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ANNUAL PRIVATIZATION REPORT: SURFACE TRANSPORTATION

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PART 1

GLOBAL OVERVIEW

Long-term public private partnerships (PPPs) for highways have been used by governments for the past 60 years. As documented by José A. Gómez-Ibáñez and John Meyer, the phenomenon began in the 1950s and 1960s, as France and Spain emulated the model pioneered by Italy prior to World War II.¹ Italy's national motorway systems were developed largely by investor-owned or state-owned companies operating under long-term franchises (called concessions in Europe). In exchange for the right to build, operate and maintain the highway for a period ranging from 30 to 70 years, the company could raise the capital needed to build it (typically a mix of debt and equity). The model spread to Australia and parts of Asia in the 1980s and 1990s, and to Latin America in the 1990s and 2000s.

Nearly all the projects in those regions from the 1950s to 1980s were financed based on the projected toll revenues to be generated once the highway was in operation. Some projects went bankrupt as a consequence of reduced traffic and revenues during severe economic downturns (e.g., the oil price shock of 1974), leading to nationalization of some of the companies. In the late 1990s and early 2000s, however, the governments of France, Italy, Portugal and Spain all privatized their state-owned toll road companies and formalized the toll concession PPP model. Australia has allowed several concession company entities to go through liquidation, with the assets (in each case major highway tunnels) being acquired by new operators at a large discount from the initial construction cost.

Other governments in Europe adopted a different form of highway concession. Generally not favoring the use of tolls, they created the concept of availability payments as a means to finance long-term concession projects. In this structure, the company or consortium selected via a competitive process negotiates a stream of annual payments from the government sufficient (the company expects) to cover the capital and operating costs of the project, and make a reasonable profit. The capital markets generally find such a concession agreement compatible with financing the project, combined with a mix of debt and equity. Since no toll revenues are involved, this model applies to a much broader array of transport and facility projects, including rail transit and public buildings. In the highway sector, nearly all long-term concession PPP projects in Canada, Germany, the UK, and a number of Central and Eastern Europe countries have been procured and financed as availability payment (AP) concessions.²

In a small but growing number of cases—major bridges, as well as highway reconstruction that includes the addition of express toll lanes, for example—governments collect the toll revenues and use the money to help meet their availability payment obligations.³ These cases are called “hybrid” concessions in this section.

After a weak 2017, global PPP activity rebounded in 2018 with five project closings worth more than \$1 billion each. Table 1 displays the top 10 deals, which were compiled using information in *Inframation* and *Inspiratia*, two PPP data resources.⁴

Five of the top 10 worldwide PPPs that reached financial close in 2018 use availability payments, continuing a growing trend over the last five years. The growing use of AP concessions has enabled PPPs for projects that do not generate their own revenues, as well as in hybrid concessions (discussed above) in which toll revenues help the government cover the costs of its AP obligations.

TABLE 1: LARGEST GLOBAL SURFACE TRANSPORTATION DEALS OF 2018

Project	Location	Country	Value \$ (B)	Type	Duration	Concessionaire
Canakkale Bridge	Canakkale	Turkey	\$3.65	DBFM	16 Years	Daelim Industrial/Limak Construction/SK Group/Yapi Merkezi
Gordie Howe International Bridge PPP	Ontario	Canada	\$2.68	DBFOM-AP	30 Years	AECOM/Fluor Corporation/Grupo ACS
Ankara – Nigde Motorway PPP	Ankara	Turkey	\$1.42	BOT- AP	12 Years	ERG Insaat/Seza Insaat
A16 Rotterdam Highway PPP	Rotterdam	Netherlands	\$1.13	DBFM-AP	25 Years	BESIX Group/Dura Vermeer/Epico/John Laing/TBI/Van Oord
Blankenburg Tunnel PPP	Rotterdam	Netherlands	\$1.13	DBFM-AP	20 Years	Ballast Nedam/DEME Group/Macquarie
Finch West Light Rail PPP	Ontario	Canada	\$0.91	DBFM-AP	30 Years	AECOM/CRH/Grupo ACS
A21 Toll Road Concession (Piacenza-Brescia)	Piacenza	Italy	\$0.83	FOM	25 Years	Gavio Group/Itinera S.p.A./Satap
A10/A24 Neuruppin – Pankow PPP	Neuruppin	Germany	\$0.81	DBFOM	30 Years	BAM PPP PGGM/HABAU/Mitsubishi UFJ
Michigan I-75 Modernization PPP	Michigan	United States	\$0.71	DBFM	30 Years	AECOM/John Laing
Chirajara – Fundadores Section of the Bogota – Villavicencio Highway (CoviAndina)	Central Colombia	Colombia	\$0.67	DBFOM	39 Years	Colombia de Concesiones y Licitaciones- Concecol/Estudios y Proyectos del Sol- Episol

Source: 2018 Transaction list from Inframation. Infrastructure news from *Inspiratia*.

Note: Many PPP project steps or procedures are abbreviated using acronyms. The following abbreviations will be used throughout the paper to refer to the different PPP contracts or PPP procedures.

- AP: Availability Payment
- BOO: Build-Operate-Own
- BOT: Build-Operate-Transfer
- DBF: Design-Build-Finance
- DBFOM: Design-Build-Finance-Operate-Maintain
- DBFM: Design-Build-Finance-Maintain
- DBOM: Design-Build-Operate-Maintain
- PPP: Public Private Partnership
- RFI: Request for Information
- RFP: Request for Proposals
- RFQ: Request for Qualifications
- TOT: Toll-Operate-Transfer

PART 2

INTERNATIONAL HIGHWAY INFRASTRUCTURE: 2018

Part 2 provides a detailed description of worldwide PPP activity, divided into geographic regions.⁵

2.1

CANADA

Infrastructure Ontario (IO) and Metrolinx entered a number of PPP projects to build the Regional Express Rail (RER) program. The projects are listed below:

- In August 2018, Metrolinx and IO temporarily halted their property acquisition for the DBFOM **Hamilton B-Line Light Rail (LRT)** due to changes in the Canadian government's outlook on discretionary spending. In March 2019, Metrolinx and IO announced that they would resume land acquisitions. The original RFP deadline was the end of March 2019 but has been extended to fall 2019.
- In September 2018, the RFP deadline was extended to November for the **Hurontario** DBFOM LRT, a 20-km light rail project connecting Mississauga and Brampton with an estimated cost of CAD \$1.4 billion (US \$1.0 billion). Two teams submitted

proposals in May 2019, with IO and Metrolinx expected to award the contract in fall 2019.

- In May 2019, Metrolinx and IO shortlisted four teams for the DBFOM **GO Expansion – Regional Express Rail (RER) Package 3**. The project is one of three packages (parts) of a multi-billion-dollar overhaul of Metrolinx's train network in Ontario. Package 3 will specifically focus on electrification, signaling improvements, maintenance facilities and the reconfiguration of Toronto's Union Station. The third package's estimated value is CAD \$9.0 billion (US \$6.8 billion).

In other Ontario PPP news, in May 2018, the DBFM **Finch West Light Rail** project reached financial close. Awarded by IO and Metrolinx, the CAD \$1.2 billion (US \$907.0 million) light rail project will span 11 km across Finch Avenue in Toronto and include a total of 18 stations as well as maintenance facilities and upgrades. The project was awarded to Mosaic Transit Group, a consortium made up of 14 local and international firms.

In September 2018, the DBFOM **Gordie Howe International Bridge** project crossing the Detroit River reached financial close. Overseen by the Windsor Detroit Bridge Authority, the AP project will construct a new bridge between the U.S. and Canada (over the Detroit river), new customs facilities in each country, and the Michigan Interchange, which is a network of roads leading to the U.S. point of entry. Bridging North America, a consortium consisting of 13 local and international firms, was awarded the CAD \$3.5 billion (US \$2.7 billion) contract in July 2018. Bridging North America will focus on the 'DBFOM' aspects of the project, except the operations and maintenance of the Michigan Interchange, for which the state of Michigan will bear responsibility.

In March 2019, the north-south **Trillium Line**, a CAD \$788.9 million (US \$598.0 million) DBFM project reached financial close. Awarded by the city of Ottawa, the project will add an additional 30 km of light rail to Ottawa's O-Train system, 19 new stations, and ultimately connect to Macdonald-Cartier International Airport. TransitNEXT, made up solely of the Canadian firm SNC-Lavalin, had been awarded the contract in November 2018.

Elsewhere in Canada, in January 2019 the Nova Scotia Department of Transportation shortlisted three teams for the DBFOM **Nova Scotia Highway Twinning** project. The project will twin 38 km of Highway 104 between Sutherland's River and Antigonish. The project's estimated value is CAD \$281.8 million (US \$213.6 million) and will be delivered as an AP concession.

In February 2019, The DBFOM **Tlicho All-Season road** reached financial close. Overseen by the government of the Northwest Territories, the CAD \$228.2 (US \$173.0) million AP project consists of the construction and operation of a 94-km all season road in the Northwest Territories. Kiewit/Hatch were selected as the winning bidders in November 2018.

2.2

EUROPE

BELARUS

In April 2019, the Ministry of Transport and Communications of the Republic of Belarus launched the DBFO **M10 Motorway PPP**, a BYN 423.7 (US \$207.4 million), 85-km highway project running along Belarus' eastern border with Russia. The AP project will have a 20-year concession and include an additional payment scheme to incentivize the winning consortium.

BELGIUM

In April 2019, Via-Invest Vlaanderen awarded the contract for the DBFM **Albert Canal Bridges Cluster** project to Willemen, a Belgian construction firm. The €89.5 million (US \$101.0 million) AP project will increase regional shipping efficiency by raising 31 bridges on the Albert Canal to a height of 9.1 meters.

In May 2019, the Region of Flanders launched the DBFM **R4 Highway (Ghent) West and East** project. The 30-year, €900.0 million (US \$1.0 billion) AP concession will upgrade the R4 West and East in Ghent and will also create 25 km of bicycle lanes and eight new bridges.

BOSNIA

In July 2018, the Republic of Srpska Motorways named the China Orient Asset Management/Sinochem Capital concession as the winning bid for the DBFOM **Vukosavlje-Doboj Highway** project. The project will construct a new, four-lane, 46.6-km motorway between Vukosavlje to Doboj in northern Bosnia. The BAM 710.3 million (US \$410.2 million) concession will be delivered with APs over a 30- to 40-year duration.

In October 2018, the Republic of Srpska Motorways named China Shandong International Economic and Technical Cooperation Corporation as the winning bidder for the DBFOM **Banja Luka-Prijedor Motorway** project. The toll concession project will construct 42 km of motorway linking Banja Luka, Bosnia's second largest city, to Prijedor, a smaller city in the country's northwest. The BAM 595.7 (US \$344.0 million) motorway will be part of the larger Trans-European Transport Network, a network of roads and bridges designed to connect Budapest to Croatia's Adriatic coast.

BULGARIA

In April 2019, the National Commission for Strategy and Prognosis announced a later launch date for the **Zimnicea-Svishtov Bridge** project. The bridge project will replace the existing Soviet-era bridge connecting Zimnicea, Romania and Svishtov, Bulgaria. The private partner is expected to operate the bridge as a toll concession. The project's exact value has yet to be determined.

CROATIA

In October 2018, the Croatian Ministry of Sea, Transport and Infrastructure and Bina Istra reached financial close on Phase 2B of the DBFOM **Istrian Motorway**, which will construct a parallel roadway between the Rogovići to Učka Tunnel section and the Matulji section, as well as the construction of the second structure at the Limska Draga viaduct. The HRK 1.8 billion (US \$280.8 million) AP project will have a 32-year term.

CZECH REPUBLIC

In April 2019, the Czech Republic Ministry of Transport provided feedback to three shortlisted bidders for the DBFOM **D4 Expressway** project. The €275.0 million (US \$308.0 million) AP project will construct a 32-km section of highway between Háje and Mirovice and have a concession life of 25 to 30 years. The Ministry of Transport hopes to finalize a preferred bidder by November 2019.

ESTONIA

In June 2019, the Estonian Ministry of Finance announced the potential **Muhu Bridge** PPP project. The project would connect Estonia's mainland with the island of Muhu, located

approximately 6.0 km from the Estonian mainland. The government is considering a PPP procurement due to a lack of funding, though the project's exact value has yet to be determined.

