

LaGuardia Opens New Concourse in Terminal B

BY JODI RICHARDS



In early December, LaGuardia Airport (LGA) opened the first 11 gates of its new Eastern Concourse in Terminal B. By the middle of this year, the concourse will have 18 gates in operation.

When the Western Concourse is completed, Terminal B will include a total of 35 gates and feature dual pedestrian bridges that span active taxi lanes and connect the main departures and arrivals hall (known as the headhouse) with the two island concourses. In all, there is 1.3 million square feet of new space.

The larger project also includes a central hall, central heating and refrigeration plant, parking garage, associated airside development, roadway/bridge infrastructure serving the entire airport and utility upgrades.

The Terminal B expansion and renovation program is part of an aggressive \$4 billion effort to replace LGA's outdated and undersized Central Terminal Building. It is also the preliminary stage of the Port Authority of New York and New Jersey's \$8 billion initiative designed to transform LGA into a "unified 21st century terminal system." When the overall program is complete, the airport will include 2.7 million square feet of facilities, with 72 gates throughout six concourses, two new arrival/departure halls connected by a Central Hall, and miles of new roadways.

LaGuardia Gateway Partners is responsible for the design, construction, operation and maintenance of the new Terminal B facilities under a public-private partnership with the Port Authority. LaGuardia Gateway Partners is a private equity comprised of Vantage Airport Group, Skanska USA, Meridiam and JLC Infrastructure for development and equity investment; Skanska-Walsh as the design-build joint venture; WSP and HOK for design; and Vantage Airport Group for terminal operations. LaGuardia Gateway Partners took over operation and management of the terminal on June 1, 2016, with a lease agreement that lasts until December 30, 2050.

New Facilities & Amenities

Constructed in 1964, Terminal B was originally designed to accommodate 8 million passengers per year. At its current load of 15 million, the facility was not only undersized, but in need of security and amenity upgrades as well.

Stewart Steeves, chief executive officer of LaGuardia Gateway Partners, explains that the Port Authority wants to redevelop LGA into a "world-class facility—to bring in the best passenger amenities and services, latest technologies and capacity for the traveling public, both today and into the future."

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LaGuardia
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FACTS&FIGURES

Project: New Eastern Concourse

Location: LaGuardia Int'l Airport, Terminal B

Cost: Part of \$4 billion construction project for new Terminal B

Size: 243,000 sq. ft.

Gates: 11 initially; 7 more by mid-2019

Airport Owner: Port Authority of New York & New Jersey

LaGuardia Gateway Partners: Vantage Airport Group; Skanska USA; Meridiam; JLC Infrastructure

Design Build Joint Venture: Skanska-Walsh

Terminal Operations: Vantage Airport Group

Design Joint Venture: WSP (lead & engineer of record); HOK (architect of record)

Docking System: ADB SAFEGATE

Boarding Bridges: ThyssenKrupp Airport Systems.

Fire/Life Safety Engineering: Arora Engineers

Seating: Vitra

Interactive Wall in Play Area: Breeze Creative

Interior Features: 55-foot-high ceilings; floor-to-ceiling windows; indoor park with benches & landscaping; new concessions lineup; closed-captioned TVs to decrease noise in holdrooms; hospitality-grade restrooms

Associated Projects: Dual pedestrian bridges that span active taxi lanes & connect the main departures/arrivals hall with both concourses; 7-story parking garage that opened in Feb. 2018

According to Steeves, “world class” is in the eye of the beholder—in this case, the airport’s passengers and airlines. As such, it was important for the consortium to understand what services, amenities and products both key customer groups wanted at LGA. LaGuardia Gateway Partners consequently combined passenger surveys and tenant feedback along with Vantage Airport Group’s 20+ years of developing airports around the world to craft a development program tailored specifically for LGA.



STEWART STEEVES

“Travelers will notice the higher ceilings, better sightlines, natural and better lighting, spacious and well-appointed bathrooms, more amenities adjacent to the gate, and wider circulation aisles,” says WSP’s Ulrich Lemcke, project director of the design joint venture.

