CASE STUDY

San Jose Airport ConRAC

San Jose, CA

CLARK PACIFIC

The Project at-a-Glance

- 8-level parking structure with consolidated rental car facility
- 1.8 million square feet
- Resilient design
- Under budget
- Schedule savings of 5 months

"The rental car companies love this facility. I think when other airports look at this design, they're going to ask, 'If San Jose can do that, why can't we?'"

– Jeff Frederickson, Hensel Phelps Construction

As part of a comprehensive airport improvement program and a strong desire to make Silicon Valley's airport more attractive and convenient for business travelers, the Airport chose to relocate its public parking and rental car center (ConRAC) directly in front of the new Terminal B. The first phase of this two-phase project consists of a structure that houses 3,000 rental cars on six levels, with 350 public parking spaces, a 25,000-square-foot Customer Service Building (CSB) and boasts several innovative features that optimize the facility for travelers, the airport and rental car agencies.

The rental car garage was the first of its kind, not like other typical parking garages. Open expanses allow for visual connections for renters and an elimination of obstructions allows for drivers to flow through the open swepace. To provide fast servicing of vehicles, there are three quick turnaround levels with fueling and car wash stations.

Supporting the city's environmental policies, the structure includes a 1.12-megawatt solar array on its four-acre roof. This array, one of the largest airport installations in the United States, consists of 4,660 panels and offsets approximately 20% of the structure's overall energy use.

Challenges

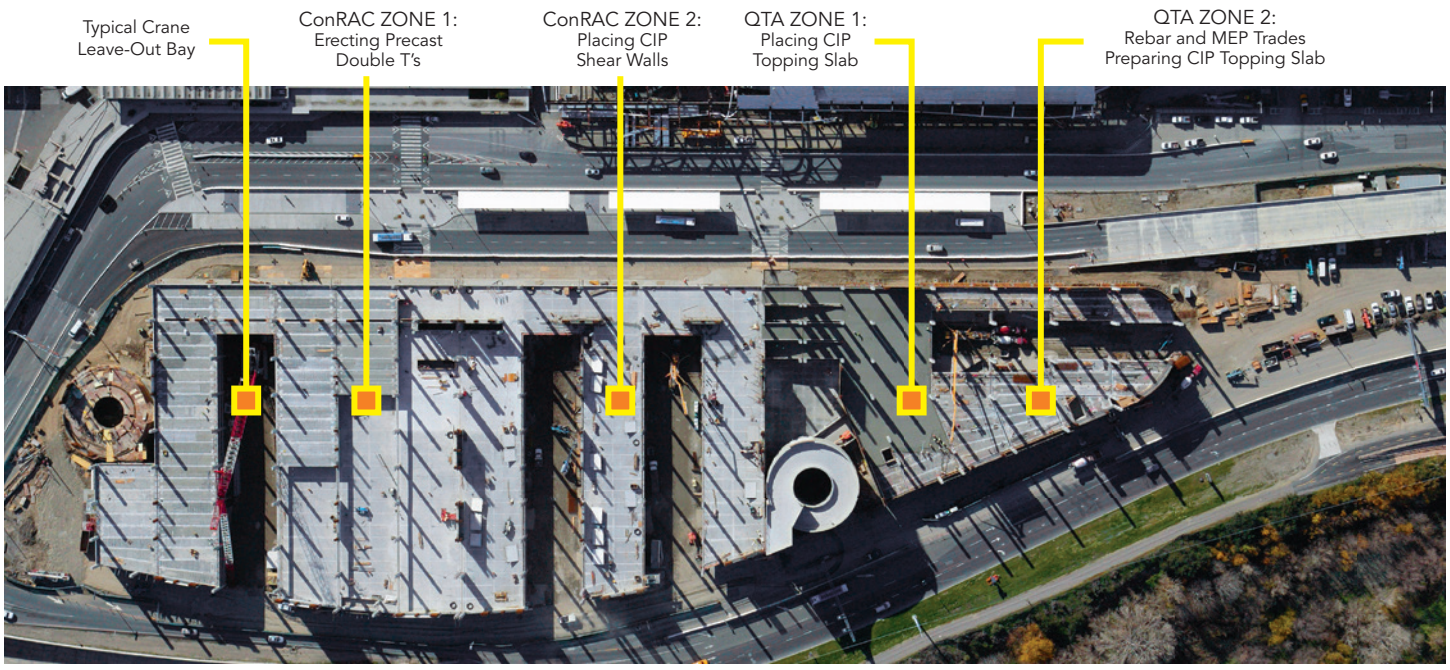
Tight and Impacted Construction Site
The 6-acre, non-rectangular structure sits on a 6.5-acre site, surrounded by a major highway and an airport access road. The parking structure sits directly across from the terminal, with only sidewalks to spare and it was essential that construction did not interfere with daily airport operations.

