

## MidAmerica St. Louis Airport- Runway 14L/32R

### Case Study

REV 09/16

When MidAmerica St. Louis Airport's runways were in need of joint repair, it was only through trial and error that the best long-term repair material became apparent. This airport is located approximately 20 miles east of downtown St. Louis and shares airfield facilities with the Scott Air Force Base.

When the airport was built in the late 1990s, the runway and taxiways were constructed with 16-inch-thick, jointed Portland Cement Concrete (PCC) pavements with 25-foot joints and 12-foot asphalt shoulders. Originally, two distinct types of joint sealants were used. The transverse joints were sealed with preformed compression sealants while the longitudinal joints were sealed with silicone joint sealants. All of the joints on the parking aprons were also sealed with compression sealants.

Over time, the silicone joint sealants began to fail and the airport was spending an ever-increasing amount of resources to continually replace portions of the joint sealant. Recognizing that the expected life of the silicone joint sealant is only 8 to 10 years, the airport looked to a longer term solution when replacing these sealants on the runway and taxiway. The compression sealants installed at the same time on the transverse joints were still in good condition so the decision was made to replace all of the silicone sealants with compression sealants.

In June of 2009, a project was led by the Illinois Department of Transportation, Division of Aeronautics to replace approximately 71,100 linear feet of joint sealant. The project was to include removing and repairing the longitudinal joints on the runway and taxiways and associated spall repair. "Since the expected lifetime of the neoprene compression

joint sealants is 15 to 20 years and these sealants were still performing well, the proposed project was to replace only the longitudinal silicone joint sealants on the runway and associated taxiways." Dan Trapp, P.E., Airport Engineer.

The work began in October 2009 with an expected completion time of 35 calendar days. The joint repair included removing the existing joint sealant by sawing and widening the existing joint, sandblasting to clean the joint, and sealing the joint with a preformed compression joint sealant. The existing joints varied from 3/8 to 1/2 inch and were sawed to a new width of 3/4 inch. The new 3/4 inch joint width eliminated any joint width irregularities and allowed for the easy installation of the new compression sealant.

The work required that the runway be shut down for only one week and various taxiways were closed as work progressed. Although significant rain fell during the construction time period, the repairs using the preformed compression sealants were easy to keep on track and all work was completed ahead of schedule.



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