



## Construction Management

### Client

National Kyrgyzstan Airlines

### Location

Bishkek, Kyrgyzstan

## Manas International Airport Modernization

### Project Highlights

- Upgraded a 30 year-old Soviet-built airport to international standards
- Provided program management, construction management, and QA/QC
- Project was completed on time and under budget, enabling the client to add further security enhancements
- Constructed under an International Federation of Consulting Engineers-based contract format
- Required strong coordination and communication among the CH2M HILL construction management staff and the owner, contractor, and various government agencies

CH2M HILL designed and managed the construction of the rehabilitation of the Manas airport in this former Soviet Republic in Central Asia. The project upgraded the terminal and airside systems to international standards, including International Civil Aviation Organization (ICAO) standards, for safety and security.

CH2M HILL provided a broad set of services involved with program management, planning, feasibility studies, engineering design, project financing, and construction management. Our services were initiated with a feasibility study in 1996 to assess the airport's potential for upgrading to meet International ICAO standards, and its potential as a cargo facility. CH2M HILL's recommendations determined the compatibility of the existing land uses surrounding the airport and the planned uses.

After obtaining funding from the Overseas Economic Cooperation Fund of Japan, the Kyrgyzstan Government retained CH2M HILL to implement the recommendations by planning and designing airside, landside, and terminal improvements. In a second phase, CH2M HILL provided construction management for the entire project, including:

- Structural repairs, selected replacement, and expansion of the 4,200-meter runway, taxiways, and aprons
- New shoulders and runway turnarounds, airfield and approach lighting systems, and loading bridges
- New Category 1 Instrument Landing System, primary and secondary radar systems, and air traffic control equipment
- Modernization of the airfield power system
- Renovation of the 27,870-square-meter main terminal from domestic to an international terminal
- Rehabilitation of the arrival and departure lounges
- New inbound and outbound baggage system



*Major improvements were made to the terminal and its facilities.*

- New terminal safety and security systems, including baggage and passenger screening devices
- New potable water well

The existing domestic terminal building was not well developed from a functional standpoint. CH2M HILL modified the flow of passengers through the security process and into the boarding process to improve the travel experience. The terminal baggage handling systems were completely replaced to improve security and efficiency of the terminal building. A second-level boarding bridge was constructed to best serve international flights.

Construction was implemented over a 3-year period during which airport and airline operations were maintained. CH2M HILL served as the construction manager to direct the construction and assist the owner with funding administration. We prequalified bidders to review construction team documents and we functioned as the onsite owners' representative for construction monitoring and OECF-loan monitoring.

### **Quality Assurance**

CH2M HILL developed and implemented a comprehensive quality assurance/quality control (QA/QC) program for the airfield paving operations, terminal modernization activities, and airport lighting system. A staff of local professionals and resident CH2M HILL senior management worked closely with the prime contractor, the client, and numerous Kyrgyz government agencies on a full-time basis. This ensured that international and local construction standards were fully met and that ongoing day and night commercial flight operations continued in a safe and timely manner.

This was successfully accomplished during the rehabilitation of more than 96,000 meters of cracks and joints in the existing pavement, installation of 84,000 square meters of bituminous runway and taxiway shoulders, and 27,000 square meters of full depth reinforced concrete pavement.

CH2M HILL's field and office staff provided day and night construction observation services, QA/QC management, and liaison with senior Kyrgyz officials during all flight testing, final commissioning, and formal project acceptance by the Kyrgyzstan Ministry of Transport and Communication.