



COMMONWEALTH OF PENNSYLVANIA
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

Public Investment Memorandum

Carlyle Realty Partners VIII, L.P.

Real Estate Commitment

William P. Stalter
Senior Portfolio Manager

February 10, 2017



Recommendation:

Staff, together with Courtland Partners, Ltd, recommends to the Board a commitment of up to \$200 million to Carlyle Realty Partners VIII, L.P. ("Fund VIII", "CRP VIII" or the "Fund"). The Carlyle Group ("Carlyle", the "Manager" or the "Firm"), a Washington D.C. headquartered investment firm, is sponsoring the Fund to make investments in a diversified portfolio of real estate properties in the U.S.

Firm Overview:

The Carlyle Group (NASDAQ: CG) is a leading global alternative asset manager with approximately \$176 billion in assets under management across 128 active funds and 170 fund of funds vehicles. Carlyle manages alternative investment funds across four segments: Corporate Private Equity, Real Assets, Global Market Strategies and Investment Solutions.

In addition to real estate, Carlyle focuses on sectors in which it has demonstrated expertise: consumer & retail, aerospace, defense & government services, energy & power, financial services, healthcare, industrial & transportation, infrastructure, technology & business services, and telecommunications & media.

A summary of each Investment Group is described below:

Corporate Private Equity. Carlyle's Corporate Private Equity segment, established in 1990 with its first U.S. buyout fund, manages its buyout and growth capital funds, which pursue a wide variety of corporate investments of different sizes and growth potentials. Carlyle's active Corporate Private Equity funds are organized and operated by geography or industry and are managed by separate teams of local professionals who live and work in the markets in which they invest. The Carlyle Corporate Private Equity professionals have invested approximately \$72 billion in 551 transactions across the globe.

Global Market Strategies. Carlyle's Global Market Strategies segment, established in 1999 with its first high-yield fund, manages a group of active funds with \$35 billion in assets under management, which pursue investment opportunities across leveraged loans and structured credit, energy mezzanine opportunities, middle market lending, distressed debt, long/short credit, long/short emerging markets equities, macroeconomic strategies, commodities trading and commodity structured transactions.

Real Assets. Carlyle's Real Assets segment, established in 1997 with its first U.S. real estate fund, manages active funds with approximately \$38 billion of assets under management. Carlyle's Real Assets segment manages: (i) U.S. and internationally focused real estate funds, (ii) an infrastructure fund, (iii) two power funds, (iv) an international energy fund, (v) funds managed by NGP, and (vi) Carlyle's four Legacy Energy funds (funds that Carlyle jointly manages with Riverstone). Since inception, Carlyle's Real Assets segment has invested approximately \$41 billion in 895 transactions around the world.

Investment Solutions. Carlyle's Investment Solutions segment, established in 2011 with the acquisition of AlpInvest Partners B.V. ("AlpInvest"), manages fund of funds vehicles with \$46 billion of assets under management. Investment Solutions manages fund of funds, secondary and co-investment funds across corporate private equity and real estate strategies through AlpInvest and Metropolitan Real Estate respectively.

Market Opportunity:

The continued improvement of the U.S. economy and the current composition of real estate capital flows provide a compelling environment in which to construct a portfolio of real estate assets that are driven by demographic demands (self-storage, multi-family residential, senior housing, active adult living, life sciences, manufactured housing and student housing). Demographic sector Net Operating Income ("NOI") growth has increased more than two times the GDP sector growth rate since 2007, thus providing compelling risk-adjusted returns versus assets that are GDP-driven. However, there are select opportunities to acquire, develop or redevelop properties in sectors that are GDP-driven (office, retail,



industrial and hotel) which can provide further diversification to the Fund's portfolio. Even as property and capital market conditions have improved in recent years, there remains a number of owners lacking the time horizon, capital requirements or operating expertise to effectively own, manage and improve assets across multiple property sectors and high growth markets. There are also opportunities for further improvement in property fundamentals, which provides opportunity for rent growth as assets are physically changed to create value. As the real estate capital market favors well-located Class A properties, there is a distinct opportunity to develop new properties or renovate existing properties that meet or exceed the construction and design quality standards relative to competing properties. Carlyle Realty employs a group of in-house construction experts who provide an additional layer of oversight to such projects.

Additionally, the fluid capital market for real estate presents an ideal environment to acquire assets with moderate levels of low-cost debt, with a plan to improve the assets during its holding period. This same environment is also supportive for liquidating assets once business plans have been achieved, as there remains strong demand for stabilized real estate assets.

