

ALIGNIUM

4Q2018 Real Estate Performance & 2018 Annual Real Estate Portfolio Review

City of Phoenix Employees' Retirement System (COPERS)

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4Q2018 Real Estate Portfolio Performance



Portfolio Overview

	Investment	COPERS Commitment	Structure	Investment Period Expiration	Commitment	Unfunded Commitment	% Funded ¹	Status ²
Core	Morgan Stanley Prime	3Q 2006	Open	N/A	\$90,500,000	\$0	100.0%	Stabilized
	JPMorgan SPF	2Q 2007	Open	N/A	\$87,380,529	\$0	100.0%	Stabilized
Total Core Portfolio					\$177,880,529	\$0	100.0%	
Non-Core	JDM Partners I	1Q 2010	Closed	Expired	\$20,000,000	\$551,724	97.2%	Harvesting
	TA Realty IX	2Q 2010	Closed	Expired	\$9,000,000	\$0	100.0%	Nearly Liquidated
	RECAP III	1Q 2012	Closed	Expired	\$30,000,000	\$6,853,143	77.2%	Nearly Liquidated
	Wheelock Street I	2Q 2012	Closed	Expired	\$20,000,000	\$3,724,018	81.4%	Nearly Liquidated
	Northwood Series IV	1Q 2014	Closed	2Q 2019	\$20,000,000	\$7,868,452	60.7%	Harvesting
	Wheelock Street II	3Q 2014	Closed	Expired	\$30,000,000	\$9,002,095	70.0%	Harvesting
	Northwood Series V	1Q 2015	Closed	2Q 2020	\$30,000,000	\$8,279,958	72.4%	Investing
	RECAP IV	1Q 2015	Closed	Expired	\$30,000,000	\$8,052,132	73.2%	Investing
	HSI V	2Q 2016	Closed	3Q 2019	\$25,000,000	\$12,082,834	51.7%	Investing
	SC Core Fund	3Q 2016	Closed	2Q 2020	\$30,000,000	\$16,511,194	45.0%	Investing
	Wheelock Street V	4Q 2016	Closed	4Q 2020	\$25,000,000	\$14,567,585	41.7%	Investing
	Focus Senior Housing I	2Q 2017	Closed	2Q 2021	\$25,000,000	\$20,571,861	17.7%	Investing
	Hammes Partners III	2Q 2017	Closed	2Q 2022	\$25,000,000	\$24,182,060	3.3%	Investing
RECAP V	4Q 2018	Closed	4Q 2021	\$25,000,000	\$25,000,000	0.0%	Recently Closed	
Total Non-Core Portfolio					\$353,000,000	\$157,247,056	55.5%	
Total Portfolio					\$530,880,529	\$157,247,056	70.4%	

Note: During 3Q2018 COPERS approved a \$25 million commitment to Ascentris Value Add Fund III.

Performance Summary

	Investment	Market Value	% of RE Portfolio	% Funded	% Realized ³	SI IRR (Gross) ⁴	SI IRR (Net) ⁵	Net Equity Multiple ⁶
Core	Morgan Stanley Prime	\$100,218,583	27.6%	100.0%	38.0%	6.1%	5.4%	1.64x
	JPMorgan SPF	\$96,465,497	26.5%	100.0%	31.4%	5.0%	4.3%	1.48x
	Total Core Portfolio	\$196,684,080	54.1%	100.0%	34.9%	5.6%	4.9%	1.56x
Non-Core	JDM Partners I	\$25,900,055	7.1%	97.2%	31.9%	10.3%	9.1%	1.92x
	TA Realty IX	\$4,860	0.0%	100.0%	100.0%	13.2%	10.4%	1.60x
	RECAP III	\$4,370,811	1.2%	77.2%	88.5%	13.2%	9.4%	1.20x
	Wheelock Street I	\$3,434,065	0.9%	81.4%	91.2%	36.2%	25.3%	1.73x
	Northwood Series IV	\$21,252,522	5.8%	60.7%	33.7%	18.4%	12.9%	1.40x
	Wheelock Street II	\$18,830,746	5.2%	70.0%	50.6%	31.1%	20.5%	1.53x
	Northwood Series V	\$26,647,806	7.3%	72.4%	16.8%	9.3%	6.7%	1.18x
	RECAP IV	\$23,383,584	6.4%	73.2%	14.2%	15.1%	10.6%	1.23x
	HSI V	\$14,167,403	3.9%	51.7%	11.6%	31.1%	15.8%	1.16x
	SC Core Fund	\$14,176,050	3.9%	45.0%	4.8%	5.9%	5.2%	1.09x
	Wheelock Street V	\$10,053,614	2.8%	41.7%	0.0%	7.4%	-4.8%	0.96x
	Focus Senior Housing I	\$4,093,287	1.1%	17.7%	0.0%	-0.7%	-17.8%	0.92x
	Hammes Partners III	\$506,052	0.1%	3.3%	N/A	N/A	N/A	N/A
RECAP V	\$0	0.0%	0.0%	N/A	N/A	N/A	N/A	
	Total Non-Core Portfolio	\$166,820,855	45.9%	55.5%	50.0%	16.1%	11.8%	1.35x
	Total Portfolio	\$363,504,935	100.0%	70.4%	42.9%	7.8%	6.4%	1.44x

Notes:

- Sub-Portfolio and Total Portfolio composite performance figures include data from liquidated investments not shown in table.
- During 3Q2018 COPERS approved a \$25 million commitment to Ascentris Value Add Fund III.

