NEPC, LLC

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City of Fresno Retirement Systems

2017 Real Estate Investment Plan

April 25th, 2017

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Presentation:

1. Real Estate Overview
2. Real Estate Fund Structures
3. General Market Thoughts and Implementation
4. CFRS' Real Estate Overview
5. 2017 Real Estate Strategic Plan

Appendix

1. Investment Disclaimer

Real Estate Overview

Real Estate Overview

- **Institutional quality/commercial real estate is property intended to generate a return from rental income and/or capital appreciation**
  - Can be publicly traded or privately held
  - Strategies exist spanning the risk/return spectrum from stabilized core real estate to development-oriented opportunistic real estate
  - Main property types include apartments, office buildings, shopping centers, hotels, industrial properties, etc.

- **Large real estate investable universe**
  - Over $400 billion of privately-owned institutional quality real estate in the US
  - Nearly $1 trillion of total capital raised by closed-end fund managers since 2005
  - US publicly-traded REITs with an aggregate market cap of over $800 billion

- **Two components of real estate return:**
  - **Current Income**: Derived from tenant rents/leases that typically increase with inflation
  - **Capital Appreciation:** Increase in the value of an asset between acquisition and sale

- **Leverage can amplify (both positively and negatively) returns from current income and capital appreciation**

Market size data as of December 31, 2014; private real estate represented by the NCREIF Property Index gross asset value, closed-end fundraising data from Prequin, REIT market cap represented by the NAREIT All Equity REITs Index

Real Estate Economic Return Drivers

- **Current income is derived from tenant rents/leases that typically increase with inflation**

- **Capital appreciation is the increase in the value of an asset between acquisition and sale**
  - Typically the result of lease-up, repositioning, renovation, development, etc.
  - Assets may require capital investment for the repositioning of the asset

- **Both current income and capital appreciation returns are driven by changes in net operating income (NOI), which in turn is largely driven by rent and occupancy levels**
  - Appreciation return is also affected by changing market cap rates and (to a lesser extent) debt financing available to potential buyers

- **Drivers of rent**
  - Occupancy (to an extent)
  - Job growth
  - GDP growth
  - Inflation

- **Drivers of Occupancy**
  - New supply
  - Job growth
  - Economic factors (including GDP growth, homeownership rates, etc.; vary by property type)

Real Estate as Part of an Investment Plan

NEPC believes that real estate plays an important role as part of an overall investment plan:

1. Low historical correlation to stocks and bonds
2. Provides diversification benefits to the overall portfolio
3. Provides both current income and the potential for capital appreciation (each of which can be enhanced with leverage)
4. Over the long term, provides a partial hedge against inflation as certain components of real estate are sensitive to inflation
5. Offers a spectrum of investment strategies (with different return and risk expectations) that can be customized to meet plan objectives

However, there are considerations of investing in real estate:

1. Investments are generally illiquid, particularly during falling markets (excluding public REIT investments)
2. Limited and imperfect benchmarks exist to gauge investment performance
3. Valuations are based on underlying transaction markets which have limited transparency and property appraisals can lag real-time market valuations
4. Investments outside of the base currency are affected by currency movements
5. The use of leverage amplifies negative performance

Spectrum of Real Estate Investment Strategies

	Real Estate Investment Style / Overview	Investment Strategy	Portfolio Role	Considerations
Core Strategies	**Core** • Return driver: income • Primary vehicle: open-end funds • Historical avg. returns: 7-8% • Leverage: 15-30% • Hold period: long-term	Stabilized income producing assets	• Current income • Broad exposure to commercial real estate (asset class beta) • Inflation protection	• Vehicles are semi-liquid (entrance/exit queues) • Limited alpha producing opportunities
Core Strategies	**REITs** • Return driver: income • Primary vehicle: REIT funds • Historical avg. returns: 7-9% • Leverage: 30-50% • Hold period: long-term	Stabilized income producing assets	• Current income (dividends) • Long-term exposure to commercial real estate (beta) • Long-term inflation protection	• Volatility • Equity correlation
Non-Core Strategies	**Value-Add** • Return driver: income/appreciation • Primary vehicle: varies • Historical avg returns: 8-10% • Leverage: 40-70% • Hold period: 3-5 years	Properties requiring lease-up, repositioning, renovation or rehabilitation	• Provides part current income and capital appreciation • Some inflation protection	• Vehicles are semi-liquid or illiquid • Vintage year is important • Higher leverage vs core • Poor benchmarks
Non-Core Strategies	**Opportunistic** • Return driver: appreciation • Primary vehicle: closed-end funds • Historical avg. returns: 10-12% • Leverage: 60%+ • Hold period: varies	Distressed investments, recapitalizations, development, etc.	• Real estate alpha through capital appreciation with minimal current income	• Vehicles are illiquid • Vintage year is important • High leverage • Poor benchmarks

Non-Core Strategies	**Real Estate Debt**
	• Return driver: varies
	• Primary vehicle: closed-end funds
	• Historical avg. returns: 8-10%
	• Leverage: varies
	• Hold period: varies
		Varying risk/return profiles (senior loans to higher risk structures)	• Mixed strategies:
			  • Current income w/downside protection
			  • Higher risk opportunistic/mezz. debt strategies
				• Limited return upside (asymmetric risk profile)
				• Minimal inflation protection
				• Vintage year is important
				• Poor benchmarks

