	***$52.3***	***$39.8***	***1.2***	***23.0***	***1.3***

Numbers may not add up to 100 due to rounding.

**** Based on survey data IFS collected directly from each respondent board in 2001 and updated to the extent feasible.***

[1] Total assets were derived by aggregating the assets of each program under the management of the entity.
[2] As of June 30, 2002. Although absolute value of assets has dropped since 2001, the relative values of the funds remain similar.
[3] As of 2001
[4] Breakdown between professional and support staff not provided.
[5] Breakdown between professional and support staff exceeded total. Therefore, to minimize confusion, professional and support staff figures were omitted.
[6] As of July 31, 2002

Exhibit 6D
(Descending Order By Degree of Internal Management) *

State Investment Entity	Total FTEs	Total Assets[1] ($bil.)	Total Assets[2] ($bil.)	Total Programs Managed	Internal	External
New Jersey State Treasurer - Division of Investment	**68**	**$90.4**	**$72.7**	**27**	**100.00**	**0.00**
Michigan State Board of Investments	78	$62.9	$42.2 [3]	62	82.77	17.23
Florida State Board of Administration	173	$132.1	$116.7	150	55.61	44.39
State of Wisconsin Investment Board	112	$67.0	$61.2	8	50.00	50.00
Alaska State Pension Investment Board	29	$19.9	$11.2	23	38.36	61.64
Washington State Investment Board	57.5	$56.8	$50.9	31	37.68	62.32
Oregon State Treasurer - Investment Division [4]	37	$47.2	$34.9	5	26.49	73.32
Minnesota State Board of Investments[5]	25	$52.3	$44.6	66	16.90	83.10
Mass. Pension Reserves Investment Management Board	15	$30.3	$28.1	1	0.00	100.00
West Virginia Investment Management Board	22	$7.4	$5.1	21	0.00	100.00
Average	***60.9***	***$52.9***	***$44.1***	***40.8***	***34.2***	***65.8***
Median	***37.0***	***$52.3***	***$39.8***	***23.0***	***37.7***	***62.3***

Numbers may not add up to 100 due to rounding.

**** Based on survey data IFS collected directly from each respondent board in 2001 and updated to the extent feasible.***

[1] Total assets were derived by aggregating the assets of each program under the management of the entity.

[2] As of June 30, 2002. Although absolute value of assets has dropped since 2001, the relative values of the funds remain similar.

[3] As of July 31, 2002

[4] Breakdown between professional and support staff exceeded total. Therefore, to minimize confusion, professional and support staff figures were omitted.

[5] Breakdown between professional and support staff not provided.

Exhibit 6E
(Descending Order By Degree of Internal Management to Absolute FTEs) *

State Investment Entity	Total FTEs	Internally Managed
New Jersey State Treasurer - Division of Investment	**68**	**100.00**
Michigan State Board of Investments	78	82.77
Florida State Board of Administration	173	55.61
State of Wisconsin Investment Board	112	50.00
Alaska State Pension Investment Board	29	38.36
Washington State Investment Board	57.5	37.68
Oregon State Treasurer - Investment Division [1]	37	26.49
Minnesota State Board of Investments [2]	25	16.90
West Virginia Investment Management Board	22	0.00
Mass. Pension Reserves Investment Management Board	15	0.00
Average	***60.9***	***34.2***
Median	***37.0***	***37.7***

Numbers may not add up to 100 due to rounding.

**** Based on survey data IFS collected directly from each respondent board in 2001 and updated to the extent feasible.***

[1] Breakdown between professional and support staff exceeded total. Therefore, to minimize confusion, professional and support staff figures were omitted.
[2] Break down between professional and support staff not provided.

Exhibit 6F – Defined Benefit

FTEs for Private Equity / Real Estate*

State Investment Entity	Domestic Venture Capital		Buyouts		Other Domestic Private Equity		Int'l Private Equity		Total Real Estate	
	Asset Allocation	Managed	Asset Allocation	Managed	Asset Allocation	Managed	Asset Allocation	Managed	Asset Allocation	Managed
Washington State Investment Board (WSIB)	4.00	External	6.00	External	2.00	External	1.30	External	7.90	External
Alaska State Pension Investment Board (ASPIB)	0.94	External	0.47	External	1.01	External	0.16	External	6.35	External
Mass. Pension Reserves Investment Management Board (PRIM)	1.69	External	3.50	External	0.30	External	-	-	5.40	External
Michigan State Board of Investments	2.90	Internal	3.90	Internal	5.80	Internal	1.40	External	8.40[1]	0.8% External 7.1% Internal
Oregon State Treasurer – Investment Division	Total Alternative Equity = 12.5 (Externally Managed)[2]						-	-	3.3	External
State of Wisconsin Investment Board	0.40	Internal	2.20	Internal	-	-	2.00	Internal	3.6	Internal

* *Based on survey data IFS collected directly from each respondent board in 2001*

[1] Does not include Real Estate Loans
[2] Breakdown for Total Alternative Equity was not reported.