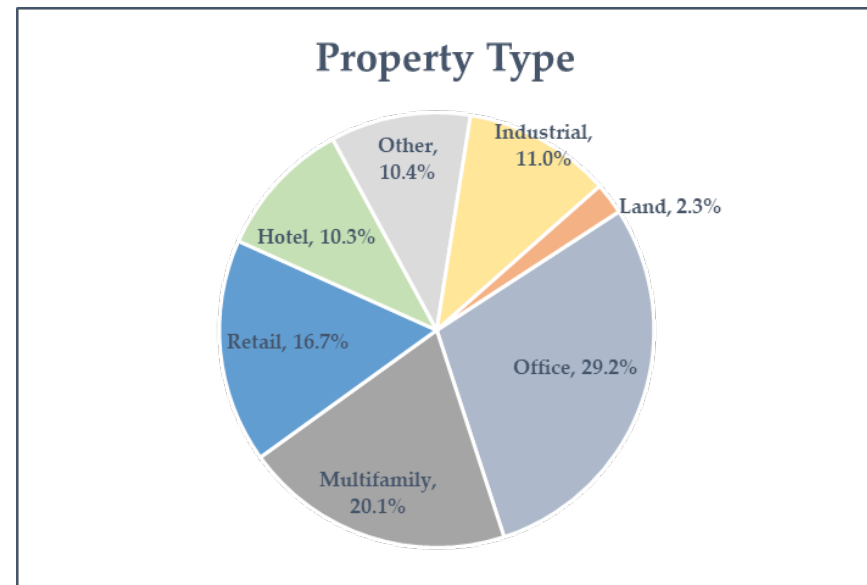
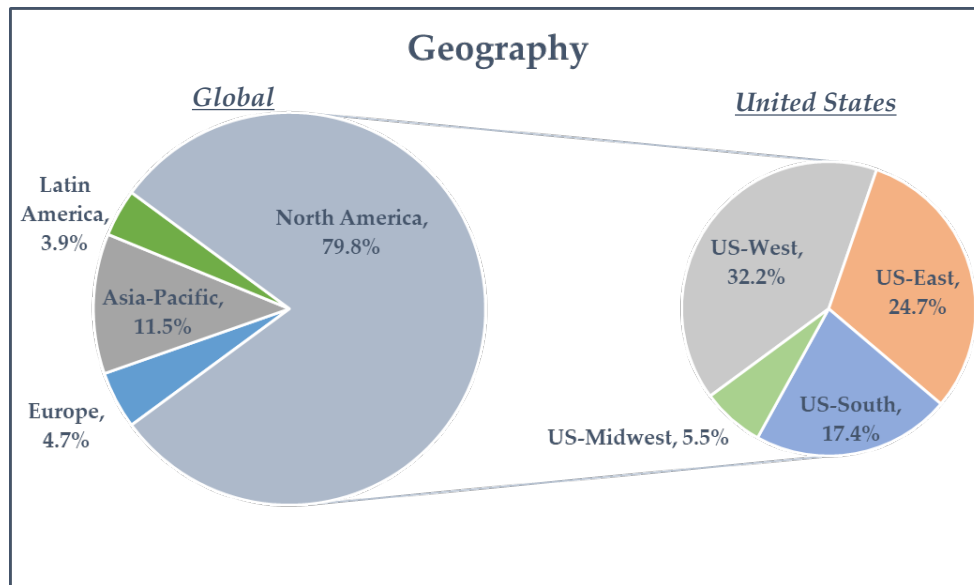
Performance Summary



	Time-Weighted Returns (Gross)					Net IRR ⁴	Net EM ⁵
	4Q2018	1-Yr	3-Yr	5-Yr	SI		
Core	2.1%	8.5%	8.8%	11.0%	7.8%	4.9%	1.56x
Non-Core	7.2%	13.5%	13.0%	12.3%	15.4%	11.8%	1.35x
Total Portfolio	4.4%	10.8%	10.6%	11.6%	8.5%	6.4%	1.44x
<i>NCREIF ODCE</i>	1.8%	8.3%	8.2%	10.4%	6.4%	-	-



Diversification



- Portfolio is well diversified by both Geography and Property Type
- Portfolio will continue to benefit from international diversification as funds with an International focus (HSI V, SC Core, RECAP IV) continue to call capital
- Exposure to “niche” property types like medical office buildings and senior housing will increase as capital continues to be called in Focus Senior Housing Fund I and Hammes III

Leverage Profile

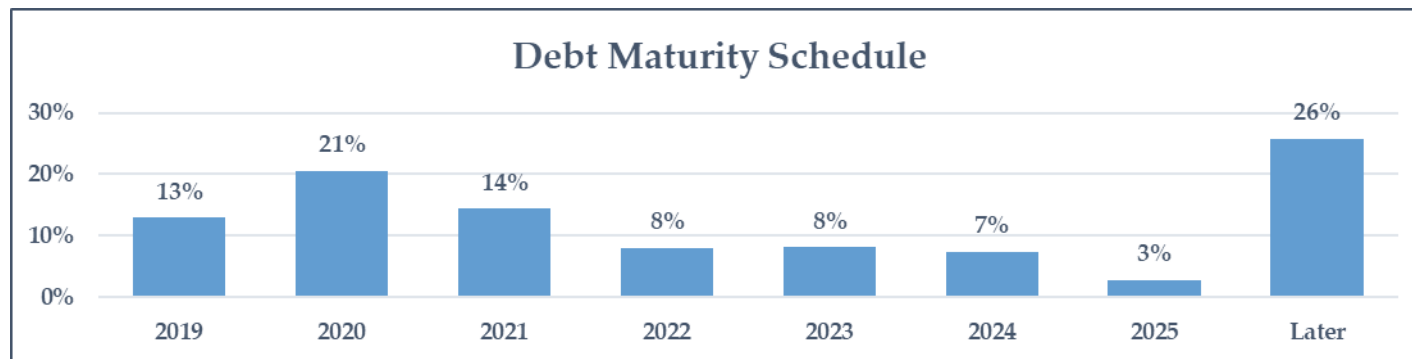
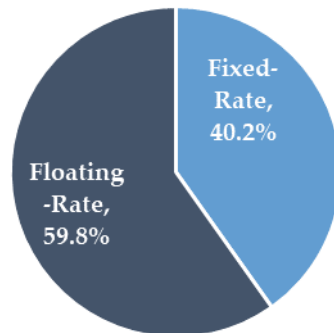
Total Portfolio Loan-to-Value (LTV) ⁷: 35.6%