FINLAND

In April 2019, several infrastructure funds expressed interest in bidding on the **Hailuoto Causeway** project. The project will be expected to replace the current ferry service that spans the 7.8-km passage between the island of Hailuoto in the Gulf of Bothnia and the Finnish mainland. The €73.5 million (US \$83.1 million) project is expected to be delivered as a DBFM 20-year concession with an AP structure.

FRANCE

In September 2018, the refinancing of the **A65 Motorway** reached financial close. The €850.0 million (US \$959.0 million) refinancing package replaces a loan issued 11 years prior. The original debt package was used to finance the 150-km toll concession between Langon and Pau near the Spanish border under a 60-year concession awarded under the auspices of the French Ministry of Environment, Energy and the Sea.

In April 2019, the Région Grand Est announced it may pursue a potential DBFOM **Grand Est Railway** PPP concession. The winning proposal will upgrade and operate the estimated €66.0 million (US \$74.5 million) Nancy-Contrexeville rail line over a 22-year AP concession term.

In June 2019, the French Ministry of the Environment, Energy and the Sea awarded a contract for the DBFM **Route Centre-Europe Atlantique Road** to a consortium led by French construction company Eiffage. The €430.0 million (US \$486.4 million) project includes widening road sections and increasing the number of lanes between the Grand Champ road in Sazeret and the Digoin Interchange.

GERMANY

In March 2019, the German federal government provided feedback to three shortlisted bidders for the DBFOM **A49 Hessen** project, which will link the existing A49 motorway with

the A5 motorway in the central German state of Hesse. The government is exploring potential PPP structures for the estimated €500.0 million (US \$565.3 million) project.

In April 2019, Strabag, one of the private parties bidding for the €1.2 billion (US \$1.4 billion) **A3 Biebelried-AK Fürth/Erlangen Six-Lane Expansion**, filed a complaint with Autobahndirektion Nordbayern, a government entity working with the German Federal Ministry of Transport and Digital Infrastructure (BMVI). Analysts believe that the complaint is related to late changes to the tender documentation. Strabag was bidding jointly with Vinci until March 2019, when Vinci departed for unclear reasons. Strabag's complaint has delayed the announcement of a preferred bidder, which was scheduled for the end of March 2019.

GREECE

In November 2018, the Greek Ministry of Transport and Communication shortlisted three bidding teams for the DBFOM AP **Salamina Highway** project, which will create a 12-km highway from the city of Perama to Salamina Island, including a 1.1-km underwater tunnel. The concessionaire for the €349.5 million (US \$394.8 million) project will receive remuneration through toll payments over an expected 30-year term.

In March 2019, the Greek Ministry of Infrastructure prequalified five consortia for the DBFOM **Northern Road Axis of Crete** between Chania and Neapolis, which will construct 170 km of the 200-km tollway throughout the northwestern part of the island of Crete. The estimated €250.0 million (US \$287.2 million) project will be procured as an AP 30-year concession, with the exact deal structure yet to be determined.

In May 2019, the Peloponnese Region launched the tender process for the €252.0 million (US \$284.4 million) DBFOM **Kalamata-Pylos Motorway** project. Partially motivated by the international interest garnered by the Northern Road Heraklion-St. Nicholas Motorway project in Crete, many of the same concessionaires will likely bid on this expected 30-year AP concession as well.

ITALY

On June 28, 2019, the demolition of the partially collapsed Morandi Bridge in Genoa, Italy was completed. The cause of the bridge's August 2018 collapse, which resulted in the deaths of 43 people, was revealed to be corroded cable stays. There was some discussion

as to whether the bridge should be rebuilt, but the Italian Ministry of Infrastructure and Transport decided on a complete demolition. The collapse raised larger questions about the durability of Italy's infrastructure, and subsequently about the efficacy of the country's public-private partnerships contracts.

The primary criticism of PPPs following the Morandi collapse was that the concession contract between Autostrade, the private company responsible for operating the bridge, and the Ministry of Infrastructure and Transport heavily favored Autostrade. Critics contend that Autostrade has been allowed to make exorbitant profits at the expense of adequate maintenance. The collapse helped spark a larger movement toward complete nationalization of Italy's roadways, an unlikely outcome, as the Italian government would owe Autostrade over \$17.0 billion if it were to prematurely terminate its contracts.

In February 2018, Azienda Nazionale Autonoma delle Strade (ANAS SpA) and Autovia Padana—a consortium of Gavio Group, Itinera S.p.A. and Satap—reached financial close on the DBOM **A21 Piacenza-Brescia** project. The 25-year, €738.0 million (US \$833.0 million) demand-risk contract encompasses operations and management of the 89-km stretch of the A21 between Piacenza and Brescia, as well as the construction of a new connection road. Fund Ardian Infrastructure IV acquired a 49% stake (\$94.1 million) in concessionaire Autovia Padana.

In November 2018, the municipality of Brescia announced it may pursue a DBFOM concession for the **Brescia Light Rail** project. The €400.0 million (US \$451.9 million) project will construct two over-ground light rail lines in the northwestern city of Brescia.

LATVIA

In February 2019, Latvian State Roads provided feedback to three shortlisted bidders for the DBFM **E67/A7 Kekava Bypass** project. The €162.6 million (US \$183.5 million) project will construct a bypass on the E67/A7 highway, turning this section of road into a two-lane expressway under a 23-year AP structure.

THE NETHERLANDS

In June 2018, the Dutch Ministry of Transport, Public Works and Water Management (Rijkswaterstaat) and concessionaire De Groene Boog reached financial close on the €650.0 million (US \$734.3 million) DBFM **A16 Rotterdam Highway** PPP. The 25-year AP project will

connect the A13 at Rotterdam Airport to the Terbregseplein junction at the A16 and also includes construction of the 2.2-km Rottemeren tunnel and three railway crossings, one for a high-speed rail line.

In September 2018, Rijkswaterstaat prequalified three consortia for the DBFM **Via 15** project. Delivered with an AP structure, the €515.1 million (US \$581.4 million) project will extend and widen the A15 from Ressen junction and the A12 between Duiven and Zevenaar in the province of Gelderland.

In September 2018, Rijkswaterstaat shortlisted three bidding teams for the DBFM **A9 Amstelveen-Ouderkerk Amstel Road** project. As the fifth phase of the Schiphol-Amsterdam-Amstelveen (SAA) road project, the 14-year €463.0 million (US \$523.3 million) AP concession will expand the road between Badhoevedorp and Holdenrecht from three to four lanes.

In October 2018, the DBFM **Blankenburg Tunnel** project reached financial close, with Rijkswaterstaat awarding the €985.0 million (US \$1.1 billion) AP concession contract to BAAK Blankenburg-Verbinding, a consortium consisting of Ballast Nedam, DEME Group and Macquarie. The project will build a 4.2-km tunnel beneath the Nieuwe Maas River, which will link the A15 and A20 roads west of Rotterdam, and also includes the widening of the A20 between Kethelplein junction and the Boonervliet Bridge. The bridge includes a 510-meter land tunnel north of the Het Scheur waterway and a railway crossing on the Hoekse line.

NORWAY

In June 2018, the DBFOM AP **RV3/RV25 Ommangsvollen-Grundset** project reached financial close. The NOK 2.7 billion (US \$317.3 million) project encompasses construction of a 14.2-km, four-lane motorway, a 1-km four-lane approach road, and 10.5 km of two- or three-lane roads. The Norwegian Public Roads Administration had awarded the contract to Skanska in March 2018.

In September 2018, the Norwegian Public Roads Administration accepted RFQs for the DBFOM **E10/RV85 Tjeldsund-Langvassbukt** AP concession project that is estimated to cost NOK 8.5 billion (US \$981.4 million).

In February 2019, the Norwegian Public Roads Administration announced that procurement for the BFO **Rv 555-Sotra Connection** project would be delayed at least six months due to the project's complexity. The NOK7.5–8.5 billion (US \$865.0–\$981.0 million) AP project will construct a new four-lane, 9.4-km section of the Fv 562, roughly 24 km of two-lane roads, and 11 km of tunnels, underpasses and intersections.

POLAND

In June 2018, the Ministry of Investment and Development announced the proposed summer launch of the DBFOM **S6/S10 Expressways** project that combines four sections of road from two major highways: the 30.8-km S6 beltway running through the cities of Gdansk, Gdynia and Sopot (referred to locally as the "Tricity"), the 116.7-km S6 stretch between Koszalin and Bożepole Wielkie, the 51.5-km S6 Szczecin western bypass between the cities of Goleniów and Radziszewko, and the 50.4-km stretch of S10 between Bydgoszcz and Torún. The PLN 11.1 billion (US \$2.9 billion) project will be delivered under a 30-year AP concession.

In March 2019, the **Słupsk Roads** project reached financial close, with the municipality of Słupsk awarding BDB Partnerstwo/Krezel a €9.0 million (US \$10.1 million) contract for the 10-year AP concession. The DBFM project will provide for the construction and modernization of roads in the northern Polish city.

In May 2019, the Krakow Road Management Authority identified three pre-qualified bidding teams for the DBFOM **Krakow Fast Tram Stage IV** project. With a total estimated investment cost of PLN 600.0 million (US \$159.3 million), the project will build a tram link in the Mistrzejowice area of Krakow. The project is expected to be delivered under an AP structure with a 23.5-year concession, though Krakow Road Management Authority believes it could take another year to identify the preferred bidder.

ROMANIA

In July 2019, CCCC/Makyol canceled an estimated €1.4 billion (US \$1.5 billion) contract with the National Commission for Strategy and Prognosis (CNSP) for the DBFOM **Ploiesti-Brasov Highway** project, previously awarded to the consortium in March. The 24-year AP concession project creates a 106-km road between the southern city of Ploiesti and the Transylvanian city of Brasov as a 24-year AP concession.

In May 2019, the National Commission for Strategy and Prognosis (CNSP) launched the DBFOM **Târgu Neamț-Iași Motorway** project, a €1.0 billion (US \$1.13 billion) highway AP PPP that will connect the northern cities of Târgu Neamț and Iași with a 68-km motorway. The private partner is expected to finance approximately €750.0 million (US \$850.0 million), with the CNSP providing the remainder.

For the **Ziminicea-Svishtov Bridge** project, please see Bulgaria.

SPAIN

In December 2018, the Spanish government put the DBFM **A30 Murcia Arco de Noroeste Highway Upgrade** project on hold due to weak investor interest. The €250.0 million (US \$283.4 million) project encompasses the management of a 30-km north-south ring road between the cities of Archena and La Paloma. The project is part of the larger Plan Extraordinario de Inversión en Carreteras, a €1.0 billion (originally €5.0 billion) initiative by the Spanish government to improve roads in 2018 and 2019.

UNITED KINGDOM

In November 2018, the Welsh government shortlisted three prospects for the DBFM **A465 Dualling – Section 5 and 6** project. The £500.0 million (US \$635.5 million) project will widen the highway from three to four lanes between the southern Welsh towns of Hirwaun and Dowlais Top. Officials expect to name the preferred bidder for the 33 year AP project in fall 2019.

In May 2019, Transport for London selected RiverLinx as the preferred bidder for the DBFOM **Silvertown Tunnel** project. The project's scope includes a new twin-bored road tunnel beneath the Thames River, linking the Blackwall Tunnel southern approach in the Greenwich peninsula to the Tidal Basin roundabout in east London. The £1.0 billion (US \$1.3 billion) project will be delivered under a 25-year concession with an AP structure.

2.3

LATIN AMERICA

ARGENTINA

In June 2018, the Argentine government awarded contracts for the following motorway projects: **Corridor F** (635 km), **Corridor A** (707 km), **Corridor South** (247 km), **Corridor E**, **Corridor B** (538 km) and **Corridor C** (877 km). The six DBFOM projects were part of a push by the Argentine government to award nearly US \$10.0 billion in highway PPPs totaling almost 8,000 km between 2017 and 2018. Each toll concession contract will have a 15-year term and is individually valued between ARS 27.5 billion (US \$631.0 million) and ARS 58.4 billion (US \$1.4 billion).

BAHAMAS

In September 2018, the Bahamian Ministry of Finance enacted legislation that seeks to increase the number of PPPs in the country. The legislation authorized PPPs for airports, electricity generation and distribution, ports, roads and toll bridges, as well as information and communication technology projects. The minimum capital expenditure for these potential projects will be US \$10.0 million.