Demolition of a multi-level parking garage located in front of the existing terminal made room for the construction of the new headhouse, which includes passenger ticketing and check-in, security and baggage claim. The headhouse is slated to open in 2020, along with the first gates of the Western Concourse.

Although Terminal B will now be larger, walking distances will be minimized, and check-in and security will be centralized to improve passenger flow. Glass curtainwalls bathe the entire departure hall in natural light, and concessions are also centralized to “offer the best kind of services and amenities in a comprehensive way that everybody has access to,” says Steeves.

Aside from the “mathematical level of service”—having enough physical capacity to meet demand—there’s also the “guest level of service,” Steeves explains. Considerable effort was made to develop what he calls the



The Eastern Concourse will include 18 gates.

“softer side” of service—offering products, amenities and services for all travelers, and making sure guests enjoy their experience and appreciate the time spent at LGA.

Upon completion, wayfinding will be simplified, because there will only be one decision point for passengers—head to the Eastern Concourse or the Western Concourse.

The 243,000-square-foot Eastern Concourse features 55-foot-high ceilings and floor-to-ceiling windows. An indoor

park with benches and landscaping styled to look like a traditional New York City park provides travelers with a surprising place to relax. “It’s been very attractive for people to spend time in that area instead of going directly to the gate area,” Steeves reports.

The new food and beverage program will feature a variety of options, with a heavy emphasis on New York City brands. Restaurants include: Shake Shack, La Chula Bar and Taqueria, Osteria Fusco, Kingside, Irving Farm Coffee Roasters and 5 Boroughs Food Emporium. On the retail

and services side, there is District Market, FAO Schwarz, McNally Jackson, MAC Cosmetics, Hudson, LaGuardia Dufry Duty Free Shops and SpaHere.

“We’ve really tried to create an environment that is somewhat personalized by offering a range of options, so people feel that they’ve had an enjoyable experience here and we’ve met their needs,” he elaborates.

For example, televisions in the holdrooms are closed-captioned, so passengers who aren’t interested in programming are not disturbed by its noise.

Acoustic ceiling tiles and carpet combine to dampen noise in the terminal and provide a more calming environment for travelers to relax, adds Thomas Nilsson,



THOMAS NILSSON

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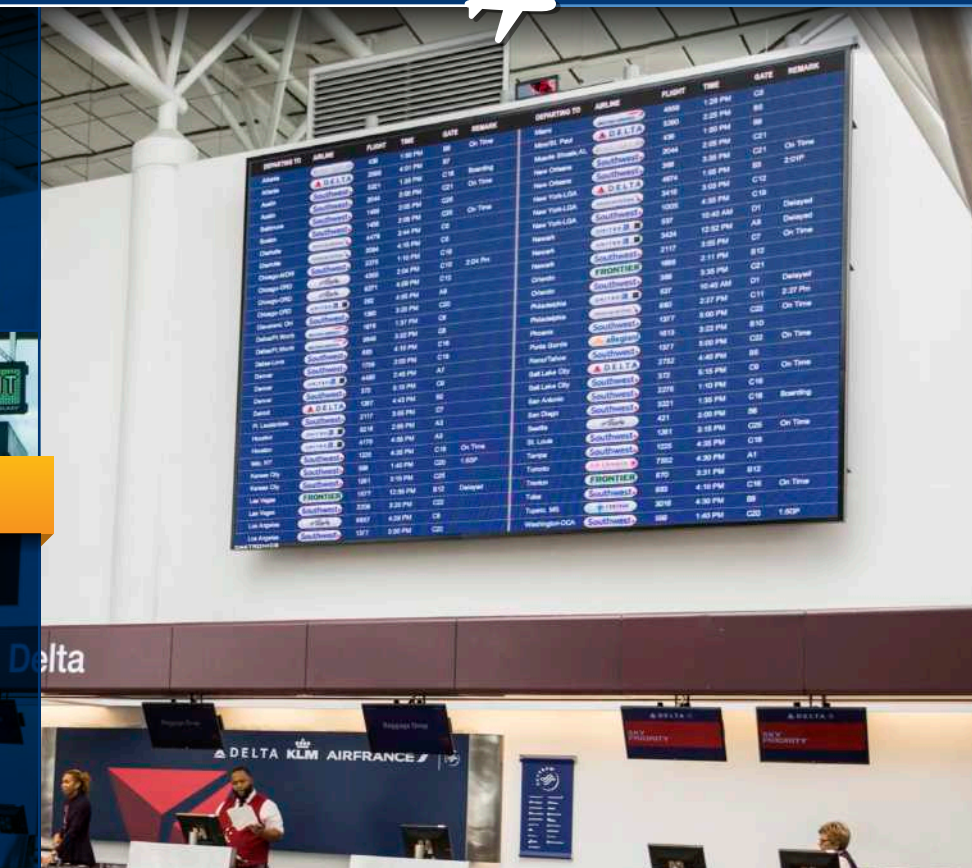