Core Portfolio LTV: 20.3%

Non-Core Portfolio LTV: 47.4%

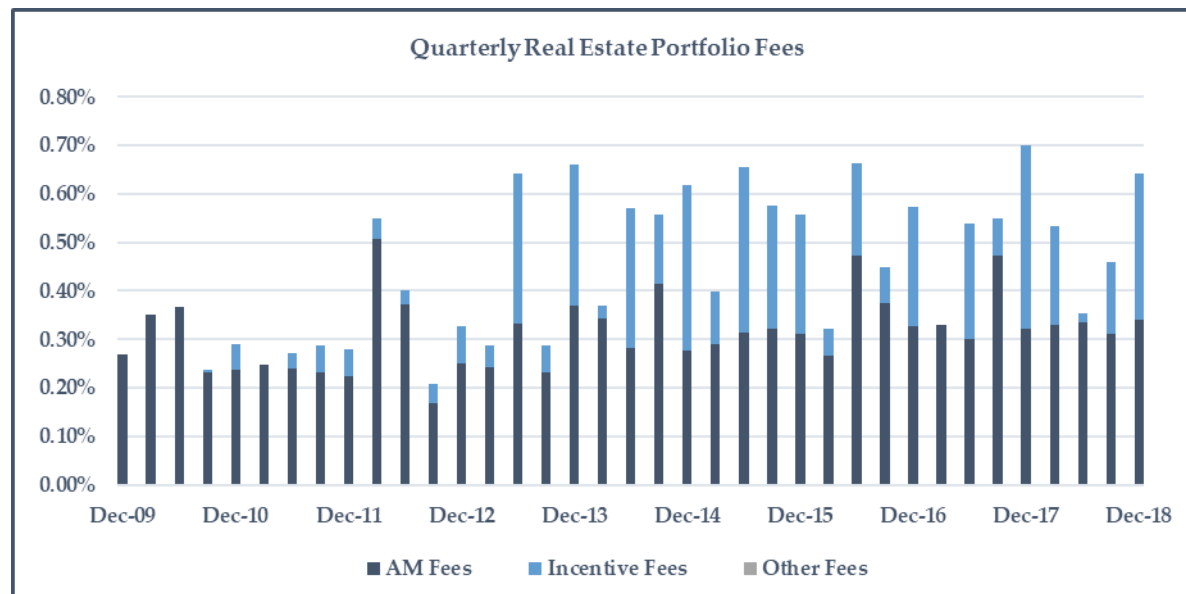
Weighted-Average Interest Rate: 4.1%

- Very modest use of leverage across the portfolio
- Non-Core Portfolio LTV Ratio of less than 50% reflects a focus on managers and strategies that can perform without excess leverage risk



Fee Summary ⁸

RE Portfolio Fees (% of Market Value)		
Type	4Q2018	Quarterly Avg.
Asset Mgmt.	0.34%	0.29%
Incentive	0.30%	0.11%
Other	0.00%	0.00%
Total	0.64%	0.40%



- Gross-net return spread for 4Q2018 is above average, due to incentive fee accruals based on outsized appreciation returns during the quarter
- Incentive fees for the quarter primarily charged to Wheelock II, Northwood IV & V, and Morgan Stanley Prime.

Subsequent Events

Below are some key portfolio updates that occurred subsequent to the end of 4Q2018:

1Q2019 Core Portfolio Flash Returns:

- JP Morgan SPF: +0.5% (gross)
- Morgan Stanley Prime: +1.5% (gross)

HSI Fund V

- During 1Q2019, the fund called capital for the acquisition of several new investments, including iTower and Evolution Corporate, both Class A office towers in the Alphaville submarket of São Paulo.

RECAP III

- The fund is exploring the option of exiting the fund's remaining hospitality assets in Thailand via a public REIT listing and is targeting to sell all remaining assets during 2019.

RECAP IV

- In February, the fund made a distribution of approximately \$30 million to investors from proceeds received from the refinancing of Project Gold, an office tower located in Sydney, Australia.

RECAP V

- COPERS funded its initial capital call of approximately \$2.1 million during 1Q2019.

