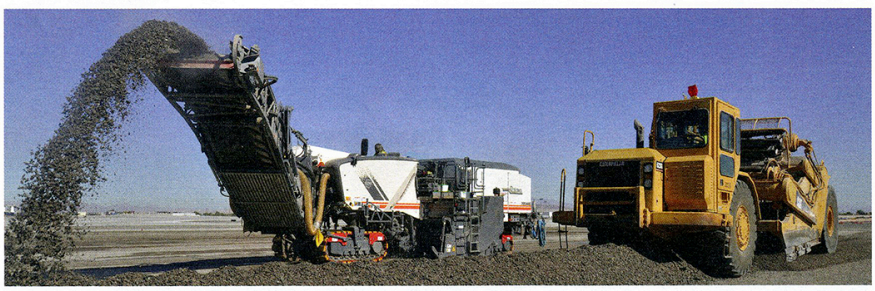
Cold Mills Dismantle Las Vegas Runway

The vacuum cutter system (yellow hose) removes fine particulate from the cutter housing and ejects it with the RAP via the conveyor, prolonging equipment life and creating a better work environment.



BOTTOM LEFT: Las Vegas Paving used two scrapers to pick up windrows of RAP and deposit the material on unpaved areas of the airfield, where it will serve as erosion control. **BOTTOM RIGHT:** The initial milling work during Phase I took place at the east end of the 14,505' x 150' Runway 25R/7L.

A sizable reconstruction project at McCarran International called for heavy-duty milling equipment.

Late last year, two cold mills removed aged bituminous surfacing from one of North America's longest runways at Las Vegas' McCarran International Airport. Performed by the Las Vegas Paving Corp., the cold milling was among the initial steps in Phase I of the $65 million rehabilitation of the 14,505-ft. east-west Runway 25R/7L, which measures 150 ft. wide with 50-ft. shoulders.

The work is being undertaken in two phases for a total of 12 months, with the work split over two years. The runway — the third-longest commercial airport runway in the U.S. — was shut down for reconstruction through May 1, reopened for the summer months, and will be closed again from October 28, 2015, through May 1, 2016.

Prior to its closure, about one-third of all takeoffs and landings at McCarran involved the closed runway. In addition to conventional sources, a portion of the project's $65 million price tag will come from funds generated from the airport's slot machines.

TOUGH FRICTION COURSE

Las Vegas Paving Corp. is the general contractor charged with milling and removing the runway then paving it back. It uses two Wirtgen W 250i cold mills with 12.5-ft. full-lane drums for volume milling.

"Time requirements on the job were very tight, as paving took place even as milling continued," notes Bill Magee, project superintendent. "We were cutting 100,000 to 120,000 sq. yds. every day, six days a week, 10 hours each day, with these two mills."

The existing runway had a 2-in. friction course with approximately 15 to 17 in. of asphalt pavement below, with another 4 to 6 in. of aggregate base. "Our requirement was to remove the asphalt and regrade the surface of the aggregate base for placement of 19-in. Portland cement concrete pavement," Magee explains.

Of that 17 in., Las Vegas Paving was cutting 5 to 6 in. deep with each pass. "The material appeared to be very hard in the initial two passes," says Magee. "Aircraft have been landing on it for 15 years since it was last paved, so it was heavily compacted. Once we got through to the lower surface it came out faster. But the subsurface conditions varied. For example, in one area, we found an old road that had been paved over, and we had to take it out, as well."

The toughness of the asphalt surface made for slow going. "We were going only 20 to 22 fpm as opposed to 50 fpm normally," says Michael Koja, milling machine operator.

Despite the challenging conditions, Koja is able to appreciate the ease of use of the W 250i. "It's really simple to run and operator friendly," he states. "The platform displays everything I need to see, and the controls are really simple."

The vacuum cutting system (VCS) on the mill extracts fine material particles at the cutter drum by creating a negative pressure in the drum housing. The mix of air and water vapor is evacuated then fed back into the flow of the milled material transported on the conveyor via a hose system. This results in better air quality and visibility for the operator and ground crew, and reduced wear and tear on the machine.

MILLINGS FIND NEW USE

Milled material from the old runway pavement gained a new home at the airfield. "We were not stopping the mills to load trucks, but were running the mills as one continuous operation," Magee notes. "The mills placed reclaimed asphalt on the ground, and we were picking up the RAP with paddle wheel scrapers, which placed the millings on infield areas for erosion control."

The millings will remain permanently in those areas. "They are spread 4 in. deep and compacted," says Magee. "Proof-roll compaction to consolidation is all that was required, with no exact compaction ratio. It's used for erosion control, so you don't want 100% compaction."

Paddle wheel scrapers were selected because the RAP was destined to stay on site. "Keeping up with the mills using the scrapers was less expensive than loading on five or six trucks, dumping in the infield areas and looping them around," Magee points out. "Paddle wheels are more expensive, but our efficiency paid dividends as we were using only two, one for each mill, as opposed to six trucks." **ET**