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vice president of Skanska, the leading partner in the Skanska-Walsh joint venture responsible for the design and construction of Terminal B.

An airport-themed children's play area includes a 16-foot interactive display. The multi-user experience allows children to design their own aircraft on a tablet and watch them come to life and take off from LGA's runway on a giant digital wall.

Pet relief areas (set to open later in construction), family restrooms, a room for nursing mothers and upgraded restrooms also add to the enhanced passenger experience. "The new restrooms have caused quite a bit of excitement," reports Nilsson. In addition to eliciting positive reviews on social media, the new facilities have received local and national news coverage. Constructing quality, well-appointed restrooms was important to all parties, because they often create the first impression of an airport for travelers, he explains.

Steeves describes the restrooms as "hospitality standard," with spacious stalls and above-sink shelves to keep belongings dry while visitors wash their hands. Moreover, they are stocked with fresh flowers—just another way to surprise and delight guests as they travel through LGA, he notes.

Airfield & Other Improvements

On the airfield, LaGuardia Gateway Partners and Skanska-Walsh will add two miles of additional taxiways, including a system of circular taxi lanes that wrap around the concourses under elevated passenger walkways. The dual pedestrian bridges will span more than 400 feet from the headhouse to concourses A and B, about 60 feet above the active taxiways.

The layout is designed to provide more options for greater functionality to get aircraft into/out of gates and load/unload passengers more efficiently. The new airside design takes advantage of the surroundings

by showcasing the Manhattan skyline from the departures level. "The view is truly amazing," says Nilsson.

WSP's water and environment group is providing drainage and stormwater management design and construction services for the airside portion of the project.

"The design includes a series of trench drains and manholes that discharge to a series of manufactured treatment devices before discharging to the existing storm sewer system," says Darren Delenick, the firm's airside drainage and storm water lead.

Information technology upgrades include a new fiber optic data network that facilitates improved building management systems and allows for the deployment of common-use technology to increase operational flexibility.

Civil work makes up a large portion of the project, including 8 miles of new roadways, 2.5 miles of which are elevated

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roads and bridges. A new flyover exit ramp that crosses perpendicularly over the east-bound Grand Central Parkway reorients and improves the traffic flow to the airport by distributing vehicle traffic to the eastern and western sides of the airport.

Monthly open houses are held to update employees about the project and allow them to participate in some decisions that directly affect their areas. “The success of a project like this is frequent engagement with all of our business partners—really listening to the voice of everybody who participates here,” Steeves notes.

Customer service training programs have been implemented across the airport, and LGA has added performance-based incentives to some service contracts, so providers are rewarded for doing a great job.

P3 Facilitates Alternate Design

The massive redevelopment is occurring while Terminal B remains fully functional. Ensuring uninterrupted operations throughout construction is a tremendous, yet critical, challenge, says Nilsson. “We have to maintain as close to 35 gates as we can through the construction, and that is the guiding principle,” he specifies. That principle dictated much of the phasing. The first 11 gates in the Eastern Concourse were constructed in one phase, thus allowing the team to move operations to new gates, before decommissioning the others to begin replacing them.

