Getting Ahead of Airport Parking Reservation Systems and Techniques

May 27, 2026

1 – 2p.m. ET

NATIONAL ACADEMIES Sciences Engineering Medicine

TRB TRANSPORTATION RESEARCH BOARD

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Today's Learning Objectives

1. **Understand the core functions of an online booking system and how it integrates with other systems**
2. **Analyze how the customer experience and airport parking operations can be improved through reservations**
3. **Review the revenue opportunities associated with an online booking system based on the experience of other airports**

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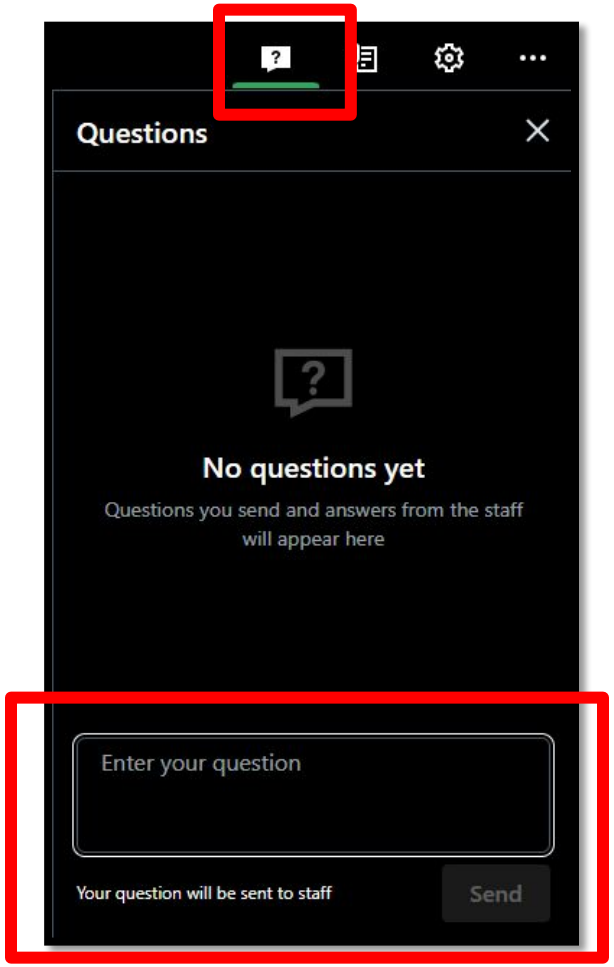

Today's Presenters

- Stephen D. Van Beek
  Principal Investigator
  Senior Vice President, Steer

- Adrian Leung
  Associate Vice President, Steer

- Cody G. Bauman
  Chief Operating Officer, GSP International Airport

Topic S03-19 Panel

Melanie Brown, City of Houston – Houston Airport System
Jenna Buckner, Ricondo and Associates
Garrett DiCorpo, City of Charlotte Aviation Department
Ellis Kim, Sam Schwartz Consulting
Peter B. Mandle, InterVISTAS Consulting LLC
Lei Zhu, University of North Carolina at Charlotte

Jordan Christensen, ACRP Senior Program Officer

The Research Problem

Airport parking, a leading source of airport revenue and a key component to shaping the passenger experience, is changing as parking owners and operators leverage online booking systems (OBSs) to provide customers the ability to prepay and reserve a parking space.

This synthesis documents the use of OBSs at U.S. airports, including their benefits, costs, and implementation challenges. It also identifies gaps in existing research and offers recommendations for future research topics.

Research Approach

The Report included the following research tasks:

- A literature review consistent of existing academic research, media coverage, and trade press articles;
- An online survey distributed to 36 airport authorities of varying sizes, with 18 responses summarized (covering 20 airports); and
- Five detailed “use case” examples, which include material documented from airport staffs. The airports included:
  - Phoenix Sky Harbor International Airport (PHX)
  - Dallas Fort Worth International Airport (DFW)
  - Louis Armstrong New Orleans International Airport (MSY)
  - Greenville-Spartanburg International Airport (GSP)
  - Charles M. Schulz Sonoma County Airport (STS)

Key Research Results (1)

1. **Parking reservation systems enable airport customers to reserve (or prebook) their parking, paying in advance for the service.**
   - Some airports attract customers by offering a discount on reserved parking.
   - Reservations offer customer data that may be used for more sophisticated pricing and future parking and other offers.
   - In some cases, airports use reservations to help manage capacity and balance utilization of their airport parking facilities.
   - Airports report that they make between 10% and 40% of their total parking and valet inventory available for reservations.