BRAZIL

In April 2018, the Rio de Janeiro state government announced the launch of the **Sul Fluminense-Litoral Norte-Vias Metropolitanas** toll concession PPP project, encompassing three separate road sections totaling 200 kilometers. The first, Sul Fluminense, runs between Cachoeira de Macacu and Bom Jesus de Itabapoana; the second, Litoral Norte, connects São Gonçalo and Macaé. The third, Vias Metropolitanas, connects the BR-101 with São João da Barra.

In August 2018, BRL 225.0 million (US \$58.5 million) worth of bonds were awarded to Ecorodovias for the **BR-135 Montes Claros Highway** project. Ecorodovias won the toll concession contract in February 2018 with a bid of BRL 2.1 billion (US \$538.5 million), which it plans to pay in installments over 348 months, though further details surrounding its delivery method remain. The concessionaire will operate a 364-km section of the BR-135 highway near Montes Claros.

In January 2019, the southern state of Santa Catarina government announced the **BR-470/282/SC** project. The BRL 8.0 billion (US \$2.1 billion) toll concession encompasses 544 km of roadway and is part of former President Dilma Rousseff's BRL 198.4 billion (US \$51.4 billion) concession program announced in 2015 and continued under former President Michel Temer's Crescer program.

In March 2019, the Rio Grande do Sul state government announced the launch of the BRL 2.3 billion (US \$592.1 million) **RSC-287 Road** toll congestion 30-year project. The project will build a connector highway with five toll booths on a 204.5-km stretch between Tabaí and Santa María. The estimated toll price is BRL 5.93 (US \$1.54) per vehicle.

In May 2019, the Brazilian National Agency for Terrestrial Transport (ANTT) announced the launch of the **BR-262 Espírito Santo and Minas Gerais Highway** project. The 30-year, BRL 2.5 billion (US \$654.0 million) AP concession would encompass 377 km of BR-262 between Espírito Santo and Minas Gerais.

In June 2019, the Brazilian National Agency for Terrestrial Transport (ANTT) announced the launch of the **BR-364/365/GO/MG** project. The 30-year, BRL 2.5 billion (US \$651.0) toll concession will create a 439-km stretch from the BR-364 in the state of Goiás to the BR-153 junction in Minas Gerais. The bidding process for the project is expected to begin in September 2019.

CHILE

In April 2018, the Chilean Ministry of Public Works (MOP) awarded the contract for the DBFOM **Américo Vespucio Orient II Urban Highway** project to Grupo Costanera. The 5.2-km tunnel will run 40 meters beneath Line 4 of the Santiago Metro, between Príncipe de Gales Avenue and Los Presidentes Avenue. The CLP 510.2 billion (US \$733.0 million) project will be delivered as a toll concession, with the length undecided.

COLOMBIA

In August 2018, the Colombian National Infrastructure Agency announced its intention to pursue a DBFO concession for the **El Santuario-Puerto Triunfo** project. The project will expand the 124-km route between El Santuario and Puerto Triunfo, a congested section of the Medellín to Bogotá highway, known for heavy truck traffic. The resulting two-way highway is expected to reduce travel times by approximately 40% between Medellín and

Puerto Triunfo. The exact length, type and value of the concession have yet to be determined.

In October 2018, the DBFOM **Bucaramanga-Barrancabermeja-Yondo Highway** project reached financial close, with ANI awarding a COP 1.7 trillion (US \$513.0 million) contract to Estructura Plural Cintra-Concesia, a consortium made of Ferrovial, MC Victorias Tempranas, RM Holdings SAS and equity provider Fondo de Infraestructura Colombia Ashmore I - FCP. The project will create a 223-km stretch of highway between Bucaramanga and Yondo, with an additional 90 km being upgraded to four lanes. The 29-year concession project will be subject to demand risk and is part of the second iteration of 4G concessions.

In March 2019, the Colombian National Infrastructure Agency announced plans to procure the **Guaduas-El Korán Highway** project. The project will build a road from Guaduas, a municipality located 77 km northwest of Bogotá, to El Korán in the Cundinamarca Department. The project is part of the Colombian government's National Development Plan for 2018 to 2022. The project's value, structure and concession length have yet to be determined.

In April 2019, the DBFOM **Autopista al Mar 1** project reached financial close. ANI awarded the COP 3.3 trillion (US \$1.0 billion) AP concession contract to Desarrollo Vial al Mar-Devimar in 2015. The project is also part of the second iteration of 4G concessions.

In May 2019, the Colombian National Infrastructure Agency announced three PPP highway concessions totaling COP 7.3 trillion (US \$2.2 billion):

- The DBFOM **Buga-Lobo Guerrero** project will link the western Colombian cities of Buga and Lobo Guerrero with a 55-km highway. The project's estimated value is COP 1.8 trillion (US \$550.0 million). The concession will last 25 years and be structured as an AP PPP.
- The DBFOM **Lobo Guerrero-Buenaventura** project will link the western Colombian cities of Lobo Guerrero and Buenaventura with a 59-km highway, in a COP 2.3 trillion (US \$703.0 million), 25-year AP PPP.
- The third concession, the DBFOM **Cali-Palmira Road Network** project, will create a road network that includes construction of the Jamundí-Villarica and Cali-Sameco segments of the Ciudad de Cali Avenue, as well as construction of the Cali-Candelaria highway. The COP 3.2 trillion PPP (US \$978.0 million) will be structured as a 25-year demand risk concession.

COSTA RICA

In February 2019, the Costa Rican government announced it would potentially pursue a concession for the **San José-Limón Highway** project, a CRC 29.4 billion (US \$50.0 million) deal that will create a 100-km link between the capital city to the coastal city of Limón.

ECUADOR

In October 2018, Ecuador's Ministry of Transport and Public Works announced the transaction launch for the DBFOM **Southern Guayaquil Viaduct** project. Totalling 48 km, the US \$667.0 million toll concession project will be split between two phases: The first will construct four lanes of road for the project's first and second sections, and the second will expand the third and fourth sections to four lanes.

In April 2019, Ecuador's Ministry of Transport and Public Works signed a 20-year toll concession contract for the US \$305.0 million DBFOM **Chongón-Santa Elena-Playas Road** project with local developer Verdú. The project focuses on rehabilitating 132 km of highway, as well as the construction, operations and maintenance of the 105-km Chongón to Santa Elena highway. The project also includes the construction, operation and maintenance of the two kilometer stretch of the E-40 highway between Progreso and General Villamil.

In May 2019, Ecuador's Ministry of Transport and Public Works launched the US \$370.5 million demand risk DBFOM **Guayaquil-Posorja Railroad** project. The project's first phase consists of the construction and operation of a 130-km railroad line connecting the two cities. The goal is to first provide a cargo transport system, which will eventually expand to passenger travel connecting the area's airports and ports.

GUATEMALA

As of November 2018, the DBFOM **Escuintla-Puerto Quetzal Highway** project was under review by the Guatemalan Commission for Communications, Transport and Public Works, after Guatemalan PPP promotion agency ANADIE (Alianzas Público Privadas) previously awarded the GTQ 615.0 million (US \$80.0 million) concession project contract to Consorcio Autopistas de Guatemala (comprising Grupo Marhnos and PreCon Guatemala) in August. The project will construct a 40-km, four-lane highway between Puerto Quetzal, a key port

on Guatemala's Pacific coast, with the inland city of Escuintla. The 2018 toll concession project will be the first road project structured as a PPP in Guatemala.

In April 2019 ANADIE released draft tender documents to determine the capital and operating expenditures and technical feasibility of the DBFOM **Guatemala City Metro** project. Announced one-month prior by ANADIE, the project includes an east-west metro line that connects Guatemala City with Mixco, a city to its west. The concession's length and value have yet to be determined.

MEXICO

In January 2018, the Mexican Ministry of Communications and Transportation (SCT) announced it was considering the pursuit of a DBFOM PPP for the **Puerto Vallarta Roadway** project. The unvalued project includes three roadway sections totaling 26 km, seven viaducts, four junctions and two tunnels in Puerto Vallarta and elsewhere throughout Jalisco State.

In August 2018, the Secretaría de Comunicaciones y Transportes (SCT) announced the launch of the DBFOM **Tren Maya** project at some point in the future. The Tren Maya project will build a dual freight/passenger railway line spanning 500 km across the states of Campeche, Chiapas, Quintana Roo, Tabasco and Yucatán. The railway is expected to have 17 stations, with an estimated price of MXN 150.0 billion (US \$7.8 billion). The Mexican government will finance 10% of the railway project, and the remainder will come from the private sector.

In March 2019, the state government of Quintana Roo announced a study of four possible PPP projects, with a total baseline value of MXN 45.8 billion (US \$2.4 billion): the Cancún Tulum Train (MXN 40.0 billion, US \$2.0 billion), the Nichupté Bridge (MXN 4.0 billion, US \$200.0 million), the Federal Highway 307 Extension (MXN 1.8 billion, US \$90.0 million) and the Cancun Light Rail (value unclear).

In May 2019, the Mexican Ministry of Communications and Transportation and the government of Nuevo León announced that they were studying the possibility of a PPP structure for the **Monterrey Light Rail** project. The potential light rail line will run from the Monterrey International Airport through the city's central business district and terminate in García, a suburb northwest of the downtown area. The 62 km of light rail lines and the 27 stations are estimated to cost MXN 13.0 billion (US \$682.0 million).

PARAGUAY

In November 2018, Paraguay's Public Works and Communications Ministry extended the financial close deadline for the DBFOM PYG 3.3 trillion (US \$527.6 million) **Rutas 2 & 7 Highway Renovation** project. The decision to delay the financial close was driven by a government delay in transferring the land for the project to Consorcio Rutas del Este, the concessionaire. The toll concession project will renovate and improve 170 km of the two highways.

PERU

In August 2018, Peru's Ministry of Transport and Communications announced that it was considering entering a PPP for the **Trujillo-Chiclayo Railway**. The PEN 7.4 billion (US \$2.2 billion) project will be a co-financed private initiative between Peru's Ministry of Transport and Communications and a private concessionaire to build an electric railway line starting in Puerto de Salaverry and extending to the northern city of Chiclayo, a distance of 324 km, increasing interconnectedness between the region's ports and airports.

In December 2018, Peru's Congress approved Proyecto de Ley 1780, which designates the **Cercanías Railway** a project of preferred national interest. The PEN 20.0 billion (US \$6.0 billion) railway will consist of four sections spanning approximately 800 km: Chimbote to Trujillo, Trujillo to Chiclayo, Barranca to Lima, and Lima to Ica, which work to increase interconnectedness between Lima and Peru's coastal cities.

As of May 2019, only the China Railway Construction Corporation Limited (CRCC) had expressed interest in the **Lima-Ica Railway** project. Initially, 12 firms from Canada, China, France, South Korea and Spain had considered participating in the PEN 10.5 billion (US \$3.2 billion) project, which will be a co-financed private initiative between Peru's Ministry of Transport and Communications and a private concessionaire. The project includes construction of a 324-km electric railway line between the port city of Callao and the southern city of Ica, and will also connect to Lima's subway and Jorge Chavez international airport.

URUGUAY

In November 2018, Uruguay's Ministry of Transport and Public Works awarded a UYU 38.6 billion (US \$1.1 billion) contract for the DBFOM **Central Rail** project to Grupo Vía Central, led by the Spanish firm Sacyr. The project will connect the central Uruguayan city of Paso de los Toros to the country's capital of Montevideo with 273 km of dual-tracked rail, 12 secondary crossing intersections, and 40 new bridges. The project will be financed with an approximately US \$850.0 million debt package [approved in April 2019 by the Inter-American Investment Corporation—(IIC)], consisting of Uruguayan peso and U.S. dollar denominated tranches. The remaining US \$250.0 million will come from concessionaire equity.

In January 2019, Uruguay's Ministry of Transport and Public Works awarded the contract for the DBFOM **Circuito 5-Rutas 14 and 15** project to the Aldesa/Coalvi/Ramón C Álvarez consortium. The UYU 4.5 billion (US \$127.0 million) AP concession encompasses 190 km of road upgrades on Rutas 14, 6 and 15.

In January 2019, Uruguay's Ministry of Transport and Public Works awarded the contract for the DBFOM **Circuito 7-Rutas 3 and 11** project to Consorcio San José. The UYU 2.5 billion (US \$72.0 million) AP concession encompasses 32.6 km of total work, composed of an 8-km bypass to San José and a 25-km four-lane segment on Route 3.

In May 2019, Uruguay's Ministry of Transport and Public Works awarded the contract for the DBFOM **Circuito 6** project to Consorcio Cuchilla Grande. The UYU 2.7 billion (US \$76.0 million) AP concession project encompasses 78 km of improvements to Road 6 and the construction of bypasses in the cities of Sauce and San Ramón.