Real Estate Fund Structures

Liquid & Semi-Liquid Investment Vehicle Structures

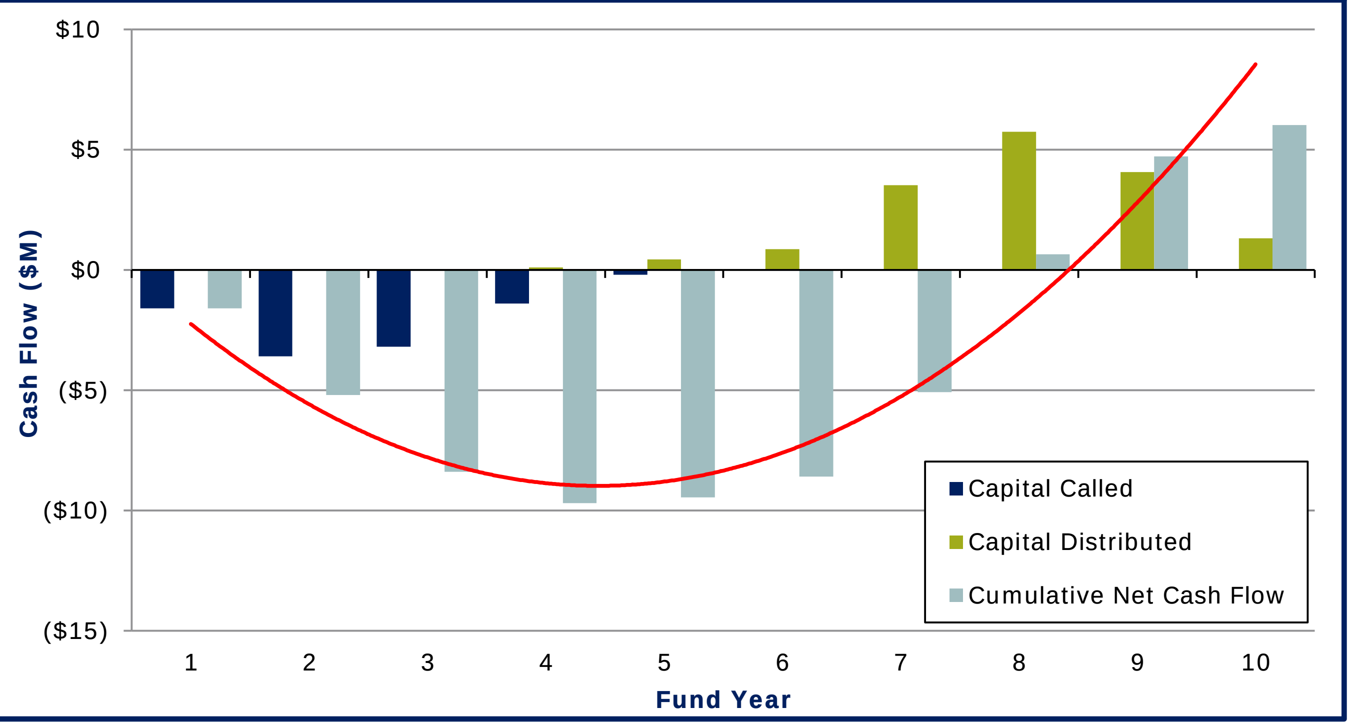
- **Open-end investment structures**
  - Assets are valued on a quarterly basis (except REITs, which have daily market prices)
  - Open-end funds typically provide quarterly liquidity, subject to commitment or redemption queues

Investment Type	Description
Publicly Traded REIT Funds	Comprised of REITs and REOCs (Real Estate Operating Companies) that file with the SEC and whose shares trade on national stock exchanges such as the NYSE, AMEX or NASDAQ; publicly traded security provides significant liquidity to investors. May be structured as a commingled fund, separate account, or mutual fund.
Separate Accounts	An exclusive investment vehicle designed and managed by a third party fiduciary for an individual institution (generally created to allow the institution to pursue a specific investment strategy or individual property). Investors have significant control over investments.
Direct Investments	Non-intermediated (or direct) investment in an individual real estate asset. Owners have complete control over investment.
Open-End Funds	Typically an insurance company separate accounts, trust, or private REIT that allow ERISA plans to commingle their capital. Most vehicles are large ($2+ billion of net asset value) and focus on core and/or value added strategies. Lock-up periods of one-two years are common and redemptions are usually permitted with 90 days notice, but are subject to available cash.