Portfolio Fit:

A commitment to the Fund will be allocated to the Opportunistic Real Estate portion of PSERS' Real Assets portfolio. As of September 30, 2016 and adjusted to include commitments from previous and the current Board meeting, the Real Estate portfolio is 46.2% Opportunistic, 33.3% Value-Added, and 20.5% Core. Investment in this Fund will increase PSERS' Opportunistic real estate exposure, which is currently above a long term target of 30%.

The table below summarizes PSERS' projected exposure inclusive of a recommended \$200 million commitment to the Fund:

Investment Type (\$M)	Market Value ¹	%	Unfunded	%	Total Exposure	%
Opportunistic	2,816.0	47.7%	1,075.3	42.8%	3,891.2	46.2%
Value-Add	1,649.7	27.9%	1,150.2	45.8%	2,799.9	33.3%
Core	1,443.2	24.4%	285.7	11.4%	1,728.9	20.5%
Total	\$ 5,908.88	100.0%	\$ 2,511.22	100.0%	\$ 8,420.10	100.0%

¹Includes Gross PTRES exposure

Investment Strategy:

The Fund's principal objective will be to achieve significant long-term capital appreciation by creating a diversified portfolio of real estate investments across major property types, which primarily includes office, retail, industrial, hotel, self-storage, multi-family residential, senior housing, active adult living, life sciences, manufactured housing and student housing properties. The Fund will focus on the acquisition, development and redevelopment of well-located institutional-quality assets that are undermanaged and/or undercapitalized. The Manager will seek opportunities to improve net operating income and terminal value through renovations, repositioning and re-tenanting. The Manager will construct a diversified portfolio of assets, utilizing modest amounts of leverage, with an emphasis on capital preservation and risk mitigation. The Carlyle investment philosophy has been consistent over time:

	Description
Deep Market Presence	Presence in 36 markets and 15 property sectors, with offices in Washington, D.C., New York, Los Angeles and San Francisco; facilitated by a staff of 90 investment professionals, in addition to a stable of joint venture/operating partners across the U.S.
Demographic-driven Sector Selection	Management intends to focus on demographic-driven sectors, which compared to GDP-driven sectors, have shown outsized NOI growth since 2007. Pent-up demand and decreasing levels of homeownership have led to increased demand within the multifamily sector. Retiring Baby Boomers have created demand for Active Adult living communities.



Single-asset Approach	Management is able to better underwrite factors that affect fundamental values, manage concentration risk and provide better controls over asset management decisions.
Prudent Leverage Levels	In the three most recent CRP funds, the weighted average LTV ranges from 41% - 55%. The team utilizes a cellular, single-silo capital structure with limited cross-collateralization.
Low Concentration	Manage concentration risk; no more than 2-5% of the Fund's capital in an individual investment. Average equity check per transaction has been ~\$18 million across the CRP fund series.
Disciplined On Exit	Identify multiple exit strategies upfront and sell/monetize upon successful business plan completion (target income levels or target pricing), rather than timing the market.

Investment Instruments:

Investments are expected to be made through a variety of structures, including direct property acquisitions, joint venture transactions, preferred equity and/or mezzanine loan investments.

Investment Structure:

The Fund is a Delaware Limited Partnership, sponsored by The Carlyle Group. The General Partner, Carlyle Realty VIII, L.L.C. ("GP"), is a Delaware limited liability company.

The Fund will be managed by Carlyle Investment Management, L.L.C. ("Manager" or "Adviser"), which is an affiliate of the GP. The Manager is registered with the U.S. Securities Exchange Commission as an investment adviser.

Investment Team:

Carlyle Realty is one of the most experienced and highly-resourced teams in the real estate industry. Robert G. Stuckey has led the team since 1998 and the 13 member senior leadership team (Managing Directors) is one of the most tenured teams in the industry. The team's continuity has enabled, and should continue to enable Carlyle, to adhere to an approach that can achieve attractive risk-adjusted returns across a variety of market conditions.

The Managing Directors lead Carlyle Realty, an investment team of approximately 90 individuals across four offices located in primary target markets. Carlyle Realty has a skilled team of investment professionals dedicated to sourcing, transactional, and/or asset management responsibilities. Additionally, Carlyle Realty maintains in-house construction expertise that provides the team the ability to diligently underwrite renovation and development deals and provides a layer of oversight during construction.

