



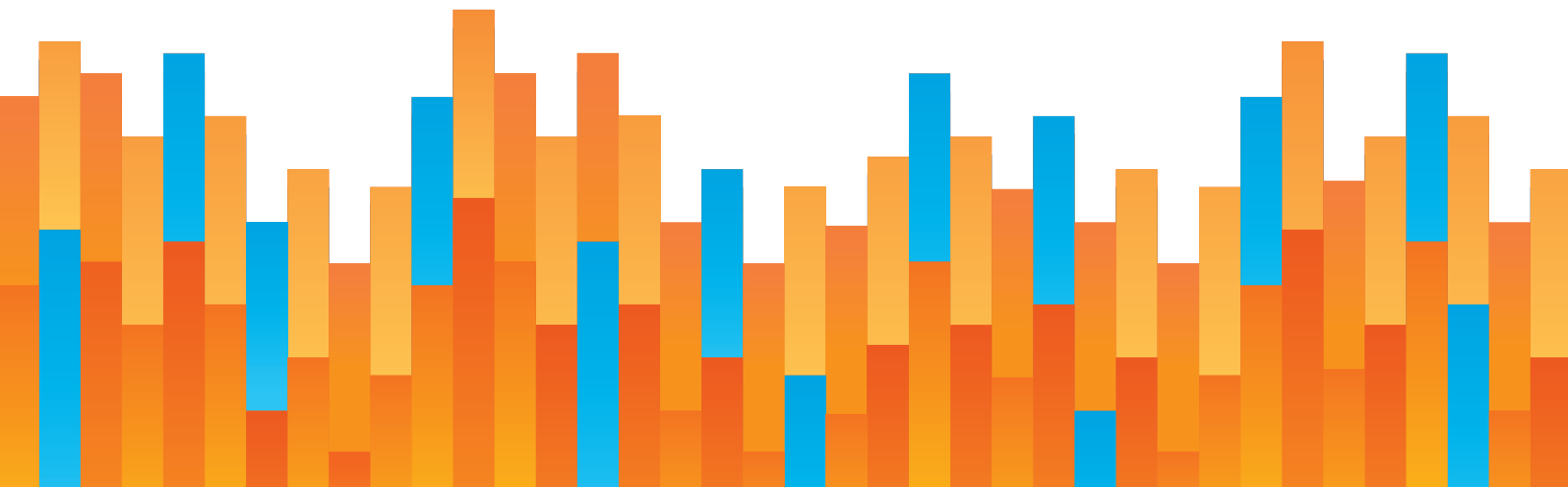
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# ANNUAL PRIVATIZATION REPORT: AVIATION

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by Marc Scribner

May 2023





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# PART 1

## INTRODUCTION

In the second half of the 20<sup>th</sup> century, the world's airports and air traffic control (ATC) systems were essentially all departments of governments. Two events in 1987 launched an ongoing wave of organizational and government reforms. Those events were the privatization of the British Airports Authority (BAA) and the corporatization of the New Zealand government's ATC functions as Airways New Zealand.

BAA was privatized as a single entity comprising the three major London airports plus several other airports in the United Kingdom. Later government policy decisions led to selling Gatwick, Stansted, and two Scottish airports to new private owners. The improved performance of the privatized airports inspired a global wave of airport privatization and long-term public-private partnerships (P3s) that has resulted in over 100 large and medium-size airports being either sold to investors or long-term leased as revenue-based P3s—in Europe, Asia, Latin America, and elsewhere. The outlier has been the United States, which has only two P3-leased airports (San Juan International and Tweed New Haven) and a small number of P3 arrangements for airport terminals and other individual facilities.

The corporatization of Airways New Zealand in 1987 also led to a global trend under which more than 60 countries subsequently separated their ATC systems from the government's transport ministry and set them up as self-supporting corporations, regulated for safety at arm's length from the government. Within the first decade of this trend, the leading ATC providers organized a trade association called the Civil Air Navigation Services Organization (CANSO). Today CANSO has 88 full members (providers of ATC services) and

91 associate members (mostly supplier companies).<sup>1</sup> CANSO is the ATC counterpart of the global organizations for airlines (IATA) and airports (ACI).

This report reviews developments in the United States and worldwide regarding private-sector participation in airports, air traffic control, and airport security. While the United States remains an outlier when it comes to airport and ATC organization and governance, interest in airport privatization via long-term P3 leases continues.

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<sup>1</sup> Civil Air Navigation Services Organization, “Member directory,” CANSO website, <https://canso.org/our-members/member-directory> (last accessed 23 March 2023).

## PART 2

# AIRPORTS

## 2.1

### AIRPORT PRIVATIZATION OVERVIEW

The term “airport privatization” refers to several different kinds of change from traditional 100% government ownership and operation. The most sweeping form is the sale of the airport’s ownership (as in the original BAA privatization) via a public offering of shares. A more common model in most of Europe is the sale of either a majority or minority stake in the airport. In Australia, much of Asia, and Latin America, the most common model is the long-term lease as a public-private partnership (P3). Lease terms typically vary from as few as 25 years to as many as 99 years (Australia). The P3 model is also used for components of an airport, such as a new terminal (or even a new runway, as occurred in Bogotá, Colombia). In the U.S., the P3 model is permitted under federal law for entire airports as well as airport components.

In 2018, trade association Airports Council International released a policy paper on worldwide airport privatization trends.<sup>2</sup> As Table 1, which was recreated from the report, shows, Europe led the way in the fraction of passenger traffic (75%) at airports with majority or near-majority-or-greater private-sector investment, with Latin America and the

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<sup>2</sup> Airports Council International, “Policy Brief: Creating Fertile Grounds for Private Investment in Airports,” Jan. 2018.

Caribbean next at 66%. North America was lowest, at 1% of airports. For the world overall, 43% of all passenger air traffic moves through airports with significant private ownership.

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**TABLE 1: AIR PASSENGER TRAFFIC BY REGION AND AIRPORT OWNERSHIP**

Region	Percent Private	Percent Government
Europe	75%	25%
Latin America & Caribbean	66%	34%
Asia-Pacific	47%	53%
Middle East	18%	82%
Africa	11%	89%
North America	1%	99%
World	43%	57%

Source: Airports Council International, 2018

More than three decades of growth in airport privatization have led to the emergence of global airport companies, some of which began with airports that were privatized early on, such as London Heathrow and Germany’s Frankfurt. When new opportunities arise to bid on shares in airport equity or to develop a new airport or terminal via a long-term P3 agreement, these companies are generally among the bidders, sometimes in partnership with infrastructure investment funds and/or public pension funds.

Table 2 lists the largest investor-owned airport companies, ranked according to their 2021 revenue, derived from airport group financial statements. The total 2021 revenue of the investor-owned airport companies is \$24.5 billion, representing 28.2% of 2021 total world

airport revenue of \$86.8 billion.<sup>3</sup> This reflects a modest recovery of global airport revenue from the pandemic-caused collapse in air travel, which reached a low of \$66.3 billion in 2020. However, the share of total world airport revenue collected by investor-owned airport companies decreased from 2020, which stood at a high of 35.1% and reflects more rapid air travel recovery in the U.S. where commercial service airports are government-operated with few exceptions. The 2021 revenue share of 28.2% is slightly above the pre-pandemic share in 2019, when investor-owned airport companies collected \$48.3 billion—or 26.6%—of \$181.7 billion total global airport revenue.

**TABLE 2: LARGEST INVESTOR-OWNED AIRPORT COMPANIES BY REVENUE, 2021**

Airport Company	HQ Country	Main Airport(s)	Privatiz. Status	2021 Revenue (\$M)	2020 Revenue (\$M)	2019 Revenue (\$M)
Aéroports de Paris	France	Paris—DeGaulle	Partial	\$3,166	\$2,611	\$5,264
Aena Aeropuertos	Spain	Madrid	Partial	\$2,728	\$2,740	\$4,977
Fraport	Germany	Frankfurt, Lima	Partial	\$2,443	\$2,049	\$4,150
Heathrow Airport Holdings	U.K.	Heathrow	Full	\$1,639	\$1,606	\$4,083
Vinci Airports	France	Gatwick, Lisbon	Full	\$1,354	\$1,209	\$2,947
Edinburgh Airport	U.K.	Edinburgh	Full	\$829	\$93	\$294
SEA Group	Italy	Milan	Partial	\$800	\$337	\$849
Airports. Co. S. Africa	South Africa	Cape Town	Partial	\$782	\$486	\$494
Malaysia Airport Holdings	Malaysia	Kuala Lumpur	Partial	\$782	\$462	\$1,259
Guangzhou Baiyun	China	Guangzhou	Partial	\$748	\$800	\$1,193
Sydney Airport	Australia	Sydney	Full	\$707	\$619	\$1,140
Beijing Capital Airport	China	Beijing	Partial	\$664	\$549	\$1,565
Manchester Airports	U.K.	Manchester	Partial	\$624	\$256	\$1,183
Auckland Intl. Airport	New Zealand	Auckland	Partial	\$595	\$407	\$490
Brisbane Airport Corp.	Australia	Brisbane	Partial	\$535	\$570	\$584
GMR Airports	India	Delhi	Partial	\$489	\$494	\$746
ASUR	Mexico	Cancún	Full	\$464	\$451	\$826
Australia Pacific Airports	Australia	Melbourne	Full	\$453	\$629	\$728
Düsseldorf Airport	Germany	Düsseldorf	Partial	\$443	\$229	\$530
Birmingham Airport Holdings	U.K.	Birmingham	Partial	\$436	\$219	\$214
GAP	Mexico	Guadalajara	Full	\$402	\$474	\$759
TAV Airports	Turkey	Antalya	Full	\$398	\$368	\$856
Corporación América	Argentina	Buenos Aires	Full	\$326	\$607	\$1,558
Perth Airport	Australia	Perth	Full	\$312	\$331	\$346

<sup>3</sup> Airports Council International, “Advisory Bulletin: The impact of COVID-19 on the airport business—and the path to recovery,” 24 Feb. 2022. <https://aci.aero/2022/02/24/the-impact-of-covid-19-on-the-airport-business-and-the-path-to-recovery-4/> (23 March 2023).



Airport Company	HQ Country	Main Airport(s)	Privatiz. Status	2021 Revenue (\$M)	2020 Revenue (\$M)	2019 Revenue (\$M)
Brussels Airport Co.	Belgium	Brussels	Full	\$264	\$249	\$738
Flughafen Zürich	Switzerland	Zürich	Partial	\$248	\$694	\$1,218
Copenhagen Airports	Denmark	Copenhagen	Partial	\$238	\$259	\$652
Airports of Thailand	Thailand	Bangkok	Partial	\$213	\$1,039	\$2,024
Atlantia	Italy	Rome	Full	\$212	\$496	\$1,067
OMA	Mexico	Acapulco	Full	\$195	\$207	\$401
Flughafen Wien	Austria	Vienna	Full	\$191	\$408	\$961
Hamburg Airport	Germany	Hamburg	Partial	\$164	\$146	\$308
Aéroports de la Côte d'Azur	France	Nice	Partial	\$147	\$161	\$325
New Kansai Intl. Airport	Japan	Kansai	Full	\$129	\$525	\$2,084
Budapest Liszt Airport	Hungary	Budapest	Full	\$117	\$142	\$370
SAVE Group	Italy	Venice	Partial	\$99	\$86	\$241
AGS Airports	U.K.	Glasgow	Full	\$86	\$98	\$289
Athens Intl. Airport	Greece	Athens	Partial	\$32	\$237	\$581

Source: Individual airport group financial statements for FY 2021.