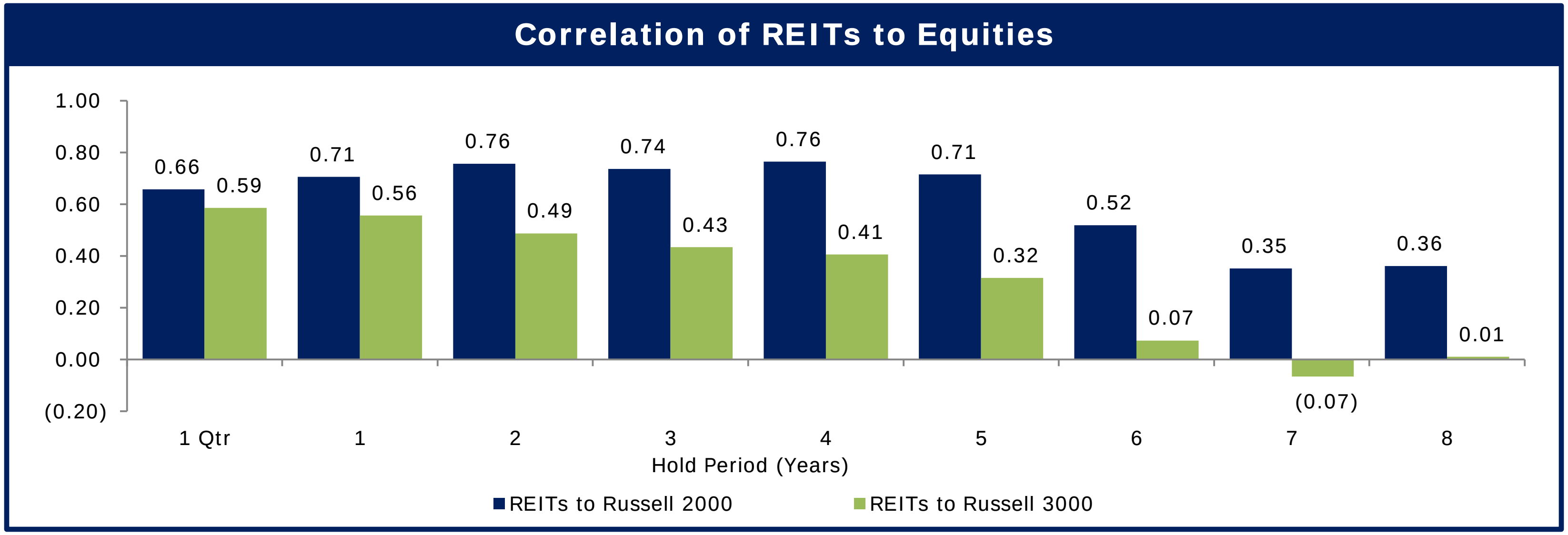
Closed-End Funds and J-Curve Impact

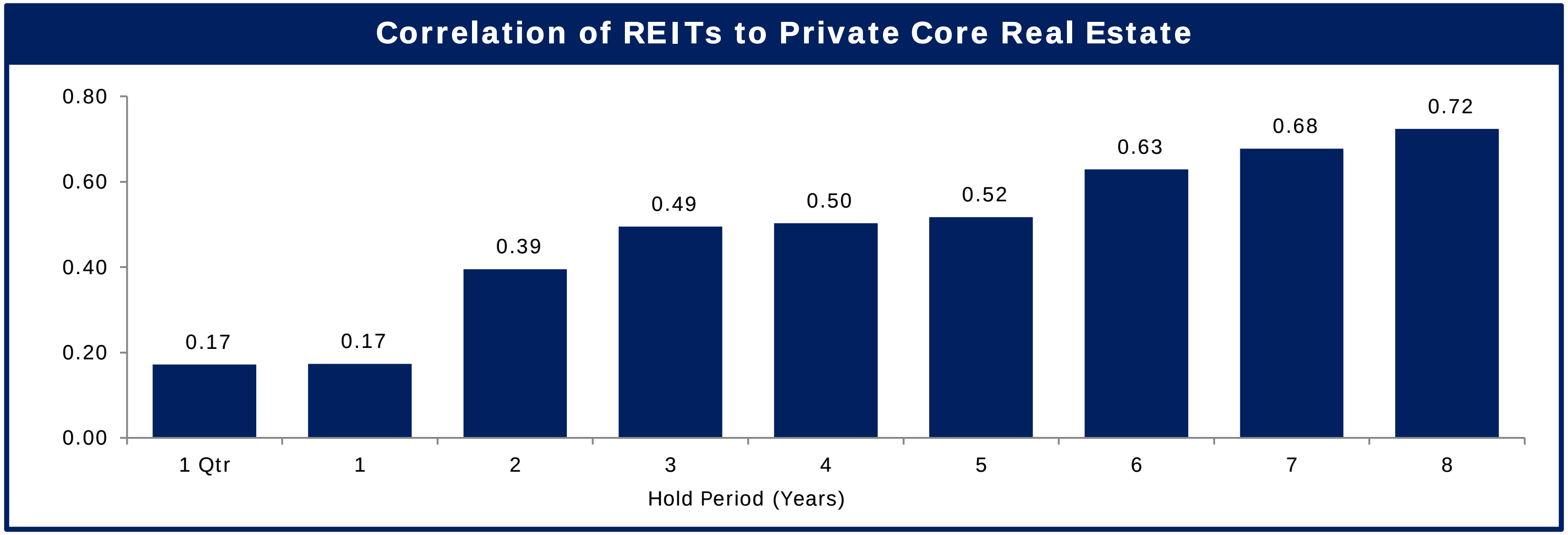
- **Cash flow pattern of investing in closed-end funds**
  - **Years 1-3 returns are negative**, little income is generated, management fees are collected on committed (not invested) base
  - **Years 3-5 returns flatten out and gradually turn positive** as values are written up to reflect transactions and some income is received
  - **Years 5-10 returns spike** as assets are sold and accumulated increases in value are reflected, and income is received as businesses become profitable
  - **All years combined** leads to what has been termed the "**J-Curve**"

Sample J-Curve on $10 Million Investment



REIT Correlations





Source: NCREIF, Bloomberg, NEPC Analysis.

General Market Thoughts and Implementation

Real Estate General Market Thoughts and 2017 Implementation Views

General Market Thoughts

- **Core / REIT market environment normalized**
  - Real estate fundamentals (rent growth, occupancy, net absorption) remain strong; however, valuations are high on an absolute and relative basis
  - Rising interest rates have been baked into existing valuations but excess cap rate expansion (beyond general expectations) will reset valuations
  - REIT sector has been volatile and remain at historically high FFO multiples
- **Opportunity remains in non-core strategies**
  - In the US, we favor managers that are attentive to duration risk at the current stage of the expansion cycle, are focused on cash flow, and may have niche areas of expertise
  - Outside the US, Europe remains a relatively attractive opportunity for asset focused managers who are not making macro bets on growth. Current US-dollar denominated investors with currency exposure will feel near-term impact of Brexit, but new investors may benefit from strong US-dollar amidst asset repricing in select cities (e.g. London). Long-term Brexit implications, however, remain unclear.

Implementation Views

Strategy		Outlook	Commentary
Core	Private	0	Hold to target allocation; focus on quality managers/portfolios in primary locations that should better navigate a downturn
	Public REITs	0	Hold to target allocation; if under-allocated leg into a target allocation to minimize entry point risk; expect high volatility in the near term
Non-Core	Value-Add	+	Flight to quality will continue to favor US real estate, while opportunities to capitalize on distress or capital markets inefficiencies in Europe and select emerging markets will remain; emphasize more defensible demographically driven sectors vs. GDP driven sectors and watch for “emerging institutional” asset classes with high cash yields
	Opportunistic		
Real Estate Debt		+-	Low interest rate environment is challenging for senior loans but mezzanine strategies can offer favorable terms with downside protection

