

COMMONWEALTH OF PENNSYLVANIA
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

Public Investment Memorandum

Blackstone Infrastructure Partners, L.P.

Infrastructure Commitment

William P. Stalter
Senior Portfolio Manager

January 3, 2018



Recommendation:

Staff, together with Courtland Partners, Ltd., recommends to the Board a commitment of up to \$500 million to Blackstone Infrastructure Partners L.P. ("BIP", the "Partnership" or the "Fund"). The Blackstone Group ("Blackstone" or the "Firm"), a New York City based investment firm, is sponsoring the Fund which will seek to deliver attractive risk-adjusted returns by investing in infrastructure assets across the energy infrastructure, transportation, water and waste, and communications sectors, with a primary focus in North America.

Firm Overview:

The Blackstone Group, one of the world's leading investment firms, is based in New York, with offices in Beijing, Dubai, Dublin, Düsseldorf, Hong Kong, Houston, London, Los Angeles, Madrid, Mexico City, Montecito, Mumbai, Paris, San Francisco, São Paulo, Seoul, Shanghai, Singapore, Sydney and Tokyo. Blackstone's alternative asset management businesses include investment vehicles focused on private equity, infrastructure, real estate, hedge fund solutions, non-investment grade credit, secondary funds and multi-asset class exposures falling outside of other funds' mandates. The firm was founded in 1985 by Stephen A. Schwarzman, its current Chairman and CEO, and Peter G. Peterson (who retired from the firm in 2008). Hamilton E. "Tony" James serves as Blackstone's President and Chief Operating Officer and J. Tomilson Hill serves as Vice Chairman. As of September 30, 2017, Blackstone had 133 Senior Managing Directors (including the above named individuals) and approximately 2,186 other employees. Through its different investment businesses, as of September 30, 2017, Blackstone had total assets under management of over \$387 billion.

In addition to its Infrastructure business, Blackstone engages in the following other businesses:

Private Equity
Private Equity investments span a wide range of industries and continents in businesses large and small with assets under management as of September 30, 2017 of \$102.5 billion. This business provides businesses with the capital to realize their growth potential. This capital helps portfolio companies launch new business initiatives, make acquisitions and upgrade technologies and systems to support their long-term plans.
Tactical Opportunities (BTO)
Blackstone Tactical Opportunities is an investment program that seeks to generate attractive risk-adjusted returns by pursuing an opportunistic investment strategy across asset classes, capital structures, and geographies. Blackstone sponsored and organized Tactical Opportunities on the basis of the high volume of attractive non-traditional investment opportunities that are available to Blackstone, but typically are not pursued through traditional investment fund mandates. By virtue of having a leading presence in the Private Equity, Real Estate, Credit and Hedge Fund Solutions asset classes, Blackstone recognized it could coalesce the existing positive synergies these businesses yield for each other into a specific investment program that would actively pursue these high-quality, non-traditional investment opportunities.
Credit (GSO)
GSO is one of the world's largest credit-oriented alternative asset managers, with a focus on delivering attractive risk-adjusted returns and capital preservation. GSO's assets under management as of September 30, 2017 are \$99.5 billion. A team of approximately 330 professionals constitutes one of the largest in the industry, with a deep reservoir of credit expertise and experience across a range of market cycles, further enhanced by access to Blackstone's global resources and perspective. The solutions GSO offers draw upon a range of non-investment grade disciplines such as leveraged loans, high yield bonds, distressed debt, mezzanine lending and rescue financing.
Real Estate
Blackstone's real estate group was established in 1991 and is the largest private equity real estate investment manager in the world today with \$111.3 billion of assets under management through its opportunistic, core+ and debt strategy businesses as of September 30, 2017. It is a global business with investments and people in the United States, Europe, Asia and Latin America. Portfolios include premier properties in top locations, with a diverse mix of hospitality, office, retail, industrial and residential investments.
Hedge Fund Solutions (BAAM)
Blackstone Alternative Asset Management ("BAAM") is the world's largest discretionary allocator to hedge funds, with \$74.2 billion in assets under management as of September 30, 2017. The platform's process is designed to carefully select managers across a range of strategies and to create customized capacity with talented investment



managers. Over the past decade, BAAM's principal solutions business has evolved into one that offers a diverse array of commingled and customized investor solutions, including long-only replacement strategies, special situations investing, emerging manager platforms, permanent capital vehicles, and a multi-manager platform.

