

Case study



A Simpson Strong-Tie® Company



WIDOCZNA STREET



Project name
Widoczna Street

Location
Warsaw, Poland

Objective / Initial position
Creation of a durable road surface to reduce the need for repetitive road repairs which were happening every 3 years

Year
2006

Duration
10 Years (ongoing)

Project description

Description

Prior to 2006, 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 slabs.

Situation

The City Road Administration (ZDM) of Warsaw were looking for a more durable solution as a result of repeatedly needing to repave Widoczna street due to excessive cracking and deformation on the wearing course. Prior to 2006, the road was being repaired approximately every 3 years and this led to not only high maintenance costs, but also traffic disruption and a needless use of resources every time the road was being repaved.

However any solution that was offered had to be carried out on a weekend and fall in line with the time parameters of road closures. So essentially road repairs may only start on the Friday evening, but the road had to be re-open to traffic on the Monday morning latest.

Solution

S&P recommended the use of S&P Carbophalt® G combined with a high-strength SMA surface layer over the entire surface and the City Road Administration (ZDM) of Warsaw accepted the recommendation and “took the risk” of trying a new solution to resolve the recurring problems on the road.

In November 2006, the damaged road surface was milled to a depth of 4 cm, leaving approximately 1 cm of old asphalt on top of the existing hexagonal paving blocks. S&P Carbophalt® G was then installed onto bitumen tack coat on top before being covered with a 4 cm SMA asphalt layer wearing course.



◀ As part of the project tracking, S&P re-visited the jobsite to ensure that the road remained in good condition. This particular image shows the same section of road over a 10 year period, resulting in a huge improvement when considering the previous 3 year repair cycles.

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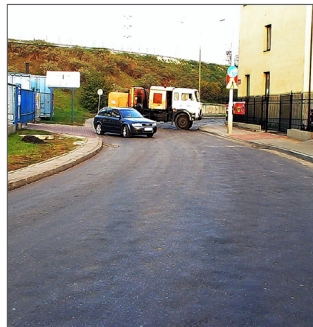
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Project tracking

As the goal of the project was to increase the durability of the road, S&P continued to track the condition of the road during the following years - ultimately with great results. Even 10 years later in 2016, the road condition was still great meaning that the S&P asphalt reinforcement grid had definitely served its purpose and significantly increased the service life of the road as well as protecting the new wearing course from crack propagation from the subgrade - especially when considering the previous re-paving cycles of 3 years.

The increase in durability of the road was not surprising considering the solution provided. S&P asphalt reinforcement grids serve to distribute the traffic load and shear forces that occur in the pavement structure. This ultimately helps to prevent the formation of microcracks, which when formed often lead to wider damage and cracking which becomes visible on the surface. Not only that, but in this particular case the premium properties of carbon fibre in S&P Carbophalt® G helped to increase the stiffness of the asphalt construction, as a result of the large force absorption capacity of the fibres.

October 2006 - Road inspection



Visible damage on the wearing course, where even the pattern from the underlying hexagonal paving blocks can be seen.

November 2006 - S&P asphalt reinforcement grid installation



S&P Carbophalt® G installed onto bitumen tack coat.

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July 2007 - Inspection after 8 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.

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Client benefits

- Durable and long term solution
- Cost saving
- Resource saving
- Greatly reduced traffic obstructions

Product used

- S&P Carbophalt® G

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