Many privatized airports on this list score highly on the annual Skytrax survey of airline passengers' airport preferences. The majority of the 38 companies in Table 2 have one or more major airports selected by Skytrax passengers as among the world's 100 best airports. Among those included in the top 25 Skytrax airports are Paris de Gaulle (#6), Zürich (#9), Kansai (#10), London Heathrow (#13), Madrid (#16), Copenhagen (#17), Guangzhou (#18), Vienna (#19), Frankfurt (#21), Brisbane (#22), Rome Fiumicino (#24), and Düsseldorf (#25). By contrast, only five U.S. airports rank in the top 50 Skytrax airports: Seattle-Tacoma (#27), Houston Hobby (#33), Houston George Bush (#36), Cincinnati/Northern Kentucky (#38), and Denver (#45).<sup>4</sup>

Skytrax respondents also gave high scores to airports in Europe and Asia that have been "corporatized," which means reorganized as a government-owned commercial entity, operating under normal accounting rules and sometimes paying taxes like any other business. Among high-scoring airports of this type were Tokyo Haneda (#2), Singapore Changi (#3), Munich (#7), and Amsterdam Schiphol (#15).

<sup>4</sup> Skytrax, "World's Top 100 Airports 2021," <https://www.worldairportawards.com/worlds-top-100-airports-2022/> (23 March 2023).

## 2.2

## AIRPORT INDUSTRY CHANGES IN 2022

The COVID-19 pandemic imposed unprecedented financial stress on airports worldwide. In 2019, Price Waterhouse Coopers issued a report on rising airport valuations, including a map showing near-term airport privatization/P3 opportunities in 15 countries.<sup>5</sup> Little more than a year later, the concern shifted to the economic survival of airports in the face of unprecedented declines in air travel. Air travel remained depressed through 2022, although recovery has been proceeding faster than most industry analysts had forecasted in 2020.



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The airport industry's post-pandemic future looked brighter when **Sydney Airport** shareholders approved a buyout offer in February 2022 of \$22.8 billion, equivalent to 23 times the airport's 2019 earnings before interest, taxation, depreciation, and amortization (EBITDA).<sup>6</sup> The buyer is the Sydney Aviation Alliance, a consortium including IFM Investors, three Australian public pension funds, and New York-based Global Infrastructure Partners. The buyout reached financial close in March 2022.<sup>7</sup>

**Vinci Airports** continued its global expansion in 2022. In July, the company signed a 40-year P3 agreement to modernize and operate four international airports and three domestic airports in the Cape Verde islands off the Atlantic coast of Africa.<sup>8</sup> In August, Vinci Airports announced its \$1.17 billion purchase of a 29.99% stake in OMA, the company that operates 13 airports under a 50-year concession agreement in northern, central, and along the

<sup>5</sup> Romil Radia, et al., "Airport Valuations Have Taken Off—The Question Is Where Will They Land?" PwC, Feb. 2019.

<sup>6</sup> Shaun Drummond, "Sydney Airport Shareholders Approve Takeover," *Inframation News*, 3 Feb. 2022.

<sup>7</sup> Lakshmi Iyer, "IFM-led Group Completes Sydney Airport Acquisition," *Inframation News*, 9 March 2022.

<sup>8</sup> Norbert Bata, "Vinci Signs Cape Verde Airport Concession," *Inframation News*, 18 July 2022.

Pacific coast of Mexico.<sup>9</sup> The sale reached financial close in December. In September, Vinci Airports was selected as the preferred bidder for a 40-year concession of the Tahiti Airport, the largest airport in French Polynesia.<sup>10</sup> However, a court overturned the selection in October and a re-tender of Tahiti Airport is anticipated soon.<sup>11</sup>

Germany's **Frankfurt-Hahn Airport** entered insolvency proceedings in October 2021.<sup>12</sup> The secondary airport 75 miles from Frankfurt was 82.5% owned by bankrupt Chinese firm HNA Group. It served 1.5 million passengers in 2019, significantly below the peak of four million in 2017. In November 2021, the insolvency administrator issued investors a request for expressions of interest in acquiring the airport or its various assets. In June 2022, German company Swift Conjoy entered into a contract to purchase HNA's stake in the airport, but the sale was never completed. In February 2023, it was reported that a company owned by Russian pharmaceutical magnate Viktor Kharitonin offered to purchase HNA's stake for €20 million (\$21.9 million), but political opposition appeared to scuttle this transaction. In April 2023, it was announced German real estate firm Triwo would purchase the troubled airport.<sup>13</sup>

In other developments, after rejecting the winning proposal from China Communications Construction Co. (CCCC) in January 2021 to develop Greater Manila's new \$10 billion airport at Sangley Point on the grounds that CCCC's documentation was "deficient in three or four items," the Philippines provincial government in Cavite attempted to re-tender the project through an auction. This failed to attract any interest from bidders.<sup>14</sup> In November 2021, a consortium of domestic and international firms submitted a new proposal for Sangley airport, which was then accepted in January 2022.<sup>15</sup> The new consortium includes Philippines conglomerate Yuchengco, Cavite roadbuilder Cavitex, South Korean developer Samsung C&T Corporation, and German airport operator Munich Airport International.

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<sup>9</sup> "Vinci Completes Acquisition of Controlling Stake in Mexican Airport Operator," *Inframation News*, 8 Dec. 2022.

<sup>10</sup> Antonio Fabrizio, "Vinci Airports Wins Tahiti Airport Concession," *Inframation News*, 12 Sep. 2022.

<sup>11</sup> Antonio Fabrizio, "Court Annuls Vinci's Tahiti Airport Concession Award," *Inframation News*, 20 Oct. 2022.

<sup>12</sup> Rory Gallivan, "Frankfurt Hahn Administrators Launch Airport Sale," *Inframation News*, 17 Nov. 2021.

<sup>13</sup> "German Firm To Buy Local Airport Caught In Russia Row," *Agence France Presse*, 4 April 2023.

<sup>14</sup> Eduard Fernández, "Philippines Sangley Airport PPP Fails to Attract Bidders," *Inframation News*, 25 Oct. 2021.

<sup>15</sup> Sonu Mohanty, "Philippines' Cavite Accepts Sangley Airport Proposal from Consortium," *Inframation News*, 12 Jan. 2022.

*Inframation News* reported in August 2022 that the Cavite provincial government had awarded the project to the consortium.<sup>16</sup>

## 2.3

## GLOBAL AIRPORT PRIVATIZATIONS AND P3 CONCESSIONS

Due to the decline in global air traffic, airport privatization and P3s were far less active during the last few years. However, rebounding air travel seems to have spurred recovery in worldwide airport privatization and P3 activity.

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*... rebounding air travel seems to have spurred recovery in worldwide airport privatization and P3 activity.*

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### 2.3.1 EUROPE

**France's** Beauvais Airport is seeking bidders to replace the current 15-year concession that expires in June 2023 with a 30-year concession with an estimated valuation of €4 billion. The government owner SMABT began talks with potential new concessionaires in August 2022, and four companies—Bouygues, Eiffage, Engie, and Vinci Airports—responded to a December request for qualifications.<sup>17</sup> The airport is located 50 miles north of Paris and in 2019 was the 10<sup>th</sup> busiest airport in France with nearly four million passengers, primarily serving the low-cost leisure travel market.

The government of **Greece** announced in 2018 that it would sell a 30% stake in Athens International Airport held by the Hellenic Republic Asset Development Fund (HRADF), after renegotiating and extending the concession with the original developer of the airport. Early in 2020, HRADF announced nine shortlisted candidates, including major players ADP, Ferrovial, Macquarie, Global Infrastructure Partners, and Vinci Airports.<sup>18</sup> With the pandemic suppressing demand for air travel and the value of the airport, the government put the sale

<sup>16</sup> Sonu Mohanty, “Philippines’ Cavite to Award Airport Project,” *Inframation News*, 24 Aug. 2022.

<sup>17</sup> Rory Gallivan, “Bidders Line Up for Beauvais Airport Ahead of Prequal,” *Inframation News*, 5 Jan. 2023.

<sup>18</sup> Fernando Moncada Rivera, “Shortlist for Athens Airport Sale,” *Inspiratia*, 3 Feb. 2020.

on hold.<sup>19</sup> In 2022, airport traffic had recovered to 22.7 million passengers, just 11% below 2019 traffic. In January 2023, *Inframation News* reported that HRADF had hired advisors to launch a sale later in 2023.<sup>20</sup> AviAlliance, owned by PSP Investments, already owns 40% and would have the option to buy another 10% plus one share.

In other Greek airport privatization news, in September 2022 the Hellenic Corporation of Assets and Participations, the country's sovereign wealth fund, released a request for qualifications for a 40-year concession of Kalamata International Airport in southern Greece.<sup>21</sup> In December, investors including Fraport, Egis, and Atlantia's Aeroports de la Côte d'Azur submitted expressions of interest.<sup>22</sup>

In **Sweden**, the government in June 2022 released a report supporting partial privatization of Swedavia, the state-owned company that owns and operates Arlanda (Stockholm) and nine other airports.<sup>23</sup> The report suggests that the airports in Gothenburg and Malmo, in addition to Arlanda, would be good candidates for privatization, though whether Sweden will pursue privatization through a long-term lease or outright sale is unclear.<sup>24</sup>

### 2.3.2 LATIN AMERICA AND CARIBBEAN

In January 2022, **Brazil's** Ministry of Infrastructure announced the seventh round of concession actions for 16 airports grouped into four packages.<sup>25</sup> It aimed to attract \$1.5 billion in additional investment. The largest airport, Congonhas in São Paulo (Brazil's second largest airport), was included in the \$1.2 billion four-region block of 11 airports that also includes smaller airports in Mato Grosso do Sul, Minas Gerais, and Para. In August 2022, Spanish airport operator Aena came away the biggest winner, acquiring P3 leases of the 11 airports in the block, including Congonhas in São Paulo.<sup>26</sup> Winning a second set of airports was a joint venture of Socicam and construction company Dix, leasing the airports

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<sup>19</sup> Antonio Fabrizio, "Greece Readies to Relaunch Athens Airport Sale," *Inframation News*, 16 Nov. 2021.

<sup>20</sup> Antonio Fabrizio, "Greece Appoints Advisors for Athens Airport IPO," *Inframation News*, 31 Jan. 2023.

<sup>21</sup> Norbert Bata, "Greece Launches Kalamata Airport Privatisation," *Inframation News*, 7 Sep. 2022.

<sup>22</sup> Antonio Fabrizio, "International Bidders Line Up for Greek Regional Airport," *Inframation News*, 15 Dec. 2022.

<sup>23</sup> Rory Gallivan, "Sweden Mulls Major Airport Privatisation," *Inframation News*, 23 June 2022.

<sup>24</sup> Robert Poole, "Sweden Considering Major Airport Privatization," *Aviation Policy News*, 28 July 2022.

<sup>25</sup> Press Release, "Brazil to Launch Airport Concessions Round," *Inframation News*, 2 Feb. 2022.

<sup>26</sup> Gabriela Valente, "Aena, XP, Socicam and Dix Win Brazilian Airport Auctions," *Inframation News*, 18 Aug. 2022.

in Belem and Macapa. Asset management firm XP won the concession for a set of general aviation airports. All three concessions are for 30 years. Despite concern that the new presidential administration would delay these projects, the concession contract with Aena was signed in March 2023.<sup>27</sup> However, the prospect of future airport concessions in Brazil remains uncertain and a slowdown in privatization activity is likely.

