

McCarran Airport International Gate Expansion Project

GCP's Blue360SM Advantage Combines Design, Products & Expertise to Land Project On Time



Gate Expansion Project at McCarran International Airport
Las Vegas, Nevada

McCarran International Airport in Las Vegas, Nevada, has been taking off for decades. Opened in 1948, the airport has experienced enormous growth and has undergone numerous significant expansions. In fact, McCarran is known for its continuous expansions and upgrades, tripling in size between 1981 and 2005.

"We like to stay ahead of pace," said McCarran International Airport Project Manager Todd Cooklin. "There was a clear growth opportunity to expand international tourism for Las Vegas. Direct international flights lead to global visitors choosing Las Vegas as the launching pad for their U.S. visit. The challenge was our city has grown around the airport so we had to be creative in how we designed the International Gate Expansion Project, and do it efficiently to minimize interruptions for the airlines."

In February 2016 the \$51 million International Gate Expansion project kicked off with an aggressive timeline of 14 months. The design included improvements to the airport's \$2.4 billion Terminal 3, expanding international gates from seven to 14, and building an underground tunnel connecting McCarran's D gates directly to the U.S. Customs and Border Protection passenger arrival facility. The tunnel is under one of the main taxi lanes and features moving walkways, escalators and elevators.

"When constructing a tunnel, it's one thing when it is a transit tunnel for vehicles. A tunnel to transport people presents many challenging details," said Martin-Harris Construction Superintendent Dennis Maestas. "First and foremost there is zero tolerance for water in the structure."

To ensure the high level of required water tightness, McCarran's team selected GCP Applied Technologies to be a one-stop shop for waterproofing the tunnel.

"We have a history with GCP Applied Technologies, we know that their products perform. With our tight timeline we had no room for delays. We needed partners and providers that would be with us every step of the way."

Todd Cooklin
Project Manager, McCarran International Airport

Blue 360SM Design Advantage

GCP jumped in before the project was designed. The GCP team worked directly with the McCarran management team, architecture firm Gensler & Associates, waterproofing consultant CDC, Inc., and general contractor Martin-Harris Construction to walk through details and drawings. GCP was involved in pre-construction meetings and presented the products, specifications and details, minimizing unforeseen challenges with the drawings and prepping the project to be managed efficiently in the field.

“From blueprint to build, GCP has an excellent process of working from the design phase to completion of the project. They had a great relationship with the architectural firm, working with them on the tunnel drawings, and built their products seamlessly into the design.”

Dennis Maestas, Superintendent
Martin-Harris Construction

In addition to meeting all aspects of the project’s design, the International Gate Expansion also required working with McCarran’s owner, the Clark County Department of Aviation, to meet its requirements. Specifically, the Department had requirements on the specifications of the concrete being used to construct the tunnel. CalPortland, the concrete provider for the tunnel project, used GCP admixtures to meet the Department’s delivery time limitations and low shrinkage requirements. Admixtures are used to improve or change specific properties in concrete. GCP has an extensive portfolio of concrete admixtures to ensure that all criteria are met and the finished product meets a project’s requirements.

“I have been working with GCP concrete admixtures for six years,” said CalPortland Director of Quality Control Mark Bliss. “Being a government project, additional inspections and requirements come into play. GCP’s admixtures worked very well and played a key role, exceeding all minimum design requirements. The Department of Aviation even commented on how they liked the concrete mix and how well it was working.”

Proven Product Performance

GCP has been on board numerous major McCarran expansions. GCP products were used in an existing tunnel to the D Gates that was built in 2001. GCP products were also used in the \$2.4 billion construction of Terminal 3, which included the addition of 14 gates and an automated people-mover system that connects Terminal 3 with McCarran’s existing Terminal 1 via an underground tunnel.

