

CASE STUDY

Car Park Refurbishment

MAKERS

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PROJECT

Walkden St MSCP

STRUCTURE

Multi-storey Car Park

CLIENT

Mansfield District Council

CONTRACT VALUE

£477,000

CONTRACT



Walkden Street multi-storey car park is a reinforced concrete 'waffle-pot' structure built in 1964. It comprises 6 parking decks split over three levels, originally providing 433 parking spaces which included provision for disabled, Shop-Mobility and motorcycle users.

The car park is built over the top of retail premises which were previously occupied by a major retailer however when the premises were vacated with the retailer moving to a new 'out of town' location, the car park saw a dramatic reduction in patronage & utilization.

The reinforced concrete top deck had a waterproof membrane that had been applied some years earlier but which had degraded and failed in many areas allowing the ingress of de-icing salts – carried into the car park by vehicles – through the original daywork and failed movement joints in the concrete deck. The consequence was a significant volume of spalling and corrosion damage to the concrete soffits. This resulted in the top deck being closed to vehicles in 2012 for safety reasons.

With utilization down to just 80 spaces per day and consequently a significant decline in parking revenues, Mansfield District Council embarked on a programme of internal and external refurbishment to bring the structure back to life. Following a competitive tender process, Makers were awarded the contract to carry out the works comprising top deck re-waterproofing, concrete repairs and coatings, replacement of movement joints and line marking, including re-sizing the parking bays throughout.

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Before



Before

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As a consequence of the failure of the original top-deck waterproofing membrane, there had been significant water ingress into the decks below through the original daywork construction joints. The reinforced concrete on the corresponding soffits below was demonstrating a range of defects as a result of salt chlorides getting in to the substrate. Prior to the works commencing, a detailed hammer survey was carried out which identified a significant volume of delaminated concrete as a result of reinforcement corrosion.

Following removal of the defective concrete and thorough preparation of the exposed reinforcing bars, a full programme of concrete repairs were carried out using the Sika Monotop system with some 5m³ having to be reinstated. A migratory corrosion inhibitor was also applied along the daywork joint lines for added protection.

The top deck was completely re-waterproofed with the fully-fleeced Sika Pronto deck waterproofing system to ensure that the previously leaking daywork joints could not fail again. The system was applied to some 4,600m² of deck area including the up & down access ramps between the upper decks.

In order to improve the customer experience - & given the past low utilisation of the car park - the decision was taken to re-size the parking bays throughout, increasing their width to 3m instead of 2.4m. The additional space makes for a much improved user experience making it easier not only to park in the bays, but to physically get in and out of vehicles. Pedestrian-only walkways have also been added. Though the number of spaces has been reduced from 433 to 368, there has been an immediate significant increase in utilisation of the car park.



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