Secondary Fund Solutions (Strategic Partners)

Strategic Partners Fund Solutions is a leading investor in the secondary private equity market. Strategic Partners' goal is to provide individual and institutional investors the opportunity to monetize and manage their illiquid investment holdings. Strategic Partners has executed many types of transactions, from single fund transfers to complex, structured portfolio solutions. As of September 30, 2017, Strategic Partners had \$20.7 billion in assets under management.

Fund Size

Blackstone Infrastructure Partners, L.P. is seeking equity commitments of \$7.5 billion during its initial fundraising phase. As the Fund is an open-ended perpetual life vehicle, the fund size will increase commensurate with deal capacity and investor commitments.

Investment Strategy:

BIP intends to pursue a focused investment mandate in targeted infrastructure sectors, with a mix of Core+, Core and PPP (Public-Private Partnership) infrastructure investments, and expects to invest across the broad spectrum of infrastructure sectors, with an initial focus on four primary markets: energy infrastructure, transportation, water and waste, and communications. The Fund intends to deploy the majority of its capital in assets located in North America (70% or greater).

BIP will utilize many of the same investment strategies, core competencies and processes that Blackstone has historically utilized across its many investment platforms. The primary objective of BIP's strategy is to identify, acquire and operate a diversified portfolio of high quality, long-duration, cash yielding investments that can compound at attractive risk-adjusted rates of return by leveraging Blackstone's extensive network of investment professionals to drive significant deal flow, its "value-added", operationally-intensive investment philosophy and its flexibility to be a long-term investor without fund-life driven pressures to sell.

Investment Team:

Blackstone is assembling a dedicated infrastructure investment team that will be positioned to capture compelling infrastructure deal flow sourced from Blackstone's extensive network. The BIP team is led by Sean Klimczak (Senior Managing Director and Global Head of Infrastructure), who joined the firm in 2005 and was previously responsible for the firm's private equity investment activities in the power generation, transmission and natural resource sectors on a global basis. Working closely with Mr. Klimczak is Steve Bolze (Senior Managing Director and Head of BIP's Portfolio Operations and Asset Management Group). Mr. Bolze held several leadership roles at The General Electric Company (GE) and, most recently, served as a Senior Vice President of GE and the President and Chief Executive Officer of GE Power (Thermal Power Generation, Nuclear, Wind, Water and Distributed Generation), the company's largest industrial business with \$28 billion in sales and 52,000 employees across 170 countries. During Mr. Bolze's twenty-four year tenure at GE, Mr. Bolze also led GE Healthcare International and Energy Management Services Messrs. Klimczak and Bolze are supported by several other senior Blackstone professionals who have recently transitioned to BIP. It is expected that the Blackstone infrastructure team will comprise 20 investment professionals by the first close of the Fund, which should occur in March or April 2018.

All investment and disposition decisions of BIP will be reviewed and approved by Sean Klimczak and an Investment Committee, including Stephen A. Schwarzman, Hamilton E. James, Jonathan Gray, Joseph Baratta, David Foley, David Calhoun and Dwight Scott.



Investment Instruments:

The Fund will hold investments directly or indirectly through one or more limited liability companies or limited partnerships, as determined by the General Partner. In addition, the Parallel Funds may hold their interests indirectly in such subsidiaries through entities that elect to be classified as corporations for U.S. federal income tax purposes.