For the International Gate Expansion Project GCP’s Preprufe® 300R Pre-Applied Waterproofing System was once again selected to deliver the extreme water tightness required for the tunnel transporting international passengers. The product was used on the underslab of the entire concrete floor of the underground



Preprufe® Pre-Applied Waterproofing System



ADVA® water reducing and Eclipse® shrinkage reducing concrete admixtures ensure that the tunnel meets rigorous design criteria.

tunnel. Preprufe® Pre-applied Waterproofing Membranes are unique multi-layered composite waterproofing sheets made from a chemically resistant HDPE film, a highly aggressive pressure sensitive adhesive and a weather resistant protective coating that allows the membrane to fully adhere to freshly poured concrete and prevent water tracking. Unlike some conventional membranes that are vulnerable to water penetration at junctions and penetrations, GCP’s unique Advanced Bond Technology™ creates a seal with the concrete to prevent any entry or migration of moisture around the structure. Preprufe® was the obvious choice for its reputation on past McCarran projects and around the world, preventing water ingress through and around the base slab.

The vertical walls of the tunnel were constructed using GCP’s Bituthene® 3000, a high performance, flexible, preformed waterproof membrane. After the walls were installed, GCP’s Bituthene® Deck System® was used on the lid of the tunnel. Bituthene® Deck Prep was first installed as a fluid-applied leveling course, followed by a layer of the Bituthene® 3000 sheet waterproofing membrane.

“In addition to being high performing, GCP membranes are able to be electronically tested to verify water tightness and they are well suited for the extreme variations in the Las Vegas climate,” said CDC, Inc. Manager Michael Lee. “During the day it can be 102 degrees and then drop to 40 degrees at night. GCP’s products have a high tolerance for the dramatic swing in temperatures.”



Bituthene® High Performance Waterproofing System

Intelligence In The Field

Once construction began, GCP was on the tarmac to provide complete site support. The GCP field technicians collaborated with all teams overseeing installation, answering questions, sharing insight and providing recommendations.

“We had a GCP representative here at least once a week guiding us and ensuring everything was installed properly,” Cooklin said. “When they were not onsite, we would simply text them a photo with a question and would usually have an answer back within an hour. This kind of partnership was vital in maintaining our timeline.”

“As the waterproofing consultant on the project, we always consider the manufacturer’s ability to be able to provide technical support when selecting a waterproofing system. The quality of GCP’s support, both from their technical office staff and their field staff was a major factor in our decision to utilize a GCP waterproofing system on this difficult project.”

Micheal Lee, Manager
CDC, Inc.

Ready for the World

Trusted by airports across the globe, GCP Applied Technologies has been solving complex construction problems with new and revolutionary products and solutions for over 50 years. The GCP team provided the products, knowledge, data, technologies, services and people needed to successfully and seamlessly land the McCarran Airport International Gate Expansion Project on time. This powerful combination of products, people and expertise is GCP’s Blue360SM Total Business Advantage. The Blue360SM approach of high performance products accompanied with layers of design and technical expertise as well as superior solutions sets GCP apart from the competition and provided a partner that the McCarran team trusts.

In June 2017 McCarran welcomed its first direct international flights to the International Gate Expansion. McCarran now has double the number of gates available to international air carriers, serving additional visitors from around the world. The seven reconfigured gates are able to handle wide-body jetliners typically used by international carriers, including the Boeing 787 Dreamliner. One of the gates is fitted with a dual-level bridge to handle the double-decked Airbus A380.

With over 50 airport projects completed, GCP continues to innovate and be the choice for airport construction and structures across the globe.

PROJECT CREDITS

Owner:	Clark County, Nevada, Department of Aviation (CCDOA)
Project Manager, McCarran International Airport:	Todd Cooklin
Architect/Designer:	Gensler & Associates, waterproofing consultant CDC, Inc., Las Vegas Nevada
General Contractor:	Martin-Harris Construction, Las Vegas, Nevada
Concrete Provider	CalPortland
GCP Products:	Preprufe® 300R, Bituthene® 3000 membrane, Bituthene® Deck Prep® Eclipse®, ADVA®, WRDA®

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