**Colombia's** National Infrastructure Agency announced in November 2022 that it expects to put out a request for proposals in 2023 for a P3 concession to make major improvements to El Dorado International, the country's largest airport, in the capital city of Bogotá.<sup>28</sup> This came in response to a 2019 unsolicited proposal from Odinsa and Pavimentos Colombia. Under the country's P3 law, the first step will be a feasibility study by outside consultants.

**Ecuador** in April 2022 announced it was considering additional P3 concessions for 17 airports. Of the country's 21 airports, three are already operated as concessions. It may offer a package of airports, as has been done in Chile, Peru, and Uruguay. One possible model would be packages of four airports: two with strong air traffic and the others needing development. Ecuador's undersecretary for air transport mentioned interest in such P3s from companies in Colombia, Mexico, South Korea, and the United States, according to *Inframation News*.<sup>29</sup>

**French Guiana's** main airport, Cayenne-Félix Eboué, was offered as a 30-year, \$1.5 billion concession in January 2022.<sup>30</sup> Responses to the request for qualifications were due in June. The concessionaire will be required to expand and modernize the airport terminal, surrounding infrastructure, and other technical installations, and then operate and maintain the airport for 30 years. Prior to the pandemic, the airport served 560,000 passengers in 2019.

In February 2023, **Panama** announced it will seek long-term concessions for three of the country's five commercial airports.<sup>31</sup> All are currently run by the Tocumen International

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<sup>27</sup> Press Release, "Aena signs the concession contract for 11 airports in Brazil, including Congonhas-São Paulo," Aena, 29 March 2023.

<sup>28</sup> Eva Llorens, "Colombia's El Dorado Airport PPP Set for Next Year," *Inframation News*, 18 Nov. 2022.

<sup>29</sup> Eva Llorens, "Ecuador to Put Some 17 Airports Under Private Concession," *Inframation News*, 13 Apr. 2022.

<sup>30</sup> Alexander MacLeod, "French Guiana Launches EUR 1.45BN Airport Concession," *Inframation News*, 25 May 2022.

<sup>31</sup> Eva Llorens, "Tocumen to Put Under Private Concession Three of Four Regional Airports," *Inframation News*, 2 Feb. 2023.

Airport Administration (AITSA). The original P3 plan called for concessions for all four of the smaller airports, but after thinking through the use of Panama Pacifico International Airport as an alternative to Tocumen International under certain weather conditions (and its use by low-cost carriers), AITSA will retain control of that airport.

### 2.3.3 ASIA AND PACIFIC

**India** is still preparing for its third round of airport privatization. *Inframation News* reported in July 2022 that the Ministry of Civil Aviation was finalizing the list of airports it plans to privatize to further their modernization.<sup>32</sup> The current list consists of 11 airports, and the idea is to offer them in packages consisting of a larger airport paired with one or more smaller ones. Previous airport privatization rounds took place in 2006 and 2019. But April 2023 reporting suggests the airport privatization plan may be on hold until after the 2024 general elections.<sup>33</sup> In January 2023, India's newest greenfield airport opened.<sup>34</sup> New Goa Airport (GOX) has an initial capacity of 4.4 million passengers and its ultimate capacity after several planned expansions will be 13.1 million passengers. It has been financed and developed under a 40-year P3 concession by GMR Group.

In **Japan**, airport privatization discussions have resumed following a two-year hold during the pandemic. Ishikawa prefecture in central Japan has restarted planning the privatization of its Komatsu airport, *Inframation News* reported in June 2022.<sup>35</sup> In April 2022, Japan's transport ministry provided the prefecture with current specifics about the airport and feedback from private operators on how to run both the Komatsu and Oita procurements as P3 concessions. Also being studied is privatization of the Kagoshima airport to finance expansion.<sup>36</sup> The vision for the airport in Kagoshima prefecture calls for 7.3 million annual passengers by 2030, compared with 5.6 million before the pandemic.

In **New Zealand**, the mayor of Auckland proposed in December 2022 to sell the city government's 18% stake in Auckland International Airport, a transaction estimated to be

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<sup>32</sup> Rouhan Sharma, "India Finalising List of Airports for Privatisation," *Inframation News*, 21 July 2022.

<sup>33</sup> Arindam Majumder, "Centre likely to go slow on airport privatisation plan," *The Economic Times*, 12 Apr. 2023.

<sup>34</sup> Robert Poole, "Major New Airport Opens in India," *Aviation Policy News*, 19 Jan. 2023.

<sup>35</sup> Hiroyuki Kachi, "Ishikawa Prefecture to Resume Komatsu Airport Privatization Talks," *Inframation News*, 1 June 2022.

<sup>36</sup> Hiroyuki Kachi, "Kagoshima Prefecture Studies Airport Concession," *Inframation News*, 30 Sep. 2022.

worth \$1.28 billion based on recent share prices.<sup>37</sup> Later that month, the Auckland Council approved the mayor's proposal to begin the public consultation process.<sup>38</sup> While Australia is known for infrastructure asset recycling of this sort, sale of the airport stake would appear to be a first for New Zealand. The country's three largest airports, then owned by the national government, were privatized via initial public offerings in 1998. Individual investors own 53% of Auckland International's shares, with institutional investors owning the rest.

The **Philippines** government in October 2022 announced that it seeks to engage private companies to improve and operate 10 provincial airports throughout the island nation.<sup>39</sup> The government asked the companies that submitted proposals under the previous administration to resubmit them to its Private Public Partnership Center before the end of 2022. *Inframation News* also reported that the government will continue to operate the Ninoy Aquino International Airport in Manila until the two new airports being developed privately to serve Manila reach completion. In January 2023, the government rejected a \$2.2 billion proposal to modernize Ninoy Aquino International from GMR Infrastructure and Megawide Construction, and indicated that it would instead pursue an operations and maintenance contract rather than a long-term P3 concession.<sup>40</sup>

**Vietnam** is pursuing multiple airport P3 concessions, consistent with its ambitious airport modernization plan. In September 2022, the government announced it is planning development of a \$1.7 billion airport with a capacity for between three million and five million annual passengers, which would be financed and operated under a long-term concession.<sup>41</sup> Construction is planned to begin in 2023, assuming the selection of a qualified P3 team. The government is also seeking P3s for smaller airport development and modernization projects in the Lai Chau,<sup>42</sup> Yen Bai,<sup>43</sup> and Ba Ria-Vung Tau provinces.<sup>44</sup>

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<sup>37</sup> John Weekes, "Mayor Wayne Brown says selling Auckland Airport stake would slash rates, raise \$2 billion," *New Zealand Herald*, 1 Dec. 2022.

<sup>38</sup> Shaun Drummond, "Auckland Council Agrees to Consult on Airport Stake Sale," *Inframation News*, 15 Dec. 2022.

<sup>39</sup> Likha Cuevas, "Philippines Asks Airport Unsolicited Bidders to Resubmit Proposals," *Inframation News*, 21 Oct. 2022.

<sup>40</sup> Kyle Aristophere Atienza, "NAIA privatization covers operations, not assets – Transport chief," *BusinessWorld*, 25 Jan. 2023.

<sup>41</sup> Celine Ge, "Vietnam Plans USD 1.3BN Airport PPP," *Inframation News*, 15 Sep. 2022.

<sup>42</sup> Celine Ge, "Vietnam Prepares to Launch USD 340M Airport Tender," *Inframation News*, 24 Oct. 2022.

<sup>43</sup> Celine Ge, "Vietnamese Province Proposes New Airport PPP," *Inframation News*, 12 Dec. 2022.

<sup>44</sup> Celine Ge, "Vietnam to Use PPP to Upgrade Con Dao Airport," *Inframation News*, 6 Apr. 2023.



### 2.3.4 MIDDLE EAST AND AFRICA

In October 2022, the Federal Airports Authority of **Nigeria** (FAAN) announced winning bidders for three airport P3 concessions.<sup>45</sup> A consortium led by TAV Airports was selected to develop international passenger and cargo terminals at the Murtala Mohammed International Airport in Lagos. TAV Airports, partly owned by Aeroports de Paris, operates 15 airports in Croatia, Georgia, Kazakhstan, Latvia, and other developing countries. A consortium headed by Corporación América Airports is the preferred bidder for concessions to modernize the Abuja and Kano airports.

In **Turkey**, TAV Airports won a 25-year extension of its concession to operate Ankara's Esenboga International Airport in December 2022.<sup>46</sup> The new concession will expire in 2050. TAV has agreed to invest €300 million to add a new runway, control tower, and cargo facilities. The airport served 7.9 million passengers in 2021's first 11 months. Earlier this year, a consortium led by TAV reached financial close on the new Antalya Airport concession.

## 2.4

### U.S. AIRPORT PRIVATIZATION AND PUBLIC-PRIVATE PARTNERSHIPS

European-type sale of government-owned airports is not legal in the United States (except for general aviation airports that serve private planes). The original 1996 federal Airport Privatization Pilot Program permitted a limited number of long-term P3 leases of commercial airports. Under that law, only two airports were leased. Stewart Airport 60 miles north of New York City was leased in 2000 to a U.K. company that failed to make that airport financially viable; Stewart was subsequently acquired by the Port Authority of New York and New Jersey in 2007. The P3 lease of San Juan's Luís Muñoz Marín International Airport in 2013, however, was a success, leading to large-scale refurbishment and increased airline satisfaction.<sup>47</sup>

As recommended in the White House's 2018 infrastructure proposals, Congress replaced the pilot program with a new Airport Investment Partnership Program (AIPP) as part of the

<sup>45</sup> Andras Puskas, "TAV and Corporación América Win Nigerian Airport PPPs," *Inframation News*, 27 Oct. 2022.

<sup>46</sup> Antonio Fabrizio, "TAV Wins Ankara Airport Concession for EUR 475M," *Inframation News*, 20 Dec. 2022.

<sup>47</sup> John Tierney, "Making New York's Airports Great Again," *City Journal*, Winter 2017.

Federal Aviation Administration (FAA) reauthorization law enacted in October 2018. Rather than the limit of 10 airports in the pilot program, long-term P3 leases are now available to all commercial airports. In addition, the AIPP provides for planning grants of up to \$750,000 for any jurisdiction that wants to make use of the program to lease its airport. But the original pilot program's provision requiring super-majority approval from an airport's incumbent airlines remains in place.



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*Rather than the limit of 10 airports in the pilot program, long-term P3 leases are now available to all commercial airports.*

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#### 2.4.1 WHOLE-AIRPORT PRIVATIZATION AND P3 LEASES

In September 2021, the New Haven Board of Elders approved a new 43-year lease of the city's **Tweed New Haven Airport**.<sup>48</sup> In August 2022, the Tweed New Haven Airport Authority approved an agreement with its longtime management company Avports to enter into a 43-year design-build-finance-operate-maintain (DBFOM) P3 concession.<sup>49</sup> Under the concession, Avports would invest \$100 million in capital improvements, including lengthening the Connecticut airport's main runway to accommodate larger aircraft and build a new terminal. If the Environmental Assessment is approved, it would be the first time in the U.S. that an airport's contract manager became its financial partner. Interestingly, the Tweed New Haven Airport Authority and Avports have reportedly structured the agreement so that it does not require approval under the FAA's Airport Investment Partnership Program.

Other than the San Juan, Puerto Rico airport's entry into the pilot program in 2013, only the **Airglades, Florida Airport** privatization has been successful under AIPP. The South Florida general aviation airport received final FAA approval to enter AIPP in October 2019 with the full support of the Hendry County Commission. Airglades International Airport (AIA) LLC has spent years developing a plan to expand the airport into a cargo reliever airport for land-

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<sup>48</sup> Eugene Gilligan, "Connecticut City Board Supports Airport P3," *Inframation News*, 28 Sep. 2021.