FTEs*

State Investment Entity	Private Equity Investment Function	Real Estate Investment Function	Total	
State of Wisconsin Investment Board	14	5	19	Other boards that invest in private equity and real estate equity have at least 4 and as many as 19 investment staff for such assets, even though such assets are typically managed externally
Michigan State Board of Investments	9	10	19	
Washington State Investment Board (WSIB)	7	4	11	
Oregon State Treasurer – Investment Division	4	3	7	
Alaska State Pension Investment Board (ASPIB)	3	3	6	
Mass. Pension Reserves Investment Management Board (PRIM)	2	2	4	

* *Based on survey data IFS collected directly from each respondent board in 2001*

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Exhibit 7A

Division of Investment Compensation				
		Compensation Ranges*		
New Jersey Division of Investment Key Positions	**Base Compensation**	**Median**	**Low**	**High**
Director of Investments (CIO)	**$150,000**			
Deputy Director of Investments	**121,900**			
Assistant Director	**103,180**			
Senior Investment Officer – Public Equity	**97,736**			
Research Officer	**96,654**			
Manager, Fiscal Research[1]		**85,253**	**76,885**	**93,620**
Senior PM – Equity		**96,654**	**93,307**	**96,654**
PM – Fixed Income	**76,366**			
Investment Analyst		**65,378**	**57,307**	**72,872**
Chief Trader	**94,292**			
Traders		**68,499**	**55,387**	**84,905**
Investment Technician		**48,007**	**44,790**	**48,007**
Investment Accounting - Accountant		**58,706**	**48,140**	**64,784**

** For key positions were there is more than one incumbent, the compensation range (median, low and high) is provided.*

[1] The title is a misnomer; the two people holding this title function as the Internal Auditor and Investment Accounting Supervisor.

Comparison of Staff Size by Function *

Exhibit 7B

	NJ	FL	MA	MI	OR	WI	WSIB	Texas TRS	Ohio PERS
INVESTMENT OFFICERS									
Chief Investment Officer	1	1	1	1	1	1	1	1	1
Deputy CIO	1	0	0	0	0	0	0	0	1
Senior Investment Officer - Public Equity	1	1	1	1	1	1	1	1	1
Senior Investment Officer - Private Equity / Alternatives	0	1	0	1	1	1	1	1	1
Senior Investment Officer - Fixed Income	0	1	0	1	1	1	1	1	1
Senior Investment Officer - Real Estate	0	1	1	1	1	1	1	0	1
Asset Allocation Investment Officer [6]	0	0	0	1	0	1	1	1	0
Fixed Income Portfolio Manager / Investment Officer [1]	1	7	0	2	1	7	5	5	1
Internally / Externally Managed - Domestic	25% - I 0% - E	17% - I 8% - E	0% - I 28% - E	20% - I 0% - E	14% - I 8% - E	12% - I 10% - E	27% - I 1% - E	28% - I 1% - E	17.8%-I 3.2%-E
Internally / Externally Managed - International	2% - I 0% - E	0% - I 0% - E	0% - I 0% - E	0% - I 0% - E	1% - I 1% E	2% - I 5% - E	0% - I 0% - E	3% - I 0% - E	0%-I 0.7%-E
Public Equity Portfolio Manager / Investment Officer [2]	6	2	0	10	1	8.9	1	11	4
Internally / Externally Managed - Domestic	47% - I 0%- E	26% - I 29% - E	0% - I 43% - E	44 - I 0.4 - E	0% - I 37% - E	11% - I 25% - E	0% - I 36% - E	54% - I 0% - E	41%- I 6.4%-E
Internally / Externally Managed - International	15% - I 0% - E	0 % - I 11% - E	0% - I 14% - E	6% - I 0% - E	0% - I 15% - E	5% - I 11% - E	0% - I 14% - E	13% - I 0% - E	0%-I 19.4%-E
Private Equity Portfolio Manager / Investment Officer [3]	0	1	1	6	1	4	6	0	0
Real Estate Portfolio Manager / Investment Officer [4]	0	1	0	6	1	1	2	0	3
ANALYSTS									
Analysts (Public Equity)	8	0	1	13	0	10	0	17	7
Analysts (Fixed Income)	0	0	1	2	0	5	0	4	6
Analysts (Private Equity)	0	0	1	0	0	4	0	1	2
Analysts (Mortgage and Real Estate)	0	0	0	7	0	1	0	0	4
Analysts (Other) [5]	0	0	3	0	0	1.8	0	1	3
Total Analysts	8	0	3	22	0	21.8	0	23	22
Total Public Equity - Portfolio Managers and Analysts	14	2	1	23	1	18.9	1	28	11
Total Fixed Income - Portfolio Managers and Analysts	1	7	1	4	1	12	5	9	7
Total Private Equity - Portfolio Managers and Analysts	0	1	2	6	1	8	6	1	2
Total Real Estate - Portfolio Manager and Analysts	0	1	0	13	1	2	2	0	7
TRADERS									
Chief Trader - Trade & Settlement	1	1	0	1	0	1	1	1	1
Traders - Public Equity	5.5	1	0	1	0	2	0	4	2
Traders - Fixed Income	1	0	0	0	0	0	0	0	0
Traders - Money Market	1	0	0	0	0	0	0	0	0
Total Traders	7.5	1	0	1	0	2	0	4	2
ADMINISTRATIVE OFFICERS & INVESTMENT SUPPORT									
Executive Director	0	1	1	1	1	1	1	0	1
Chief Operating Officer	0	1	0	1	1	1	1	0	0

Comparison of Staff Size by Function *

	NJ	FL	MA	MI	OR	WI	WSIB	Texas TRS	Ohio PERS
Controller	0	1	1	1	1	1	1	0	0
Investment Accounting - Supervisor	2	1	1	1	1	1	1	0	1
Investment Accounting - Accountant	11	1	1	1	1	1	1	0	6
Trade & Settlement Supervisor	1	0	0	0	0	0	1	0	0
Settlement Accountant	0	0	0	0	0	0	2	0	0
Portfolio Administrator	0	0	0	0	0	0	1	0	0
Contracts Specialist	0	NR	NR	NR	NR	NR	1	0	1
Internal Auditor	1	NR	NR	NR	1	1	1	5	4
Financial Manager	0	0	0	0	0	1	1	0	1
Total # of Relevant Positions	41.5	23	11	59	15	58.7	33	54	53