2.4

ASIA

BANGLADESH

In December 2018, the Chinese state-owned firm Sichuan Road & Bridge Group and the Bangladeshi companies Shamim Enterprise and UDC Construction signed a concession agreement for the BDT 32.0 billion (US \$377.8 million) DBFOM **Dhaka Bypass Road** project. Overseen by the Bangladesh Roads and Highways Department, the project expands a 48-km stretch of the N105 from two lanes to four, a critical arterial road that connects the

country's northern, southern and eastern parts by bypassing capital city Dhaka. The concession will also include four interchanges, five toll plazas, CCTV coverage and high-tech messaging signs that will provide vehicle information to other facilities. The project will be delivered under a mixed concession structure, meaning the concessionaire has the option to earn APs but can also earn a share of revenue generated above a certain threshold.

CAMBODIA

In March 2019, the government of Cambodia and the China Road and Bridge Corporation reached financial close on the 50-year, KHR 8.2 trillion (US \$2.0 billion) **Cambodia National Highway No. 4** PPP. The project is expected to finalize in March 2023 and expands the 190-km expressway between the port city of Sihanoukville and Phnom Penh from two lanes to four lanes, while cutting travel times from five to two hours.

CHINA

Special Chinese PPP Initiative

In August and September 2018, the Chinese government released a list of 159 PPP projects throughout the country, valued at approximately RMB 539.0 billion (US \$78.4 billion). The following projects represent some components of the PPP initiative:

- In August 2018, the Shanxi provincial government announced that it is seeking private financing for the **Xiyang-Yuci Highway** project. The RMB 18.5 billion (US \$2.7 billion) AP project will construct a 127-km highway between Xiyang and Yuci counties in the province of Shanxi.
- In September 2018, the Guangdong provincial government announced that it is seeking financing for the **Zhaoqing High Tech Zone Dawang Avenue Three-Dimensional Transport Upgrade** project. The exact value is unclear.
- In September 2018, the Chinese government announced the launch of the RMB 19.7 (US \$2.8 billion) **Ningqiang-Kangxian-Wangguan** project. Delivered as an AP, the 106-km highway will connect the three cities.
- In September 2018, the Sichuan provincial government announced the launch of the **Mianyang-Suining-Neijiang Intercity Railway** project. The RMB 41.7 (US \$6.0 billion)

will create a 299-km railway between the Sichuanese cities of Mianyang, Suining and Neijiang.

Highway Projects

In June 2018, the Chinese government announced its consideration of a potential DBFOM PPP for the **Beijing New Airport North Highway Expressway Extension** project. The RMB 4.6 billion (US \$671.0 million) project will be a part of the larger Beijing-Hong Kong-Macau road, encompassing a 10-km, eight-lane extension that will connect Langfang's Outer West Ring Road to the border between Beijing and Hebei province.

In July 2018, the Hebei provincial government announced it was in the pre-planning stages of a PPP for the **Rongwu Expressway** project. The RMB 20.8 billion (US \$3.0 billion) project will build a 73-km link to cities in Xiongan, a major industrial zone south of Beijing. The provincial government is accepting bids from concessionaires comprising five firms or fewer for the project, one of seven projects to be built in Xiongan and the first delivered as a PPP.

In September 2018, the Chinese government announced the launch of the **Huangyuan-Xihai Highway** project, an RMB 5.0 billion (US \$722.9 million) BOT deal. The project will construct a 50-km highway in the northwestern Chinese province of Qinghai, with top speeds of 100 kilometers per hour.

In January 2019, the Hebei provincial government announced that it was seeking private investors for the DBFOM **New Airport-Dezhou Expressway** project. The RMB 22.5 billion (US \$3.3 billion) toll concession project will develop an 87-km highway between Gu'an county in Hebei province and the intersection between Hebei's Renqiu City and the Tianjin-Shijiazhuang Highway. The project includes 17 bridges, 24 motorway junctions, two service centers, two parking lots, three maintenance centers, one toll collection booth and a CCTV control room.

Transit Projects

In January 2018, the Henan provincial government selected China Metro as the preferred proponent for the DBFO **Gongyi Commuter Rail** project. The RMB 18.0 billion (US \$2.6 billion) 50-km commuter rail line will connect Henan's provincial capital of Zhengzhou with the city of Luoyang by running through the city of Gongyi.

In May 2018, the Chengdu Municipal People's Government selected the Chengdu Metro Line 18 Special Purpose Vehicle as the concessionaire for the DBFOM **Chengdu Metro Line 18** project. The RMB 34.7 billion (US \$5.0 billion) project will extend the Chengdu metro 67 km from the city's central business district to Tianfu International Airport in two phases. The first phase will consist of eight stations and 41 km, while the second stage will consist of four stations and the remaining 26 km. The metro line will be the fastest airport express train in China when completed, traveling at approximately 140 kilometers per hour.

In July 2018, the **Xi'an Metro Line 8** project was put on hold after China's State Council mandated that all new rail infrastructure projects be postponed until 70% of the work on existing metro line projects is completed. The RMB 38.6 billion (US \$5.6 billion) project will develop a circular, 50-km metro line around the city of Xi'an in Shaanxi province.

In October 2018, China's State Council announced its intent to pursue a DBFOM PPP for the **Hangzhou-Quzhou Highspeed Railway**. The RMB 23.6 billion (US \$3.4 billion) project will develop a 131.7-km line between the two cities, increasing the top speed to 350 kilometers per hour and reducing travel time from 60 to 40 minutes. Private investors will own 51% of the project.

In November 2018, the Changsha Development and Reform Commission announced an invitation for interested firms to bid on the DBFOM **Metro Line 6** project. The RMB 11.7 billion project (US \$1.7 billion) will construct a 49-km underground metro line with 34 stations and a top speed of 80 kilometers per hour traveling through Changsha's central business district, eventually terminating at Huanghua airport.

In November 2018, the Chuzhou City Development and Reform Commission shortlisted three concessionaires for Phase 1 of the DBFOM **Chuzhou-Nanjing Intercity Railway** project. The RMB 9.4 billion (US \$1.4 billion) project will connect the cities of Nanjing and Chuzhou with a 33-km elevated railway line. The winning bid was scheduled to be delivered at the end of November 2018, but no updates have been available since.

In January 2019, the Economic Development Management Office of Jiangbei New Area Terminal of Nanjing shortlisted five concessionaires for the DBFOM **Nanjing Metro Line 11** project. The RMB 20.7 billion (US \$3.0 billion) project will connect Manalyu Station in the southern part of Nanjing with the northern Pukou District and will connect Lines 15, 13, 4, 3, S8 and S3. The Economic Development Management Office's goal is that the new line

will form a vital backbone for Nanjing's metro system, increasing the system's interconnectedness.

Also in January 2019, the Dongguan Development and Reform Commission awarded the contract for the DBFOM **Dongguan Metro Line 1** project to the consortium CREC & CRCC Dongguan Metro Line 1, led by China Railway Engineering Corporation (CREC) and China Railway Construction Corporation Limited (CRCC). The RMB 29.6 billion (US \$4.3 billion project) will connect Wanghong station in the northwestern part of Dongguan with the neighboring city of Shenzhen with a 58-km metro line comprising 21 stations.

In April 2019, the Chongqing provincial government awarded the contract for the DBFOM **Chongqing Metro Line 5A** project to a consortium led by CRCC. The RMB 24.9 billion project (US \$3.6 billion) connects the city of Chongqing's northern and southern neighborhoods with a 29-km metro line comprising 19 stations and will intersect with lines 1, 2, 5, 9, 12 and the Ring Line.

In April 2019, the Chongqing provincial government awarded the contract for the DBFOM **Chongqing Metro Line 4** project to a concession led by CRCC. The RMB 20.0 billion (US \$2.9 billion) project, to be developed in two phases, will link the Min-An Avenue and Sichuan stations with a 49-km line with 23 stations.

In April 2019, the DBFOM **Hangzhou-Shaoxing-Taizhou Highspeed Railway** project reached financial close. Zhejiang Communications Investment Group Ltd awarded the RMB 44.9 billion (US \$6.5 billion) contract for the project, which will construct a 269-km private high-speed railway line connecting the three Yangtze River Delta region cities. Of the 269 kilometers of railway, 225.5 km of new mainline track will need to be constructed, and the remaining 43.5 km will be on the existing Hangzhou-Ningbo high-speed railway line.

INDIA

Highway Projects

In March 2017, the National Highways Authority of India (NHAI) closed the auction for the **First Highway Bundle** of India's TOT scheme. Under this model, private concessionaires can bid on operating a bundle of toll roads throughout the country for a 30-year period. The winning concessionaire, a joint venture between Ashok Buildcon and Macquarie, bid INR 96.8 billion (US \$1.4 billion) to operate nine projects totaling 648 km of tollways

throughout the states of Gujarat and Andhra Pradesh, approximately 1.5 times higher than NHAI's estimations.

In December 2018, the auction for the **Second Highway Bundle** under India's TOT scheme was completed. The second bundle consisted of eight projects across the states of Tamil Nadu, Telangana, Rajasthan and Gujarat, totaling 586 km of tollway. Cube Highways and Infrastructure submitted the highest bid of INR 46.1 billion (US \$673.8 million), which was below NHAI's expectation of approximately INR 53.6 billion (US \$783.3 million), leading the NHAI to put the second bundle on hold. In order to attract a higher bid, the NHAI plans on restructuring the bundle with potentially more financially lucrative highways.

In June 2019, firms submitted bids for the **Third Highway Bundle** under India's TOT scheme, which consists of nine tollway stretches totaling 566 km, spread throughout the states of Tamil Nadu, Uttar Pradesh, Bihar and Jharkhand. The NHAI values the bundle at approximately INR 89 million (US \$1.3 million) per kilometer, or INR 49.8 billion (US \$727.7 million) total. Analysts expect better results after the second bundle's lackluster auction.

Transit Projects

In October 2018, the Amaravati Metro Rail Corporation Limited issued an RFP to five shortlisted bidders for the DBFOM **Vizag (Visakhapatnam) Metro** PPP. The INR 88.0 billion (US \$1.3 billion) project will create a 43-km metro line in the state of Andhra Pradesh. The government of Andhra Pradesh will fund the project's civil construction, and the winning consortium will fund the procurement of rolling stock and the telecom systems, as well as be responsible for running and operating the project for 35 years.

In October 2018, the government of Maharashtra awarded the contract of the INR 83.6 billion (US \$1.2 billion) DBFOM **Shivajinagar to Hinjewadi Metro Line** project to a Tata-Siemens joint venture. The project includes construction of a 23-km metro line between the neighborhoods of Shivajinagar and Hinjewadi in the city of Pune in the state of Maharashtra. The private developer will be responsible for financing INR 61.2 billion (US \$879.0 million) of the line's cost, with the federal and state governments covering the remaining balance.

In May 2019, the Mumbai Metropolitan Regional Development Authority (MMRDA) announced the launch of two future metro line projects, both unvalued:

- The **Kanjurmarg to Badlapur** project will connect the Mumbai suburbs of Kanjurmarg and Badlapur with a 45-km metro line.
- The **Mumbai Airport to Navi Mumbai Airport** project will connect the existing airport with the new airport with a 33.2-km metro line.

Both projects seek to connect central Mumbai with its outer districts, and to connect the city's existing airport, Chhatrapati Shivaji Maharaj International Airport, with the under-construction Navi Mumbai International Airport.

In June 2019, the Karnataka Rail Infrastructure Development Company Limited (K-RIDE) announced the eventual launch of the INR 228.0 billion (US \$3.3 billion) **Bangalore Suburban Rail** project, which encompasses 161 km of railway lines, comprising 82 stations throughout the city of Bangalore and state of Karnataka. K-RIDE has decided to move forward with a PPP structure, where 60% of the project's value would be financed by the private sector, and the remaining 40% would be financed equally by India's federal government and the government of Karnataka. K-RIDE looks to split the project into four lines in the following corridors: Kangeri-Bangalore-Whitefield, Bangalore City-Yalahanka-Rajanukunte, Nelamangala-Yaswatnapura-Bayyappanahalli, and Heelalige-Yalahanka-Devenahalli.

KAZAKHSTAN

In January 2019, the city of Almaty shortlisted four consortia for the DBFOM **Almaty Light Rail** project. The KZT 115.2 billion (US \$300.0 million) DBFOM concession will span 22.9 km and will be tendered in two phases.