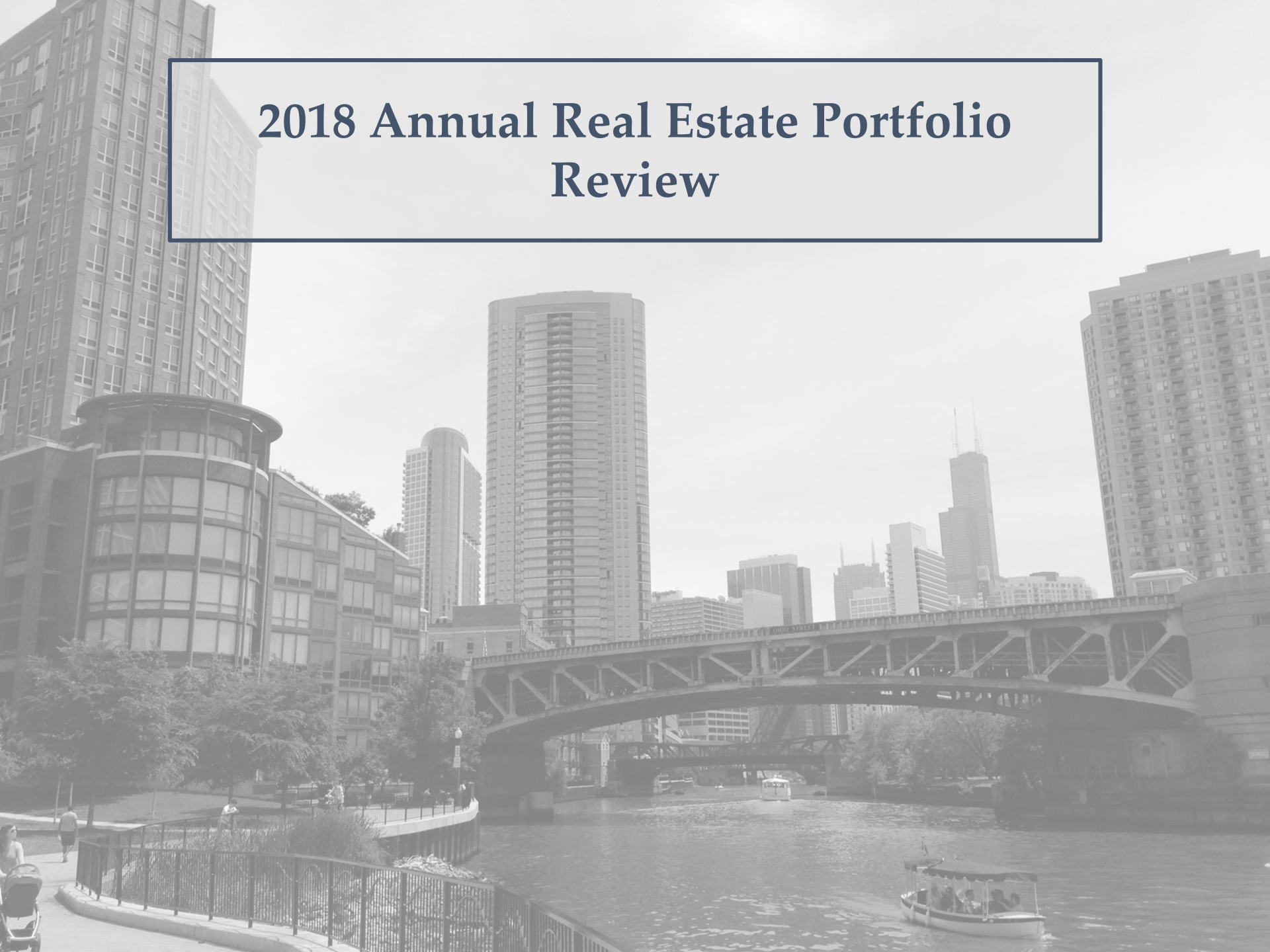
SC Core

- In March, the fund called approximately \$64 million to fund the acquisition of Project Heartland, a large retail mall in Singapore