<sup>49</sup> Liam Ford, "Board OKs First Full P3 for US Commercial Airport," *Inframation News*, 18 Aug. 2022.

constrained Miami International Airport, 100 miles to the south. AIA built a coalition of agricultural interests, air cargo interests, aviation suppliers, and local organizations in support of its plan to buy and operate the airport in its greatly expanded form. Following FAA approval, Avports was selected as the new airport manager and Star America Infrastructure Partners was announced as an equity investor. A month later, Star America dropped out. In March 2020, AIA broke ground on a new U.S. Customs and Border Protection cargo facility to replace the existing general aviation terminal. Pandemic-related disruptions delayed anticipated long-term commitments to the project from regional agricultural shippers, and AIA was still in talks with potential investors in 2021.<sup>50</sup>

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*There is continued speculation about why the United States is such an outlier on airport privatization and long-term P3s compared to most of the rest of the world.*

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There is continued speculation about why the United States is such an outlier on airport privatization and long-term P3s compared to most of the rest of the world. The Congressional Research Service released a new report on the subject in early 2021. After comparing the global trend with the very limited use of the recent and current federal program, CRS analysts suggested that unequal tax treatment of revenue bonds (tax-exempt municipal bonds for existing airports versus taxable revenue bonds for private partners) could be a causal factor.<sup>51</sup>

A more optimistic outlook is offered in a report from PJ Solomon investment advisors. Their report finds that U.S. airport managers are unable to operate efficiently “due to inefficient procurement policies, lack of flexibility in credit raising, and the bureaucracies that often come from a system with a large and not-always-directly-aligned set of stakeholders.”<sup>52</sup>

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<sup>50</sup> Eugene Gilligan, Jonathan Carmody, and Jon Berke, “South Florida Cargo Airport Project in Talks with Potential Investors,” *Inframation News*, 26 May 2021

<sup>51</sup> Congressional Research Service, “Airport Privatization: Issues and Options for Congress,” Report R43545, 11 March 2021.

<sup>52</sup> Tim Bath and Shawn Kinder, “Unlocking Value in the Airport-Airline Ecosystem,” PJ Solomon, Jan. 2021.

They suggest that the interests of risk-averse municipal bond holders generally prevail over those of airlines, who will be at risk for ensuring airports' financial viability. Hence, they suggest that it is in the interest of airlines to support private capital investment in airports via mechanisms such as AIPP. This is in addition to this program being "the only mechanism for an airport sponsor to realize substantial financial benefits that may be used outside the airport environment."

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*...it is in the interest of airlines to support private capital investment in airports via mechanisms such as AIPP.*

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In a sign of continued investor interest in whole-airport P3 leases, Oaktree Capital Management (which played a key role in the San Juan airport P3) has formed an alliance with global airport company Royal Schiphol Group to focus on investment prospects under the federal AIPP framework. They will also seek opportunities for P3s to develop and operate specific facilities at U.S. airports.<sup>53</sup>

A study released by Reason Foundation in August 2021 suggests there is good cause for continued investor interest.<sup>54</sup> The study used valuations from the sale and lease of airports worldwide in recent decades to estimate the potential market value of major U.S. airports owned by city, county, and state governments. It estimated the potential market value of 31 large and medium U.S. airports at \$131 billion, including Los Angeles International (\$17.8 billion), San Francisco International (\$11.9 billion), Dallas/Ft. Worth International (\$11.9 billion), and Atlanta's Hartsfield-Jackson (\$9.2 billion). And these estimates are possibly too conservative. The report's high-end valuations are based on 20 times earnings before interest, taxes, depreciation, and amortization (EBITDA), a widely used measure of annual cash flow. The Sydney Airport sale that closed in early 2022 was valued at 23 times its pre-pandemic 2019 EBITDA and 50 times its pandemic-era 2020 EBITDA.

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<sup>53</sup> Eugene Gilligan, "Oaktree and Dutch Airport Operator Seek US Opportunities," *Inframation News*, 11 Nov. 2020.

<sup>54</sup> Robert Poole, "Should Governments Lease Their Airports?" Reason Foundation Policy Study, Aug. 2021.

## 2.4.2 P3S FOR INDIVIDUAL AIRPORT PROJECTS



*While whole-airport P3 leases have not become a U.S. phenomenon, recent years continue to see projects that use long-term DBFOM agreements to add large, costly facilities to airports.*



While whole-airport P3 leases have not become a U.S. phenomenon, recent years continue to see projects that use long-term DBFOM agreements to add large, costly facilities to airports. Among these are new or expanded terminals, parking facilities, consolidated rental car centers, and in one case, an automated people mover. These projects are financed in one of two ways. If there is an ongoing revenue stream generated by the project itself, the airport owner can base the P3 financing, in whole or in part, on that revenue stream, generally with the P3 company at risk if the revenue comes in below forecast. If there is not such a revenue stream (as in the case of an automated people mover), then the project can be financed by a guaranteed stream of payments from the owner to the P3 entity over the life of the agreement. This kind of DBFOM is typically called an “availability-payment” structure, since the payments are generally somewhat variable based on the facility’s uptime.

### **New Terminals**

Long-term P3s for new airport terminals have a several-decade U.S. history. Among the earliest are the passenger terminals at Orlando Sanford Airport and Terminal 4 at Kennedy International in New York City. More-recent projects include the renovation of the south terminal at Austin Bergstrom into a no-frills terminal for ultra-low-cost carriers and the replacement of the outdated central terminal at New York’s LaGuardia Airport. The latter project opened to great fanfare in December 2021 and won the 2021 UNESCO’s best new airport facility competition, as well as being featured in a glowing profile of “the team that fixed LaGuardia” in an October 2022 article in *The Wall Street Journal*.<sup>55</sup> These projects are

<sup>55</sup> Ben Cohen, “LaGuardia Airport Is No Longer the Worst. This Team Fixed It.” *The Wall Street Journal*, 15 Sep. 2022.

generally financed based on revenues generated by the terminal, so they are considered revenue-risk DBFOM P3s.

Major new terminals at Kennedy International are currently under way. One of several projects at JFK, Terminal One is a \$9.2 billion DBFOM P3. Originally initiated in 2018, the project was put on hold and more than \$7 billion in debt financing lapsed in 2020 due to the pandemic. It was restarted and the Port Authority of New York and New Jersey reached a revised agreement with the P3 consortium in December 2021.<sup>56</sup> The equity investors—Carlyle, Ullico, and JLC Infrastructures—are working with airline partners Terminal One Group Association (Air France, Japan Airlines, Korean Air, and Lufthansa). In February 2022, Ferrovial announced it had agreed to purchase 96% of Carlyle's equity stake (51%) in the project.<sup>57</sup> The Terminal One project reached financial close in June 2022.<sup>58</sup>

In other JFK news, the \$4.2 billion Terminal 6 JetBlue project reached financial close in November 2022.<sup>59</sup> Like Terminal One, Terminal 6 was delayed for two years by the pandemic. Finally, Kennedy International's \$1.5 billion Terminal 4 project, a joint P3 venture between Delta Air Lines and JFK International Air Terminal, broke ground in December 2021.<sup>60</sup>

Smaller-scale terminal P3s are also showing promise. In February 2022, the Gulf Shores Airport Authority selected Vinci Airports and TBI Airport Management to build, finance, and operate a passenger terminal and ancillary facilities at the general aviation Jack Edwards National Airport in Alabama.<sup>61</sup> The P3 agreement was signed in September 2022.<sup>62</sup> The construction cost is estimated at \$17 million, plus \$3.7 million to construct a temporary terminal to allow commercial air service to launch shortly following financial close.

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<sup>56</sup> Eugene Gilligan, "Consortium Exploring Debt Financing Options for JFK P3," *Inframation News*, 15 Dec. 2021.

<sup>57</sup> Press Release, "Ferrovial reaches an exclusive agreement to negotiate with Carlyle its participation in the consortium for the New Terminal 1 at JFK Airport," Ferrovial, 18 Feb. 2022.

<sup>58</sup> Press Release, "Ferrovial reaches financial close as part of consortium developing the New Terminal One at New York's JFK Airport," Ferrovial, 10 June 2022.

<sup>59</sup> Liam Ford, "JFK P3 Financial Close Last Piece in Passenger Facilities Puzzle," *Inframation News*, 18 Nov. 2022.

<sup>60</sup> I-Chun Chen, "JFK International Airport breaks ground on Terminal 4 modernization," *New York Business Journal*, 16 Dec. 2021.

<sup>61</sup> Eugene Gilligan, "Vinci-led Team to Finance Alabama Airport P3," *Inframation News*, 23 Feb. 2022.

<sup>62</sup> Eugene Gilligan, "Alabama Airport Reaches Agreement with Vinci-Led Consortium," *Inframation News*, 7 Sep. 2022.

Currently, 95% of the area's seven million annual visitors drive, with nearest commercial air service a one-hour drive to the east in Pensacola, Florida, or a one-hour drive northwest to Mobile, Alabama.

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*Smaller-scale terminal P3s are also showing promise.*

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In September 2022, the Virgin Islands Port Authority (VIPA) announced plans to issue a request for qualifications (RFQ) for teams that may be interested in a long-term DBFOM concession to upgrade and manage the terminals at its two commercial airports, on St. Croix and St. Thomas.<sup>63</sup> The RFQ was released in December and responses were due in March 2023.<sup>64</sup> In April, VIPA announced four shortlisted firms of the eight that had responded to the RFQ and said it planned to issue a request for proposals (RFP) in May, select a preferred proponent in January 2024, and break ground in the fourth quarter of 2024 for an early 2027 planned opening of the new terminals.<sup>65</sup>

### **Consolidated Rental Car Facilities**

Two major airports are developing consolidated car rental centers under long-term DBFOM P3 agreements. At Los Angeles International, Fengate Asset Management and PCL Investments are developing the \$2 billion facility, which is financed based on a commitment by LAX to provide 28 years of availability payments. In February 2022, LAX announced it planned to issue an additional \$575 million in bonds to finance the remainder of the project.<sup>66</sup> Across the country, Newark's project is being financed by revenues generated by the new consolidated car rental center itself, in the form of a \$7/day rental car customer facility charge. Hence, it is a revenue-risk P3, and its financing is not an obligation of the airport. This project is also under way, being developed by Fengate,

<sup>63</sup> Press Release, "VIPA's Board Explores Public/Private Partnership for Airport Terminal Expansion Projects," Virgin Islands Port Authority, 22 Sep. 2022.

<sup>64</sup> Eva Llorens, "Virgin Islands Starts Airport P3 Procurement," *Inframation News*, 3 Jan. 2023.

<sup>65</sup> Press Release, "VIPA Short-Lists Airport Terminal Developer, Private Investor and Operator Proposers," Virgin Islands Port Authority, 19 Apr. 2023.

<sup>66</sup> Liam Ford, "LAX Using Green Bonds to Finish Car Rental P3," *Inframation News*, 9 Feb. 2022.

Conrac Solutions Capital, and Related Fund Management. The project was the subject of a detailed article in *Airport Business* magazine.<sup>67</sup>



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*Two major airports are developing consolidated car rental centers under long-term DBFOM P3 agreements.*

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### **Cargo Facilities**

Chicago-Rockford International Airport began negotiating a development and operations P3 for two new 400,000-square-foot cargo facilities in early 2022.<sup>68</sup> In April, it shortlisted Aviation Facilities Company Management and RockAir LLC for the deal. Chicago-Rockford is currently a hub for parcel carriers UPS and Amazon Air, and aims to accommodate cargo growth with the additional facilities that are projected to cost \$150 million. Cargo volume grew from 2.1 billion pounds in landed weight in 2018 to 3.4 billion pounds in 2021.