Over Budget
Before the design-build team was hired the project was $150,000 over budget.

Accelerated Schedule
With proximity to the terminal and ongoing airport operations, it was imperative that construction move quickly with minimal delays.

"Using precast allowed much of the structural work to take place offsite, which greatly aided maneuvering on the congested site."

– Jeff Fredericken, Hensel Phelps Construction Co



Clark Pacific used a "Push" schedule, in which each subcontractor followed the preceding one rapidly to finish each 260,000-square-foot level every four weeks, with the full project completed in eight months. Note locations where bays were left open to facilitate crane access until erection was completed.

Solution

Early in the planning, a prefabricated concrete solution was determined to be the best approach to meet the schedule and reduce site impacts.

Reduced Site Impacts
Because of the offsite approach over 17,000 worker days were moved to the factory requiring fewer trade and crews to be on-site, reducing traffic and congestion surrounding the project. Also, many of the 3,817 precast components were stored at a nearby facility and transported to the site as needed eliminating the need for a laydown area.

Budget Certainty
By utilizing design build project delivery, the airport was able to improve procurement efficiency, streamline the approval process and leverage incentives to stay on schedule and budget. Because the structure needed to be designed for manufacturing the costs were known before production, allowing for design changes in the beginning of the project vs during the project. Ultimately, the project came in 32M under budget, even though before the design-build team was brought on it was $150,000 over budget. The budget savings is then what funded the solar array on the roof.

Reduced Schedule
To speed construction time a "push" schedule was initiated. In a push schedule, each subsequent activity follows quickly behind the previous one. This approach allowed everyone to do their part efficiently and keep up the pace. The precast scheduling created and sustained the pace of the overall project. As a result, the structure was completed 5 months ahead of schedule.

The structure's east façade features dramatic full-length murals that were decided on after the precast had been erected. Embeds in the spandrels allows the artwork to be attached after construction.

5 Months
Cost savings by using precast

3.4 Acres
Monocrystalline solar panels

The San Jose International Airport's $260-million improvement project includes a three-level quick-turnaround area (at narrower end of structure) that connects to the main rental-car facility via ramps.

Other Benefits

- Innovative Seismic Design to accommodate the need for open spaces
- Public Art Façade

Awards:
The Mineta San Jose International Airport Parking Structure and ConRAC is the recipient of the:

- 2011 DBIA National Excellence Awards
- 2011 International Parking Institute Award of Merit
- 2011 PCI Design Award for Best Parking Structure

Superior User Experience
Special care was taken to create a superior user experience from the time you enter the facility, on foot or by vehicle. Parking customers and rental car users enter the ground floor parking on the north end of the garage through four entry lanes. The queuing distance allows vehicles to enter and exit smoothly and also provides ample space for pedestrians to walk safely on the perimeter of the structure near the entrances/exits. A helix swiftly carries rental car customers to the upper levels. The ramp is 22-feet wide with one-way traffic. By locating the entrance helix on the north and the exit helix on the south, all the rental car customers travel in one direction throughout the structure. This minimizes any traffic conflicts and is very intuitive for the customers. Public parkers utilize three lanes at the south end of the garage when exiting.

For rental car agencies by utilizing a 36' x 60' structural grid and minimizing the interior shear walls, ultimate flexibility allowed them to determine the best configurations of their designated floor areas.

Phase II

Utilizing the experience and trust earned from the under budget/ahead of schedule delivery of the ConRAC and Public Parking Structure across from Terminal B, the design-build team implemented a milti-facet approach to meet an aggressive schedule for Phase II, the Economy Lot Parking Garage.

When completed, the garage will house 1,150 stalls and provide a direct connection to the Airport shuttle system in order to expedite travel to the terminals. A plaza will feature public art and provide passengers with a pleasant gateway to the airport.

Prefabricated Parking Structures

Sacramento State Parking Structure 5 — Sacramento, CA

Apple Park Parking Structures — Cupertino, CA

Google Moffett Park Parking Structure — Sunnyvale, CA

GoPro Headquarters Parking Structure — San Mateo, CA

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1-800-350-0306 · info@clarkpacific.com · clarkpacific.com