PATHWAY®
CAPITAL MANAGEMENT

Investing in Infrastructure

Confidential and Proprietary

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INTRODUCTION

In recent years, the infrastructure asset class has received growing attention from global institutional investors attracted by the prospect of strong risk-adjusted returns, protection against inflation, and a low correlation to public markets. The industry has experienced significant growth: annual fundraising in the infrastructure asset class has grown from $18.6 billion in 2009 to $72.2 billion in 2018,[1] reaching an all-time high in total commitments. Additionally, significant white space remains for future growth: more than 60% of limited partners reported either being under their target allocations or having no allocations to infrastructure, according to a recent *Infrastructure Investor* poll.[2] As the industry has matured and acceptance among institutional investors has grown, however, questions remain about the asset class, including how it is defined, its risks, and the various strategies it utilizes. We will explore these questions and also provide a broad overview of the asset class and the current infrastructure investment environment.

Overview of Investing in Infrastructure

Infrastructure commonly refers to the essential services and facilities needed to generally support and sustain society, such as airports, toll roads, power transmission lines, and oil and gas midstream. Common characteristics of investing in infrastructure assets include the following:

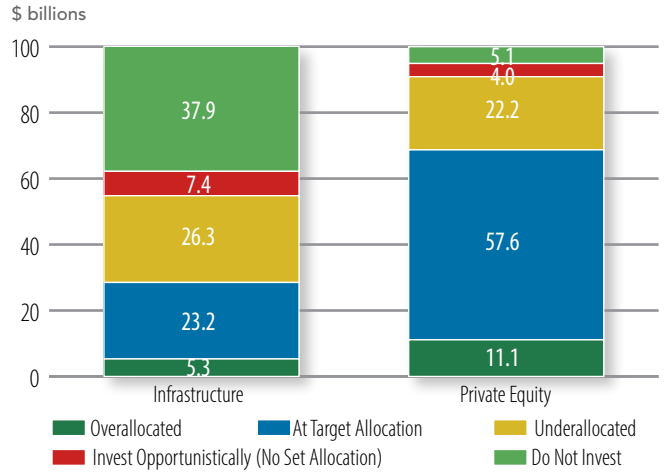
- *Monopolistic/High Barriers to Entry*—Infrastructure investments typically require large initial capital outlays, contain significant and often monopolistic regional advantages, or are bound by contractual and regulatory frameworks that limit competition in the marketplace.

- *Stable, Long-Term Cash Flows*—Infrastructure assets typically have long useful lives and are backed by contracts or concessions often lasting more than 30 years.

- *Inflation-Correlated Revenues*—Given the essential nature of infrastructure assets, their owners are often able to pass inflation on to consumers through price adjustments.

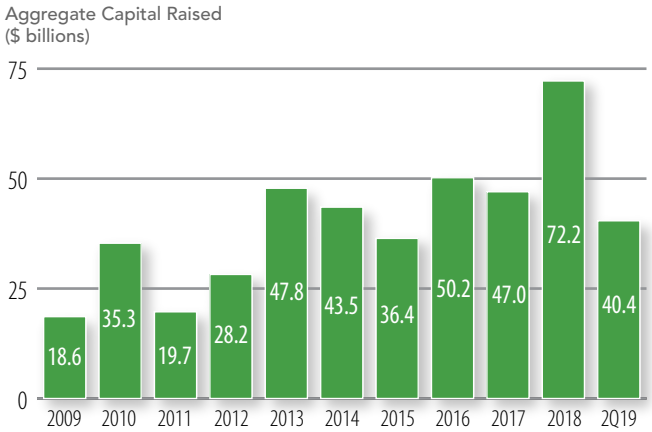
- *Limited Correlation to Economic Cycles*—Given their inelastic demand characteristics, infrastructure assets typically see little variance in performance or use across various economic conditions.

Figure 1. Investment Portfolio Allocation for Alternative Assets



SOURCE: *Infrastructure Investor*. Data as of 1Q19.

Figure 2. Global Infrastructure Fundraising



SOURCE: *Infrastructure Investor*. Data as of 2Q19.

1. SOURCE: Pitchbook Data Inc., 2Q19.
2. SOURCE: *Infrastructure Investor*: *Annual Review*, March 2019.

Global institutional investors have been actively pursuing opportunities in infrastructure since the early 1990s; however, the asset class is in an early stage of adoption in the United States. Initially, investors in infrastructure were largely non-U.S. institutions, such as public pension plans, insurance companies, and sovereign wealth funds in Australia, Canada, and Europe. Recently, however, institutions in the United States have become more active in the sector, creating new allocations or expanding existing allocations to include infrastructure, primarily in real assets or private equity.

Although the objectives for investing in infrastructure vary, common attractions include added diversification, steady income, low correlation to other assets, and inflation protection. The manner in which institutions invest in infrastructure also varies. Prior to the early 2000s, investors primarily accessed infrastructure either through publicly listed vehicles or open-ended private funds. Following that period, the use of closed-end fund structures, similar to those used in private equity, increased both in terms of size and number. Today, private equity–like fund structures represent the most-common means of pursuing infrastructure. Further, as knowledge about and comfort with the sector have grown in recent years, many institutions have begun to complement their portfolio with infrastructure co-investments and, in some cases, direct infrastructure investments.

Infrastructure Investment Strategies

Infrastructure assets vary widely on a risk/return basis, from stable, cash-generative operating assets to opportunistic investments that possess characteristics similar to private equity investments. Although formal strategy definitions continue to evolve, investors most commonly divide infrastructure into five categories: core, core-plus/value-added, opportunistic, public-private partnerships, and infrastructure debt (see figure 3).

Core and opportunistic investments sit at opposite ends of the spectrum in regard to risk, return, and types of assets. Core investments typically involve developed markets, are brownfield focused, have fully contracted revenues, exhibit yield-oriented returns, and have longer-term hold periods in operationally sound businesses/assets. Opportunistic investments often contain geographic risk, are greenfield focused, have exposure to demand risk, emphasize capital gains, entail shorter holding periods, and may be made in businesses/assets with inefficient or mismanaged operations.

Core

Core investments consist of assets that require little in the way of operational improvement and generate returns based largely on contractual cash flows. As such, core investments are generally considered to be lower risk and focus primarily on established, brownfield projects. These assets, given their stable nature, tend to be the focus of investors with low target returns that desire consistent, long-term income. Returns are typically generated through current yield and range from the mid-to-high single digits. Given their highly contracted cash flows, combined with limited ongoing management of the underlying assets, core investments tend to have long-term time horizons, making them often the focus of both investment managers with open-ended fund vehicles and institutional investors who pursue direct investments.

Core-Plus/Value-Add

These investments typically include assets that tend to be early in stage or that possess less predictable revenue characteristics than core investments. As such, these investments require a greater degree of operational management and possess greater opportunity for active management through operational improvements and asset-expansion activities. Core-plus/value-

add fund vehicles also occasionally invest in industries typically viewed as non-traditional infrastructure (e.g., fibre networks, parking meters, and oil and gas gathering and processing). Core-plus/value-add assets are expected to exhibit returns stemming from both current income and capital appreciation and are expected to generate higher returns than core investments, typically in the low-to-mid teens, albeit at a higher degree of risk. Given their active management requirements, core-plus/value-add investments are most commonly made through closed-end fund vehicles that are managed utilizing many of the tools common in private equity. Ultimately, the goal of managers that utilize this strategy is to exit their investment, typically after a 5- to 7-year hold period, when the manager's value-add efforts are complete and the asset's risk-profile has been reduced to more closely resemble a core asset.

Opportunistic

Opportunistic investments target assets on the higher end of the risk spectrum as a result of their exposure to greenfield/construction, non-contracted revenues, or fluctuations in market demand. Investment managers that pursue opportunistic investments focus on reducing and controlling these risks in an effort to transform the asset into a core or core-plus investment. Opportunistic fund vehicles generally target returns mirroring those seen from private equity investments and generally derive the majority of their returns from capital appreciation, though certain assets can still generate a moderate amount of current yield.

Public-Private Partnerships (PPPs)

PPPs represent a joint venture between a private consortium of investors—typically a financial partner and a construction partner—and a government entity and are formed to build or repair an essential economic or social infrastructure project. The private consortium agrees to take on the construction and operation of a new infrastructure project or the repair and maintenance of an existing infrastructure project in exchange for a defined payment structure based on either the asset's availability for use (e.g., hospitals, courthouses) or, for revenue-generating assets, a percentage of earnings (e.g., toll roads, bridges, public transit systems). Following the end of the agreed-upon

Figure 3. Infrastructure Spectrum of Risk

Source: Pathway Research.

contract (typically greater than 20 years), the PPP asset is turned over to the public entity for further maintenance and operation.

Governments typically seek this type of investment structure when looking for certainty of price, completion date, and ongoing operation of the asset. Although negotiating the initial consortium agreement is key in PPP projects, typically construction or maintenance cost risks are borne by the construction partner in the private consortium. These projects can span from very low risk assets with moderate returns (e.g., availability payments) to higher-risk, higher-returning assets where demand risk is borne by the financial investor (e.g., toll roads and airports). Returns for PPP assets are typically exclusively generated through yield-based income.

Although common in Europe, Canada, and Australia, PPP investments have been slow to develop in the United States but have seen recent growing adoption, particularly in California, Colorado, Virginia, and New York. As budget-constrained states and local governments continue to seek alternative sources of capital to address their infrastructure needs, PPP investments have the potential to gain further adoption in the United States.

Infrastructure Debt

Debt investments in infrastructure projects represent a large but lower-returning avenue to gain access to the infrastructure asset class. Infrastructure debt strategies are generally categorized by low levels of loss due to the stable, highly visible contractual cash flows of infrastructure projects, which allow for consistent debt servicing throughout their useful life. Managers focused on this strategy typically differentiate themselves through the flexibility of the terms they offer to borrowers, the availability of debt financing for the specific targeted assets, and the manager's ability to conduct thorough, in-depth credit analysis.

Infrastructure Asset Life Cycle

The infrastructure asset life cycle begins with the early development stage when design and planning are conducted and licenses are secured. Following this, a project transitions into the late-development stage. During this period the financing terms are negotiated and agreed upon and

Table 1. Infrastructure Investment Characteristics

	Infrastructure Debt	Public–Private Partnership	Core	Core–Plus/ Value–Add	Opportunistic
Typical Target Net Return	5%–7%	8%–12%	7%–9%	10%–15%	≥15%
Key Risks	Credit Risk, Interest-Rate Risk	Contract Risk	Operating Risk, Financial Leverage	Operating Risk, Strategy Implementation	Strategy Implementation, Market Risk
Main Return Driver	Income	Income	Income	Income & Appreciation	Appreciation
GDP Sensitivity	Low	Low	Low	Low	High
Greenfield/Brownfield	Both	Predominantly Greenfield	Brownfield	Predominantly Brownfield	Both
Operating Complexity	Low	Low/Medium	Low/Medium	Medium	High

Source: Pathway Research.

Note: Target net returns are presented for illustrative purposes only and reflect Pathway's experience regarding typical stated target returns to limited partners in the named strategies from infrastructure fund managers, net of manager fees, expenses, and carried interest over the life cycle of an infrastructure fund. Given the anticipated risks of each infrastructure strategy, including as described in this paper, actual investment returns vary and could differ significantly from the target net returns shown.

construction begins. Toward the end of construction, the management team is formed for the ongoing projected operations and the asset is prepared to commence operations. The project is then opened for use, and revenue generation begins. At this point the project enters the brownfield stage, which typically lasts between 10 and 25 years but can last for more than 30 years.

Key Infrastructure Risks

The infrastructure sector has its own set of key risks:

- *Demand Risk*—If actual usage of an asset is below forecasted levels due to lower demand, returns can become compressed and the risk of default can increase. Given the more volatile nature of assets exposed to demand risk, the degree of financial leverage employed is often more modest. This type of risk is most commonly associated with toll roads, airports, and rail lines, which are correlated to economic growth in the surrounding region.

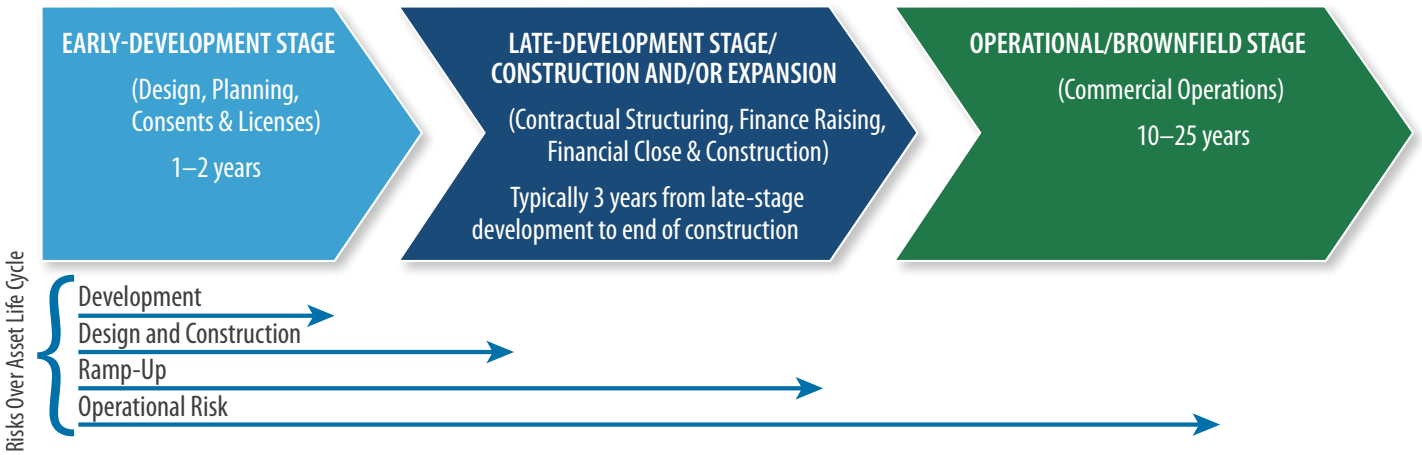
- *Interest-Rate Risk*—The long-term nature of infrastructure assets and their income orientation make these assets particularly sensitive to changes in interest rates. Higher interest rates can result in an increase in financing costs, as well as in a reduction of the present value of projected cash flows (i.e., reduction in market value).

- *Political and Regulatory Risk*—Changes in the political or regulatory environment can threaten the legal framework supporting infrastructure investments and the general viability of infrastructure projects.

- *Greenfield Risk*—Due to the complex nature of many construction projects, unexpected delays or cost overruns during the construction phase can delay revenues and affect returns. However, a strongly negotiated financial contract can often pass on this risk to other parties (e.g., construction manager, insurance provider).

- *Operational Risk*—Inefficient operations, increased costs, and unplanned maintenance can affect the expected stream of cash flows generated by the asset.

Figure 4. Infrastructure Asset Life Cycle



Source: Pathway Research.

SUMMARY

- The infrastructure asset class is commanding growing interest from institutions looking for stable and predictable cash flows, low volatility, and low correlation to other asset classes.

- The infrastructure asset class remains young, but a number of credible managers have emerged that possess long-term investment records.

- Infrastructure strategies vary widely on a risk/return basis, from stable, cash-generative operating assets to opportunistic investments with private equity–like returns.

- The structures used to invest in infrastructure vary, ranging from publicly traded funds to privately held open- and closed-end structures.

- Prior to investing in infrastructure, clear objectives for a program should be established because they have a significant impact on the both the strategies pursued and the investment structure utilized.

KEY TERMS

Greenfield—A greenfield project is one that does not follow a prior project and typically consists of unused lands where there is no need to remodel or demolish an existing structure.

Brownfield—A brownfield project is one where an existing structure is modified or upgraded rather than newly constructed.

Dry Powder—Dry powder refers to cash or cash-equivalent assets that are available to invest. In private equity, this typically refers to capital that has been committed to a partnership but has not been drawn down for an investment.

Core Investments—Partnerships that target primarily brownfield assets in traditional infrastructure industry segments (e.g., bridges, roads, utilities, and social infrastructure) that require little in the way of operational improvement.

Core-Plus/Value-Add Investments—Assets that require some operational management, to which the manager can add significant value through acquisitions or operational improvements.

Opportunistic Investments—Assets on the higher end of the risk spectrum: assets with exposure to construction risk, assets with non-contracted revenues containing demand risk or market risk, and assets with emerging-market risk.

About Pathway Capital Management, LP

Founded in 1991, Pathway provides private market fund solutions for institutional investors worldwide. Pathway manages capital on behalf of some of the largest corporate and public pension plans, government entities, and financial institutions around the globe. Since its formation, the firm has committed more than $85 billion to more than 700 private market investments.

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