



# Turning Heads on the Runway

Using a range of GPS-based solutions Rifenburg meets tight specs and an even tighter deadline at Buffalo Niagara Intl. Airport



The third busiest airport in New York State – and the busiest outside of the metro New York City area – Buffalo Niagara International Airport handled 4.5 million passengers in 2023. To keep up with normal use and the ravages of Buffalo's winter climate, a major upgrade is taking place. According to Kevin Boyle, Rifenburg's general superintendent, the current project involves the facility's runway 5/23.

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## Company

Rifenburg Construction  
Troy, New York

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## Topcon Solutions

RD-M Road Scanner, Millimeter GPS,  
MC-Max Machine Control

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## Topcon Dealer

Admar Positioning Solutions  
Buffalo, New York

"About every 20 years major airports are required to do a full-depth reclamation (FDR) on their active runways, and this is the time for Buffalo Niagara Airport to undergo the FDR on 3,850 feet of runway 5/23, as well work on existing taxiways," he said. "We started by having GdB Geospatial, a Rochester, N.Y. survey specialist, scan the entire existing surface with a Topcon RD-M1 3D laser scanner to create a record of existing conditions."

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The FDR, the second of two phases of work, involved the milling of 13 inches of asphalt, followed by the demolition and removal of 10 inches of concrete. At the point where the new runway work met up with a 200-foot section not being totally redone, Rifenburg switched from a full-depth milling to profile milling using Topcon Millimeter GPS. "The reason for the change was to modify the crown from an offset design to one in which the crown is dead center," said Boyle. "The GPS-based system made that profile effort – milling anywhere from 2 to 10 inches to bring that centerline over – fast and accurate."

After laying down 19 inches of subbase and working it to achieve 100% compaction, Rifenburg completed that facet of the job using a motor grader, also equipped with Topcon Millimeter GPS, to make the finished grade pass. "We always place material a bit high to ensure that, even after compaction, the grader has something to cut," said Pete LaFarr, Rifenburg's general superintendent. "If it's low and we have to shim, anything less than four inches would have to be re-scarified, material added, recompact to 100% density and then fine graded again. Staying high eliminates that risk. The accuracies on that subbase's grade were demanding – about 1/8-inch, I believe – but the Topcon solution never failed to get us there."



The asphalt replacement facet of the job – a 12-inch thick deck poured in four lifts – was equally demanding for the Rifenburg team, a challenge that was met, once again using the Millimeter GPS solution.

"As it is with most airports, the specs on this one were extremely tight, but tapping the strengths of Millimeter GPS on our Cat AP1055 paver made it easy," said Andy Ambrose, Rifenburg survey party chief. "The sequence was: a 4-inch lift, followed by a 3½-inch one, then a 2½-inch top course and then 2-inch finish layer. Millimeter GPS controlled the first three lifts, then we ran an averaging ski on the top lift to remove any subtle changes there might be and further improve the rideability."



Even given the intricacies of the paving, Rifenburg was able to easily keep production levels up. "We were shooting for 2,900 feet per day – about 800-900 feet of runway – and we consistently got that," said Boyle. "More importantly, however, because of the Millimeter GPS solution, we were nailing the numbers as we went along; that made all the difference."

Despite the tight time constraints – 60 days for the first phase and an equal time for the second – the incentive to remain on schedule was quite compelling, according to Boyle.

"The penalties are based on the cost of impact on the airport's operation, which is fairly standard on any job of this type," he said. "In this case, it is \$50,000 per day."

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But we were right on track and that's due to the excellent work of our subcontractors, the technology we were able to call upon, and the Rifenburg team that comes out here every day to bring it all together. It's why we win bids to do airport work and why we will no doubt continue to do so."

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