



## Transportation

### Client:

U.S. Army Corps of Engineers

### Location:

Edwards Air Force Base, California

## Main Base Runway Replacement Edwards Air Force Base

As the managing partner of a joint venture (JV) with Interstate Highway Construction, CH2M HILL led the design-build project to replace the aging Main Runway at Edwards Air Force Base (AFB) in California. Edwards AFB is the world's premier military flight test facility. Its 15,000-foot-long by 300-foot-wide concrete Main Runway is a critical asset to supporting the U.S. Air Force flight test mission, and is a first alternate Space Shuttle landing site.

The CH2M HILL-led JV provided innovative design and construction management capabilities, as well as airfield construction expertise to resolve several technical issues in the design and construction of the new Main Runway. Challenges and constraints included the following (solutions to these challenges are addressed in Tab 7, Design and Quality Approach, and Tab 8, Innovation):

- ◆ Need for highest quality concrete to meet needs of the new Main Runway
- ◆ Difficult climatic conditions of the high Mojave Desert
- ◆ Complex staffing arrangements because of remote location
- ◆ A requirement to maintain operational access during construction of new Main Runway

Prior to decommissioning and reconstructing the Main Runway, the design-build team was required to design and build a full-service 12,000-foot-long by 200-foot-wide Temporary Runway. The design was broken into five separate packages, two for the Temporary Runway, and three for the Main Runway. This approach was possible due to the integrated design-build team approach, with designers and constructors working together in one entity, and allowed construction to commence on specific elements (e.g., earthwork) while other design components were still underway. This strategy enabled the team to complete the projected 800-day project schedule 3 months early.

Under an expedited schedule, the CH2M HILL/IHC JV built the Temporary and new Main Runway in less than 2 years; moved more than 800,000 cubic yards of soil; placed 28 miles of concrete, and demolished 445,000 cubic yards of concrete. All of these activities occurred over active airfield pavements with more than 15,000 aircraft movements and operations.

In the end, the project team finished with more than 420,000 hours and zero lost time incidents. Not only were the workers protected, but there were no incidents resulting from conflicts between vehicle and aircraft operations during the 2 years required to construct both runways. With successful completion a full 3 months ahead of schedule and within budget, the new Main Runway opened for flight operations on September 30, 2008.

### About CH2M HILL

Headquartered near Denver, Colorado, USA, employee-owned CH2M HILL is a global leader in consulting, design, design-build, operations, and program management for government, civil, industrial and energy clients. The firm's work is concentrated in the areas of water, transportation, environmental, energy, facilities and resources. With US\$6.3 billion in revenue and 23,000 employees, CH2M HILL is an industry-leading program management, construction management and design firm, as ranked by Engineering News-Record and named a leader in sustainable engineering by Verdantix. The firm has been named a FORTUNE 100 Best Companies to Work for five times. Visit us at [www.ch2mhill.com](http://www.ch2mhill.com), [twitter.com/ch2mhill](https://twitter.com/ch2mhill) and [facebook.com/ch2mhill](https://facebook.com/ch2mhill).