MYANMAR

In June 2019, the government of Myanmar extended the submission deadline from June 30th to October 30th for the DBFOM **Yangon Elevated Expressway** project, as the 10 consortia wanted to continue discussions with the government over the project's details. The MMK 1.2 trillion (US \$800.0 million), 48-km highway project will link downtown Yangon with the Yangon Port, Yangon International Airport, Mingalardon Industrial Park and the Yangon-Mandalay Expressway. The expressway toll concession represents the first greenfield road PPP in Myanmar financed through an international tender.

SOUTH KOREA

In July 2018, the DBFOM **Songdo to Baegot New Town Bridge** project reached financial close. Awarded by Siheung City, the KRW 192.4 billion (US \$163.8 million) toll concession project encompasses the construction of a two-kilometer, four-lane bridge between the island of Songdo and the Baegot New Town on the country's mainland, adjacent to the city of Incheon. The winning consortium, Songdo to Baegot New Town Bridge Corporation, is led by Dongwon Construction and the Hyundai Corporation.

In December 2018, the South Korean PPP review board approved the implementation agreement agenda for the **Shin Ansan Line** project. The 40-year, KRW 3.4 trillion (US \$2.9 billion) concession will construct the 45-km New Ansan Line, a commuter rail line linking the southwestern area of Seoul to the key financial center of Yeouido, and island located in the Yeongdeungpo-Gu district. The line will be built 40 meters below ground and connect commuters to the Yeouido station in 22 minutes.

SRI LANKA

In June 2018, the Sri Lanka Transport and Civil Aviation Ministry announced the imminent launch of the BOT **Mattala Rajapaksa International Airport Railway** project, which will construct a 96-km railway line between the airport, the Hambantota Port, and the town of Kataragama. China Harbor Engineering Company (CHEC) has expressed interest in the project, which has yet to be valued.

TAIWAN

In November 2018, the executive branch of the Taiwanese government announced the eventual launch of the BOT **Taipei-Keelung Light Railway** project. The TWD 10.3 billion (US \$329.0 million) railway will link the Keelung port area with the city of Taipei with a 19-km light rail link. The project's designed speed of 60 kilometers per hour will decrease travel times by approximately 30 minutes.

THAILAND

In February 2019, the Thai Department of Highways announced the launch of the DBFOM **Bang Pa to Nakhon Ratchasima Highway** project. The THB 84.0 billion (US \$2.7 billion) AP

concession will develop a 196-km highway stretching from northern Bangkok suburb Bang Pa to Nakhon Ratchasima, a city in Thailand's northeastern region.

In February 2019, the Thai Department of Highways announced its intent to pursue a DBFOM concession of the **Bang Khun Thian to Ban Phaeo Expressway**. The THB 21.1 billion (US \$675.0 million) project will be built in two phases: Phase one will constitute the highway's first 10 kilometers and will be built with government funds, while phase two's remaining 15 kilometers will be constructed and financed by the winning concessionaire. The project will be built under a "net cost" scheme where the private sector has control of all toll revenues collected but may be required to make payments to the government.

In February 2019, the State Railway of Thailand awarded the contract for the DBFOM **Bangkok-Rayong High-Speed Rail** project to the Charoen Pokphand Consortium, a team made up of German, Italian, Japanese and Thai companies. The THB 225.0 billion (US \$7.2 billion) project will create a 220-km, 15-station high-speed railway link stretching southeastward from Bangkok to Rayong. The project will be an extension of the planned rail link between Don Mueang and Suvarnabhumi International Airports.

TURKEY

In 2011, Turkish President Recep Tayyip Erdoğan announced the "2023 Vision," a list of goals outlined by the president's Justice and Development party to be accomplished by the Republic of Turkey's centenary by 2023. The goals are divided into six sections: Economy, Energy, Foreign Policy, Healthcare, Transport and Tourism. One subsection within the transport section mandates the creation of 15,000 kilometers of divided highway. The following highway projects encompass part of the 2023 Vision:

- In May 2018, the General Directorate of Highways (KGM) announced its intent to pursue a BOT agreement for the **Çeşmeli-Taşucu Motorway**. The TRY 4.1 billion (US \$700.0 million) AP project will create a 78-km link between Çeşmeli and Taşucu, two towns on the country's southern Mediterranean coast.
- Also in May 2018, the DBFM AP **Canakkale Bridge** project reached financial close after the Turkish Ministry of Transport and Communication awarded the 16-year, TRY 21.2 billion (US \$3.7 billion) contract to Cokiyi A.S., a joint proposal between one South Korean firm, Daelim Industrial, and three Turkish firms. The bridge project will span the approximate 1.6-km gap over the Dardanelles strait that lies between

Turkey's European and Asian sides. The DBFM concession includes the construction of a suspension bridge in the city of Canakkale along with an additional 105 km of regional connecting roads and is expected to be operational in 2023.

- In June 2018, the TRY 8.2 billion (US \$1.4 billion), BOT **Ankara-Niğde Motorway** PPP reached financial close, another part of Turkey's larger BOT highway transportation plan. The General Directorate of Highways awarded the 12-year AP contract to an ERG Insaat/Seza Insaat consortium, which will create a 326-km motorway linking Ankara to Niğde, a city in the central Anatolia region.

UZBEKISTAN

In June 2019, the Uzbek PPP Development Agency announced the eventual launch of the **Tashkent-Andijan Toll Road** project, which will link the Uzbeki capital to the eastern city of Andijan. The project's exact value has yet to be determined, but the planned toll concession is part of a larger initiative by the Uzbek government to finance up to 15 projects as PPPs.

VIETNAM

In August 2018, the Vietnamese government announced the **Phases One, Two and Three of the North-South Expressway** project. Eight of the 11 project components will be delivered using the BOT method, with the remaining three publicly funded. In total, the project is expected to develop approximately 1,200 km of expressways:

- Phase One, with an estimated cost of VND 118.0 trillion (US \$5.1 billion), will construct a 654-km highway connecting Dong Nai, Khanh Hoa, Hue Quang Tri, Ha Tinh and Nam Dinh. The total highway length will be split into 11 subprojects, eight of which will be delivered under a BOT framework. Phase One is scheduled for completion by 2021.
- Phase Two will account for 659 km of highway and will start in Ha Tinh and pass through Quang Tri, Qang Ngai and Nha Trang. Phase Two will be parsed into nine subprojects with an estimated cost of VND 197.0 trillion (US \$8.5 billion). Construction is expected to last from 2020 to 2025.
- Phase Three will connect Can Tho with Ca Mau, with construction expected to commence in 2025.

2.5

AFRICA

BURKINA FASO

Accra–Ouagadougou Railway project: Please see Ghana.

GHANA

In August 2018, the government of Ghana prequalified four teams for the BOT **Accra-Tema Motorway** project. The GHS 1.1 billion to 1.6 billion (US \$200.0 million–\$300.0 million) project will reconstruct and upgrade the 19-km, four-lane highway linking capital city Accra with Kotoka International Airport and Tema, the location of the country's main port.

In May 2019, four teams submitted RFQs to the Ghana Ministry of Railways Development for the **Accra-Ouagadougou Railway** project. The project will span over 1,200 kilometers, connecting Accra and the Burkinabé capital of Ouagadougou. The project's exact value has yet to be determined.

KENYA

In March 2019, the Kenyan National Highways Authority awarded the contract for the DBFOM **Nairobi-Nakuru-Mau Summit Highway** project to a joint venture comprising Meridiam's Infrastructure Africa Fund and Vinci. The KES 101.9 billion (US \$1.0 billion) toll concession project will upgrade and rehabilitate the Nairobi to Nakuru stretch of the A8, which is also the main road connecting Kenya's capital of Nairobi and the Port of Mombasa. Considered one of the world's most dangerous roads, the Nairobi to Nakuru stretch needs extensive rehabilitation to increase safety and efficiency.

In April 2019, the government of Kenya awarded the contract for the BOT **Nairobi JKIA-James Gichuru Expressway** project to the China Road and Bridge Corporation. The KES 64.9 billion (US \$636.6 million) toll concession project will construct a 25-km expressway connecting Jomo Kenyatta International Airport with James Gichuru Road, a key road that links Nairobi's central business district. The expressway will feature underpasses, overpasses, exits and a bus rapid transit component, making it the first highway in Africa with a bus-transit amenity.

In May 2019, the Kenyan Urban Roads Authority was seeking to appoint financial, legal and technical advisors for the DBFOM **Nyali Bridge** project, intended as a toll concession. The KES 22.8 billion (US \$224.0 million) PPP will create a six-lane bridge connecting the island city of Mombasa and the Nyali region on the country's mainland. Three teams were shortlisted in March 2018, but the project has been delayed as Authority did not renew the contract with financial advisor Deloitte last year.

In May 2019, the BOT **Illasit-Njukini-Taveta Road** project reached financial close, with the Kenyan National Highways Authority awarding the KES 6.7 billion (US \$66.0 million) concession to PowerChina. The 10-year concession will construct and rehabilitate 71.5 km of roads in the greater Nairobi region, which the Kenyan government plans to fund through annuity payments. The project is part of the larger 10,000 Annuity Program, an initiative launched by the Kenyan government to upgrade 10,000 kilometers of roadway over five years, beginning in 2019.

RÉUNION

In September 2018, the government of Réunion announced the future launch of the **Réunion Light Rail** project, which looks to connect the Saint-Paul and La Mare/Duparc areas via the capital city of Saint-Denis. The government has hired Artelia and Richez Associés to conduct an eight-month study into the appropriate delivery model for the monorail project, which was originally planned to begin in 2010 but was canceled due to lack of funds.

UGANDA

As of April 2019, the Uganda National Roads Authority was in the process of approving RFP documents for the DBFOM **Kampala-Jinja Expressway** project. The UGX 4.4 trillion (US \$1.2 billion) 30-year AP concession will construct a greenfield tolled expressway between Uganda's capital of Kampala and the city of Jinja. The first phase includes the construction of the 33-km Kampala to Namataba section and the 18-km Kampala Southern Bypass section. The second phase includes the 44-km Namataba to Jinja section, with both phases forming part of a larger corridor linking the Kenyan port of Mombasa with Kigali in Rwanda.

In April 2019, the Uganda National Road Authority announced that it was considering delivering three projects as PPPs:

- The **Kampala-Bombo Expressway** project would connect the Ugandan capital and Bombo, a city north of the capital, with a 50-km expressway.
- The **Kampala-Busunju-Hoima Expressway** project would connect the capital to the cities of Busunju and Hoima via a 200-km expressway.
- The **Kampala Outer Beltway** project would construct a 100-km ring road around Ugandan capital.

2.6

OCEANIA

AUSTRALIA

In March 2018, the state government of Victoria announced that it was receiving interest from a consortium named CLARA (Consolidated Land and Rail Australia) for the DBFOM **Melbourne to Shepparton** project, expected to begin construction in 2021. The project will deliver a 200-km high-speed rail line between the two Victorian cities, and represents the first part of the larger AUD \$200.0 billion (US \$140.6 billion) initiative to construct high-speed rail between Melbourne and Sydney.

In May 2018, the Queensland government awarded the contract for the DBFOM **Logan Enhancement** project. The AUD 558.1 million (US \$386.6 million) AP concession will improve congestion at the following locations: Mt. Lindesay Highway, the Beaudesert Road interchange with Wembley Road, and the Logan Motorway interchange.

In May 2018, the New South Wales government announced that it was considering delivering the **New South Wales Arterial Roads** project as a PPP. It is expected to be structured similarly to Western Roads Upgrade in Victoria, a project that upgraded approximately 750 km of roadway across eight arterial roads around the western end of Melbourne in a 20-year concession project. The project's specific roads, total value and concession length have yet to be determined.

In August 2018, the Australian government announced the imminent launch of the DBFOM **Sydney to Canberra High-Speed Rail** project, the second stage part of the larger AUD \$200.0 billion (US \$140.6 billion) plan to build a high-speed rail link between Melbourne and Sydney. A business plan is currently being written for the project's first stage,

Melbourne to Shepparton (see page 33), which will provide direction for the Sydney to Canberra stage.

