



Transportation

Client

U.S. Army Corps of Engineers,
Louisville District

Location

Wright-Patterson AFB, Dayton,
Ohio

Runway Replacement, Wright-Patterson Air Force Base

Project Highlights

- ◆ Design and construction of main runway at Wright-Patterson AFB
- ◆ Complete design and site investigation services, and LEED sustainable design elements

CH2M HILL prepared the design and reconstruction for a full-depth and width Portland cement concrete (PCC) pavement replacement of the first 2,600-foot segment of the Runway 5L approach, which is part of the main runway at Wright-Patterson AFB in Dayton, Ohio. The runway is 12,600 feet long by 300 feet wide, includes two BAK-12/14 aircraft arresting system, and is required to be capable of supporting all aircraft in the U.S. Air Force inventory.

Complete site investigative services including a project area survey and preparation of updated base mapping, geotechnical investigation including field and laboratory testing of existing pavement and subgrade materials, and evaluation of existing conditions/as-built investigation and research.

The team investigated the site for compatibility of upgrading the BAK-14 cable support system to a Type H90 cable support system, and subsequently provided the complete design for installation of the Type H90 cable support system.

Using PCASE and UFC 3-260-02, a full-depth PCC runway reconstruction and pavement design was completed. In addition, the runway was upgraded to comply with requirements in UFC 3-260-01, including a new underdrain system for the 2,600-foot reconstructed segment.

Airfield electrical components and design included replacement of two runway surface condition sensors included new puck and wiring. In addition, the power supply for the Type H90 was upgraded from single-phase to three-phase, including provisions for the installation of a new transformer. Two spare duct banks crossing the runway were included at the request of the users. Finally, all airfield threshold lighting and PAPIs were temporarily moved to accommodate the displaced threshold.

In addition to the PCASE pavement design, Unified Facilities Guide Specifications for PCC and corresponding pavement section layers (drainage layer, separation layer, and subgrade preparation) were prepared. Division 00 Special Clauses, Division 01, and other applicable technical specifications were prepared as part of the scope of services.

A construction schedule and complete MCACES construction cost estimate were prepared to ensure the user had sufficient funding to complete the project.

CH2M HILL evaluated the sustainable design opportunities available on this project, using a LEED® accredited professional to evaluate and implement sustainability principles, where applicable. The analysis considered the following potential sustainable design elements:

- ◆ Investigation of opportunities to reuse and or recycle (offsite) the existing PCC pavement in compliance with the Base waste management plan
- ◆ Investigation of partnering opportunities with other public and/or private entities to evaluate ability to recycle material, diverting waste material from placement in landfills
- ◆ Performance of existing vegetation and landscaping relative to water efficiency and the minimization of FOD

Investigation of opportunities to incorporate recycled and regional materials during design and construction; regional materials will be considered those that are extracted, processed, and/or manufactured within a 500-mile radius of the project

About CH2M HILL

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