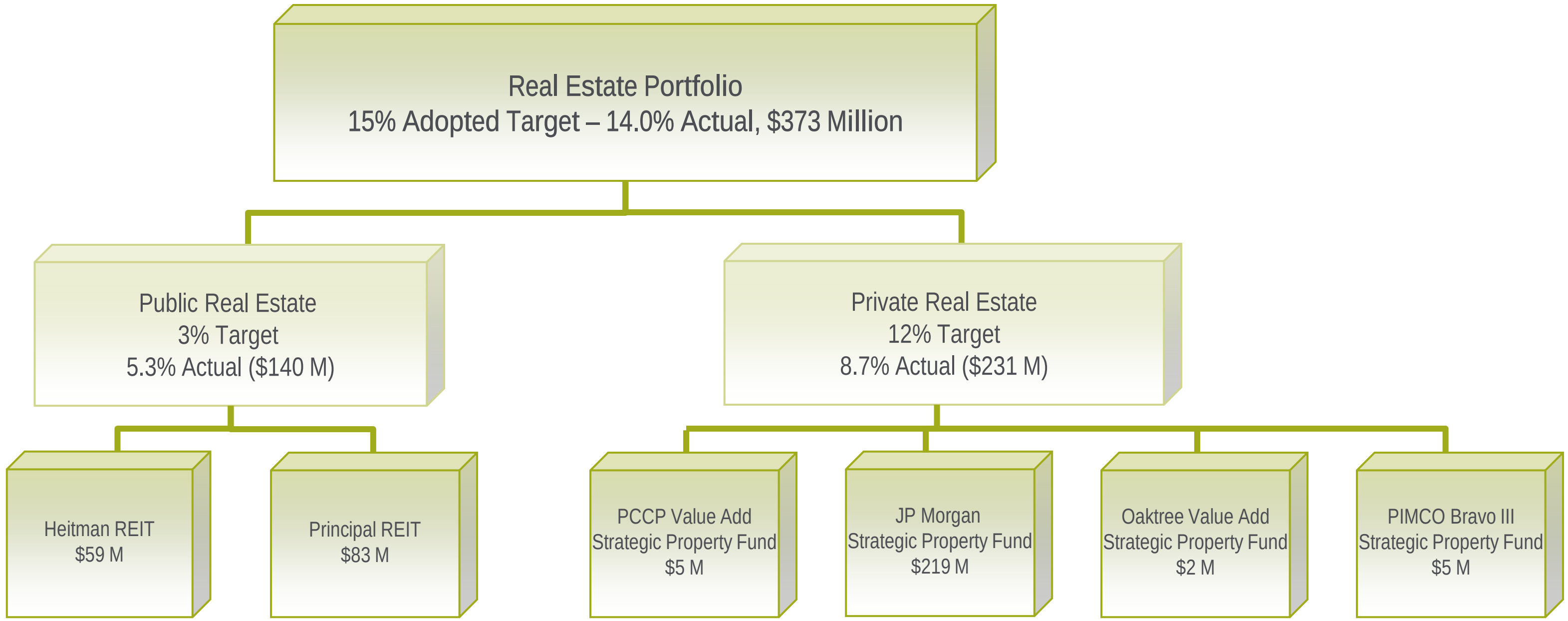
Real Estate: Implementation

Strategy	Viewpoints	FPL Managers
Private Core	• Real estate fundamentals (rent growth, occupancy, net absorption) remain robust, however valuations are high on an absolute basis and relative basis • Rising interest rates and the potential cap rate expansion will reset core valuations • Hold to target allocation; focus on quality managers/ portfolios in primary locations that should better navigate a downturn	• *AEW Core Property Trust* • *ASB Allegiance Fund* • *Heitman America Real Estate Trust* • *JPMCB Strategic Property Fund* • *UBS Trumbull Property Fund* • *Morgan Stanley Prime**
Public REITs	• REIT sector has been volatile and remain at high FFO multiples by long term historical standards • Newly created GICS REIT Sector may benefit from reduced volatility of being extracted from the Financials Sector, although high volatility from investor sentiment still very much evident • Hold to target allocation; if under-allocated leg into a target allocation to minimize entry point risk	• *AEW Capital Management* • *Brookfield Investment Management* • *CenterSquare Investment Management* • *Cornerstone Real Estate Advisors* • *Lazard Asset Management* • *Adelante Capital Management*
Value-Add / Opportunistic	• In the US, we favor managers that are attentive to duration risk at the current stage of the expansion cycle, are focused on cash flow, and may have niche areas of expertise • Outside the US, Europe remains an attractive opportunity for asset-focused managers who are not making macro bets on growth. Current US-dollar denominated investors with currency exposure will feel near-term impact of Brexit, but long-term implications are unclear • Emerging markets in Asia (China) and Latin America (Brazil) may be present opportunistic buys	• *AEW Partners Fund VIII* • *Crow Realty Holdings VIII* • *Landmark Real Estate VIII* • *Carlyle Realty Partners VIII** • *Hammes Partners II (Medical Office)** • *Harbert Senior Housing**
Real Estate Debt	• Low interest rate environment is challenging for primary debt issuance strategies • Non-core mezzanine strategies offer more attractive terms and provide a hedge against property value declines	• *Och Ziff Real Estate Credit Fund* • *Oaktree RE Debt II**

* Note: Pipeline fund; have not yet been reviewed by NEPC's AAC.

