

# Shared Learning on M25 leads to step change in Joint Replacement

OSBORNE



PROJECT

M25 Gade Valley Viaduct Joint Replacement

CUSTOMER

Connect Plus Services

LOCATION

King's Langley/ M25 J20

# Issue

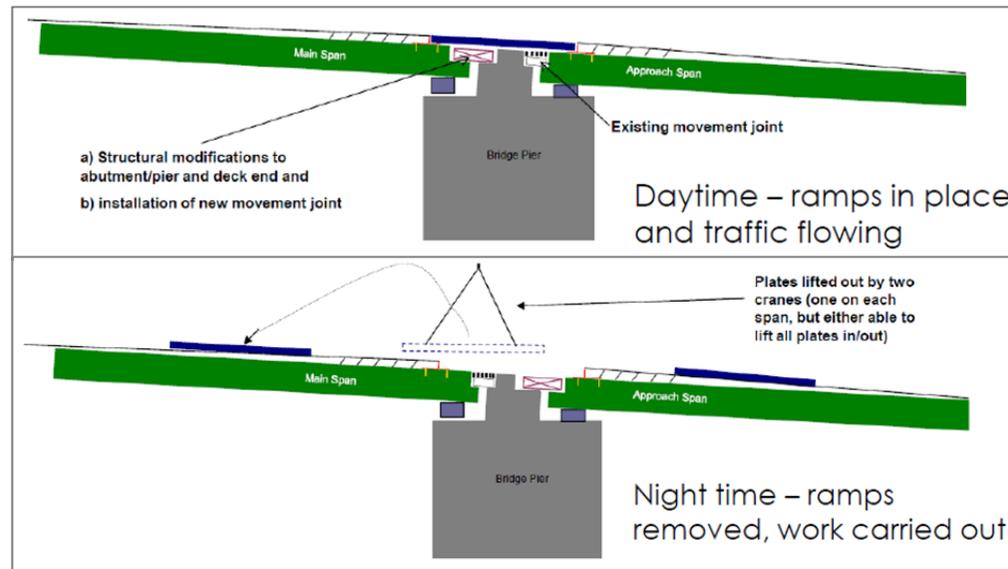
Large motorway bridge decks expand and contract with changes in temperature. Mechanical movement joints extend across the lanes to enable this to happen. During the life of the bridge these multi-element joints wear and have to be replaced.

Replacing the joints using traditional methods requires lanes to be closed for several days or even weeks. This can be extremely disruptive to road users.

The challenge was to think differently and design an approach which reduced traffic disruption whilst keeping everyone safe. The solution would need to allow traffic to travel without speed restrictions during peak times and also maximise available working time at night.

# Solution

The innovative idea proposed through the Connect Plus M25 framework community was to install temporary 'ramps' during peak times which could be easily removed to work on the joints. Based on the old 'road plate' concept these ramps were no ordinary 'road



plate', they had to accommodate the significant bridge movement, stay in place under full speed articulated lorry loading and be quick and simple to move and replace.

An integrated design approach by the Connect Plus M25 community was taken. Connect Plus Services, designers Cowi, joint suppliers Maurier, and contractors Jacksons and Osborne input to solution development. The result was a time saving method that was safe for both road users and road workers.

Following trials, its first use was on the M25 QE2 Bridge at Dartford. Each evening the ramps are able to be efficiently lifted out to enable the sequence of joint replacement works to be undertaken and each morning the ramps are simply reinstalled to fully open the

motorway with no speed restrictions.

Shared learning and success on the QE2 bridge has been transferred to the joint replacement on the 400m 8 span Gade Valley Viaduct on the M25.

# Outcome

A culture of collaboration and shared learning on the M25 has re-set the standard for mechanical joint replacement. Road users benefit from an integrated framework community who have pulled together to deliver a solution that significantly reduces disruption over traditional joint replacement methods.