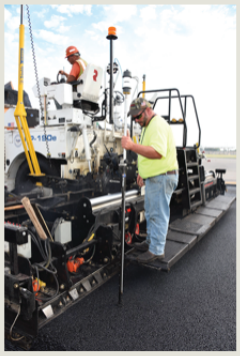
Strategic project manager, Anant Patel, with MOBA, fine-tuned the 3D leveling and quality control systems for the paver which is compatible with the Trimble 3D PSC900 Paving Control System. SITECH Northeast helped install the components required to upgrade to 3D, along with integrating a smooth flow from hardware and software design to the Trimble Universal Total Station setup.

Over several days of installation, and actual hands-on practice paving the required test strips with Union Concrete crews that would use the equipment, rehabilitation commenced. Roadtec would again service the contractor by bringing Dale Bloodgood, regional service technician to overlook and tweak anything needed while paving up to 26-foot-wide passes during the surface course paving.

PROJECT REQUIRED MULTIPLE LIFTS

According to paving foreman Jim Stayer, the project had multiple lifts in certain areas and in other areas there was only one mill and fill surface course required three inches deep. It depended upon how deteriorated the existing blacktop was or how much of a profile change was needed. That also designated how long the passes were. Some were as much as 2,000 to 3,000 feet long. Other areas, like the taxiways, were much shorter and more sections or phases could be done in the course of their normal 12-hour days.



The paving crew relied on SITECH Solutions, a liaison and software company with affiliation to Trimble for 3D positioning technology.

The Roadtec paver came equipped with a MOBA-matic II grade and slope automation (photo at left). Asphalt transfer machines were used to keep the wide screed supplied with ample material.

"Mostly the sections had good phase lines where it made sense to phase to and then switch to another phase since the paving was done in sections. Sixteen hundred feet had to be completely rehabilitated to subbase on one end of the runway before intersecting with Runway 5/23. It would be four feet deep, which included rubblization of 27,000 square yards, full depth construction and repairs and full depth HMA pavement construction at the long runway stretch. Full depth blacktop included eight inches of base course done in two lifts using 16,200 tons of P-401 HMA and four compacted inches of surface course done in two lifts of two inches each," Stayer continues.

> ***WE TRIED NOT TO STOP THE MACHINE AT ALL FROM PAVING DURING THE WHOLE PASS.***
>
> —Jim Stayer, paving foreman, Union Concrete and Construction

"For 400 feet, there was a transition from full depth rehabilitation to just a surface course. It was a profile change because you came from nothing up to four feet of profile change, all 150 feet wide. We had no problem, and used the 3D System with our Roadtec paver and Carlson screed laying 18 ½ foot wide passes throughout the base courses and first surface course. The RP-190e paver was always our primary laydown machine, but we had our older paver making passes on the outside lanes using a string line where it wouldn't be damaged from equipment. At least seventy-five percent of our paving was done with the Roadtec paver and the Trimble 3D system," Stayer explains.

PAVING PROCEDURES

Paving was done in tandem, using both pavers wherever possible, to prevent cold joints. Longitudinal joints could not be exposed for more than four hours, or before the asphalt temperature cooled to less than 175º F, otherwise they would have to be cut back three to six inches for a clean, uniform cut before paving against it.

The answer to that issue was to never stop the pavers from paving a pass during their designated phases - no matter how long the pass! Some passes were as long as 3,000 feet. Having done their homework, Stayer says, "We tried not to stop the machine at all from paving during the whole pass, including when going over 30-inch-wide raised concrete/light bars that had to be covered before paving. That meant the paver was traveling about 10 to 12 feet a minute non-stop, with mobile transfer machines supplying the pavers. A round of trucks would be 600 to 650 tons of asphalt from the nearby plant. The plant has the capacity of 300-tons an hour, but with 1200 tons of asphalt in silos before actual paving, there was no shortage of asphalt coming to the pavers before the end of the day. When we did the surface course, we were putting down 3,700 to 4,000 tons a day of the P-401 surface course, while paving 25 feet wide for much of the 31,200 tons needed," Stayer continues.

A variety of rollers were used behind both pavers. The older paver used the string line on one side for grade and slope while working off the asphalt laid down by the Roadtec in front of it for the other side. That paver was not Trimble/SITECH compatible. The rollers made sure to compact the joints as one complete lift.

EQUIPMENT CONFIGURATIONS

According to Roadtec's Bloodgood, the Roadtec RP-190e paver was used for several features. It has a 13-inch high conveyer opening for excellent throughput with independent drive. The space between the conveyers has been minimized which allows mix to be conveyed out as one uniform flow, greatly reducing segregation. The machine is also user-friendly for personnel not familiar with the machine, very important for this occasion since the operator and others would be using the RP-190e paver for the first time on this project.