CFRS' Real Estate Overview

CFRS' Real Estate Structure – As of February 28, 2017



Real Estate Composite Performance – Net of Fees as of December 31, 2016

	Market Value ($)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Return (%)	Since
Real Estate Composite	**366,990,984**	**14.2**	**0.2**	**84**	**0.7**	**94**	**7.5**	**69**	**12.2**	**27**	**12.0**	**30**	**9.5**	**Jan-96**
Real Estate Index			*0.4*	*82*	*1.2*	*92*	*8.4*	*46*	*13.1*	*8*	*12.4*	*21*	*10.1*	*Jan-96*
Over/Under			-0.2		-0.5		-0.9		-0.9		-0.4		-0.6	
InvestorForce Public DB Real Estate Pub+Priv Net Median			*1.5*		*3.3*		*8.1*		*11.6*		*11.6*		*7.6*	*Jan-96*
Private Real Estate Composite	**228,822,381**	**8.9**	**2.2**	**--**	**4.0**	**--**	**7.7**	**--**	**10.6**	**--**	**11.5**	**--**	**9.3**	**Jan-96**
NCREIF ODCE			*2.1*	--	*4.2*	--	*8.8*	--	*12.1*	--	*12.2*	--	*9.4*	*Jan-96*
Over/Under			0.1		-0.2		-1.1		-1.5		-0.7		-0.1	
JP Morgan RE	217,023,648	8.4	1.9	--	3.8	--	7.4	--	10.5	--	11.4	--	9.3	Jan-96
NCREIF ODCE			*2.1*	--	*4.2*	--	*8.8*	--	*12.1*	--	*12.2*	--	*9.4*	*Jan-96*
Over/Under			-0.2		-0.4		-1.4		-1.6		-0.8		-0.1	
PCCP Value Add	5,498,704	0.2	14.0	--	--	--	--	--	--	--	--	--	14.0	Oct-16
NCREIF ODCE			*2.1*	--	*4.2*	--	*8.8*	--	*12.1*	--	*12.2*	--	*2.1*	*Oct-16*
Over/Under			11.9										11.9	
Oaktree Value Add	1,500,028	0.1												*Dec-16*
PIMCO Bravo III	4,800,000	0.2												*Nov-16*
Public Real Estate Composite	**138,168,603**	**5.4**	**-2.7**	**47**	**-3.9**	**56**	**7.2**	**37**	**14.6**	**18**	**12.7**	**22**	**8.1**	**Jul-05**
Wilshire REIT			*-2.3*	*30*	*-3.5*	*40*	*7.2*	*37*	*13.8*	*28*	*12.0*	*41*	*7.6*	*Jul-05*
Over/Under			-0.4		-0.4		0.0		0.8		0.7		0.5	
eA US REIT Net Median			*-2.8*		*-3.6*		*6.7*		*13.4*		*11.8*		*8.3*	*Jul-05*
Heitman REIT	57,479,028	2.2	-1.8	20	-3.1	25	8.4	19	15.5	11	12.8	21	7.3	Jul-05
Wilshire REIT			*-2.3*	*30*	*-3.5*	*40*	*7.2*	*37*	*13.8*	*28*	*12.0*	*41*	*7.6*	*Jul-05*
Over/Under			0.5		0.4		1.2		1.7		0.8		-0.3	
eA US REIT Net Median			*-2.8*		*-3.6*		*6.7*		*13.4*		*11.8*		*8.3*	*Jul-05*
Principal REIT	80,689,574	3.1	-3.4	67	-4.6	71	6.3	57	13.9	24	12.6	27	9.5	Feb-05
Wilshire REIT			*-2.3*	*30*	*-3.5*	*40*	*7.2*	*37*	*13.8*	*28*	*12.0*	*41*	*8.7*	*Feb-05*
Over/Under			-1.1		-1.1		-0.9		0.1		0.6		0.8	
eA US REIT Net Median			*-2.8*		*-3.6*		*6.7*		*13.4*		*11.8*		*9.4*	*Feb-05*

	3 Years Ending December 31, 2016			5 Years Ending December 31, 2016		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Real Estate Composite	12.2%	5.9%	2.0	12.0%	5.6%	2.1
Real Estate Index	*13.1%*	*6.8%*	*1.9*	*12.4%*	*6.7%*	1.8

2017 Real Estate Strategic Plan

NEPC's Philosophy on Real Estate Portfolio Structure

- **Real estate is not a "one size fits all" asset class; the mix of various risk / return strategies should be customized based on client objectives**

- **In constructing a real estate portfolio there are several key considerations that impact the allocation, including:**
  - Plan investment policy
  - Plan inflation sensitivity
  - Allocation to illiquid alternatives
  - Liquidity requirements of plan
  - Existing real estate investments
  - Return, risk, and volatility expectations
  - Size of plan assets
  - Timing and pacing considerations
  - Target number of manager relationships

		Return Assumptions			Example Plan Target Allocations		
Fund Style	**Primary Return Driver**	**Typical Fund Target**	**NEPC Model Assumption**		**- 1 - Income Focused Plan**	**- 2 - Balanced Approach**	**- 3 - Appreciation Focused Plan**
Core / REITs	Income + inflation protection	7-9%	7 - 8%		80% ± 20%	50% ± 10%	10% + 20%
Value-Add	Income + Appreciation	14-17%	8 - 10%		5% ± 5%	15% ± 10%	50% ± 20%
Opportunistic	Appreciation	18%+	10 - 12%		5% ± 5%	20% ± 10%	40% ± 20%
Real Estate Debt	Income + Appreciation	6-14%	8 - 10%		10% ± 5%	15% ± 10%	0% + 10%

Risk Expectation	Lower	Moderate	Higher
Volatility Expectation	Lower	Moderate	Higher
Model Return Expectation (Mean Return)	**8.0%**	**8.7%**	**9.7%**
- % of Return Expected from Income (Dividends)	*70%*	*60%*	*30%*
- % of Return Expected from Capital Appreciation	*30%*	*40%*	*70%*

- **City of Fresno ("Fresno") has a current target allocation to real estate of 15%**
- **Fresno's current exposure to real estate is as follows:**
  - $367 million net asset value (14.2% of total plan assets)
  - $67 million of uncalled capital commitments (2.6% of total plan assets)
  - $434 million of total exposure (16.8% of total plan assets)
- **Fresno's current sub-strategy allocations (based on NAV) are as follows:**
  - 59% Core real estate (JP Morgan)
  - 38% REITs (Principal and Heitman)
  - 3% Value-add (PCCP, Oaktree and PIMCO)
  - It should be noted that the REIT exposure is essentially core and is therefore duplicative with the JP Morgan holding with greater volatility
- **NEPC recommends long-term target sub-strategy allocations approximately as follows, representing a decrease in the REIT allocation and an increase in the value-add allocation to provide better diversification:**
  - 67% Core real estate
  - 33% Value-add real estate
  - This represents a conservative balance as compared to other NEPC Public Fund clients