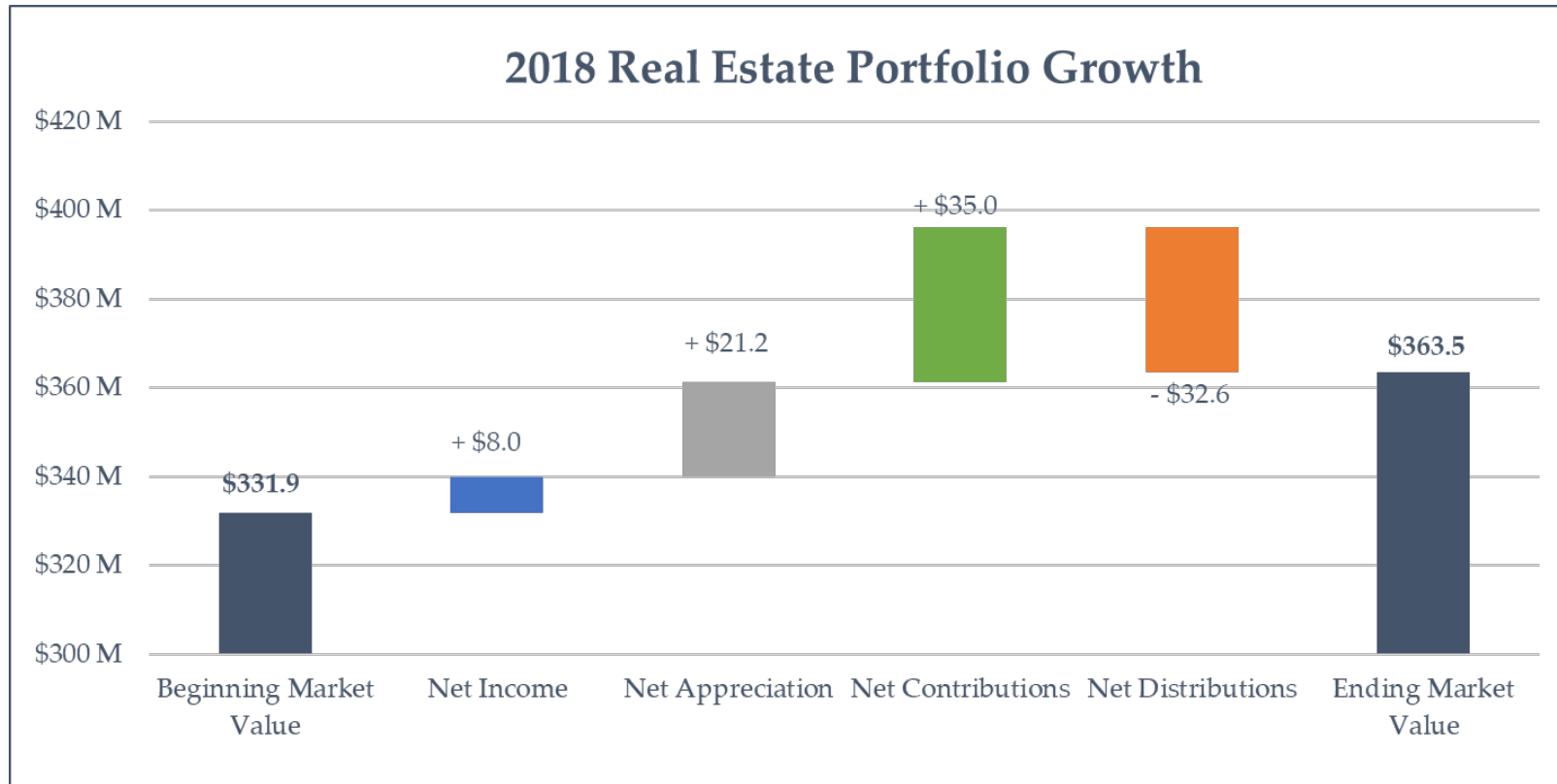
Wheelock Street Real Estate Fund II

- During 1Q2019, the fund distributed approximately \$3.5 million to COPERS resulting from the partial and full realization of several investments, including Marriot Mission Valley and Seaglass at Bonita Bay.

2018 Annual Real Estate Portfolio Review

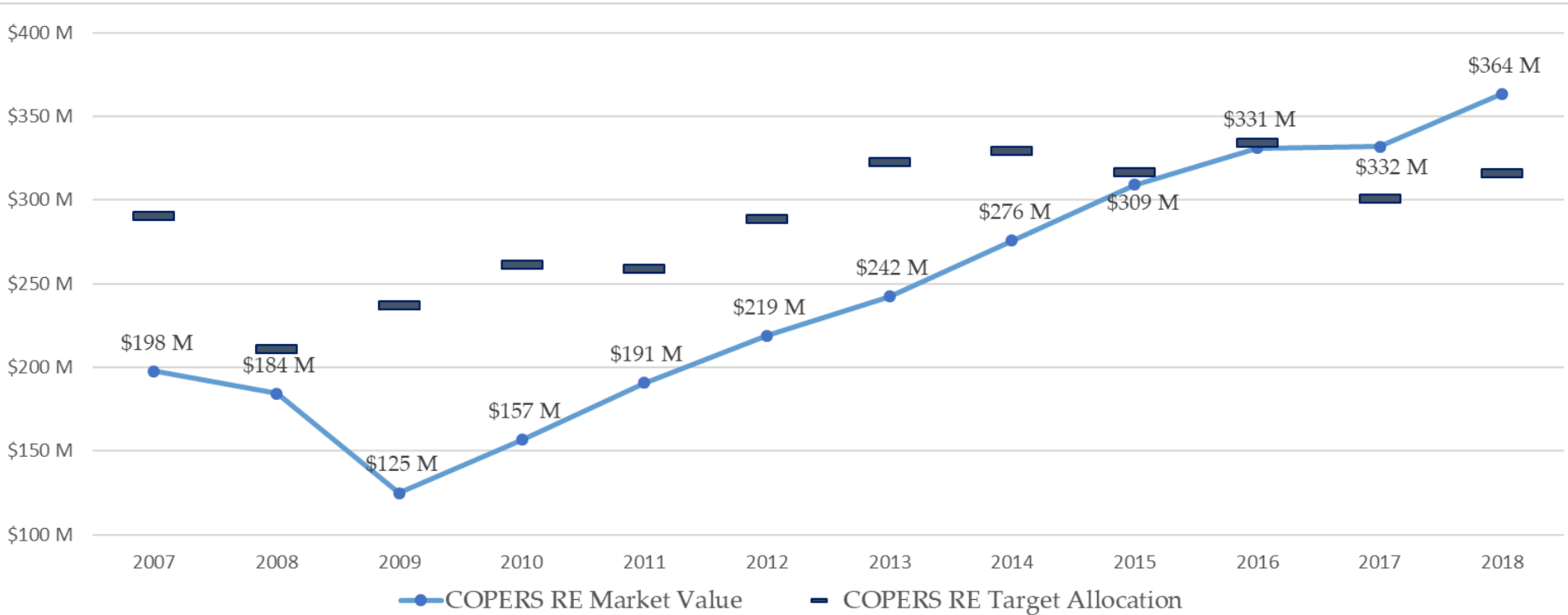


2018 Activities



- Portfolio generated over \$29 million of value during CY2018
- Distributions roughly matched contributions during the year, a sign of a “steady state” portfolio

Portfolio Growth & Timeline



- Ascentris VA III
- RECAP V
- Focus Senior Housing I
- Hannnes III
- Wheelock Street V
- SC Core Fund
- HSI V
- RECAP IV
- Northwood Series V
- Northwood Series IV
- Wheelock Street II
- Wheelock Street I
- RECAP III
- TA Realty IX
- JDM I
- RECAP II
- Wrightwood HYP II
- JP Morgan SPF
- Morgan Stanley Prime

Note: The COPERs RE Target Allocation for YE 2018 based on estimated COPERs Total Portfolio value as of 3/31/2019.