In September 2018, the consortium AirRail Melbourne, comprising CIMIC Group, IFM Investors, John Holland and MTR Corporation, responded to an RFQ for the **Melbourne Airport Rail Link** project, submitting an AUD \$5.0 billion (US \$3.5 billion) bid to construct the 27-km rail line by 2020, two years ahead of the schedule outlined by the Victorian government. Following the unsolicited bid from AirRail Melbourne, the government announced in December that it had received over 100 registrations of interest (RoI) from local and international firms interested in participating in the project. The government is now deliberating the merits of AirRail Melbourne's bid as opposed to creating an open tender process where some of the firms that responded to the RoI may submit bids.

In October 2018, the New South Wales government completed the sale of 51% of its stake in the **Sydney Motorway Corporation** (SMC) for AUD \$9.3 billion (US \$6.4 billion) to Sydney Transport Partners, a consortium consisting of Abu Dhabi Investment Authority, AustralianSuper, Canada Pension Plan Investment Board and Transurban Group. The SMC owns WestConnex, an under-construction 33-km motorway running throughout the greater Sydney area, which will be delivered as a toll concession. Following the sale, the New South Wales government will retain a 49% stake in SMC.

In December 2018, **WestConnex Stage 3** reached financial close. Awarded by the government of New South Wales, the AUD \$600.0 million (US \$415.0 million) project links the M4 and M5 motorways in Sydney and is considered a piece of SMC's larger WestConnex project. Stage 3 encompasses the construction of two four-lane 7.5-km tunnels and a connection to the planned Rozelle Interchange.

In March 2019, The Victorian government identified three potential teams for the **Victoria Suburban Roads Upgrade** project. The AUD 2.2 billion (US \$1.5 billion) AP concession will upgrade 13 arterial roads throughout Melbourne's northern and southeastern suburbs, and will be split into two projects based on geography: the Northern Roads Upgrade and the South Eastern Roads Upgrade. The components will total 550 km of new road, consisting mostly of expanding two-lane suburban arteries to four lanes.

In March 2019, ConnectEast, the operator of the **East Link Motorway**, announced the motorway's estimated AUD \$250.0 million (US \$175.9 million) refinancing, which will be overseen by the government of Victoria.

In June 2019, the Queensland government reached financial close on the **Cross River Rail** project with Pulse, a consortium consisting of CIMIC Group, CPB Contractors, DIF Infrastructure V (DIF V), Grupo Ghella, Royal BAM Group and UGL Ltd. The AUD \$4.7 billion (US \$3.2 billion to US \$2.4 billion), which contains a 90/10 debt/equity split, includes construction of a 10.2-km rail line, four new underground stations, and retail space above some of the stations.

As of June 2019, interested parties in the **Melbourne to Brisbane Inland Rail** project were forming consortia to compete in the tendering process. The project is part of the larger AUD \$10.0 billion (US \$6.9 billion) project to build a 1,700-km freight rail line between Melbourne and Brisbane. This project is the most technically challenging part of the larger project, and consists of 126 km of track and 8.9 km of tunnels through Queensland's mountains. The project's value is AUD 3.5 billion (US \$2.4 billion) and, while some structural details remain, will be delivered under a 25-year concession agreement.

NEW ZEALAND

In September 2018, the New Zealand government announced that it was considering developing an **Auckland Light Rail** project with a PPP. The NZD \$8.0 billion (US \$5.3 billion) project will construct two light rail lines linking Auckland's central business district, the city's airport, and areas to the city's northwest. If the lines prove to be a success, they could spur the development of an additional line from the city's central business district to an area to the southeast.

PART 3

FEDERAL POLICY ON PPP CONCESSIONS

3.1

OVERVIEW OF FINANCING TOOLS

Support for surface transportation PPPs comes largely from different entities within the Federal Highway Administration (FHWA).⁶ The Center for Innovative Finance Support (CIFS) (previously the Office of Innovative Program Delivery), which provides vital support for PPPs, is housed within the larger Office of Innovative Program Delivery; both entities are units of FHWA. The center was created during the George W. Bush administration and expanded under both the Obama and Trump administrations, developing a large array of educational and analytical materials to assist state DOTs and others in getting up to speed on innovative finance and PPPs in transportation infrastructure. Its PPP Toolkit now includes:

- Fact sheets on key aspects of PPP projects;
- Publications, including guidebooks and other documents;
- PPP-VALUE 2.0 spreadsheet-based calculation tools for conducting feasibility assessments of potential PPP projects including risk assessment, value for money, benefit/cost analysis and financial analysis;

- PPP-SCREEN, a checklist of key factors and analyses involved in making decisions about possible PPP procurements;
- PPP-VALUE webinars for training in using the above tools;
- Training sessions for interested public officials; and,
- Frequently asked questions.

CIFS also offers detailed information on two federal financing programs that have been used by many PPP highway, transit and freight projects: Transportation Infrastructure Finance and Innovation Act (TIFIA) loans and Private Activity Bonds (PABs). Neither program is available *only* for PPP projects, but any project seeking to use them must have dedicated revenue sources able to provide debt service payments for the loans and bonds.

PABs are especially useful to PPP projects because they are tax-exempt bonds that would not normally be available to projects that expect to earn a return on equity investments.⁷ Congress authorized them for PPP transportation projects on the grounds that, since these projects serve the public, there should be a level playing field on bond interest rates between projects developed by public sector and private sector entities. Thus, revenue bonds issued for PPP projects as PABs will carry interest rates similar to those available for the revenue bonds of state toll agencies.

Congress created the TIFIA program to provide low-interest credit support for projects with dedicated revenue sources that can qualify for investment-grade ratings. Although the law currently allows a TIFIA loan to cover up to 49% of a project's total cost, the TIFIA office within DOT has not awarded any loans exceeding 33%. (DOT officials note that a project would have to be "truly exceptional" to receive a loan exceeding 33%.)⁸ This is consistent with the law's original intent that TIFIA provide gap financing rather than being a project's primary source of debt finance. It also enables a given TIFIA budget allocation to support a larger total number of projects. Accordingly, TIFIA loans often are subordinated debt, which means senior loans or bonds have first call on project revenues. Only in the event of bankruptcy does the TIFIA loan shift to having equal status with other creditors.

Several legislators have grown frustrated with the TIFIA office, which is treating the loan acceptance process as a discretionary grant process in which only the best projects receive funding.⁹ Congress intended TIFIA to be a check-the-box process in which all projects that met basic criteria received funding. Several states have expressed the need for Congress to

create clarifying legislation to force the TIFIA office to provide funding as intended. However, thus far Congress has not passed such legislation.

Table 2 lists all current PABs and TIFIA loans for PPP highway and bridge projects through the end of calendar year 2018.

TABLE 2: HIGHWAY AND BRIDGE PROJECTS FINANCED BY TIFIA AND PABS

Project	TIFIA (\$M)	PABs (\$M)	Total Project (\$M)	Year Financed
SH 130, 5 & 6	\$430	\$0	\$1,328	2007
I-495 HOT Lanes	\$589	\$589	\$2,068	2008
I-595 Express	\$603	\$0	\$1,834	2009
Port of Miami Tunnel	\$341	\$0	\$1,073	2009
NTE Phases 1 and 2A	\$650	\$400	\$2,047	2010
LBJ Express	\$850	\$615	\$2,615	2011
Midtown Tunnel	\$422	\$675	\$2,089	2012
Presidio Parkway II	\$150	\$0	\$365	2012
I-95 Express	\$300	\$253	\$923	2013
NTE Phase 3	\$531	\$274	\$1,637	2013
Goethals Bridge	\$474	\$453	\$1,436	2014
US 36, Colorado Phase 2	\$60	\$20	\$175	2014
I-69 Indiana	\$0	\$244	\$560	2014
I-4 Ultimate	\$949	\$0	\$2,877	2014
East End Bridge	\$162	\$677	\$1,319	2015
PA Rapid Bridge Replacement	\$0	\$721	\$1,118	2015
I-77 Express Lanes	\$189	\$100	\$636	2015
Portsmouth Bypass	\$209	\$227	\$634	2015
SH 288 Toll Lanes	\$357	\$273	\$1,064	2016
Transform 66 – Outside the Beltway	\$1,229	\$0	\$3,724	2018
Central 70	\$416	\$115	\$1,271	2018
TOTAL	\$8,911	\$5,636	\$30,793	

Source: “Projects financed by TIFIA.” [Transportation.gov](#). “Private Activity Bonds.” [Transportation.gov](#).

As the table shows, \$8.91 billion in TIFIA loans led to more than \$30.79 billion in project activity over the past 15 years. PABs had a similar effect: \$5.64 billion in PABs helped make

that \$30+ billion in project activity a reality. Compare TIFIA and PABs to federal grants that provide 50%–90% of a project's cost. If a grant covers 70% of the project costs, to receive the same benefit of \$8.9 billion of TIFIA loans, grants would need to total more than \$21.5 billion to achieve an equivalent amount of investment. Clearly, TIFIA loans and PABs are more than useful financing tools; they also allow lower taxpayer expenditures more than direct funding and stretch those taxpayer dollars further.

Stressing the importance of increasing infrastructure investment, former Secretary of Transportation Anthony Foxx created the Build America Transportation Investment Center (BATIC), which aims to speed up the time it takes for transportation PPPs to reach financial close.¹⁰ The American Association of State Highway & Transportation Officials launched the BATIC Investment Center as a new center of excellence to assist state DOTs in capacity-building in the area of project finance and PPPs. The Center hosts multiple events throughout the country educating policymakers on transportation financing.

To understand the challenges faced by the current Administration and Congress, it helps to examine surface transportation policy over the last few years.

3.2

A RECENT HISTORY OF TRANSPORTATION POLICY

The three most important mechanisms stemming from federal PPP legislation are TIFIA, PABs and federal tolling provisions. Weighing new policy options benefits by examining the recent history of each funding source.

3.2.1 THE FAST ACT AND TIFIA

In 2012, Congress passed the Moving Ahead for Progress in the 21st Century (MAP-21).¹¹ Made at the request of DOTs and transit agencies that had pressed for additional TIFIA funding, the bill increased the annual amount of TIFIA funding to \$1 billion, an 820% increase over the \$122M in annual funding the program received from 2003 to 2012.¹² Initially, that funding was well utilized: During FY 2014 the TIFIA office awarded a record 12 projects funding (many of them not PPPs), totaling \$8.4 billion. But by the end of FY 2015 (Sept. 30, 2015), only seven of those 12 projects (valued at \$2.4 billion) were still proceeding.

Since both the Office of Management and Budget (OMB) and the Congressional Budget Office (CBO) score TIFIA loans as direct funding, they count against the total revenue Congress authorized in the bill, even though they are loans, not grants. As a result, when the 114th Congress reauthorized the surface transportation program in late 2015, enacting the Fixing America's Surface Transportation (FAST) Act, Congress redirected funding from TIFIA to other programs. (The FAST Act guides surface transportation policy through the middle of 2020.)

OMB's and CBO's interpretation incentivizes Congress to spend more money on grants, not loans, even though this practice is contrary to U.S. federal transportation policy. OMB and CBO could fix this problem by changing how they score TIFIA.

Congress authorized just \$1.4 billion for TIFIA through the five years covered by the FAST Act, an average of \$287 million per year. But that should be sufficient to cover all of the PPP projects, concludes Bryan Grote, the TIFIA expert at Mercator Advisors.¹³ He estimated that the TIFIA program's \$2 billion in funding could support as much as \$30 billion of loans, assuming a continued subsidy rate of 7.5% for the remainder of the FAST Act.

3.2.2 THE FAST ACT AND PABS

Many PPP advocates urged Congress to increase the current \$15 billion cap on PABs for highway and transit projects in FAST Act negotiations, but the idea gained little traction.¹⁴ During the 2017 tax reform process, in order to meet congressional budget rules, the original House legislation proposed eliminating equal tax treatment of PABs (providing PABs the same tax treatment as municipal bonds). Fortunately, the final legislation maintained the current tax treatment of PABs.

The PAB cap remains a real problem. According to the Federal Highway Administration's Center for Innovative Financial Support (CIFS) DOT has awarded \$11.1 billion in PABs to 26 highway, transit and rail projects. An additional \$1.4 billion has been allocated but not issued. And the bureau has received applications for an additional \$2.7 billion, for a grand total of \$15.2 billion.¹⁵ Unless the \$15 billion cap is increased, DOT will not be able to authorize the issuance of additional PABs by a qualified entity (typically a state agency, on behalf of the project developer). Further, additional projects are likely to apply for PABs over the next year and a half; without action, several projects might have to be cancelled by late 2019.