In October 2022, Los Angeles International revised the RFP for a P3 cargo facility procurement to add more details on financing and to extend the deadline for submitting qualifications.<sup>69</sup> The airport authority hoped to select a preferred bidder by the end of March 2023.<sup>70</sup> The project will modernize and expand 27 cargo buildings totaling 2.6 million square feet.

In November 2022, the Phoenix Aviation Department issued a revenue contract solicitation for a P3 cargo facility project following approval by the city council.<sup>71</sup> The Phoenix Sky Harbor International P3 project will finance, develop, and operate a new cargo complex on

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<sup>67</sup> Joe Petrie, "Port Authority Embraces P3 Development for Newark's New ConRAC Facility," *Airport Business*, Aug.-Sep. 2020.

<sup>68</sup> Liam Ford, "Illinois Airport Selects Preferred Bidder for Cargo Development," *Inframation News*, 5 April 2022.

<sup>69</sup> Eugene Gilligan, "LAX Revises RFP for Cargo Modernization P3," *Inframation News*, 25 Oct. 2022.

<sup>70</sup> Eugene Gilligan, "LAWA Targets End of March for Cargo P3 Preferred Bidder Choice," *Inframation News*, 7 March 2023.

<sup>71</sup> Eugene Gilligan, "Phoenix Advances Airport Cargo P3," *Inframation News*, 7 Nov. 2022.



a 28-acre site on the airport's northwest corner. Responses were due in mid-January 2023, with a contract award anticipated as early as May.

### Other Airport P3 Facilities

In January 2022, Philadelphia International Airport paid off the Philadelphia Parking Authority's \$54 million bond issue that financed the airport's current parking structures.<sup>72</sup> The airport is seeking to end its nearly 50-year relationship with the city's parking agency and find a new private sector operator of the airport's parking facilities.



*The Boring Company has proposed building two underground tunnels that would use Tesla vehicles to connect downtown San Antonio to the San Antonio International Airport.*



The Alamo Regional Mobility Authority Board of Directors voted in March 2022 to begin negotiations with Elon Musk's The Boring Company to design, build, and potentially operate the San Antonio Airport Connector.<sup>73</sup> The Boring Company has proposed building two underground tunnels that would use Tesla vehicles to connect downtown San Antonio to the San Antonio International Airport. The project is estimated to cost between \$247 million and \$289 million. Conversations between the airport authority and The Boring Company continued through 2022 and remain ongoing.<sup>74</sup> In other San Antonio news, the San Antonio International Airport announced in September 2022 that it plans to issue an RFP to upgrade and optimize its parking garages, which increasingly must turn away would-be customers due to overcrowding.<sup>75</sup> It is considering several privatization and P3 options, including a long-term concession.

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<sup>72</sup> Max Marin, "Philadelphia International Airport is poised to cut ties with PPA after nearly 50 years," *Philadelphia Inquirer*, 30 Jan. 2022.

<sup>73</sup> Eugene Gilligan, "Boring Company Gets Nod for Airport Connector Project," *Inframation News*, 17 March 2022.

<sup>74</sup> Eugene Gilligan, "San Antonio in Ongoing Talks for Boring Co Project," *Inframation News*, 1 Dec. 2022.

<sup>75</sup> Matt O'Brien, "San Antonio Airport Planning RFP for Car Parking 'Optimization,'" *Inframation News*, 5 Oct. 2022.

In San José, the city received two unsolicited proposals in July 2021 for its project to link a downtown rail transit station with Mineta San José International Airport: one from TCE Financial and the other from Plenary Americas and Glydways.<sup>76</sup> In October, San José announced that the P3 project would be procured under a two-phase pre-development agreement.<sup>77</sup> The city released the request for proposals in May 2022.<sup>78</sup> In March 2023, city staff recommended the Plenary-led team as the preferred bidder for the airport connector project.<sup>79</sup> The city council voted in April to adopt the staff recommendation and authorize the pre-development agreement with the Plenary consortium.<sup>80</sup>

### Contract Management

Separate from whole-airport P3 leases is contracting out airport operations and management. This approach has been used for decades, with FAA's blessing, most often for general-aviation airports but also for small to medium-size air carrier airports such as Albany, New York and Burbank, California.

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*Separate from whole-airport P3 leases is contracting out airport operations and management.*

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Puerto Rico's Public-Private Partnership Authority announced in early 2021 that it plans to seek a contract operator or operators for its nine regional airports.<sup>81</sup> The P3 Authority has had great success with its 40-year P3 lease of San Juan International, which included a large up-front payment and annual lease payments plus revenue-sharing. The regional airports are far smaller, so Puerto Rico initially sought only operating contracts. The Puerto

<sup>76</sup> Eugene Gilligan, “San Jose Attracts Unsolicited Proposals for Airport Connector P3,” *Inframation News*, 9 Sep. 2021.

<sup>77</sup> Eugene Gilligan, “San Jose Sets Timeline for PDA,” *Inframation News*, 28 Oct. 2021.

<sup>78</sup> Eugene Gilligan, “San Jose Issues RFP for Airport Connector P3 Project,” *Inframation News*, 12 May 2022.

<sup>79</sup> Eugene Gilligan, “Plenary-Led Team Recommended for Airport Connector P3,” *Inframation News*, 13 March 2023.

<sup>80</sup> Press Release, “Diridon-Airport Connector Moves Ahead,” San José Department of Transportation, 19 Apr. 2023.

<sup>81</sup> “Puerto Rico P3 Authority Searches for Airport Operator,” *Inframation News*, 11 Feb. 2021.

Rico Ports Authority later expressed interest in a revenue-sharing concession instead due to concern about committing to \$10 million in annual management fees. In July 2021, the P3 Authority issued a request for qualifications for advisors.<sup>82</sup> The Ports Authority in August 2021 told *Inframation News* that it expected to know by September if a concession were feasible for the nine regional airports.<sup>83</sup> However, the situation was complicated in September when mayors from 14 southern cities urged the creation of a local airport authority to take over and contract out management for one of the nine, Mercedita Airport in Ponce.<sup>84</sup> This local political opposition ultimately led the Ports Authority to abandon its attempt at a concession for the nine airports in September 2022.<sup>85</sup>

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<sup>82</sup> Eugene Gilligan, "Puerto Rico Issues RFQ for P3 Advisors," *Inframation News*, 14 July 2021.

<sup>83</sup> Eva Llorens, "Puerto Rico Nears Conclusion of Regional Airport P3 Review," *Inframation News*, 25 Aug. 2021.

<sup>84</sup> Eva Llorens, "Puerto Rico Mayors Pitch Alternative for Mercedita Airport," *Inframation News*, 13 Sep. 2021.

<sup>85</sup> Eva Llorens, "Government Drops Proposed PPP for Nine Regional Airports," *Inframation News*, 19 Sep. 2022.

## PART 3

# AIR TRAFFIC CONTROL

## 3.1 AIR NAVIGATION SERVICE PROVIDERS (ANSPS)

Historically, most of the world's governments provided air traffic control (ATC) services as part of the transport ministry, whose aviation division served as both the aviation safety regulator and the operator of the ATC system. That remains the organizational form in the United States, with the FAA providing both of those functions, as part of the U.S. Department of Transportation (DOT).

That model has undergone major change since 1987 outside of the U.S., starting when the reformist government of New Zealand removed its ATC system from the transport ministry by “corporatizing” it as Airways New Zealand, a self-supporting government corporation. Within 10 years, more than a dozen other countries had done likewise, and the fledgling industry created a trade association, the Civil Air Navigation Services Organization (CANSO) as its counterpart to the global organizations representing airlines (IATA) and airports (ACI). CANSO introduced a new term to describe these providers—air navigation service provider (ANSP) – which has become standard terminology worldwide.

The revenue source for ANSPs is globally accepted ATC user fees, based on the airport and ATC charging principles promulgated by the International Civil Aviation Organization (ICAO), a United Nations agency. Prior to ATC corporatization, those revenues were nearly always paid by airlines and other airspace users to the respective national governments. In most cases, once an ANSP has been corporatized, the user-fee revenue flows directly to the

ANSP as its primary source of revenue. This makes it possible for the corporatized ANSPs to issue revenue bonds based on their projected revenue streams, just as airports and toll roads do.<sup>86</sup>



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*... once an ANSP has been corporatized, the user-fee revenue flows directly to the ANSP as its primary source of revenue. This makes it possible for the corporatized ANSPs to issue revenue bonds.*

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Table 3 provides a list of all full member ANSPs of CANSO, separated into organizational categories. The first four are the ones outside of government. Nav Canada is a nonprofit private corporation to which the Canadian government has delegated all ATC responsibilities for both domestic and oceanic airspace. ENAV is the partly privatized ANSP of Italy, with 49% of its shares traded on stock markets. Serco is an investor-owned U.K. company that provides ATC services to governments on a contractual basis. And NATS is the partly privatized ANSP of the U.K., with 42% of its shares owned by airlines and pension funds, 4% by Heathrow Airport, and 5% owned by employees—with the balance of 49% owned by the government.

Next in the table are 55 ANSPs that are wholly owned government corporations, such as Airservices Australia, Germany's DFS, and the pioneering Airways New Zealand. Four of these corporations also have aviation regulatory responsibilities, which conflicts with ICAO's 2001 recommendation that calls for the organizational separation of ATC provision and aviation safety regulation.<sup>87</sup>

Next in the table are 20 of the old-style civil aviation authorities, usually part of the transport ministry and with aviation safety regulation in the same entity as provision of ATC services. These are nearly all developing countries such as Bangladesh, Kenya, Myanmar, and Swaziland. But also included are several developed countries that have not corporatized ATC, including Japan, Singapore, and the United States. Another seven are self-

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<sup>86</sup> Robert Poole, "Air Traffic Control as a Quasi-Private Corporation," eds. Robert Clark and Simon Hakim, *Public-Private Partnerships*, Springer: 2019.

<sup>87</sup> ICAO. *Safety Oversight Manual*. Doc. 9734, Part A, Paragraph 2.4.9. 2001

described as government departments, the largest of which are in Brazil and France. The last five in the table were listed by CANSO as “uncategorized.”