Performance Summary

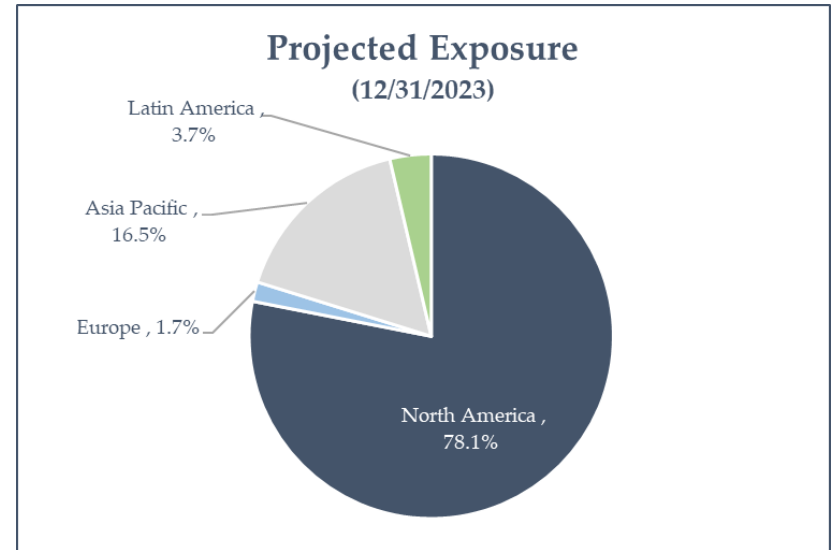
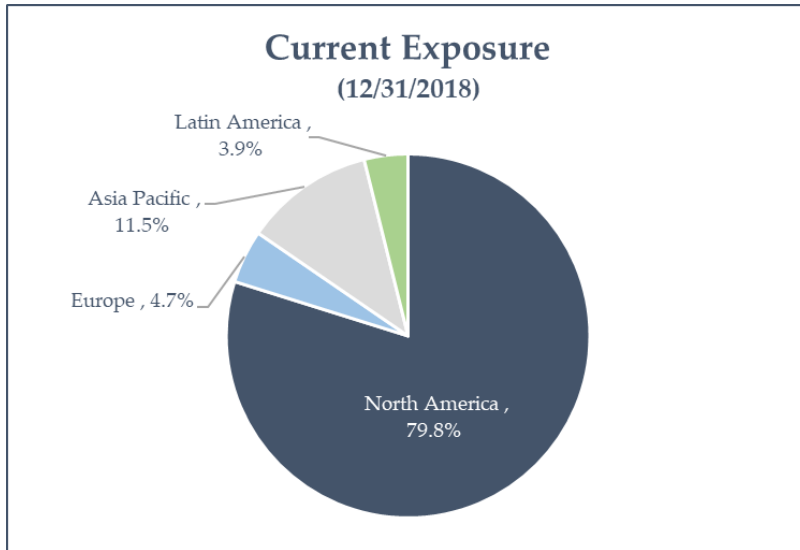
(Returns as of 12/31/2018)

	Investment	COPERS Vintage	% of RE Portfolio	% Funded ¹	% Realized ³	SI IRR (Net) ⁵	Net Equity Multiple ⁶	Performance Compared to Expectations ⁹
Core	Morgan Stanley Prime	2006	27.6%	100.0%	38.0%	5.4%	1.64x	↓
	JPMorgan SPF	2007	26.5%	100.0%	31.4%	4.3%	1.48x	↓
Total Core Portfolio			57.1%	100.0%	34.9%	4.9%	1.56x	
Non-Core	JDM Partners I	2010	7.1%	97.2%	31.9%	9.1%	1.92x	✓
	TA Realty IX	2010	0.0%	100.0%	100.0%	10.4%	1.60x	✓
	RECAP III	2012	1.2%	77.2%	88.5%	9.4%	1.20x	↓
	Wheelock Street I	2012	0.9%	81.4%	91.2%	25.3%	1.73x	↑
	Northwood Series IV	2014	5.8%	60.7%	33.7%	12.9%	1.40x	✓
	Wheelock Street II	2014	5.2%	70.0%	50.6%	20.5%	1.53x	↑
	Northwood Series V	2015	7.3%	72.4%	16.8%	6.7%	1.18x	TBD
	RECAP IV	2015	6.4%	73.2%	14.2%	10.6%	1.23x	TBD
	HSI V	2016	3.9%	51.7%	11.6%	15.8%	1.16x	TBD
	SC Core Fund	2016	3.9%	45.0%	4.8%	5.2%	1.09x	TBD
	Wheelock Street V	2016	2.8%	41.7%	0.0%	-4.8%	0.96x	TBD
	Focus Senior Housing I	2017	1.1%	17.7%	0.0%	-17.8%	0.92x	TBD
	Hammes Partners III	2017	0.1%	3.3%	N/A	N/A	N/A	TBD
RECAP V	2018	0.0%	0.0%	N/A	N/A	N/A	TBD	
Total Non-Core Portfolio			42.9%	55.5%	50.0%	11.8%	1.35x	
Total Portfolio			100.0%	70.4%	42.9%	6.4%	1.44x	

Portfolio Storylines

- **Continued Diversification of the COPERS Real Estate Portfolio**
 - Made two (2) new commitments during CY 2018:
 - RECAP V: Take advantage of continued maturation and expansion of real estate markets and demographic growth trends in Asia-Pacific region
 - Ascentris VA III: Unique “club fund” targeting high-growth U.S. markets in diversified strategy focusing on relative value opportunities
- **Non-Core Portfolio Investments Drove Returns as Core Portfolio Provided Consistent Performance**
 - Non-Core Portfolio returned 13.5% for calendar year 2018, driven by an annual appreciation return of 9.7% (gross of fees)
 - Core Portfolio returned 8.5% for 2018, in line with 2017 (+8.3%)
 - U.S. core valuations remain near or at all-time highs in most markets
- **Non-Core Investments Actively Returning Capital**
 - Over \$25 million in distributions from Non-Core portfolio in 2018
 - RECAP II fully liquidated in 2018 and TA Realty IX fully liquidated in 1Q2019
 - RECAP III and Wheelock Street I are substantially realized (~90%) and expect to be fully realized in 2019