*** Note:**

- Data for Florida, Massachusetts, Michigan, Oregon, and Washington State Investment Board is based on survey data IFS collected directly from each respondent board in 2001; NR - No Response

- Data for Wisconsin is based on Organizational Chart provided by WSIB dated May 2003

- Data for Texas TRS is based on information provided to IFS for an Independent Audit conducted in 2001; approximate percentage figures for Equity and Fixed Income asset allocations internally and / or externally managed were calculated from asset values provided in their 2002 CFAR

Footnotes

[1] Wisconsin - includes 3 Assistant Portfolio Managers
[2] Wisconsin - includes 2 Assistant Portfolio Managers
[3] Wisconsin - includes 1 Assistant Portfolio Manager
[4] Wisconsin - Assistant Portfolio Manager
[5] Others include for Mass PRIM - Client Service Analyst, Proxy Analyst, and Accounting Analyst; for Wisconsin - Quantitative Research and Risk Analyst (1.8), and for Texas Teachers - Investment Services Analyst (1); for Ohio PERS - Investment Analysts

[6] For Texas Teachers, Investment Compliance Officer counted as equivalent to Asset Allocation Investment Officer

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Exhibit 8

The Middle Office

Section 1: Public Pension Funds and Investment Boards That Have Adopted the Middle Office Concept

The middle office concept in public pension plans is relatively new and, therefore, middle offices do not have generally similar structures. Usually, there is an effort to reconfigure some front office and back office functions and consolidate them with certain newly established functions, with the intention of segregating responsibilities for improved internal control. Some of the more common responsibilities center around monitoring transaction costs and trading performance, securities lending, aspects of risk management and reporting, coordination of performance measurement source data, coordination of new systems and analytics among the accounting, technology and investment departments, coordination with the custody bank, and project management.

There is no standard template for designing such a unit, either in its functions or in its place in the organization. As more public investment organizations establish these departments and gain experience with them, some consensus may develop. Ultimately, how best to divide basic responsibilities will remain a matter of preference for each organization. Nevertheless, understanding how other organizations are addressing the issue may be of value.

Examples of public fund investment entities that have adopted, or are in the process of adopting a "middle office" include:

- **NYSTRS**

Another fund that has made strides in implementing a middle office is the New York State Teachers Retirement System (NYSTRS). At NYSTRS, the unit is called the Investment Information Department (IID). It includes many middle office functions plus the back office functions of investment accounting and related responsibilities. NYSTRS created the IID to eliminate operating redundancy and to provide more efficiency. The unit has been in operation for about two years. NYSTRS established a committee with representatives from all affected departments and spent about two years developing, refining and implementing the concept, including obtaining agreement from all fund units. Their basic structural philosophy was to separate the functions having investment discretion from those reporting results of that investment discretion. The head of the IID reports to the Director of Administration, who reports to the Executive Director; IID is not housed within the investment division. (Although the Executive Director at NYSTRS is also CIO, the IID reporting chain runs to his responsibility as Executive Director.)

The IID has broad compliance responsibilities over investment policy and portfolio guidelines. NYSTRS is similar to NJDOI in that it includes some internal asset management, but it also uses external management. Portfolio compliance is post trade for internal as well as external managers. NYSTRS is currently looking at trade order management systems, and would presumably add some pre-trade compliance through that function. Portfolio data for compliance testing come primarily from Portia (NYSTRS' in-house investment accounting system). Some tests are performed within Portia, some externally using spreadsheets.

IID is also responsible for monitoring the quality of trading, broker fails and similar measures. In addition, it monitors internal guidelines for usage of minority brokers, chiefly through calculation of commissions by broker. However, an outside firm determines quality of execution. IID plays no role in this, and therefore has no role in determining trading costs for any particular broker subgroup.

IID is not involved in portfolio structure issues; neither does it measure performance or sources of performance (attribution analysis). Portfolio structure is handled within the investment division; and an outside consultant handles performance measurement and attribution analysis. Again, this is similar to the Division. Proxy votes are determined within the investment division (subject to written guidelines), with NYSTRS casting the votes itself. There is a system to record the number of shares voted, reconciled to holdings.

IID plays a major role in monitoring and overseeing the domestic securities lending program, including compliance with guidelines, investment of collateral, mark-to-market requirements, broker concentration and similar matters. NYSTRS policies are developed collaboratively across departmental lines; IID is a participant but not a driving force. Legal, Internal Audit, and the affected operational departments are closely involved. However, IID is the custodian of all policies and maintains the policy manual.

IID provides support functions for the development of the budget, including a significant role in software evaluation and implementation. Additionally, IID is expected to be a major participant in its straight through processing effort.

- **ASPIB, OPERS, and Texas TRS**

The State of Alaska Department of Revenue (for the Alaska State Pension Investment Board (ASPIB)), the Ohio Public Employees Retirement System (OPERS), and the Texas Teachers Retirement System manage the majority of their assets internally. They are in the process of creating a middle office. Although still developing, they are taking on many of the functions listed above.

In summary, while there are material organizational differences, some reflecting the regulatory and philosophical environments in which the two organizations operate, there are some similarities between NYSTRS and the Division that make the NYSTRS program a reasonable model for comparison.