Maintaining a comfortable interior temperature for passengers and staff fell to WSP’s energy team. “The first phase of the construction plan called for demolition of the existing central heating and refrigeration plant that served the existing Central Terminal B,” explains Chris Tso, the firm’s lead mechanical engineer. “The challenge was to find a way to

provide heating and cooling for the existing terminal without using the existing central heating and refrigeration plant.”

The solution was a three-phase approach that included the creation of an interim cooling tower that is currently in operation. Eventually, the final cooling tower will be constructed for the new concourse.

A public-private partnership (P3) allows for more innovation in operating the facility and financing the project, says Nilsson. It also facilitates the close coordination necessary to carry out a project of this scale and scope, he adds.

“We were interested in a P3 because it really spoke to the strengths of our various consortium partners,” Steeves explains, noting the importance of keeping the busy airport operational throughout the complicated project. “The P3 model brings a lot of innovation, perspective and experience to a project that can be very constructive.”

For example, the design solution for the new Terminal B is a revision from the original project proposal, which Nilsson describes as a “very cumbersome kind of construction” that shifted passenger flow four separate times through 12 construction phases. The project team worked together to devise an alternate design that included six construction phases and required just one shift to the new headhouse.

“We’re approaching the project here in a completely different way than had originally been envisioned, and that’s a direct consequence of the partners that came together through this model,” remarks Steeves.

Originally, the Port Authority planned to have the Terminal B parking garage and road network reconfiguration projects outside of

Fire/Life Safety Systems

Due to their size and occupancy levels, the new facilities in Terminal B at LaGuardia Airport require a myriad of fire/life safety protection measures. For instance, the entire building had to be outfitted with sprinklers.

Arora Engineers Inc. designed a variety of fire/life safety systems to accommodate the terminal’s diverse potential hazards and unique physical configuration, which includes two elevated pedestrian walkways. Rising 60 feet over active taxiways, the 400-foot pedestrian walkways extend from the headhouse to concourses A and B. Because of the unique design, there was no prescriptive fire safety standard for the structure that met current codes.

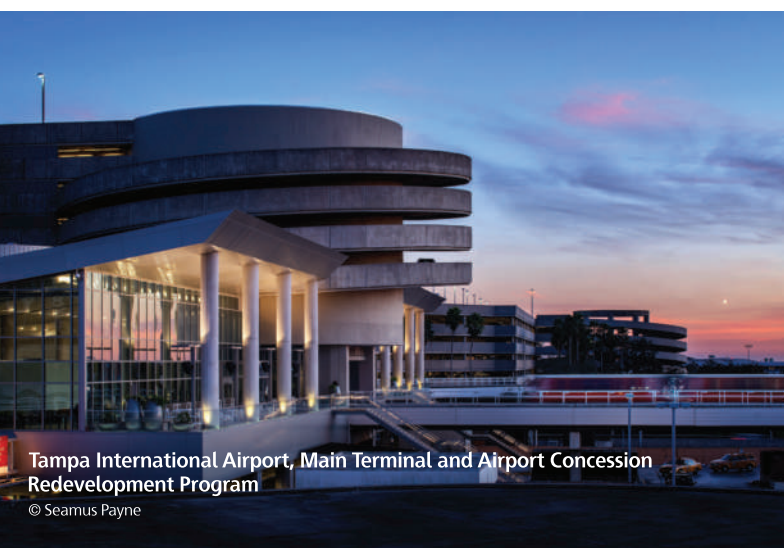
Working with project stakeholders, Arora designed two fire protection systems—glazing protection sprinklers and under-bridge sprinklers—to provide a cooling effect to protect occupants inside and maintain the integrity of the bridge.