Investment Structure:

The Fund is a Delaware Limited Partnership. The Partnership's general partner will be Blackstone Infrastructure Associates NQ L.P., a Delaware limited partnership (the "General Partner"). The General Partner is an affiliate of The Blackstone Group L.P. The investment advisor of the Partnership is Blackstone Infrastructure Advisors L.L.C., a Delaware limited liability company, an affiliate of Blackstone, which is responsible for the management of the Partnership's investment activities, subject to the oversight of the General Partner.

Market Opportunity:

Macroeconomic factors and political consensus regarding the need for increased infrastructure spending in the U.S. and abroad have converged to create an attractive environment for private sector investments in infrastructure assets. The McKinsey Global Institute estimates that \$3.3 trillion per year will be required globally to modernize existing assets and develop new infrastructure. In the U.S., the American Society of Civil Engineers ("ASCE") estimates an approximately \$2 trillion funding gap in U.S. infrastructure spending over the next 10 years. These staggering underfunding numbers have resulted in a consensus view across the U.S. political spectrum that private capital must play a critical role in upgrading America's aging infrastructure and a robust pipeline of possible U.S. infrastructure deals. In the U.S. transportation sector alone, there is a projected \$122 billion pipeline of transportation-related public-private partnership deals. More broadly, the Trump Administration has signed a number of Executive Orders intended to shorten infrastructure permitting timelines (e.g., streamline federal decision-making to establish a two year permitting process goal) and to spur \$1 trillion of infrastructure investment over the next ten years. These policies could have a meaningful positive effect on U.S. public-private partnership investment opportunities. The characteristics of infrastructure investments, combined with current macroeconomic drivers and industry-specific factors, provide a highly-attractive investment environment for the Partnership.

Investment Highlights:

Proven Investment Record
Over the past 15 years, Blackstone has invested over \$7 billion of equity in existing and greenfield infrastructure across six continents and through multiple economic and market cycles, generating target-exceeding investment returns on 25 infrastructure-related investments.
Global Presence And Extensive Network To Drive Deal Flow
Blackstone is a leading global investor with approximately 2,300 employees across 23 offices. Over the past year, these professionals have sourced over \$9 billion of potential opportunities across multiple infrastructure sectors, which could have been acquired, had an appropriate capital pool existed. Blackstone's other business units provide BIP with sourcing synergies and network advantages relative to independent infrastructure funds. In addition, Blackstone's extensive network of industry advisors, in-house experts and affiliates provides BIP with proprietary deal-flow and the ability to add value across the Partnership's investments.
Large Fund Size, Limited Competition
The size of the Fund will enable management to focus on larger investments (targeting \$1 billion of equity or greater), including corporate joint ventures / partnerships, take-privates, and public-private partnerships, where competition for deals is expected to be less intense. Ultimately, this should provide a competitive advantage in these large-scale transactions, where few infrastructure managers are able to compete.
Team
Blackstone expects to significantly grow the dedicated BIP team in the near-term with a mix of a talented group of proven investment professionals from within Blackstone and industry-leading investment professionals from other institutions. Similar to Blackstone's approach with the launch of other new investment businesses, the BIP team



will include dedicated resources, but will also benefit from the full support of the experienced team of over 750 global investment professionals in Blackstone's private equity, real estate, credit and opportunistic asset management businesses. Blackstone will continue to recruit candidates from their network of investment professionals, as well as those referred to them via industry relationships and executive search agencies.

Fund Structure

The Fund is structured as an open-ended perpetual life vehicle. Given the return/risk attributes of stable infrastructure assets, it is expected that Fund investments will be held over relatively long periods of time. An open-ended structure eliminates pressure to sell Fund assets and therefore mitigates excessive portfolio transaction/friction costs. An open-end structure permits investors the flexibility to conditionally contribute/redeem capital to the Fund. Additionally, having a large source of permanent capital in the marketplace should provide the Fund a competitive advantage.