Key Research Results (2)

2. **Airports use a variety of management and contracting models to manage OBSs.**
   - At a number of airports, staff working with the OBS vendor directly managing several elements of the system themselves (Cody will speak to GSP's experience later).
   - Under a variety of models, some airports outsource the operation and management to a 3rd party parking operator or commercial management vendor. Some services, such as marketing, may be retained, outsourced, or split between the airport and 3rd party.

   ➢ *As a result of these different models, system implementation costs and operations vary significantly, making industry-wide estimates challenging to report.*

Key Research Results (3)

3. **Airports experience a variety of OBS implementation issues.**
   - Technology integration issues between the OBS and the airport's Payment and Revenue Control System (PARCS) was the most frequently reported issue.
   - This included entry and exit validation issues for which Quick Response (QR) code or License Plate Recognition (LPR) systems were used.
   - Delays in bringing systems online due to airport management's concerns with pricing and customer issues were also reported.
   - *In response, airport staff reportedly employed pilot tests, soft openings, and other operational mitigations to better ensure smooth operation prior to their official launch.*

Key Research Results (4)

4. **Most airports have reported similar benefits since implementing their OBSs.**
   - Improved customer experience.
   - Airport management's use of booking data and customer information to help predict future parking demand and, at some airports, tailor customer offerings.
   - Increased utilization of parking facilities (i.e., increased parking occupancy and, more some, an ability to better balance facility use).

Key Research Results (5)

5. **Increased revenues were reported by a minority of airports surveyed.**
   - Some airports implemented OBS to provide the customer benefit of providing a guaranteed space, not specifically for OBSs pricing capabilities.
   - Some airports with pricing capabilities do not actively track revenue metrics.
   - For the minority of airports using pricing, one reported a 40-50% increase in revenues, attributable in part to its OBS, while several other airports reported success in selling value-oriented pricing products (e.g., economy) and customer upgrades (moving from lower-cost alternatives such as economy parking to terminal parking or valet)

   In our discussions, most airports indicated that they will likely advance their revenue management strategies in the future—either by introducing new strategies or advancing those in place.

The GSP Experience with OBS and Parking

Cody Bauman on GSP's journey with management and operation of OBS and its link to parking strategy.

Applying this Synthesis to Practice: OBSs

Airport parking reservations offer airports customer service, operational and revenue benefits. In our survey responses, 16 of 17 airports were "satisfied" or "very satisfied" with their OBS.

What do OBSs require?

- As airports update PARCS, add or expand parking facilities, or change their management, these are propitious occasions to consider OBS strategies.
- Standalone equipment and software offered by a third party or software integrated into the airport PARCS.
- Customers access through mobile devices and other computing devices, typically compatible with a variety of web browsers, facilitating a reservation and sales process.

Applying this Synthesis to Practice: Management

Where airports want to implement OBSs, it should be thought of as part of the larger parking and ground transportation system. The synthesis identifies two principal models employed by airport operators:

1. **Part of parking operations contract:** Airports including LAX, PHX, MSY, and STS have OBSs as part of a parking contract—the operator is responsible for the procurement, operations and management of the OBS. This outsourcing allows airports to minimize costs and leverage expertise in commercial management.
2. **Direct OBS contracting and management:** Airports including DFW, GSP, and Columbia Metropolitan Airport (CAE) directly procure an OBS vendor. In-house staff are responsible for the OBS management and operations. Airports using this model in this study acknowledged that more sophisticated revenue approaches may require outsourcing.

Applying this Synthesis to Practice: Costs

Airports reported a range of capital and operating costs for OBS systems.

- **For those airports that contracted directly with the OBS provider**, they reported a fixed capital cost ranging from $25,000 to $165,000, with three airports citing costs under $50,000. Other operating costs reported include revenue management staff (in-house or consultant), marketing, and website management.
- To recover their costs, several airports paid a transaction fee to the OBS vendor, with fees ranging from $0.50 to $2.00 (some added these to the cost of parking, others absorbed them).
- **For airports with OBS integration with their PARCS and parking contracts**, costs were harder to disaggregate but were reported between $42,000 and $100,00 with one airport reporting total costs of $22 million, but this included PARCS upgrades, a parking guidance system and other facility improvements.