**TABLE 3: AIR NAVIGATION SERVICE PROVIDERS, BY TYPE OF ORGANIZATION**

Country	ANSP	Organization Type	Notes
Canada	Nav Canada	Nonprofit corporation	
Italy	ENAV	Part investor-owned	
UK	NATS	Part investor-owned	
UK	Serco	Shareholder-owned	
Albania	ALBCONTROL	State-owned company	
Argentina	DGCTA	State-owned company	
Armenia	ARMATS	State-owned company	
Australia	Airservices Australia	State-owned company	
Austria	Austro Control	State-owned company	Also regulates
Belgium	Belgocontrol	State-owned company	
Botswana	CAAB	State-owned company	
Bulgaria	BULATSA	State-owned company	
Cambodia	CATS	State-owned company	
Croatia	Croatia Control	State-owned company	
Curaçao	DCANSP	State-owned company	
Czech Republic	ANS CR	State-owned company	
Denmark	Naviair	State-owned company	
Egypt	NANSC	State-owned company	
Estonia	EANS	State-owned company	
Fiji	Airports Fiji Ltd.	State-owned company	
Finland	Finavia Corp.	State-owned company	
Georgia	Sakaeronavigatsia	State-owned company	
Germany	DFS	State-owned company	
Hungary	HungaroControl	State-owned company	Also regulates
Iceland	ISAVIA	State-owned company	
India	Airports Authority of India	State-owned company	
Indonesia	AirNav Indonesia	State-owned company	
Iran	Iran Airports Company	State-owned company	
Ireland	IAA	State-owned company	Also regulates
Israel	Israel Airports Authority	State-owned company	
Kazakhstan	Kazaeronavigtsia	State-owned company	
Latvia	LGS	State-owned company	
Lithuania	Oro Navigacija	State-owned company	
Macedonia	M-NAV	State-owned company	
Maldives	Maldives Airports Co.	State-owned company	
Malta	MATS	State-owned company	
Moldova	MoldATSA	State-owned company	
Mozambique	Aeroportos de Mocambique	State-owned company	
New Zealand	Airways New Zealand	State-owned company	
Nigeria	NAMA	State-owned company	
Norway	Avinor	State-owned company	
Papua New Guinea	PNG Air Service	State-owned company	
Portugal	Nav Portugal	State-owned company	
Romania	ROMATSA	State-owned company	

Country	ANSP	Organization Type	Notes
Russia	State ATM Corporation	State-owned company	Also regulates
Serbia & Montenegro	SMATSA	State-owned company	
Slovak Republic	LPS SR	State-owned company	
Slovenia	Sovenia Control	State-owned company	
South Africa	ATNS	State-owned company	
Spain	ENAIRE	State-owned company	
Sri Lanka	AASL	State-owned company	
Sweden	LFV	State-owned company	
Switzerland	Skyguide	State-owned company	
Thailand	AEROTHAI	State-owned company	
Turkey	DHMI	State-owned company	
Uganda	CAA Uganda	State-owned company	
Ukraine	UKSATS	State-owned company	
Vietnam	VATMC	State-owned company	
Zambia	NACL	State-owned company	
Bangladesh	CAAB	Civil aviation authority	Financially autonomous
Cyprus	DCA Cyprus	Civil aviation authority	
Dominican Republic	IDAC	Civil aviation authority	
Ghana	Ghana CAA	Civil aviation authority	
Greece	HCAA	Civil aviation authority	
Japan	JCAB	Civil aviation authority	
Jordan	CARC	Civil aviation authority	Financially autonomous
Kenya	Kenya CAA	Civil aviation authority	
Kingom Saudi Arabia	GACA	Civil aviation authority	
Mongolia	CAA of Mongolia	Civil aviation authority	
Myanmar	DCA Myanmar	Civil aviation authority	
Nepal	CAA Nepal	Civil aviation authority	
Swaziland	SWACAA	Civil aviation authority	
Singapore	CAAS	Civil aviation authority	
Taipei FIR	ANWS	Civil aviation authority	
Tanzania	TCAA	Civil aviation authority	
Trinidad & Tobago	Trinidad & Tobago CAA	Civil aviation authority	
Tunisia	OACA	Civil aviation authority	
United States	FAA	Civil aviation authority	
Azerbaijan	AZANS	Government department	
Brazil	DECEA	Government department	
France	DSNA	Government department	Financially autonomous
Mexico	SENEAM	Government department	
Netherlands	LCNL	Government department	
Poland	PANSA	Government department	
United States	DOD Policy Board, Aviation		
Belgium	MUAC	Intergovernmental	
Honduras	COCESNA	Intergovernmental	6 countries
Senegal	ASECNA	Intergovernmental	17 countries
Angola	ENANA-EP	uncategorized	
Haiti	OFNAC	uncategorized	
Luxembourg	LANA	uncategorized	
Sudan	Sudan ANS	uncategorized	
Dubai	DANS	uncategorized	

Source: Civil Air Navigation Services Organization (2023) plus author analysis

Prior to those are three intergovernmental entities that operate as multi-jurisdictional ANSPs for specific airspaces. Maastricht Upper Airspace Control Center (MUAC) provides ATC services at altitudes above 24,500 feet for Belgium, Luxembourg, the Netherlands, and northwestern Germany. COCESNA provides ATC services for six Central American countries. And ASECNA provides ATC services for 17 countries in Africa and two overseas departments and regions of France, Réunion and Mayotte. All three charge ICAO-based user fees and operate as corporatized ANSPs.

Table 3 answers the question: How many ANSPs operate as corporations funded by user fees? The usual answer is 62, consisting of the non-governmental first four, the 55 government corporations, and the three intergovernmental ANSPs. In terms of *countries* served by such ANSPs, however, the total is higher; adding the six countries served by COCESNA and the 17 served by ASECNA brings the net total to 83.

## 3.2

### GLOBAL SPACE-BASED ATC SURVEILLANCE

A basic function of an ATC system is *surveillance*—keeping track of where planes are in real time. Historically, air traffic control over most populated countries has, since World War II, relied largely on radar, later supplemented by transponders that report altitude and other basic information in real time. But there is no radar in the oceans, in mountainous terrain, and in polar regions, all of which are traversed by aircraft, including airliners. Surveillance there has long been carried out by “procedural” methods, which means periodic reports from pilots to ATC of their estimated positions based on the plane’s inertial navigation system. Since those updates are both imprecise and only periodic, ATC protocols require very large spacing between oceanic flight tracks and between planes flying the same flight track.

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*Historically, air traffic control over most populated countries has, since World War II, relied largely on radar, later supplemented by transponders that report altitude and other basic information in real time.*

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This began to change in 2019, when an investor-owned company—Aireon—started offering near-real-time global surveillance via satellite. The company contracted with satellite company Iridium to place its transponders on all 66 satellites in its new Iridium-Next constellation that was launched mostly in 2018. Since most ANSPs are now implementing ground-based surveillance using a system called ADS-B (automatic dependent surveillance-broadcast), business jets and airliners flying oceanic, mountainous, and polar routes are increasingly equipped with ADS-B transponders that broadcast the plane’s identity, GPS position, speed, and other data every three seconds. That signal is detected by the new satellites and retransmitted to domestic ANSP control centers that subscribe to Aireon’s services. The space-based information then shows up on controllers’ screens, just as do ADS-B transmissions in domestic airspace.

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*Aireon’s service, which went live in March 2019, can now offer radar-like surveillance to the 70% of the globe where this has been lacking. But it is only available to ANSPs that subscribe to the service.*

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Aireon’s service, which went live in March 2019, can now offer radar-like surveillance to the 70% of the globe where this has been lacking. But it is only available to ANSPs that subscribe to the service. With the addition of the Port Moresby Flight Information Region of Pacific airspace in March 2021, Aireon reported that its system is in use in over 248 million sq. km. of the earth’s service—nearly 49% of the total.<sup>88</sup> Subscribers include the ANSPs of Azerbaijan, Canada, Denmark, the Dutch Caribbean, Hong Kong, Iceland, India, Ireland, Singapore, the U.K. and three multi-country providers: Eurocontrol’s MUAC, the six COCESNA countries of Central America, and the 17 African countries of ASECNA.

Aireon is a joint venture of Iridium and five ANSPs: ENAV, IAA (Ireland), NATS, Nav Canada, and Naviar (Denmark). The first to implement oceanic ADS-B service were Nav Canada and NATS across the North Atlantic. While that is technically a trial, ICAO agreed that the two ANSPs could reduce the lateral spacing (between tracks) and longitudinal spacing (nose to tail on a given track) for the period of the trial, with further reductions likely once

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<sup>88</sup> Press Release, “NiuSky Pacific Begins Operational Usage of Aireon Data,” Aireon, 20 March 2021.

performance has been measured and analyzed. Results during 2019 showed significant savings in time and fuel (and hence CO<sub>2</sub> emissions), as well as safety benefits from controllers able to quickly identify deviations from assigned tracks or assigned altitudes. Significantly reduced traffic levels during 2020 enabled NATS and Nav Canada to experiment with “free route airspace” rather than restricting traffic to the traditional Organized Track Structure (OTS). In 2021, the two ANSPs operated without OTS for 20 days, on which airlines submitted their preferred flight tracks for approval.<sup>89</sup> The next step is to completely eliminate OTS.



*Significantly reduced traffic levels during 2020 enabled NATS and Nav Canada to experiment with “free route airspace” rather than restricting traffic to the traditional Organized Track Structure (OTS).*



Aireon’s competition until recently has come from Inmarsat, which operates a communications mechanism known as ADS-C. Among other communications services, it has long provided airlines with position reporting at 10- to 14-minute intervals, by contract (the C in ADS-C). Inmarsat has proposed an “enhanced” version that would transmit reports every 3.2 minutes (compared with every three *seconds* for space-based ADS-B).<sup>90</sup> Inmarsat was originally an international satellite communications agency, but its commercial services were privatized in 1999, and it was listed on the London Stock Exchange in 2005. In 2019, it was acquired by a joint venture of infrastructure investment funds: Apax Partners and Warburg Pincus plus two Canadian pension funds, CPPIB and OTPP.<sup>91</sup>

The competitive landscape may be changing. Canberra-based Skykraft reached an agreement with Airservices Australia to launch and operate a 200-satellite constellation to improve ADS-B coverage in Australia and its oceanic airspace. The first five satellites were

<sup>89</sup> Tony Osborne, “ANSPs Start Scaling Back North Atlantic Organized Track Structure,” *Aviation Daily*, 9 Feb. 2022.

<sup>90</sup> GAO-19-532, “FAA’s Analysis of Costs and Benefits Drove It Plans to Improve Surveillance in U.S. Oceanic Airspace,” Government Accountability Office, July 2019.

<sup>91</sup> “Inmarsat Acquired by Private Equity Consortium for \$3.4bn.” *Air Traffic Management*, 25 March 2019.

launched via a SpaceX Falcon 9 launch vehicle from Cape Canaveral in January 2023 and were successfully activated in LEO later that month.<sup>92</sup> The service will include controller-pilot communications in addition to ADS-B surveillance. Subsequent launches to complete the 200-satellite constellation are scheduled for mid-2023 and early-2024.



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In addition, it was announced in May 2021 that Spanish ANSP Enaire had teamed with Indra in creating a new company called Startical, whose aim is to develop a space-based system to provide both ADS-B surveillance and VHF communications between pilots and controllers.<sup>93</sup> The plan would make use of a 200-satellite constellation in low-Earth orbit (LEO). Through 2023, the company will focus on technology development and regulatory and market aspects. The next phase, from 2024 to 2027, envisions the launch of the satellites and the start of commercial services. Startical selected GomSpace to develop and launch three prototype nanosatellites for the project.

In 2019, the FAA signed a research agreement with Aireon aimed initially at exploring the use of its ADS-B data in the Caribbean. This focused on using a modified version of the En Route Automation Modernization (ERAM) system at Miami Center to control traffic between Miami and San Juan, but the FAA also modified the Advanced Technologies and Oceanic Procedures (ATOP) software used in its New York, Oakland, and Anchorage Oceanic Centers for experimental use in their oceanic airspaces. In January 2020 *Aviation Daily* reported that the FAA was developing a one- to three-year roadmap to expand its use of space-based ADS-B. And in November 2020, the FAA and Aireon announced an agreement under which the agency will use the company's ADS-B data to analyze possible uses in managing both domestic and oceanic air services.<sup>94</sup>

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<sup>92</sup> Press Release, "Australia's largest ever satellite constellation now active," Skykraft. 12 Jan. 2023.

<sup>93</sup> Graham Warwick, "Spain Plans Space-Based Surveillance Communications Constellation," *Aviation Daily*, 2 June 2021.

<sup>94</sup> Robert Poole, "FAA to Use Aireon Space-Based ADS-B Data," *Aviation Policy News*, Nov. 2020.