Data as of 12/31/2016

- **NEPC recommends the following investment pacing model to achieve the target allocations:**
  - 2017: Begin distributing dividends from REIT funds (Principal and Heitman) and redeem approximately 1/3 of the Heitman REIT fund
  - Commit $40 million to a US focused closed-end value-add real estate fund
  - 2018: Continue distributing dividends from REITs and redeem approximately 1/2 of the Principal REIT fund
  - Commit $40 million to a closed-end value-add real estate fund
  - 2019: Continue distributing dividends from REITs and redeem the remaining balance of the Principal REIT fund
  - Commit $40 million to a closed-end value-add real estate fund
  - 2020: Continue distributing dividends from REITs and redeem the remaining balance of the Heitman REIT fund
  - Commit $25 million to a closed-end value-add real estate fund

- **These recommendations are intended to be used as a directional guideline based on market conditions and will be revisited annually**

- **Rationale for recommendations:**
  - Core: diversification, income, liquidity, real asset exposure, lower risk (more of a strategic long-term rationale rather than a short term opportunity)
  - Value-add: opportunity for outperformance, compelling opportunity given current market conditions

Data as of 12/31/2016

General Plan Assumptions

General Plan Assumptions

Total Plan Assets	$2,583
Total Real Estate NAV	$367
Total Real Estate Capital to be Funded	$67
Total Real Estate Exposure	$434
Total Real Estate NAV / Total Plan Assets	14.2%
Total Real Estate Exposure / Total Plan Assets	16.8%
Target Real Estate Allocation % (Current Target)	15.0%

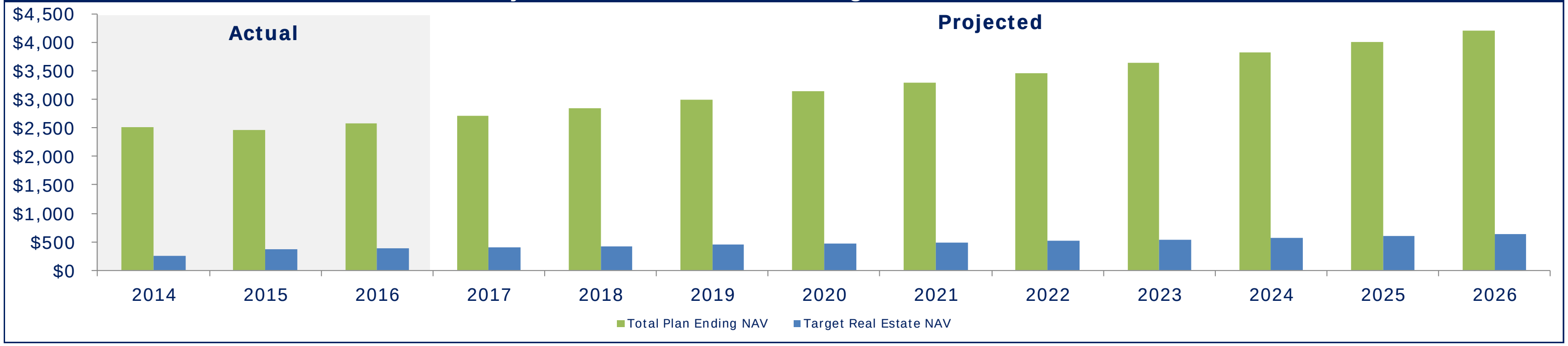
Plan Return Assumptions	2017	2018	2019
Target Investment Return	5.0%	5.0%	5.0%
Contributions	0.0%	0.0%	0.0%
Payouts	0.0%	0.0%	0.0%
Expenses	0.0%	0.0%	0.0%
Reserve for Expenses	0.0%	0.0%	0.0%
Net Growth Rate	5.0%	5.0%	5.0%