Section 2: Potential Duties and Responsibilities of a Middle Office at the Division

The following list represents areas that could fit within the role of a middle office at the Division.

- **Investments Compliance Monitoring**

This function addresses the implementation of a comprehensive investments compliance program to monitor operational and financial risk from non-compliance with investment policies and guidelines. Division management relies primarily on the portfolio managers and analysts to ensure that all transactions are in compliance with investment policies, guidelines, regulations of the SIC, and statutory requirements. Pre-trade compliance monitoring is designed to detect a non compliant trade prior to execution. However, the portfolio managers and analysts lack automated compliance monitoring tools designed to assist in analysis of a trade prior to execution; rather, they rely on self-knowledge to prevent non-compliant trades.

A properly staffed middle office should be charged with a part of the compliance monitoring responsibility to include:

- Refining and documenting procedures for the compliance function;
- Independently monitoring compliance with the Division's investment policies, guidelines, and regulations of the Investment Council on a continuing basis;
- Working with outside sources to develop risk measurement tools to serve the two separate but necessary functions of portfolio management and monitoring; and
- Developing plans to train additional staff to handle various areas of risk monitoring and management. The extent of the middle office's responsibility will depend on staffing level, appropriate knowledge of the respective risk assessment areas, and risk management performed by the investment department.

- **Soft Dollars**

A properly staffed middle office could be charged with this responsibility which includes:

- Recommending changes to the soft dollar policy;
- Developing procedures for the soft dollar program;
- Consulting and coordinating with investment staff and soft dollar brokers regarding planned transaction volumes;

- Reconciling statements;
- Preparing and presenting broker commission allocations to trading;
- Preparing expenditure reports for the Board; and
- Conducting program analysis to develop and recommend solutions to problems and implementing solutions.

Monitoring the soft dollar program clearly fits within a middle office responsibilities. If established, the middle office should be charged with oversight of the soft dollar program. Additionally, we suggest that the middle office is an appropriate venue in which to assess the cost of the soft dollar program (trading costs).

- **Proxy Voting**

All Division custodians feed ProxyEdge, an ADP service. An analyst in the Research section monitors proxy voting compliance according to Council guidelines and reports to Division management. A summary of proxy votes is reported to the Council. A properly staffed middle office should be charged with this responsibility which includes:

- Maintaining and monitoring an effective control over domestic and international proxy voting;
- Reducing the cost of proxy voting services by requiring vendors to periodically compete for the Division business through a proposal process;
- Evaluating additional services from the outside proxy vendor, that reduce the amount of time spent by Division staff on proxy voting related tasks;
- Documenting internal proxy voting procedures; and
- Cross-training staff (back-up) for voting both domestic and international equities when staff involvement is needed.

- **Monitoring Performance Measurement**

Investment performance measurement begins with reconciliation of holdings data from the custodian. The holdings are then valued with information received from IDC. Once reconciled and valued, the accounting department prepares the financial statements for each portfolio. The monthly financial statements are sent to New England Pension Consultants and Russell/Mellon who prepare the performance measurement reports for management and the council. We understand NEPC and Russell/Mellon also assist in seeking to reconcile and interpret custody data, e.g., properly weighting cash flows for purposes of performance measurement.

If established at the Division, the middle office could be charged with monitoring performance reporting for accuracy and compliance with AIMR standards.

- **Securities Lending**

In January 2003, the Division implemented its first securities lending program. IFS was contracted to evaluate the securities lending arrangement along with custodial services provided to the Division as part of phase two of our investment review. Without yet having reviewed the actual details of the Division's securities lending program, it is safe to say that the Division should house aspects of monitoring the securities lending program within the middle office, including:

- Creating a monitoring system to ensure that the securities lending agent adheres to the applicable investment guidelines; and

- Investigating other opportunities for investment of cash collateral from securities lending. (To the extent such opportunities involve consideration of expanded investment guidelines, the middle office should not be responsible, in order to separate policy and asset management from compliance functions.)

If established, the middle office should be given clear responsibility for monitoring compliance with securities lending policies and measuring performance of the securities lending program.

- **Attribution Analysis**

"Attribution analysis" is the process that seeks to identify the sources and causes of particular patterns of returns, e.g., excess or underperformance compared to specific benchmarks. Attribution analysis requires certain analytical skills and a familiarity with the Division's asset allocation strategies. The middle office could use attribution analysis to support and enhance the Division's analysis of investment performance. With independence from the front office, the middle office can add a degree of objectivity and impartiality to the analysis. However, the Division's consultant could also do these evaluations, using attribution analysis in conjunction with portfolio performance measurement.

If a middle office is established, the Division should discuss with the consultant, how best to use attribution analysis to manage both the investing process and management's understanding of the sources of performance results.

- **Operating Guidelines, Procedures, Controls, Reports**

A middle office can play an important supporting role by updating all internal investment operating procedures and developing appropriate reports. For example, the Division needs written operating guidelines that reflect the requirements of the new securities lending program and most other investment operations.

If established, a middle office could be responsible for development and maintenance of written operating guidelines, procedures, controls and reports. These responsibilities should be assigned to a department with appropriate staffing and knowledge. Such responsibilities for procedures are consistent with the overall philosophy of using the middle office as the focal point for investment policy and procedure compliance and using other departments for policy development.

- **Corporate Actions**

The primary effort of a middle office regarding corporate actions is to monitor the custodian and the investment managers as they process the actions and ensure that voluntary actions are promptly brought to the attention of the investment department and processed timely and in accordance with Council policies.

