

# M1 Tinsley Viaduct Strengthening

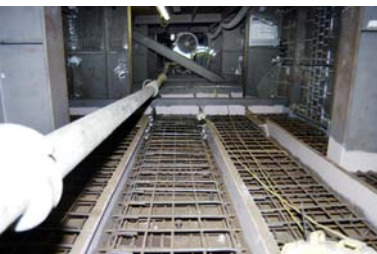
**Client :**  
Highways Agency

**Designer :**  
Owen Williams

**Location :**  
Sheffield, South Yorkshire

**Date :**  
2002 - 2005

*BCIA Major Project  
Award Winner 2005*



Tinsley Viaduct is situated at Junction 34 of the M1 motorway. It is a two level steel box girder with composite reinforced concrete decks and carries traffic on both levels.

Following an EU Directive on vehicle weights, the viaduct was assessed and traffic restrictions were imposed. The upper deck (M1) was restricted to two lanes and abnormal loads were limited to 80T.

### Value engineering reduced costs

Over a four month period BAM Nuttall and our specialist steelwork sub-contractor had the opportunity to survey the structure. Savings of £4 million were identified through value engineering and innovation.

The works comprised strengthening the structural steelwork to the piers, longitudinal boxes, cross boxes, cross girders and Merrison cross boxes together with upgrading the existing parapets.

To enable the works to be executed under the correct loading, extensive traffic management was required whilst maintaining the flow of 100,000 vehicles per day.

### Challenges

A number of challenges were associated with the project. Most of the work was undertaken inside the box girders on the underside of each deck of the bridge, which were classified as confined spaces. Access to these boxes was through holes, approximately 1000mm by 600mm wide. All the equipment, metal blocks, concrete and workers had to enter through these holes.

### Innovation

Safespan - a unique access system developed in the USA - was used to provide access to the deck soffits whilst limiting the amount of additional temporary load and providing full encapsulation to the work area. The Safespan Platform System was suspended from cables attached to the underside of the bridge. Decking was then attached to the cables, creating an enclosed work area, preventing debris from falling on vehicles below and increasing the safety of the workforce.

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