

ENR Mountain States

SLC Airport Project Adds New Scope; Teams Scramble to Stay on Schedule



Two sky bridges will connect the parking garage to the second level of the terminal, while an elevated roadway for departures will access the third level. Six miles of baggage handling belts will move luggage from multiple check-in points.

PHOTO COURTESY OF SALT LAKE AIRPORT



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This summer, one of the most complex construction projects in Utah history reached its halfway point. The \$3.6-billion replacement of the Salt Lake City Airport terminal, located nearly five miles from downtown, has been steadily rising since 2014 on a site adjacent to the current facility.

During the effort, hundreds of workers have performed ground-stabilizing work, placed concrete and erected steel, all while the scope of the project expanded to include an entirely new concourse.

“It’s a bit like building a new house on top of the one you’re living in,” says Mike Williams, program director and president of Atlanta-based Making Projects Work. His firm was retained by Salt Lake City to direct the terminal replacement program and act as an owner’s representative. “Currently we are on schedule to open the first phase of the project in fall 2020, and then we’ll start demolition of sections of the existing airport so we can build the next phase and complete the total replacement by 2024.”

Occupying 296.7 acres directly south and west of the existing terminal, the new terminal will have 74 to 78 gates, a 3,600-stall, five-level parking garage with an additional 1,200 stalls for rental cars, a light-rail connection, an elevated roadway for departing passengers and a 908,754-sq-ft main terminal with concourses stretching east and west. A new second concourse to the north of the main terminal will be connected by a tunnel.

Commissioning will soon begin on a 25,000-sq-ft, two-level central utility plant to come online this fall. A new park-and-wait lot with concession facilities and a gas station opened last fall.

Long Time Coming

The current Salt Lake City Airport is a collection of buildings, some of which date back to 1960. Last year more than 24 million passengers passed through the airport, at least twice what it was designed to serve, according to SLC Airport representative Nancy Volmer. It is the 25th busiest in North America and has served as a regional hub for Delta Airlines since the late 1980s.

The need for a new airport has been clear to the facility’s directors since the mid-1990s, according to Kevin Robins, director of engineering for the airport. In addition to logistical limitations, the seismic readiness of the facility, which was built on an ancient lake bed and near an active earthquake region, was a chief concern. Changes in airport design following 9/11, the impact of Salt Lake City’s hosting the 2002 Winter Olympic games and the bankruptcy and reorganization of Delta Airlines all contributed to pushing the project back.

In 2007, San Francisco-based architecture and engineering firm HOK was engaged to begin conceptual studies and initial programming.

A joint venture of Salt Lake City-based Big-D Construction and Holder Construction of Atlanta was selected for the construction manager at-risk contract in fall 2013.

The project is being carried out in two phases. A first phase, to be completed in 2020, will include a new parking terrace and access roads and a main terminal with gates for international flights. In the second phase, to be completed by 2024, crews will demolish the international terminal and two concourses to make way for the east concourse wing from the new terminal. Together, the concourses will cover 3,691 linear ft. As the new east concourse is completed, the remaining sections of the original terminal, concourses and parking terrace will be demolished.

Steady for Take Off

Initial work in 2014 focused on rerouting access roads and utilities and preparing the site so construction could begin on a new parking garage. Sitework to stabilize the soil for the upcoming construction was among the early challenges.

“The water table is only about 4 to 7 feet down here,” says Tad Kaczor, deputy director for the airport’s terminal redevelopment program. The site was stabilized with nearly 7,612 stone columns to support the slab-on-grade and prevent settling. Structural supports rest on 5,489 driven piles (nearly seven miles of them), some as deep as 70 ft, according to Tyler Wright of Salt Lake City-based Dunn Associates Inc.. The firm worked as a local subconsultant to HOK for structural design of the terminal and concourses.

Wright says the seismic requirements from HOK were set at risk category 3 and 4, meaning it could be immediately occupied following a seismic event.

“The facility wouldn’t be functioning, but you could safely get people in to make repairs,” says Wright.

“The seismic system for the concourses is BRBs (buckling-restrained braces) in the east and west direction and then the north and south system is done with side-plate moment frames with 36-in. columns. It’s the same for the TSA [Transportation Security Administration] portion of the terminal. Then we have BRBs in both directions for the terminal.”

Additionally, Wright says there are seismic separations about every 300 to 400 ft along the concourses as well as in the terminal.

A New Concourse

The most significant change to plans has been the addition of a second concourse parallel to, but north of, the main terminal and concourses. A north concourse had been envisioned in earlier plans but was not part of the scope of the original terminal replacement.

Two older hub-type concourses were initially going to be retained. Robins says that new information from the airlines about passenger volumes and the size of future aircraft drove the decision to add the new concourse now.

“About three years ago, we took another look at the numbers of gates and what the airlines were telling us they would need,” says Robins. “The demand was more than we would have expected. In Phase 2 of this project, we were going to seismically upgrade and rehabilitate those old concourses, which would mean closing them, and that would leave us with even fewer gates while that was being done. We were going to spend money to rehabilitate those concourses, and we just decided the funds would be better spent if we went ahead and just built new,” he says.

The announcement to build the north concourse was made in spring 2016, and a joint venture team of Okland Construction, Salt Lake City, and Dallas-based Austin Commercial, known as Austin-Okland Aviation, was awarded the CMAR contract.

A nearly 1,000-ft-long tunnel constructed during earlier airside work in the mid-2000s will connect the west concourse of the new terminal to the north concourse. Kaczor says a larger central tunnel, with shelled-in space for a future passenger tram from the center of the main terminal building, will be built to connect with the north concourse, which will open in 2024.

Kaczor said making the connections at either end of the existing tunnel has been a challenge because it required an extensive shoring and temporary dewatering system.

Making It Utah Unique

In response to early conceptual work and surveys by the architects, the new airport will have touches that make it unique to its location, both inside and out.

Utah is a major copper producer, and HOK designers specified copper cladding for much of the structure.

A two-story corridor space lined with shops and restaurants will be known as The Canyon and will feature an articulated, wave-like pattern referencing the multi-layered rock prevalent in Utah’s canyons. The canyon will be lit by multicolored LEDs featuring tones common in the state. The feature is being crafted from aluminum tubing and composite fabric by California artist Gordon Huether.

The canyon will lead to a central plaza area with three-story glass windows and views of the surrounding mountains and the airfield. The east and west concourses will connect to the plaza, and an escalator will connect to the central tunnel leading to the north concourse.

Another feature of the new airport will be the meet-and-greet area. Since Salt Lake City is the headquarters of the Church of Jesus Christ of Latter-day Saints, the airport often hosts large crowds greeting family members departing or returning from church missions.

“This area will be almost like a living room and will give some space for those groups away from the baggage claim or arrival gates,” says Kaczor.

The six miles of baggage belts also have unique features, he says. Large items such as skis, golf clubs and even bicycles can be conveyed from any check-in desk in the facility and can likewise be claimed in one central area.

The project is being financed through airport bonds that will be repaid through a combination of ticket fees and gate, concession and car-rental fees.

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