



Case Study

application	Pavement Restoration with Chip Seal
location	Martin Street, Newton, IL
product	Mirafi® MPV 500

job owner	City of Newton
engineer	Conor & Conor Engineering
contractor	Road Fabrics Jasper Co Hwy Dept

TenCate develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

THE CHALLENGE

Martin Street is a heavily traveled two lane road in the City of Newton. This road is exposed to heavy truck traffic and is used as a main detour route during seasonal road construction. The existing seven-year-old asphalt pavement surface was in relatively good condition but was heavily oxidized and was starting to show signs of fatigue cracking. The city chose from two rehabilitation options for the aging pavement. They could either place an asphalt overlay on the existing pavement or use a chip seal treatment. Due to the higher cost of an asphalt overlay, the city chose to use a chip seal for the new pavement surface.

THE DESIGN

The City of Newton was very familiar with the use of chip seals for pavement restoration. They have a three-year maintenance program in which one third of the roads are rehabilitated each year. However, because of the high volume of traffic on Martin Street they chose to use a Mirafi® MPV500 paving fabric in addition to their normal chip seal procedure. The inclusion of Mirafi® MPV500 has several benefits to improve the performance of the road and can also increase the chip seal service life by 60%. First, Mirafi® MPV500 acts as a moisture barrier within the pavement and prevents water from penetrating the roadway, which reduces the deterioration of the subgrade due to saturated conditions. Second, the use of Mirafi® MPV500 improves the bond of the chip seal to the existing roadway and reduces future maintenance needs for the surface. Additionally, saturated paving fabric bridges filled the crack, thus eliminating the need for future crack filling.

THE CONSTRUCTION

Road Fabrics was hired by the city to install the paving fabric. PG-64-22 asphalt cement (AC) was applied to the existing pavement surface at a rate of 0.79 l/m² (0.25 gal/yd²). AC placement was directly followed by the installation of the Mirafi® MPV500 polypropylene paving fabric. RC-70 asphalt emulsion was applied to the Mirafi® MPV500 surface at a rate of 0.79 l/m² (0.25 gal/yd²). The chip seal aggregate, which consisted of a CA-16 graded crushed stone material, was then applied by the County of Jasper using a variable width spreader at a rate of 20 lb/yd². After the chip seal was placed, a second application of RC-70 and crushed stone was applied. The final step was to compact the finished road surface with a rubber-tired (pneumatic) roller compactor.



After the asphalt cement was applied to the existing pavement, Mirafi® MPV500 was installed.



Mirafi® MPV500 can increase the chip seal service life by 60%.

THE PERFORMANCE

Mirafi® MPV500 installation went very well and Martin Street was re-opened to traffic immediately after chip seal construction was completed. The entire process took less than a day. The combination of Mirafi® MPV500 and the chip seal treatment will provide the City of Newton with a road surface that will have many years of trouble free service. The road will continue to be monitored to document the increased performance.



Above: The chip seal aggregate was applied using a variable width spreader.

Below: Installation of the Mirafi® MPV500 was easily completed in less than one day, and Martin Street was reopened to traffic.



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