



## Investments Committee Report 21-01

Investments  
Committee

Raymond Ciranna  
*Chairperson*

Joshua Geller

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Date: March 19, 2021

To: Investments Committee

From: Staff

Subject: Passive Managers Mutual Fund Search and Request for Proposal (RFP)

### **Recommendation:**

That the Investments Committee review and consider reports from the Deferred Compensation Plan (DCP) investment consultant regarding responses to the DCP RFP for Core Menu investment management services (passive managers) and results of the mutual fund passive manager search process and identify next steps for the evaluation process.

### **Discussion:**

#### **A. Background**

The Board of Deferred Compensation Administration (Board) has taken a number of actions with respect to procurements and search processes for DCP investment managers. Following is a summary of the Board's actions to date regarding the search:

- On **June 19, 2019**, the Board directed staff to draft revisions to the DCP Investment Management Services and SVF Management Services RFPs to include an evaluation process aligning with the Board's established mutual fund search process. The Board also asked staff to work with the City Attorney's Office and Office of Contract Compliance to identify all non-applicable provisions of the City's general contracting requirements for the investment of DCP funds.
- On **July 16, 2019**, the Board approved staff's proposed process to administer parallel mutual fund and institutional product searches for all DCP investment mandates.
- On **January 14, 2020**, the Investments Committee (Committee) reviewed and approved staff's proposed revised RFPs.
- On **February 18, 2020**, the Board approved and authorized the release of RFPs for (i) DCP Investment Management Services and (ii) SVF Investment Management Services.

- On **August 17, 2020**, the DCP Core Menu RFP was released; responses were due October 1, 2020. Along approximately the same time frame Mercer executed the parallel mutual fund search process.
- On **February 16, 2021**, following Investments Committee review on October 30, 2020, and prior Board consideration at its meetings on December 15, 2020, and January 19, 2021, the Board selected Galliard Capital Management to complete its SVF procurement process.

Mercer and staff are now prepared to move to the next stage of investment manager review, which includes all of the DCP’s passively managed investment options. The DCP Core Menu includes passive managers for the following DCP investment options and investment mandates comprising various percentages of the Core Menu funds and overall DCP assets, as follows:

DCP Core Fund	Passive Mandate	Percent of DCP Core Fund	Assets as of 12/31/20
DCP Bond Fund	DCP Aggregate Bond Index	50%	\$ 405,282,068
DCP Large-Capp Fund	S&P 500 Index	100%	\$ 2,722,129,156
DCP Mid-Cap Fund	Russell Mid-Cap Index or Similar	50%	\$ 224,941,451
DCP Small-Cap Fund	Russell 2000 Small-Cap Index or Similar	33%	\$ 139,962,024
<b>TOTAL-&gt;</b>			<b>\$ 3,492,314,699</b>
<b>% of DCP Assets-&gt;</b>			<b>42%</b>

Investment managers with mandates either proposed in response to the RFP (as an institutional fund) or identified as part of the mutual fund search process include the following:

- 1) BlackRock
- 2) Fidelity
- 3) Mellon
- 4) Northern Trust
- 5) State Street
- 6) Vanguard

All of the RFP proposals were first reviewed by the Personnel Department’s Administrative Services Division (ASD) to ensure the applicable City’s general contracting requirements were met. All respondents were determined to have met the requirements necessary to proceed with further evaluation.

## **B. Evaluation Process**

The RFP provides that the DCP consultant will prepare a report analyzing the responses across the various evaluation categories as delineated within the RFP Proposal Questionnaire. This report will combine both institutional funds proposed in response to the RFP as well as mutual

funds identified as a result of the search process. The RFP further provides that the analysis and findings will be reviewed and evaluated in collaboration with DCP staff and the Committee so as to allow the Committee to make recommendations for selection to the Board. The analysis includes the following evaluation factors:

- *Organizational Background and Strength* – this factor assesses business strength and resiliency, tenure of senior professionals, commitment to retaining overall personnel, percentage of employee ownership and history of legal and regulatory proceedings.
- *Investment Experience* – this factor assesses each firm’s history of managing assets within the proposed investment fund portfolio, the scale of portfolio assets under management, and depth/tenure of staff specializing in the strategy.
- *Investment Approach and Process* – this factor assesses each manager’s process and capabilities with regards to building a portfolio and includes consideration of the amount of dedicated resources to the strategy, trading and research, the investment portfolio guidelines, typical number of portfolio holdings, typical portfolio turnover rates, and expected sources of value added versus the benchmark.
- *Investment Performance* – this factor assesses the portfolio’s composite ranking relative to its peer group and relative to its benchmark, as well as the strategy risk-adjusted performance.
- *Portfolio Transition* – this factor assesses the ability of each manager to assume the current portfolio and formulate a transition plan.
- *Administrative and Reporting* - this factor assesses the managers’ capabilities with regards to interfacing with the DCP’s Third-Party Administrator (TPA), Voya, providing timely performance reporting for the DCP, supporting plan participant communications, and providing the City with back-office support as issues may arise.
- *Fees* – this factor assesses the competitiveness of fees on a total cost basis including investment management fees.

Evaluation will proceed through stages of consultant, Committee, and Board review. As the review process proceeds, the City has the option to request and consider updated performance information and portfolio characteristics from all RFP respondents. The City also has the option to request oral presentations of all of or the highest-ranked respondents prior to making a final selection. However, the evaluation and scoring of proposals will be based strictly on respondent proposals. Respondents are not permitted to submit new materials or otherwise enhance their proposals as part of the oral presentation.

The first step in the review process is the Committee’s consideration of the analysis and review prepared by Mercer Investment Consulting (“Mercer”). Mercer has prepared a primer regarding securities lending, which is a key consideration when evaluating passively managed options (**Attachment A**) and its report and analysis of manager proposals and mutual fund search candidates applying the evaluation criteria as indicated in the RFP (**Attachment B**). Based on the results of the review of this report, the Investments Committee has the option to request further information, schedule additional meetings for review, and/or generate recommendations to the

Board. Staff recommends that the Committee review and consider reports from the Deferred Compensation Plan (DCP) investment consultant regarding responses to the DCP RFP for Core Menu investment management services (passive managers) and results of the mutual fund passive manager search process and identify next steps for the evaluation process.

Submitted by:



Steven Montagna, Chief Personnel Analyst



# Securities Lending Primer

March 19, 2020

# What is Securities Lending?

*Securities lending is the temporary exchange of securities for collateral, with an obligation to repay that collateral at a future date. The collateral can take the form of either cash or securities.*

“Lending” is somewhat of a misnomer, since *legal title* of the securities transfers to the Borrower during the life of the loan – however, the benefits of ownership remain with the Lender, with the exception of proxy voting rights.

- Borrowers are contractually obligated to make the Lender whole for any corporate action or income events during the loan (e.g., income, splits, dividends, rights offerings, etc.).
- Proxy voting rights pass to the Borrower during the loan. However, Lenders typically have the right to recall securities at any time, and can use this option to restore voting rights by record date.

# What is Securities Lending?

- A well-structured securities lending program can be an effective, low-risk way to add incremental income without disrupting the investment process – but no lending program is “risk-free”. Risks can be managed, but not eliminated.
- For institutional investors, lending typically occurs through a Lending Agent (often a custodian bank or a third-party agent) and revenue is split with that agent.
- Securities lending turns idle portfolio assets into income-generating assets. Earnings will depend on the specific securities held and lent.
- Measuring costs (explicit costs and implicit administrative costs) should be factored into the decision-making process when contemplating a lending program.
- As with any investment activity, active monitoring and risk management should be a component of the securities lending oversight framework.

*Note: In the case of lending funds, these last two points would be addressed by the respective fund management organization.*

# How securities lending works



- The Lender makes specific securities available to borrowers via a Lending Agent
- The Borrower posts collateral, usually cash, in exchange for the loaned assets
- Collateral is marked to market on a daily basis
- Potential gains are split between the Lender and Lending Agent
- At the conclusion of the process, securities are returned to the Lender and collateral is released back to the Borrower
- Should the Borrower default, the Lender retains and liquidates the collateral to repurchase the securities on loan



# Securities Lending Dynamics

- **Equity vs Bond:** Some managers may choose to lend in only certain asset classes.
- **Collateral requirements:** Securities on loan are marked to market every day and they require 102% of market value as collateral for US equities and 105% for international equities.
- **Collateral investment:** Collateral is invested in short-term securities similar to money market funds.
- **Revenue split:** Amount retained by the securities lending agent. With some providers, 100% of net lending revenue is credited to the fund/trust. In other cases, the manager retains a portion of revenue (e.g., 50%). This reduces alignment of interest with the investor since losses are fully absorbed by the investor, but income is shared.
- **Lending philosophy:** “Value” approach to lending emphasizes lending securities for which counterparties pay a premium to borrow. “Volume” emphasizes quantity on loan and may involve low margin loans.

# Appendix

# Key Facts

- The Lender retains the economic benefits of ownership (income, splits, price changes).
- The Borrower can use borrowed securities to settle trades and retains the responsibilities of the loaned securities (e.g., corporate actions and proxy votes).
- Loans are typically “callable” or “put-able” by either party for one day settlement. Lending rates can change daily.
  - Securities lending does not impact investment decisions about the underlying securities.

# Key Facts

- Borrower posts collateral equal to 102% of market value of loaned securities (105% for non-USD loans), reducing Lender's exposure to the Borrower.
- The two most common forms of collateral are cash or non-cash (i.e., other securities). In rare instances, letters of credit replace collateral.
- The Agent & Borrower true-up the collateral to reflect market prices on a daily basis (subject to a minimum margin variation amount, e.g., \$50,000, \$250,000, etc., depending upon program size).
- Investment of cash collateral by the Lending Agent is typically subject to the Lender's investment guidelines (which would generally avoid most challenges encountered in the 2008~2010 period).

# Important Notices

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# MANAGER SEARCH REPORT

## City of Los Angeles

Passive US Fixed Income, Passive Large-Cap Equity, Passive Mid-Cap Equity  
& Passive Small-Cap Equity

March 2021







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## Summary

# 1

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## Introduction

Mercer has been appointed by City of Los Angeles to assist in the evaluation and selection of Passive US Bond, Passive US Large Cap Equity, Passive Mid Cap Equity and Passive Small Cap Equity managers. The Board has taken a number of actions with respect to procurements and search processes for DCP investment managers. The Board approved staff's proposed process to administer parallel mutual fund and institutional product searches for all DCP investment mandates on July 16, 2019. The DCP Investment Management Services RFP for institutional products was released on August 17, 2020 (an earlier release was paused due to the market volatility experienced during the first quarter of 2020). Responses were due October 1, 2020.

Investment managers proposing institutional products must meet all the Minimum Qualifications listed in Section 2.2 of the RFP and ensure their firm, strategy, and vehicle details are entered and up-to-date in the Mercer's proprietary Global Investment Manager Database (GIMD). The database is open to all investment managers and stores all types of manager information: firm-wide demographic details, investment product details, performance, and Mercer research such as meeting notes, news items and manager ratings. There are over 6,700 investment managers on Mercer's database that manage more than 35,000 different investment strategies. All of the managers participating in this search were asked to access the database and ensure that all of their details were correct and up to date.

This report presents information on each firm covering organizational data and management style, as well as a quantitative analysis of historical performance. Return history information is provided through December 31, 2020. Returns for periods greater than one year are annualized. Portfolio characteristics are representative of a typical portfolio submitted by the investment manager as of September 30, 2020, unless otherwise stated. The universe of investment options to be considered include 1) the investment managers proposing institutional products through the DCP Investment Management Services RFP, which have updated their information in Mercer's proprietary institutional Global Investment Management Database (GIMD) and 2) the mutual fund products in the Lipper Investment Management database. Mercer utilized MercerInsight® (a sophisticated yet simple-to-use cloud-based platform) to further analyze the data. Data is as of September 30, 2020, unless otherwise stated. All selected funds must be able to facilitate daily pricing and liquidity requirements.

## Summary

### **Screening Process for Mutual Fund Vehicles**

The mutual funds profiled in this report were selected as being the most suitable based on our recommended minimum qualifications for each of the searches, which follow the principles outlined in the City of Los Angeles Investment Policy Statement's Investment Selection and Termination section and the DCP Investment Services RFP. These recommended minimum qualification screens are tailored to each specific mandate and are based on our expertise conducting similar searches. These minimum requirements broadly establish that prospective investment strategies are accessible in the recommended investment vehicle types; they are passively managed, seek to closely track the performance and characteristics of their respective indices; hold a sufficient, yet not too small, amount of assets so that the Plan would not represent a significant percentage (more than 20%) of the particular strategy total assets; and maintain investment expenses that are low to minimize net tracking error.

The Mercer Manager Search Process combines both quantitative and qualitative phases in an effort to identify worthy contenders. Mercer maintains Research Qualified Lists by asset class and manager style. These lists represent Mercer's best thinking on which managers have the highest probability of future success. The lists are proprietary and the process is dynamic in nature; and involves a unique blend of the combined knowledge of multiple investment consultants and over 140 manager research staff worldwide. Representatives from each of these groups make up the Manager Rating Committee. The Manager Rating Committee has the ultimate responsibility of deciding which managers and strategies are placed on the Mercer Manager Research Qualified Lists.

## Summary

### Overview

Mercer reviewed the following six (6) firms, including the incumbent manager Vanguard, that submitted responses to the RFI and met the outlined minimum criteria, or have a mutual fund vehicle that passed the minimum screening criteria.

	Passive Bond	Passive Large Cap Equity	Passive Mid Cap Equity	Passive Small Cap Equity
<b>BlackRock</b>	Collective Investment Trust	Collective Investment Trust Mutual Fund	Collective Investment Trust	Collective Investment Trust
<b>Fidelity</b>	Mutual Fund	Mutual Fund	Mutual Fund	Mutual Fund
<b>Mellon</b>		Collective Investment Trust	Collective Investment Trust	
<b>Northern Trust</b>	Collective Investment Trust	Collective Investment Trust	Collective Investment Trust	Collective Investment Trust
<b>State Street</b>	Collective Investment Trust Mutual Fund	Collective Investment Trust Mutual Fund	Collective Investment Trust	Collective Investment Trust
<b>Vanguard</b>	Collective Investment Trust Mutual Fund	Collective Investment Trust Mutual Fund	Mutual Fund	Mutual Fund

### Key Takeaways

<b>Strategy Assets</b>	\$44.7 Bn - \$493.9 Bn	\$109.1 Bn - \$671.7 Bn	\$8.0 Bn - \$113.3 Bn	\$12.0 Bn - \$89.8 Bn
<b>Strategy Inception</b>	1986-1996	1976-1990	1989-2011	1960-2011
<b>10-Year Tracking Error*</b>	0.03-0.29	0.01-0.03	0.01-0.09	0.03-0.10
<b>Expense Ratio</b>	0.0230%-0.0300%	0.0085%-0.0300%	0.0124%-0.0400%	0.0189%-0.0400%

\*As of 12-31/20. 7-year Tracking Error shown for Mid Cap Equity and Small Cap Equity

## Summary

### **Organizational Strength and Continuity of the six (6) firms reviewed:**

This dimension contemplates the overall stability of the fund management firms considered in this finalist list. Among things included are each candidate’s organizational experience, continuity of ownership, focus on stability of personnel, employee ownership, a record of controlling growth (assets under management and new products brought to market), and demonstrated commitment of providing necessary resources to support the passive management business. In addition, the City will be evaluating each firm’s involvement with material legal and regulatory proceedings that may impact the business. Overall, all the firms considered are well run businesses that have demonstrated strong commitment to passive management and have reported that they are not subject to legal or regulatory proceedings that would be material to their ongoing operations.<sup>1</sup>

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard – Incumbent
<b>Organizational Strength And Continuity</b>						
Business Strength And Resiliency						
Firm-wide Assets						
Tenure Of Senior Professionals						
History Of Legal And Regulatory Proceedings						
Excellent	Favorable	Reasonable	Less Desirable			

<sup>1</sup> Mercer is not able to assess the veracity of these claims.

## Summary

Fund	Global Firm with 4+ Offices	Firm Ownership	Total Investment Professionals	Firmwide Assets (\$B)	Tenure of Senior Professionals	Reported Material Legal and/or Regulatory Proceedings? <sup>1</sup>
BlackRock	Yes	Public & Employees (77.6%) / PNC Bank (22.4%)	2,570	7,300	10+ years	No
Fidelity	Yes	Employees (51%) / Johnson Family (49%)	779	3,200	10+ years	No
Mellon	Yes	Employees (2.6%) / BNY Mellon Corp. (97.4%)	315	534	10+ years	No
Northern	Yes	Employees, Directors & Retirees (4%) / Institutional Holders (83%) / Other (13%)	430	1,100	10+ years	No
State Street	Yes	State Street Corp. (100%)	1,216	3,100	6-10 years	No
Vanguard – Incumbent	Yes	Fund Shareholders (100%)	277	6,100	6-10 years	No

<sup>1</sup> Mercer is not able to assess the veracity of these claims.

## Passive Bond

# 2

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## Passive Bond

### Screening Process

The table on the next page shows the candidates considered for this passive bond fund manager search. The estimated mandate size is \$405.28 million<sup>1</sup> and the recommended vehicle type is a pooled investment vehicle.

Search minimum criteria used in the screening:

- Availability in a mutual fund, collective investment trust (CIT) or similar IRC 457-eligible investments in a pooled vehicle, or a separately managed account
- Vehicle open to new investors
- Vehicle compatible with Voya platform
- Strategy track record of 10 years or longer (specific vehicle may be shorter)
- Tracks the Barclays US Aggregate Bond Index
- Annualized tracking error<sup>2</sup> relative to the benchmark should be within +/- 0.30% over the trailing 10-year period ending June 30, 2020
- Minimum assets under management in strategy (all share classes and vehicles) of \$20 billion
- Investment expense ratio equal to or less than 0.03%

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<sup>1</sup> As of 12/31/2020.

<sup>2</sup> Tracking error is the annualized standard deviation of the difference between the returns of an investment and its benchmark.

## Passive Bond

### RFP Respondents

<b>Firm</b>	<b>Proposed Fund</b>	<b>Proposed Vehicle</b>
BlackRock	BlackRock US Debt Index Trust	Collective Investment Trust
Northern Trust	Northern Aggregate Bond Index Trust <sup>1</sup>	Collective Investment Trust
State Street Global Advisors	State Street U.S. Bond Index Non-Lending Series Fund Class M <sup>2</sup>	Collective Investment Trust
Vanguard – Incumbent (MF)	Vanguard Total Bond Index Trust	Collective Investment Trust

<sup>1</sup> Collective Investment Trust vehicle available in both Lending and Non-Lending classes.

<sup>2</sup> Collective Investment Trust vehicle available in both Lending and Non-Lending classes.







## Passive Bond

### Candidates

<b>Firm</b>	<b>Vehicle type - Fund name</b>	<b>Benchmark</b>
BlackRock	CIT - BlackRock US Debt Index Trust	Bloomberg Barclays US Aggregate Bond
Fidelity	MF - Fidelity US Bond Index Fund (FXNAX)	Bloomberg Barclays US Aggregate Bond
Northern Trust	CIT - Northern Aggregate Bond Index Trust	Bloomberg Barclays US Aggregate Bond
State Street Global Advisors	CIT - State Street U.S. Bond Index Non-Lending Series Fund Class M / MF - State Street Aggregate Bond Index Fund K (SSFEX)	Bloomberg Barclays US Aggregate Bond
Vanguard – Incumbent (MF)	CIT - Vanguard Total Bond Index Trust / MF - Vanguard Total Bond Market Index Fund Inst PI (VBMPX)	Bloomberg Barclays US Aggregate Bond Float Adjusted

## Passive Bond

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Organizational Strength and Continuity</b>					
Business Strength And Resiliency					
Firm-wide Assets					
Tenure Of Senior Professionals					
History Of Legal And Regulatory Proceedings					
<b>Investment Experience</b>					
History Of Managing Passive US Fixed Income Assets					
Scale Of Passive US Fixed Income Assets Under Management					
Depth of Passive US Fixed Income Team					
<b>Investment Approach and Process</b>					
Investment Approach					
Index Replication Process		Very high degree of sampling	High degree of sampling		
Securities Lending Program	Lending	Lending	Lending or non-lending avail.	Lending or non-lending avail.	Non-lending
<b>Investment Performance</b>					
Overall Performance Relative to Benchmark					
10-Year Tracking Error					
<b>Portfolio Transition</b>		Not applicable (Mutual Fund)			
<b>Administrative and Reporting</b>					
Able to provide a daily NAV?					
<b>Fees</b>					

Excellent
Favorable
Reasonable
Less Desirable

## Passive Bond

### **Passive Bond Key Notes:**

- All firms are stable and well-resourced organizations, which possess highly capable index fund capabilities.
- Experience with bond indexing has spanned well over a decade for all firms.
- Key differentiators in this category are the degree of sampling used in attempting to replicate benchmark performance and degree of securities lending employed. Fidelity and Northern Trust tend to use a higher degree of sampling than the others candidates. This could result in higher tracking error if sampling is not implemented effectively. From a securities lending standpoint, BlackRock has the widest latitude to lend securities, and this could present incremental risk, though BlackRock is very competent in securities lending. BlackRock also retains the greatest “split” of securities lending revenue. Vanguard, meanwhile, does not engage in securities lending with their bond index products.
- All providers have successfully tracked the stated benchmark, though Fidelity and Vanguard have exhibited moderately higher tracking error. Regardless of higher tracking error, however, Vanguard tends to perform in line with the remaining firms on a trailing annualized basis.
- Fee savings versus the current mutual fund vehicle based on projected assets of over \$400 million are not very large, ranging in savings of approximately \$8,000 to \$28,000 (0.002% to 0.007%).

## Passive Bond

### **Benchmark Descriptions**

#### **Bloomberg Barclays U.S. Aggregate Bond**

The Bloomberg Barclays Capital U.S. Aggregate Index covers the U.S. investment-grade, fixed-rate bond market and includes government and corporate bonds, agency mortgage pass-through securities, asset-backed issues, and ERISA-qualified CMBS. Price, coupon and total return are reported on a month-end to month-end basis. All returns are market value-weighted inclusive of accrued income.

#### **Bloomberg Barclays U.S. Aggregate Float Adj**

The underlying constituents of this alternative weight index will be the same as the flagship US Aggregate Index and conform to the same general index conventions (i.e., rules based, market value weighted, monthly reset, etc). The only difference is that this index will deduct net Federal Reserve holdings of US agencies and MBS passthroughs held in Federal Reserve System Open Market Account (SOMA) accounts. Both indices will exclude Federal Reserve holdings of US Treasuries.

