

Transportation Aviation

Client

Chicago Department of Airports

Location

Chicago, IL, USA

Modernization Program, Chicago O'Hare International Airport

Project Highlights

- Largest aviation infrastructure improvement project in the nation, \$6.6 billion
- Master Civil Engineer for Chicago O'Hare International Airport

Project Description

In a joint venture of four Chicago-area firms, CH2M HILL is serving as the Master Civil Engineer (MCE) for this \$6.6 billion project, the largest aviation infrastructure improvement project in the U.S. CH2M HILL serves as the technical arm of the City of Chicago for the entire program (Phase 1 and the Completion Phase), providing resources and consultations on scopes, schedules, budgets, designs, and oversight for all lead and enabling civil and facility projects.



The overall program is focused on new runway layouts for the airfield to improve capacity and safety. The massive reconstruction project includes new runways, taxiways, and aprons, and requires the relocation of roadways, utilities, security fencing, NAVAIDS, and buildings.

As the MCE, CH2M HILL is providing the project manager and the design manager leads for both the north and south airfields for both Phase 1 (to be completed in 2011) and the Completion Phase (to be completed in 2014). The MCE is providing all conceptual and preliminary engineering for the entire program and final design services for selected projects. Ongoing services include field surveys, geotechnical investigations, earthwork management planning, storm water management master planning, utility master planning and coordination, and development of design standards, environmental permitting, and design management for all final engineering design.

Duties include providing all design reviews, monitoring code and standards compliance, and coordinating with the City of Chicago, the program manager, the construction manager, the airlines, environmental agencies, all utilities, and the Federal Aviation Administration (FAA).

Specific areas of focus include aprons, runways and taxiways, airfield lighting and signing, NAVAIDS, roadway engineering, storm water management, permitting, power and water supply, and security. Final design efforts for Phase 1 are essentially completed for the north airfield projects and construction is underway. The south airfield Phase 1 designs are also nearly complete, and construction south of the existing terminal has progressed significantly. Conceptual designs for all remaining elements of the Completion Phase are underway and consultant selection for final designs of the three remaining runway projects is in progress.

Included in Phase 1 for the north airfield program was design management of enabling projects and new Runway 9L-27R. Relevant enabling projects



included utility relocations; relocation of Mt. Prospect Road and Guard Post 1; permanent displacement of Runway 14L threshold and NAVAIDS; construction of a new air traffic control tower; installation of a new ASR-9 facility; installation of new return to runway facilities; expansion of the fiber optic communications system; and expansion of the north airfield lighting control vault.

CH2M HILL completed final design for one of the more significant elements on the north airfield. We developed design and phasing plans for the relocation of the threshold for Runway 14L-32R. This runway is a CAT II/III approach capable, Aircraft Design Group D-V runway, 10,000 feet long by 150 feet wide. The R/W 14L approach threshold was permanently displaced approximately 2,000 feet to accommodate the new north air traffic control tower and Runway 14L approach criteria. The project consisted of design for a 5,000 foot-long bituminous concrete pavement overlay, to restore the pavement surface once the relocated in-pavement ALSF and touchdown zone lighting (TDZ) systems and electrical conduits were installed.

Relative to Phase 1, on the south airfield program, the MCE is currently providing design reviews for the final elements of the design of Runway 10C-28C. We managed the design reviews for the extension of Runway 10L, which opened to traffic in September 2008. Enabling projects in the south airfield included relocations of various taxiways; access roads; the south airfield lighting control vault; Federal Express and United Airlines Cargo facilities, which include large aprons; a creek; and the Union Pacific Railroad.

The Completion Phase conceptual designs are underway for new Runway 10R-28I, new Runway 9C-27C, and the extension of Runway 9R. Conceptual designs are also being developed for the relocation of Irving Park Road (a major urban arterial), Taxiway WK, relocations of the main fuel lines serving the Airport, and modifications to multiple airfield facility access roads impacted by the proposed runway reconfiguration. Master planning for utilities, storm water, security, perimeter roads, and earthwork is also underway. Other work in progress includes continual updating of base mapping and on-going geotechnical investigations.