### 3.3 DIGITAL, REMOTE AIR TRAFFIC CONTROL TOWERS

In 2007, the FAA research center in Atlantic City, New Jersey, conducted a demonstration project on a new kind of airport control tower. Instead of a tall building with a staffed control cab on top, the FAA evaluated carrying out tower functions using cameras and other sensing devices at various airport locations, with the control cab and large display screens on the ground. Besides saving the cost of constructing and maintaining the tall building, the demonstration showed that controllers would have increased visibility (especially at night and in rain or fog when infrared cameras provided better views) and decreased workload.<sup>95</sup> Despite these very positive results, no further FAA work on the subject has been reported, and no FAA program to implement remote towers materialized.



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Drawing on these findings, technology companies and corporatized ANSPs overseas began developing and testing remote tower concepts. LFV in Sweden and Avinor in Norway were among the first to implement remote-tower programs, and the first remote tower to be certified for operational use was developed for LFV by Saab-Sensis Corporation and became operational in 2015. In the years since then, remote towers have been planned or implemented in Australia, Brazil, Denmark, Germany, Hungary, Romania, and the U.K., among others. Germany, Sweden, and Norway have subsequently implemented remote tower *centers* in which controllers can manage air traffic at a number of airports from a single location, providing additional cost savings. Such centers are already in operation in Germany, Norway, and Sweden and are in the planning stages in other countries.

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<sup>95</sup> Daniel Hannon, et al., “Feasibility Evaluation of a Staffed Virtual Tower,” *Journal of Air Traffic Control*, Vol. 55, No. 1, 2013.

During the past year, there were a number of new remote and digital tower developments in Europe and Asia.

- In March 2022, Danish ANSP Naviair announced that it was expanding the scope of its remote digital tower contract with Frequentis. The contract will also cover implementing a new backup air traffic management system using the company's PRISMA backup system. It will build on the PRISMA remote tower backup being implemented for the remote digital tower project at Billund to include PRISMA Enroute for Naviair's area control center and approach control services at Copenhagen, Billund, and Roskilde airports.<sup>96</sup>
- As of April, air traffic at Germany's Erfurt Weimar Airport is being controlled from German ANSP DFS's remote tower center 100 kilometers away in Leipzig using Frequentis technology. Erfurt's deployment follows the remote tower at Saarbrücken Airport near the French border. DFS plans to bring Dresden Airport under the Leipzig remote tower center by the end of 2023.<sup>97</sup>
- In June, Norwegian ANSP Avinor opened a new remote tower center in Bodø, which is now the largest remote/digital tower center in the world. With its technology partner Kongsberg Gruppen, Avinor is initially adding four additional smaller airports under control from Bodø, for a total of eight airports. Avinor plans to incorporate an additional seven by the end of 2023, for a total of 15.<sup>98</sup>
- Also in June, Canadian remote/digital tower company Searidge announced that its Digital Apron and Tower Management System (DATMS) passed all acceptance and reliability testing at Hong Kong International Airport. It was scheduled to be operational by the end of the year. These systems have 240 camera sensors and 120 working positions. In its second phase, DATMS will be expanded to serve the new second terminal and the new third runway.<sup>99</sup>

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<sup>96</sup> "Denmark's Naviair selects Frequentis ATM system as backup for area control centre and approach and tower units," CANSO, 30 March 2022. <https://canso.org/denmarks-naviair-selects-frequentis-atm-system-as-backup-for-area-control-centre-and-approach-and-tower-units/> (23 March 2023).

<sup>97</sup> "Expansion of the DFS Remote Tower Control Centre," *Air Traffic Management*, 28 Apr. 2022.

<sup>98</sup> "World's biggest digital tower centre opens in Norway," *ATC Network*, 3 June 2022. <https://www.atc-network.com/atc-news/avinor-norway/worlds-biggest-digital-tower-centre-opens-in-norway> (23 March 2023).

<sup>99</sup> "Industry's Largest Digital Tower To Go Operational in Hong Kong," *ATC Network*, 22 June 2022. <https://www.atc-network.com/atc-news/searidge-technologies/industrys-largest-digital-tower-to-go-operational-in-hong-kong> (23 March 2023).

- In February 2023, the relatively new airport serving the Romanian city of Brasov has begun receiving control tower services from a remote tower center 450 kilometers away in the city of Arad using Saab technology. Besides being the first remote tower in Romania, Brasov is also the world's second airport to begin its tower services with a remote tower; the first occurrence was several years ago in Sweden. Romania plans to add more airports under the control of the Arad remote tower center in the coming years.<sup>100</sup>
- In March 2023, HungaroControl began implementation of a remote tower at the country's largest airport, Budapest's Ferenc Liszt International (BUD). The system, developed by Indra, is planned to be operational by 2024. It will feature multiple camera installations around the airport, with zooming functionality and enhanced night vision mode. It will also have the ability to track moving objects. BUD is the largest airport to begin implementing a remote/digital tower solution, though discussions are under way in Germany regarding Munich, that country's second-busiest airport.<sup>101</sup>

By contrast, remote tower progress in the United States has been very slow. In the 2018 FAA reauthorization, Congress authorized a pilot program under which the agency would develop and test five remote towers at five different locations, but did not provide funding. Two U.S. remote tower projects have been awaiting FAA certification, one in Leesburg, Virginia, and the other at Loveland, Colorado. They have been funded by a combination of state funds and private investment, not by the FAA.<sup>102</sup>

In addition to these two projects, a few others are in preliminary planning stages. The board of Friedman Memorial Airport in Hailey, Idaho announced in April 2021 that it plans to develop a request for proposals for a digital remote tower and seek FAA approval to enter its pilot program.<sup>103</sup> In January 2022, Friedman Airport selected a Frequentis/Raytheon partnership as the main technology vendor.<sup>104</sup>

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<sup>100</sup> Robert Poole, "Romania Unveils First Remote Tower," *Aviation Policy News*, 23 March 2023.

<sup>101</sup> Robert Poole, "Budapest Getting a Remote Tower," *Aviation Policy News*, 23 March 2023.

<sup>102</sup> Robert Poole, "Remote Towers: Europe Many, U.S. Zero," *Aviation Policy News*, 21 May 2021.

<sup>103</sup> Robert Poole, "Idaho Airport Seeks a Remote Tower," *Aviation Policy News*, 18 June 2021.

<sup>104</sup> Emily Jones, "SUN Takes Step Forward with Remote Tower Project," *Idaho Mountain Express*, 14 Jan. 2022.

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“  
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In Selma, Alabama, local officials have proposed a remote tower center at Craig Field, a former Air Force base. If approved, this would be the first remote tower center in the U.S.<sup>105</sup> The Selma Economic Development Authority has reached agreements with Advanced ATC, Inc., a firm founded by former FAA air traffic control managers, and Spain’s Indra, which has developed and deployed remote/digital towers in Europe. In North Carolina, the city of Concord signed a P3 agreement with Norwegian technology provider Kongsberg in April 2022 to replace the aging conventional control tower at Concord-Padgett Regional Airport with a modern remote tower.<sup>106</sup> Kongsberg stated that it plans to begin the FAA certification process in 2023.

In November 2021, the FAA issued an “operational viability decision” on the Saab Remote Tower System at Leesburg authorizing it to continue managing traffic without a backup mobile tower.<sup>107</sup> This is not official certification, but it did trigger the type certification process between Saab and the FAA, which would allow the Leesburg remote tower to be approved as a non-federal system within the National Airspace System. Congress included \$4.9 million in FY 2022 appropriations to fund contract controllers for type certification at Leesburg, as well as fund operational viability testing at Fort Collins.<sup>108</sup>

However, in February 2023, the FAA announced it would terminate the operations of the Leesburg remote tower on June 14<sup>th</sup>.<sup>109</sup> Saab had sent a letter to the FAA in 2022 announcing that it was pulling out of the project after nine years. The company told *The Washington Post* that it “determined there is no reasonable path for approval” under the FAA’s shifting certification requirements.<sup>110</sup> The FAA’s primary internal advocate of the

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<sup>105</sup> Robert Poole, “More Remote Towers Coming to the United States,” *Aviation Policy News*, 27 June 2022.

<sup>106</sup> Press Release, “Kongsberg and the City of Concord Complete First Milestone Toward Air Traffic Management Modernization,” Kongsberg Gruppen, 20 Apr. 2022.

<sup>107</sup> Robert Poole, “More on FAA and Remote Towers,” *Aviation Policy News*, 22 Nov. 2021.

<sup>108</sup> Consolidated Appropriations Act, 2022, H.R. 2471, Division L Explanatory Statement, 15 March 2022.

<sup>109</sup> Robert Poole, “Is FAA Giving Up on Remote Towers?” *Aviation Policy News*, 23 March 2023.

<sup>110</sup> Lori Aratani, “This air traffic control system helped to grow flights. Now it’s being shut down.” *The Washington Post*, 11 Apr. 2023.

technology, its former vice president of air traffic services, had also been reassigned to another role within the agency in 2022. Following the news out of Leesburg, it was reported that the Fort Collins remote tower project was “on life support.”<sup>111</sup> These latest setbacks suggest the FAA bureaucracy is resistant to remote and digital tower technology, and that further congressional intervention is likely necessary to break this logjam.



*These latest setbacks suggest the FAA bureaucracy is resistant to remote and digital tower technology, and that further congressional intervention is likely necessary to break this logjam.*



## 3.4

### U.S. AIR TRAFFIC CONTROL REFORM

Efforts to have the United States corporatize its ATC system, joining the global trend, began in earnest during the Clinton administration. The idea was proposed by Vice President Al Gore’s reinventing government initiative, and then studied in depth by a task force in the Office of the Secretary of Transportation. That effort failed due to lukewarm support from airlines, strong opposition from the private plane community, and the lack of a champion in Congress. Various partial reforms were attempted during the George W. Bush administration, but they got no further.

In 2012 the Business Roundtable organized an ATC reform group to develop a business plan for a nonprofit, user-funded, stakeholder-governed ATC corporation, similar to Nav Canada (the world’s second largest ANSP, after FAA’s Air Traffic Services division).<sup>112</sup> That effort found a congressional champion in Rep. Bill Shuster (R, PA), then chairman of the House Transportation & Infrastructure Committee. The committee held hearings on the subject in 2014, with strong support from Airlines for America and the National Air Traffic Controllers Association. The bill drafted by the Republican majority was approved by the

<sup>111</sup> David Hughes, “Colorado Airport’s Remote Tower on Life Support,” *Aviation International News*, 11 Apr. 2023.

<sup>112</sup> Robert Poole, “Air Traffic Control as a Quasi-Private Corporation,” eds. Robert Clark and Simon Hakim, *Public-Private Partnerships*, Springer: 2019.



committee in 2016, but it was strongly opposed by private-plane groups Aircraft Owners and Pilots Association (AOPA) and National Business Aviation Association (NBAA), as well as all federal employee unions except the air traffic controllers.

The bill was revised in 2017 to address concerns raised by small airports and private plane groups, and it was approved by the T&I Committee in 2018. But House Republican leadership did not bring it to the floor, lacking the votes to ensure passage, due in part to an unfilled White House commitment to lobby wavering Republican members.<sup>113</sup> There was also no companion ATC provision in the Senate bill, due to intense lobbying of rural-state senators by the anti-corporatization coalition led by private-plane groups AOPA and NBAA. FAA reauthorization was enacted later in 2018 with no ATC reform title.

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<sup>113</sup> Lauren Gardner, "How ATC Got Grounded," *Politico*, 2 April 2018.