## Passive Bond

**Organizational Strength and Continuity:** This dimension contemplates the overall stability of the fund management firms considered in this finalist list. Among things included are each candidate’s organizational experience, continuity of ownership, focus on stability of personnel, employee ownership, a record of controlling growth (assets under management and new products brought to market), and demonstrated commitment of providing necessary resources to support the passive management business. In addition, the City will be evaluating each firm’s involvement with material legal and regulatory proceedings that may impact the business. Overall, all the firms considered are well run businesses that have demonstrated strong commitment to passive management and indicate that they are not subject to legal or regulatory proceedings that would be material to their ongoing operations.<sup>1</sup>

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Organizational Strength and Continuity</b>					
Business Strength And Resiliency					
Firm-wide Assets					
Tenure Of Senior Professionals					
History Of Legal And Regulatory Proceedings					
Excellent	Favorable	Reasonable	Less Desirable		

<sup>1</sup> Mercer is not able to assess the veracity of these claims.

## Passive Bond

**Investment Experience:** This dimension considers the amount of passive management experience in general and within this specific asset class as well as the amount of dedicated resources to the strategy. All of the firms are leading passive investment management firms with rich experience and a long history of managing passive fixed income assets. They all have appropriate number of qualified investment professionals dedicated to the strategy and demonstrate strong team depth. Our bias with passively managed funds is for firms to have a sufficient amount of assets in the strategy to ensure that the manager’s commitment will be long-term and that the City would not represent a disproportionate amount of overall strategy assets. All firms’ strategy assets are well over \$40 billion meaning the DCP would represent less than 1% of their overall strategy assets.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Experience</b>					
History Of Managing Passive US Fixed Income Assets					
Scale Of Passive US Fixed Income Assets Under Management					
Depth of Passive US Fixed Income Team					
Excellent	Favorable	Reasonable	Less Desirable		



## Passive Bond

### Investment Experience - Overview

Fund	Portfolio Manager	Portfolio Manager Tenure	Total Investment Professionals	Firmwide Assets (\$B)	Strategy Assets (\$MM)	Strategy Inception	Mercer Rating
BlackRock	Scott Radell	2003	2,570	7,300	264,885	1986	A
Fidelity	Brandon Bettencourt Richard Munclinger	2014 2020	779	3,200	55,268	1990	A
Northern Trust	Brandon Ferguson Kevin O'Shaughnessy	2009 1997	430	1,100	44,719	1996	A
State Street Global Advisors	Marc DiCosimo Joanna Madden	2014 2016	1,216	3,100	63,889	1996	A
Vanguard – Incumbent (MF)	Joshua Barrickman	2013	277	6,100	493,933	1986	A

## Passive Bond

### Investment Approach and Process:

**Investment Approach and Index Replication Process:** This factor evaluates the manager’s process and capabilities with regards to building the portfolio. Considerations include the manager’s indexing technique (e.g., sampling or full replication), number of portfolio holdings versus the index and portfolio characteristics that should be consistent with those of the index it is tracking. While all candidates use a sampling indexing technique to some extent, Fidelity’s employs the greatest degree of sampling (least number of holdings, which represents less than 20% of the index). Northern Trust also exhibits a high degree of sampling (at approximately 38% of the index). A high degree of sampling gives rise to the potential for a strategy to exhibit tracking error in the future. As such, BlackRock, State Street, and Vanguard appear more attractive in this regard.

**Securities Lending:** Another aspect reviewed is the managers’ securities lending programs. While Vanguard’s strategy does not employ securities lending, BlackRock and Fidelity both engage in securities lending. Meanwhile, Northern Trust and State Street offer both lending and non-lending options to the Plan. While securities lending provides the ability to generate incremental income and result in lower investment management fees, there have been times (e.g., global financial crisis) when it has led to portfolio losses for some firms. Although securities lending is better regulated now than they were leading into the global financial crisis, it still represents incremental risk that the Board should weigh in selecting an index provider. If securities lending is used, we prefer a program that has strong alignment with investors. In this regard, Fidelity’s securities lending program is more advantageous than the other 3 firms offering lending products, as more than 90% of the revenue Fidelity receives reverts back to the fund. Further Fidelity limits the maximum that can be on loan to a third of the portfolio’s assets; meanwhile Northern and State Street revert 70% of lending revenue to the respective funds and retain the remainder. Both employ a higher volume approach, with more than a third of the portfolio allowed to be on loan at any given time. Finally, BlackRock represents the least favorable split with investors as only 50% of the revenue is reverted to the fund. BlackRock also allows for the highest amount of lending (up to 100% on loan) though currently only 36% of the fund is on loan. While BlackRock is highly competent at securities lending, these characteristics may appear less attractive given the City’s history of not using lending with the Plan’s bond index fund.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Approach And Process</b>					
Investment Approach					
Index Replication Process		Very high degree of sampling	High degree of sampling		
Securities Lending Program	Lending	Lending	Lending or non-lending avail.	Lending or non-lending avail.	Non-lending
Excellent	Favorable	Reasonable	Less Desirable		

## Passive Bond

### Investment Approach & Process (Characteristics as of 9/30/2020)

Fund	Vehicle Type	Vehicle Inception	Vehicle Assets (\$MM)	Lending / Non-Lending	Max Sec Lending (Most Recent)	Revenue Split DCP / Manager
BlackRock	CIT	1986	109,356	Lending	100% (35.9%)	50% / 50%
Fidelity	MF	1990	55,268	Lending	33.3% (0%)	>90.1% / <9.9%
Northern Trust	CIT	2009	34,499	Lending / Non - Lending	90% (31.5%)	70% / 30%
State Street	CIT	1996	18,735	Lending / Non - Lending	40% (10.3%)	70% / 30%
	MF	2014	1,448	Lending		
Vanguard – Incumbent (MF)	CIT	2016	25,580	Non - Lending	Not Applicable	Not Applicable
	MF	2010	128,901	Non - Lending		

## Passive Bond

### Investment Approach & Process (Portfolio Statistics as of 9/30/2020)

Fund	Index Technique	Number of Securities	Yield to Maturity (%)	Years to Maturity	Average Coupon (%)	Average Quality	Effective Duration (yrs)	% Cash
BlackRock	Sampling	8,997	1.2	8.0	3.0	AA	5.9	2.4%
Fidelity	Sampling	2,257	1.2	7.8	2.9	AA <sup>1</sup>	5.7	1.8%
Northern Trust	Sampling	4,508 <sup>2</sup>	1.2	8.1	3.0	AA	6.1	1.7%
State Street Global Advisors	Sampling	11,016	1.2	7.9	3.1	AA+	6.1	0.8%
<b>Barclays US Aggregate Bond</b>		<b>11,902</b>	<b>1.2</b>	<b>8.2</b>	<b>2.9</b>	<b>AA+/AA</b>	<b>6.1</b>	<b>N/A</b>
Vanguard – Incumbent (MF)	Sampling	9,908	1.2	8.5	3.2	A <sup>3</sup>	6.6	3.2%
<b>Barclays US Agg Float Adj</b>		<b>11,912</b>	<b>1.2</b>	<b>8.5</b>	<b>2.9</b>	<b>AA/AA-</b>	<b>6.4</b>	<b>N/A</b>

<sup>1</sup> As reported by Morningstar

<sup>2</sup> Non-Lending class shown, Lending class held 8,596 securities as of 9/30/2020

<sup>3</sup> Per Vanguard, as reported by Morningstar

## Passive Bond

**Investment performance:** Passive strategies are expected to closely track their stated benchmarks, as all candidates have done. All strategies have long-term tracking error within 30 basis points from their stated benchmarks, except for Fidelity. Moreover, all strategies met the RFP’s section 2.2 minimum requirements. Of some note is that Fidelity and Vanguard both exhibit modestly higher tracking error. Finally, it should be highlighted that Vanguard’s stated benchmark corrects for bonds not in circulation and held on the Fed’s balance sheet. This benchmark has delivered a small amount of incremental performance improvement over the traditional Aggregate Bond Index.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Performance</b>					
Overall Performance Relative to Benchmark	Excellent	Excellent	Excellent	Excellent	Excellent
10-Year Tracking Error	Excellent	Favorable	Excellent	Excellent	Favorable
	Excellent	Favorable	Reasonable	Less Desirable	

## Passive Bond

### Performance as of 12/31/2020

Fund	One Quarter	One Year	Three Years	Five Years	Seven Years	Ten Years
BlackRock U.S. Debt Index	0.7	7.7	5.4	4.5	4.2	3.9
Fidelity US Bond Index	0.8	7.8	5.4	4.4	4.1	3.8
Northern Trust Aggregate Bond Index	0.7	7.5	5.3	4.4	4.1	3.8
State Street U.S. Bond Index NL M	0.7	7.6	5.4	4.5	4.1	3.9
<b><i>Bloomberg Barclays US Aggregate Bond</i></b>	<b><i>0.7</i></b>	<b><i>7.5</i></b>	<b><i>5.3</i></b>	<b><i>4.4</i></b>	<b><i>4.1</i></b>	<b><i>3.8</i></b>
Vanguard Total Bond Market Index Trust – Incumbent (MF)	0.7	7.7	5.4	4.5	4.1	3.8
<b><i>Bloomberg Barclays US Agg Bond Flt Adj</i></b>	<b><i>0.7</i></b>	<b><i>7.7</i></b>	<b><i>5.4</i></b>	<b><i>4.5</i></b>	<b><i>4.1</i></b>	<b><i>3.9</i></b>

## Passive Bond

### Calendar Year Performance

Fund	2013	2014	2015	2016	2017	2018	2019	2020
BlackRock U.S. Debt Index	-2.0	6.2	0.6	2.7	3.6	0.0	8.8	7.7
Fidelity US Bond Index	-2.2	6.0	0.6	2.5	3.5	0.0	8.5	7.8
Northern Trust Aggregate Bond Index	-2.2	6.1	0.6	2.6	3.5	0.0	8.7	7.5
State Street U.S. Bond Index NL M	-2.0	6.0	0.6	2.6	3.5	0.0	8.7	7.6
<b><i>Bloomberg Barclays US Aggregate Bond</i></b>	<b><i>-2.0</i></b>	<b><i>6.0</i></b>	<b><i>0.6</i></b>	<b><i>2.7</i></b>	<b><i>3.5</i></b>	<b><i>0.0</i></b>	<b><i>8.7</i></b>	<b><i>7.5</i></b>
Vanguard Total Bond Market Index Trust – Incumbent (MF)	-2.1	5.9	0.4	2.6	3.6	0.0	8.7	7.7
<b><i>Bloomberg Barclays US Agg Bond Flt Adj</i></b>	<b><i>-2.0</i></b>	<b><i>5.9</i></b>	<b><i>0.4</i></b>	<b><i>2.8</i></b>	<b><i>3.6</i></b>	<b><i>-0.1</i></b>	<b><i>8.9</i></b>	<b><i>7.7</i></b>

## Passive Bond

### Tracking Error vs. Respective Benchmark as of 12/31/2020

<b>Fund</b>	<b>One Year</b>	<b>Three Years</b>	<b>Five Years</b>	<b>Seven Years</b>	<b>Ten Years</b>
BlackRock U.S. Debt Index	0.05	0.04	0.05	0.08	0.10
Fidelity US Bond Index	0.49	0.34	0.29	0.29	0.29
Northern Trust Aggregate Bond Index	0.15	0.10	0.09	0.09	0.09
State Street U.S. Bond Index NL M	0.03	0.03	0.02	0.02	0.03
Vanguard Total Bond Market Index Trust – Incumbent (MF)	0.37	0.29	0.27	0.27	0.26



## Passive Bond

**Portfolio Transition:** All candidates are established managers, with experience transitioning large client accounts into their strategies. Should a transition from the existing portfolio occur, we would expect for liquidation to occur in cash and for these assets to be readily reinvested in the new daily valued product. The RFP respondents all discussed in their response, in varying detail, their transition approach and the dedicated personnel who would assist the City on transitioning to a Collective Investment Trust.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
Portfolio Transition		Not applicable (Mutual Fund)			
<div style="display: flex; justify-content: space-between; width: 100%;"> <span>Excellent</span> <span>Favorable</span> <span>Reasonable</span> <span>Less Desirable</span> </div>					

## Passive Bond

**Administrative and Reporting:** The City will be evaluating each Proposer’s reporting capacity and interfaces with the City’s TPA, including providing daily unit value reporting, monthly and quarterly statements, attendance at City meetings and with the DCP consultant, and support for generating participant communication and education materials. All candidates were capable of providing the required reporting and administration. In addition, all firms are able to strike a daily NAV.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Administrative and Reporting</b>					
Able to provide a daily NAV?					
Excellent	Favorable	Reasonable	Less Desirable		

## Passive Bond

**Fees:** All candidates offer competitive fees, well below their peer group institutional median fee of 0.17% and within the RFP's fee requirement of 0.03% or less. While there is the opportunity to slightly reduce fees by moving to an alternative vehicle, the magnitude of reduction is not demonstrably large given greater than \$400 million in assets.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
Fees					
Excellent	Favorable	Reasonable	Less Desirable		

## Passive Bond

### Fees

Fund	Lending / Non-Lending	Vehicle Type	Ticker / CUSIP	Net Expense Ratio <sup>1</sup>	Estimated Expense Based on 12/31/20 Assets (\$)	Estimated Expense Difference vs Current
BlackRock	Lending	CIT	TDB <sup>2</sup>	0.028%	\$ 113,479	\$ (8,106)
Fidelity	Lending	MF	FXNAX	0.025% <sup>3</sup>	\$ 101,321	\$ (20,264)
Northern Trust	Lending / Non -Lending	CIT	66586U544	0.023% <sup>4</sup>	\$ 93,215	\$ (28,370)
State Street	Lending / Non -Lending	CIT	857480404	0.025% <sup>5</sup>	\$ 101,321	\$ (20,264)
	Lending	MF	SSFEX	0.025%	\$ 105,373	\$ (20,264)
Vanguard – Incumbent (MF)	Non - Lending	CIT	92203Y107	0.026%	\$ 105,373	\$ (16,211)
	Non - Lending	MF	VBMPX	0.030%	\$ 121,585	-

<sup>1</sup> Some expense ratios may currently have an expense cap or fee waiver that can be changed by the manager at any time

<sup>2</sup> BlackRock would launch a new CIT share class for the City

<sup>3</sup> As of October 30, 2020

<sup>4</sup> Non-Lending trust shown with actual admin fees of 0.53 bps, admin fee is capped at 0.80 bps. Proposed share class with lending has not been launched, management fee is 0.0125% and estimated admin cap is 0.0125%. Northern Trust also proposed Index Bundled (if selected for all 4 passive strategies) and All Bundled fees (if selected for all 4 passive plus active small cap value strategies); please see Appendix for more details.

<sup>5</sup> Non-Lending trust shown. Also available in lending trust with an expense ratio of 0.020%.

## Passive Large Cap Equity

# 3

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## Passive Large Cap Equity

### Screening Process

The table on the next page shows the candidates considered for this passive large cap equity fund manager search. The estimated mandate size is \$2,722.13 million<sup>1</sup> and the recommended vehicle type is a pooled investment fund.

Search minimum criteria used in the screening:

- Availability in a mutual fund, collective investment trust (CIT) or similar IRC 457-eligible investments in a pooled vehicle, or a separately managed account
- Vehicle open to new investors
- Vehicle compatible with Voya platform
- Strategy track record of 10 years or longer (specific vehicle may be shorter)
- Tracks the S&P 500 Index
- Annualized tracking error<sup>2</sup> relative to the benchmark should be within +/- 0.20% over the 10-year period ending June 30, 2020
- Minimum assets under management in strategy (all share classes and vehicles) of \$50 billion
- Investment expense ratio equal to or less than 0.03%

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<sup>1</sup> As of 12/31/20

<sup>2</sup> Tracking error is the annualized standard deviation of the difference between the returns of an investment and its benchmark.

## Passive Large Cap Equity

### RFP Respondents

<b>Firm</b>	<b>Proposed Fund</b>	<b>Proposed Vehicle</b>
BlackRock	BlackRock Equity Index Trust	Collective Investment Trust
Mellon	Mellon S&P 500 Stock Index Trust	Collective Investment Trust
Northern	Northern Trust S&P 500 Index <sup>1</sup>	Collective Investment Trust
State Street	State Street S&P 500 Index NL K <sup>2</sup>	Collective Investment Trust
Vanguard Group – Incumbent (MF)	Vanguard 500 Index Trust	Collective Investment Trust

<sup>1</sup> Collective Investment Trust vehicle available in both Lending and Non-Lending classes.

<sup>2</sup> Collective Investment Trust vehicle available in both Lending and Non-Lending classes.



## Passive Large Cap Equity

### Mutual Fund Universe Minimum Qualification Screening Process

The below table shows the mutual fund screening process for this mandate. Candidates with fully green shading are those that passed minimum qualifications of the mutual fund screening process approved by the Board.

Fund	Vehicle	Passive U.S. Large Cap Equity Vehicle Available	Open to the City & Compatible with Voya	Track Record 10 years or longer	Tracks S&P 500 Index	10-Year Tracking Error within +/- 0.20%	Expense Ratio 0.03% or less	Strategy AUM \$50B or greater	Meets all minimum requirements?
BNY Mellon S&P 500 Index Fund	MF	Yes	Yes	Yes	Yes	Yes	No		No
Columbia Large Cap Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
DFA US Large Company Portfolio	MF	Yes	Yes	Yes	Yes	Yes	No		No
DWS Equity 500 Index <i>sub-advised by Northern Trust Asset Management</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
Federated Hermes Max-Cap Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Fidelity 500 Index	MF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Great-West S&P 500 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
GuideStone Equity Index <i>sub-advised by Northern Trust Asset Management</i>	MF	Yes	Yes	Yes	Yes	No			No
Homestead Stock Index <i>sub-advised by BlackRock</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
Invesco S&P 500 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
iShares S&P 500 Index Fund <i>sub-advised by BlackRock</i>	MF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
JPMorgan Equity Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
MainStay MacKay S&P 500 Index <i>sub-advised by Cornerstone Capital Management</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No



## Passive Large Cap Equity

### Mutual Fund Minimum Qualification Screening Process

Fund	Vehicle	Passive U.S. Large Cap Equity Vehicle Available	Open to the City & Compatible with Voya	Track Record 10 years or longer	Tracks S&P 500 Index	10-Year Tracking Error within +/-	Expense Ratio 0.03% or less	Strategy AUM \$50B or greater	Meets all minimum requirements?
MM S&P 500 Index <i>sub-advised by Northern Trust</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
Nationwide S&P 500 Index <i>sub-advised by BlackRock</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
Northern Stock Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Principal LargeCap S&P 500 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
PGIM QMA Stock Index <i>sub-advised by QMA</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
ProFunds Bull ProFund	MF	Yes	Yes	Yes	Yes	Yes	No		No
QS S&P 500 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Rydex S&P 500 Fund	MF	Yes	Yes	Yes	Yes	Yes	No		No
Schwab S&P 500 Index	MF	Yes	Yes	Yes	Yes	Yes	Yes	No	No
SEI Inst Mgd S&P 500 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Shelton S&P 500 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
State Street Equity 500 Index	MF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
T Rowe Price Equity Index 500	MF	Yes	Yes	Yes	Yes	Yes	No		No
TIAA-CREF S&P 500 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Transamerica Stock Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Vanguard Institutional Index - Incumbent	MF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Victory S&P 500 Index <i>sub-advised by World Asset Management</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
Wells Fargo Index <i>sub-advised by Golden Capital Management</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No

## Passive Large Cap Equity

### Candidates

<b>Firm</b>	<b>Vehicle type - Fund name</b>	<b>Benchmark</b>
BlackRock	CIT - BlackRock Equity Index Trust / MF - iShares S&P 500 Index Fund K (WFSPX)	S&P 500
Fidelity	MF - Fidelity 500 Index Fund (FXIAX)	S&P 500
Mellon	CIT - Mellon S&P 500 Stock Index Trust	S&P 500
Northern	CIT - Northern Trust S&P 500 Index	S&P 500
State Street	CIT - State Street S&P 500 Index NL K / MF - State Street Equity 500 Index Fund K (SSSYX)	S&P 500
Vanguard – Incumbent (MF)	CIT - Vanguard 500 Index Trust / MF - Vanguard Institutional Index Inst PI (VIIIX)	S&P 500

## Passive Large Cap Equity

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Organizational Strength and Continuity</b>						
Business Strength And Resiliency						
Firm-wide Assets						
Tenure Of Senior Professionals						
History Of Legal And Regulatory Proceedings						
<b>Investment Experience</b>						
History Of Managing Passive US Large Cap Equity Assets						
Scale Of Passive US Large Cap Equity Assets Under Management						
Depth of Passive US Large Cap Equity Team						
<b>Investment Approach And Process</b>						
Investment Approach						
Index Replication Process						
Securities Lending Program	Lending	Lending	Lending	Lending or non-lending avail.	Lending or non-lending avail.	Lending
<b>Investment Performance</b>						
Overall Performance Relative to Benchmark						
10-Year Tracking Error						
<b>Portfolio Transition</b>		Not applicable (Mutual Fund)				
<b>Administrative and Reporting</b>						
Able to provide a daily NAV?						
<b>Fees</b>						
Excellent	Favorable	Reasonable	Less Desirable			

## Passive Large Cap Equity

### **Passive Large Cap Equity Key Notes:**

- All firms are stable and well-resourced organizations, which possess highly capable index fund capabilities.
- Experience with US large cap equity indexation versus the S&P 500 has spanned well over a decade for all firms.
- Key differentiator in this category is the degree of securities lending employed. BlackRock has the widest latitude to lend securities, and this could present incremental risk, though BlackRock is very competent in securities lending. BlackRock also retains the greatest “split” of securities lending revenue. Northern Trust and State Street offer both lending and non-lending products. Meanwhile, Fidelity and Vanguard offer the most favorable revenue split terms and currently have minimal securities out on loan.
- All providers closely track the reference benchmark making this a dimension of little differentiation.
- Fee savings versus the current mutual fund are meaningful. Ultimate savings may depend on the degree of securities lending employed. Projected savings ranged from approximately \$136 thousand to over \$313 thousand annually.

