



Case Study

application	Asphalt Resurfacing - UPDATED
location	Grosse Pointe Farms, MI
product	TruPave® Engineered Paving Mat

job owner	City of Grosse Pointe Farms
engineer	Terry Brennan, DPW Director
contractor	Road Fabrics (Geoproducts, Inc. of MI)

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

As part of the city of Grosse Pointe Farms, MI paving and resurfacing campaign in 2006, four streets were selected for routine asphalt resurfacing. Manor, Cloverly and Touraine streets were resurfaced with a 1.5" hot mix asphalt wearing course over a milled profile along each gutter lane. Similarly, Calvin Street was also resurfaced with a 1.5" hot mix asphalt wearing course over TruPave® Engineered Paving Mat. TruPave® is a fiberglass-polyester paving mat interlayer designed to limit water intrusion and mitigate the development of reflective cracking that occurs often in traditional asphalt overlays. The city was interested in evaluating the performance of TruPave® on Calvin St. as compared to the other control streets on the project.



Photo taken in July 2006 as part of construction preparation of the asphalt wearing course showing fatigued pavement transverse cracking. Milled curb lanes were done to improve crown and slope corrections prior to paving.

THE DESIGN AND CONSTRUCTION

The City of Grosse Pointe Farms was not familiar with TruPave® Paving Mat; however the designers recognized the value added benefit the interlayer can provide by minimizing water intrusion and slowing the cracking process on their city street network, thus having a direct impact on annualized routine maintenance costs, such as those attached to crack filling. TruPave® was selected because of the cold climatic conditions in Michigan and the benefit of having a high tensile strength interlayer product installed between the asphalt lift.



TruPave® installation, showing the application of hot asphalt tack and TruPave® installed on the adjacent lane. Hot asphalt tack also serves as a "crack filler" on small to micro-cracks on the existing surface.

THE PERFORMANCE

Since the installation of the new asphalt wearing surface in 2006, annual measurements of crack development have been made on each of the four streets in the project. In an effort to normalize and present the performance data in relative terms, a ratio of cracks (lf) per square foot of pavement area was calculated.

As can be seen in Table 1, measurements on each of the four street segments are summarized with the year in which the measurements were made. The last column shows the cracks/sq.-ft, expressed as a percentage. The crack measurements from 2011 were used in the calculation to show the most recent information on the crack development comparison over the five years of the project. Each street in this project is approximately 24' wide and 700 feet in length, or 16,800 sq. ft.

As can be seen in the table, Calvin St. has had the least amount of cracking on a per square foot basis by a factor of approximately 2 times over the least affected street, Manor. TruPave® Engineered Paving Mat has outperformed the other streets on the project by limiting the development of cracking year after year over the project lifetime and has exceeded all expectations.

As can be seen in the picture to the right, the Calvin St. surface has maintained its integrity and has kept both thermal and reflective cracking minimized. Below, a photo of Manor exhibits the development of block cracking where water will be able to enter the pavement and cause further damage by weakening the pavement load carrying capacity and leading to further pavement degradation.

Table 1 - Crack Measurements 2007 - 2011

Streets	2007	2008	2009	Cracks per sq. ft (%)
Cloverly	398	870	1216	7.24
Manor	864	1070	1289	7.67
Touraine	708	1181	1649	9.82
Calvin (TruPave)	8	180	654	3.89



Calvin Street, with TruPave® - photos taken October 2011.



Manor Street showing typical crack development, without TruPave®.

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