Investment Highlights:

Experienced and Cohesive Leadership
The senior professionals of Carlyle Realty consist of 13 Managing Directors who have an average tenure at Carlyle of approximately 15 years and average real estate experience of approximately 27 years. 75% of Carlyle Realty's Managing Directors have worked together at Carlyle for over a decade.
Solid Track Record
The Carlyle Realty team has amassed a 19-year track record with \$10.2 billion of equity invested in 572 separate investments across all property sectors and in approximately 30 metro markets, with 388 realizations or partial realizations through predecessor investment vehicles. Carlyle Realty funds have achieved a 23% Gross IRR in the aggregate on fully and partially realized investments. Over \$9.8 billion of aggregate distributions have been made since inception. All of PSERS prior investments in Carlyle's US opportunistic funds are currently first quartile performers in the Courtland Partners Index.
Fund Construction
Fund management will seek to mitigate the fund's correlation to the GDP cycle, which is a primary driver of risk in real estate investing. Property-specific concentration risk will be mitigated by investing in a relatively large number of transactions diversified by both geography and sector. The team will endeavor to maintain cellular capital



structures and utilize modest levels of leverage, consistent with Carlyle Realty predecessor funds.

Consistent Investment Approach

The team continues a value-based investment philosophy focused on the underlying fundamentals of real estate properties and three investment themes: 1) focus on demographic-driven demand sectors where demand is expected to sustainably exceed GDP growth, 2) renovate, develop and/or reposition assets in an effort to capture the demand and pricing premium associated with new and functional product and 3) identify pricing advantages that may arise from the cyclical nature of the commercial real estate debt markets.

Investment Considerations:

Competitive Market

The Fund will be competing for investments with many other real estate investment vehicles, as well as publicly-traded REITs, private investment funds, advisers managing pension fund separate accounts, foreign investors, institutional investors, family groups and wealthy individuals. Further, this competition could limit the number of suitable investment opportunities offered to the Fund or the number of properties that it is able to acquire, and may also increase the bargaining power of property owners seeking to sell to the Fund, making it more difficult for the Fund to acquire new properties on attractive terms.

The Carlyle team has demonstrated patience in investing the capital of its US Real Estate Funds. Additionally, the investment period for Carlyle Realty Partners VIII ends five years following the initial close (plus one additional year at the GP's discretion), affording the team adequate time to deploy Fund capital in a prudent manner.

Long-Term Investment Horizon

The term of the Fund will be 10 years, which may be extended for one (1) year at the General Partner's discretion. It is possible that cash flows could be disrupted as a result of sub-optimal market conditions or poor performance at the property level. Adverse conditions could impede or delay the Fund's ability to achieve project financing/refinancing or the sale of Fund investments, which could delay return of capital to the investors.

The team has demonstrated its ability to provide solid risk-adjusted returns since its platform was established in 1997. CRP VI (vintage 2011) is fully deployed and has already returned 119% of investors' capital, with remaining value expected to bring total net proceeds to 170% (1.7x net MoC). CRP V (vintage 2006) has returned 129% of investor capital thus far, with remaining value expected to bring total net proceeds to 150% (1.5x net MoC).

Development, Redevelopment and Construction Risks

The Fund may invest in real property requiring construction, new development or redevelopment. The development and construction of such property is subject to timing, budgeting and other risks that may adversely affect the Fund's operating results. Any renovation, redevelopment, development and related construction activities could subject the Fund to a number of risks, including risks associated with: construction delays, costs overruns, permitting delays, difficulty in obtaining construction financing and/or disruptions in labor availability and material shortages.

The team is well-experienced with projects of this ilk, and to mitigate risks, the Fund is only permitted to invest up to 5% of the Fund's capital in unentitled land. Additionally, Carlyle Realty maintains in-house construction expertise that provides the team the ability to diligently underwrite renovation and development deals and provides a layer of oversight during construction.



PSERS History & Performance:

Since 2001, PSERS has committed \$871 million to five Carlyle US opportunistic real estate partnerships. Additionally, PSERS has made commitments to Carlyle Energy Mezzanine Opportunities Funds I and II and two related co-investments. The following table summarizes PSERS' historical performance with the Carlyle US opportunistic real estate funds, as of September 30, 2016:

Fund (\$,M)	Vintage	Fund Size	Commitment	Contributions	Distributions	NAV	Net IRR	MoC
Carlyle Realty Partners III, L.P.	2000	564.1	141.0	115.2	272.8	62.5	32.3%	2.9x
Carlyle Realty Partners IV, L.P.	2005	950.0	130.0	188.0	153.2	85.8	4.1%	1.3x
Carlyle Realty Partners V, L.P.	2007	3,000.0	300.0	364.6	424.9	89.7	9.0%	1.4x
Carlyle Realty Partners VI, L.P.	2011	2,340.0	200.0	187.4	193.6	106.4	24.9%	1.6x
Carlyle Realty Partners VII, L.P.	2014	4,161.6	100.0	42.4	0.2	54.4	27.8%	1.3x
PSERS Sub-Total			\$871.0	\$897.6	\$1,044.7	\$398.7	14.5%	1.6x

