ARI5/30 Pothole, Crack Repair and Reinstatement Trial

Hammersmith & Fulham Lane Rental Industry Publication



Introduction

Potholes are a significant issue across the UK. In 2017, the repair backlog for roads in England and Wales was estimated to be \pounds 12billion and would require a decade to complete. In 2020, about 1.7 million potholes were filled, the equivalent of 1 every 19 seconds, at a cost of \pounds 93.6million. Not only do they present a hazard, particularly to vulnerable road users, but reactive repairs are more costly than proactive and take I-2 hours to complete, causing significant disruption.

With the aim of speeding up the process of repair, the London Borough of Hammersmith and Fulham (LBHF) trialled a different type of material used extensively in America. LBHF worked with Brookvex, who hold the UK patent for NanoGARD ARI5/30, a low viscosity, two-part liquid, polyurethane-hybrid polymer, to undertake a trial. The enhanced polymer is rapid setting (between I5-30 minutes) and can be used to make a resilient polymer concrete when combined with aggregate for use on carriageways and footways. The repair can therefore be completed by one or two operatives with limited disruption to the travelling public. A trial had been completed in Hampshire with positive outcomes, so this trial set out to establish if the same performance could be achieved in an urban environment.

Ward Walkstown . . .



Trial

With Brookvex guidance and oversight, First Call carried out the trials in Hammersmith and Fulham, with the aim of demonstrating that potholes could be repair within 30 minutes to the required standards. The trial was carried out in Bishops Park, as at the time of commencement, a backlog of potholes was not present within the borough. Over the course of a month potholes and cracks on the footway and cycle lanes were repaired and performed well.

Following this, repairs were carried out on the highway, with First Call carrying out a few days a week over a four month period. During this time, highway inspectors continued to raise jobs for both the footway and carriageway, which were sent to project partners for planning. Before and after photographs were taken for each, along with comments from the raising highway inspector.

Outcomes

• Footways

Overall the smaller repairs undertaken in Bishops Park and on the footway were found to be successful, showing no signs of deterioration over the trial period.

• Carriageways

Carriageways in urban environments have to withstand much higher volumes of traffic, placing greater stresses on the surface course than more rural environments. This was highlighted by ARI5/30, which was found to be unsuitable for larger carriageway patches, with deterioration visible during the trial period.

Possibly due to the urban setting, the repairs took in excess of 30 minutes and performed in a similar way to that of other materials already on the market, where the most common defects form on the surface course: at edgings and material loss (surface chips).



Conclusion

When compared to traditional materials such as hot lay tarmac or cold lay temporary tarmac, unfortunately ARI5/30 did not prove to be a viable option for pothole repairs on the carriageway. However, some of the footway repairs were successful and the material was suited to small defects such as gaps and cracks. It is understood that some utility companies have shown an interest in carrying out further trials of the material which may help to address the issues highlighted.

This trial was a worthwhile undertaking as it confirmed the situations where this product could be used and that current internal methods of repair are still effective. The findings of this project have informed the decisionmaking process around carriageway repairs and existing materials will continue to be used for the foreseeable future.

TfL Lane Rental Scheme

Optimising customer journeys through the delivery of safer, innovative and sustainable roadworks





London Borough of Hammersmith and Fulham Date Created: February 2021 Email: LaneRentalFunding@tfl.gov.uk