



Basildon Enterprise Corridor improvement

Vacuum Void Grouting

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Vacuum Void Grouting implemented by Balvac improves vital access to Basildon Enterprise Corridor.

Deteriorating road surface

The concrete slabs forming the pavement had been resurfaced less than 10 years ago, but that surfacing was now exhibiting an unacceptable level of failure with major reflective cracking above joints, and even failure of repairs carried out to those joints. Something different had to be done to ensure any new road surface would achieve a longer life and not suffer from premature break-up due to movement of the underlying slabs.

The Proposal

Following several technical discussions with Balvac, Essex Highways opted for a comprehensive package which used a Falling Weight Deflectometer (FWD) survey to identify the most at-risk joints, followed by Vacuum Void Grouting to stabilise them, and a post-grout FWD survey to verify the degree of improvement achieved.

The initial FWD data confirmed the poor state of the carriageway but using a bespoke positioning of the geophones to capture nine key parameters including Void Intercepts, Absolute and Relative deflections and Load Transfer Efficiencies, it was possible to rank the joints and identify those most likely to cause failure of the pavement due to instability.

Scope

Vacuum Void Grouting was subsequently undertaken to the areas specified by Essex Highways, with all work being undertaken during night closures of short sections of the road. This process ensured the road was never closed during the day so local businesses and commuters experienced no disruption, delays or inconvenience.

Outcome

The post-grout FWD survey of the 75 joints treated recorded a very satisfactory average improvement in joint performance of 43% and it is expected that the new overlay that has now been applied will have a correspondingly longer life expectancy.

Vacuum Void Grouting is at its most effective when used as a preventative maintenance tool, rehabilitating pavements before they start to break up or the underlying foundation is completely compromised. Coupling the grouting with the FWD survey provides clients with the ability to prolong the life of their assets, and save on whole life costs, through specifically targeted use of this service.

Stabilisation of slabs by Vacuum Void Grouting

Application of the vacuum creates an airflow pattern, drawing air from the sub-base and down the feeder holes. Replacing the air inflow with grout results in the filling of the void.

