**Case study**

**KEEPING THE TRAFFIC MOVING: HOW WEEKS OF RESURFACING WORK WAS COMPLETED IN DAYS USING TOPCON’S SMOOTHRIDE**

**When construction company Matthäi was hired to complete the resurfacing of the busy B420 road around F****ürfeld in Rhineland-Palatinate, Germany, it turned to Topcon technology to help meet tight deadlines and navigate tricky working conditions. Using the Topcon SmoothRide solution, Matthäi was able to optimise the recording and use of data during the project, to ensure the work was completed quickly and without complications.**

One of the biggest obstacles Matthäi faced with this project was avoiding heavy traffic jams caused by road closures. Because of this, the decision was made early on that work could only be undertaken during the weekends. To meet these tight deadlines, teams had to work across three weekends in total, resurfacing a one-kilometre section each time. Over the course of the project, this meant around 40,000 square metres of asphalt surfacing and binder needed to be used, with 9,000 tons of material being milled, shifted and laid again.

**Turning weeks into days**

Traditionally, the surveying process for resurfacing a road is a time-consuming task that can lead to expensive errors. Surveyors hammer pegs into the ground every five metres along the hard shoulder, then they need to measure the transverse profile every 20 metres, evaluating all the photos, drawing up marking schedules, and ensuring all the relevant data is documented. Using this method, each kilometre of road would likely have taken around two weeks. Instead, the Topcon team utilised a RD-M1 scanner on the roof of a car and drove down the entire stretch of road in less than an hour. They were able to record millions of points in this way in just 50 minutes.

“On the basis of a thinned-out point interval of 30 centimetres, we received a complete image of the road,” said Frank Pohl, Matthäi surveying team leader. “We then discussed the critical zones and found solutions to various problems quickly. The team were able to smooth out uneven spots in the planning model that could have caused further problems and optimised the geometry in such a way that the incline of the new asphalt surface was a constant 1.5 per cent – leading to a perfect end result. The curves on the road were also given equally smooth gradients, and this traditionally time-consuming planning phase was completed in just two days.”

**Results through data**

The next step in the process was to send the completed model to the milling machinery. Using SmoothRide, the precision technology of the GNSS allows users to mill only what is necessary, down to the exact millimetre, by assessing the differences between the existing milling model and the new design.

To save time, Raimo Vollstädt, support engineer at Topcon, pre-fitted the milling machine with the 3D controls and GNSS receiver, which took just 20 minutes. He said: “With SmoothRide’s optical components, everything is automated, allowing the milling machine to know its position on the road at all times. This saves a lot of time and means that the machine never has to be adjusted, which is especially beneficial when milling in the dark. What’s more, multiple machines can be set to run simultaneously, which makes the process all the more efficient, which is crucial when working to tight deadlines.”

The milling machines were set off to mill along the six-metre-wide and one-kilometre-long section of road four times during the night, in line with the planned design. In total, 16 trucks were on site to transport the asphalt millings to the mixing plant where they were processed for reincorporation into the binder. The team needed to have all milling works up to the slip road into Fürfeld completed before the road reopened, and due to the efficient process, they achieved this one hour ahead of schedule.

Thanks to this efficient and accurate milling process, the asphalt could then be laid ensuring consistent thickness. The paver was able to lay the binding layer evenly to a thickness of five centimetres, and the surface could be laid the same day.

The use of Topcon technology meant that residents did not have long to wait to have full access to the road again, even in the interim weeks between road closures, helping to ease disruption to local life. Overall, the process was efficient and resulted in the road closure being lifted earlier than expected.

Klaus Kormann, site manager for GMS, was very impressed with the outcome. He said: “Thanks to SmoothRide, every part of the process ran smoothly, without any complications, and the technology delivered exactly what it promised. We have only ever had the best experience with SmoothRide and that’s why we thoroughly believe in Topcon’s solutions. With the process now completed, this stretch of the B420 has a new lease of life, making it a much better driving experience for all road users.”

For more information about Topcon, visit [www.topconpositioning.com](http://www.topconpositioning.com)

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**Notes to editors**

**About Topcon:**

Topcon Positioning Group is headquartered in Livermore, California, U.S. ([topconpositioning.com](https://www.topconpositioning.com/)). Its European head office is in Capelle a/d IJssel, the Netherlands. Topcon Positioning Group designs, manufactures and distributes precision measurement and workflow solutions for the global construction, geospatial and agriculture markets. Its brands include Topcon, Sokkia, Tierra, Digi-Star, RDS Technology, and NORAC. Topcon Corporation ([topcon.com](http://global.topcon.com/)), founded in 1932, is traded on the Tokyo Stock Exchange (7732).