



Tensar®

**PAVEMENT
SURFACING**

The section was initially trafficked prior to the installation of the surface course.

Aleksandra Caka Street in Riga

Tensar AX5-GN geocomposite supported the reconstructed pavement in delivering longer life and controlled bottom-up cracking.

CLIENT'S CHALLENGE

After decades of service, the surface of Caka Street in Riga, Latvia, was in very poor condition. The Transport Department of the City Council decided to renew a length of approximately 2.5 km. It was only possible to add a thin asphalt overlay. The challenge was to maximise the life of the new surface.

TENSAR SOLUTION

The overlay design incorporated Tensar AX5-GN asphalt interlayer. Approximately 35,000 m² of the reinforcing product was installed to control cracking and increase fatigue life.

Tensar AX5-GN is a composite asphalt interlayer consisting of a stiff polypropylene grid with hexagonal structure and integral junctions bonded to a polypropylene paving fabric. The geogrid performs the structural reinforcement function [R] of the asphalt interlayer, whilst the non-woven, fully saturated with bitumen, functions as a stress relief system (STR) and an interlayer barrier (IB).

Streets in Riga

Asphalt Interlayers

Fatigue Life Improvement

📍 Riga, Latvia

BENEFITS

100% increase
in fatigue life

**No need to increase
thickness**
of the new asphalt overlay

**Prevention against
fatigue cracking
propagation**
in the new asphalt overlay



Tensor AX5-GN geocomposite was laid on the freshly sprayed bond coat layer of bitumen emulsion.



Fully trafficked Aleksandra Caka Street, Riga. The section was strengthened with AX5-GN asphalt interlayer to control cracking and increase fatigue life.

PROJECT BACKGROUND

The Client, determined a required minimum Design Life of 34 million ESAL's. The maximum possible overlay thickness was calculated to provide a design life of only 16 million ESAL's. By adopting Tensor Technology and incorporating Tensor AX5-GN reinforcement interlayer it was possible to double the design life of the reconstructed pavement.

Aleksandra Caka Street is one of the main streets in Riga city centre. The existing pavement was in very poor condition. Investigations revealed structural and surface issues on the full length of the road, requiring reconstruction of the entire street section. There was extensive 'alligator cracking' on both sides of the roadway, with surface rutting and damaged road edges. The subgrade was found to be of non-cohesive soils and in good condition with a low ground water level.

The design assumed restoration of the pavement structure over the full width by milling off the existing surface in variable depths and adding a new asphalt overlay. A regulating course of hot asphalt AC11 of min 2.5 cm thick was paved with surface crossfall. The Tensor AX5-GN interlayer was then installed over the regulating layer after applying a bond coat of bitumen emulsion. This was then overlaid with 2 layers of hot asphalt; a 6 cm binder course AC22 and 4 cm wearing course AC11.

Rolls were predominately installed with the purpose-built interlayer installation machine, while some were installed manually. Pressure applied with brushes pushed out any folds and wrinkles during installation. As the Contractor used a bitumen emulsion bond coat with a bitumen solid content of $\geq 65\%$, the amount spray rate was maintained within the range of 1.85-2.30 kg/m² in accordance with the Tensor installation guideline requirements (IG/AX5-GN, 2020).

Main Contractor:

A. C. B. AS, Riga

Client:

**Riga City Council's
Transport Department**

Consultant/Design Office:

SIA Vertex Projekti

Tensor Distributor:

SIA OK Buvmateriali

"In recent years, we have completed successful projects with Tensor AR-GN asphalt geocomposites which has proven to be an effective solution against reflective and fatigue cracking. However, with the new and innovative Tensor AX5-GN asphalt reinforcement, I believe we will achieve even better results."

Oskars Koemecs

Designer

SIA Vertex Projekti, Riga