## PART 4

# AIRPORT SECURITY

When Congress mandated the federal takeover of airport security in late 2001 in the wake of the 9/11 terrorist attacks, it allowed room for some degree of private-sector provision (besides the role of producing equipment like walk-through screening devices and baggage scanners to be procured by security providers). One concerned providing passenger and baggage screening; the other concerned assisting the new Transportation Security Administration (TSA) with implementing a “trusted traveler” program.

### 4.1

## CONTRACT SCREENING

In response to an emphasis in the 2001 House bill on using federally certified security companies rather than a new cadre of federal employees, the Senate compromised on its preference for 100% federal employees by allowing some airports to opt out, with TSA approval, by hiring TSA-approved security companies to do the screening. The first step was a five-airport pilot program under which only San Francisco, Kansas City, Rochester, Tupelo, and Jackson Hole could use approved security screening companies. After the pilot program was judged successful (by the DHS Office of Inspector General and the Government Accountability Office), the program was opened up to other airports. TSA created the Screening Partnership Program (SPP), under which the 21 airports in Table 4 currently provide passenger and baggage screening using TSA-approved contractors.

**TABLE 4: AIRPORTS WITH PRIVATE SCREENING UNDER SPP, MAY 2023**

<b>Airport</b>	<b>State</b>
Atlantic City International Airport	New Jersey
Bozeman Yellowstone International Airport	Montana
Charles M. Schulz-Sonoma County Airport	California
Dawson Community Airport	Montana
Glacier Park International Airport	Montana
Greater Rochester International Airport	New York
Great Falls International Airport	Montana
Havre City-County Airport	Montana
Kansas City International Airport	Missouri
L.M. Clayton Airport	Montana
Orlando Sanford International Airport	Florida
Portsmouth International Airport	New Hampshire
Punta Gorda Airport	Florida
Roswell International Air Center	New Mexico
San Francisco International Airport	California
Sarasota-Bradenton International Airport	Florida
Sidney-Richland Municipal Airport	Montana
Sioux Falls Regional Airport	South Dakota
Tupelo Regional Airport	Mississippi
Wokel Field/Glasgow International Airport	Montana
Yellowstone Airport	Montana

**Source: Transportation Security Administration**

While that number has grown a bit since the conclusion of the pilot, March 2022 saw Key West International Airport withdraw from the program, leaving 21 airports with private screeners. Great Falls International Airport entered the SPP in November 2022, bringing the total number of participating airports back up to 22. However, Jackson Hole Airport announced it would exit the SPP in May 2023 because the airport board's bid to retain the contract exceeded the maximum program threshold, which lowered the number of participating airports back to 21.



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*Many observers and a growing number of airports point to a complicated and time-consuming process, in which the TSA holds all the cards.*

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Many observers and a growing number of airports point to a complicated and time-consuming process, in which the TSA holds all the cards. The normal situation for contract provision of services is that the government agency wishing to contract issues a request for proposals (RFP) and reviews bids from competing firms. In the case of airport screening, the normal process would be that airports would send their RFP only to firms that have been certified by the TSA (which maintains this list on its website), and the airport would select the one that best meets its needs. The TSA might then have final approval authority, in addition to its ongoing role as the aviation security regulator.

Instead, the airport must go hat in hand to the TSA stating its desire to change, and in response to the airport's detailed request, the TSA decides which company it thinks is the best fit and assigns it to the airport—take it or leave it. Also, the contract is between the TSA and the company, rather than between the airport and the company.

In 2018, Sen. Mike Lee (R, UT) introduced a bill to reform the Screening Partnership Program. His Screening Partnership Reform Act (S.3441) would have shortened the time allowed for the TSA to review an airport's request to switch to contract provision from 120 days to just 30 days. That would be reasonable since the TSA would no longer be tasked with figuring out which company to assign to the airport. The airport would do that itself, subject to subsequent approval by the TSA. Also, the bill required the TSA to include the full cost to the federal government of its screening operation when comparing the cost-effectiveness of contract screening with TSA screening at that airport. Currently, the TSA does not include employee benefits such as insurance and pension fund contributions, which are real costs for the private companies.



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*... the bill required the TSA to include the full cost to the federal government of its screening operation when comparing the cost-effectiveness of contract screening with TSA screening at that airport. Currently, the TSA does not include employee benefits such as insurance and pension fund contributions, which are real costs for the private companies.*

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Sen. Lee's bill did not get very far, but he reintroduced it in 2020 (S.4937) and again in 2021 (S.1184). Despite Sen. Lee's most recent legislative attempt garnering only one cosponsor in Sen. Marsha Blackburn (R, TN) and failing to receive a hearing, there would be real benefits from an expanded contract screening effort. Tracy Miller of the Mercatus Center at George Mason University pointed some out of the benefits in an op-ed distributed by Tribune News Service in the wake of the January 2019 federal government shutdown (during which TSA screeners did not get paid, but contract screeners did).<sup>114</sup> These include:

- Better screening performance, as attested by red-team tests by the DHS Office of Inspector General and the GAO;
- Ease of firing low-performing screeners;
- Staffing properly to meet peaks and valleys in checkpoint passenger volume; and,
- Cost savings, due to better matching staffing to demand, as documented in a comparison of LAX (TSA screening) and SFO (contract screening).<sup>115</sup>

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<sup>114</sup> Tracy Miller, "Why Should a Government Shutdown Affect Airport Security?" Tribune News Service, 24 January 2019.

<sup>115</sup> House Transportation & Infrastructure Committee, "TSA Ignores More Cost-Effective Screening Model," 3 June 2011.

## 4.2

## TRUSTED TRAVELER

The 2001 legislation creating the TSA also called for the government to initiate a trusted traveler program, under which air travelers who volunteered could be pre-screened (analogous to getting a low-level security clearance). Those who succeeded would be recognized when they arrived at the airport checkpoint and subjected to streamlined screening compared with ordinary travelers.

For nearly a decade, the TSA resisted creating such a program. In 2003, in hopes of jump-starting the process, a group of private investors created a company, CLEAR, intending to recruit would-be participants and obtain biometric identifiers for them (iris scan and/or fingerprints). The business plan called for the company to submit applications to the TSA from people it had signed up, which it expected the TSA to send to the FBI for review, as it was already doing with airport employees who needed regular access to secure portions of the airport. The TSA refused to do this, so the company tried to market itself as simply verifying passenger identity. But without actual clearance to get streamlined screening, the value proposition was poor, and the company filed for bankruptcy.

When the TSA finally introduced PreCheck in 2011, investors under the name Alclear had recently bought the assets of the bankrupt company CLEAR, this time offering to supplement PreCheck by allowing its members to skip the long lines at checkpoints and then receive either PreCheck or regular screening, depending on their membership status. The TSA agreed to this, and the new CLEAR began marketing it to individual airports. That was slow going when only a few airports offered the service, but a critical mass appeared to be reached by 2019, when CLEAR announced an agreement with St. Louis as its 35<sup>th</sup> airport with this service. Recovery from the pandemic spurred rapid growth, with CLEAR adding 11 airports in 2022 alone. By the end of 2022, CLEAR service was available at 51 U.S. airports, which are listed in Table 5.

**TABLE 5: AIRPORTS OFFERING CLEAR SERVICE, 2022**

<b>Airport Code</b>	<b>Airport Name</b>
AUS	Austin Bergstrom
ATL	Hartsfield-Jackson Atlanta International
BWI	Baltimore/Washington International
BHM	Birmingham
BOI	Boise
BOS	Boston Logan
ORD	Chicago O'Hare International
MDW	Chicago Midway
CVG	Cincinnati/Northern Kentucky
CLE	Cleveland Hopkins
CMH	Columbus John Glenn
DAL	Dallas Love Field
DFW	Dallas/Ft. Worth International
DEN	Denver International
DTW	Detroit Metro
FLL	Fort Lauderdale-Hollywood
GSP	Greenville-Spartanburg
IAH	Houston Intercontinental
HOU	Houston Hobby
MCI	Kansas City International
LAS	Las Vegas
LGB	Long Beach
LAX	Los Angeles International
MIA	Miami International
MKE	Milwaukee Mitchell
MSP	Minneapolis/St. Paul
BNA	Nashville
EWR	Newark Liberty
MSY	New Orleans
JFK	New York, Kennedy International
LGA	New York, LaGuardia
HPN	New York, Westchester
OAK	Oakland International
OKC	Oklahoma City Will Rogers
ONT	Ontario (CA) International
MCO	Orlando International
PBI	Palm Beach International
PSP	Palm Springs
PHX	Phoenix
RDU	Raleigh-Durham
SAC	Sacramento

<b>Airport Code</b>	<b>Airport Name</b>
STL	St. Louis Lambert
SLC	Salt Lake City
SAT	San Antonio
SAN	San Diego
SFO	San Francisco
SJC	San Jose Mineta
SJU	San Juan Luis Munoz Marin
SEA	Seattle-Tacoma International
IAD	Washington Dulles International
DCA	Washington Reagan National

Source: CLEAR website, accessed 23 March 2023.

A decade after being bought out of bankruptcy, CLEAR filed paperwork for an initial public offering (IPO) in June 2021. The company issued its IPO in July and raised approximately \$400 million in gross proceeds to expand its service footprint.<sup>116</sup>

Shortly before the pandemic began, in February 2020, the TSA announced that PreCheck membership had reached 10 million. PreCheck reached 11 million enrollments by July 2021, 12 million by October 2021, 13 million by March 2022, and 15 million in March 2023. While impressive, that number was far below the agency's long-time goal of 25 million by 2019.

In another PreCheck-related development, the TSA finally opened up the market for PreCheck recruitment to two additional companies besides long-time monopoly provider Morpho Trust (recently renamed IDEMIA). Joining it as of 2020 were CLEAR and Telos Identity Management Solutions. The TSA acted after Congress mandated, in the 2018 FAA reauthorization, that it use at least two companies to market PreCheck and vet applicants. By the end of 2022, however, only Telos had been approved by the TSA to offer PreCheck services.

<sup>116</sup> News Release, "CLEAR Secure, Inc. Announces Pricing of Initial Public Offering," CLEAR Secure, Inc. 29 June 2021.



# ABOUT THE AUTHOR

**Marc Scribner** is a senior transportation policy analyst at Reason Foundation. Scribner's work focuses on a variety of public policy issues related to transportation, land use, and urban growth, including infrastructure investment and operations, transportation safety and security, risk and regulation, privatization and public finance, urban redevelopment and property rights, and emerging transportation technologies such as automated road vehicles and unmanned aircraft systems. He frequently advises policymakers on these matters at the federal, state, and local levels.

Scribner has testified before Congress at the invitation of both Democrats and Republicans on issues including highway revenue collection, traffic congestion management, airport financing, and air traffic control. He is a member of the Transportation Research Board's Standing Committee on Emerging Technology Law.

He has appeared on television and radio programs in outlets such as Fox Business Network, National Public Radio, and the Canadian Broadcasting Corporation, and has also written for numerous publications, including *USA Today*, *The Washington Post*, *Wired*, *CNN.com*, *MSNBC.com*, *Forbes*, and *National Review*. And his work has been featured by *The Wall Street Journal*, *New York Times*, *Washington Post*, *Los Angeles Times*, *Scientific American*, *Congressional Quarterly*, *Washington Monthly*, *POLITICO*, CNN, Bloomberg, BBC, C-SPAN, and other print, television, and radio outlets.

Scribner joined Reason Foundation in 2020 after more than a decade at the Competitive Enterprise Institute, where he was a senior fellow in transportation policy. He received his undergraduate degree in economics and philosophy from George Washington University.