Plan-Level data as of	12/31/16
Fund-Level data as of	12/31/16

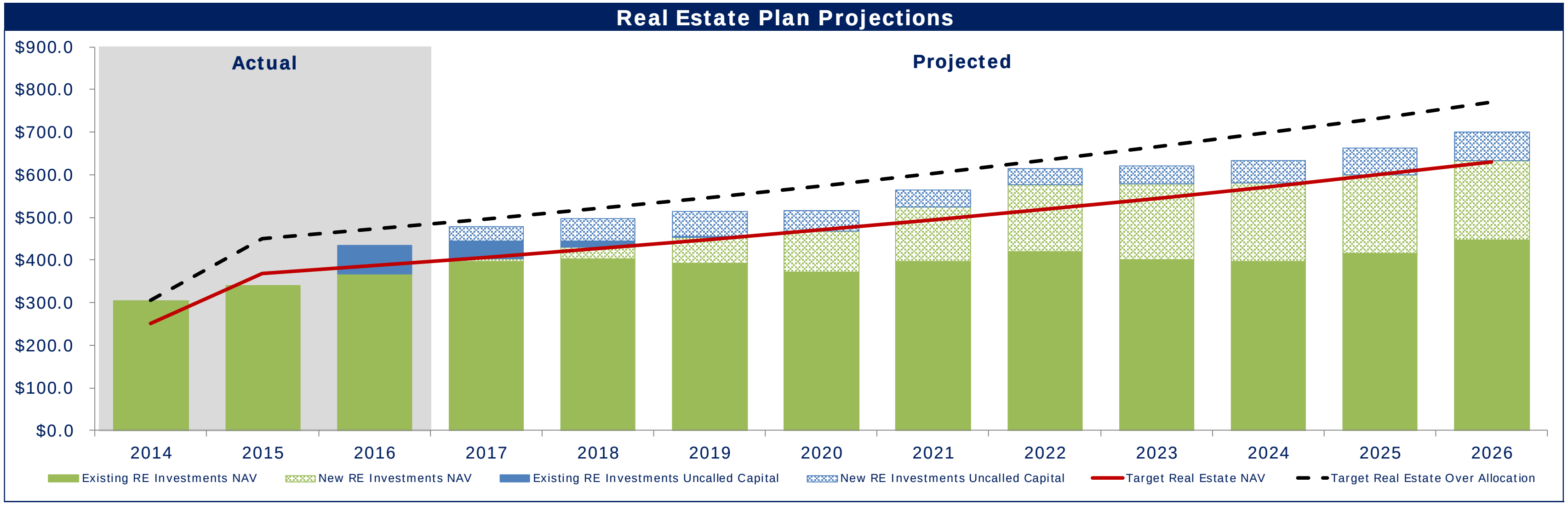
Total Projected Plan Assets

	Actual			Projected									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Total Plan Net Growth Rate	3.2%	(1.9%)	5.1%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total Plan Beginning NAV	$2,427	$2,505	$2,456	$2,583	$2,712	$2,847	$2,990	$3,139	$3,296	$3,461	$3,634	$3,816	$4,006
Yearly Net Growth	$78	($49)	$126	$129	$136	$142	$149	$157	$165	$173	$182	$191	$200
Total Plan Ending NAV	$2,505	$2,456	$2,583	$2,712	$2,847	$2,990	$3,139	$3,296	$3,461	$3,634	$3,816	$4,006	$4,207
Target Real Estate Allocation	10.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Target Real Estate NAV	$250	$368	$387	$407	$427	$448	$471	$494	$519	$545	$572	$601	$631

Total Projected Plan Assets and Target Real Estate Allocation



Data as of 12/31/2016



	Actual			Projected									
Year	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Real Estate NAV	$305	$339	$367	$404	$430	$453	$469	$524	$576	$579	$581	$600	$634
Uncalled Capital Commitments	$0	$0	$67	$74	$66	$61	$47	$40	$38	$42	$53	$62	$66
Real Estate NAV + Uncalled Capital Commitments	$305	$339	$434	$477	$497	$513	$516	$564	$614	$620	$634	$662	$700
Target Real Estate NAV	$250	$368	$387	$407	$427	$448	$471	$494	$519	$545	$572	$601	$631
Weighted Over-Commitment Pace	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x
Target Real Estate Over Allocation	$306	$449	$473	$496	$521	$547	$574	$603	$633	$665	$698	$733	$770
Percent of Total Plan Assets													
Real Estate NAV (%)	12.2%	13.8%	14.2%	14.9%	15.1%	15.1%	14.9%	15.9%	16.6%	15.9%	15.2%	15.0%	15.1%
Real Estate Uncalled Capital Commitments (%)	0.0%	0.0%	2.6%	2.7%	2.3%	2.0%	1.5%	1.2%	1.1%	1.1%	1.4%	1.6%	1.6%
NAV + Uncalled Capital Commitments (%)	12.2%	13.8%	16.8%	17.6%	17.4%	17.2%	16.4%	17.1%	17.7%	17.1%	16.6%	16.5%	16.6%
Target Real Estate Allocation (%)	10.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Target Real Estate Over Allocation (%)	12.2%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%

Data as of 12/31/2016

Real Estate Target Allocations

Target Real Estate & Real Assets Allocations									
Investment Strategy	**Target Percent Allocation**	**Max Percent Allocation**	**Min Percent Allocation**	**Target Dollar Allocation**	**Current Valuation (NAV)**	**Capital to be Funded**	**Total Current Exposure**	**% of Total Exposure**	**Over / (Under) Funding of Total Exposure vs. Current Target**
Core (Open-End)	67%	75%	60%	$259.5	$217.0	$0.0	$217.0	50%	($42.5)
Value-Add (Closed-End)	33%	40%	30%	$127.8	$12.2	$66.9	$79.1	18%	($115.6)
REITs/REOCs (Open-End)	0%	0%	0%	$0.0	$138.2	$0.0	$138.2	32%	$138.2
Total / Wtd. Avg.	100%			$387.4	$367.4	$66.9	$434.3	100%	($19.9)

Data as of 12/31/2016

Existing Real Estate Investments

Existing Real Estate Investments

Core (Open-End)

Fund Name	Vintage Year	Committed	Paid In Capital	Capital to be Funded	Cumulative Distributed	Current Valuation (NAV)	Total Value	% of Dividends Reinvested	Current Redemption Requests	Redemption Request Year
JP Morgan RE	1996	$217.0	$217.0	$0.0	$0.0	$217.0	$217.0	100%	$0.0	NA
Total Core (Open-End)		$217.0	$217.0	$0.0	$0.0	$217.0	$217.0	NA	$0.0	NA

Value-Add (Closed-End)

Fund Name	Vintage Year	Committed	Paid In Capital	Capital to be Funded	Cumulative Distributed	Current Valuation (NAV)	Total Value	Net benefit	DPI Ratio	TVPI Ratio
PCCP Value-Add	2016	$15.0	$4.8	$10.2	$0.0	$6.0	$6.0	$1.1	0.00x	1.23x
Oaktree Value Add	2016	$15.0	$1.5	$13.5	$0.0	$1.6	$1.6	$0.1	0.00x	1.05x
PIMCO BRAVO III	2016	$48.0	$4.8	$43.2	$0.0	$4.7	$4.7	($0.1)	0.00x	0.98x
Total Value-Add (Closed-End)		$78.0	$11.1	$66.9	$0.0	$12.2	$12.2	$1.1	0.00x	1.10x

