

RECYCLING FOR REGIONAL AIRPORT RUNWAYS

When a rural Florida airport needed to do something about its aging runway, cold in-place recycling was the answer.

Quincy-Gadsden Airport lies about 15 miles west of Tallahassee, Florida near Interstate 10. It is a small, rural town and its airport was built prior to World War II. The facility operates a single asphalt runway that is 75-foot wide and 1,000-yards long. It is home to nearly 60 light aircraft and its aircraft operations average about 120 per week, with nearly two-thirds of the traffic from local fliers.

In 1997, Quincy-Gadsden and the Aviation division of the Florida Department of Transportation decided that the aging runway need-

ed to be rebuilt. The existing asphalt runway was originally paved in the 1950s, and a combination of poor drainage, heat, and age had taken its toll. The 3-inch pavement suffered from major block cracking, and grass had sprung up through the crack patterns and invaded the sides of the runway.

Quincy-Gadsden and the Florida DOT collaborated on the project, with the airport authority picking up 20% of the cost and the state the rest.

The two agencies solicited bids for a design-build project. The successful bidder would maintain the runway for five years under the contract.

The project attracted several bidders, but only the one from E.J. Breneman was based on total reconstruction using cold in-place recycling. Breneman won the contract award and undertook the first CIR project in Florida DOT history.

Breneman's design called for the cold in-place recycling of the existing thickness of asphalt — the old pavement varied from 2.5 to 3 inches in thickness — along with imported recycled asphalt pavement laid to grade over the entire airport runway at a depth of 3 inches, then compacted. The somewhat unusual use of full-depth CIR was made possible by the firmness of the underlying sand/clay soil.

Following the CIR process, sub-contractor Peavy & Son laid a 2-inch virgin hot-mix asphalt wearing surface over the recycled base. Subsequent to that, Breneman crews provided runway markings, and dressed and leveled the edges of the runway with topsoil and sod.



Block cracking (inset) and invasive grasses plagued the original runway pavement at Quincy-Gadsden Airport. In the main photo, the grasses have been graded off by the contractor to expose the original edge of the runway. The area was subsequently treated with weed control.



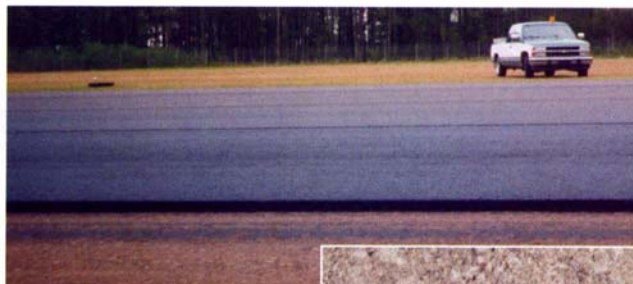
A Breneman crew uses a paver to precisely place imported asphalt millings to a depth of 3 inches over the entire runway. The RAP was then compacted. Grade was checked behind the paver using the string line and a Spectra Physics level. A cross slope of just 1% was allowed. The process took two days.



The full recycling train works on the Quincy-Gadsden runway, lead by Breneman's mill, then the Barber Green paver and windrow elevator. A 30-ton Dynapac pneumatic roller and a 12-ton Cat tandem steel-drum vibratory roller work the CIR base from the previous pass. The tandem roller was used for initial compaction — and in static mode for finish compaction. In between, the pneumatic made as many passes as necessary to achieve the target density.



Cold in-place recycling followed the laying and rolling of the RAP. Here, the CIR machine windrows processed asphalt and RAP for placement by a trailing paver. To the left of the windrowed course is placed and compacted recycled material; to the right is the old pavement topped by 3 inches of RAP. To help maintain the cross slope, Breneman made all the CIR passes in the same direction, backing the machines the length of the runway after each pass.



The 6-inch-deep recycled asphalt base (foreground) is topped off with a hot-mix asphalt wearing surface at a compacted depth of 2 inches. Inset: this smooth base surface is the product, in part, of a homogenous mix that began with recycled material with a gradation of 2-inch minus.





The runway was completed in April, 1997 and is still in use today, with no visible signs of deterioration.



The finished runway, with leveled imported topsoil, seeded and mulched, and all painting completed. The runway was completed in April, 1997 and is still in use today, with no visible signs of deterioration.

One of the main construction considerations was that the runway could not be closed for a prolonged period of time. Breneman anticipated a total construction time of two weeks and finished everything except the line striping and number painting within that time period; the painting had to be held back until the new asphalt lift had cured.

Completed in April, 1997, the runway remains in excellent condition today. The asphalt surface remains smooth and blemish-free. It has required no maintenance since the project was completed six years ago. ♦

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