Anchor Investor

The Public Investment Fund of Saudi Arabia ("PIF") has committed to generally match third-party capital commitments up to \$20 billion in the Fund. PIF will invest through a parallel account that will invest alongside the Fund. It is expected that PIF will own less than 50% of the equity of each underlying investment of the Infrastructure Program. PIF will be a passive investor and all investment decisions of the Infrastructure Program will be made by Blackstone.

Co-investment Opportunities

Given that target investments by the Fund will require equity commitments of considerable size, it is expected that meaningful co-investment opportunities will be offered to Fund investors. Although terms and conditions of this program are currently under negotiation, it is expected that co-investment opportunities will be offered to investors with reduced management and performance fees. Additionally, offering co-investments to investors will allow the Fund to become better diversified over time.

Investment Considerations:

Competition for Infrastructure Investments

The activity of identifying, completing and realizing attractive infrastructure investments is competitive and involves a high degree of uncertainty. The availability of investment opportunities will generally be subject to market conditions. In addition, the Fund will be competing for investments with other infrastructure and real assets investment vehicles, as well as financial institutions and other investors.

Through various investment vehicles, Blackstone has been actively investing in infrastructure for over 15 years, having deployed over \$7 billion in equity in investments located across six continents, and has achieved a strong track record on both an absolute and relative basis.

Lack of Operating History

Although the investment professionals of the General Partner and the Investment Advisor have extensive investment experience generally, neither the Partnership nor the General Partner has commenced operations and therefore neither has any operating history upon which prospective investors may evaluate their performance. Moreover, the type of investments to be made by the Partnership will in most cases differ from prior Blackstone investments, and the investment decisions of the Partnership and the execution of transactions on its behalf in most instances are and will be made by persons different from those persons who made certain prior Blackstone investment decisions and executed certain prior Blackstone transactions.

As mentioned above, Blackstone has been actively investing in infrastructure for over 15 years, having deployed over \$7 billion in equity in infrastructure and infrastructure-related investments. Although Blackstone has not sponsored an infrastructure-centric investment vehicle previously, the infrastructure and infrastructure-related investments made previously were sourced and managed in accordance with Blackstone's consistent processes.

Portfolio Fit:

A commitment to the Fund will be allocated to the Infrastructure portion of PSERS' Real Assets portfolio. Using the net market value from June 30, 2017, and adjusting the unfunded to include commitments from the prior and current Board meetings, the Infrastructure portfolio would be 66% private funds and 44% listed securities. Investment in this Fund will increase PSERS' Infrastructure exposure, which is currently below a long-term target of 2%.



Liquidity & Leverage Profile:

The Fund is structured as an open-end perpetual life private investment fund. As such, the Fund will offer unit holders periodic liquidity opportunities, with the following conditions: With respect to each unit, following the later of: (i) the 3-year anniversary from which such unit is acquired; and (ii) the 6-year anniversary of the date of the Initial Closing, quarterly redemptions, subject to available cash.

The General Partner does not intend to employ leverage at the Fund-level, however it is likely that a subscription line will be utilized to facilitate capital calls and to manage Fund cash in an efficient manner. Deal-level leverage will typically be in the 50-60% range.

Finance Committee Disclosure:

Relationship with Courtland Partners, Ltd.:	None disclosed.
Placement Agent:	Blackstone is not currently using a placement agent for fundraising. Blackstone has not engaged a placement agent in soliciting business from PSERS. No placement agent will receive any fees in connection with an investment in BIP by PSERS.
PA Political Contributions:	None Disclosed.
PA Presence:	Blackstone has made investments in many real estate assets in PA. Additionally, Blackstone has made investments in energy and energy-related business that either are based in PA, or have exposure to projects located in PA.
Conflicts:	None Disclosed.
History with PSERS:	Yes
PSERS Allocation Implementation Committee Approval:	Approved on January 3, 2018.