As of mid-2019, key House and Senate committees are considering an increase in the PAB lifetime cap from \$15 billion to \$20.8 billion.¹⁶ The plan is for the House Ways and Means and Senate Finance Committees to pass companion bills. Some proposals raise the cap to \$20 billion or \$25 billion while others eliminate it altogether. The cap was originally instituted because PAB skeptics argued that PABs might not be successful. Given the importance of PABs in financing megaprojects, there are no longer technical doubts about their success.

The 2018 White House infrastructure plan expanded PAB eligibility to include brownfield reconstruction projects and other facilities eligible for TIFIA funding, although no formal legislation was introduced in Congress.¹⁷ Given a projected backlog of \$740 billion–\$836 billion in the highway sector alone, additional financing authority is vital.¹⁸

Any bill to increase the PAB cap is unlikely to pass on its own. A PAB increase would have to be attached to other legislation, most likely a tax reform bill or a transportation reauthorization bill. Passage of a surface transportation bill looks unlikely before 2021. While PAB supporters should promote a long-term surface transportation reauthorization bill, the most realistic approach to increasing PABs over the next two years is a tax reform bill.

3.2.3 THE FAST ACT AND TOLLING POLICY

The FAST Act also made several changes in federal tolling policy that will affect toll-financed concession projects. One of the largest potential areas for such projects would be the replacement of aging Interstate highways as they reach the end of their 50-year design life. An existing federal pilot program allows three states to gain exemption from the general federal prohibition on using tolls for rebuilding Interstate corridors currently not tolled.¹⁹ Specifically, it allows each state to use toll finance to reconstruct one Interstate, with the toll revenue dedicated to the capital and operating costs of the rebuilt facility. The potential to charge higher tolls, thereby turning the rebuilt Interstates into cash cows, has prevented support for such projects by highway user groups such as the American Automobile Association (AAA) and trucking organizations such as the American Trucking Associations (ATA).

Several groups argued for revising the pilot program to make it more customer-friendly; they proposed explicitly restricting the use of the toll revenues to the capital and operating costs of rebuilt/replaced Interstates, and by requiring rebates of state fuel taxes for miles

driven on the replacement (tolled) Interstates to avoid what amounts to motorists' "double taxation" of highway funding. Along with those provisions, they also argued that the program should be expanded to more states, and that each participating state be able to devise a long-term plan to replace all its first-generation Interstates with new ones, using toll finance. The AAA national board approved of tolling that followed these specific recommendations at its board meeting in August 2015, and several state chapters of AAA have softened their opposition to tolling.²⁰ Clearly, making changes to the pilot program would help build support.

Senate legislators heard these arguments but were only willing to make small tweaks to the existing three-state pilot program. The key change was adding a "use it or lose it" provision that required states to take documented steps toward implementing tolling or give up their slots. Since none of the original three states holding the slots (Missouri, North Carolina and Virginia) had obtained legislative consent to proceed with rebuilding its designated Interstate by early 2017, those states were required to give up their slots in 2018. New participants in the pilot program would have an initial two years to have their project authorized and moving forward. Currently, Wyoming is interested in obtaining a program slot.²¹

3.3 OTHER FEDERAL TOLLING POLICY

States can consider three additional tolling options. While these options don't *require* PPPs, many tolling projects include PPPs.

The first, and most popular option thus far, is for states to add variably priced managed lanes, which price lanes dynamically to manage congestion and maintain high throughput.²² Some are conversions from poorly operating high-occupancy vehicle (HOV) lanes, while others are new construction. Many large metro areas, including Atlanta, Dallas, Denver, Houston, Los Angeles, San Francisco, South Florida and Washington, D.C., plan to build networks of variably priced managed lanes. While these lanes work best in urban areas, a recent Reason study highlighted several Interstate corridors that pass through more rural areas in which variable priced lanes may be feasible.²³

The second option is the FHWA Value Pricing Program, which allows a state to charge variable tolls on all lanes of an Interstate to reduce congestion.²⁴ In 2018, Oregon agreed to apply for the program to put variable tolls on all lanes of I-5 in the Portland region. Since

congestion is worst in urban areas, the Value Pricing Program is a better fit in urban regions while the Interstate System Reconstruction and Rehabilitation Pilot Program (ISRRPP) is a better choice to rebuild an entire corridor.

The third option is for states to rebuild their non-tolled bridges and tunnels with tolled bridges using a provision in the 1998 Transportation Equity Act for the 21st Century (TEA-21).²⁵ Rhode Island, which has the largest percentage of structurally deficient bridges in the country, developed a proposal to toll trucks (but not light-duty vehicles) on the state's Interstates and other major primary arterials. FHWA approved the toll truck program in 2016, leading to a lawsuit from ATA challenging the constitutionality of tolling trucks but not cars. Connecticut and Indiana are developing proposals to rebuild parts of their Interstate highways using tolled bridges, as is Oregon for one of its corridors.

PART 4

PPP LEGISLATION BY STATE

The FHWA Center for Innovative Finance Support lists 36 states, the District of Columbia and Puerto Rico as jurisdictions that have PPP authority for transportation infrastructure.²⁶ However, the enabling acts vary in authority provided from state to state. Further, many of these states with authority have entered into DBFs or DBMs but not DBFMs or DBFOMs. Full PPPs have been implemented in only nine states, in Puerto Rico and in projects under the auspices of the Port Authority of NY/NJ.

Legislators in the other states have failed to enter into PPPs for one of several reasons: Some legislation contains language that makes entering into PPPs a poor choice for the public partner, the private partner or both; other states have had political challenges in which the governor or a state's legislative body was opposed to PPPs. Other states have not found a project that is a good fit for a PPP.

Over the past year, a number of states debated bills establishing or expanding PPP authority:

4.1

COLORADO

In June 2018, former Colorado Governor John Hickenlooper signed **SB1** into law, boosting funding for transportation infrastructure projects.²⁷ Under SB1, Colorado will be allowed to submit a ballot measure in November of 2019 that will seek voter approval for the state to issue \$3.5 billion in transportation revenue anticipation notes (TRANS). The proceeds from the TRANS bonds could be allocated toward future PPPs. The bill passed 35–0 in the Senate on March 28th, and 36–29 in the House of Representatives on May 8th.

4.2

INDIANA

In February 2018, the state of Indiana approved legislation that outlines new protocols for the Indiana Finance Authority (IFA) to follow when implementing a PPP.²⁸ Authored by Indiana State Representative Edmond Soliday (R-IN), **HB 1374** requires bidders to display “experience and quality performance,” specifically on a North American toll road, freeway or facility project over the last two years. HB 1374 also requires the IFA to fully vet the bidder’s affiliated companies.

4.3

LOUISIANA

In June 2019, the Louisiana State Legislature passed **SCR-122**, a joint resolution between the Louisiana House of Representatives and the Louisiana State Senate in 97–0 and 30–0 votes, respectively. The bill directs Louisiana DOTD to “seriously consider undertaking a public-private partnership for the new Interstate 10 Calcasieu River Bridge project as an alternative to the use of conventional methods.”²⁹ The bill is concurrent with **HB 561**, which would create the Calcasieu Parish Tolling Authority, allowing construction of a tolled bridge adjacent to the existing I-10 Calcasieu River Bridge through a PPP. Those backing HB-561 decided to pause further action in hopes of receiving federal funding for the bridge.

4.4

MISSISSIPPI

In August 2018, Mississippi's Senate passed a state lottery bill (SB 2001) to help fund the state's highways and bridges, although it is unclear if the bill will stimulate PPP activity.³⁰ Mississippi has not had a successful PPP transaction since passing PPP-enabling legislation in 2007.

4.5

NEW JERSEY

In August 2018, New Jersey Governor Phil Murphy (D-NJ) signed **S-865** into law, which makes it possible for local governments, school districts and state government entities to enter into PPP agreements.³¹ Previously, PPP agreements were only permitted for the higher education sector, but S-865 expands PPPs into transportation and social infrastructure. S-865 allows for the use of APs in PPPs if it is "deemed to be in the best interest of the public and local government unit." Sponsored by Stephen Sweeney (D-NJ), the bill passed the New Jersey Assembly 72–3, and the Senate 36–2, both in June 2019.

4.6

NEW MEXICO

In March 2019, the New Mexico State Senate defeated legislation that would enable PPPs for transportation and broadband projects by a margin of 25–16.³² The Public Private Partnership Act (**HB 534**) had passed 64–0 in the House. The bill required the public partner in a PPP transaction to use a cost benefit analysis to understand the project's life-cycle costs to help determine whether using governmental procurement procedures would delay or increase the project's cost. The bill also required at least one public meeting on the proposed PPP project, while an amendment to HB 534 would have prohibited toll roads in the PPP framework

4.7

WASHINGTON

In January 2018, Washington introduced new PPP legislation to address the shortcomings of the state's existing PPP laws, but the bill failed to make it out of committee.³³ Co-sponsored by Washington State Representatives Vincent Buys (R-WA), and Gael Tarleton (D-WA), **HB 2726** would have removed a provision in the existing legislation that allows only state-issued debt be used in PPP agreements, which adversely affects PPP deal flow.

PART 5

U.S. HIGHWAY CONCESSIONS, 2018

For the time period between October 2017 and December 2018 (overlap of FY 2018 and CY 2018), four U.S. PPPs reached financial close:

- The DBFOM **Colorado I-70 East** project encompasses improvements to the 10-mile stretch of I-70 between I-25 and Tower Road, a stretch that also connects I-270 and I-225, intersects several railway lines, and features an elevated viaduct that passes through several neighborhoods.³⁴ The Colorado High Performance Transportation Enterprise (HPTE) awarded the contract to Colorado Bridge Enterprise, a team comprising the following firms: Kiewit, Meridiam Infrastructure North America II, Jacobs Engineering, Roy Jorgenson Associates and WSP. The 30-year, \$1.2 billion AP DBFOM project will receive partial financing from a \$416 million TIFIA loan.
- The DBFOM **Transform 66 (Outside the Beltway I-66)** project in Northern Virginia will develop HOT lanes on a 22-mile stretch between Route 29 near Gainesville in Prince William County and I-495 in Fairfax County.³⁵ The Virginia Department of Transportation's Office of Public-Private Partnerships awarded the contract to I-66 Express Mobility Partners, a team comprising APG Group, Cintra, Ferrovial, John Laing, Meridiam Infrastructure North America II, Allan Myers and Louis Berger. Of the project's \$2.1 billion value, a TIFIA loan provides \$1.23 billion. The project is expected to open to traffic in mid-2022.
- In October 2017, the refinancing of the **Indiana Toll Road**—which runs east/west for 157 miles between the Illinois and Ohio state lines—reached financial close on a

new deal.³⁶ The refinancing was structured as an \$850 million private placement, with Mitsubishi UFJ Financial Group (MUFG) and Canadian Imperial Bank of Commerce (CIBC) serving as joint-bookrunners. The refinancing originally called for \$300 million, but a fourth tranche with a seven-year maturity was added, upsizing the deal to \$850 million. The four tranches have 7-, 10-, 12- and 15-year respective maturities. The project was first sold to ITR Concession Company LLC for \$3.85 billion in 2006.

- In October 2017, the Dallas Police and Fire Pension System sold its 10% stake in the **North Tarrant Expressway** project and its 6.6% stake in the **LBJ Freeway Managed Lanes** project, generating a cash windfall of \$180.0 million, which the pension fund plans to use for future acquisitions and liquidity purposes.³⁷ The stakes were sold to Ferrovial, Cintra and APG on a pro rata basis. The North Tarrant Expressway project, which upgrades existing roadways and adds variably priced express toll lanes, connects Fort Worth with the DFW airport via I-35, I-820 and SH121/SH183. In 2009, Texas DOT awarded the \$2.0 billion concession for the Expressway to NTE Mobility Partners. The LBJ Freeway project was delivered through a cantilevered structure, splitting depressed free lanes and elevated managed lanes, and encompasses 17 miles across I-35 and I-635 in Dallas. In 2010, the \$2.6 billion project was awarded by Texas DOT to the LBJ Infrastructure Group.

Table 3 provides an overview of the FY 2018 U.S. highway concession market, listed in order of the investment value of each project. For existing toll roads now leased to private concessionaires, the length of each lease is provided. In most new construction projects, the concession conforms to a DBFOM contract with terms ranging from 30 to 70 years. Since 2012, the major trend in highway concessions has reportedly migrated away from toll-revenue based financing toward AP-based financing. However, of the 35 highway projects in Table 3, 24 are financed based on toll revenues, without an additional AP arrangement. Of the others, only five were financed on a pure AP basis, with six larger AP concessions all involving new toll revenues that will supplement the state's revenue sources.

