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Ajax Paving Repairs Critical Florida Evacuation Route with SmoothRide Technology

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SMOOTH SAILING IN VENICE

Using New Technology, Ajax Paving
Enhances Critical Highway Milling
Effort on SR 681 *By Larry Trojack*





Unlike Florida's inland regions, its coastal counties are highly susceptible to storm surge from the hurricanes and tropical storms that can batter the region each late summer/early fall. To ensure the safety of residents in these areas, evacuation zones – generally major highway arteries – have been designated, allowing fast, safe movement from areas in harm's way to a safer locale. Maintaining these roads, therefore, is imperative and a key to the overall evacuation effort.

On one such route, State Road 681 in the Gulf Coast town of Venice, Ajax Paving of Florida was tasked with repaving a 4-mile section that needed both repair and partial redesign. Using an innovative technology for the milling facet of the job, Ajax was able to lower manpower demands, while raising production levels and project efficiency. The resultant milled surface serves as the ideal platform for subsequent paving – a smoother evacuation effort in every sense of the term.

Regional Mainstay

No stranger to the area, Ajax Paving has been serving customers in Florida since 1981. In those four-plus decades, it has cultivated a reputation for excellence in small to large, heavy civil projects throughout the region. To make that happen, the company works out of three main offices in Tampa, North Venice, and Fort Myers, as well as multiple satellite project field offices. In addition, Ajax operates eight state-of-the-art hot mix asphalt plants

producing over 1 million tons of asphalt annually, both for its own projects and as a supplier to others. So, the SR 681 project, with a price tag of roughly \$6.9 million, was certainly in its wheelhouse, according to Jerry Hunt, Ajax Project Superintendent.

"We've tackled some of Florida's major highway projects in the past, many of which have been recognized by industry organizations for their excellence," he said. "So, we are well-positioned for a project like the SR 681 Venice Connector. Literally well-positioned, in fact – one of our asphalt plants is located minutes from the job site which made it ideal for both recycling the millings and delivery of fresh asphalt. The project was important, given that the highway is a critical east-west artery and serves as a major evac route for the city of Venice which is a growing area."

The scope of the project included a total of 8 miles of milling and resurfacing, cross-slope correction for both leveling and rider comfort, as well as guardrail and drainage improvements. To maximize safety, a "Wrong Way Driving" detection system on the I-75 off-ramp to SR 681 was also installed.

A New Smooth

A good part of Ajax's success can be attributed to its openness to new technologies. Solutions which enhance their processes, smooth their workflow, or increase their effectiveness are always considered. So, when approached by representatives from the Riverview, Florida branch of Dobbs

Equipment, their area Topcon dealer – about a system designed specifically for milling and paving, it got their attention.

"We had been considering the SmoothRide solution from Topcon since its introduction and the SR 618 project seemed the perfect opportunity to put it to work," said Ben Harlan, Ajax's Field Technology Manager. "We liked the fact that it is designed to simplify the process – be it milling or paving – by combining vertical data from the machine's sonic tracker with GNSS for the horizontal positioning. We felt the combination of the two could give us the 3D-grade accuracies we wanted, without the need for a robot or lasers. And being the first paving company in the state to have it is a feather in our cap."

Harlan started the SmoothRide-based workflow with a scan of the 4-mile-long, north and southbound lanes of SR 681. Using a Topcon RD-M1 laser scanner attached to his pickup, he was able to quickly and easily get the scans he needed – without the need for any lane closures on the busy highway. "I actually broke the scanning sessions up into smaller segments in order to make post-processing the data easier. Even with that, it was still much faster than shooting a topo. And we got points every 6 to 8 inches compared to a topo, which would have only given us a reading every 25 feet. It was definitely faster and far more productive for us."

Keep the TIP

Heading up the milling effort was Largo, Florida-based Turtle Infrastructure Part-

ners (TIP) who brought a pair of Wirtgen mills – a W207Fi and the RD-MC-equipped W210 Fi – to the Venice project. According to Brian Truitt, Machine Monitoring Specialist for the Dobbs Positioning Solutions division of Dobbs Equipment, TIP was also an integral player in this debut for SmoothRide in Florida.

"TIP was responsible for putting Wirtgen's Level Pro leveling system into the 210 mill along with the infrastructure – the uprights, the antenna brackets, etc. – to support the new milling technology," he said. "What makes this particularly attractive is that Ajax will not only be able to move the RD-MC solution from mill to mill, but they can also have it specified in the bid contract that any milling company needs to have their equipment outfitted in that way in order for Ajax to perform the job for them. It ensures that the work will be done in the best manner possible, so it's really a win for everyone."

The SR 681 Connector project was done in phases, with Phase 1 being the structural course on the outside northbound and southbound lanes. While that first phase is fairly straightforward from a milling perspective, the same cannot be said for Phase 2, according to Harlan.

"Work on the inside lanes calls for a good deal of slope correction," he said. "So, when we get to Phase 2, milling will be variable depth. In some places we will be milling 2-inches and in others we'll be cutting as much as 4-3/4 inches. But the Topcon solution makes it simple and easy – once you get the surface built and redesigned to the plans, you're ready to roll."



Beyond the Mill

The need for variable depth milling was driven by the factors cited above: the long overdue need for a quality resurfacing and several areas in need of cross-slope correction.

“Based on evaluations performed by Florida DOT engineers, which included checking of existing slopes, core depths, visual inspections, etc., six non-uniform locations were found,” said Hunt. “Those are the areas in which the RD-MC component of SmoothRide will really excel.”

The combination of top-flight equipment – TIP’s Wirtgen W210 Fi features a 7-foot-wide mill – and the RD-MC solution, helped Ajax achieve production rates of up to 3,000 feet per day. According to Hunt, using the enhanced milling approach also streamlined the paving effort that followed on the heels of the milling.

“Using SmoothRide allowed us to correct the profile and get the surface to the point where all we had to do was pave to mill depth,” he said. “That’s important because, when paving using grade control with an incorrect grade, you run the risk of laying down more material than needed. Having confidence in that milled surface basically helps us maintain the correct spread rate and virtually eliminate material overages. On this project, we will be removing about 35,500 tons of millings – which will be recycled into new product – and laying down some 31,680 tons of new material.”

Working in Concert

As anyone in construction will attest, tackling any major project takes a genuine team effort and the SR 681 Connector

repaving was no exception. According to Ajax’s Harlan, working alongside TIP and being able to call upon Dobbs has helped ensure the project’s success.

“The team at Dobbs – on both the machine and positioning sides – is great to work with and always looks out for our best interest,” he said. “While the RD-MC solution was very easy to learn, there were elements of it for which we occasionally needed help, and they were always there for us. And TIP has been an excellent partner both here and on past projects – including a major central Florida intersection reconstruction we completed in just four weeks. They have very good people, very good equipment and, much like Ajax, are willing to embrace new approaches to technology. We can’t say enough about both organizations.”

Because Ajax’s work is fairly equally balanced between road paving and airport work, both Harlan and Hunt see the SmoothRide solution playing a role in the company’s future work. Hunt acknowledges that it will be job-select, that is, used on projects in which it can prove beneficial. “But I can see it being invaluable on our airport work in which meeting tough design criteria is key. This will definitely play a role there,” he said.

And Harlan sees the RD-MC as being ideal for projects involving slope corrections and overbuilds. “We can do a quick scan, load that onto a paver equipped with RD-MC and make short work out of that overbuild. In so many ways, this solution will be a great tool to have moving forward. In the meantime, SR 681 is smoother and safer than ever – and ready the next time an evacuation is necessary.”