A middle office could ensure that:

- As the parties process the actions an audit trail is created. This might include transaction postings to the accounts supported by e-mails and e-faxes.

- The custodian provides thorough announcements of actions for the Division portfolios and specifies response deadlines as required, as well as which investment managers and analysts should be notified about corporate events.

- The investment managers communicate their election instructions as appropriate within the deadlines established by custodians.

- Corporate actions are properly recorded throughout their life cycle.

- **Special Research Projects**

If established, a middle office could be involved in coordinating special investment research and analysis programs.

9

Exhibit 9

Principles of the Uniform Management of Public Employees Retirement Systems Act (UMPERSA)

The intent of UMPERSA is to modernize, standardize, and clarify the rules governing the management of public employee retirement systems. Like UPIA, UMPERSA was developed as a uniform law designed to replace laws that inhibit or prevent the use of modern investment practices – all restrictions on types of investment are abrogated and replaced by general but rigorous fiduciary standards of prudence and loyalty. Also like UPIA, UMPERSA affirms the power of a board of trustees to delegate investment and management functions. It also advocates independent management of a pension fund as a fundamental principle necessary to ensure that boards are able to perform their duties effectively and efficiently, subject, however, to strict fiduciary standards, clear reporting and legislative oversight. Thus, UMPERSA provides for independent procurement, contracting, budgetary, and personnel authority, e.g., the ability to hire, evaluate and compensate staff.

In exchange for this needed independence, boards are subjected to high fiduciary standards and held accountable pursuant to stringent reporting and disclosure requirements. UMPERSA imposes strict liabilities on fiduciaries for breaching their duties, including personal financial exposure and reporting and disclosure requirements. However, UMPERSA allows boards to use trust fund assets to purchase fiduciary liability insurance to protect their members from such exposure.

UMPERSA also has been endorsed by the American Bar Association, and according to the National Conference on Public Employee Retirement Systems, has been introduced in 16 states. Only South Carolina has enacted specific entire portions of the Act (the fiduciary sections), although many other jurisdictions have adopted UMPERSA-like principles of autonomy.

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Exhibit 10 – Governance of Boards of Investment

State Investment Entity	Are Salaries Subject to State Classification and Pay Schedules	Responsible For Investment Functions Only	Staff Comes From Another State Agency	Independent Budgetary Authority	Independent Personnel Authority	Board Appoints Executive Director	If No, Executive Director Is Appointed By
Alaska State Pension Investment Board	Hybrid[1]	Yes	Yes *(Department of Revenue)*	No	No	No[2]	N/A[2]
Florida State Board of Administration	No	Yes	No	Yes	Yes	Yes	N/A
Massachusetts Pension Reserves Investment Management Board	No	Yes	No	Yes	Yes	Yes	N/A
Michigan State Bureau of Investments	Yes	Yes	Yes *(Treasury)*	No	No	No	State Treasurer[3]
Minnesota State Board of Investments	No	Yes	No	No	Yes	Yes	N/A
Montana Board of Investments	No	Yes	No[4]	No	Yes	Yes	N/A

[1] Investment Officer positions are exempt and the Comptroller position is partially exempt.
[2] The organizational structure does not provide for an "Executive Director," although the Deputy Commissioner of the Department of Revenue performs a similar function. The Commissioner selects the Deputy.
[3] State Treasurer, sole trustee.
[4] Administratively attached to the Department of Commerce but functions as an independent, quasi-judicial board with full and final authority over its two major responsibilities: the Unified Investment Program and the In-State Investment Program.

State Investment Entity	Are Salaries Subject to State Classification and Pay Schedules	Responsible For Investment Functions Only	Staff Comes From Another State Agency	Independent Budgetary Authority	Independent Personnel Authority	Board Appoints Executive Director	If No, Executive Director Is Appointed By
Nebraska State Investment Council	Hybrid[5]	Yes	No	No	Yes[6]	Yes[7]	N/A
New Jersey State Investment Council	Hybrid[8]	Yes	Yes *(Treasury)*	No	No	Hybrid[9]	N/A
North Dakota State Investment Board	Hybrid[10]	Yes	No[11]	No	No	Yes[12]	N/A
Oregon Investment Council	Yes	Yes	Yes *(Treasury)*	No	No	No[13]	State Treasurer
South Dakota Investment Council	No	Yes[14]	No[15]	No	Yes[16]	N/A[17]	N/A

[5] The only investment staff exempt from the State Personnel System is the State Investment Officer.
[6] The State Investment Officer shall employ qualified personnel as may be required to carry out the duties and responsibilities required under the Nebraska State Funds Investment Act.
[7] The council appoints a State Investment Officer subject to the approval of the Governor and a majority of the Legislature.
[8] Director and Deputy Director are exempt from civil service and considered "unclassified;" all other employees of the Division of Investment are subject to civil service.
[9] The Investment Council provides the treasurer a slate of candidates from which the treasurer selects the finalist.
[10] The Executive Director and Deputy Director are not classified; all other staff are classified.
[11] North Dakota Retirement and Investment Office (NDRIO) provides all staff in support of the State Investment Board and the Teachers Fund for Retirement Board functions. The State Investment Board is the administrative board to NDRIO and is responsible for hiring the Executive Director, who in turn, is "in charge" of all staff.
[12] The board may appoint an Investment Director or advisory service; currently the Executive Director serves in the function of Investment Director.
[13] No Executive Director per se; role is filled by Deputy State Treasurer and CIO.
[14] State funds are invested by the State Investment Office under the supervision of the Investment Council.
[15] The Council is under the State Treasurer for budget reporting purposes. Council reports to the Executive Board of the Legislature.
[16] The Council hires the State Investment Officer. The Investment Officer hires Council staff after full time employee authorization from the Appropriation Committee.
[17] The council does not have an Executive Director. The Council hires the State Investment Officer.