TABLE 3: LARGEST U.S. LONG-TERM HIGHWAY CONCESSIONS, 2018

Project	Location	Value (\$ B)	Type	Most Recent Closing	Concessionaire
Indiana Toll Road	Indiana	\$5.725	66-year lease, toll	05/15	IFM Global Infrastructure Fund/California Public Employees' Retirement System/Allstate
Chicago Skyway	Chicago, IL	\$2.936	89-year lease, toll	02/16	The Canadian Pension Plan Investment Board/ Ontario Municipal Employees Retirement System/ Ontario Teachers' Pension Plan
I-635 LBJ Managed Lanes	Dallas, TX	\$2.600	DBFOM, toll	10/17	Cintra/Meridiam
I-4 Ultimate Managed Lanes	Orlando, FL	\$2.300	DBFOM, AP/toll	09/14	Skanska/Granite/Lane
Transform 66 PPP (Outside the Beltway I-66)	Fairfax County/Prince William County, VA	\$2.100	DBFOM, toll	11/17	APG/Ferrovial/John Laing/Meridiam Infrastructure North America II
Midtown Tunnel	Norfolk, VA	\$2.100	DBFOM, toll	04/12	Skanska/Macquarie
I-495 HOT Lanes	Fairfax County, VA	\$2.068	DBFOM, toll	05/16	Transurban/Fluor
North Tarrant Express (Phase I and 2W)	Fort Worth, TX	\$2.000	DBFOM, toll	11/09	Ferrovial/Cintra/APG
I-595 Managed Lanes	Fort Lauderdale, FL	\$1.760	DBFOM, AP/toll	10/15	ACS Infrastructure
Goethals Bridge	New York City, NY	\$1.500	DBFM, AP/toll	11/13	Macquarie/Kiewit
SH 130 Segments 5-6	Texas	\$1.380	DBFOM, toll	07/17	Cintra/Zachry
North Tarrant Expressway Phase 3A	Fort Worth, TX	\$1.350	DBFOM, toll	06/16	Ferrovial/Cintra/Meridiam
Colorado I-70 East PPP	Denver, CO	\$1.240	DBFOM, toll	12/17	Kiewit/Meridiam/Jacobs Engineering Group/Roy Jorgenson Associates/WSP
SH 288 Toll Lanes	Harris County, TX	\$1.015	DBFOM, toll	05/16	ACS, Infrared, Shikin & Binui
Rapid Bridge Replacement	Pennsylvania	\$1.009	DBFM, AP	03/15	Plenary Walsh
PR-22/PR-5	Puerto Rico	\$1.000	DBFOM, toll	05/13	Abertis/Goldman Sachs
I-95 Express Lanes	Virginia	\$0.923	DBFOM, toll	07/12	Transurban/Fluor

Project	Location	Value (\$ B)	Type	Most Recent Closing	Concessionaire
Port of Miami Tunnel	Miami, FL	\$0.860	DBFOM, AP	10/09	Meridiam
SH 183 Managed Lanes	Dallas–Fort Worth, Texas	\$0.848	DBF + OM, AP/toll (pass through)	11/14	Kiewit
ORB East End Crossing	Louisville, KY	\$0.763	DBFOM, AP/toll	03/13	Walsh/Vinci/Bilfinger Berger
Northwest Parkway	Denver, CO	\$0.761	DBFOM, toll	11/07	Brisa/Companhia de Concessões Rodoviárias (CCR)
I-77 Managed Lanes	Charlotte, NC	\$0.655	DBFOM, toll	05/15	Cintra
SR 125, South Bay Expressway	San Diego, CA	\$0.635	DBFOM, toll	05/03	Macquarie
Pocahontas Parkway	Richmond, VA	\$0.597	99-year lease, toll	06/06	DBi Services, Macquarie
Portsmouth Bypass	Portsmouth, OH	\$0.554	DBFOM, AP	04/15	ACS, Infrared, Star
I-395 PPP	Virginia	\$0.475	DBFOM, toll	07/17	Transurban
I-69 Upgrade	Indiana	\$0.370	DBFOM, AP	07/14	Isolux/PSP Investments
Presidio Parkway	San Francisco, CA	\$0.362	DBFOM, AP	06/12	ACS/Meridiam
Dulles Greenway Tollroad	Loudoun County, VA	\$0.350	BOO, toll	09/93	Macquarie
Southern Connector, SC	Greenville, SC	\$0.191	DBFOM (63-20)*, toll	02/98	Interwest
South Norfolk Jordan Bridge	Chesapeake, VA	\$0.140	BOO, toll	1/11	Figg/American Infrastructure
91 Express Lanes	Orange County, CA	\$0.130	DBFOM, toll	07/93	Level 3/Cofiroute/Granite
US 36 HOT Lanes, Phase 2	Colorado	\$0.120	DBFOM, toll	02/14	Plenary/Ames/Granite
Camino Columbia Bypass	Laredo, TX	\$0.085	DBFOM, toll	06/99	Camino Columbia Inc.

Source: “US Highway PPP Deals” Inframation, Acuris.

* Before PABs were authorized, non-profit corporations labeled 63-20s allowed a project to be financed with tax-exempt bonds. Since PABs are preferable, 63-20s are no longer used.

The majority of those concessions are based on toll-revenue financing, as indicated. The others are financed based on a state's agreement to provide annual APs over the life of the concession term. Some of those are "pure" AP deals, in which the state DOT uses part of its existing revenue sources (mostly federal and state fuel taxes) to meet its obligations. But the larger AP projects also involve toll revenue, which helps the state afford its obligations, as noted in the table. The total dollar value of the 35 concessions is \$35.9 billion, of which 68% is generated based on toll-revenue financing, with the other 32% financed based on the states' AP commitments.

The continued expansion and redevelopment of U.S. highways with PPPs provides cause for optimism in two different ways. First, it suggests that the more aggressive developers of new toll projects have an exit option after the project is operational and demonstrating traffic and revenue results. These purveyors may want to shift their capital to new projects.

Second, it shows that PPPs can be successful in attracting much-needed investment in replacing the U.S.' first-generation, largely non-tolled Interstate highways (which are nearing the end of their useful life). Such funds are particularly attractive to pension investments and are more politically acceptable to legislators and the public than global investment firms seeking higher rates of return.

PART 6

MAJOR HIGHWAY PPP CONCESSION ACTIVITY BY STATE

A September 2014 report from Moody's Investor Services found that "(T)he U.S. has the potential to become the largest PPP market in the world, given the sheer size of its infrastructure."³⁸ Despite this potential, actual deal flow has remained anemic over the last few years. The overly cautious financial culture at some state DOTs has caused many states to avoid PPPs. Long delays in TIFIA loan approvals and DOT's implementation of the TIFIA program as a discretionary instead of check-the-box process contributed to concerns about the PPP pipeline. But leading-edge states continued moving forward, as the following section on PPP activity by state makes clear.

6.1

ALABAMA

In November 2017, the Alabama DOT (ALDOT) received four statements of qualification for the **Mobile River and Bayway Project**, the agency's first PPP.³⁹ The \$1.5 billion DBFOM toll concession project will include constructing a bridge across the Mobile River and replacing the existing I-10 Bayway. In February 2018, ALDOT shortlisted three consortia: I-10 Mobility Partners (Ferrovial, Meridiam and Parsons), Gulf Coast Connectors (ACS, HOCHTIEF,

John Laing, Macquarie, Dragados, Flatiron, Lane and T.Y. Lin) and Mobile River Bridge Group (Infrared, Shikun & Binui, Southland, Astaldi, Johnson Brothers, Stantec and FIGG). After releasing an RFP for the shortlisted groups, ALDOT hoped to award the contract by May 2018. As of August 2019, the Eastern Shore metropolitan planning (MPO) organization voted against including the plan in its transportation improvement plan, preventing the project from receiving federal funding. Unless the MPO reverses its decision, the state will not be able to build the project.⁴⁰

6.2

COLORADO

In December 2018, the Jefferson Parkway Public Highway Authority (JPPHA) shortlisted three consortia for the **Jefferson Parkway PPP**: Jefferson Beltway Connection Partners (Kiewit, DIF and Northleaf), Jefferson Expressway Group (ACS, HOCHTIEF, Flatiron and WSP) and Colorado Front Range Connectors (AECOM, Shikun & Binui and John Laing).⁴¹ Delivered through a \$250 million DBFOM contract, the project will develop a road connecting C-470 and the Northwest Parkway, completing the Denver Beltway. All of the project's revenue risk will be transferred to the private sector partners. In January 2019, the draft RFP was issued to the three shortlisted consortia, and the final RFP is scheduled to be released later this summer.

6.3

LOUISIANA

In January 2017, an RFI was released for the **I-10 Capital Corridor Improvements Project**.⁴² Among its purposes, the DBF project will widen I-10 through the Capital Region, which includes the East and West Baton Rouge Parishes. It will also improve the State Road 415 Interchange. As of February 2018, the project was on hold, as a bill to raise the state's gas tax to fund the project did not progress through the Louisiana Legislature.

In March 2019, the LaDOT identified Plenary Infrastructure Belle Chasse as the winning bid for the \$162 million DBFOM **Belle Chasse Bridge and Tunnel Replacement PPP**.⁴³ LaDOT must first hold two meetings with the Joint Transportation Committee discussing the proposal's specifications before accepting or rejecting Plenary's bid. The final contract is expected to be executed no later than October 2019.

6.4

MARYLAND

In September 2017, Governor Larry Hogan (R-MD) announced a \$9 billion plan to reduce traffic congestion and called for PPP proposals for **express lanes on Interstate 270 and the Capital Beltway (I-495)**.⁴⁴ The Maryland DOT called the plan “the largest highway PPP in North America to bring congestion relief to Maryland.” The Maryland Department of Transportation (MDOT) received 27 responses to the Request for Information (RFI) that it released in September 2017, and has met with 24 out of the 27 respondents. The Request for Qualifications (RFQ) was scheduled to be released in March 2018, but has been delayed due to proposed legislation in Maryland and Washington, D.C. The Maryland Board of Public Works approved the PPP designation for the express lanes on Interstate 270 at its June 5, 2019 meeting.

6.5

MASSACHUSETTS

In February 2017, the Massachusetts DOT issued an RFI for the **Metropolitan Highway System Lighting Project**. The potential DBFOM project would aim to improve and modernize the lighting on Massachusetts’ Metropolitan Highway System (MHS) by upgrading the lighting in the system’s tunnels and replacing wireways, wireway circuit conductors and tunnel lighting fixture assemblies.⁴⁵

6.6

MICHIGAN

In September 2017, the Michigan Department of Transportation (MDOT) issued an RFQ for the **I-75 Modernization Project** in Oakland County.⁴⁶ The \$575 million project, which includes widening and reconstructing 18 miles of freeway, will be the state’s first highway PPP. In December, the state received proposals from five groups, and released an RFP to four shortlisted teams in May 2018: Meridiam Walsh, AECOM/John Laing, Star/Vinci and ACS/Dragados. MDOT selected the Oakland Corridor Partners (AECOM/John Laing) in September 2018 as the winning consortium. The project reached financial close in November 2018 and will be delivered as a DBFM with an AP structure.

In April 2018, three teams—Bridging North America, CanAm Gateway Partners and Legacy Link Partners—submitted bids for the CAD \$7.5 billion (US \$5.7 billion) DBFOM **Gordie**

Howe International Bridge project. After all three initial bids exceeded the affordability threshold allowed by the Windsor-Detroit Bridge Authority, the shortlisted teams were invited to rebid in June 2018 with their best and final offers. The Authority selected Bridging North America (AECOM/Fluor Corporation/Grupo ACS) as the winning team, reaching financial close in September 2018. The project will have a 30-year concession and be delivered under an AP structure.⁴⁷

6.7

PENNSYLVANIA

In January 2019, the Pennsylvania Department of Transportation (PennDOT) issued an RFI to collect feedback and information for rehabilitating tunnels and tunnel systems along the Pennsylvania Turnpike.⁴⁸

6.8

TEXAS

In May 2019, the SH 130 Concession Company, which holds the toll concession contract for **SH 130 Segments 5 and 6**, engaged Barclays and Citi financial advisors to explore private placement to address the project's long-term financing needs. While the concessionaire filed for bankruptcy in May of 2017,⁴⁹ new ownership and financing the following month led the new CEO to call it a "much stronger company."

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