Projected Geographic Diversification

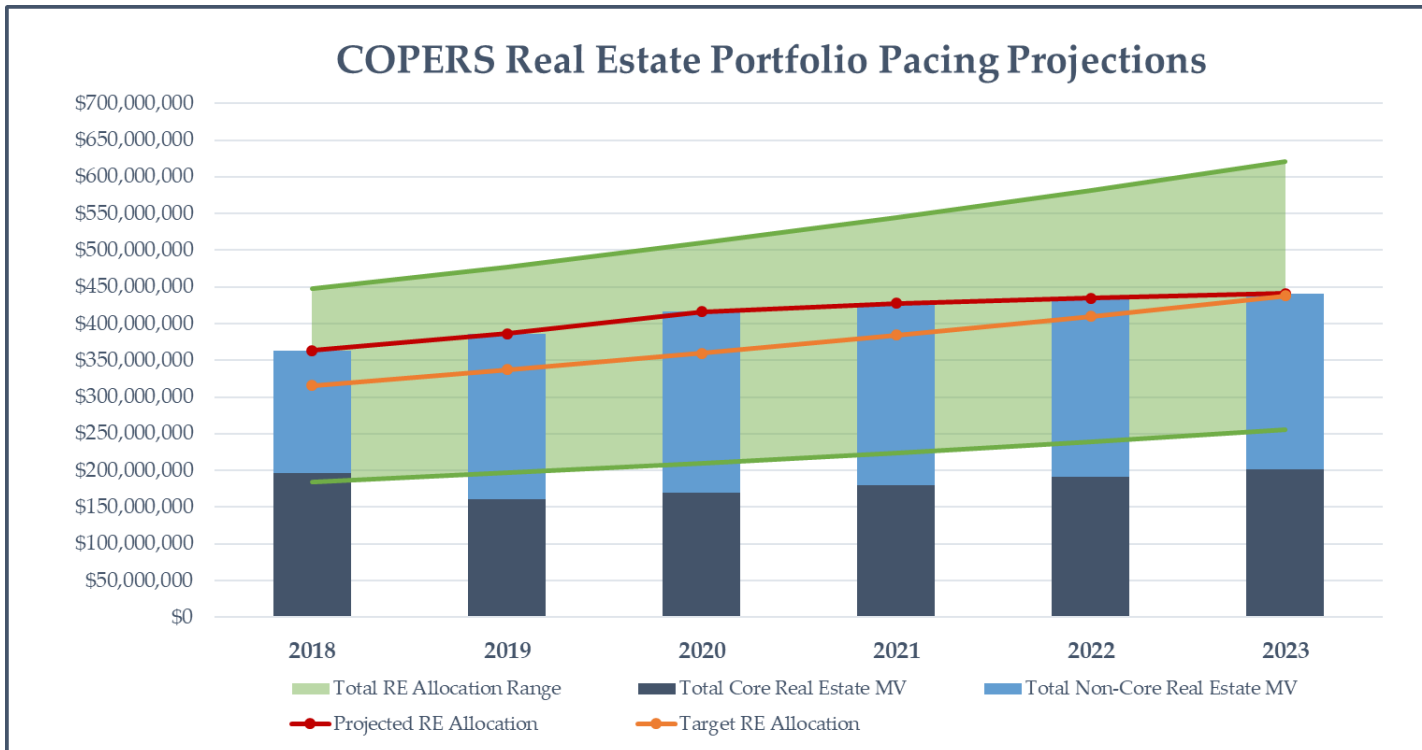


Portfolio Expected to Remain Well-Diversified

- Over \$68 million of unfunded commitments to international strategies
 - Taking advantage of attractive demographic trends around the world to smooth returns over time
 - Focusing more on higher growth prospects of Asia-Pacific markets relative to European markets
- Portfolio will continue to focus primarily on the U.S. market

Real Estate Investment Pacing Study

- COPERS Real Estate Portfolio has achieved its long-term allocation target of 12%
- However, new investments are necessary to replace capital being returned by mature fund investments
- Pacing analysis calls for approximately \$20 million of new investments per year in 2019 and 2020



Note: The COPERS RE Target Allocation for YE 2018 based on estimated COPERS Total Portfolio value as of 3/31/2019.

2018 COPERS Real Estate Goals Met

- ✓ **Actively Monitor Investments and Maintain “Steady State”**
 - Portfolio has achieved its long-term target allocation
 - Recommendation for partial redemption of Core fund positions to rebalance and fund future commitments
- ✓ **Selectively Make New Non-Core Commitments as Opportunities Arise Around the World**
 - Made two (2) Non-Core investments during 2018 (RECAP V and Ascentris VA III)
 - Focused on high-growth markets with managers that have proved prudent in deploying capital
- ✓ **Actively Engage Managers to Realize Value Once Business Plans are Achieved**
 - COPERS received over \$32 million in distributions during 2018, including over \$22 million comprised of return of capital or capital gain

COPERS Real Estate Priorities for 2019 and Beyond

- ❑ **Actively Monitor Investments and Maintain “Steady State”**
 - Portfolio has achieved its long-term target allocation