Because of the massive size of the bridge glazing, engineers determined that activating all of the glazing sprinklers simultaneously would exceed the facility’s water supply. To address that issue, the glazing protection system for each bridge was subdivided into multiple, zoned deluge sprinkler systems located and activated by a corresponding group of flame detectors.

Arora personnel note that these innovative and functional design features can now be implemented in future projects with similar challenges.



LaGuardia Airport, Central Terminal B Redevelopment
 Rendering courtesy of HOK/WSP on behalf of Skanska Walsh and LaGuardia Gateway Partners



Tampa International Airport, Main Terminal and Airport Concession Redevelopment Program
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Portland International Airport, Concourse E Expansion
 Rendering courtesy of Hennebery Eddy Architects Inc. and Fentress Architects

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the scope of the P3 contract. In the long run, however, bringing it all under one contract proved beneficial for the Port Authority and the construction process. "We can coordinate everything and we don't have to go through a separate contractor," Nilsson explains.

The seven-story Terminal B parking garage opened in February 2018 with 3,100 spaces. Like many other airports, LGA has seen a reduction in the demand for parking thanks to the increase in the popularity of companies like Uber and Lyft. To accommodate the shift, the second floor of the new parking garage is dedicated to ride-share vehicles.

The growth of for-hire vehicle services has also influenced traffic patterns around the airport. When Skanska-Walsh bid the job in 2014, such apps were in their infancy, so they offer a good example of the need for flexible planning and design, Nilsson reasons.

"We spent a lot of time in the early stages future-proofing," he remarks. An open design for the check-in area allows for a flexible layout able to more easily adapt when and if check-in needs or technology change in the future. Along with additional square footage, the terminal features a more effective and efficient flow as passengers move throughout the facility, he adds.

Steeves agrees it is crucial that the new terminal can easily adapt as the industry evolves. "Preserving flexibility will allow us to reconfigure, reshape things over time as trends might emerge that we can't — contemplate today," he says.

Peak Passenger Volume, Peak Construction

Chris Villari, communications manager for Skanska-Walsh, points out that 2018 was the peak year for construction on the project, with about \$90 million invested each month. The airport also experienced its highest annual passenger volume ever in 2018, with passenger volumes in March through June setting new individual month records.

Despite hosting nearly \$1 billion of construction work each year, the Terminal B has remained operational for 15 million passengers. "I think we have shown that it is possible to do," Nilsson says.



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The P3 structure and design/build joint venture allowed the designer, operator and builder to communicate and develop the project collaboratively from day one, Villari adds. "Having input from all three upfront gives you a better chance of building and implementing something that can be operated for the entire lifecycle successfully," he says.

Overnight shifts have been key to the construction process, with more disruptive tasks, such as utility or water main work, occurring during the five hours that LGA is without traffic. That window is also used to transport construction materials on and off the airport to minimize the impact on roadways.

An on-site concrete crusher allows most of the concrete that is removed from the existing airport infrastructure to be reused on the project, Nilsson notes. Additionally, an on-site system filters groundwater that is pumped from the site, and some is reused in lightweight cellular concrete fill, a solution that helps improve the stability of construction site soil.

Additional Benefits

Careful phasing has been and will continue to be critical in moving the project along with minimal impact to travelers, Nilsson notes.

Construction of the Western Concourse is divided into two phases to continue accommodating airline operations.

Incorporating various sustainability aspects, officials will seek Silver certification in Leadership in Energy and Environmental Design from the U.S. Green Building Council for the new Terminal B.

"It's a different class," Nilsson says of the facility improvements. "I think we're raising the standard of what an airport should look like."

The program's goal for overall participation by minority and women-owned business enterprises (MWBs) is \$680 million. "To date, we have paid out over half a billion to MWBEs in the New York metro market," Villari reports. "That is a tremendous stimulus to that market."

To assist the program and its participants, Skanska implemented a program it calls Building Blocks, designed to provide participants with knowledge and resources to help scale their businesses from local projects to large LGA projects. Ultimately, Villari states, this project will not only create a new facility for passengers, but also a stronger, larger local MWBE market. ✈️

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