## Passive Large Cap Equity

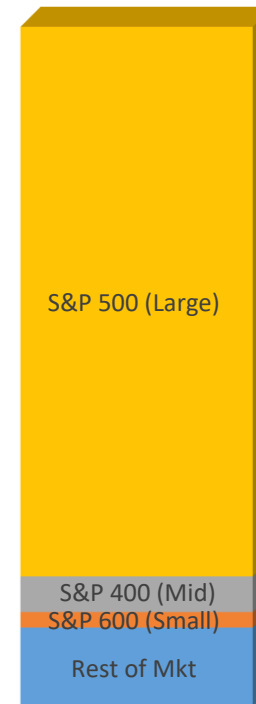
### Benchmark Description

#### S&P 500

The S&P 500 index contains a representative sample of common stocks that trade on the New York and American Stock Exchanges and some over-the-counter stocks. The index represents about 86% of the market value of all the issues traded on the NYSE.

The index does not contain the 500 largest stocks. It has many relatively small companies in it because it is constructed of industry groups. Standard and Poor's first identifies important industry categories and allocates a representative sample of stocks to each group. The companies chosen to be in the S&P 500 generally do have the largest market values within their industry group.

The industry categories are grouped into ten sectors: Consumer Discretionary, Consumer Staples, Energy, Financials, Health Care, Industrials, Information Technology, Materials, Telecommunication Services and Utilities. The index is weighted by market capitalization and calculated on a total return basis with dividends reinvested.



S&P Total Stock Market Index

## Passive Large Cap Equity

### Organizational Strength and Continuity:

This dimension contemplates the overall stability of the fund management firms considered in this finalist list. Among things included are each candidate’s organizational experience, continuity of ownership, focus on stability of personnel, employee ownership, a record of controlling growth (assets under management and new products brought to market), and demonstrated commitment of providing necessary resources to support the passive management business. In addition, the City will be evaluating each firm’s involvement with material legal and regulatory proceedings that may impact the business. Overall, all the firms considered are well run businesses that have demonstrated strong commitment to passive management and indicate that they are not subject to legal or regulatory proceedings that would be material to their ongoing operations.<sup>1</sup>

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Organizational Strength And Continuity</b>						
Business Strength And Resiliency	Excellent	Favorable	Favorable	Favorable	Favorable	Favorable
Firm-wide Assets	Excellent	Favorable	Reasonable	Favorable	Favorable	Favorable
Tenure Of Senior Professionals	Excellent	Favorable	Favorable	Favorable	Favorable	Favorable
History Of Legal And Regulatory Proceedings	Reasonable	Reasonable	Reasonable	Reasonable	Reasonable	Reasonable
	Excellent	Favorable	Reasonable	Less Desirable		

<sup>1</sup> Mercer is not able to assess the veracity of these claims.

## Passive Large Cap Equity

**Investment Experience:** This dimension considers the amount of passive management experience in general and within this specific asset class as well as the amount of dedicated resources to the strategy. All of the firms are leading passive investment management firms with rich experience and a long history of managing passive equity assets. They all have appropriate number of qualified investment professionals dedicated to the strategy and demonstrate strong team depth. Our bias with passively managed funds is for firms to have a sufficient amount of assets in the strategy to ensure that the manager’s commitment will be long-term and that the City would not represent a disproportionate amount of overall strategy assets. All firms’ strategy assets are well over \$100 billion and the City would represent less than 1% of their overall strategy assets with the exception of Mellon (2.5% of strategy assets) and Northern Trust (1.3% of strategy assets).

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Experience</b>						
History Of Managing Passive US Large Cap Equity Assets						
Scale Of Passive US Large Cap Equity Assets Under Management						
Depth of Passive US Large Cap Equity Team						
Excellent	Favorable	Reasonable	Less Desirable			

## Passive Large Cap Equity

### Investment Experience - Overview

Fund	Portfolio Manager	Portfolio Manager Tenure	Total Investment Professionals	Firmwide Assets (\$B)	Strategy Assets (\$MM)	Strategy Inception	Mercer Rating
BlackRock	Alan Mason Suzanne Henige Jennifer Hsui Amy Whitelaw Rachel Aguirre	2014 2020 2016 2019 2016	2,570	7,300	671,720	1978	A
Fidelity	Dean Gyllenhaal Louis Bottari Peter Matthew Robert Regan Payal Gupta	2014 2009 2012 2016 2019	779	3,200	286,000	1988	B+
Mellon	Marlene Walker Smith Thomas Durante David France Todd Frysinger Vlasta Shermet Michael Stoll	2007 2000 2020 2020 2020 2020	315	534	109,138	1983	A (W)
Northern	Chris Jaeger Brent Reeder	2019 2006	430	1,100	209,777	1990	A
State Street	Michael Feehily Karl Schneider Amy Scofield	2016 2004 2012	1,216	3,100	530,724	1986	A
Vanguard – Incumbent (MF)	Donald M. Butler Michelle Louise	2000 2017	277	6,100	493,933	1976	A



## Passive Large Cap Equity

### Investment Approach and Process:

**Investment Approach and Index Replication Process:** This factor evaluates the manager’s process and capabilities with regards to building a portfolio. Considerations include the manager’s indexing technique (e.g., sampling or full replication), number of portfolio holdings versus the index and portfolio characteristics that should be consistent with those of the index it is tracking. Five of the candidates use a full replication indexing technique. All managers have similar characteristics to the benchmark; however, BlackRock’s portfolio characteristics indicate a modest degree of differentiation from the benchmark.

**Securities Lending:** Another aspect reviewed is the managers’ securities lending program. BlackRock, Fidelity, Mellon and Vanguard offer lending products; Northern Trust and State Street provided both lending and non-lending products. Although securities lending is better regulated now than they were leading into the global financial crisis, it still represents incremental risk that the Board should weigh in selecting an index provider. If securities lending is used, we prefer a program that has strong alignment with investors. In this regard, Vanguard’s and Fidelity’s securities lending programs are more advantageous to investors than the other 4 firms offering lending products, as more than 90% of the revenue reverts to the fund. Moreover, both tend to employ a “value” approach to lending, with the maximum that can be on loan a third of the portfolio’s assets. Mellon, Northern and State Street revert 70% to the respective funds, but they can engage in a volume approach that allows for more than a third of the portfolio to be on loan at any given time. Finally, BlackRock represents the least favorable split with investors as only 50% of the revenue is reverted to the fund. BlackRock allows for the highest amount of lending (up to 100% on loan) though currently only 7% of the fund is on loan. While BlackRock is highly competent at securities lending, these characteristics may appear less attractive.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Approach And Process</b>						
Investment Approach	Excellent	Favorable	Reasonable	Less Desirable	Less Desirable	Excellent
Index Replication Process	Excellent	Favorable	Reasonable	Less Desirable	Less Desirable	Excellent
Securities Lending Program	Lending	Lending	Lending	Lending or non-lending avail.	Lending or non-lending avail.	Lending
	Excellent	Favorable	Reasonable	Less Desirable	Less Desirable	Excellent

## Passive Large Cap Equity

### Investment Approach & Process (Characteristics as of 9/30/2020)

Fund	Vehicle Type	Vehicle Inception	Vehicle Assets (\$MM)	Lending / Non-Lending	Max Sec Lending (Most Recent)	Revenue Split DCP / Manager
BlackRock	CIT	1978	109,356	Lending	100% (6.9%)	50% / 50%
	MF	1993	23,619	Lending		
Fidelity	MF	1988	252,105	Lending	33.3% (0.0%)	>90.1% / <9.9%
Mellon	CIT	2018	52,025	Lending	100% (6.4%)	70% / 30%
Northern	CIT	1994	139,715	Lending / Non - Lending	75% (5.4%)	70% / 30%
State Street	CIT	1986	68,739	Lending / Non - Lending	40% (0.6%)	70% / 30%
	MF	1992	6,842	Lending		
Vanguard – Incumbent (MF)	CIT	2016	84,132	Lending	33.3% (<0.1%)	100% / 0%
	MF	1997	128,901	Lending		

## Passive Large Cap Equity

### Investment Approach & Process (Portfolio Statistics as of 9/30/2020)

Fund	Index Technique	Number of Securities	P/E	P/B	Weighted Average Market Cap (\$MM)	% Cash
BlackRock	Full Replication	506	23.0x	3.8x	410,320	0.0%
Fidelity	Stratified Sampling	508	26.0x	3.9x	450,400	0.0%
Mellon	Full Replication	505	26.4x	3.6x	440,330	0.0%
Northern	Full Replication	505	26.6x	3.8x	455,385	0.0%
State Street	Full Replication	505	23.7x	3.5x	452,942	0.8%
Vanguard – Incumbent (MF)	Full Replication	508	26.4x	3.6x	453,250	0.5%
<b>S&amp;P 500</b>		<b>505</b>	<b>26.4x</b>	<b>3.6x</b>	<b>446,824</b>	<b>N/A</b>

## Passive Large Cap Equity

**Investment performance:** Passive strategies are expected to closely track their stated benchmarks, as all candidates have done. All strategies have a tracking error within 3 basis points from their stated benchmarks, which is quite reasonable, and within the RFP’s minimum requirements.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard – Incumbent
<b>Investment Performance</b>						
Overall Performance Relative to Benchmark						
10-Year Tracking Error						
Excellent	Favorable	Reasonable	Less Desirable			

## Passive Large Cap Equity

### Performance as of 12/31/2020

Fund	One Quarter	One Year	Three Years	Five Years	Seven Years	Ten Years
BlackRock Equity Index Trust	12.1	18.4	14.2	15.3	13.0	13.9
Fidelity 500 Index Fund	12.1	18.4	14.2	15.2	12.9	13.9
Mellon S&P 500 Stock Index Trust	12.1	18.4	14.2	15.2	12.9	13.9
Northern Trust S&P 500 Index	12.2	18.4	14.2	15.2	12.9	13.9
State Street S&P 500 Index NL K	12.2	18.4	14.2	15.2	12.9	13.9
Vanguard 500 Index Trust – incumbent (MF)	12.2	18.4	14.2	15.2	12.9	13.9
<b>S&amp;P 500</b>	<b>12.1</b>	<b>18.4</b>	<b>14.2</b>	<b>15.2</b>	<b>12.9</b>	<b>13.9</b>

## Passive Large Cap Equity

### Calendar Year Performance

Fund	2013	2014	2015	2016	2017	2018	2019	2020
BlackRock Equity Index Trust	32.4	13.7	1.4	12.0	21.9	-4.3	31.5	18.4
Fidelity 500 Index Fund	32.4	13.7	1.4	12.0	21.8	-4.3	31.5	18.4
Mellon S&P 500 Stock Index Trust	32.4	13.7	1.4	12.0	21.9	-4.4	31.5	18.4
Northern Trust S&P 500 Index	32.4	13.7	1.4	12.0	21.8	-4.4	31.5	18.4
State Street S&P 500 Index NL K	32.4	13.7	1.4	12.0	21.9	-4.4	31.5	18.4
Vanguard 500 Index Trust – Incumbent (MF)	32.4	13.7	1.4	12.0	21.8	-4.4	31.5	18.4
<b>S&amp;P 500</b>	<b>32.4</b>	<b>13.7</b>	<b>1.4</b>	<b>12.0</b>	<b>21.8</b>	<b>-4.4</b>	<b>31.5</b>	<b>18.4</b>

## Passive Large Cap Equity

### Tracking Error vs. Respective Benchmark as of 12/31/2020

<b>Fund</b>	<b>One Year</b>	<b>Three Years</b>	<b>Five Years</b>	<b>Seven Years</b>	<b>Ten Years</b>
BlackRock Equity Index Trust	0.02	0.02	0.02	0.03	0.03
Fidelity 500 Index Fund	0.01	0.01	0.02	0.02	0.03
Mellon S&P 500 Stock Index Trust	0.02	0.02	0.01	0.02	0.02
Northern Trust S&P 500 Index	0.01	0.01	0.01	0.01	0.01
State Street S&P 500 Index NL K	0.02	0.02	0.02	0.02	0.02
Vanguard 500 Index Trust – Incumbent (MF)	0.01	0.01	0.01	0.01	0.01

## Passive Large Cap Equity

**Portfolio Transition:** All candidates are established managers, with experience transitioning large client accounts into their strategies. Should a transition from the existing portfolio occur, we would expect for liquidation to occur in cash and for these assets to be readily reinvested in the new daily valued product. The RFP respondents all discussed in their response, in varying detail, their transition approach and the dedicated personnel who would assist the City on transitioning to a Collective Investment Trust.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard – Incumbent
Portfolio Transition		Not applicable (Mutual Fund)				
Excellent	Favorable	Reasonable	Less Desirable			



## Passive Large Cap Equity

**Administrative and Reporting:** The City will be evaluating each Proposer’s reporting capacity and interfaces with the City’s TPA, including providing daily unit value reporting, monthly and quarterly statements, attendance at City meetings and with the DCP consultant, and support for generating participant communication and education materials. All candidates were capable of providing the required reporting and administration. In addition, all firms are able to strike a daily NAV.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Administrative and Reporting</b>						
Able to provide a daily NAV?						
Excellent	Favorable	Reasonable	Less Desirable			

## Passive Large Cap Equity

**Fees:** All candidates offer competitive fees, well below their peer group median fee of 0.19% and the RFP's fee minimum requirement of 0.03% or less. Northern presents the lowest non-lending proposal while offers similar pricing for a lending product. Fidelity represents the lowest priced mutual fund vehicle. Meanwhile, Vanguard has proposed a collective investment trust vehicle for the current master fund used in the DCP Plan, which represents moderate fee savings.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
Fees	Excellent	Favorable	Reasonable	Less Desirable	Favorable	Favorable

## Passive Large Cap Equity

### Fees

Fund	Lending / Non-Lending	Vehicle Type	Ticker / CUSIP	Net Expense Ratio <sup>1</sup>	Estimated Expense Based on 12/31/20 Assets (\$)	Estimated Expense Difference vs Current
BlackRock	Lending	CIT	TBD <sup>2</sup>	0.0085%	\$ 231,381	\$ (313,045)
	Lending	MF	WFSPX	0.0300%	\$ 816,639	\$ 272,213
Fidelity	Lending	MF	FXAIX	0.0150%	\$ 408,319	\$ (136,106)
Mellon	Lending	CIT	EDLF0103442	0.0200%	\$ 544,426	-
Northern	Lending / Non -Lending	CIT	66586Y777	0.0085% <sup>3</sup>	\$ 231,381	\$ (313,045)
State Street	Lending / Non -Lending	CIT	85744W705	0.0130% <sup>4</sup>	\$ 353,877	\$ (190,549)
	Lending	MF	SSSYX	0.0200%	\$ 544,426	-
Vanguard – Incumbent (MF)	Lending	CIT	92206T105	0.0140%	\$ 381,098	\$ (163,328)
	Lending	MF	VIIIIX	0.0200%	\$ 544,426	-

<sup>1</sup> Some expense ratios may currently have an expense cap or fee waiver that can be changed by the manager at any time.

<sup>2</sup> BlackRock would launch a new CIT share class for the City

<sup>3</sup> Non-Lending trust shown with actual admin fees of 0.50 bps, admin fee is capped at 0.60 bps. Proposed share class with lending has not been launched, management fee is 0.25 bps and estimated admin cap is 1 bp. Northern Trust also proposed Index Bundled (if selected for all 4 passive strategies) and All Bundled fees (if selected for all 4 passive and active small cap value strategies); please see Appendix for more details.

<sup>4</sup> Non-Lending trust shown. Also available in lending trust with an expense ratio of 0.01%.

## Passive Mid Cap Equity

# 4

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## Passive Mid-Cap Equity

### Screening Process

The table on the next page shows the candidates considered for this passive mid cap equity fund manager search. The estimated mandate size is \$224.94 million<sup>1</sup> and the recommended vehicle type is a pooled investment fund.

Search minimum criteria used in the screening:

- Availability in a mutual fund, collective investment trust (CIT) or similar IRC 457-eligible investments in a pooled vehicle, or a separately managed account
- Vehicle open to new investors
- Vehicle compatible with Voya platform
- Strategy track record of 7 years or longer (specific vehicle may be shorter)
- Tracks the Russell Mid-Cap Index or a similar index (e.g., S&P Mid-Cap 400 Index, Russell MidCap Index, or CRSP US Mid-Cap Index)
- Annualized tracking error<sup>2</sup> relative to the benchmark should be within +/- 0.30% over the 7-years ending June 30, 2020.
- Minimum assets under management in strategy (all share classes) of \$5 billion
- Investment expense ratio equal to or less than 0.04%

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<sup>1</sup> As of 12/31/20

<sup>2</sup> Tracking error is the annualized standard deviation of the difference between the returns of an investment and its benchmark.

## Passive Mid Cap Equity

### RFP Respondents

<b>Firm</b>	<b>Proposed Fund</b>	<b>Proposed Vehicle</b>
BlackRock	BlackRock Mid Cap Equity Index	Collective Investment Trust
Mellon	BNYM Mellon SL Mid Cap Stock Index Fund Instl	Collective Investment Trust
Northern	Northern Trust S&P 400 Index <sup>1</sup>	Collective Investment Trust
SSGA	State Street S&P MidCap Index NL M <sup>2</sup>	Collective Investment Trust

<sup>1</sup> Collective Investment Trust vehicle available in both Lending and Non-Lending classes.

<sup>2</sup> Collective Investment Trust vehicle available in both Lending and Non-Lending classes.



## Passive Mid Cap Equity

### Mutual Fund Universe Minimum Qualification Screening Process

The below table shows the mutual fund screening process for this mandate. Candidates with fully green shading are those that passed minimum qualifications of the mutual fund screening process approved by the Board.

Fund	Vehicle	Passive U.S. Mid Cap Equity Fund Available	Open to the City & Compatible with Voya	Track Record 7 years or longer	Tracks Russell Mid Cap Index or equivalent	7-Year Tracking Error within +/- 0.30%	Expense Ratio 0.04% or less	Strategy AUM \$5B or greater	Meets all minimum requirements?
BNY Mellon Mid Cap Stock Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Columbia Mid Cap Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Federated Hermes Mid-Capital Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Fidelity Mid Cap Index	MF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Great-West S&P MidCap 400 Index <i>sub-advised by Mellon Capital Management</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
iShares Russell Mid-Cap Index <i>sub-advised by BlackRock</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
MM S&P Mid Cap Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Mutual of America Institutional Mid-Cap Eq Idx	MF	Yes	Yes	Yes	Yes	Yes	No		No
Nationwide Mid Cap Market Index <i>sub-advised by BlackRock</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
Northern Mid Cap Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Principal MidCap S&P 400 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Schwab US Mid-Cap Index	MF	Yes	Yes	No					No
Shelton S&P MidCap Index	MF	Yes	Yes	Yes	Yes	No			No
VALIC Company Mid	MF	Yes	Yes	Yes	Yes	Yes	No		No
Vanguard Mid-Cap Index - Incumbent	MF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vanguard S&P Mid-Cap 400 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No

## Passive Mid Cap Equity

### Candidates

<b>Firm</b>	<b>Vehicle type - Fund name</b>	<b>Benchmark</b>
BlackRock	CIT - BlackRock Mid Cap Equity Index	Russell MidCap Index
Fidelity	MF - Fidelity Mid Cap Index Fund (FSMDX)	Russell MidCap Index
Mellon	CIT - BNYM Mellon SL Mid Cap Stock Index Fund Instl	S&P 400
Northern	CIT - Northern Trust S&P 400 Index	S&P 400
SSGA	CIT - State Street S&P MidCap Index NL M	S&P 400
Vanguard - Incumbent	MF - Vanguard Mid-Cap Index Fund Instl Plus (VMCPX)	CRSP US Mid Cap Index



## Passive Mid Cap Equity

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Organizational Strength and Continuity</b>						
Business Strength and Resiliency						
Firm-wide Assets						
Tenure Of Senior Professionals						
History Of Legal And Regulatory Proceedings						
<b>Investment Experience</b>						
History Of Managing Passive US Mid Cap Equity Assets						
Scale Of Passive US Mid Cap Equity Assets Under Management						
Depth of Passive US Mid Cap Equity Team						
<b>Investment Approach and Process</b>						
Investment Approach						
Index Replication Process						
Securities Lending Program	Lending	Lending	Lending	Lending or non-lending avail.	Lending or non-lending avail.	Lending
<b>Investment Performance</b>						
Overall Performance Relative to Benchmark						
10-Year Tracking Error						
<b>Portfolio Transition</b>		Not applicable (Mutual Fund)				Not applicable (Mutual Fund)
<b>Administrative and Reporting</b>						
Able to provide a daily NAV?						
<b>Fees</b>						

Excellent

Favorable

Reasonable

Less Desirable

## Passive Mid Cap Equity

### **Passive Mid-Cap Equity Key Notes:**

- All firms are stable and well-resourced organizations, which possess highly capable index fund capabilities.
- Experience with US mid cap equity indexation is generally well over a decade for all firms with the exception of Fidelity.
- There are differences in stated benchmark that each manager tracks, with Russell Midcap, S&P Midcap 400, and CRSP US Mid cap all being used. CRSP and Russell tend to skew higher in cap size, and this can lead to divergence in performance among the indices. Most recently, larger cap bias has been helpful, though we don't expect this to persist through all market cycles. All three benchmarks are reasonable from our perspective.
- Vanguard and BlackRock have meaningfully higher level of assets under management in the proposed strategies.
- All providers offer securities lending products, and State Street and Northern Trust likewise offer non-lending vehicles. BlackRock and Mellon have the most flexibility from a lending perspective with the ability to lend 100% of assets. In practice, they are far below this level. Vanguard and Fidelity offer the best lending terms for investors.
- Full replication is used by all managers, and performance and tracking error are within expectations for all managers.
- Only BlackRock's lending product provides meaningful fee savings while modest savings could be attained with Fidelity or State Street.

## Passive Mid Cap Equity

### Benchmark Descriptions

#### **Russell Midcap**

The Russell MidCap Index measures the performance of the 800 smallest companies in the Russell 1000, which represent approximately 35% of the total market capitalization of the Russell 1000 index.

