THERMAL road

Case Study

Manchester City Council Nr 1

BALFOUR BEATTY

MANCHESTER CITY COUNCIL NR1

The Challenge

The City of Manchester had an increasing problem with outstanding repairs - such as potholes, failing trench reinstatements and footpath defects - across the borough. The situation was becoming a major problem for both Balfour Beatty, the approved contractor, and the council authority.

Approximately 90% of the defects were due to failed repairs, some dating back to 2018. Depending on the loading and traffic intensity on the road, the potholes or cracks were opening up again after relatively short periods of use.

As a result, Manchester City Council was exposed to the risk of insurance claims due to damaged vehicles and injured cyclists and pedestrians.

Another challenge was that many of the repairs were in residential areas of the borough. Current methods prove disruptive to the local communities, not only due to road closures but also due to noise and dust pollution.

Due to the complexity of Manchester's highway network, there was a need to supplement Balfour Beatty's activities in order to deliver pothole repairs within service-level agreement (SLA) response times. The council needed to find a faster, more cost-effective way to tackle the repairs which would not increase the disruption and other negative effects to local communities, businesses and road users.

The Solution

The council turned to Thermal Road Repair's (TRR's) technology which can be used on main roads, residential streets and footpaths.

The patented TRR system works by heating up material in and around a defect, mixing the heated material with a small amount of new asphalt mix and then compacting it. Through the heating units, which are either 1m x 1m or 2m x 1m, depending on the application, the level of heat applied is monitored and automatically controlled so that the bitumen within the existing road is not overheated and damaged through oxidation.

The result of this process is an area of homogeneous material, with no cold joints. This means that there are no remaining cracks or joints through which water can enter, so that the treated zone will last as long for the same amount of time as the surrounding pavement.

The TRR method vastly reduces lorry movements and hence disruption to road users. Unlike traditional methods, there is no need for additional vehicles to take waste material away. With no need to break out the area around the defect, using a jack hammer or saw, the TRR process is also much faster than traditional methods and creates far less noise and dust, which would normally adversely affect the local community.

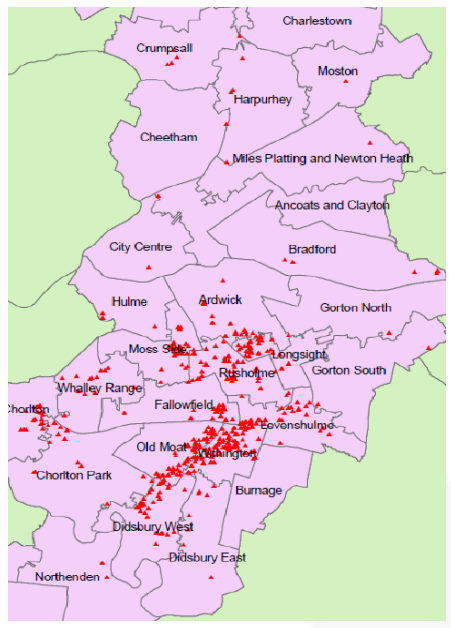
The reduction in dust and noise and the elimination of tools also means that there are fewer health and safety risks for the operatives. Noise remains well below the dangerous levels reached when working with jack hammers, the risk of respiratory harm due to dust is removed, and the danger of HAVS – hand arm vibration syndrome – becomes negligible since the process only requires short bursts with a roller.

Repair Details

TRR units were deployed to various locations across the borough.

Carriageway works have involved fixing potholes and restoring areas where the asphalt surface had deteriorated due to failing trench and iron work reinstatements.

Footpath works have included repairs to asphalt pavements that have been cracked and raised by underlying tree roots; areas that had been left exposed due to installations such as kerbs or flagstones; and vehicle access ramps that had deteriorated, creating trip hazards.



The Results

Within three weeks of being approached to undertake the work, TRR deployed an initial two teams to work Monday to Friday between 9:00 and 16:00.

The aim is to work collaboratively to repair in excess of 50 sqm of defective areas per shift. The system is also being deployed to take care of footpath defects, using the smaller heater, designed for working in more confined areas.

The client has recognised that performance related to the SLA has improved, alongside outputs within the first three weeks. The reduced logistics and shortened set-up and repair times also allow flexible programming so that permanent repairs in problematic locations can be carried out with reduced disruption and fewer negative environmental impacts.

The whole TRR process has a positive effect on the local community. One local resident, the parent of a six-month-old baby, was concerned when she heard about the upcoming repair works and had planned to take her child out while the work was underway. But she later told the TRR crew:

"Is this really it? No diggers or noisy tools are coming? Really? I only noticed you were here because I saw the flashing lights. I was worried initially as I was expecting to hear lots of noise from the tools. Obviously, I was concerned, as getting her to drop off is a nightmare if I'm honest. I don't need to go out now then."

In addition to the reduced noise and dust pollution, the TRR process offers other environmental benefits. Due to the reuse of existing material, the reduction in vehicle movements, and the use of solar power to charge up its heaters, its carbon footprint is far lower than that for a traditional process. In fact, a Carbon reduction of 2 te per team per day was achieved, compared to conventional repair methods.

However, the biggest environmental benefit of the TRR solution is its longevity. As well as saving the carbon that would have been used for repeated repairs, it means that residents, such as the one mentioned here, will not be having to face potential disruption again in only a few years' time.

"No diggers or noisy tools? I only noticed you were here because of the flashing lights."

A local resident, with a six-month-old baby

Before

After

Speak to Thermal Road Repairs today about how to go greener.
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