State Investment Entity	Are Salaries Subject to State Classification and Pay Schedules	Responsible For Investment Functions Only	Staff Comes From Another State Agency	Independent Budgetary Authority	Independent Personnel Authority	Board Appoints Executive Director	If No, Executive Director Is Appointed By
State of Wisconsin Investment Board	No	Yes	No	Hybrid[18]	No[19]	Yes	N/A
West Virginia Investment Management Board	No	Yes	No	Yes	Yes	Yes	N/A
Washington State Investment Board	Hybrid[20]	Yes	No	Hybrid[21]	No	Yes	N/A

[18] Subject to a statutory cap of 2.75 basis points of assets under management.
[19] Total position count subject to legislative approval. Compensation subject to board approval.
[20] Non-Investment personnel salaries are subject to state classification. Salaries for operation and investment personnel are not subject to state classification.
[21] Salaries, Personnel Services, Good & Services must be appropriated. Investment management fees, general pension consultant fees, custodial fees, and legal fees are not subject to appropriation.

11

Exhibit 11

Establishing an Internal Audit Function

The need for an internal audit function is certainly more commonly understood since the implosion of Enron. However, the internal audit function is commonly found at other public investment organizations (e.g., pension funds, boards of investment) across the country. We are aware of 33 state-wide pension funds and state investment entities (i.e., responsible of the investment of pension fund assets) that have an internal audit function ("Internal Auditor").

The Internal Auditor serves as a management control and plays an important role in the monitoring and evaluation of the status of internal controls. As such, the Internal Auditor can be instrumental through its appraisal and consulting role in providing assurance that the Division's resources are used in the most economical and efficient way.

Internal Audit Function Should be Independent

Objectivity is a critical requirement of professional internal audit. Objectivity could be compromised in situations where the individual(s) responsible for the internal audit functions play a role in the organization's day-to-day management or in policy development that affects the outcome of the organization. That is to say, the internal review function should not be part of the process that it is then responsible for evaluating. We believe that to be consistent with best practices, the most appropriate reporting relationship is for the internal auditor to have a direct line to the governing board of the organization, or preferably to an audit committee of the board, and a dotted line for administrative reporting purposes to senior managing officer of the organization (e.g. the Director). Of the public funds responding to a recent survey,[1] 26 had implemented internal audit functions with direct reporting to the board or to the audit committee of the board.

[1] Survey of Internal Audit Staff Size, Summary of Member Questionnaires 2001, Association of Public Pension Fund Auditors, Inc. (APPFA).

Given the current structure of the Office of the Treasurer, Investment Council and the Division it may not be possible to structure the reporting relationship in the manner described above. As an alternative, we believe that the most appropriate reporting relationship for the staff person responsible for the internal audit function would be a direct line to the Chief Auditor within the Office of the Treasurer, with a dotted reporting line of authority, for administrative purposes, to the Investment Division Director.

A technically trained and experienced professional is essential to carry out this function effectively. The person designated to perform the Division's internal review function should be responsible for the development and implementation of a comprehensive internal financial, procedural, and compliance review program that includes, in addition to administrative management of the internal review functions, evaluation of internal controls, policies, and information systems. Additionally, the staff person designated to perform the function should be responsible for reporting conditions that pose a risk of loss and for bringing to management's attention any irregularities, fraud, or other acts that are subject to detection through the application of normal audit procedures.

Recommended Internal Auditor Functions

Listed below are some of the essential duties and responsibilities of an internal auditor:

- Conduct reviews of source documents, employer payrolls and contracts to verify accurate employer reporting of retirement related information;
- Conduct reviews to guarantee information integrity for initial member applications, retirement applications, benefit payments and internal processing;
- Conduct reviews of the investment process to ensure investment operations are in compliance with Federal and New Jersey laws and Council regulations;

- Review data processing procedures for information security and processing improvements;
- Evaluate effectiveness of procedures and policies, internal controls, resource utilization, performance, cost effectiveness and operating plans;
- Perform compliance tests to determine execution of policies and directives;
- Interpret accounting theories and fiscal rules and policies;
- Verify whether accounting records are kept in accordance with governmental reporting requirements;
- Prepare various audit reports;
- Carry out special examinations as necessary;
- Coordinate the internal control assessment conducted by the Office of the Treasurer and any external audits;
- Follow up on recommendations to determine that action to implement change has occurred by affected management;
- Periodically, and upon request, provide the Treasurer, Director of the Division, and the Investment Council with information reports; and

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Exhibit 12

Key Elements for Policy & Procedure Regarding Selection of Broker Dealers

1. Due Diligence Process for Initially Evaluating Broker-Dealers

- Organization and management
- Legal issues
- Commission levels
- Financial strength
- References
- Nature and quality of services provided in exchange for commissions in excess of amounts paid solely for execution and clearance, e.g.,

  -- allocation of new issues
  -- research and data
  -- analytical tools
  -- other

- Assessment of quality of execution – what criteria and how objective and/or independent, e.g.,

  -- by types of trades
  -- by types of securities
  -- use of capital
  -- pre-trade analytical and order management systems
  -- third party or industry-wide ranking or analysis of execution quality
  -- opinions of internal and external portfolio managers and traders
  -- whether, how and how much broker-dealer itself monitors total trading costs
  -- average "turnaround" time