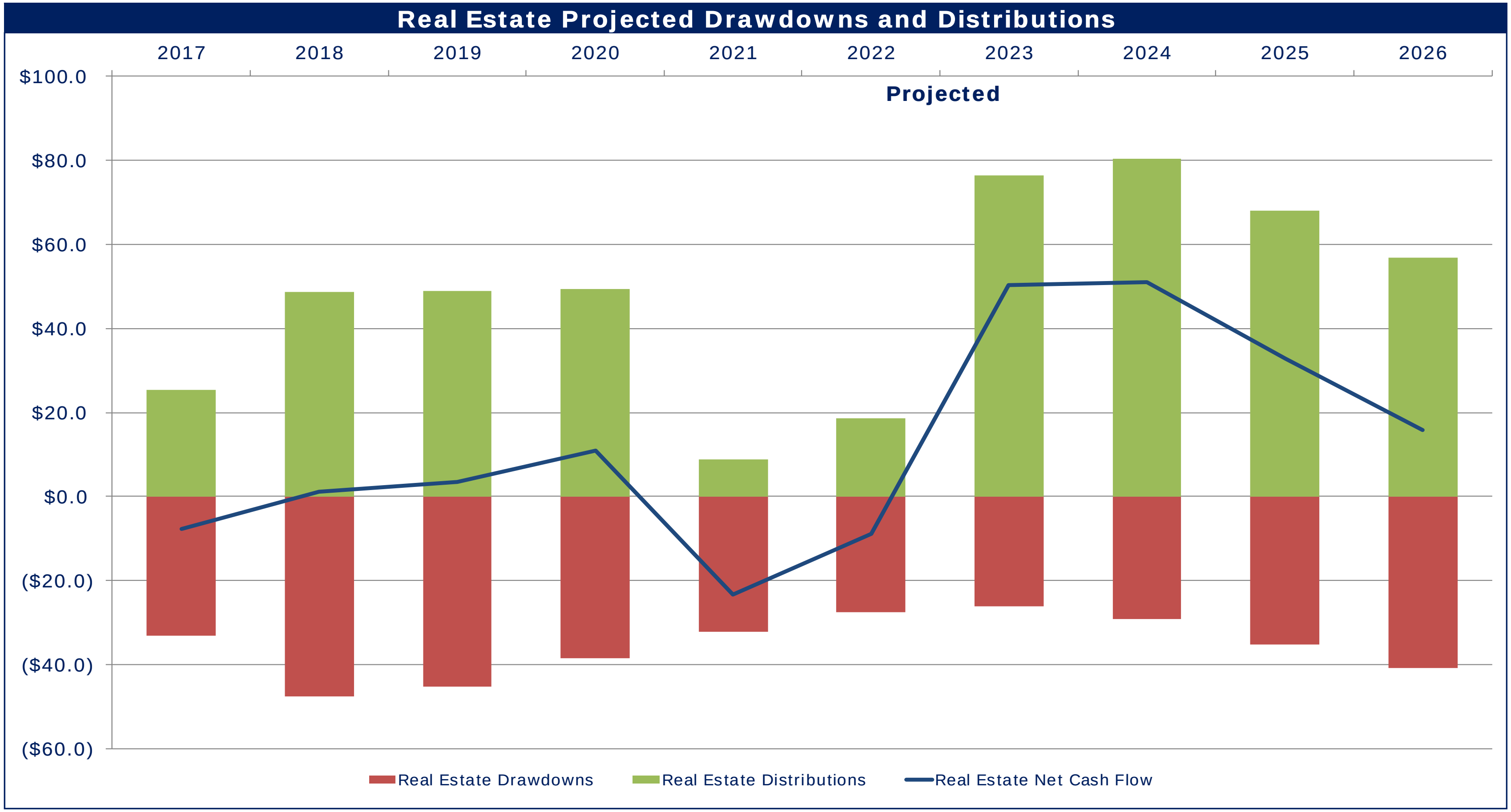
REITs/REOCs (Open-End)

Fund Name	Vintage Year	Committed	Paid In Capital	Capital to be Funded	Cumulative Distributed	Current Valuation (NAV)	Total Value	Net benefit	% of Dividends Reinvested	Redemption Requests
Heitman	2005	$57.5	$57.5	$0.0	$0.0	$57.5	$57.5	$0.0	0%	Yes
Principal	2005	$80.7	$80.7	$0.0	$0.0	$80.7	$80.7	$0.0	0%	Yes
Total REITs/REOCs (Open-End)		$138.2	$138.2	$0.0	$0.0	$138.2	$138.2	$0.0	NA	NA

Data as of 12/31/2016

Heitman and Principal shown as multiple line items for modeling purposes

Projected Drawdowns and Distributions



	Projected									
Year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Real Estate Drawdowns	($33)	($48)	($45)	($38)	($32)	($27)	($26)	($29)	($35)	($41)
Real Estate Distributions	25	49	49	49	9	19	76	80	68	57
Real Estate Net Cash Flow	($8)	$1	$4	$11	($23)	($9)	$50	$51	$33	$16

Data as of 12/31/2016

- **Past performance is no guarantee of future results.**
- **The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Information used to prepare this report was obtained directly from the investment managers or custodians, and market index data was provided by other external sources. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
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Pacing Plan Disclaimers

- **NEPC's private markets pacing analysis projects a potential level of future assets and cash flows for a single scenario based on a series of assumptions. This analysis is intended to help estimate future exposure levels. It is not a guarantee of future cash flows, appreciation or returns.**
- **The timing and amounts of projected future cash flows and market values of investments could vary significantly from the amounts projected in this pacing analysis due to manager-specific and industry-wide macroeconomic factors.**
- **Estimates of projected cash flows and market values for existing private markets commitments were made at the Fund level and do not incorporate any underlying portfolio company projections or analysis.**
- **The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
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It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds and private equity:

1. Performance can be volatile and investors could lose all or a substantial portion of their investment
2. Leverage and other speculative practices may increase the risk of loss
3. Past performance may be revised due to the revaluation of investments
4. These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms
5. A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value
6. These funds are not subject to the same regulatory requirements as registered investment vehicles
7. Managers may not be required to provide periodic pricing or valuation information to investors
8. These funds may have complex tax structures and delays in distributing important tax information
9. These funds often charge high fees
10. Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy