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# ANNUAL PRIVATIZATION REPORT: TRANSPORTATION FINANCE

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# PART 1

## INTRODUCTION

Since the late 1980s, governments in developed (and some developing) countries have privatized many state-owned enterprises, including infrastructure such as airports, electricity, gas, railroads, seaports, telecoms, and toll roads. Some of these facilities were sold to investors, in whole or in part. In many other countries, enterprises of this kind were instead leased to investors under long-term public-private partnerships (P3s). Thereafter, a growing number of governments also used such P3s to finance, build, and operate new airports or airport terminals, electricity facilities, seaports, and toll roads. The sale or lease of an existing facility is called a “brownfield” transaction (in part because significant refurbishment may be needed). By contrast, P3s for brand new facilities are referred to as “greenfield” transactions.

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In the United States, a significant amount of infrastructure is owned and operated by the private sector, including most U.S. energy production and electric and gas utility infrastructure as well as a portion of water and wastewater infrastructure. These assets may be held through publicly traded corporations or (in the case of energy) master limited partnerships, or they may be owned directly by private investors. In transportation, however, nearly all airports, seaports, and toll roads are government-owned enterprises, generally by either state or local governments.

Infrastructure projects of both brownfield and greenfield types require long-term financing. In the public sector, such facilities are often financed 100% by government bonds, which in the United States are tax-exempt. When the private sector invests in infrastructure, it typically invests equity to cover part of the cost and finances the rest via either bank loans or long-term borrowing, such as via revenue bonds. These large financing needs led to the development and growth of infrastructure investment funds, most of which raise equity to invest in privately owned or P3 infrastructure (though a more recent development is infrastructure debt funds, as well). Public pension funds, seeking to increase their overall return on investments, have begun investing equity in such infrastructure as well.

During 2020, *Infrastructure Investor* reported that investors raised \$102.6 billion in new money for infrastructure investment funds of this kind.<sup>1</sup> Despite 2020 being an economically depressed year due to the COVID-19 pandemic, the amount raised was only \$18 billion less than 2019's total. Pension funds continued to increase their investment in such infrastructure, in most cases by placing a specific allocation with one or more of the infrastructure funds, but a handful of large pension funds has built professional staffs that enable them to make direct investments in individual facilities.

This report reviews 2020 developments in the infrastructure investment fund world, focusing on transportation infrastructure. While the scope of the report is global, it pays particular attention to U.S. developments in P3 infrastructure and the growth of U.S. pension fund investing in this field.

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<sup>1</sup> "Fundraising Full Year 2020 Report," *Infrastructure Investor* Fundraising Reports, February 2021 (<https://www.infrastructureinvestor.com/fundraising-reports>, 5 March 2020).

## PART 2

# MAJOR INFRASTRUCTURE INVESTMENT FUNDS AND TRENDS

## 2.1

### OVERVIEW

Each year, *Infrastructure Investor* publishes a table of the amounts raised by the 50 largest infrastructure investment funds over the latest five-year period. Table 1 lists those funds and the five-year total each had raised by August 2020. The five-year total reached by all 50 funds is \$574 billion.

**TABLE 1: INFRASTRUCTURE INVESTOR 50, 2020**

2020 Rank	2019 Rank	Firm	Headquarters	5-Year Total (\$B)
1	1	Macquarie Infrastructure and Real Assets	UK	73.577
2	2	Global Infrastructure Partners	USA	62.664
3	3	Brookfield Asset Management	Canada	49.537
4	8	Stonepeak Infrastructure Partners	USA	23.740
5	4	KKR	USA	22.643
6	7	IFM Investors	Australia	21.300
7	5	AMP Capital	Australia	19.525
8	6	EQT Partners	Sweden	18.972
9	12	First Sentier Investors	Australia	15.523
10	10	BlackRock	USA	15.183
11	9	Blackstone	USA	14.000
12	18	Antin Infrastructure Partners	France	12.837
13	13	Ardian	France	12.742
14	34	Morgan Stanley Infrastructure Partners	USA	11.700
15	11	I Squared Capital	USA	10.510

2020 Rank	2019 Rank	Firm	Headquarters	5-Year Total (\$B)
16	20	Copenhagen Infrastructure Partners	Denmark	9.149
17	16	ArcLight Capital Partners	USA	8.990
18	17	Dalmore Capital	UK	8.425
19	23	Actis	UK	8.230
20	27	DIF Capital Partners	Netherlands	8.198
21	24	Partners Group	Switzerland	7.858
22	19	Carlyle Group	USA	7.800
23	14	Energy Capital Partners	USA	7.511
24	*	AIP Management	Denmark	6.553
25	22	Greencoat Capital	UK	6.514
26	31	Ping An Asset Management	China	6.148
27	25	F2i	Italy	5.996
28	29	Equitix	UK	5.786
29	21	Infracapital	UK	5.783
30	43	Swiss Life Asset Managers	Switzerland	5.401
31	*	China Merchants Capital	China	5.373
32	37	Meridiam Infrastructure	France	5.274
33	*	Digital Colony	USA	5.080
34	40	National Infrastructure & Investment Fund	India	4.910
35	33	Axiom Infrastructure	Canada	4.858
36	38	DWS	Germany	4.820
37	30	InfraVia Capital Partners	France	4.552
38	36	InfraRed Capital Partners	UK	4.349
39	*	iCON Infrastructure	UK	4.311
40	45	Vauban Infrastructure Partners	France	4.048
41	47	Patria Investimentos	Brazil	3.881
42	32	Capital Dynamics	Switzerland	3.720
43	*	Mirova	France	3.655
44	*	Arcus Infrastructure Partners	UK	3.455
45	39	Goldman Sachs Infrastructure Partners	USA	3.433
46	*	Allianz Global Investors	Germany	3.160
47	28	LS Power Group	USA	3.150
48	44	Oaktree Capital Management	USA	3.080
49	42	Hermes Infrastructure	UK	2.897
50	*	Aquila Group	Germany	2.811
		TOTAL		573.612

\* indicates a fund is new to the 2020 list and was not in the 2019 top 50

Source: *Infrastructure Investor*, November 2020

As can be seen by the various headquarters locations, these top-50 funds exist in many countries, but North America and Europe account for the lion's share, as has been true for many years. The 2020 geographical breakdown is in Table 2.

**TABLE 2: GEOGRAPHICAL BREAKDOWN FOR TOP 50 INFRASTRUCTURE INVESTORS IN 2020**

United States	\$199.5 billion	34.8%
United Kingdom	\$123.3 billion	21.5%
Europe, other	\$119.8 billion	20.9%
Australia	\$ 56.4 billion	9.8%
Canada	\$ 54.4 billion	9.5%
China and India	\$ 16.4 billion	2.8%
Brazil	\$ 3.9 billion	0.7%
Total:	\$573.6 billion*	100.0%

\* Total may be slightly different due to rounding.

The purpose of these funds is to invest the money they raise in infrastructure projects. Financial data firm Preqin reports \$582 billion in assets under management by the infrastructure fund industry in 2020. Of that sum, some \$220 billion represents “dry powder”—i.e., funds raised but not yet allocated to any facilities or projects.<sup>2</sup>

Every year Probitas Partners conducts a survey of institutional investors in infrastructure. Due to the pandemic in 2020, the company suspended its regular survey, instead doing two briefer COVID-19 surveys of a limited sample of major infrastructure investors. Comparing these results with the results of the broader 2019 survey reveals both changing priorities and narrowing interests. Transportation moved from being tied for first place in 2019 to fourth place in 2020<sup>3</sup> in the survey, as shown in Table 3.

**TABLE 3: INFRASTRUCTURE INVESTMENT SECTORS OF INTEREST**

Sector	2019	2020
Renewable energy	74%	55%
Telecommunications	69%	45%
Digital infrastructure	n/a	38%
Transportation	74%	32%
Water and waste management	69%	29%
Energy and power	71%	26%
Diversified	52%	26%
Social infrastructure	43%	21%

Source: Probitas Partners

<sup>2</sup> Clive Lifshitz and Ingo Walter, “Planes, Trains and Automobiles: Renewal of U.S. Transportation Infrastructure,” Research Highlights, Experience Stern, NYU, 4 February 2021.

<sup>3</sup> Probitas Partners, “COVID-19: Impact on Closed-End Alternative Investing,” April 29, 2020.



As for which geographical areas the surveyed investors choose to focus on, Table 4 provides a breakdown, also from Probitas Partners.

**TABLE 4: INSTITUTIONAL INVESTOR GEOGRAPHICAL FOCUS**

North America	95%
Western Europe	79%
U.K.	48%
Central and Eastern Europe	12%
Global, developed markets	24%
Global, emerging markets	7%
Pan-Asia	47%
China	36%
Japan	24%
Southeast Asia	19%
Australasia	17%
Eastern Europe	12%
India	16%
Pan-Latin America	5%

Source: Probitas Partners

## 2.2 EXAMPLES OF DIVESTITURES AND ACQUISITIONS

Most current infrastructure investment funds are “closed end,” which means they raise money to invest for a pre-set period of time, typically 10 years. These funds are not “buy and hold” investors; rather, they seek to develop a portfolio that will be adjusted during its life to maximize the overall return to those who have placed funds with it. Hence, at various points in time during a fund’s life, it will acquire investments, work to improve their operations, and then sell some holdings to realize value appreciation. This is not short-term “asset flipping” as is sometimes seen in housing markets. Rather, it is an ongoing process that seeks to optimize the performance of the investments in the fund. Here are some transportation examples from 2020.

- **Macquarie Infrastructure and Real Assets** (#1 in Table 1) continues (along with Blackstone) seeking to acquire 88% of Italian toll roads company Autostrade d’Italia. The latest development in early 2021 was an announcement from Autostrade parent company Atlantia that it might receive an alternative bid to the rumored \$10 billion-\$11 billion offer from MIRA and Blackstone.<sup>4</sup>

<sup>4</sup> Fernando Moncada Rivers, “Extension Requested for ASPI Takeover,” *Inspiratia*, 3 February 2021.

- **APG Asset Management**, along with Swiss Life Asset Management and the National Pension Service of Korea, acquired 81% of a leading toll road operator in Portugal (Brisa Auto-Estradas de Portugal) in a deal estimated at €3 billion. The sellers were Arcus Infrastructure Partners and Josée de Mello Group.<sup>5</sup>
- **Vauban Infrastructure Partners** acquired a 47.5% stake in Spain's Autopista del Guadalmedina highway concession from developer Sacyr. A comparable stake had been sold to Aberdeen Standard Investments in 2019. Together, the deals totaled \$508 million.<sup>6</sup>
- **Goldman Sachs Infrastructure Partners** sold a 70% stake in a network of Mexican toll roads, Red de Carreteras de Occidente (RCO), to global toll road company Abertis, which paid \$1.6 billion for its stake in the 876 km system.<sup>7</sup>
- **DIF**, a Dutch fund manager, acquired nearly full control of two Portuguese availability-payment highway concessions from Spanish company Cintra for \$202 million. DIF had previously acquired large shares in both highways, of which it now owns nearly 100%.<sup>8</sup>
- **Axiom Infrastructure** acquired a 19.6% stake in Puerto Rico toll road company Metropistas from minority owner Ullico. Following the transaction, Ullico owns 29.9% and developer Abertis still owns 51.5%.<sup>9</sup> Metropistas operates the PR-5 and PR-22 toll roads in the San Juan metro area.
- **Meridiam** in November bought a portfolio of Spanish infrastructure concessions, including two toll roads, from developer Acciona for \$578 million. This deal adds to Meridiam's transportation assets in Spain, including two toll roads it acquired from developer Cintra in 2019.<sup>10</sup>
- **Brookfield** purchased a small stake in the Sydney Airport concession, buying 0.16%, adding to its growing portfolio in Australia. The amount paid was not disclosed.<sup>11</sup>
- **Manulife Investment Management and Abertis** won the bidding for the Elizabeth River Crossings concession in Virginia. The concession was put on the market by its

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<sup>5</sup> Stefano Berra, "APG Team Top Buy Brisa Majority Stake for Around 11X," *Inframation News*, 28 April 2020.

<sup>6</sup> Fernando Moncada Rivera, "Sacyr Closes Spanish Road Divestment," *Inspiratia*, 23 June 2020.

<sup>7</sup> Fernando Moncada Rivera, "Abertis Closes Mexican Road Deal," *Inspiratia*, 8 June 2020.

<sup>8</sup> Fernando Moncada Rivera, "DIF Takes Control of Two Portuguese Roads," *Inspiratia*, 16 September 2020.

<sup>9</sup> Jon Berke and Olivia McFadden, "Axiom Infrastructure Buys Into Puerto Rico Toll Road Owner," *Inframation News*, 8 October 2020.

<sup>10</sup> Fernando Moncada Rivera, "Meridiam Buys €484m Spanish Infra Portfolio from Acciona," *Inspiratia*, 30 November 2020.

<sup>11</sup> Kate Burgess, "Brookfield Takes Stake in Sydney Airport," *Inframation News*, 12 November 2020.

developers, Macquarie and Skanska. The winners put in \$1.19 billion of equity valuing the tolled tunnels at \$2.38 billion, an EBITDA multiple of 39.7X. Abertis will initially hold 68% of the equity. Manulife is affiliated with John Hancock Life Insurance Company.<sup>12</sup>

- **Ardian** (#13) joined with Italian company Nuova Argo Finanziaria (NAF) to pay \$2 billion for the majority of Italian toll road concessionaire ASTM, which operates 4,500 km of toll roads in Italy, Brazil, and the U.K.<sup>13</sup>

In some of these transactions, we observe infrastructure funds buying some or all of the equity invested by the original construction-oriented companies that won the concessions and took on initial risks such as environmental permitting, late completion, and construction cost overruns. Once those risks are in the past, the operational project has lower overall risk, and better fits the criteria of many infrastructure investment funds. Other funds are willing to be greenfield investors, taking the early-stage development and construction risks in hopes of a higher return on their equity investment.

## 2.3

## EMERGENCE OF LONG-TERM FUNDS



*While closed-end funds of 10 to 12 years' duration remain the most common type, there is a growing trend of new funds with 25-year or indefinite lives, consistent with the long-term revenue stream expected from revenue-generating infrastructure.*



While closed-end funds of 10 to 12 years' duration remain the most common type, there is a growing trend of new funds with 25-year or indefinite lives, consistent with the long-term revenue stream expected from revenue-generating infrastructure.<sup>14</sup> Two of the pioneers in

<sup>12</sup> Jon Berke, "Abertis and Manulife Agree to Acquire Elizabeth River Crossing," *Inframation News*, 9 November 2020.

<sup>13</sup> Fernando Moncada Rivera, "Ardian-Backed Platform Making €1.7 bn Offer for Italian Toll Road Operator," *Inspiratia*, 22 February 2021.

<sup>14</sup> Zak Bentley, "Deep Dive: Is It Time to Take a Closer Look at Long-Term Funds?" *Infrastructure Investor.com*, April 2, 2020.

this trend were IFM Investors and Meridiam Infrastructure. IFM launched its open-end Global Infrastructure Fund in 2004, and Meridiam began a series of 25-year funds in 2007. Meridiam founder Thierry Deau told *Infrastructure Investor*, “There was a growing appetite for long-term assets for certain types of LPs [limited partners],” which led it to move into long-term funds. IFM’s motivation was to match its infrastructure investments with the long-term liabilities of its public pension fund owners.

More-recent moves into long-term and open-ended funds include some of the largest entities in Table 1. *Infrastructure Investor* reports that Blackstone’s open-end fund has raised \$14 billion, and IFM’s Global Infrastructure Fund has raised \$26 billion since its inception. Market leader Macquarie joined the trend in 2017 with its 20-year Super Core Infrastructure Fund, which had raised €3.5 billion by first-quarter 2020. And in early 2021 Macquarie announced a new open-end fund, Macquarie Global Infrastructure Fund, with an initial \$3 billion target.<sup>15</sup>

Brookfield launched an open-end Super Core Infrastructure Fund that had raised \$1.6 billion by August 2019. *Infrastructure Investor’s* LP Perspectives 2020 survey for the first time asked about fund duration preferences, finding that 20% preferred open-end funds, compared with 41% preferring closed-end and the rest having no clear preference.<sup>16</sup>

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<sup>15</sup> Dermot McCloskey, “Macquarie to Launch Global Open-Ended Infrastructure Fund,” *Inframation News*, 3 February 2021.

<sup>16</sup> Ibid.

## PART 3

# P3 COMPANIES AND PROJECTS

## 3.1 GLOBAL COMPANIES AND PROJECTS

During 2020, infrastructure investors put \$211 billion into various forms of infrastructure (including transportation), encompassing new (greenfield) projects, acquisition of existing facilities, and refinancing already-owned facilities. Greenfield projects set a new annual high of \$53.8 billion.<sup>17</sup> The largest category of infrastructure financed was transportation, both by number of deals and dollar amount. The largest deal was the acquisition, by Brookfield and GIC, of Genessee & Wyoming, a U.S. short-line railroad holding company.

A global database on private infrastructure investment is maintained by data firm Inframation, which also provides an every-weekday news update service. Inframation provided the data tables in this section at Reason Foundation's request.

Table 5 lists the 20 largest greenfield transportation infrastructure P3 projects financed in 2020. As can be seen, only one of these (albeit the largest) is located in the United States. By sector, highway and bridge/tunnel projects were the largest category, representing 38.9% of the \$25.1 billion total for the 20 projects. Airport projects were in second place at 30.9%, totaling \$7.75 billion. Rail (both light-rail transit and rolling stock) projects accounted for

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<sup>17</sup> Omolola Coker, "Infrastructure in 2020, Year in Review," *Inspiratia*, 26 February 2021.

another 28.2%, totaling \$7.09 billion, with one port project accounting for the small remainder. Geographically, 13 of the 20 projects are located in developed countries (members of the Organization for Economic Cooperation and Development—OECD), with the other seven in developing countries in Asia, the Middle East, and South America.

**TABLE 5: MAJOR GREENFIELD TRANSPORTATION P3S FINANCED IN 2020**

Country	Project	Sector	Value \$B	Lead Developers
United States	JFK Airport Terminal 1	Airport	\$7.300	Carlyle, JLC, Ullico
Canada	Edmonton Valley Line West	Rail	\$2.076	Colas, Parsons, Stantec*
Germany	S-Bahn Hannover Rolling Stock	Rail	\$1.669	Transdev
Germany	A3 motorway	Highway/Bridge/Tunnel	\$1.632	Eiffage, Johann Bunte
Canada	Millennium Line Broadway Ext.	Rail	\$1.319	Acciona, Ghella*
Germany	A49 Hessen motorway	Highway/Bridge/Tunnel	\$1.178	Strabag, Meridiam
Bangladesh	Dhaka Elevated Expressway	Highway/Bridge/Tunnel	\$1.133	Italian-Thai Development
India	Mumbai-Pune Expressway	Highway/Bridge/Tunnel	\$1.085	IRB Infrastructure Developers
Israel	Jerusalem Light Rail Green Line	Rail	\$0.952	CAF, Shapir Construction
U.K.	A465 Dualling, Sec. 5 & 6	Highway/Bridge/Tunnel	\$0.841	FCC, Meridiam
Canada	Louis-Hippolyte-LaFontaine Tunnel	Highway/Bridge/Tunnel	\$0.744	Vinci, Pomerleau, WSP*
Kazakhstan	Almaty Ring Road	Highway/Bridge/Tunnel	\$0.740	Alsim Alarko Sanayi, KEC, Makyol, SK Group
Canada	Pattullo Bridge Replacement	Highway/Bridge/Tunnel	\$0.726	Acciona, AECON*
Germany	Netz Elbe Spree Rolling Stock	Rail	\$0.628	Odeg
Colombia	Pamplona-Cucuta Highway Retender	Highway/Bridge/Tunnel	\$0.620	Sacyr
France	Route Centre-Europe Atlantique Road	Highway/Bridge/Tunnel	\$0.601	Eiffage
Saudi Arabia	Jeddah South Container Terminal	Port	\$0.500	DP World
Indonesia	Bekasi-Cawang-Kampung Toll Road	Highway/Bridge/Tunnel	\$0.456	Waskita Karya
Peru	Jorge Chavez Intl. Airport	Airport	\$0.450	Fraport, IFC
Germany	Franken-Thüringen Rolling Stock	Rail	\$0.445	Deutsche Bahn

\* indicates project was DBF, so no equity was provided.

Source: *Inframation*

Table 6 lists the 40 largest (by numbers of projects) investors in P3 transportation projects through the end of January 2021. Europe is the home base of 27 of the 40 companies, with nine based in France, eight in Spain, and five in the U.K. India, Latin America, and the Middle East each host three of these companies, with two based in Australia and one each in Canada and Mexico. No U.S.-based company made it into the global top 40 in 2020, compared with two U.S. companies in last year's global table.

**TABLE 6: WORLD'S LARGEST TRANSPORTATION P3 INVESTORS, BY NUMBER OF PROJECTS**

<b>Name</b>	<b>Headquarters</b>	<b>Operating/Under Construction</b>	<b>Pursuits</b>
Vinci	France	42	18
Grupo ACS/Hochtief	Spain	41	6
Meridiam	France	37	13
Abertis*	Spain	34	1
DIF Capital Partners	Netherlands	29	2
Sacyr	Spain	28	8
Ferrovial/Cintra	Spain	27	8
Globalvia	Spain	25	4
FCC Construction	Spain	22	3
3i Group	United Kingdom	22	0
InfraRed Capital Partners	United Kingdom	20	0
PINFRA	Mexico	18	1
Transurban	Australia	18	2
Dalmore Capital	United Kingdom	17	0
John Laing	United Kingdom	17	11
Acciona	Spain	16	7
Bouygues	France	16	1
IRB Infrastructure Developers	India	16	1
Aberdeen Standard Investors	United Kingdom	15	1
Sadbhav Engineering	India	15	0
BBGI Management	Luxembourg	14	5
Companhia de Concessoes Rodoviaras (CCR)	Brazil	14	1
GMR Infrastructure	India	13	6
Eiffage	France	13	3
Vauban Infrastructure Partners	France	12	0
Strabag	Austria	12	6
Avax (formerly J&P Avax)	Greece	12	2
BAM PPP PGGM Infrastructure	Netherlands	12	2
TAV Airports Holding	Turkey	11	1
Colas	France	11	3
Macquarie Infrastructure & Real Assets (MIRA)	Australia	11	0
Ardian	France	11	0
CPP Investments (CPPIB)	Canada	10	1
CMB-PRIME Administradora General de Fondos S.A.	Chile	10	0
DP World	United Arab Emirates	10	4
EGIS Group	France	10	8
Comsa Corporación	Spain	9	1
Grupo Odinsa	Colombia	9	2
CDC Infrastructure	France	9	0
Abu Dhabi Investment Authority	United Arab Emirates	9	0

\*now owned by ACS/Hochtief

Source: *Inframotion*

Table 7 focuses on transportation P3 *developers*, as opposed to investors. Here companies from Spain and France dominate, with Spain alone as the headquarters of six of the top 10, and two more based in France, plus one from the Netherlands and another from the United Kingdom. The leading positions of developers from France and Spain reflects the extensive use of the public-private partnership approach to major transportation projects in those countries, which has led to considerable experience by major companies that now compete worldwide for P3 projects.

**TABLE 7: TOP 10 P3 GLOBAL TRANSPORTATION DEVELOPERS BY PROJECT VALUE**

Name	Headquarters	Total Value (\$B)	Number of Projects
Vinci	France	\$40.1	42
Grupo ACS/Hochtief	Spain	\$45.8	41
Meridiam	France	\$45.3	37
Abertis*	Spain	\$19.6	34
DIF Capital Partners	Netherlands	\$19.3	29
Sacyr	Spain	\$12.0	28
Ferrovial/Cintra	Spain	\$25.8	27
Globalvia	Spain	\$ 9.9	25
FCC Construction	Spain	\$15.2	22
3i Group	United Kingdom	\$ 5.2	22

\*now owned by ACS/Hochtief

Source: *Inframotion*

## 3.2

### U.S. COMPANIES AND PROJECTS

Whereas Table 7 presents worldwide figures on P3 transportation projects, Table 8 zeroes in on the United States. P3 projects are still a very small fraction of large-scale highway, transit, and airport projects in this country, but several dozen projects have been financed in the past 20 years. This table shows that while French and Spanish developers have again played a large role, three U.S. developers have been successful in a number of cases, as has Australia's Transurban, the U.K.'s John Laing, and the Netherlands' APG.



**TABLE 8: TOP 10 U.S. P3 TRANSPORTATION DEVELOPERS, BY NUMBER OF PROJECTS**

Name	Headquarters	Project Value (\$B)	Number of Projects
Meridiam Infrastructure Managers	France	\$17.3	10
Ferrovial/Cintra	Spain	\$ 9.6	6
John Laing	United Kingdom	\$ 7.8	6
APG Group	Netherlands	\$ 8.9	5
Grupo ACS	Spain	\$ 5.3	4
Transurban	Australia	\$ 4.0	4
Plenary Americas	USA	\$ 1.4	4
Abertis*	Spain	\$ 3.4	3
Fluor Corporation	USA	\$ 5.6	3
Star America Infrastructure Partners	USA	\$ 3.6	3

\* now owned by Grupo ACS

Source: Inframation

Finally, Table 9 provides an overview of U.S. greenfield transportation DBFOM P3 projects since the first such projects were financed 1993. Prior to the advent of the federal TIFIA loan program and tax-exempt Private Activity Bonds (PABs), the earliest projects were financed by taxable bank debt. Since the advent of the two federal financing tools, most such projects in surface transportation have used TIFIA or PABs, or both, to be competitive with the tax-exempt bonds available to state transportation agencies. These projects are separated into two groups. Those in the top half are financed based on project-derived revenues, denoted as Revenue-Risk (RR); in the lower half of the table are projects financed based on annual availability payments from the sponsoring agency, denoted as Availability-Pay (AP).

As can be seen, there is a much higher level of equity invested in the RR projects, because the investors are taking on revenue risk in addition to risks that are common to both types of P3 (such as construction cost overruns and late completion). Because they are taking on greater risk, RR investors put in more equity, because creditors demand it. The additional equity has two important benefits. First, the state contribution to the financing is much less for the RR projects, saving taxpayers money. Second, the larger amount of equity as a percentage of the overall project financing provides a cushion in the event of a recession, when toll revenues are likely to decrease. Debt service must be paid regardless, so if the debt is a smaller fraction of the project cost, it is easier to service that debt when revenues decline.

**TABLE 9: HISTORICAL OVERVIEW OF U.S. LONG-TERM P3 GREENFIELD PROJECTS**

Project	Type	Govt. (M)	TIFIA (M)	PABs (M)	Bank Debt (M)	Equity (M)	Total (M)	% Equity	Financial Close
91 Express Lanes	RR	0	0	0	\$100	\$30	\$130	23%	1993
Dulles Greenway	RR	0	0	0	\$298	\$80	\$378	21%	1993
S. Bay Expressway	RR	0	\$140	0	\$340	\$130	\$610	21%	2003
I-495 Express	RR	\$495	\$598	\$589	0	\$630	\$2,312	27%	2007
SH 130, Seg. 5-6	RR	0	\$430	0	\$686	\$210	\$1,326	16%	2008
N. Tarrant Express, TX	RR	\$594	\$650	\$398	0	\$426	\$2,068	21%	2009
LBJ Expressway, TX	RR	\$490	\$850	\$606	0	\$682	\$2,628	26%	2010
Midtown Tunnel, VA	RR	\$582	\$422	\$675	0	\$272	\$1,951	14%	2012
I-95 HOT, VA	RR	\$83	\$300	\$253	0	\$280	\$916	31%	2012
N. Tarrant 3A/B, TX	RR	\$379	\$531	\$274	0	\$442	\$1,626	27%	2013
US 36, Ph. 2, CO	RR	\$75	\$60	\$21	0	\$41	\$197	21%	2014
I-77 MLs, NC	RR	\$95	\$189	\$100	0	\$248	\$632	39%	2015
SH 288, Texas	RR	\$17	\$357	\$100	0	\$375	\$849	44%	2016
I-66, Virginia	RR	\$0	\$1,229	\$737	0	\$1,549	\$3,515	44%	2017
I-95, ext., Virginia	RR	\$0	\$0	\$277	0	\$532	\$809	66%	2019
N. Tarrant, 3C, TX	RR	\$14	\$0	\$750	0	\$160	\$924	17%	2019
Newark ConRAC	RR	\$110	\$0	\$0	\$310	\$60	\$480	13%	2019
Belle Chasse Bridge, LA	RR	\$45	\$0	\$110	0	\$28	\$183	15%	2019
<b>Total</b>		<b>\$2,979</b>	<b>\$5,756</b>	<b>\$4,890</b>	<b>\$1,734</b>	<b>\$6,175</b>	<b>\$21,534</b>		
<b>Average</b>		<b>\$166</b>	<b>\$320</b>	<b>\$272</b>	<b>\$96</b>	<b>\$343</b>	<b>\$1,196</b>		
<b>Percent</b>		<b>13.8%</b>	<b>26.7%</b>	<b>22.7%</b>	<b>8.1%</b>	<b>28.7%</b>			
I-595, FL	AP	0	\$603	0	\$781	\$208	\$1,592	13%	2009
Port Miami Tunnel	AP	\$100	\$341	0	\$342	\$80	\$863	9%	2009
Denver Eagle rail	AP	\$1,312	\$280	\$396	\$0	\$54	\$2,042	3%	2010
Presidio Pkway Ph 2	AP	0	\$150	0	\$167	\$45	\$362	12%	2012
East End Bridge	AP	\$526	\$162	\$508	\$0	\$78	\$1,274	6%	2013
Goethals Bridge	AP	\$125	\$474	\$453	\$0	\$107	\$1,159	9%	2013
I-69, IN	AP	\$80	\$0	\$244	\$0	\$41	\$365	11%	2014
I-4, FL	AP	\$1,035	\$950	\$0	\$484	\$103	\$2,572	4%	2014
Penn. Rapid Bridges	AP	\$255	\$0	\$721	\$0	\$59	\$1,035	6%	2015
Portsmouth Bypass	AP	\$178	\$209	\$227	\$0	\$49	\$663	7%	2015
Purple Line rail	AP	\$1,599	\$875	\$313	\$0	\$139	\$2,926	5%	2016
LaGuardia Terminal	AP	\$1,200	\$0	\$2,400	\$0	\$200	\$3,800	5%	2016
I-70, Colorado	AP	\$687	\$404	\$141	\$0	\$65	\$1,297	5%	2017
LAX People Mover	AP	\$1,031	\$0	\$1,295	\$269	\$103	\$2,698	4%	2018
LAX ConRAC	AP	\$690	\$0	\$458	\$73	\$43	\$1,264	3%	2019
<b>Total</b>		<b>\$8,818</b>	<b>\$4,448</b>	<b>\$7,156</b>	<b>\$2,116</b>	<b>\$1,374</b>	<b>\$23,912</b>		
<b>Average</b>		<b>\$588</b>	<b>\$297</b>	<b>\$477</b>	<b>\$141</b>	<b>\$92</b>	<b>\$1,510</b>		
<b>Percent</b>		<b>36.9%</b>	<b>18.6%</b>	<b>29.9%</b>	<b>8.8%</b>	<b>5.7%</b>			

Sources: *Public Works Financing, Inframation, and U.S. DOT*

No new U.S. greenfield DBFOM deals were concluded in 2020, as project development and procurement activity slowed. However, activity continued in three areas: sales and refinancing of existing DBFOM projects, new greenfield projects moving toward procurement, and possible P3 leases of existing toll roads (known as “asset recycling”).

### 3.2.1 SALES AND REFINANCING OF EXISTING P3 CONCESSIONS

A high-profile deal was the sale of the remaining years of the 58-year Macquarie/Skanska concession for the Elizabeth River Crossings project in Virginia. Four teams formed and expressed interest in bidding: Abertis/GIC, Globalvia/DIF, ROADIS, and Transurban—all significant global toll road players. The winner was Abertis, teamed with Manulife Investment Management (an affiliate of the John Hancock insurance company).<sup>18</sup> The price represented a multiple of the tunnels’ 2019 earnings before interest, taxation, depreciation and amortization (EBITDA) of 39.7X, comparable to multiples paid prior to the pandemic. The concession was valued at \$2.38 billion.<sup>19</sup>

In another high-profile Virginia transaction, Transurban offered a 50% stake in its growing network of express toll lanes in the Washington, D.C. suburbs. Via a private marketing effort arranged by Goldman Sachs, Transurban selected an offer of \$2.1 billion for the 50% stake in what is now named Transurban Chesapeake, which holds long-term P3 concessions for the express toll lanes it developed and operates on I-95, I-395, and I-495.<sup>20</sup> Its new co-owners of the concessions are pension funds Australian Super, Canada Pension Plan Investment Board, and UniSuper, which are all long-time infrastructure investors, two of which have partnered with Transurban on projects in Australia. The deal frees up capital for Transurban’s effort to win Phase 1 of Maryland’s ambitious express lanes project (see section 3.2.2)

Another refinancing took place in Colorado. The John Laing consortium issued \$311 million in refinancing bonds for its Denver Eagle P3 rail transit project.<sup>21</sup> These funds will pay down original, higher-interest debt from the original project financing in 2010. Specifically, the

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<sup>18</sup> Michael Bennon, “Abertis Into US Market with Elizabeth River Crossings Acquisition,” *Public Works Financing*, November 2020.

<sup>19</sup> Jon Berke, “Abertis and Manulife Agree to Acquire Elizabeth River Crossings,” *Inframation News*, 9 November 2020.

<sup>20</sup> Abigail Miller and Kate Burgess, “Transurban Strikes USD 2.1Bn Deal to Sell U.S. PPP Portfolio Stake,” *Inframation News*, 16 December 2020.

<sup>21</sup> Fernando Moncada Rivera, “John Laing Refis Denver LRT with US \$311 M,” *Inspiratia*, 21 December 2020.

proceeds will pay off the Private Activity Bonds that were part of the original financing. The Denver Eagle was the first U.S. DBFOM transit project, and it was financed based on availability payments. The new bonds were rated A- by Fitch Ratings.

Under way as of early 2021 is an auction for a 50% stake in the Presidio Parkway concession in San Francisco. The 30-year concession, owned by Hochtief and Meridiam, reached financial close in 2012, on an availability payment basis.<sup>22</sup>

### 3.2.2 PROJECTS IN THE TRANSPORTATION DBFOM PIPELINE



*The largest revenue-risk P3 concession on offer is Maryland's plan to add express toll lanes to its half of the Beltway around the District of Columbia (I-495), rebuild the American Legion Bridge with express lanes in both directions, and add express lanes to I-270, which is a spoke off I-495.*



The largest revenue-risk P3 concession on offer is Maryland's plan to add express toll lanes to its half of the Beltway around the District of Columbia (I-495), rebuild the American Legion Bridge with express lanes in both directions, and add express lanes to I-270, which is a spoke off I-495. The total project's estimated cost is \$9 billion. Phase 1, currently in procurement, consists of the bridge reconstruction, I-495 express lanes from there to I-270, and express lanes on a portion of the latter. Four teams were short-listed in July 2020, led by ACS Infrastructure, Cintra, Itinera, and Transurban.<sup>23</sup> ACS declined to submit a proposal, but the other three submitted proposals by the early-January 2021 due date.<sup>24</sup> In February 2021, MDOT selected the Transurban/Macquarie team.<sup>25</sup>

<sup>22</sup> Jon Berke, "Auction Launched for San Francisco Road Stake," *Inframation News*, 15 January 2021

<sup>23</sup> Abigail Miller, "Four Teams Shortlisted for I-495/I-270 P3," *Inframation News*, 20 July 2020.

<sup>24</sup> Michael Bennon, "Proposals in, Preferred Alternative Selected in MD Managed Lanes," *Public Works Financing*, January 2021.

<sup>25</sup> Michael Bennon, "Transurban, Macquarie Team Selected for Beltway Managed Lanes," *Public Works Financing*, February 2021.

The preferred alternative, selected by MDOT from among those evaluated in the Draft Environmental Impact Study (EIS), would provide two express lanes each way on each of the three segments of phase 1. Opposition from NIMBYs and anti-highway environmental groups makes it hard to predict when the winning team and MDOT will reach commercial and financial close on the project.

The next large project is a replacement for the aging bridge on I-10 spanning the Calcasieu River near Lake Charles, Louisiana. In January 2021, the Louisiana Department of Transportation & Development began the procurement process, after having received legislative endorsement for using a DBFOM procurement for this project, estimated to cost between \$600 million and \$800 million.<sup>26</sup> The DOTD received 37 letters of interest from an array of companies.<sup>27</sup> The current plan calls for getting to a federal Record of Decision by early 2022. A larger Louisiana I-10 bridge replacement, which will also require toll financing, is the bridge spanning the Mississippi River at Baton Rouge. There is not yet local consensus on which of several alternative paths the replacement span will follow, so its potential P3 procurement is likely several years away. As evidence of the DOTD's commitment to P3s, on January 25, 2021 it issued an RFP for a financial advisor to assist with P3s and other alternative delivery methods.<sup>28</sup>

Pennsylvania, having had success with its Rapid Bridge Replacement project, financed via availability payments, has now embarked on a program to use toll-financed P3s to replace nine aging major bridges with enough traffic to make toll financing feasible.<sup>29</sup> Called Major Bridge P3 Initiative, the measure builds on the state's P3 law and on the federal policy that permits replacing non-tolled bridges with toll-financed bridges on the Interstate highway system. PennDOT selected nine such bridges in February 2021.<sup>30</sup> It plans to issue a Request for Qualifications in June 2021. Issuance of the RFP to short-listed firms is planned for February 2022, with selection of the winners by May 2022. The financing plan aims to pay for 100% of the costs of the replacement bridges via toll revenue bonds, to preserve PennDOT's fuel tax revenues for its other programs.

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<sup>26</sup> Michael Bennon, "Louisiana Moves Forward with I-10 Calcasieu River Bridge Project," *Public Works Financing*, January 2021.

<sup>27</sup> "Louisiana Receives 37 Letters of Interest for Bridge P3," *Inframation News*, 4 March 2021.

<sup>28</sup> Eugene Gilligan, "Louisiana Issues RFP for Transportation P3 Financial Advisor," *Inframation News*, 2 February 2021.

<sup>29</sup> Don McCloud, "Toll Bridges Proposed as Pennsylvania's Aging Bridges Deteriorate and Funding Falls Flat," *Equipment World*, 5 February 2021.

<sup>30</sup> Michael Bennon, "Nine Soon-to-Be Bridge P3s in Pennsylvania," *Public Works Financing*, February 2021.

One other potential project is the planned \$1.5 billion I-69 bridge across the Ohio River between Indiana and Kentucky. The bridge will complete the construction of I-69 in Indiana and start its continuation in Kentucky. The preferred alternative was selected in January, with toll revenue as the primary basis for financing.<sup>31</sup> While no decision has yet been made about the procurement method, the two state DOTs collaborated on the earlier East End Bridge project across the Ohio River at Louisville as an availability-payment DBFOM concession, with the toll revenues as a key source of funding for the state-provided availability payments (Table 9).



*In late 2020, the \$15 billion congressional authorization for tax-exempt surface transportation PABs was entirely used up.*



In late 2020, the \$15 billion congressional authorization for tax-exempt surface transportation PABs was entirely used up. In response, Reps. Earl Blumenauer (D, OR) and Rodney Davis (R, IL) introduced HR 2541. The bipartisan measure would increase the federal cap to \$30 billion, permitting another \$15 billion worth of PABs to be issued.<sup>32</sup>

### 3.2.3 POTENTIAL TOLL ROAD ASSET RECYCLING P3S

The concept of infrastructure asset recycling, in which a government-owned revenue-producing facility is long-term leased under a P3 concession, has been used in Australia, in India regarding toll roads, and in many countries to bring private investment and management into airports. In the United States, the three best-known examples are the 2013 P3 lease of the San Juan (Puerto Rico) International Airport, the 2005 P3 lease of the Indiana Toll Road, and the 2004 P3 lease of the Chicago Skyway. Proceeds of the Indiana Toll Road lease fully funded a 10-year statewide highway improvement program, while Puerto Rico and Chicago used most of their lease proceeds to pay down debt.

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<sup>31</sup> Tyson Fisher, "I-69 Ohio River Crossing Will Include Toll on New Interstate Bridge, *Land Line*, 21 January 2021.

<sup>32</sup> Robert W. Poole, Jr., "Bipartisan Bill to Increase PABs Cap Introduced," *Surface Transportation Innovations* #208, February 2021.

Although public pension funds, infrastructure investment funds, and global toll road companies are all interested in P3 leases of U.S. airports, seaports, toll roads, and municipal utilities of all kinds (many of which need refurbishment and modernization), the idea has not thus far captured the attention of many legislators or state/local officials. Consequently, in 2020, Reason Foundation carried out research on nine major state-owned toll road systems to estimate their potential value to investors, and to suggest how much net proceeds each state might receive via a nominal, 50-year P3 lease.<sup>33</sup>



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Because most public officials are unlikely to be familiar with infrastructure asset recycling, besides estimating the gross value (based on international EBITDA multiples for toll road leases), the report explained the Australian and (limited) U.S. experience with toll road P3 leasing. It also provided brief overviews of the leading global toll road companies, the largest infrastructure investment funds, and the growing interest of public pension funds in investing equity in revenue-producing infrastructure.

The mid-range estimate of total gross value of the nine toll road systems was \$124 billion (using a pre-pandemic EBITDA multiple). The net values of the individual toll roads, after paying off existing revenue bonds, ranged from a low of \$1.1 billion to a high of \$19.4 billion. Contrary to Reason's expectations, the study was viewed as a threat by the boards and management of the toll road systems that were studied, and thus far none of the nine state governments has requested further details.

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<sup>33</sup> Robert W. Poole, Jr., "Should Governments Lease Their Toll Roads?" Reason Foundation, August 2020.

Nevertheless, proposed toll road P3 leasing is a hot topic in Colorado. In 2019, global toll road company ROADIS submitted an unsolicited proposal to long-term lease E-470, a 21<sup>st</sup>-century toll road that forms the eastern half of the ring road around metro Denver.<sup>34</sup> The board and management responded negatively to the proposal, and they raised the technicality of having no provision for considering unsolicited proposals. E-470 was created and is owned by eight local jurisdictions through which it runs (four cities and four counties).

Former local officials and business leaders thought the potential \$4.2B net proceeds to the local governments from that ROADIS proposal should not be rejected out of hand.<sup>35</sup> They created a Citizens Review Committee, which during 2020 held meetings and gathered information, to provide context for assessing the ROADIS proposal. The committee's report, issued in January 2021, urged the E-470 board to take the proposal seriously and to issue an RFP soliciting competing bids.<sup>36</sup>

The Colorado story does not end there. In a late-2020 review of which states might turn to P3s as part of their effort to recover from the pandemic, *Inframation News* interviewed Nick Farber, the director of Colorado DOT's P3 unit, the High Performance Transportation Enterprise (HPTE). Lamenting the financial distress of the recently opened C-470 corridor, Farmer said:

*We're between 50%-60% down [in traffic] depending on the week. It's going to come to the point where we decide if we can keep eating that revenue loss, and dipping into state funds to pay off our debt service—or if we transfer that debt to a concessionaire and take that debt off our books. It's a matter of time.*<sup>37</sup>

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<sup>34</sup> ROADIS, "Proposal: E-470," submitted to E-470 Public Highway Authority, June 21, 2019.

<sup>35</sup> John Aguilar, "A Foreign Company Wants to Operate E-470—and Collect Billions in Tolls from Drivers," *Denver Post*, 4 November 2019.

<sup>36</sup> Citizens Review Committee, "Review of the E-470 Tollway Public-Private Partnership and the ROADIS USA Proposal," 5 January 2021.

<sup>37</sup> Bianca Giacobone, "The Story in Numbers: Which US States Might Turn to P3 Post-Covid," *Inframation News*, 9 November 2020.



## PART 4

# PUBLIC PENSION FUND INFRASTRUCTURE INVESTING

## 4.1

### INTRODUCTION

The concept of public pension funds including infrastructure in their investment portfolios is not new. Pension funds generally invest in relatively safe long-term bonds for a significant portion of their portfolios, as well as relatively conservative corporate stocks such as those of railroads and investor-owned utilities. But a great deal of U.S. infrastructure is owned by governments: airports, seaports, toll roads, and most water and wastewater systems. Pension funds do not invest in these government-owned infrastructure assets for two reasons. First, these facilities' bonds are tax-exempt, and the tax exemption is of no value to nonprofit, tax-exempt public pension funds. Second, it is not possible to buy shares in government-owned infrastructure, since there are no tradeable shares.

On the other hand, U.S. public pension funds are seeking overall returns on their investment portfolios averaging 7.2%. Yet, as a recent analysis by Reason Foundation's Pension Integrity Project has found, their diversification into private equity, hedge funds,

and alternative investments has thus far not boosted their average return to even 6%.<sup>38</sup> Expanded infrastructure investment is one means by which public pension funds can achieve a better match between long-term investment returns and their long-term liabilities.



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Infrastructure investment opportunities are much greater today than 20 years ago, as governments in many countries have leased or sold revenue-generating infrastructure. In some cases, such as the British airports, seaports, telecoms, electricity, and water systems, the government sold shares to the public or auctioned the entities to private-sector investors. In a larger number of cases, governments created long-term P3 leases for such facilities, as is typically the case in Asia, Australia, and Latin America, as well as some European countries. The shares in the special purpose vehicles (SPVs) that win the long-term concessions for such infrastructure are generally not traded on stock markets (i.e., they are unlisted), but knowledgeable investors, such as infrastructure investment funds and public pension funds, can purchase portions of the SPVs' equity.

The pioneer pension funds investing in privatized infrastructure were those of Australia and Canada. In 1992 the Australian government required employers to set aside 3% of nearly all employees' wages in their choice of approved pension funds. Over subsequent years, that annual percentage was gradually increased, to 9.5% today. The pension funds built diversified portfolios, including shares in Australia's newly privatized utilities, airports, seaports, toll roads, and other infrastructure. As of 2018, those pension funds had assets of \$1.9 trillion and growing. Canada's public pension funds followed a similar course. Since

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<sup>38</sup> Anil Niraula and Truong Bui, "The 'New Normal' in Public Pension Investment Returns," Reason Foundation, April 2020.

both Australia and Canada have relatively small populations and industries, their pension funds expanded the scope of their investments worldwide, including their investments in privatized infrastructure.



*Most pension funds that invest in private and P3 infrastructure minimize their risk by not making direct investments in specific facilities.*



Most pension funds that invest in private and P3 infrastructure minimize their risk by not making direct investments in specific facilities. Instead, they allocate a specific sum for infrastructure and place it with one or more infrastructure investment funds, such as those shown in Table 1. A handful of large Australian and Canadian pension funds has developed staffs with detailed knowledge and understanding of private and P3 infrastructure. Those funds make direct investments, rather than placing all their capital with major infrastructure funds. Also of note, the seventh-largest fund in Table 1—IFM Investors—was created by pension funds acting together to invest in infrastructure on behalf of their member beneficiaries.

A table generated by data provider Preqin identifies the median allocation to infrastructure by type of investor, as of 2019.<sup>39</sup> Table 10 shows the allocations by nonprofit entities.

**TABLE 10: MEDIAN ALLOCATIONS TO INFRASTRUCTURE BY NONPROFIT ENTITIES**

Superannuation schemes	6.0%
Sovereign wealth funds	4.9%
Endowment plans	2.7%
Public pension funds	2.3%
Private-sector pension funds	2.9%
Foundations	1.3%

It is not clear why Preqin listed superannuation schemes (an Australian term for pension fund) and pension funds separately.

<sup>39</sup> Preqin, “2020 Preqin Global Infrastructure Report,” Table 5.3, <https://docs.preqin.com> (17 February 2021).

## 4.2

## RECENT PENSION FUND INFRASTRUCTURE DEVELOPMENTS

### 4.2.1 OVERSEAS PENSION FUND ACTIVITY

Australian and Canadian pension funds with extensive infrastructure expertise remained very active in 2020. Here is a sampling of such activities.

**IFM Investors**, which acquired toll road company Aleatica from Spanish infrastructure firm OHL in 2018, assisted Aleatica in purchasing a controlling interest in Brebemi, an Italian toll road company. Brebemi operates a 62-km toll road linking Milan and Brescia. Aleatica now owns 19 infrastructure concessions, including 14 toll roads.<sup>40</sup>

**CDPQ**, the large Quebec public pension fund, agreed to acquire Plenary Americas, a company with 36 North American and Canadian P3 projects, including the US 36 express toll lanes in Colorado. Plenary Americas' parent company is based in Australia.<sup>41</sup> Early in 2021, CDPQ was seeking to acquire a toll road in India from Bharat Road Network Ltd. The toll road is Shree Jagannath Expressways, with a concession term of 31 years, beginning in 2010.<sup>42</sup> In addition to acquiring toll roads, CDPQ also agreed to sell its stake in Mexican toll road company OVT. The buyer is Empresas ICA, which will add the OVT roads to a larger planned sale of toll concessions.<sup>43</sup>

**OMERS, the Ontario Municipal Employee Retirement System**, sold its majority interest in the Detroit River Tunnel to Canadian Pacific Railways, for \$312 million; it had acquired its 83.5% stake in the tunnel from CP in 2001.<sup>44</sup>

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<sup>40</sup> Ott Tammik, "Aleatica to Acquire Italian Road, Marking IFM Market Entry," *Inspiratia*, 30 June 2020.

<sup>41</sup> "CDPQ Agrees to Acquire Plenary Americas," *Inframation News*, 12 March 2020.

<sup>42</sup> Rouhan Sharma, "CDPQ In Talks to Purchase India Toll Road Highway," *Inframation News*, 14 January 2021.

<sup>43</sup> Jonathan Carmody, "Empresas ICA to Buy CDPQ Stake in Mexican Toll Roads," *Inframation News*, 22 September 2020.

<sup>44</sup> Jon Berke, "OMERS Sells Cross-Border Tunnel Stake Back to Canadian Pacific," *Inframation News*, 16 October 2020.

**Ontario Teachers' Pension Plan (OTPP)** reported that its 2019 infrastructure portfolio outperformed its benchmark for that year. The portfolio delivered a one-year return of 4.2%, with its four-year annualized return at 8%.<sup>45</sup>

**Canada Pension Plan Investment Board (CPPIB)** had a 14% return on its FY 2019 infrastructure portfolio but a -1% return in FY 2020. During the latter fiscal year, CPPIB acquired a 23.7% interest in major Mexican toll road company IDEAL (along with OTPP, which acquired 16.3%). CPPIB also invested \$600 million in India's National Investment & Infrastructure Master Fund.<sup>46</sup>

**PSP Investments**, another large Canadian pension fund, joined with OTPP, CDPQ, and toll road company Globalvia in bidding for developer Odinsa's Colombian toll roads. Odinsa is owned by Grupo Argos and is offering to sell a minority stake in a set of toll concessions.<sup>47</sup> PSP also wholly owns global toll road company ROADIS.

Two other non-U.S. pension funds formed a long-term partnership to invest in real assets: Dutch pension fund manager APG and South Korea's National Pension Service (NPS). In April 2020 they bought a majority stake in Portuguese toll road company Brisa.<sup>48</sup>

#### 4.2.2 U.S. PENSION FUND DEVELOPMENTS

The United States has a long way to go to match the extent of public pension fund investments in infrastructure by Australian and Canadian pension funds. In summer 2020, Norman Anderson, the chairman of infrastructure firm CG/LA Infrastructure, wrote an article on this subject for *Forbes*.<sup>49</sup> Here is an excerpt:

*The U.S. is a superpower in the pension fund world, controlling more than 50% of global [pension] assets, and yet a recent Financial Times article identified a \$1.6 trillion funding gap as a grave threat to the U.S. economy. For the last 15 years, as Canadian*

<sup>45</sup> Yuanqing Sun, "Ontario Teachers' Infra Portfolio Outperforms, Allocation Slips," *Inframation News*, 31 March 2020.

<sup>46</sup> Yuanqing Sun, "CPPIB Sees Negative Annual Returns in Infrastructure and Energy," *Inframation News*, 26 May 2020.

<sup>47</sup> Jonathan Carmody, "Bidders Circle Odinsa Highway Portfolio Stake Sale," *Inframation News*, 4 February 2021.

<sup>48</sup> IPE Staff, "APG, South Korea's NPS Form Real Assets Investment Partnership," *IPE Real Assets*, 20 October 2020.

<sup>49</sup> Norman Anderson, "A \$1.6 Trillion Pension Fund Gap – Is Infrastructure Investment the Answer?" *Forbes*, 25 August 2020.

*and Australian pension funds have returned on average nearly 5% per year, and often much more, their U.S. counterparts have averaged returns of only 0.5%. Given a performance level in the range of dynamic global pension funds, our funds would be a tremendous strategic asset. A relatively simple shift in policy would not only enable that result, but in this time of crisis would allow us to use those assets as a turbocharger of a swift U.S. and global economic recovery. According to Nicolas Firzli, Director-General at the World Pensions Council in Paris, 'U.S. public pensions clearly tend to allocate substantially less to infrastructure (barely 2% of their assets) than large Canadian and Australian pension funds, which typically allocate 10% of their overall holdings to infrastructure, five times more than their U.S. peers.' So without raising taxes, or taking on more debt, the U.S. has a ready war chest of over \$2.5 trillion to move directly into infrastructure, while simultaneously—indeed consequently—generating higher returns for American retirees.*

There is a lot of potential in what Anderson suggests. But as of 2021, there are not very many U.S. infrastructure projects for pension funds to invest in. Pension funds invest *equity* in infrastructure, yet as noted previously, there is no equity available to purchase in government-owned and operated airports, seaports, toll roads, or other revenue-generating infrastructure. So when U.S. pension funds do allocate a small portion of their portfolios to infrastructure, they place it with one or more of the infrastructure investment funds like those in Table 1—and those funds invest mostly in non-U.S. infrastructure. It is the lack of more long-term P3 airports, seaports, toll roads, etc. that limits the win-win opportunity Anderson suggests. That could be changed by revising federal and state P3 policy to facilitate more long-term DBFOM concessions.

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Meanwhile, here are some examples of recent pension fund investments in U.S. infrastructure, as well as new commitments by U.S. pension funds to infrastructure investing.

One of the largest transactions in 2020 was the purchase of 50% of Transurban's northern Virginia P3 express toll lanes concessions by three overseas pension funds: **Australian Superannuation Fund** (25%), **CPPIB** (15%), and **UniSuper** (10%). As *Public Works Financing* pointed out, AusSuper is a co-investor in a number of Transurban's Australian projects, including Queensland Motorway and WestConnex. CPPIB is also a WestConnex investor and in Transurban's NorthWestern Roads Group in Sydney.<sup>50</sup> The new Virginia express toll lanes entity has been named Transurban Chesapeake.

The Transurban decision to sell part of its interest in operational P3 facilities has parallels elsewhere. In 2011, ACS Infrastructure sold 50% of its concession for the reconstructed I-595 project in Florida to TIAA, a major pensions provider originally focused solely on educators. Once that expressway (now including reversible express toll lanes) was rebuilt and in operation, typical greenfield risks (construction cost overruns, late completion, etc.) were behind it, and it had a promising early track record. By that point it was a significantly lower-risk acquisition than the original concession, as was also the case with Transurban's northern Virginia express toll lanes concessions.

**Ullico** (originally the Union Labor Life Insurance Company) today includes an investment arm that invests in revenue-generating infrastructure. In 2020 it purchased a 49.5% stake in Metropistas de Puerto Rico from Goldman Sachs.<sup>51</sup> The concession company holds a 50-year concession on the PR-5 and PR-22 toll roads serving the San Juan metro area. Spanish toll road company Abertis holds the majority stake. Separately, Ullico raised more than \$3 billion for its open-ended Ullico Infrastructure Master Fund (UIF). Investors in the fund include the **Municipal Employees' Annuity and Benefit Fund of Chicago**, the **Chicago Policemen's Annuity & Benefits Fund**, the **Chicago Laborers Annuity & Benefit Fund**, the **Operating Engineers' Pension Plan**, and **Chicago Teachers Pension Fund**.<sup>52</sup> Since its inception in 2012, Ullico's fund has made 18 portfolio investments in sectors including renewable energy, electricity and gas transmission, and the JFK Terminal One P3 project.

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<sup>50</sup> Michael Bennon, "Institutional Investors Acquire 50% Interest in Transurban Chesapeake," *Public Works Financing*, December 2020.

<sup>51</sup> Jon Berke, "Additional Details Revealed in PR Highway Minority Stake Purchase," *Inframation News*, 19 May 2020.

<sup>52</sup> Yuanqing Sun, "Ullico Raises Over USD 3BN for Open-Ended Fund," *Inframation News*, 10 November 2020.



*The nation's largest public employee pension fund, CalPERS, was one of the first to invest in privatized and P3 infrastructure, with notable investments including stakes in London Gatwick Airport and the P3 company for the Indiana Toll Road.*



The nation's largest public employee pension fund, **CalPERS**, was one of the first to invest in privatized and P3 infrastructure, with notable investments including stakes in London Gatwick Airport and the P3 company for the Indiana Toll Road. In 2020 it committed just over \$1 billion to the Golden Reef Infrastructure Trust, a separately managed account (SMA) within the **Queensland Investment Corporation (QIC)**, a pension fund of the Australian state government Queensland.<sup>53</sup> CalPERS set up the SMA with QIC in 2015, and prior to 2020 had committed \$1.6 billion to it. CalPERS has also made commitments of \$500 million to J.P. Morgan Infrastructure Investment Fund, \$300 million to Alinda Infrastructure Fund II, \$300 million to North Haven Infrastructure Partners, and \$250 million to ArcLight Energy Partners Fund IV, among others. *Pension Pulse* reported in July 2020 that CalPERS' overall investment return for FY 2020 was 4.7%, well below its target of 7%. Infrastructure remains a small fraction of the \$388 billion fund's "real assets" category, which is 12.6% of its total. Real assets returned only 4.6% in FY 2020.<sup>54</sup>

Selected other new infrastructure commitments by U.S. pension funds include the following:

- **Chicago Teachers Pension Fund** committed \$25 million to Macquarie Infrastructure Partners V, which invests primarily in North America.<sup>55</sup>
- **Ohio School Employees Retirement System** announced that it will increase its real-assets allocation from the current 15% to 17% over the next two years. Infrastructure is intended to be 20% of real assets, or 3.4% of the total fund, up from 2.9% in 2019. Previous commitments include \$250 million to IFM Global

<sup>53</sup> Yuanqing Sun, "CalPERS Commits USD 1BN to QIC-Managed Account," *Inframation News*, 14 September 2020.

<sup>54</sup> Leo Kolivakis, "CalPERS Gains 4.7% in Fiscal 2020," *Pension Pulse*, 17 July 2020.

<sup>55</sup> Yuanqing Sun, "Chicago Teachers Invests USD 25M in Macquarie Infrastructure Partners V," *Inframation News*, 3 April 2020.



Infrastructure Fund, \$100 million to J.P. Morgan Global Transportation Income Fund, and \$50 million to AMP Capital Global Infrastructure Fund.<sup>56</sup>

- **Washington State Investment Board** and **New Mexico Educational Retirement Board** have approved a total of \$950 million to investment vehicles managed by Stonepeak Infrastructure Partners. WSIB committed \$700 million to Stonepeak Infrastructure Fund IV and \$200 million to another Stonepeak fund. NMERB committed \$50 million to Fund IV.<sup>57</sup>
- The **Connecticut Retirement Plans & Trust Funds** committed \$150 million to ISQ Global Infrastructure Fund III, a fund managed by I Squared Capital. CRPTF also committed \$100 million to the IPI Partners II fund. CRPTF aims to reach a 4% target for infrastructure and natural resources. Previous commitments include \$200 million each to IFM Global Infrastructure and Global Infrastructure Partners IV.<sup>58</sup>
- The **Alameda County (California) Employees' Retirement Association** plans to increase its private infrastructure allocation to 50% of real assets, from 25% in 2020, via placing funds with open-end core funds. It has existing allocations of \$40 million each with Brookfield Super-Core Infrastructure Partners, EQT Infrastructure IV, and ISQ Global Infrastructure Fund II.<sup>59</sup>
- The **Coral Springs, Florida Police Officers Retirement Plan** committed \$12 million to IFM Global Infrastructure Fund, as an initial step toward achieving a 5% allocation to infrastructure.<sup>60</sup>

As the above examples illustrate, even the employee retirement systems of relatively small municipal governments are embracing infrastructure investment as a means for increasing their overall return on investment.

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<sup>56</sup> Yuanqing Sun, "Ohio SERS Raises Real Asset Target, to Pursue Co-Investment," *Inframation News*, 6 April 2020.

<sup>57</sup> Yuanqing Sun, "Washington and New Mexico Commit USD 950M to Stonepeak," *Inframation News*, 17 April 2020.

<sup>58</sup> Yuanqing Sun, "Connecticut Plan Makes USD 150M Commitment to ISQ III," *Inframation News*, 19 November 2020.

<sup>59</sup> Yuanqing Sun, "Alameda Pension System Doubles Private Infra Allocation," *Inframation News*, 16 November 2020.

<sup>60</sup> Yuanqing Sun, "Florida Pension System Commits USD 12M to IFM," *Inframation News*, 20 August 2020.

## 4.3

## DRAWBACKS OF DIRECT INVESTMENT AND ASSET-IN-KIND TRANSFERS

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*Pension funds have a fiduciary duty to make investment decisions that are in the best interests of the retirees for whose pensions they are responsible.*

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Pension funds have a fiduciary duty to make investment decisions that are in the best interests of the retirees for whose pensions they are responsible. Direct investment by public pension funds in large individual projects can violate that duty by exposing the pension fund's portfolio to excessive risk. That is why the large majority of pension funds invest by placing their infrastructure allocations with one or more professional infrastructure investment funds. It's similar to the average individual investing in mutual funds rather than speculating in individual stocks.

Some proponents advocate a different approach, contending that P3 infrastructure is politically unpopular, in part due to fears of "foreign control" and an allegedly higher cost of capital than via municipal bond financing.<sup>61</sup> Their proposed alternative is called "Asset-in-Kind (AIK) transfer." A government with an aging infrastructure facility needing to be refurbished would *give* the facility to the jurisdiction's pension fund as an additional asset on the fund's balance sheet. The pension fund would hire a private-sector manager to "transform the asset into a performance-driven enterprise." Once it has been transformed, the pension fund might then sell 5% to 10% to an independent third party, which would permit a market-based estimate of its value on the pension fund's balance sheet. Proponents acknowledge that several federal tax-code changes would be needed to make this model viable.

Several key, but questionable, assumptions are built into this model.

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<sup>61</sup> Ray Klagic, et al., "Transforming Public Infrastructure Assets Under Public Pension Stewardship for Public Benefit," (PowerPoint presentation) American Public Infrastructure. November 2019.

- It assumes that the asset would be valued by the pension fund at “fair market value.” As anyone knows who has observed large-scale real estate transactions or mergers and acquisitions, the only way to ascertain true market value is through a competitive process. Would-be private-sector purchasers or lessees (under long-term P3s) would value the asset based on its potential after transformation, not on any kind of static assessment.
- The model assumes that private contract management—without an ownership interest—would be capable of truly transforming the asset into a performance-driven enterprise. The absence of meaningful incentives for a contract manager to make such sweeping changes is one reason why long-term P3s have emerged, after decades of only minor efficiency improvements under contract management.
- Third, this model assumes that the potentially higher capital costs of a P3 (meaning the potential return on the equity invested) do not add value. But there are significant risk transfers in long-term, revenue-based P3s.<sup>62</sup> In exchange for the opportunity to seek, say, a 12% return on the equity invested in the asset, the private partner takes on the risk of cost overruns on new/rebuilt facilities, insufficient revenue to fully cover capital and operating costs, and insurance, among other things. Those risks would all be borne by the pension fund and its retirees under the AIK model.

Proponents cite the transfer of Queensland Motorways to a major Australian pension fund as evidence of this approach's viability. This case proves the opposite of what is argued by Asset-in-Kind proponents, so it is worth reviewing carefully.

The Global Projects Center at Stanford University did a detailed case study of Queensland Motorways.<sup>63</sup> The case concerns the 2011 transfer from the state government (Queensland) of several bankrupt highway/tunnel projects, which the state had acquired post-bankruptcy, to its pension fund, Queensland Investment Corporation (QIC). Over several subsequent years, QIC acquired several additional highway assets in the Brisbane metro area and put them all under a single management as Queensland Motorways Ltd. (QML). QML made a number of upgrades to convert the highways into a network, financed by increases in toll rates. In late 2013, QIC's board decided that the value of QML had increased to the point where it was inconsistent with QIC's commitment to a diversified investment portfolio. It

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<sup>62</sup> Robert Poole, “Availability Payment or Revenue-Risk P3 Concessions? Pros and Cons for Highway Infrastructure,” Reason Foundation. November 2017.

<sup>63</sup> Michael Bennon, Ashby H.B. Monk, and Young-Joon Cho, “In-Kind Infrastructure Investments by Public Pensions: the Queensland Motorways Case Study,” Stanford Global Projects Center. June 5, 2017.

then organized a competitive process for a long-term P3 lease of QML, which was won in July 2014 by a consortium of a leading toll road company, a major Australian pension fund, and a sovereign wealth fund. They paid QIC \$6.6 billion for the P3 lease.

On the surface, this shows benefits to a pension fund from an Asset-in-Kind transfer. However, the authors of the case study are at pains to point out how unique QIC is, especially compared with U.S. public pension funds. QIC is one of the largest pension funds in Australia, with over A\$79 billion of assets in its portfolio, including A\$9.5 billion of infrastructure investments. Like IFM Investors, CPPIB, and OMERS, QIC has “built a team of investment professionals and developed the in-house capability to assess and manage infrastructure assets directly.” Among its other infrastructure assets are the privatized Brisbane Airport and the Port of Brisbane.

The case study authors add that, “The operational improvements at QML were possible only due to the rare capability at QIC as a state-level pension fund manager to directly invest in and manage infrastructure assets. This internal capability is rare in public pensions. ... Without QIC’s dedicated infrastructure team, QML would also likely have not realized the same level of operational turnaround.” Referring directly to advocates of AIK transfers to ordinary pension funds, the authors write, “It is unclear whether a similar transaction could be replicated in which the public pension uses some kind of external management contract with a service provider to assess and operate the in-kind asset without losing the competitive advantages that QIC’s internal team enjoyed.”

The alternative to AIK transfers is for the state or local government owner of the troubled asset to contract with professional legal and financial advisors to structure a competitive bidding process for the sale or (usually in the U.S. context) a long-term P3 lease of the revenue-producing asset. Such a proposal was made by Jeff Schoenberg, former assistant majority leader in the Illinois Senate, in March 2019: a long-term P3 lease of the Illinois Tollway system with the net proceeds used to shore up that state’s grossly underfunded public pension systems.<sup>64</sup> Schoenberg cited the large asset values received by the city of Chicago for the P3 lease of the Chicago Skyway and by Indiana for the P3 lease of the Indiana Toll Road. And he cited a study from last decade that he co-chaired under which Credit Suisse estimated that a 75-year lease of the Illinois Tollway system could generate as much as \$23.8 billion. This would be far more effective than simply giving the Tollway to the state’s beleaguered pension funds.

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<sup>64</sup> Jeff Schoenberg, “The Road to Solvent Illinois Pensions Requires a Tollway Lease,” *Crain’s Chicago Business*. March 5, 2019.

# ABOUT THE AUTHOR

**Robert W. Poole, Jr.** is director of transportation policy and the Searle Freedom Trust transportation fellow at Reason Foundation, a national public policy think tank based in Los Angeles.

His 1988 policy paper proposing supplemental privately financed toll lanes as congestion relievers directly inspired California's landmark private tollway law (AB 680), leading to similar public-private partnership legislation in about two dozen other states. In 1993 Poole introduced the term HOT (high-occupancy/toll) Lane, a concept which has become widely accepted since then.

Poole has advised the Federal Highway Administration, the Federal Transit Administration, the White House Office of Policy Development and National Economic Council, the Government Accountability Office (GAO), and the California, Florida, Georgia, Indiana, Texas, Utah, Virginia, and Washington State Departments of Transportation. He has served on various transportation committees throughout the U.S.

Poole is the author of dozens of policy studies and journal articles on transportation issues. His popular writings have appeared in national newspapers, including *The New York Times* and *The Wall Street Journal*; he has also been a guest on such network TV programs as "Crossfire," "Good Morning America," and "The O'Reilly Factor," as well as ABC and NBC News. He produces the monthly e-newsletter *Surface Transportation Innovations*. *The New York Times* has called him "the chief theorist for private solutions to gridlock."

Poole's most recent book is *Rethinking America's Highways*, published by the University of Chicago Press in 2018, with a paperback edition in 2021.

Poole received his B.S. and M.S. in mechanical engineering at MIT and did graduate work in operations research at NYU.