- Clearance and back office capabilities

  -- clearance in-house or through external party (identify clearing firms/agents)
  -- experience with fails

- -- reconciliation process for failed trades
- -- adequacy and timeliness of reporting, including post-trade reconciliation and analytics regarding programs, as well as the ability to create customized reporting
- -- opinion of custody bank
- -- status of straight-thru-processing initiatives

2. Monitoring and Tracking Commissions and Execution

   - Annual evaluation
   - Third party evaluation of program using suitable methodologies

3. Current Broker Database and Internal Files

   - Establish required files for brokers – audit, correspondence, reports, etc.
   - Establish accountability for maintaining, retention and storage methods

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Exhibit 13

Key Elements for Policy & Procedure Regarding Soft Dollars

1) Introduction

   a) Definition of soft dollars
   b) Organizational policy statement regarding the use of soft dollars
   c) Relevant state and Federal statutes

2) Applicability of soft dollars to the organization's asset classes

   a) Commissioned trades and transactions
   b) Noncommissioned trades and transactions

3) Duties and responsibilities

   a) Investment manager
   b) Broker dealer
   c) Investment staff

4) Policy guidelines

   a) Percentage limitations
   b) Research and investment-related services

5) Procedures

   a) Request and approval of soft dollar expenditures
   b) The soft dollar budget
   c) Soft dollar account reconciliation process
   d) Monitoring
   e) Reporting and analysis

6) Interaction with the organizational policy on the selection of brokers and dealers

7) Forms and sample reports

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Exhibit 14

Summary of Transaction Cost Analytical Methods

Caveat: Simply collecting and reporting extensive information is not sufficient; applying it in order to arrive at practical benefit requires time, effort, understanding and communication with the investment managers involved.

Available price methods – Compare the price of executed trades to prices that were available during the day (open close high low.)

Available price methods simply ask the question 'was there a better price at which the trade could have been done?' This method does not distinguish between impact and opportunity cost, nor does it consider the size of the trade.

Average Benchmark Methods - Share the advantage of simplicity, but also share several disadvantages. These include:

- Treating all trades alike when the actual difficulty and nature of trades may differ widely.
- Not providing practical insight into why the price obtained was attractive (or unattractive) and thus, not providing much useful information for analysis or corrective action to improve the quality of future trades.
- Average prices may not have been actually available during the day.

Typical average benchmarks used for analysis include:

- 3 to 5 day average price – The unweighted average price of all other trades in the same stock over the selected period.
- Volume weighted average price ("VWAP") – The average of all other trades in the same stock over the period weighted by the size of individual trades in that stock.
- Daily midpoint price – The day's median price.

Alternative methods - Alternative methods are more sophisticated and may prove more useful. Key distinguishing features of alternative methods (as compared with the average approaches) include an attempt to identify the value added or lost through implementation of investment ideas; longer time periods for data collection.

Implementation shortfall method – The implementation shortfall method compares *real portfolio* returns based on trades executed to *paper portfolio* returns which are based upon trades executed without delay, without cost, at an arbitrary price. The arbitrary price could be the mid-market price. The difference between the real portfolio and the paper portfolio is the [direct and indirect] cost of trading. Direct costs include commissions, settlement, and taxes. Indirect costs include market impact, opportunity cost, timing gains and losses, and the cost of delay.

Commission Settlement Taxes	+	Market Impact	+	Delay	+	Opportunity Cost	=	**Implementation Shortfall**

Definitions

"**Transaction costs**" refers to the trading costs an investor incurs in connection with the purchase and sale of securities by its various investment managers. The components of transaction costs are commissions, market impact, delay, and opportunity cost, although some firms define total transaction costs more simply as the sum of commissions plus execution costs (where execution cost is defined as the difference between the price the manager received and the daily VWAP[1].)

"**Transaction cost analysis**" is a means of monitoring the relative performance of individual trading strategies.

"**Market impact**" or "**trading cost**" refers to the effect of a trade on the price of the security bought or sold. To take a simplified example, assume that one of the DOI's investment managers decides immediately to buy a large order of a thinly-traded stock. In that situation, several pressures would tend to drive the price upward: the fact that the stock is thinly-traded (not in plentiful supply) plus the manager's immediate demand for a large number of shares. In that situation, the manager's purchase would be said to create significant "market impact," at a high "trading cost." By contrast, if the manager decided to purchase smaller volumes over an extended period of days, the price at which each portion was purchased might be lower. In that event, the "market impact" and "trading cost" might be less and the ***quality of execution*** deemed better. However, if some event that the manager reasonably anticipated was likely to drive the price further upward after a prompt purchase, he might be willing, on balance, to "pay up" for an immediate, large supply of the stock, in hopes of the subsequent rise in value. In that case, the market impact and trading cost might be considered reasonable.

[1] Abel Noser domestic equity transaction measurement report to the state of New Jersey Division of Investments.

"**Quality of execution**" on a securities trade essentially refers to the price at which the transaction occurred, under all relevant circumstances - ideally, a high price for a sale and low for a purchase.

"**Safe harbor rule**" - Section 28(e) Securities and Exchange Act of 1934 permits an investment decisionmaker to pay -- and to use a broker that charges - more than the cheapest available commission to the extent that the broker or a related firm provides services, information or equipment helpful to the investment process and obtains a favorable price on the trade (high price on a sale, low on a purchase) under all relevant circumstances.