Oversight Responsibility:

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

COURTLAND PARTNERS, LTD.

INSTITUTIONAL REAL ASSET SERVICES

127 PUBLIC SQUARE
SUITE 5050
CLEVELAND, OH 44114

TELEPHONE: (216) 522-0330
FAX: (216) 522-0331
www.courtland.com

December 18, 2017

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

RE: Blackstone Infrastructure Partners L.P.

Dear Trustees:

Courtland Partners, Ltd. ("Courtland"), having been duly authorized by the Board of PSERS, has evaluated Blackstone Infrastructure Partners L.P. ("BIP" or the "Fund"). BIP seeks to provide a diversified solution for investors seeking to access the breadth of the infrastructure asset class.

BIP, an open-end fund, intends to pursue a focused investment mandate in targeted infrastructure sectors that meet its investment objectives, with a flexible mix of Core, Core+/Value-add, and public private partnerships ("PPP's") infrastructure investments. The Fund expects to invest across the full spectrum of infrastructure sectors, with an initial focus on four primary markets: energy infrastructure, transportation, water and waste, and communications.

While Blackstone expects to consider a broad range of investments across the infrastructure sector, BIP will seek to rely on many of the same investment strategies, core competencies, and processes that have underpinned Blackstone's past success in its infrastructure and other investments generally. The primary objective of BIP's strategy is to identify, acquire, and operate a diversified portfolio of high quality, long-duration, cash yielding investments that can compound at attractive risk-adjusted rates of return. This will be achieved by leveraging Blackstone's extensive network of investment professionals that seek to drive significant deal flow, a "value-added", operationally-intensive investment philosophy, and their flexibility to be a long-term investor without fund-life driven pressures to sell.

In connection with the launch of Blackstone's infrastructure investment program (the "Infrastructure Program"), which includes the Fund, the Public Investment Fund of Saudi Arabia ("PIF") and other potential strategic investors, PIF has committed to generally match third-party capital commitments up to \$20 billion. PIF will invest through a parallel account that will invest alongside the Fund. Blackstone expects that PIF will own less than 50% of the equity of each underlying investment of the Infrastructure Program. PIF will be a passive investor and all investment decisions of the Infrastructure Program will be made by Blackstone.

The Fund is targeting aggregate capital commitments of \$7.5 billion during its initial fundraising phase, including \$2.5 billion in separate accounts, to be invested alongside PIF's matching investment of \$7.5 billion. The Fund will accept capital commitments until the date that is nine months from the initial closing date, expected in March 2018. While all capital commitments made during the initial fundraising phase will be invested at cost, any capital commitments made after the initial fundraising

BLACKSTONE INFRASTRUCTURE PARTNERS L.P.

phase will be invested at the then current NAV of the Fund. Once a majority of the initial committed capital has been deployed, which is expected to take three to four years, the Fund will be re-opened to new investors.

The amount and timing for this investment is set to allow PSERS to take advantage of a fee break of 10% for the life of the investment and a first close discount of 25% for two years.

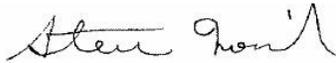
Courtland's recommendation is based upon the following factors and is made within the context of PSERS' investment guidelines.

- Flexible investment mandate which allows investing in both Core and Core+/Value-add infrastructure assets;
- Blackstone's scale allows them to make large investments where there are relatively few competitors;
- Blackstone's scale allows them to achieve economies of scale with respect to many capital and operating expenses in their portfolio companies;
- BIP benefits from Blackstone's management team, investment processes, and operating expertise;
- Successful investment track record with infrastructure investments;
- First close fee discount; and
- Firm reputation, relationships, and experience.

Based on the above, Courtland recommends that PSERS commit up to \$500 million to the Fund. Courtland makes this recommendation considering Blackstone'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
Principal-Chief Operating Officer

COURTLAND PARTNERS, LTD.