Finance Committee Disclosure:

Relationship with Courtland:	None Disclosed
Introduction Source:	Fund Sponsor
Placement Agent:	None utilized in respect to PSERS' commitment. Carlyle has engaged Wells Fargo as an agent for its High Net Worth feeder vehicle and Etgal as an agent for certain non-US investors. All fees will be borne by Carlyle.
PA Political Contributions:	None Disclosed
PA Presence:	Carlyle CRP VII has made a \$12.9 million investment in a 231 unit multifamily property in King of Prussia, PA
Potential Conflicts:	We are not aware of Carlyle having any investment conflicts
First Time Fund With PSERS:	No
PSERS Allocation Implementation Committee Approval:	February 10, 2017

Oversight Responsibility:

Investment Office:	Charles J. Spiller William P. Stalter	Deputy CIO, Non-Traditional Investments Senior Portfolio Manager
External Consultant:	Courtland Partners	

COURTLAND PARTNERS, LTD.

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February 3, 2017

Board of Trustees
Pennsylvania Public School Employees' Retirement System
5 North 5th Street
Harrisburg, PA 17101

Re: Carlyle Realty Partners VIII, L.P.

Dear Trustees:

Courtland Partners, Ltd. ("Courtland"), having been duly authorized by the Board of PSERS, has evaluated Carlyle Realty Partners VIII, L.P. (the "Fund"). The Fund will invest in equity and debt interests in real estate and real estate-related assets across all major property-types, primarily in the United States. Carlyle tends to focus on acquiring single assets and investing in situations where it maintains control over decisions affecting property performance with a goal of achieving liquidity at its targeted exit price. It is anticipated that the Fund will be invested with relatively similar diversification strategies as employed in prior Carlyle funds in terms of size, sector, and geography. Carlyle has a broad-based investment platform across all property sectors in over 36 major markets, with attractive realized results.

Carlyle seeks to employ portfolio composition and management techniques that Carlyle believes give the Fund the best opportunity to achieve attractive risk-adjusted returns. Carlyle's current primary target markets in the United States include New York City, Washington D.C., Southern California, Northern California, Atlanta, Boston, Chicago, and Seattle. Other markets may also be considered if consistent with Carlyle's dynamic approach to investing. Carlyle will remain focused on markets that exhibit strong demand trends, diverse economic "contributors," supply constraints, and institutional liquidity for exit. Carlyle intends to remain patient, though, and it will seek reliability of demand in a given market (in the form of sustainable job growth and stabilizing housing prices) as it considers a new investment.

Carlyle is currently focused on twelve real estate sectors: senior living, active adult rental, multifamily residential, self-storage, manufactured housing, life sciences, student housing, for-sale residential, office, industrial, retail, and hotel. Of these sectors, Carlyle currently expects multifamily and active adult living to be the two largest areas of the Fund's focus. In each sector, Carlyle seeks to employ its investment philosophy to capitalize on attractive asset- and market-specific conditions. Carlyle expects to identify assets that are in need of recapitalization or are encountering stress based on difficult capital markets conditions. Carlyle will adjust its tactics based on the specific characteristics of an opportunity. As it relates to relative exposure to various sectors, Carlyle may adjust its exposure to various sectors at different times based on market conditions as it determines appropriate.

Carlyle will seek out assets in markets with strong demand factors that through renovations or development have the potential to become Class A properties to attract "core" buyers looking for stable returns from predictable cash flows.

Courtland's recommendation is based upon the following factors and is made within the context of PSERS' investment guidelines.

- Detailed due diligence, including interviews with key Carlyle management team members, and review of all relevant materials provided by Carlyle.
- Evaluation of the Fund's proposed investment strategy within the context of the current investment environment.
- Evaluation of Carlyle's track record and organizational resources.
- Discussion and review of the market conditions in markets relative to the proposed investment strategy.
- The strategy proposed for the Fund is appropriate for the real estate component of the portfolio.

Based on the above, Courtland recommends that PSERS commit up to \$200 million to the Fund. Courtland makes this recommendation considering the General Partner's qualifications and PSERS' overall investment guidelines.

This recommendation is given solely for the benefit of PSERS and cannot be relied upon by other investors considering an investment in the Fund, since their needs, objectives and circumstances may not be identical to those of PSERS. The scope of this recommendation is limited to the investment merits of the Fund. Courtland does not provide legal or other non-investment-related advice.

Sincerely,



Steven Novick
Managing Principal

COURTLAND PARTNERS, LTD.