"**Soft dollars**" dollars are commissions used by an investor to acquire investment-related research or other services, beyond securities execution and clearance. While at least part (and sometimes all) of the commission is for execution and clearance of the trade, another part may be used to pay for services, information or technical equipment that assists the staff or asset manager in investment decisionmaking. This possible second part of the commission is what is known as the "soft dollar" portion. Some soft dollar payments compensate the broker for services, information or dedicated equipment it provides, in addition to executing and clearing the trade. Other soft dollar payments may compensate a third party which provides useful services to the pension fund (e.g., consulting advice) and which has established a relationship with the brokerage firm (or set up its own).

"**Directed brokerage**" is the practice of an investor instructing its investment managers to effectuate some specified percentage of their trades through a particular broker or list of brokers, rather than allowing the managers unfettered discretion to select brokers.

"**Opportunity costs**" derive from movements in prices that may have occurred between the time of the investment decision and the time of the actual trade. "Missed trades" result in an opportunity costs when the portfolio manager pulls back on a trade because of a *delay*.

"**Delay**" is the period of time between the investment decision and the release of the trade to the broker.

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Exhibit 15

Risk Tolerance Impact on Asset Allocation Strategies

LOW ← Funded Ratio → HIGH

		Risk Tolerance
The markets are our only chance to dig out of this hole. We have to take that chance, even at the risk of deepening the hole we're in.	**With our cushion we can afford to try to develop a surplus that could possibly support increased benefits.**	HIGH
We dare not let things get worse, even if that means we are locking in the problem.	Let's not put our cushion at risk – let's protect it.	LOW

Risk Tolerance

LOW

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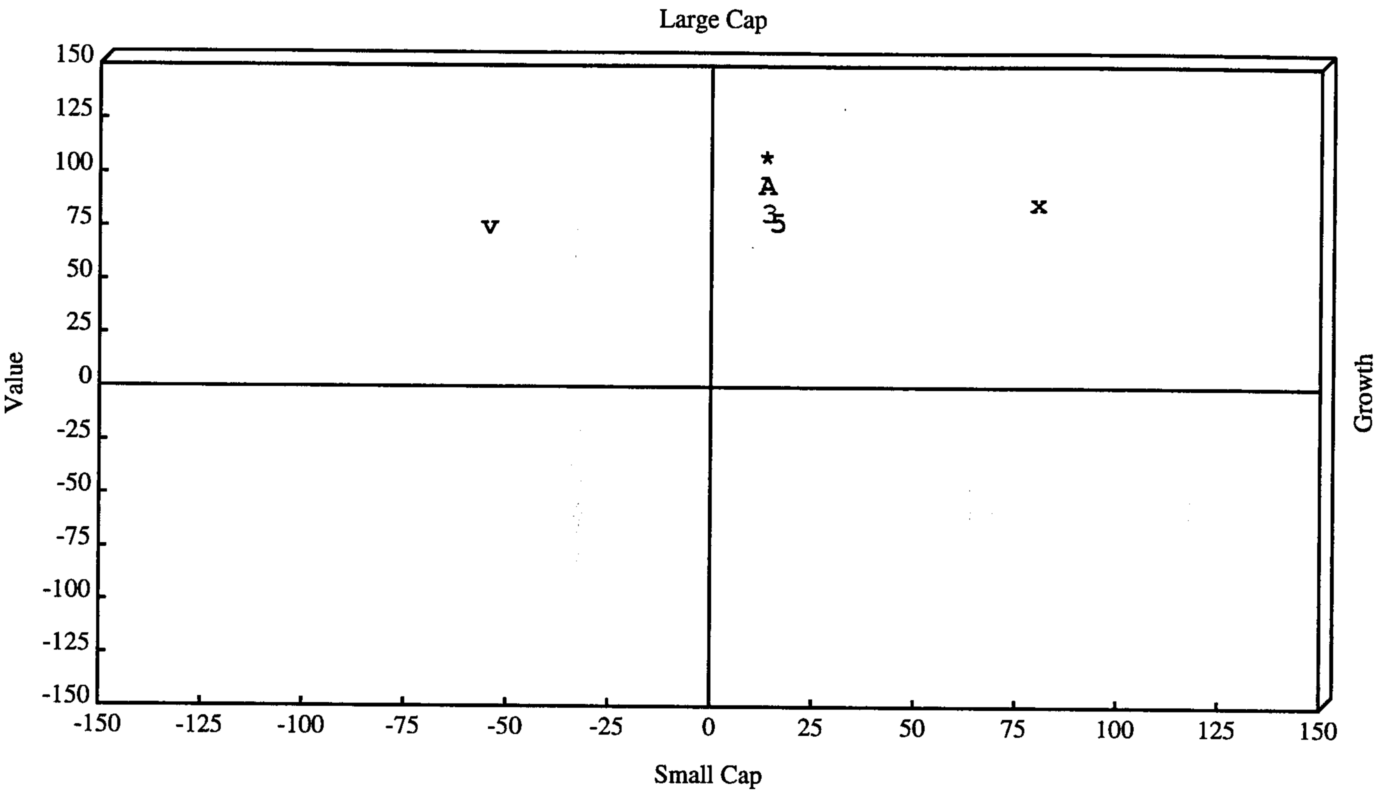
Exhibit 16

New Jersey Common Pension Fund A
Equity Style Map
Quarter Ended 9/30/02



	Growth-Value	Size
A Common Fund A	14.82	93.52
3 Russell 3000	15.30	80.17
x Russell 3000 Growth	81.58	85.65
v Russell 3000 Value	-53.17	74.52
* Standard & Poors 500	14.68	104.90
5 Wilshire 5000	17.45	75.88