

Road Surface Rehabilitation

Widoczna Street — Warsaw, Poland



Widoczna Street in the populous city of Warsaw, Poland, was repeatedly being repaved with new layers of asphalt being installed on top of the existing hexagonal paving blocks.

BACKGROUND Up until 2006, the asphalt pavement of this major city street needed costly and disruptive repaving every three years

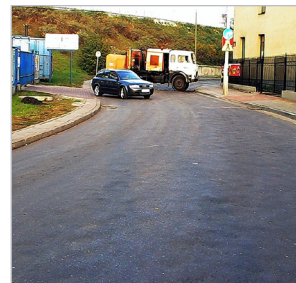
Widoczna Street is one of the main thoroughfares through Warsaw, the capital of Poland, which has almost two million residents. As such, it sees a very heavy traffic load that has brought on considerable pavement damage because the asphalt wearing course was placed directly on hexagonal paving blocks. Heavy reflective cracking and deformation surface settlement mirroring the paving blocks necessitated repaving the roadway every three years with new layers of asphalt.

The frequency of these repairs was not only costly in terms of labor and materials, it also disrupted traffic and business through the city and tended to divert valuable resources from other areas that could use them.

THE CHALLENGE Devise a durable solution that could be implemented over the course of a weekend

By 2006, the City Road Administration of Warsaw was looking for a more durable solution to avoid the regular expenses and disruptions of the repair cycle.

The challenge was to design an effective solution that could be implemented over the course of a weekend, to comply with city restrictions governing closures of important streets. That meant the repair work needed to start on Friday evening and be completed and ready to reopen to traffic by Monday morning at the latest.



October 2006 — Initial road inspection. Visible damage on the wearing course, where even the pattern from the underlying hexagonal paving blocks can be seen.

PROJECT INFORMATION

Project

Widoczna Street
Warsaw, Poland

Project Category

Road Surface Rehabilitation

Date

2006

Simpson Strong-Tie Products

Carbophalt™ G pre-bituminized asphalt pavement reinforcement grid

CHALLENGE

Construct a durable pavement surface during a weekend shutdown to limit traffic disruption.

SOLUTION

Install a reinforcement grid underneath a thin layer of asphalt pavement.

RESULTS

More than tripled the life of the repair with the addition of the pavement reinforcement grid.

THE SOLUTION Install Carbophalt™ G pavement reinforcement grids under a new layer of asphalt



November 2006 — Carbophalt G asphalt reinforcement grid installation onto bitumen tack coat.

Fortunately, Simpson Strong-Tie was contacted and had a workable solution involving minimal milling and minimal new asphalt. Simpson engineers recommended the use of Carbophalt G pre-bituminized asphalt pavement reinforcement grid, over which a high-strength stone matrix asphalt (SMA) surface would be laid. On the strength of Simpson Strong-Tie's experience, the City accepted the design and moved forward with the solution to correct their problem.

In November 2006, the damaged road surface was milled to a depth of 1½" (4 cm), leaving approximately ¾" (1 cm) of old asphalt on top of the existing hexagonal paving blocks. Simpson Strong-Tie Carbophalt G was then installed on a bitumen tack coat before being covered with a 1½" (4 cm) SMA wearing course.

THE RESULTS Even 10 years later, in 2016, the reinforced road surface was still in very good condition and not in need of repair

To be sure that the grid reinforcement did significantly increase the durability of the wearing course, Simpson Strong-Tie regularly tracked the road condition of Widoczna Street over the next several years. Results met expectations and more. The observed results exceeded the owner's expectations; after a full decade the road remained in superb condition with no signs of damage to the wearing course.

The efficacy of the solution was not surprising. The carbon fibers in Carbophalt G reinforcement grids enhance the durability of the pavement, partly through their exceptional force absorption properties. Woven in a grid, these fibers help distribute traffic load and counteract crack-inducing forces, which ultimately serves to prevent reflection cracks and deformation from the road's substructure (in this case, the hexagonal paving slabs) and minimize cracking in the surface.

And all in a weekend's work!



July 2007 — Inspection after eight months. Road remained in great condition.



February 2016 — Inspection after 10 years. Nearly 10 years later and still no signs of damage to the wearing course.

**MORE
INFO**

For complete information regarding specific products suitable to your unique situation or condition, please visit strongtie.com/asphalt or call your local Simpson Strong-Tie Pavement Specialist at **(800) 999-5099**.