Applying this Synthesis to Practice: Revenues

Our five case study airports have parking revenues ranging between $5.41 and $13.75 per enplanement with PHX, DFW and GSP using OBSs to increase revenues.

- **PHX, a large hub,** attracted new users to parking reservations by offering discounts of up to 40% to encourage enrollment. The airport gradually introduced variable pricing through a third-party vendor and took the next step of then implementing automated pricing.
- **DFW, a large hub,** offered up to 50% discounts for weekend stays in their garage, later introducing discounts and variable pricing. At the time of this synthesis, the airport had over 200 different price points for parking. Staff believes future dynamic pricing offers the promise of increased revenues per passenger and parker.
- **GSP, a small hub**, focuses on upgrades in its parking products, estimating between $150,000 and $200,000 in additional annual revenues.

Industry Developments and Future Research

- OBS and parking reservations are becoming ubiquitous at U.S. airports as they have been in other nations including the United Kingdom and Australia.
- Using OBSs, to more fully developed airport revenue and yield management, the use of CRM (customer data), and their operational implications are developing quickly with fintech and technology providers playing enhanced roles.
- Understanding the management models, the investments required and the applications of these innovations will remain important for airports and the businesses that support them.

FOR ADDITIONAL INFORMATION

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Today's Speakers

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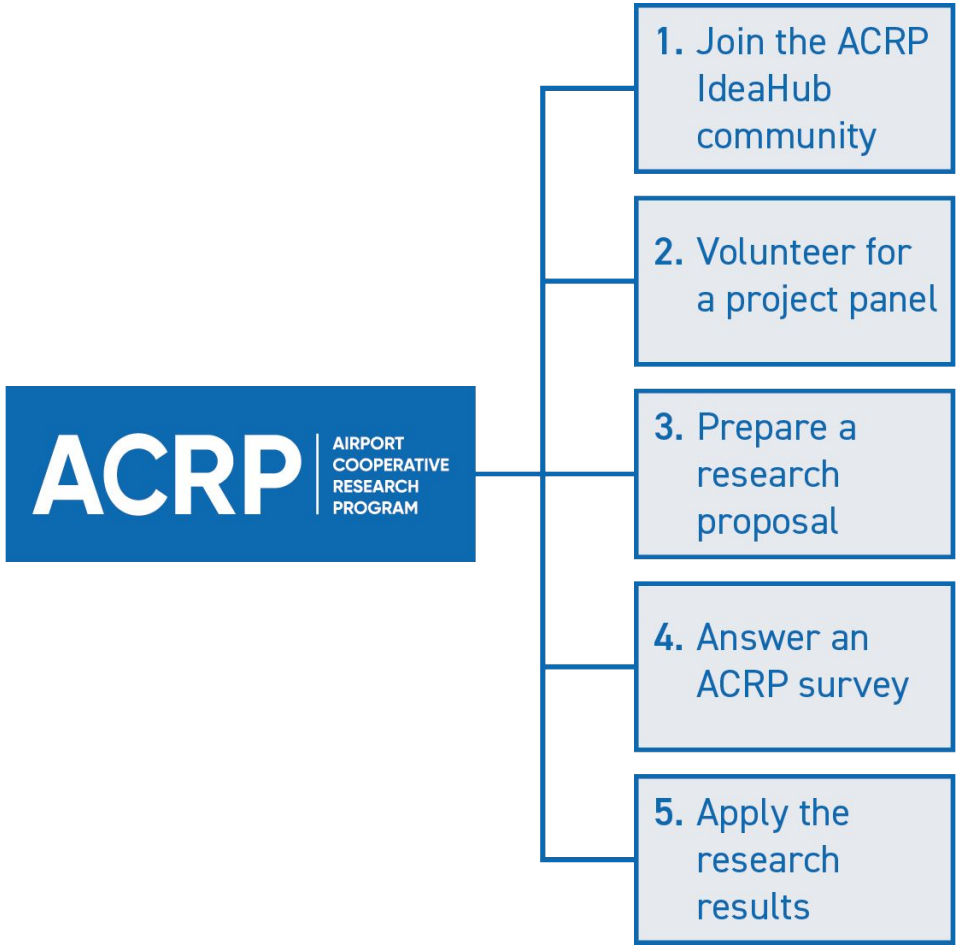

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