- ❑ **Selectively Make New Non-Core Commitments as Opportunities Arise Around the World**
 - Recycle capital coming back from mature portfolio investments (e.g., JDM Partners, RECAP III, Wheelock Street II, and Northwood IV)

- ❑ **Perform Fee Reconciliations on Recently-Liquidated Investments**
 - TA Realty IX fully liquidated during 1Q2019, RECAP III and Wheelock I expected to be fully realized in 2019

- ❑ **Maintain Active Engagement with Managers to Identify and Avoid Any Investment Pitfalls**
 - Alignium remains in constant communication with COPERS’ real estate managers through regular update meetings, as well as representation on fund advisory boards

Appendix



4Q2018 Portfolio NAV Summary

	Investment	Opening Value	Net Income	Net Appreciation	Capital Called	Capital Distributed	Ending Value
Core	Morgan Stanley Prime	\$ 99,245,751	\$ 675,328	\$ 1,275,651	\$ -	\$ 978,147	\$ 100,218,583
	JPMorgan SPF	\$ 95,563,464	\$ 644,182	\$ 917,136	\$ 238,909	\$ 900,449	\$ 96,465,497
	Total Core Portfolio	\$ 194,809,215	\$ 1,319,510	\$ 2,192,787	\$ 238,909	\$ 1,878,596	\$ 196,684,080
Non-Core	JDM Partners I	\$ 26,718,290	\$ 154,026	\$ 88,747	\$ -	\$ 1,061,008	\$ 25,900,055
	TA Realty IX	\$ 18,508	\$ (223)	\$ 15	\$ -	\$ 13,440	\$ 4,860
	RECAP III	\$ 5,992,743	\$ 1,336,973	\$ (1,157,096)	\$ 91,870	\$ 1,893,679	\$ 4,370,811
	Wheelock Street I	\$ 3,920,689	\$ (9,560)	\$ 223,888	\$ -	\$ 700,952	\$ 3,434,065
	Northwood Series IV	\$ 20,451,600	\$ 221,895	\$ 773,697	\$ 198,603	\$ 393,272	\$ 21,252,522
	Wheelock Street II	\$ 19,863,486	\$ 147,317	\$ 1,919,666	\$ 68,078	\$ 3,099,723	\$ 18,830,746
	Northwood Series V	\$ 25,903,340	\$ 108,842	\$ 691,180	\$ 773,917	\$ 829,472	\$ 26,647,806
	RECAP IV	\$ 20,866,295	\$ (771)	\$ 1,727,210	\$ 1,014,731	\$ 223,882	\$ 23,383,584
	HSI V	\$ 9,958,715	\$ (51,945)	\$ 2,801,244	\$ 1,459,390	\$ -	\$ 14,167,403
	SC Core Fund	\$ 13,609,856	\$ 503,629	\$ 39,085	\$ 23,480	\$ -	\$ 14,176,050
	Wheelock Street V	\$ 9,815,369	\$ (120,916)	\$ 359,161	\$ -	\$ -	\$ 10,053,614
	Focus Senior Housing I	\$ 1,529,293	\$ 40,837	\$ 79,247	\$ 2,443,910	\$ -	\$ 4,093,287
	Hammes Partners III	\$ -	\$ (254,295)	\$ 3,142	\$ 817,940	\$ 60,735	\$ 506,052
RECAP V	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Total Non-Core Portfolio	\$ 158,648,184	\$ 2,075,809	\$ 7,549,186	\$ 6,891,919	\$ 8,276,163	\$ 166,820,855
	Total Portfolio	\$ 353,457,399	\$ 3,395,319	\$ 9,741,973	\$ 7,130,828	\$ 10,154,759	\$ 363,504,935

Note that figures may not sum to ending values due to differences in fee accruals and payment.

Definitions & Footnotes

¹ **Commitment Funded Percentage (“% Funded”)** – The percentage of the investor’s commitment that has been called by the manager to date, less any capital returned during the investment period that is deemed to be recallable.

² **Investment Status Definitions:**

- *Recently Closed*-Investment is awaiting first capital call designated for investment purposes
- *Investing*- Investment actively making commitments to new underlying investments; within stated investment period
- *Stabilized*- Investment is fully invested and unlikely to make near-term return of capital distributions
- *Harvesting*- Investment is actively divesting
- *Nearly Liquidated*- Investment is substantially divested of assets (typically > 80% realized)
- *Liquidated*- Investment has divested of all assets and either holds cash or no balance at all

³ **Realization Percentage (“% Realized”)** – The percentage of an investment’s cumulative distributions to date relative to the total value of the fund, measured as a sum of the cumulative distributions to date and the remaining investment value.

⁴ **Since Inception Gross Internal Rate of Return (“SI-IRR GROSS”)** – Reflects the implied discount rate equating the present value of an investment’s cash outflows and the remaining market value to the present value of the investment’s cash inflows, excluding any impact of fees charged or accrued.

⁵ **Since Inception Net Internal Rate of Return (“SI-IRR NET”)** - Reflects the implied discount rate equating the present value of an investment’s cash outflows and the remaining market value to the present value of the investment’s cash inflows, accounting for the impact of fees.

⁶ **Net Equity Multiple (“NET EM”)** – The sum of cumulative distributions and remaining investment value divided by total paid-in-capital, accounting for the impact of fees.

⁷ **Loan-to-Value Ratio (“LTV %”)** – Ratio of all outstanding direct debt obligations divided by the fair value of the fund’s gross real estate asset value.

⁸ **Fee Summary** – Fees percentages shown reflect fees paid relative to beginning portfolio market value.

⁹ **Performance Compared to Expectations** – Alignium’s assessment of the investment’s performance to date relative to the original investment strategy and target returns.

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