#### **S&P Midcap 400**

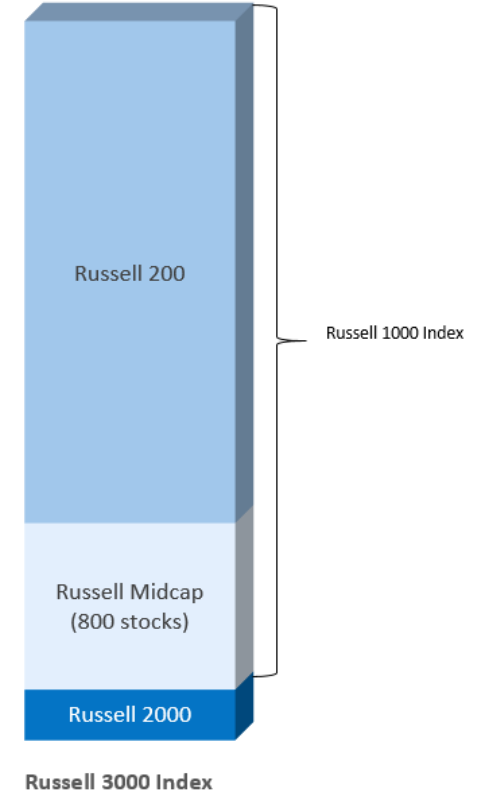
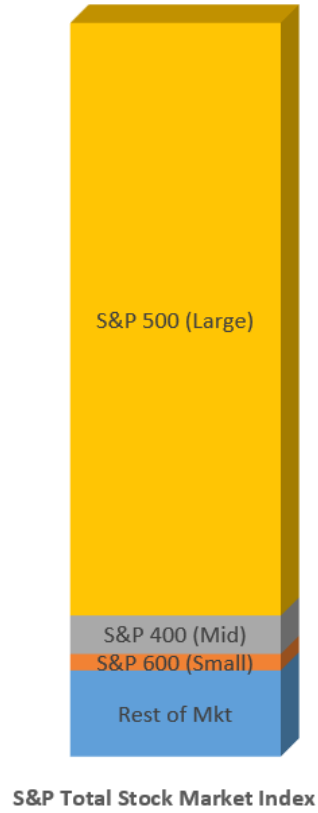
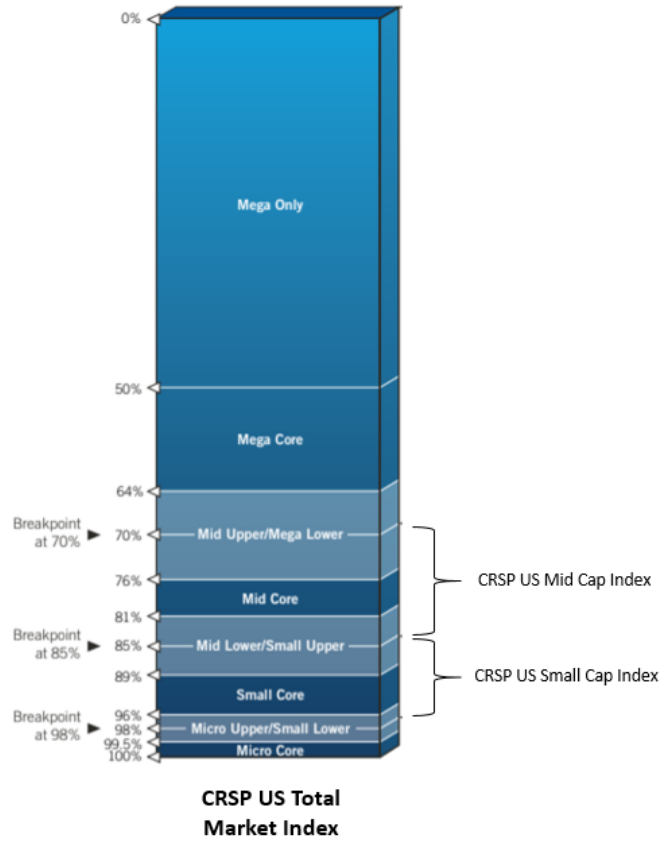
The S&P MidCap 400 Index consists of 400 domestic stocks, which are chosen by a committee at Standard & Poor's based on market capitalization, liquidity and industry group representation. The index is made up of companies listed on the NYSE, NASDAQ, and AMEX. None of the companies within the S&P MidCap overlap with those included in the S&P 500 index. The index is market value-weighted.

#### **CRSP US Mid-Cap**

The CRSP US Mid Cap Index targets inclusion of the U.S. companies that fall between the 70%-85% of investable market capitalization. The index includes securities traded on NYSE, NYSE Market, NASDAQ or ARCA. Ranking days, the days on which eligibility rules are applied and on which pro forma indexes are created, occur after the market close on the first Friday of March, June, September and December. Reconstitution occurs quarterly after the market close on the third Friday of March, June, September and December.

## Passive Mid Cap Equity

CAPITALIZATION-BASED BREAKPOINTS AND BANDS DIAGRAM



Sources: CRSP, Standard & Poor's and Russell as of 12/31/20.

## Passive Mid Cap Equity

### Organizational Strength and Continuity:

This dimension contemplates the overall stability of the fund management firms considered in this finalist list. Among things included are each candidate’s organizational experience, continuity of ownership, focus on stability of personnel, employee ownership, a record of controlling growth (assets under management and new products brought to market), and demonstrated commitment of providing necessary resources to support the passive management business. In addition, the City will be evaluating each firm’s involvement with material legal and regulatory proceedings that may impact the business. Overall, all the firms considered are well run businesses that have demonstrated strong commitment to passive management and indicate that they are not subject to legal or regulatory proceedings that would be material to their ongoing operations.<sup>1</sup>

Mellon has the lowest amount of assets under management among all the candidates.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Organizational Strength and Continuity</b>						
Business Strength and Resiliency	Excellent	Favorable	Favorable	Favorable	Favorable	Favorable
Firm-wide Assets	Excellent	Favorable	Reasonable	Favorable	Favorable	Favorable
Tenure Of Senior Professionals	Excellent	Favorable	Favorable	Favorable	Favorable	Favorable
History Of Legal and Regulatory Proceedings	Reasonable	Reasonable	Reasonable	Reasonable	Reasonable	Reasonable
	Excellent	Favorable	Reasonable	Less Desirable		

<sup>1</sup> Mercer is not able to assess the veracity of these claims.

## Passive Mid Cap Equity

**Investment Experience:** This dimension considers the amount of passive management experience in general and within this specific asset class as well as the amount of dedicated resources to the strategy. All of the firms are leading passive investment management firms with rich experience and a long history of managing passive equity assets. They all have appropriate number of qualified investment professionals dedicated to the strategy and demonstrate strong team depth. Our bias with passively managed funds is for firms to have a sufficient amount of assets in the strategy to ensure that the manager’s commitment will be long-term and that the City would not represent a disproportionate amount of overall strategy assets. All firms’ strategy assets are over \$8 billion and the City would represent less than 2% of their overall strategy assets, with the exception of Northern Trust (2.8%) and Mellon (2.3%). All have well over 10 years history managing passive US Mid Cap Equity assets with the exception of Fidelity, which has 9 years.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Experience</b>						
History Of Managing Passive US Mid Cap Equity Assets	Excellent	Favorable	Excellent	Excellent	Excellent	Excellent
Scale Of Passive US Mid Cap Equity Assets Under Management	Excellent	Excellent	Favorable	Favorable	Excellent	Excellent
Depth of Passive US Mid Cap Equity Team	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
	Excellent	Favorable	Reasonable	Less Desirable		

## Passive Mid Cap Equity

### Investment Experience - Overview

Fund	Portfolio Manager	Portfolio Manager Tenure	Total Investment Professionals	Firmwide Assets (\$B)	Strategy Assets (\$MM)	Strategy Inception	Mercer Rating
BlackRock	Alan Mason	2015	2,570	7,300	56,657	1992	A
	Suzanne Henige	2020					
	Jennifer Hsui	2016					
	Amy Whitelaw	2019					
	Rachel Aguirre	2016					
Fidelity	Deane Gyllenhaal	2014	779	3,200	14,400	2011	B+
	Louis Bottari	2011					
	Peter Matthew	2012					
	Robert Regan	2016					
	Payal Gupta	2019					
Mellon	Thomas Durante	2000	315	534	9,681	2003	A (W)
	David France	2020					
	Todd Frysinger	2020					
	Vlasta Shermet	2020					
	Michael Stoll	2020					
	Marlene Walker Smith	2020					
Northern	Lucy Johnston	2019	430	1,100	8,024	1991	A
	Brent Reeder	2006					
SSGA	Michael Feehily	2016	1,216	3,100	14,477	1989	A
	Karl Schneider	2004					
	Amy Scofield	2012					
Vanguard - Incumbent	Donald Butler	1998	277	6,100	113,300	1998	A
	Michael Johnson	2016					

## Passive Mid Cap Equity

### Investment Approach and Process:

*Investment Approach and Index Replication Process:* This factor evaluates the manager’s process and capabilities with regards to building a portfolio. Considerations include the manager’s indexing technique (e.g., sampling or full replication), number of portfolio holdings versus the index and portfolio characteristics that should be consistent with those of the index it is tracking. While all candidates use a full replication indexing technique, Fidelity has the most deviation from its respective benchmark, illustrated by the number of holdings and P/E ratio. Vanguard has a higher weighted Average Market Cap compared to its benchmark (approximately 47% higher).

*Securities Lending:* Another aspect reviewed is the managers’ securities lending program. BlackRock, Fidelity, Mellon and Vanguard put forward lending products; Northern Trust and State Street provided both lending and non-lending products. Although securities lending is better regulated now than they were leading into the global financial crisis, it still represents incremental risk that the Board should weigh in selecting an index provider. If securities lending is used, we prefer a program that has strong alignment with investors. In this regard, Vanguard’s and Fidelity’s securities lending programs are more advantageous than the other 4 firms offering lending products, as more than 90% of the revenue reverts to the respective funds. Moreover, both tend to employ a “value” approach to lending, with the maximum that can be on loan a third of the portfolio’s assets. Mellon, Northern and State Street revert 70% to the respective funds, and they can engage in a volume approach that allows for more than a third of the portfolio to be on loan at any given time. Finally, BlackRock represents the least favorable split with investors as only 50% of the revenue is reverted to the fund. BlackRock allows for the highest amount of lending (up to 100% on loan) though currently only 29% of the fund is on loan. While BlackRock is highly competent at securities lending, these characteristics may appear less attractive.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Approach and Process</b>						
Investment Approach						
Index Replication Process						
Securities Lending Program	Lending	Lending	Lending	Lending or non-lending avail.	Lending or non-lending avail.	Lending
Excellent	Favorable	Reasonable	Less Desirable			



## Passive Mid Cap Equity

### Investment Approach & Process (Characteristics as of 9/30/2020)

Fund	Vehicle Type	Vehicle Inception	Vehicle Assets (\$MM)	Lending / Non-Lending	Max Sec Lending (Most Recent)	Revenue Split DCP / Manager
BlackRock	CIT	1999	8,963	Lending	100% (29.0%)	50% / 50%
Fidelity	MF	2011	14,400	Lending	33.3% (3.0%)	>90.1% / <9.9%
Mellon	CIT	2019	3,367	Lending	100% (36.2%)	70% / 30%
Northern	CIT	1991	5,557	Lending / Non - Lending	75% (16.9%)	70% / 30%
SSGA	CIT	1991	2,820	Lending / Non - Lending	40% (3.6%)	70% / 30%
Vanguard - Incumbent	MF	2010	113,315	Lending	33.3% (0.3%)	100% / 0%

## Passive Mid Cap Equity

### Investment Approach & Process (Portfolio Statistics as of 9/30/2020)

Fund	Index Technique	Number of Securities	P/E	P/B	Weighted Average Market Cap (\$MM)	% Cash
Fidelity	Full Replication	824	28.8x	2.9x	17,200	0.0%
<b><i>Russell MidCap Index</i></b>		<b>790</b>	<b>22.8x</b>	<b>2.9x</b>	<b>15,300</b>	<b>N/A</b>
BlackRock	Full Replication	401	23.0x	2.1x	5,610	0.0%
Mellon	Full Replication	400	22.0x	2.1x	5,871	0.0%
Northern	Full Replication	399	22.9x	2.2x	5,970	0.0%
SSGA	Full Replication	400	19.6x	2.0x	5,893	0.8%
<b><i>S&amp;P 400 Index</i></b>		<b>400</b>	<b>22.0x</b>	<b>2.0x</b>	<b>5,900</b>	<b>N/A</b>
Vanguard - Incumbent	Full Replication	348	24.4x	2.8x	21,241	0.0%
<b><i>CRSP US Mid Cap</i></b>		<b>344</b>	<b>24.8x</b>	<b>2.8x</b>	<b>14,473</b>	<b>N/A</b>

## Passive Mid Cap Equity

**Investment performance:** Passive strategies are expected to closely track their stated benchmarks, as all candidates have done. All strategies have longer-term tracking errors within 10 basis points from their stated benchmarks, which is reasonable and within the RFP’s minimum requirements. As previously noted, three different mid-cap indexes are used by the various providers. Vanguard’s (CRSP) and Fidelity’s (Russell) tend to have a larger cap tilt than the other providers, which use the S&P 400. A larger cap orientation has been helpful in recent years, as large cap stocks have tended to dominate small cap stocks. Vanguard and Fidelity’s performance has generally been greater with the exception of the fourth quarter of 2020 when small cap stocks rotated into favor.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Performance</b>						
Overall Performance Relative to Benchmark						
10-Year Tracking Error						
Excellent	Favorable	Reasonable	Less Desirable			

## Passive Mid Cap Equity

### Performance as of 12/31/2020

Fund	One Quarter	One Year	Three Years	Five Years	Seven Years	Ten Years
Fidelity Mid Cap Index Fund	19.9	17.1	11.6	13.4	10.9	--
<b><i>Russell MidCap Index</i></b>	<b>19.9</b>	<b>17.1</b>	<b>11.6</b>	<b>13.4</b>	<b>11.0</b>	<b>12.4</b>
BlackRock Mid Cap Equity Index	24.4	13.6	8.5	12.4	9.8	11.6
BNY Mellon SL Mid Cap Stock Index Fund Instl	24.4	13.7	8.5	12.4	9.9	11.6
Northern Trust S&P 400 Index	24.4	13.7	8.5	12.4	9.8	11.5
State Street S&P MidCap Index NL M	24.4	13.7	8.5	12.4	9.8	11.6
<b><i>S&amp;P 400 Index</i></b>	<b>24.4</b>	<b>13.7</b>	<b>8.4</b>	<b>12.3</b>	<b>9.8</b>	<b>11.5</b>
Vanguard Mid-Cap Index Fund Instl Plus <sup>1</sup> - Incumbent	18.0	18.3	12.0	13.3	11.1	12.4
<b><i>Vanguard Spliced Mid Cap Index<sup>2</sup></i></b>	<b>18.0</b>	<b>18.2</b>	<b>12.1</b>	<b>13.3</b>	<b>11.2</b>	<b>12.5</b>

<sup>1</sup> Due to the shorter track record of the proposed share class, the 10-year performance data for this fund reflects that of the Institutional share class (expense ratio: 0.04%).

<sup>2</sup> S&P MidCap 400 Index through May 16, 2003; MSCI US Mid Cap 450 Index through January 30, 2013; CRSP US Mid Cap Index thereafter.

## Passive Mid Cap Equity

### Calendar Year Performance

Fund	2013	2014	2015	2016	2017	2018	2019	2020
Fidelity Mid Cap Index Fund	34.8	13.1	-2.4	13.9	18.5	-9.0	30.5	17.1
<b><i>Russell MidCap Index</i></b>	<b>34.8</b>	<b>13.2</b>	<b>-2.4</b>	<b>13.8</b>	<b>18.5</b>	<b>-9.1</b>	<b>30.5</b>	<b>17.1</b>
BlackRock Mid Cap Equity Index	33.6	9.8	-2.1	20.8	16.3	-11.0	26.2	13.6
BNY Mellon SL Mid Cap Stock Index Fund Instl	33.6	9.8	-2.1	20.9	16.3	-11.0	26.3	13.7
Northern Trust S&P 400 Index	33.6	9.8	-2.1	20.8	16.3	-11.1	26.2	13.7
State Street S&P MidCap Index NL M	33.7	9.8	-2.1	20.8	16.2	-11.1	26.4	13.7
<b><i>S&amp;P 400 Index</i></b>	<b>33.5</b>	<b>9.8</b>	<b>-2.2</b>	<b>20.7</b>	<b>16.2</b>	<b>-11.1</b>	<b>26.2</b>	<b>13.7</b>
Vanguard Mid-Cap Index Fund Instl Plus - Incumbent	35.2	13.8	-1.3	11.2	19.3	-9.2	31.1	18.3
<b><i>Vanguard Spliced Mid Cap Index<sup>1</sup></i></b>	<b>35.4</b>	<b>13.8</b>	<b>-1.3</b>	<b>11.2</b>	<b>19.3</b>	<b>-9.2</b>	<b>31.1</b>	<b>18.2</b>

<sup>1</sup> S&P MidCap 400 Index through May 16, 2003; MSCI US Mid Cap 450 Index through January 30, 2013; CRSP US Mid Cap Index thereafter.

## Passive Mid Cap Equity

### Tracking Error vs. Respective Benchmark as of 12/31/2020

<b>Fund</b>	<b>One Year</b>	<b>Three Years</b>	<b>Five Years</b>	<b>Seven Years</b>	<b>Ten Years</b>
BlackRock Mid Cap Equity Index	0.08	0.05	0.04	0.03	0.04
Fidelity Mid Cap Index Fund	0.09	0.08	0.08	0.09	-
BNYM Mellon SL Mid Cap Stock Index Fund Instl	0.01	0.02	0.02	0.02	0.03
Northern Trust S&P 400 Index	0.01	0.01	0.01	0.01	0.01
State Street S&P MidCap Index NL M	0.06	0.07	0.06	0.05	0.05
Vanguard Mid-Cap Index Fund Instl Plus - Incumbent	0.04	0.03	0.03	0.03	0.06

## Passive Mid Cap Equity

**Portfolio Transition:** All candidates are established managers, with experience transitioning large client accounts into their strategies. Should a transition from the existing portfolio occur, we would expect for liquidation to occur in cash and for these assets to be readily reinvested in the new daily valued product. The RFP respondents all discussed in their response, in varying detail, their transition approach and the dedicated personnel who would assist the City on transitioning to a Collective Investment Trust.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
Portfolio Transition		Not applicable (Mutual Fund)				Not applicable (Mutual Fund)
<div style="display: flex; justify-content: space-between; width: 100%;"> <span>Excellent</span> <span>Favorable</span> <span>Reasonable</span> <span>Less Desirable</span> </div>						

## Passive Mid Cap Equity

**Administrative and Reporting:** The City will be evaluating each Proposer’s reporting capacity and interfaces with the City’s TPA, including providing daily unit value reporting, monthly and quarterly statements, attendance at City meetings and with the DCP consultant, and support for generating participant communication and education materials. All candidates were capable of providing the required reporting and administration. In addition, all firms are able to strike a daily NAV.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Administrative and Reporting</b>						
Able to provide a daily NAV?						
Excellent	Favorable	Reasonable	Less Desirable			



## Passive Mid Cap Equity

**Fees:** All candidates offer competitive fees, well below their peer group median fee of 0.30% and within the RFP's fee minimum requirement of 0.04%. On an absolute basis, projected dollar savings are relatively modest relative to a nearly \$200 million investment.

Summary Evaluation	BlackRock	Fidelity	Mellon	Northern Trust	State Street	Vanguard - Incumbent
<b>Fees</b>						
<div style="display: flex; justify-content: space-between; width: 100%; font-size: small;"> <span style="background-color: #008000; color: white; padding: 2px;">Excellent</span> <span style="background-color: #90EE90; padding: 2px;">Favorable</span> <span style="background-color: #FFFF00; padding: 2px;">Reasonable</span> <span style="background-color: #FF0000; color: white; padding: 2px;">Less Desirable</span> </div>						

## Passive Mid Cap Equity

### Fees

Fund	Lending / Non-Lending	Vehicle Type	Ticker / CUSIP	Net Expense Ratio <sup>1</sup>	Estimated Expense Based on 12/31/20 Asset (\$)	Estimated Expense Difference vs Current
BlackRock	Lending	CIT	TBD <sup>2</sup>	0.0124%	\$ 27,893	\$ (39,590)
Fidelity	Lending	MF	FSMDX	0.0250%	\$ 56,235	\$ (11,247)
Mellon	Lending	CIT	06427F181	0.0400%	\$ 89,977	\$ 22,494
Northern	Lending / Non -Lending	CIT	6586U841	0.0285% <sup>3</sup>	\$ 64,108	\$ (3,374)
SSGA	Lending / Non -Lending	CIT	857480701	0.0250% <sup>4</sup>	\$ 56,235	\$ (11,247)
Vanguard - Incumbent	Lending	MF	VMCPX	0.0300%	\$ 67,482	-

<sup>1</sup> Some expense ratios may currently have an expense cap or fee waiver that can be changed by the manager at any time.

<sup>2</sup> BlackRock would launch a new CIT share class for the City

<sup>3</sup> Non-Lending trust shown with actual admin fees of 0.85 bps, admin fee is capped at 1.00 bps. Proposed share class with lending has not been launched, management fee is 0.015% and estimated Admin cap is 0.01%. Northern Trust also proposed Index Bundled (if selected for all 4 passive strategies) and All Bundled fees (if selected for all 4 passive and active small cap value strategies); please see Appendix for more details.

<sup>4</sup> Non-Lending trust shown. Also available in lending trust with an expense ratio of 0.02%.

## Passive Small Cap Equity

# 5

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## Passive Small Cap Equity

### Screening Process

The table on the next page shows the candidates considered for this passive small cap equity fund manager search. The estimated mandate size is \$139.96 million<sup>1</sup> and the recommended vehicle type is a pooled investment fund.

Search minimum criteria used in the screening:

- Availability in a mutual fund, collective investment trust (CIT) or similar IRC 457-eligible investments in a pooled vehicle, or a separately managed account
- Vehicle open to new investors
- Vehicle compatible with Voya platform
- Strategy track record of 7 years or longer (specific vehicle may be shorter)
- Tracks the Russell 2000 Index or a similar index (e.g., S&P SmallCap 600 Index or CRSP US Small Cap Index)
- Annualized tracking error<sup>2</sup> relative to the benchmark should be within +/- 0.30% over the 7 -year ending June 30, 2020
- Minimum assets under management in strategy (all share classes) of \$10 billion
- Investment expense ratio equal to or less than 0.04%

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<sup>1</sup> As of 12/31/20

<sup>2</sup> Tracking error is the annualized standard deviation of the difference between the returns of an investment and its benchmark.

## Passive Small Cap Equity

### RFP Respondents

<b>Firm</b>	<b>Proposed Fund</b>	<b>Proposed Vehicle</b>
BlackRock	BlackRock Russell 2000 Index	Collective Investment Trust
Mellon	BNYM Mellon SL Mid Cap Stock Index Fund Instl	Collective Investment Trust
Northern	Northern Trust Russell 2000 Index <sup>1</sup>	Collective Investment Trust
SSGA	State Street Russell Small Cap Index NL K <sup>2</sup>	Collective Investment Trust

<sup>1</sup> Collective Investment Trust vehicle available in Lending class. Non-Lending class does not meet the minimum criteria of an expense ratio  $\leq 0.04\%$ .

<sup>2</sup> Collective Investment Trust vehicle available in both Lending and Non-Lending classes.



## Passive Small Cap Equity

### Mutual Fund Universe Minimum Qualification Screening Process

The below table shows the mutual fund screening process for this mandate. Candidates with fully green shading are those that passed minimum qualifications of the mutual fund screening process approved by the Board.

Fund	Vehicle	Passive U.S. Small Cap Equity	Open to the City & Compatible with Voya	Track Record 7 years or longer	Tracks Russell 2000 Index or equivalent	7-Year Tracking Error within +/- 0.30%	Expense Ratio 0.04% or less	Strategy AUM \$10B or greater	Meets all minimum requirements?
BNY Mellon Small Cap Stock Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Columbia Small Cap Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Fidelity Small Cap Index	MF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Great-West S&P Small Cap 600 Index <i>sub-advised by Irish Life</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
iShares Russell 2000 SC Index <i>sub-advised by BlackRock</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
MM Russell 2000 Small Cap Index <i>sub-advised by Northern Trust</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
Nationwide Small Cap Index <i>sub-advised by BlackRock</i>	MF	Yes	Yes	Yes	Yes	Yes	No		No
Northern Small Cap Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Praxis Small Cap Index	MF	Yes	Yes	Yes	Yes	No			No
Principal SmallCap S&P 600 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
ProFunds Small-Cap ProFund	MF	Yes	Yes	Yes	Yes	No			No
Rydex Russell 2000	MF	Yes	Yes	Yes	Yes	Yes	No		No
Schwab Fundamental US Small Co Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Schwab Small-Cap Index	MF	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Shelton S&P SmallCap Index	MF	Yes	Yes	Yes	Yes	No			No
TIAA-CREF Small-Cap Blend Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Vanguard Russell 2000 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Vanguard S&P Small-Cap 600 Index	MF	Yes	Yes	Yes	Yes	Yes	No		No
Vanguard Small-Cap Index - Incumbent	MF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vanguard Tax-Managed S-C Index	MF	Yes	Yes	Yes	Yes	No			No

## Passive Small Cap Equity

### Candidates

<b>Firm</b>	<b>Vehicle type - Fund name</b>	<b>Benchmark</b>
BlackRock	CIT - BlackRock Russell 2000 Index	Russell 2000 Index
Fidelity	MF - Fidelity Small Cap Index Fund (FSSNX)	Russell 2000 Index
Northern	CIT - Northern Trust Russell 2000 Index	Russell 2000 Index
SSGA	CIT - State Street Russell Small Cap Index NL K	Russell 2000 Index
Vanguard - Incumbent	MF - Vanguard Small-Cap Index Fund Inst Plus (VSCPX)	CRSP US Small Cap

## Passive Small Cap Equity

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Organizational Strength and Continuity</b>					
Business Strength and Resiliency	Excellent	Excellent	Excellent	Excellent	Excellent
Firm-wide Assets	Excellent	Excellent	Excellent	Excellent	Excellent
Tenure Of Senior Professionals	Excellent	Excellent	Excellent	Excellent	Excellent
History Of Legal and Regulatory Proceedings	Favorable	Favorable	Favorable	Favorable	Favorable
<b>Investment Experience</b>					
History Of Managing Passive Assets	Excellent	Favorable	Excellent	Excellent	Excellent
Scale Of Passive US Small Cap Assets Under Management	Excellent	Favorable	Excellent	Excellent	Excellent
Depth of Passive US Small Cap Team	Excellent	Excellent	Excellent	Excellent	Excellent
<b>Investment Approach and Process</b>					
Investment Approach	Excellent	Excellent	Excellent	Excellent	Excellent
Index Replication Process	Excellent	Excellent	Excellent	Excellent	Excellent
Securities Lending Program	Lending	Lending	Lending	Lending or non-lending available	Lending
<b>Investment Performance</b>					
Overall Performance Relative to Benchmark	Excellent	Excellent	Excellent	Excellent	Excellent
7-Year Tracking Error	Excellent	Excellent	Excellent	Excellent	Excellent
<b>Portfolio Transition</b>	Excellent	Not applicable (Mutual Fund)	Favorable	Favorable	Excellent
<b>Administrative and Reporting</b>					
Able to provide a daily NAV?	Excellent	Excellent	Excellent	Excellent	Excellent
<b>Fees</b>	Excellent	Favorable	Less Desirable	Favorable	Favorable

Excellent

Favorable

Reasonable

Less Desirable



## Passive Small Cap Equity

### **Passive Small Cap Equity Key Notes:**

- All firms are stable and well-resourced organizations, which possess highly capable index fund capabilities.
- Experience with US small cap equity indexation is generally well over a decade for all firms with the exception of Fidelity.
- There are differences in stated benchmark that each manager tracks, with the Russell 2000 and CRSP US Small Cap Indexes both being used. CRSP tends to skew higher in cap size, and this can lead to divergence in performance among the indices. Most recently, a larger cap bias has been helpful, though we don't expect this to persist through all market cycles. Both benchmarks are reasonable from our perspective.
- Vanguard and BlackRock have significantly higher level of assets under management in the proposed strategies.
- All providers offer securities lending products, with only State Street offering a non-lending vehicle. BlackRock followed by Northern have the most flexibility from a lending perspective with the ability to lend 100% and 75% of assets respectively. Currently, BlackRock is lending roughly a third of the portfolio while Northern has 25% on loan. Vanguard and Fidelity offer the best lending terms for investors.
- Full or near-full replication is used by all managers, and performance and tracking error are within expectations for all managers.
- Only BlackRock's lending product provides meaningful fee savings while modest savings could be attained with Fidelity.

## Passive Small Cap Equity

### Benchmark Descriptions

#### **Russell 2000**

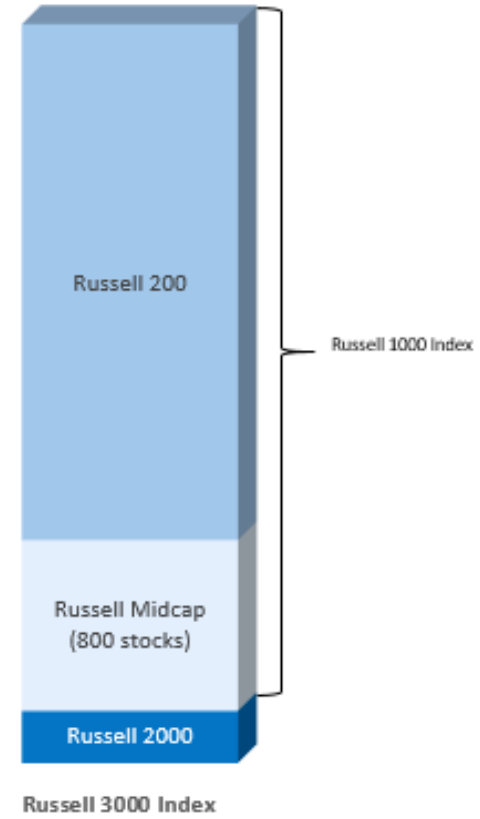
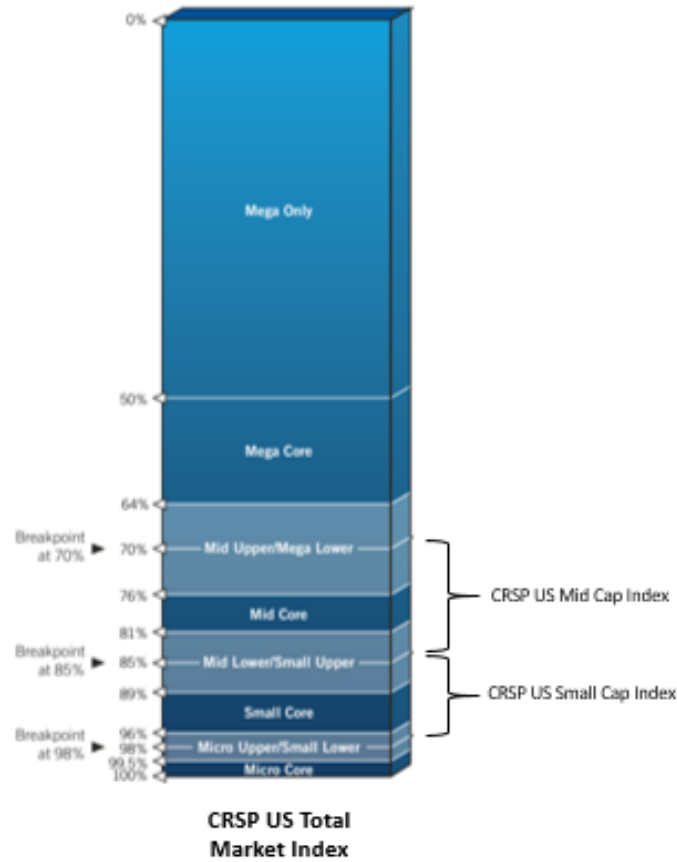
The Russell 2000 is intended to be a small capitalization market proxy. The index currently consists of approximately the 2,000 smallest stocks in the Russell 3000, representing approximately 10% of the total U.S. equity market. The index is restated annually based on May 31 market capitalization rankings.

#### **CRSP US Small Cap**

The CRSP US Small Cap Index includes U.S. companies that fall between the bottom 2%-15% of the investable market capitalization. There is no lower limit in market capitalization, other than what is specified by investability screens. The index includes securities traded on NYSE, NYSE Market, NASDAQ or ARCA. Ranking days, the days on which eligibility rules are applied and on which pro forma indexes are created, occur after the market close on the first Friday of March, June, September and December. Reconstitution occurs quarterly after the market close on the third Friday of March, June, September and December.

## Passive Small Cap Equity

CAPITALIZATION-BASED BREAKPOINTS AND BANDS DIAGRAM



Sources: CRSP and Russell as of 12/31/20.

## Passive Small Cap Equity

### Organizational Strength and Continuity:

This dimension contemplates the overall stability of the fund management firms considered in this finalist list. Among things included are each candidate’s organizational experience, continuity of ownership, focus on stability of personnel, employee ownership, a record of controlling growth (assets under management and new products brought to market), and demonstrated commitment of providing necessary resources to support the passive management business. In addition, the City will be evaluating each firm’s involvement with material legal and regulatory proceedings that may impact the business. Overall, all the firms considered are well run businesses that have demonstrated strong commitment to passive management and indicate that they are not subject to legal or regulatory proceedings that would be material to their ongoing operations.<sup>1</sup>

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Organizational Strength and Continuity</b>					
Business Strength and Resiliency					
Firm-wide Assets					
Tenure Of Senior Professionals					
History Of Legal and Regulatory Proceedings					
Excellent	Favorable	Reasonable	Less Desirable		

<sup>1</sup> Mercer is not able to assess the veracity of these claims.

## Passive Small Cap Equity

**Investment Experience:** This dimension considers the amount experience with passive management in general and within this specific asset class as well as the amount of dedicated resources to the strategy. All of the firms are leading passive investment management firms with rich experience and a long history of managing passive equity assets. They all have appropriate number of qualified investment professionals dedicated to the strategy and demonstrate strong team depth. Our bias with passively managed funds is for firms to have a sufficient amount of assets in the strategy to ensure that the manager’s commitment will be long-term and that the City would not represent a disproportionate amount of overall strategy assets. All firms’ strategy assets are well over \$40 billion and the City would represent less than 1% of their overall strategy assets, with the exception of Fidelity (1.2% of strategy assets).

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Experience</b>					
History Of Managing Passive Assets					
Scale Of Passive US Small Cap Assets Under Management					
Depth of Passive US Small Cap Team					
Excellent	Favorable	Reasonable	Less Desirable		

## Passive Small Cap Equity

### Investment Experience - Overview

Fund	Portfolio Manager	Portfolio Manager Tenure	Total Investment Professionals	Firmwide Assets (\$B)	Strategy Assets (\$MM)	Strategy Inception	Mercer Rating
BlackRock	Alan Mason	2014	2,570	7,300	55,479	1997	A
	Suzzane Henige	2020					
	Jennifer Hsui	2016					
	Amy Whitelaw	2019					
	Rachel Aguirre	2016					
Fidelity	Deane Gyllenhaal	2014	779	3,200	11,991	2011	B+
	Louis Bottari	2011					
	Peter Matthew	2012					
	Robert Regan	2016					
	Payal Gupta	2019					
Northern	Brent Reeder	2006	430	1,100	17,550	1990	A
	Yair Walny	2019					
SSGA	Keith Richardson	2018	1,216	3,100	15,779	1992	A
	David Chin	2018					
Vanguard - Incumbent	Gerard O'Reilly	2016	277	6,100	89,849	1960	A
	William Coleman	2016					

## Passive Small Cap Equity

### Investment Approach and Process:

*Investment Approach and Index Replication Process:* This factor evaluates the manager’s process and capabilities with regards to building a portfolio. Considerations include the manager’s indexing technique (e.g., sampling or full replication), number of portfolio holdings versus the index and portfolio characteristics that should be consistent with those of the index it is tracking. BlackRock and Fidelity utilize an optimized sampling approach, while Northern, SSGA and Vanguard use a full replication approach. All managers replicate their benchmarks well; however, Northern and SSGA have closer replication of their benchmarks.

*Securities Lending:* Another aspect reviewed is the managers’ securities lending program. BlackRock, Fidelity, Northern Trust<sup>1</sup> and Vanguard offer lending products; State Street provided both lending and non-lending products. Although securities lending is better regulated now than they were leading into the global financial crisis, it still represents incremental risk that the Board should weigh in selecting an index provider. If securities lending is used, we prefer a program that has strong alignment with investors. In this regard, Vanguard’s and Fidelity’s securities lending programs are more advantageous than the other 3 firms offering lending products, as more than 90% of the revenue reverts to the respective funds. Moreover, both tend to employ a “value” approach to lending, with the maximum that can be on loan a third of the portfolio’s assets. Northern and State Street revert 70% to the respective funds, and they can engage in a volume approach that allows for more than a third of the portfolio to be on loan at any given time. Finally, BlackRock represents the least favorable split with investors as only 50% of the revenue is reverted to the fund. BlackRock allows for the highest amount of lending (up to 100% on loan) though currently only 34% of the fund is on loan. While BlackRock is highly competent at securities lending, these characteristics may appear less attractive.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Approach and Process</b>					
Investment Approach					
Index Replication Process					
Securities Lending Program	Lending	Lending	Lending	Lending or non-lending available	Lending
Excellent	Favorable	Reasonable	Less Desirable		

<sup>1</sup> Northern Trust’s Non-Lending product does not meet the minimum requirement of an expense ratio 0.04% or below.

## Passive Small Cap Equity

### Investment Approach & Process (Characteristics as of 9/30/2020)

Fund	Vehicle Type	Vehicle Inception	Vehicle Assets (\$MM)	Lending / Non-Lending	Max Sec Lending (Most Recent)	Revenue Split DCP / Manager
BlackRock	CIT	1997	7,173	Lending	100% (34.0%)	50% / 50%
Fidelity	MF	2011	11,991	Lending	33.3% (9.3%)	>90.1% / <9.9%
Northern	CIT	2007	15,038	Lending	75% (25.4%)	70% / 30%
State Street	CIT	1992	1,893	Lending / Non - Lending	40% (11.5%)	70% / 30%
Vanguard – Incumbent	MF	2010	70,198	Lending	33.3% (1.3%)	100% / 0%



## Passive Small Cap Equity

### Investment Approach & Process (Portfolio Statistics as of 9/30/2020)

Fund	Index Technique	Number of Securities	P/E	P/B	Weighted Average Market Cap (\$MM)	% Cash
BlackRock	Optimized Sampling	2,012	15.1x	1.9x	2,210	0.0%
Fidelity	Optimized Sampling	2,028	48.1x	2.1x	2,400	0.0%
Northern	Full Replication	2,017	18.9x	1.9x	2,449	1.3%
State Street	Full Replication	2,023	16.6x	1.8x	2,434	1.1%
<b><i>Russell 2000 Index</i></b>		<b><i>2,019</i></b>	<b><i>17.8x</i></b>	<b><i>1.8x</i></b>	<b><i>2,400</i></b>	<b><i>N/A</i></b>
Vanguard - Incumbent	Full Replication	1,413	23.3x	2.4x	6,761	0.0%
<b><i>CRSP US Small Cap</i></b>		<b><i>1,388</i></b>	<b><i>20.8x</i></b>	<b><i>2.1x</i></b>	<b><i>5,900</i></b>	<b><i>N/A</i></b>

## Passive Small Cap Equity

**Investment performance:** Passive strategies are expected to closely track their stated benchmarks, as all candidates have done. All strategies have a tracking error within 10 basis points from their stated benchmarks, which is reasonable, and within the RFP’s minimum requirements.

As previously noted, Vanguard used the CRSP Index series for (CRSP) its Small-Cap Index Fund. This benchmark tends to have a larger cap tilt than the other providers, which use the Russell 2000. A larger cap orientation has been helpful in recent years, as large cap stocks have tended to dominate small cap stocks. While Vanguard’s performance generally has been greater, this advantage reversed course during the fourth quarter as smaller cap stocks rotated into favor.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Investment Performance</b>					
Overall Performance Relative to Benchmark					
7-Year Tracking Error					
Excellent	Favorable	Reasonable	Less Desirable		

## Passive Small Cap Equity

Performance as of 9/30/2020

Fund	One Quarter	One Year	Three Years	Five Years	Seven Years	Ten Years
BlackRock Russell 2000 Index	31.4	20.1	10.4	13.5	9.6	11.4
Fidelity Small Cap Index Fund (FSSNX)	31.3	20.0	10.3	13.4	9.5	-
Northern Trust Russell 2000 Index	31.4	20.0	10.3	13.3	9.4	11.3
State Street Russell Small Cap Index NL K	31.3	19.9	10.2	13.3	9.4	11.2
<b><i>Russell 2000 Index</i></b>	<b>31.4</b>	<b>20.0</b>	<b>10.2</b>	<b>13.3</b>	<b>9.3</b>	<b>11.2</b>
Vanguard Small Cap Index Fund Instl Plus <sup>1</sup> - Incumbent	27.1	19.1	11.2	13.6	10.1	12.0
<b><i>Vanguard Spliced Small Cap Index<sup>2</sup></i></b>	<b>27.1</b>	<b>19.1</b>	<b>11.2</b>	<b>13.6</b>	<b>10.1</b>	<b>12.0</b>

<sup>1</sup> Due to the shorter track record of the proposed share class, 10-year performance data for this fund reflects that of the Institutional share class (expense ratio: 0.04%).

<sup>2</sup> Russell 2000 Index through May 16, 2003; MSCI US Small Cap 1750 Index through January 30, 2013; CRSP US Small Cap Index thereafter.

## Passive Small Cap Equity

### Calendar Year Performance

Fund	2013	2014	2015	2016	2017	2018	2019	2020
BlackRock Russell 2000 Index	39.1	5.1	-4.2	21.6	14.9	-10.9	25.7	20.1
Fidelity Small Cap Index Fund (FSSNX)	39.0	5.2	-4.3	21.6	14.9	-10.9	25.6	20.0
Northern Trust Russell 2000 Index	38.9	5.0	-4.4	21.4	14.7	-11.0	25.6	20.0
State Street Russell Small Cap Index NL K	28.8	5.0	-4.4	21.2	14.7	-10.9	25.5	19.9
<b><i>Russell 2000 Index</i></b>	<b>28.8</b>	<b>4.9</b>	<b>-4.4</b>	<b>21.3</b>	<b>14.6</b>	<b>-11.0</b>	<b>25.5</b>	<b>20.0</b>
Vanguard Small Cap Index Fund Instl Plus - Incumbent	37.8	7.5	-3.7	18.3	16.3	-9.3	27.3	19.1
<b><i>Vanguard Spliced Small Cap Index<sup>1</sup></i></b>	<b>37.8</b>	<b>7.5</b>	<b>-3.7</b>	<b>18.3</b>	<b>16.3</b>	<b>-9.3</b>	<b>27.3</b>	<b>19.1</b>

<sup>1</sup> Russell 2000 Index through May 16, 2003; MSCI US Small Cap 1750 Index through January 30, 2013; CRSP US Small Cap Index thereafter.

## Passive Small Cap Equity

### Tracking Error vs. Respective Benchmark as of 12/31/2020

<b>Fund</b>	<b>One Year</b>	<b>Three Years</b>	<b>Five Years</b>	<b>Seven Years</b>	<b>Ten Years</b>
BlackRock Russell 2000 Index	0.07	0.06	0.06	0.05	0.08
Fidelity Small Cap Index Fund (FSSNX)	0.09	0.08	0.10	0.10	-
Northern Trust Russell 2000 Index	0.03	0.03	0.03	0.03	0.03
State Street Russell Small Cap Index NL K	0.10	0.07	0.07	0.07	0.06
Vanguard Small Cap Index Fund Institutional Plus <sup>1</sup> - Incumbent	0.03	0.04	0.03	0.03	0.04

<sup>1</sup> Due to the shorter track record of the proposed share class, the performance data for this fund reflects that of the Institutional share class (expense ratio: 0.04%).

## Passive Small Cap Equity

**Portfolio Transition:** All candidates are established managers, with experience transitioning large client accounts into their strategies. Should a transition from the existing portfolio occur, we would expect for liquidation to occur in cash and for these assets to be readily reinvested in the new daily valued product. The RFP respondents all discussed in their response, in varying detail, their transition approach and the dedicated personnel who would assist the City on transitioning to a Collective Investment Trust.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
Portfolio Transition		Not applicable (Mutual Fund)			
<div style="display: flex; justify-content: space-between; width: 100%;"> <span>Excellent</span> <span>Favorable</span> <span>Reasonable</span> <span>Less Desirable</span> </div>					

## Passive Small Cap Equity

**Administrative and Reporting:** The City will be evaluating each Proposer’s reporting capacity and interfaces with the City’s TPA, including providing daily unit value reporting, monthly and quarterly statements, attendance at City meetings and with the DCP consultant, and support for generating participant communication and education materials. All candidates were capable of providing the required reporting and administration. In addition, all firms are able to strike a daily NAV.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Administrative and Reporting</b>					
Able to provide a daily NAV?					
Excellent					
Favorable					
Reasonable					
Less Desirable					

## Passive Small Cap Equity

**Fees:** All candidates offer competitive fees, well below their peer group median fee of 0.29% and within the RFP's fee requirement of 0.04% or less. Projected fee savings are only seen with BlackRock and Fidelity and are relatively minor.

Summary Evaluation	BlackRock	Fidelity	Northern Trust	State Street	Vanguard - Incumbent
<b>Fees</b>	Excellent	Favorable	Reasonable	Less Desirable	Less Desirable



## Passive Small Cap Equity

### Fees

Fund	Lending / Non-Lending	Vehicle Type	Ticker / CUSIP	Net Expense Ratio <sup>1</sup>	Estimated Expense Based on 12/31/20 Assets (\$)	Estimated Expense Difference vs Incumbent
BlackRock	Lending	CIT	TBD <sup>2</sup>	0.0189%	\$ 26,453	\$ (15,536)
Fidelity	Lending	MF	FSSNX	0.0260%	\$ 36,390	\$ (5,598)
Northern	Lending	CIT	TBD <sup>3</sup>	0.0400% <sup>4</sup>	\$ 55,985	\$ 13,996
State Street	Lending / Non -Lending	CIT	857480602	0.0350% <sup>5</sup>	\$ 48,987	\$ 6,998
Vanguard – Incumbent	Lending	MF	VSCPX	0.0300%	\$ 41,989	-

<sup>1</sup> Some expense ratios may currently have an expense cap or fee waiver that can be changed by the manager at any time.

<sup>2</sup> BlackRock would launch a new CIT share class for the City

<sup>3</sup> Northern would launch a new CIT share class for the City

<sup>4</sup> Proposed share class with lending has not been launched, management fee is 0.02% and estimated admin cap is 0.02%. Northern Trust also proposed Index Bundled (if selected for all 4 passive strategies) and All Bundled fees (if selected for all 4 passive and active small cap value strategies); please see Appendix for more details.

<sup>5</sup> Non-Lending trust shown. Also available in lending trust with an expense ratio of 0.02%.

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## Appendix

Northern Trust - Net of fees stated in Basis Points (DC Spoke Funds)

		Non-Lending			Lending	
		CUSIP	Standalone	Index Bundled	Standalone	Index Bundled
<b>Quality Small Cap Value</b>		66586Y603	50 bps	50 bps	50 bps (Not Launched)	50 bps (Not Launched)
Admin cap			5 bps	5 bps		
Actual admin fees			5 bps	5 bps		
<b>Barclays Aggregate</b>		66586U544	1.75 bps	1.75	1.25 bps (Not Launched)	1.25 bps (Not Launched)
Admin cap			0.80 bps	0.80		
Actual admin fees			0.53 bps	0.53		
<b>S&amp;P 500</b>		66586Y777	0.35 bps	0.35 bps	0.25 bps (Not Launched)	0.25 (Not Launched)
Admin cap			0.60 bps	0.60 bps		
Actual admin fees			0.50 bps	0.50 bps		
<b>Russell 2000</b>	Tier 3 cusip	66586W391	3.00 bps	2.00 bps	2 bps (Not Launched)	1 bp(Not Launched)
Admin cap	Tier 4 cusip	66586U510	1.25 bps	1.25 bps		
Actual admin fees			1.05 bps	1.05 bps		
<b>S&amp;P 400</b>	Tier 3 cusip	66586U841	2.00 bps	1.50 bps	1.5 bps (Not Launched)	1 bp (Not Launched)
Admin cap	Tier 4 cusip	66586U494	1.00 bps	1.00 bps		
Actual admin fees			0.85 bps	0.85 bps		

Source: Northern Trust

**Northern Trust Notes:**

**Tier 3 CUSIPs represent applicable class if standalone structure is used**

**Tier 4 CUSIPs represent applicable class if bundled structure is selected**

Definitions of pricing

Standalone: investment management fee pricing for individual mandate only

Index bundled: investment management fee pricing if Northern Trust Investments, Inc. awarded all passive mandates (S&P 500, S&P 400, Russell 2000, and Aggregate Bond)

All bundled: investment management fee pricing if Northern Trust Investments, Inc. awarded active Small Cap Value Equity and all passive mandates (S&P 500, S&P 400, Russell 2000, and Aggregate Bond)

We classify Hub Funds as gross of fees and DC Spoke Funds as net of fees based on how these funds are billed

The total annual operating expenses are investment management fees Plus administrative fees listed.

The administrative fees are taken out at the fund level and there are no hidden fees. City of Los Angeles Deferred Compensation Plan will only be invoiced on the management fee.

The investment management fees will remain in place for the duration of the contract.

The stated capped admin fees are not expected to change.

The actual admin fees will vary by year but will not exceed stated capped admin fees.

Where a vehicle has (Not Launched) indicated, we welcome a dialogue for the City of Los Angeles Deferred Compensation Plan to seed a new net of fee Collective Investment Trust

(Northern Trust Investments, Inc. would cover the administrative expenses to launch the new CIT).

Our net of fees Collective Funds can trade via NSCC and allow optimal pricing and ease of billing as the investment management fee for each fund is taken out daily.

Our net of fee Collective Funds also allow for streamline net of fee reporting to participants, eliminating the need for customized reporting by the City of Los Angeles Deferred Compensation Plan.

We have a robust relationship with Voya; we currently trade lending, non-lending, hub funds and net-of-fee spoke CITs and simply would amend our current agreement.

We classify Hub Funds as Gross of Fees and DC Spoke Funds as Net of Fees based on how these funds are billed.

## **Appendix B: Descriptions of performance exhibits**

### **Description of Universe calculation**

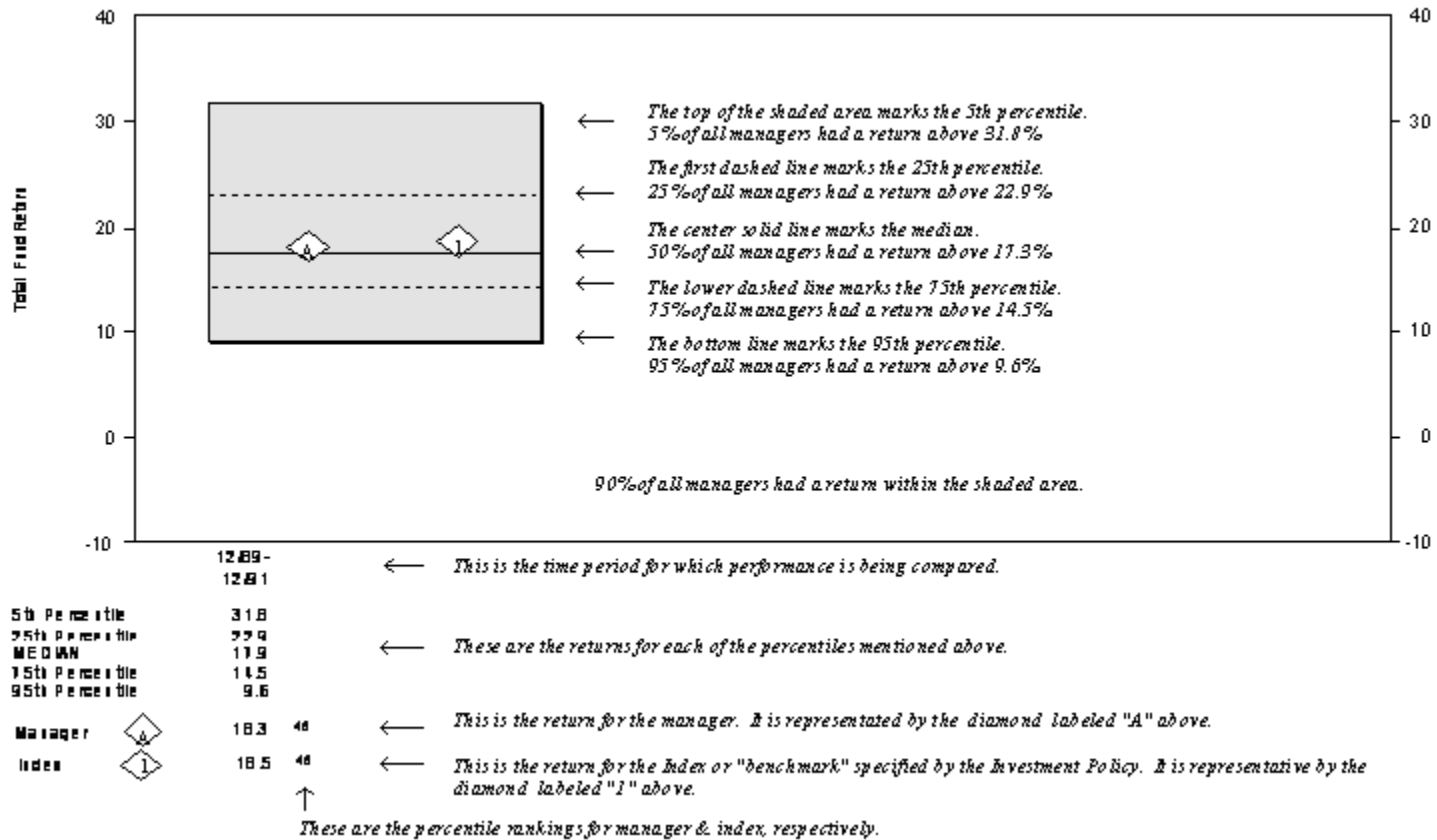
Mercer Manager Universes are constructed using the composite portfolios submitted by investment managers to the Research Unit for evaluation. Each portfolio is reviewed and, based on Mercer's professional judgement, placed within the appropriate universe, which contains similarly managed portfolios.

Universes are calculated by sorting the returns from highest to lowest for each unique time period independently. The highest return is assigned the rank of zero (0) and the lowest a rank of 100. Depending on the number of observations between these two points, the remaining results are normalized to create the percentile rankings.

Results longer than one year are annualized.

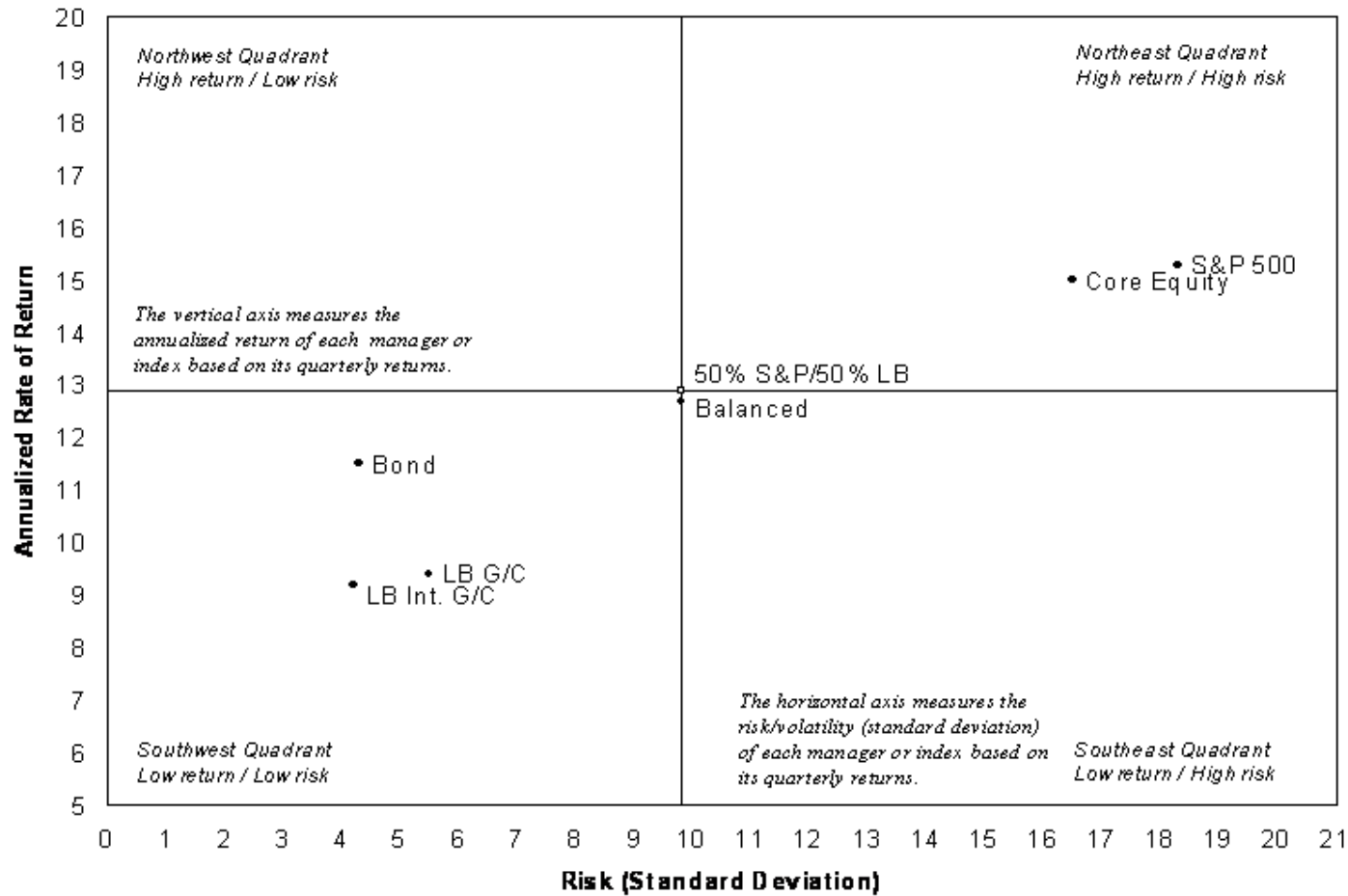
## Appendix B

### Description of performance graph



## Appendix B

### Description of Risk / Return graph



## Appendix C: Glossary of terms

**ADR** American Depository Receipt is a receipt for shares of a foreign company held by a U.S. bank, facilitating receipt of dividends and simulating purchase of the stock.

**Agency Bonds** Debt obligations issued by government sponsored organizations such as the Federal Home Loan Bank and the Federal Land Bank. After Treasuries, agency bonds are considered to be the next highest quality securities in the domestic fixed income market.

**Alpha** A measure of value added provided by the manager. Specifically, alpha is the excess portfolio return compared to the risk-adjusted benchmark.

**Asset Allocation** The combination of assets in a portfolio to different asset types such as common stocks, bonds, cash, real estate, venture capital, etc. Different approaches to the asset allocation decision are employed such as strategic, dynamic or tactical.

**Asset-Backed Security** A collateralized fixed-income security which is supported by installment loans (autos, mobile homes, boats, etc.) or revolving lines of credit (credit cards). Asset-backed securities generally have AAA ratings based on recourse provisions or third-party credit enhancements. Most collateral behind asset-backed securities is subject to prepayment. However, unlike mortgage-backed securities, prepayments are virtually unaffected by changing market interest rate levels.

**Association for Investment Manager Research (AIMR)** An international, non-profit organization whose mission is to serve its members and investors as a global leader in educating and examining investment managers and analysts and sustaining high standards of professional conduct. AIMR's membership is global in scope, and its activities are worldwide.

**AIMR Level I Verification** Independent attestation that the requirements of the AIMR Performance Presentation Standards (PPS) have been met on a firm-wide basis.

**AIMR Level II Verification** Independent attestation that the performance results of specific composites have been calculated according to the AIMR-PPS standards, and that the requirements of the AIMR Performance Presentation Standards (PPS) have been met on a firm-wide basis.

**Balanced (asset class)** Investments in common stock, preferred stock and bonds which are combined in an effort to obtain the highest return consistent with a low-risk strategy. A balanced portfolio typically offers a higher yield than a pure stock fund and performs better than such a fund when stocks are falling. In a rising market, however, a balanced portfolio usually will not keep pace with an all-equity portfolio.

**Base Currency** The currency of an investor's home country.

**Basic Industry** A sector classification which includes securities of firms that convert raw materials into unfinished products.

**Basis Point** 1/100th of 1.0%, or 0.01%.

**Blend** An evaluation of securities using a combination of fundamental and quantitative methods.

**Bottom-up** A money-management style which begins with security selection.

**Callable Bond** A bond which can be "called" (i.e., redeemed) by the issuer at a date prior to maturity. If interest rates drop significantly below a callable bond's coupon, the issuer can call the bond and refinance it at a lower rate. From a bond investor's perspective, the proceeds received when the bond is called will have to be reinvested at a lower rate. Thus, callable bonds expose bondholders to reinvestment risk. The bond investor receives compensation for this disadvantage in the form of a higher yield.

**Capital Goods** A sector classification which include securities of firms that are involved in the production of other goods--industrial buildings, machinery, equipment--as well as highways, office buildings, government installations. In the aggregate such goods form a country's productive capacity.



## Appendix C

**Capitalization** Market value times shares outstanding (common stock).

**Cash Equivalents** All fixed income securities that are highly liquid, with a known market value and a maturity, when acquired, of less than three months.

**CMO** Collateralized Mortgage Obligation is a security which groups mortgage pass-through bonds together and partitions the cash flows into successive maturity groups called tranches. CMOs attempt to mitigate prepayment risk by transferring the various degrees of prepayment risk among different tranches; thus, each tranche has different risk and return characteristics.

**Commingled Fund** An investment fund in which the manager pools the assets of several accounts to permit more efficient management and to reduce administrative cost. Also called collective investment funds, common funds or pooled funds.

**Confidence Level** The degree of certainty associated with a statistical measure, such as a t-statistic. In the context of this report, the confidence level provides insight into whether the manager's results were due to skill or luck. For example, with 20 or more observations, a t-statistic of 1.73 generally implies a confidence level of at least 95%; this means that there is only a 5% chance that the result was due to blind luck.

**Consumer Durables** A sector classification which includes securities of firms whose products, bought by consumers, are expected to last three years or more. These include automobiles, appliances, boats, and furniture. Economists look at the trend in consumer expenditure on durables as an important indicator of the strength of the economy, since consumers need confidence to make such large and expensive purchases.

**Consumer Non-Durables** A sector classification which includes securities of firms that provide consumable products such as food or drugs.

**Consumer Services** A sector classification which includes securities of firms that provide a service to the consumer rather than a product.

**Convertible Securities** These obligations include bonds, debentures, or preferred stock which may be exchanged by their owners for common stock -- usually in the same corporation. The terms which must be met to exercise this right of exchange are usually specified for each issue.

**Convexity** A measure of interest rate sensitivity. To demonstrate the concept, if bonds A and B have the same duration, but bond B has greater convexity, then the price of bond B will increase more than bond A if interest rates fall. Similarly, if rates increase, the price of bond B will fall less than the price of bond A. Investors who buy the price of bonds with a high degree of convexity will have to pay for convexity in the form of accepting a lower yield.

**Core Style** A strategy with investments in a large number of securities within a market capitalization range. Unlike an index strategy, a core strategy does try to exceed the return of the target index.

**Corporates** Debt obligations issued by private corporations. This type of debt instrument varies greatly in quality and liquidity as the terms of the obligation and the financial health of the issuer are factored in by the market.

**Correlation Coefficient** A statistical measure of the degree to which the movements of two variables are related. A correlation of 1.0 indicates that the two variables move perfectly in tandem. A correlation of 0.0 indicates a random relationship between the variables, and a correlation of -1.0 indicates perfect negative correlation (perfect tandem but in opposite directions). Combining assets in a portfolio with negative correlations or with positive correlations less than 1.0 will reduce total portfolio volatility.

**Country Weighting** The percentage exposure a portfolio has to the securities of a given country.

**Coupon** The annual rate of interest that the bond issuer promises to pay the bondholder.

**CPI** Consumer Price Index is a measure of the cost of a basket of consumer items. Changes in the index are generally accepted as a proxy for inflation.

## Appendix C

**Cross Hedging** A cross hedge occurs when a foreign currency is hedged to another foreign currency instead of into the base currency (the U.S. dollar for U.S. investors). Managers may cross hedge when they want added currency exposure to a country.

**Cross-Sectional Beta** Beta is a measure of a portfolio's return volatility relative to the market (benchmark index). An estimate of the cross-sectional beta of a portfolio is a weighted average of the betas of the portfolio's component assets. A beta of 1.00 means a stock has exhibited the same volatility as the market over the period measured. A beta of 0.85 means, in general, a stock is less volatile than the market (moves 0.85% for each 1.00% move in the market) where a beta of 1.15 means a stock is more volatile than the market (moves 1.15% for each 1.00% move in the market).

**Currency Hedging** International managers may use currency hedges to minimize the effect of currency fluctuation against the U.S. dollar. A 100% hedge will neutralize the effect while a partial hedge will reduce the effect.

**Current Yield** A bond's coupon rate divided by the bond's current price.

**Debt to Equity** The ratio of long-term debt to total common equity.

**Derivative** A financial instrument whose value is "derived" from or based upon the value of other financial instruments or the level of a financial index. Also refers to financial instruments which have complex structures with option-like features. Futures, options and currency forward contracts are examples of derivatives.

**Diversification** The reduction in risk that is sought by investing in assets which are not perfectly positively correlated. Diversification is the spreading of risk among a number of different investment opportunities. Since the assets are not perfectly correlated, losses of any one asset tend to be offset by gains on other assets.

**Dividend** A payment to owners of common or preferred stock. Dividends are usually paid out of the current earnings of a corporation. On preferred stock shares, the dividend is usually a fixed amount. On common stock

shares, the dividend will vary with the fortunes of the corporation. Dividends are usually declared and paid quarterly.

**Dividend Yield** The current dividend per share of a stock divided by its current price per share. For example, a stock with a price of \$100 per share paying a dividend of \$5 per share would have a dividend yield of  $\$5/\$100=5\%$ .

**Down Market** A quarter in which the market return is negative.

**Duration** A measure of a bond's price volatility relative to a change in the general level of interest rates, measured in years. It is a measure of the number of years until the average dollar, in present value terms, is received from coupon and principal payments. In general, bonds with longer durations have greater sensitivity to interest rates and vice versa.

**Duration - Active** Average portfolio duration is allowed to vary outside of a 20% range around the benchmark's duration.

**Duration - Controlled** Average portfolio duration is maintained within a 20% range around the benchmark's duration.

**Duration - Neutral** Average portfolio duration is maintained close to the benchmark's duration.

**Duration - Tightly Controlled** Average portfolio duration is maintained within a 10% range around the benchmark's duration.

**Dynamic Asset Allocation** An approach (such as portfolio insurance) where are investments hedged through the use of derivatives to theoretically limit any losses beyond a floor level.

**Earnings Per Share (EPS)** That portion of a company's profit allocated to each outstanding share of common stock.

**Earnings Per Share Growth Rate** The rate at which the earnings per share grows over various time periods.

## Appendix C

**Economic Risk** The probability that economic conditions will deteriorate and thereby affect the safety of a company.

**Effective Asset Allocation** Tool to discern style orientation of a portfolio. The concept of effective asset allocation was introduced by Professor William F. Sharpe in 1988. Mercer has applied Sharpe's concept by developing its own version of effective asset allocation. Mercer's model regresses a minimum of five years of quarterly returns on a maximum of five various style indices. The coefficients of the linear combination are fitted using a quadratic rather than a linear program in order for the coefficients to lie within a specified range. These coefficients must sum to one, but lie between zero and one. In addition, the constant term (alpha) is omitted. The resulting coefficients are interpreted as the "effective asset allocation" of the manager's investment style. With this model, we can distinguish the investment styles of both equity and fixed income managers.

**Effective Duration** Also known as option-adjusted duration, a measure of how sensitive a bond's price is to interest rate changes with the option and structural characteristics of the bond taken into account.

**Energy** A sector classification which includes securities of firms that produce and/or sell oil, oil service, gas, solar energy, coal companies and makers of energy saving devices.

**Equity** Investment or ownership interest possessed by shareholders in a corporation -- stock as opposed to bonds.

**Eurodollar Bonds** A U.S. dollar denominated bond issued and traded outside the jurisdiction of the United States.

**Finance** A sector classification which includes securities of firms that engage in making loans to individuals or businesses.

**Fixed Income** Debt instruments issued by corporations, governments or government agencies characterized by a fixed interest rate and stated maturity date. These represent the terms of the arrangement between someone who borrows money and someone who lends it.

**Foreign Exchange** Transactions involving the purchase and sale of currencies.

**Forward Market** A market in which participants agree to trade some commodity, security, or foreign exchange at a fixed price at some future date.

**Forward Rate** The rate at which forward transactions in some specific maturity are being made, e.g., the dollar price at which Deutschmarks can be bought for delivery three months hence.

**Fundamental** A qualitative method of evaluating securities by attempting to measure the underlying value of a particular stock using traditional security analysis.

**Growth at a Reasonable Price Style** An investment style employed by investment managers who invest in companies which have superior growth prospects. However, security selection techniques try to identify those companies that are underpriced relative to other companies in the same industry or sector.

**Growth Style** An investment style employed by investment managers who invest in companies that have superior growth prospects. Generally, these companies have higher price to earnings and price to book ratios and lower dividend yields.

**Health Services** A sector classification which includes securities of firms that provide health related services or products.

**Hedging** Strategy used to offset investment risk.

**High Yield** Bonds rated BB (Ba) or lower by Standard & Poor's Corporation and Moody's Investor Service. High yield bonds are lower quality than investment grade bonds and have greater credit risk.

## Appendix C

**Historical Beta** Beta is a measure of a stock's (or portfolio) return volatility relative to the market (benchmark index). A beta of 1.00 means a stock has exhibited the same volatility as the market over the period measured. A beta of 0.85 means, in general, a stock is less volatile than the market (moves 0.85% for each 1.00% move in the market) where a beta of 1.15 means a stock is more volatile than the market (moves 1.15% for each 1.00% move in the market). An estimate of the historical beta of a portfolio is based on a simple linear regression of the portfolio returns.

**Information Ratio** A measure of the consistency of value added by an investment manager. Specifically, the information ratio is the average alpha divided by the variability of alpha.

**Intermediate-Term Bond** Bonds with a maturity between three and ten years.

**Investment Grade** Bonds rated BBB (Baa) or higher by Standard & Poor's Corporation and Moody's Investment Services. Investment grade bonds are higher quality than high yield bonds and have lower credit risk.

**Kurtosis** A measure of the relative peakedness or flatness of a distribution compared to the normal distribution. Positive kurtosis indicates a relatively peaked distribution. Negative kurtosis indicates a relatively flat distribution.

**Limited Partnership** An organization made up of a general partner, who manages a project, and limited partners, who invest money but have limited liability, are not involved in day-to-day management, and usually cannot lose more than their capital contribution. Typically, public limited partnerships are sold through brokerage firms, for minimum investments of \$5,000, whereas private limited partnerships are put together with fewer than 35 limited partners who invest more than \$20,000 each.

**Local Currency** The currency of the same country as a security or index.

**Long-Term Bond** A bond with a maturity of ten years or more.

**Market Average Capitalization** The average market (equity) capitalization of an aggregate portfolio of equity securities weighted by the proportion of each security to the total portfolio.

**Market Timing** A practice whereby a manager shifts between asset classes depending on the expected performance of each class. Can include timing between stocks and cash, or an unlimited number of asset classes. (see Tactical Asset Allocation.)

**Maturity** The date on which the principal or stated value of a bond becomes due and payable in full to the bondholder.

**Maturity Structure** The distribution of bonds in a portfolio across the maturity spectrum.

**Maturity Structure - Actively Managed** The portfolio's distribution of bonds by maturity will vary over time in order to benefit from temporary valuation differences among maturity ranges or expected shifts in the yield curve.

**Maturity Structure - Laddered** Bonds held in a portfolio are evenly distributed across the maturity spectrum.

**Maturity Structure - Neutral** The distribution of bonds by maturity in a portfolio is similar to the benchmark.

**Median Market Capitalization** The middle market value in a distribution of stock holdings.

## Appendix C

**+Mortgage-Backed Security** A collateralized fixed income security in which a group of mortgages are pooled together and act as collateral for the issuance of the security. Depending on the specific structure of the security, some combination of principal and interest payments of the underlying mortgages are “passed through” to the security holder. Types of mortgages that serve as collateral include: level payment fixed rate mortgages, adjustable rate mortgages, balloon mortgages, and graduated payment mortgages. The majority of these securities are issued and/or guaranteed by government agencies such as GNMA (Government National Mortgage Association - “Ginnie Mae”), FNMA (Federal National Mortgage Association - “Fannie Mae”), and FHLMC (Federal Home Loan Mortgage Corporation - “Freddie Mac”). Only GNMA is an arm of the US government and as such, is backed by the full faith and credit of the US government. FNMA and FHLMC, which are government-sponsored entities, are generally recognized as AAA quality due to their close ties to the US government.

**Municipal Bonds** Bonds issued by a state or local government or one of its agencies to supplement tax revenues for use in operating or capital expenditures. These debt instruments come in one of two forms, general obligation bonds and revenue bonds. Typically these bonds are exempt from federal and sometimes state and local taxes.

**Mutual Fund** An investment fund in which the investment company raises money from shareholders and invests in stocks, bonds, options, futures, currencies, or money market securities. These funds offer investors the advantages of diversification and professional management.

**Non-U.S. Dollar Bonds** Bonds issued by foreign governments, corporations or other entities whose value is denominated in a currency other than the U.S. dollar. Non-U.S. dollar bonds incur currency risk to a U.S. based investor.

**Peer Group** A narrowly defined group of investment managers who use a similar investment style, such as value investment managers.

**Percentile Rank** Time-weighted rates of return are ranked against Mercer universes or peer groups. For example, an investment manager’s return may rank at the 20th percentile of a particular Mercer universe or peer group. This indicates that 80% of the investment managers in the sample had lower performance. The highest percentile rank is 1 and the lowest is 100. Bars in graphic displays are divided by percentiles with the top of each bar denoting the 5th percentile followed by lines for the 25th, 50th (median), 75th, and 95th percentiles.

**Political Risk** The probability that a company will be affected by political actions.

**Portfolio Turnover** Volume of shares traded as a percentage of total shares currently held in the portfolio during a given period of time.

**Price to Book Ratio (P/B)** The current price of a stock divided by its book value per share. For instance a stock selling for \$20 a share whose book value is \$5 per share has a P/B of 4.

**Price to Earnings Ratio (P/E)** The current price of a stock divided by its earnings per share. For instance, a stock selling for \$20 a share that earned \$2 per share in the last 12 months has a P/E ratio of 10. Mercer excludes companies with negative earnings in its calculation.

**Quality Rating** A measure of a bond issuer’s credit quality, or its ability to meet future contractual obligations. Two widely used bond rating systems are those of Moody’s Investor Service and Standard & Poor’s Corporation.

**Quantitative** A systematic method of evaluating securities using a model composed of ranking or rating tools.

**Quartile** Represents a range of twenty-five percent of the outcomes. A first quartile rank means that the manager performed in the top twenty-five percent of its peer group or universe.

## Appendix C

**Return on Equity (ROE)** An amount, expressed as a percentage, earned on a company's common stock investment for a given period of time. It is calculated by dividing net income for the accounting period by common stock equity (net worth) at the beginning of the period.

**Return/Risk Comparison** Analysis that presents the rate of return in relation to the volatility of those returns as measured by the annualized standard deviation of quarterly returns.

**Sector Biased** The portfolio tends to have a concentration in a particular sector or maintains sector weightings which are significantly greater than or less than those of the benchmark's over all market environments.

**Sector Neutral** The portfolio's allocation among sectors is similar to that of the market.

**Sector Rotation** A portfolio's sector distribution will vary over time according to perceived valuation differences among different sectors and sub-sectors.

**Semi Standard Deviation** A measure of the downside volatility of returns.

**Separate Account** A single portfolio managed for a client.

**Short-Term Bond** A bond with a maturity less than three years.

**Skewness** A measure of the degree of asymmetry of a distribution around its mean. Positive skewness indicates a distribution of excess return over the benchmark with an asymmetric tail extending towards more positive values. Negative skewness indicates a distribution of excess return over the benchmark with an asymmetric tail extending towards more negative values.

**Spot Market** Market for immediate delivery (as opposed to future delivery). In the spot market for foreign exchange, settlement is two business days ahead.

**Spot Price** The current market price.

**Standard Deviation** A measure of the dispersion of a set of numbers around the average. In a regression analysis (which assumes a normal distribution), 68% of the data points fall between 1 standard deviation below the average and 1 standard deviation above.) Standard deviation is frequently used as a measure of risk (see Return/Risk Comparison).

**Strategic Asset Allocation** An approach where an asset allocation policy is established for the long run and the portfolio is invested at that static mix.

**Systematic Risk** The component of return that is associated with the broad-based market. Systematic risk is the volatility of rates of return on stocks or portfolios associated with changes in rates of return on the market as a whole.

**T-Statistic** Used to measure statistical significance, a t-statistic is a standardized ratio which measures how significantly far apart two measures are. To calculate the t-statistic of excess returns versus a benchmark, three measures are required: the average quarterly excess return over the benchmark, the standard deviation of quarterly excess returns and the square root of the number of observations. Divide the average excess return by the standard deviation, then multiply this ratio by the square root of one less than the number of observations.

**Tactical Asset Allocation** An approach where the weighting to different asset classes is changed frequently - up to several times per year - as a function of the expected performance from each asset class in the short run (see Market Timing).

**Target Index Return** The return derived from a portfolio invested in benchmark indices and weighted according to policy asset allocation targets.

**Technology** A sector classification which includes securities of firms that provide technology related services or products.

## Appendix C

**Time-Weighted Rate of Return** A rate of return calculation. The time-weighted method minimizes the impact of cash flows on rate of return calculations. Time-weighted returns are an appropriate measure of an investment manager's performance, since investment managers may not have direct control over the timing or amount of cash flows directed to them.

**Top-Down** A money management style which begins with an assessment of the economy as a whole.

**Tracking Error** A measure of how much a return series deviates from its benchmark. Mercer measures the tracking error by the annualized standard deviation of quarterly excess returns.

**Transportation** A sector classification which includes securities of firms that provide transportation related services or products.

**Treasury Securities** Bonds which are direct debt obligations of the U.S. government issued by the U.S. Treasury. Backed by the "full faith and credit" of the United States, these bonds are considered among the safest of investments carrying AAA/Aaa ratings. Treasury Bills are short-term securities issued with three-month, six-month, and one-year maturities. Notes are intermediate-term obligations available in maturities of one to ten years. Bonds are long-term obligations with maturities greater than ten years.

**Universe** A broadly defined group of investment managers. For example, a group of equity investment managers.

**Unsystematic Risk** The variability not explained by general market movements.

**Up Market** A quarter in which the market return is positive.

**Utilities** A sector classification which includes securities of firms that own or operate facilities used for the generation, transmission, or distribution of electric energy. Utilities distribute electricity, gas and water to their customers. Utility stocks usually offer above-average dividend yields to investors, but less capital appreciation potential than growth stocks. Utility stocks are also very sensitive to the direction of interest rates. Rising interest rates tend to harm the value of utility shares because higher rates provide a more attractive alternative to investors. In addition, utilities tend to be heavy borrowers, so higher interest rates add to their borrowing costs. Conversely, falling interest rates tend to buoy the value of utility stocks because utility dividends look more attractive and because the companies' borrowing costs will be reduced.

**Value Style** An investment style employed by investment managers who invest in companies that appear to be undervalued relative to the market. Generally, these companies have lower price to earnings and price to book ratios and higher dividend yields.

**Yankee Bonds** A U.S. dollar-denominated bond issued by foreign banks and corporations in the U.S. market.

**Yield Curve** A graph showing the relationship between yield and maturity for a set of similar securities.

**Yield to Maturity** Internal rate of return on a bond bought at the current price and held to maturity. This assumes that coupon income is reinvested at the yield to maturity.

**Yield to Worst** The yield to maturity under the least desirable of all possible bond repayment patterns under the assumption that market yields are unchanged. If market yields are higher than the coupon, the yield to worst would assume no prepayment. If market yields are below the coupon, yield to worst would assume prepayment at the earliest call date.

## **Appendix D: Description of Indices**

### **Equity Indices**

#### **American Stock Exchange**

The American Stock Exchange Index (AMEX) contains issues of medium and smaller-sized companies, representing less than 5% of the market value of all U.S. stocks. The index represents all major industry groups and includes American Depository Receipts and warrants. The index is market value-weighted.

#### **Dow Jones Industrial Average**

The Dow Jones Industrial Average (DJIA) contains 30 actively traded blue-chip stocks. The 106-year-old average is the best-known U.S. stock average. The editors of the Wall Street Journal, which is owned by Dow Jones select the stocks. All but three of the stocks are listed on the New York Stock Exchange. In October of 1999, Microsoft Corp. and Intel Corp were the first NASDAQ Stock Market stocks to be included in the DJIA. The stocks are generally leaders in their industry. The DJIA purpose is to represent US listed equities, excluding transportation and utility stocks. The Dow is a price-weighted arithmetic average.

#### **FTSE KLD 400 Social Index**

The FTSE KLD 400 Social Index (KLD400) is a float-adjusted, market capitalization-weighted, common stock index of U.S. equities. Launched by KLD in May 1990, the KLD400 (formerly KLD's Domini 400 Social Index) is constructed using environmental, social and governance (ESG) factors. The Domini 400 Social Index was renamed the FTSE KLD 400 Social Index in July 2009. It is a widely recognized benchmark for measuring the impact of social and environmental screening on investment portfolios. The index consists of 400 U.S. stocks, which are screened on factors such as military contracting, alcohol and tobacco, gambling, nuclear power, environmental management and employee relations.



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### MSCI EAFE

The MSCI Europe, Australasia and the Far East (EAFE) Index is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the US & Canada. The index is market value-weighted and calculated both with net and gross dividends reinvested. The index consists of approximately 1,000 securities from the following 21 countries:

Australia	Denmark	Germany	Ireland	Netherlands	Portugal	Sweden
Austria	Finland	Greece	Italy	New Zealand	Singapore	Switzerland
Belgium	France	Hong Kong	Japan	Norway	Spain	United Kingdom

### MSCI EAFE (GDP-Weighted)

The MSCI Europe, Australasia and the Far East (EAFE) GDP-Weighted Index is designed to reflect the size of a country's economy rather than the size of its equity market, by using country weights based on a country's gross domestic product (GDP)..

### MSCI Emerging Markets

The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. The index consists of the following 22 emerging markets country indices:

Brazil	Czech Republic	Indonesia	Mexico	Poland	Thailand
Chile	Egypt	Israel	Morocco	Russia	Turkey
China	Hungary	Korea	Peru	South Africa	
Colombia	India	Malaysia	Philippines	Taiwan	

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### MSCI World Index

The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. The index measures the performance of stock markets in the United States, Europe, Canada, Australia, New Zealand and the Far East and currently consists of securities from the following 23 countries: The index is market value-weighted and calculated both with net and gross dividends reinvested.

Australia	Denmark	Greece	Japan	Portugal	Switzerland
Austria	Finland	Hong Kong	Netherlands	Singapore	United Kingdom
Belgium	France	Ireland	New Zealand	Spain	United States
Canada	Germany	Italy	Norway	Sweden	

### NASDAQ Composite

The National Association of Securities Dealers, a network of brokers, sponsors the NASDAQ (National Association of Securities Dealers Automated Quotation system). It is often called the OTC (over-the-counter) market. Unlike the NYSE and AMEX, the OTC has no trading floor and no auction market. It is a dealer to dealer market that operates via an electronic network.

The NASDAQ Composite Index measures all NASDAQ domestic and non-U.S. based securities. The NASDAQ Composite includes over 3,000 issues. The composite is a market value-weighted index calculated on a total return basis including dividends. The index represents many small company stocks but is heavily influenced by about 100 of the largest NASDAQ issues.

### NASDAQ 100

The NASDAQ 100 Index includes 100 of the largest domestic and international non-financial companies listed on The NASDAQ Stock Market based on market capitalization. The NASDAQ 100 Index is a modified capitalization-weighted index which is designed to limit domination of the index by a few large stocks while retaining the capitalization ranking of companies. To be eligible for inclusion in the index, a stock must have a minimum average daily trading volume of 200,000 shares. Component stocks are adjusted quarterly to reflect changes in market capitalization.

### New York Stock Exchange

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The New York Stock Exchange Index (NYSE) is the largest equities marketplace in the world. It represents approximately 80% of the value of all publicly owned companies in America. The NYSE has the most stringent listing requirements of any stock exchange in the United States. Because of the Exchange listing requirements, the stocks tend to be larger, well established companies. The NYSE uses a specialist system of trading. The specialist brings buyers and sellers together on the Exchange floor and will buy or sell shares if there is an imbalance of orders. The index is market value-weighted and calculated on a total return basis with dividends re-invested.

### **Russell 1000**

The Russell 1000 is intended to represent the universe of stocks in which most active equity managers invest. The index measures the performance of the 1,000 largest companies in the Russell 3000 Index, which represents approximately 92% of the total market capitalization of the Russell 3000 Index. The index is market value-weighted and restated annually based on May 31 market capitalization rankings.

### **Russell 1000 Growth**

The Russell 1000 Growth Index is intended to be a benchmark for growth managers. The stocks are selected from the Russell 1000 Index, which currently contains approximately 1,000 of the largest U.S. equity stocks by market capitalization. The index includes those stocks, which have had high earnings per share growth rate, high dividends per share growth rate, high price earnings ratio, high price book ratio, and a low dividend yield relative to the market.

The Russell 1000 securities are ranked by adjusted book to price ratios and by the I/B/E/S (Institutional Brokers Estimate System) growth rate. These ranks are then normalized into common units and combined to arrive at a composite rank. A company's composite rank is then used to determine its probability of being growth or value.

Companies with probabilities of 100% growth are placed entirely in the growth index. Companies with probabilities of being partially growth and value are held in both indexes according to their probability, i.e., a company with an 80% probability of growth would have 80% of its available market cap in the growth index and 20% in the value index. Inception is 12/31/83.

### **Russell 1000 Value**

The Russell 1000 Value Index is intended to be a benchmark for value managers. The securities are chosen from the Russell 1000 Index, which currently contains approximately 1,000 of the largest U.S. equity stocks by market capitalization. The index includes those stocks, which have a low price to book ratio, low price earnings ratio, high dividend yield and a low earnings per share growth rate.

The Russell 1000 securities are ranked by adjusted book to price ratios and by the I/B/E/S (Institutional Brokers Estimate System) growth rate. These ranks are then normalized into common units and combined to arrive at a composite rank. A company's composite rank is then used to determine its probability of being growth or value.

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Companies with probabilities of 100% value are placed entirely in the value index. Companies with probabilities of being partially growth and value are held in both indexes according to their probability, i.e., a company with an 80% probability of value would have 80% of its available market cap in the value index and 20% in the growth index. Inception is 12/31/83.

### **Russell 2000**

The Russell 2000 is intended to be a small capitalization market proxy. The index currently consists of approximately the 2,000 smallest stocks in the Russell 3000, representing approximately 10% of the total U.S. equity market. The index is restated annually based on May 31 market capitalization rankings.

### **Russell 2000 Growth**

The Russell 2000 Growth Index contains those Russell 2000 securities, which have a greater-than-average growth orientation. These securities generally have higher price-to-book and price-earnings ratios than those securities in the Russell 2000 Value Index.

The Russell 2000 securities are ranked by adjusted book to price ratios and by the I/B/E/S (Institutional Brokers Estimate System) growth rate. These ranks are then normalized into common units and combined to arrive at a composite rank. A company's composite rank is then used to determine its probability of being growth or value.

Companies with probabilities of 100% growth are placed entirely in the growth index. Companies with probabilities of being partially growth and value are held in both indexes according to their probability, i.e., a company with an 80% probability of growth would have 80% of its available market cap in the growth index and 20% in the value index. The index is restated annually based on May 31 market capitalization rankings. Inception is 12/31/83.

### **Russell 2000 Value**

The Russell 2000 Value Index contains those Russell 2000 securities, which have a less-than-average growth orientation. These securities generally have lower price-to-book and price-earnings ratios than those securities in the Russell 2000 Growth Index.

The Russell 2000 securities are ranked by adjusted book to price ratios and by the I/B/E/S (Institutional Brokers Estimate System) growth rate. These ranks are then normalized into common units and combined to arrive at a composite rank. A company's composite rank is then used to determine its probability of being growth or value.

Companies with probabilities of 100% value are placed entirely in the value index. Companies with probabilities of being partially growth and value are held in both indexes according to their probability, i.e., a company with an 80% probability of value would have 80% of its available market cap in the value index and 20% in the growth index. The index is restated annually based on May 31 market capitalization rankings. Inception is 12/31/83.

### **Russell 2500**

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The Russell 2500 Index measures the performance of the 2500 smallest companies in the Russell 3000 Index, which represents approximately 16% of the total market capitalization of the Russell 3000 Index.

### **Russell 3000**

The Russell 3000 Index currently consists of the largest U.S. company stocks by market capitalization. The Russell 3000 represents approximately 99% of the investable U.S. equity market. The index is restated annually based on May 31 market capitalization rankings.

### **Russell Midcap**

The Russell MidCap Index measures the performance of the 800 smallest companies in the Russell 1000 which represent approximately 35% of the total market capitalization of the Russell 1000 index.

### **S&P 500**

The S&P 500 index contains a representative sample of common stocks that trade on the New York and American Stock Exchanges and some over-the-counter stocks. The index represents about 86% of the market value of all the issues traded on the NYSE.

The index does not contain the 500 largest stocks. It has many relatively small companies in it because it is constructed of industry groups. Standard and Poor's first identifies important industry categories and allocates a representative sample of stocks to each group. The companies chosen to be in the S&P 500 generally do have the largest market values within their industry group.

The industry categories are grouped into ten sectors: Consumer Discretionary, Consumer Staples, Energy, Financials, Health Care, Industrials, Information Technology, Materials, Telecommunication Services and Utilities. The index is weighted by market capitalization and calculated on a total return basis with dividends reinvested.

### **S&P 500 Value & Growth**

The S&P Value and Growth indices were developed by Standard and Poor's in conjunction with BARRA using a method developed by William F. Sharpe of Stanford University.

The stocks in the S&P 500 are ranked from the lowest to highest price-to-book ratios. Then, starting with the company with the lowest price-to-book ratio, the market capitalization of each company is added until 50% of the total market capitalization of the S&P 500 has been reached. Those companies, which fall into this group, constitute the S&P Value Index and the remaining companies comprise the S&P Growth Index.

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Each index is capitalization-weighted and re-balanced semi-annually on January 1 and July 1. The indices are adjusted each month to reflect changes in the S&P 500. Companies, which are added to the S&P 500 are assigned to the Value or Growth Index, based on where their price-to-book ratio would have ranked at the most recent cut-off period.

### **S&P Midcap 400**

The S&P MidCap 400 Index consists of 400 domestic stocks which are chosen by a committee at Standard & Poor's based on market capitalization, liquidity and industry group representation. The index is made up of companies listed on the NYSE, NASDAQ, and AMEX. None of the companies within the S&P MidCap overlap with those included in the S&P 500 index. The index is market value-weighted.

### **S&P Midcap Value & Growth**

The S&P MidCap Value and Growth indices were developed by Standard and Poor's in conjunction with BARRA using a method developed by William F. Sharpe of Stanford University.

The stocks in the S&P MidCap 400 are ranked from the lowest to highest price-to-book ratios. Then, starting with the company with the lowest price-to-book ratio, the market capitalization of each company is added until 50% of the total market capitalization of the S&P 400 has been reached. Those companies, which fall into this group, constitute the S&P MidCap Value and the remaining companies comprise the S&P MidCap Growth Index.

Each index is capitalization-weighted and re-balanced semi-annually on January 1 and July 1. The indices are adjusted each month to reflect changes in the S&P MidCap 400. Companies which are added to the S&P MidCap 400 are assigned to the Value or Growth Index based on where their price-to-book ratio would have ranked at the most recent cut-off period.

### **S&P Smallcap 600**

The S&P SmallCap 600 index is designed to be a benchmark of small capitalization stock performance and an investable portfolio for passive replication purposes. S&P began development of the index by surveying active and passive small cap managers, quantitative research analysts, academics and traders to determine a small cap market value definition.

S&P converted this market capitalization range into percentiles of the entire stock market in order to account for fluctuations in performance over time. The \$600 million level converted into the 50th percentile and the \$80 million lower level became the 83rd percentile. This percentile range was used to select the index back history and is used to select future index constituents.

S&P applied the target percentile range to their Index Selection Database to create a small cap universe of 1,850 stocks. The following screens were then used to select the 600 companies: 1. Companies must trade on the New York, NASDAQ or American stock exchanges, 2. Companies must have a trading history of at least six months, 3. Stocks that do not trade on any three days during a 12-month period are removed, 4. Companies with stock prices below \$1.00 are removed, 5. Share turnover has to exceed 20% on an annualized basis, 6. Companies with 50% or more of the common shares owned by another corporation or 60% owned by insiders

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are removed, 7. Companies in bankruptcy or financial distress are eliminated, 8. Bid/Ask spreads calculated for 30 days must be 5% or less. The index was started on December 31, 1993, and a simulation for back history was used for returns back to January 1984.

### **Wilshire 4500**

The Wilshire 4500 Index measures the performance of all small and midcap U.S. equities. It is constructed using the Wilshire 5000 with the companies in the S&P 500 Composite excluded. The Wilshire 4500 is a misnomer, there are actually over 5,000 companies in the index. ADRs are excluded from the index. The Wilshire 4500 exchange distribution by market value is 35% NASDAQ, 63% NYSE and 2% AMEX.

### **Wilshire 5000**

The Wilshire 5000 Equity Index was created by Wilshire Associates in 1974 and has historical data back to December 1970. The index measures the performance of all U.S. headquartered equity securities with readily available price data. The Wilshire 5000 is a misnomer, there are actually over 7,000 stocks in the Index. The Wilshire 5000 exchange distribution by market value is 80% NYSE, 20% NASDAQ, and 1% AMEX. Non-domiciled US stocks, foreign issues and ADRs are excluded from the index. The index is computed on both an equal-weighted and value-weighted basis.

## **Fixed Income Indices**

### **Barclays Capital Global Aggregate**

The Barclays Capital Global Aggregate Index provides a broad-based measure of the global investment-grade fixed income markets. The three major components of this index are the U.S. Aggregate Index, the Pan-European Index and the Asian-Pacific Aggregate Index. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities, and USD investment grade 144A securities. All issues must be fixed rate, nonconvertible and have at least one year remaining to maturity.

### **Barclays Capital Global Treasury**

The Barclays Capital Global Treasury Index covers local currency-denominated debt of 30 countries. All issues must be fixed rate, nonconvertible and have at least one year remaining to maturity.

### **Barclays Capital U.S. Aggregate**

The Barclays Capital U.S. Aggregate Index covers the U.S. investment-grade, fixed-rate bond market and includes government and corporate bonds, agency mortgage pass-through securities, asset-backed issues, and ERISA-qualified CMBS. Price, coupon and total return are reported on a month-end to month-end basis. All returns are market value-weighted inclusive of accrued income.

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### **Barclays Capital U.S. Intermediate Aggregate**

The Barclays Capital U.S. Intermediate Aggregate Index consists of those bonds in the Government and Corporate Bond Indexes which have a maturity between one and ten years, and all Mortgage-Backed Securities and all Asset-Backed Securities within the Aggregate Index (i.e. the Aggregate Index less the Long Government/Corporate Index). The index was created to provide a broad based benchmark with a shorter duration than the Aggregate Index.

Price, coupon and total return are reported on a month-end to month-end basis. All returns are market value-weighted inclusive of accrued income.

### **Barclays Capital U.S. Agency**

The Barclays Capital U.S. Agency Bond Index consists of all publicly issued debt of the U.S. Government, quasi-federal corporations and corporate debt guaranteed by the U.S. Government with a minimum outstanding of \$250 million. Price, coupon and total return are reported on a month-end to month-end basis. All returns are market value weighted inclusive of accrued interest.

### **Barclays Capital U.S. Credit**

The Barclays Capital U.S. Credit Bond Index includes bonds issued by both U.S. and Non-U.S. corporations. To qualify all bonds must be SEC registered.

The Credit Index is subdivided into pure corporate (industrial, utility, and finance, including both U.S and Non U.S. corporations) and non-corporates (sovereign, supranational, foreign agencies, and foreign local governments). The first the sectors are composed of all publicly issued, non-convertible, investment grade domestic corporate debt. Issues must have a minimum rating of Baa by Moody's Investor Service, BBB by Standard and Poor's Corporation or BBB by Fitch Investor Services. Collateralized Mortgage Obligations (CMO's) and Asset-Backed securities are not included. All issues must have a maturity of at least one year and a par amount outstanding of at least \$250 million. Price, coupon and total return are reported on a month-end to month-end basis. All returns are market value weighted inclusive of accrued interest.

### **Barclays Capital U.S. Government Bond**

The Barclays Capital U.S. Government Bond Index is made up of the Treasury Bond Index and the Agency Bond Index. The Treasury index consists of all publicly issued domestic debt of the US Government with maturity greater than one year. Flower bonds, targeted investor notes (TINs), and state and local government series are excluded. U.S. agency debt issues include both callable and noncallable securities. The Agency index includes publicly issued debt of U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government. Global issues associated with the World Bank are included. The largest issuers are Fannie Mae, the Resolution Trust Funding Corporation (REFCORP) and the Federal Home Loan Bank System (FHLB). All issues must have an outstanding par value of at least \$250 million and a maturity of at least one year. Price, coupon and total return are reported for all sectors on a month-end to month-end basis. All returns are market value-weighted inclusive of accrued interest. The index is rebalanced monthly by market capitalization.

### **Barclays Capital U.S. 1-3 Year Government**



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The Barclays Capital U.S. 1-3 Year Government Index consists of those issues within the Government Bond Index which have a maturity greater than or equal to one year and less than or equal to three years. When an issue no longer meets the maturity criterion it is dropped from the index. All issues must have an outstanding par value greater than \$250 million.

### **Barclays Capital U.S. Government /Credit**

The Barclays Capital U.S. Government/Credit Bond Index combines the U.S. Government and U.S Credit Bond Indices.

### **Barclays Capital U.S. Long Government/Credit**

The Barclays Capital U.S. Long Government/Credit Index consists of those issues within the U.S. Government/Credit Index which have a maturity greater than ten years. Price, coupon and total return are reported on a month-end to month-end basis. All returns are market value weighted inclusive of accrued interest.

### **Barclays Capital U.S. High Yield**

The Barclays Capital U.S. High Yield Bond Index covers fixed rate, publicly issued, below investment-grade debt registered with the SEC. Eurobonds and debt issues from countries designated as emerging markets (e.g., Argentina, Brazil, Venezuela, etc.) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included. Original issue zeroes, step-up coupon structures, 144-As and pay-in-kind bonds (PIKs, as of October 1, 2009) are also included. The bonds must be dollar denominated and nonconvertible, have at least one year remaining to maturity and an outstanding par value of at least \$150 million. The bonds must be rated high-yield (Ba1/BB+ or lower) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. If only one of the three agencies rates a security, the rating must be high-yield. A small number of unrated bonds are included in the index; to be eligible they must have previously held a high yield rating or have been associated with a high yield issuer, and must trade accordingly.

### **Barclays Capital U.S. Mortgage Backed**

The Barclays Capital U.S. Mortgage Backed Securities Index is composed of all 15- and 30-year fixed rate security issues backed by mortgage pools of the Government National Mortgage Association (GNMA), the Federal National Mortgage Association (FNMA), and the Federal Home Loan Mortgage Corporation (FHLMC).

Balloon securities are included in the index. The index excludes graduated payment mortgages (GPMs), buydowns, graduated equity mortgages (GEMs), project loans and manufactured homes (GNMA). Non-agency (whole loan) jumbo and 20-year securities are also excluded. The MBS universe groups over 600,000 individual fixed rate MBS pools into approximately 3,500 generic aggregates. To qualify for inclusion in the index, the aggregate must have a weighted average maturity (WAM) of at least one year and a minimum \$250 million par amount outstanding.

### **Barclays Capital U.S. Treasury Bond**

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The Barclays Capital U.S. Treasury Bond Index consists of all public obligations of the U.S. Treasury, including inflation-indexed securities. The index excludes flower bonds and foreign-targeted issues. All issues must have at least one year to maturity and a minimum amount outstanding of \$250 million. Price, coupon and total return are reported on a month-end to month-end basis. All returns are market value-weighted inclusive of accrued interest.

### **Barclays Capital U.S. Treasury Inflation Protected Securities (TIPS)**

The Barclays Capital U.S. Treasury Inflation Protected Securities (TIPS) Index measures the performance of inflation-protected bonds issued by the U.S. Treasury. The rules for inclusion in the index are as follows:

All bonds must be a U.S. Treasury Inflation Note.

The minimum amount outstanding is \$250 million.

All bonds must be dollar denominated and non-convertible.

All bonds must have more than 1 year to maturity.

### **Barclays Capital U.S. Universal**

The Barclays Capital U.S. Universal Index consists of the Aggregate Index, plus dollar-denominated Eurobonds (Eurodollar Index), 144A Index, Non-ERISA CMBS Index, High Yield CMBS Index, US High-Yield Corporate Index, and dollar-denominated Emerging Markets Index. The Universal Index was designed to capture the entire portfolio management choice set of fixed-income securities issued in US Dollars.

### **BofA Merrill Lynch Corporate 1-3 Year**

The BofA Merrill Lynch 1-3 Year Corporate Bond Index consists of all those issues in the Corporate Master Index with a maturity greater than or equal to one year and less than or equal to three years. When an issue no longer meets the maturity criterion it is dropped from the index.

### **BofA Merrill Lynch High Yield Master**

The BofA Merrill Lynch High Yield Master Index consists of U.S. domestic and Yankee bonds which are rated less than BBB by Standard and Poor's or Baa by Moody's Investors Service but which are not in default (DDD1 or less). The issues must be publicly traded, nonconvertible and have a fixed coupon schedule. The issues must have a minimum maturity of 1 year and a par amount outstanding of at least \$100 million at the start and close of the performance measurement period. The index excludes private placements, Title II securities, equipment trust certificates, inflation linked securities, convertible bonds, deferred interest (DIB) and pay-in-kind (PIK) bonds.

### **BofA Merrill Lynch 1-3 Year Treasury**

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The BofA Merrill Lynch 1-3 Year Treasury Index consists of those issues within the Treasury Master Index which have a maturity greater than or equal to one year and less than or equal to three years. When an issue no longer meets the maturity criterion it is dropped from the index.

### **Citigroup 3-Month Treasury Bill**

The Citigroup 3-Month Treasury Bill Index is a monthly return equivalent of yield averages which are not marked to market. The calculation methodology is as follows: 1. Obtain discount yields for current month-end and two previous month-end dates. For example the January return requires the rates at the end of January, December and November. 2. Convert the discount rates to bond-equivalent yields. 3. Compute the simple average of the bond-equivalent yields. 4. Decompose to a monthly frequency using the actual number of days in the month in a 365-day year. Inception is 12/31/77.

### **Citigroup Broad Investment Grade**

The Citigroup Broad Investment Grade (BIG) Bond Index measures the monthly total rate-of-return performance of the investment-grade universe of bonds issued in the United States. The BIG index includes institutionally traded U.S. Treasury (excluding inflation-indexed securities), Government-sponsored (agency and supranational), mortgage and credit (corporate) securities. For inclusion in the index, all issues must have fixed coupon rate and a minimum maturity of one year. Each issue is individually Citigroup trader priced on the bid side at month-end.

U. S. Treasury issues and mortgage pass-throughs have a required entry and exit minimum amount outstanding of \$1 billion. Credit and Government-sponsored securities must have a minimum amount outstanding of \$100 million to be included in the index and are dropped from the index if the amount outstanding falls below \$75 million. Credit bonds must be rated BBB-/Baa3 or better by either S&P or Moody's.

The index is market value-weighted. Total returns include price change, principal payments, coupon payments, accrued income and reinvestment income on intra-money cash flows. Coupon interest is put into 30-day T-bills until month-end when it is re-invested in the same issues. The index is re-weighted monthly. The inception date is December 31, 1979.

### **Citigroup High-Yield Cash-Pay**

The Citigroup High-Yield Cash-Pay Index measures the performance of below investment-grade bonds issued in the United States. All of the bonds are publicly placed, have a fixed coupon and are nonconvertible. For inclusion in the index, an issue must have a minimum maturity of 1 year and a minimum amount outstanding of \$100 million. The maximum quality rating allowed is BB+/Ba1 by either S&P or Moody's. The index includes only cash-pay bonds. Deferred-interest and issues are excluded. The inception date is December 31, 1988.

### **Citigroup High-Yield Market**

The Citigroup High-Yield Market Index captures performance of below investment-grade corporate bonds issued in the United States. All the bonds are publicly placed, have a fixed coupon and are nonconvertible. For inclusion in the index, an issue must have minimum maturity of 1 year, a minimum amount outstanding of \$100 million per issue when the issuer has a minimum of US\$400 million total outstanding debt that qualifies for inclusion, or US\$200 million minimum outstanding

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per issue when the issuer does not meet the US\$400 million minimum.. The maximum quality rating allowed is BB+/Ba1 by both S&P and Moody's. The index includes cash-pay and deferred-interest bonds. Defaulted issues are excluded. When an issuer misses or expects to miss an interest payment, or enters into Chapter 11, the corresponding bonds exit the index at month end, reflecting the loss of the coupon payment or accrued interest. The index inception date is December 31, 1988.

### **Citigroup High-Yield Market 7+ Year Index (formerly Composite High Yield)**

The Citigroup High-Yield Market 7+ Year Index measures the performance of below investment-grade bonds issued in the United States. All of the bonds are publicly placed, have a fixed coupon and are nonconvertible. For inclusion in the index, an issue must have a minimum maturity of 7 years and a minimum amount outstanding of \$100 million. The maximum quality rating allowed is BB+/Ba1 by either S&P or Moody's. The index includes cash-pay and deferred-interest bonds. Defaulted issues are excluded. The inception date is December 31, 1984.

### **Citigroup World Government Bond**

The Citigroup World Government Bond Index is designed to provide a measure of performance of fixed-rate securities in the world government bond market. Country eligibility is determined based on market capitalization and inevitability criteria. A market's eligible issues must total at least US\$20 billion, DM30 billion, and 2.5 trillion for three consecutive months for the market to be considered eligible for inclusion.

The index includes only Sovereign debt issued in each domestic market in the local currency. Foreign and Eurobonds are excluded from the index. Government securities that are floating- or variable-rate bonds, securities aimed principally at non-institutional investors or private placement-type securities are also excluded from the index. All issues must have a maturity of at least 1 year. The minimum amount outstanding required for index inclusion varies by each country since a local currency standard is used to determine eligibility. In the United States, the required minimum for each issue is \$5 billion public amount outstanding. The returns are calculated monthly in local currency, U.S. dollar terms and in non-base currency for each country and on a combined basis. The index is also available on a hedged-basis.

The index includes bonds from the following 23 countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Malaysia, Netherlands, Norway, Poland, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom, and United States

### **Citigroup World Government Bond (Currency-Hedged)**

The Citigroup World Government Bond (Currency-Hedged) Index is designed to provide a measure of performance of fixed-rate securities in the world government bond market. The index includes only Sovereign debt issued in the domestic market in local currency. Foreign and Eurobonds are excluded from the index. Government securities that are floating- or variable-rate bonds, securities aimed principally at non-institutional investors or private placement-type securities are also excluded from the index. All issues must have a maturity of at least 1 year.

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The minimum amount outstanding required for index inclusion varies by each country since a local currency standard is used to determine eligibility. In the United States, the required minimum outstanding is \$5 billion. The returns are calculated by using a rolling one-month forward exchange contract as a hedging instrument.

The index includes bonds from the following 23 countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Malaysia, Netherlands, Norway, Poland, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom, and United States

### **CS First Boston High Yield**

The CS First Boston High Yield Index is constructed to mirror the public high yield debt market. Issues must be BB rated by either Moody's or Standard and Poor's (Split BBB rated securities are included). New issues with par amounts greater than \$75 million are automatically added to the index at the time of issuance. There are no more than two issues of any one issuer. Fallen Angels with market values greater than \$75 million are added to the index three months after being downgraded. Defaulted issues are included after a company misses an interest and/or principal payment and defaults on its obligation, or when one or both Moody's and/or Standard and Poor's issue a D rating on an issue.

### **U.S. 91 Day Treasury Bill**

The U.S. 91 Day Treasury Bill Index is based on the monthly auction average yield of the 91-Day Treasury Bill reported in the Federal Reserve Bulletin.

## **Real Estate Indices**

### **FTSE NAREIT Equity Index**

The FTSE NAREIT Equity Index is designed to provide the most comprehensive assessment of overall REIT industry performance, and includes all tax-qualified REITs with common shares that trade on the New York Stock Exchange, the American Stock Exchange or the NASDAQ National Market List. Companies with shares that trade on the NASDAQ Small Cap List or that trade over the counter are not included.

### **NCREIF Property Index**

The National Council of Real Estate Investment Fiduciaries (NCREIF) and the Frank Russell Company NCREIF jointly developed the NCREIF Property Index. NCREIF is a non-profit association, which represents the institutional real estate industry. The NCREIF contributors include banks, insurance companies and independent advisors. Beginning with the first quarter of 1995, NCREIF has produced the index entirely on its own.

The purpose of the index is to serve as a benchmark for performance measurement of real estate owned by tax-exempt institutions and held in a fiduciary environment. The index tracks the income, appreciation and total return for a portfolio of unleveraged, institutional quality property. Sub-indices track the performance of five different property types (office, retail, industrial, hotel and apartment) within four geographical areas (east, west, south and midwest).

## **Appendix E**

The property in the index must be investment grade, non- agricultural, income-producing property. Developmental property is excluded. Qualifying properties are added to the database quarterly. Properties, which are sold, are deleted during the quarter in which the sale takes place (historical data remains). Returns are calculated quarterly on a pre-management fee basis. Each property return is weighted by its market value. The property market value is determined by real estate appraisal methodology, consistently applied.

### **Other Indices**

#### **Consumer Price Index (CPI-U)**

The Consumer Price Index (CPI-U) is published by the United States Department of Labor, Bureau of Labor Statistics. The index measures the average change in prices over time of a fixed basket of goods and services. The CPI-U calculates this price change for all urban consumers.

All urban consumers is defined as all wage earners, clerical workers, professional, managerial and technical workers, the self-employed, short-term workers, the unemployed, retirees and others not in the labor force. The index does not include persons in the military services, institutions or people outside the urban area. The CPI-U covers approximately 80% of the total non-institutional civilian population.

The Consumer Price Index (CPI-U) is based on prices of food, clothing, shelter, fuels, transportation fares, medical fees drugs, and other day-to-day living expenses. Prices are collected in 88 urban areas across the United States from about 57,000 housing units and 19,000 department stores, supermarkets, hospitals, gas stations and other stores and service establishments.

The manner by which the index is created by calculating price changes of the various items in each location. These price changes are averaged together with weights, which represent the importance in the spending of the appropriate population group. The local data is then combined to obtain the U.S. city average.

## **Appendix E**

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