



Millimeter GPS Keeps JFK Airport Milling on Track



The rover allowed the exact grade to be easily verified anywhere on the airport project.

JFK's 13R-31L ("Bay") Runway—the nation's third-longest at 14,572 feet—was resurfaced in early 2010 with an 18-inch layer of concrete to yield an expected maintenance savings of \$500 million over an expected 40-year life span compared with an anticipated eight-year asphalt life span.

Intercounty Paving Associates had five milling machine rovers and three survey rovers all corrected by a single base station despite being located thousands of feet apart. A three-dimensional site model developed by Mesh Consulting, Eagleville, Pa., was loaded into the Roadtec cold planers' machine-control systems. The original plan was to fine-mill the surface to within three-quarters of an inch of the specified elevation in a single pass using three machines deployed in a staggered formation. The machine making the "virgin cut" would have Millimeter GPS+ controlling both sides of the drum. Each

Company: Intercounty Paving Associates, LLC

Location: Hicksville, New York

Project: John F. Kennedy International Airport 13R-31L ("Bay") Runway milling

Location: Hicksville, New York

Project Scope: Runway length 14,572 feet; widened from 150 to 200 feet; new shoulders along either side of the widened runway are 50 feet wide and sit adjacent to 30-foot-wide erosion pavement

Topcon Products:

- GR-3 base station & GR-3 antennas
- PZL-1 Lazer Zone transmitters
- PZS-MC machine-control sensors
- PZS-1 sensors
- FC-120 field controllers
- GX-60 control boxes

Topcon Dealer:

Cleary Machinery Co., Inc.
South Bound Brook, N.J.
www.clearymachinery.com

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AT WORK

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'I was skeptical, but I'm saying things are better with the Millimeter. I'm definitely seeing less stress on our side. We're responsible for every cut, every break. If we're high, we just go back and trim it. If we overcut, we've got to go back and pave and then mill again. That costs time and money.' – Glen Langdon, foreman, Intercounty Paving Associates

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trailing machine would "joint match" on one side using the RX-900's hydromation system, while utilizing Millimeter GPS+ on the other side. Four PZL-1 laser transmitters were spaced apart by 750 feet, affording a pass length of 3,000 feet before the machines would have to "square up" and return to original starting point.

Equipment blockages and high winds, coupled with severe machine vibration caused by the deep cut in hard material, made precisely milling to the specified elevation in one pass difficult. But the situation turned out to be a blessing in disguise, as it forced project manager Jim Egerter and Intercounty's milling superintendent, Joe La Placa, to disconnect the laser receivers on three of the Roadtecs and have them rough-mill the existing surface to an inch and a half above finished subgrade. Egerter and La Placa reasoned that since the machines were going to cut the last lift with the Millimeter GPS+ anyway, the rough mill accuracy was not as critical. Three machines cutting without the lasers actually put Intercounty ahead of schedule and two other Roadtecs fine-milled where possible at any given time.

Egerter noted that, after the rough start, Intercounty was hitting the daily production goal of 2,000 by 100 feet over the past few days. "It was a little tough in the beginning, but we're finally getting the daily production that we're supposed to be getting," he said. "We weren't sure we were going to be able to do one cut and that we might have to adjust the process," he added, agreeing that the two-step bulk/fine milling process was yielding a better end product.



Rough-milling the existing surface to an inch and a half above finished subgrade.

"You could almost say that GPS isn't any more accurate than manual at station, but between stations, it is," pointed out Jim Cleary of Intercounty's Topcon dealer, Cleary Machinery Co. "It performs like a virtual stringline, calculating smooth transitions from station to station. And it eliminates the occasional blown grade. The entire area was milled without a single mark on the ground. The mark-out costs associated with 16,000 shots is actually insignificant compared with the potential downtime resulting from waiting for the marks to be made, due to the large penalties enforced for not finishing the job on time."

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Topcon's Millimeter GPS™ with LazerZone™

World's first millimeter-accurate GPS system - up to 300% more accurate than standard GPS! At the heart of the Millimeter GPS™ system is Topcon's LazerZone™ technology.



Combine LazerZone™ with GPS+ to achieve millimeter accuracy. LazerZone™ transmitter provides wide vertical measurement area - 600m/2,000 ft diameter, 10m/33 ft. height.

Simply set up your Topcon RTK GPS+ system as usual, add a wireless PZS-1 sensor to your mobile rover, and set up the PZL-1 transmitter to get instant millimeter accurate elevations anywhere in the LazerZone™!