

Lane Rental Industry Publication

# Hammersmith Flyover



EVERY JOURNEY MATTERS

# A4 Hammersmith Flyover – Provision of Extraordinary Measures



## Introduction

Structural investigations revealed that post tensioned cables in five of sixteen bridge spans of the Hammersmith Flyover had deteriorated significantly to warrant immediate lane closures of the flyover in order to undertake urgent remedial work and return this main London road network artery to road users before the commencement of the Olympic Games in 2012. Further planned structural works following the Olympic Games were still necessary to avoid implementing permanent weight restrictions that would preclude the future use of the flyover by heavy goods vehicles. This second phase of works would again mean lane closures that would have ordinarily reduce road network capacity by 50% for a period of 129 days. The social cost of delay for this anticipated disruption was calculated at £1.65 million.

Consequently, alternative measures were investigated to execute the works without detrimentally impacting previous levels of traffic flow when demand on the network was highest. A solution that amalgamated a series of measures was identified to deliver this objective, which also qualified for Lane Rental funding under the headline criteria of reducing the adverse effects of roadworks. A funding request for the proposal was therefore submitted and duly approved by the Lane Rental Governance Committee (LRGC) for the implementation of these extraordinary measures. The bid was categorised under innovative techniques/working practices together with infrastructure improvements

## The Project

The second phase of structural works included post tensioning works to the remaining 11 bridge deck spans, replacing the bridge bearings, overhauling the existing central reserve, repairing the concrete deck, installation of a new drainage system, waterproofing the structural substrate, and deploying a new permanent barrier system.



The key to retaining capacity throughout the duration of the work was the ability to enable operatives to work continuously in close proximity to live traffic without compromising safety.

As with any conventional roadworks operation, the provision of a sufficient safety zone was a prerequisite, but an alternative barrier system to protect the workforce was considered to be essential to achieving this task. It was therefore decided to implement a robust temporary barrier solution called Varioguard, a system tested to withstand vehicles between 1.5 to 13 tonnes in weight.



The provision of this barrier system meant that the existing carriageway lane widths were marginally reduced, but this alone was not sufficient to fully mitigate safety concerns and ensure these narrow lanes operated effectively, with traffic flowing unhindered. As a consequence the following supplementary measures were also implemented to complement the narrow lanes:

- A temporary reduction to the speed limit and the deployment of average speed enforcement cameras
- The installation of temporary ramps to act as a speed deterrent
- The provision of a vehicle recovery service to rapidly remove broken down vehicles
- Existing hard strip utilised as a running lane to facilitate adequate working safety zones

The alternative option to the above series of measures would have been to implement daytime lane closures, which would have reduced capacity by 50% with a translated social cost of delay in the region of £1.6m. This would have severely impacted all road users.



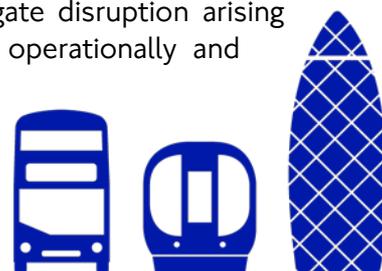
## Outcomes

Five high-level main objectives were sighted and accomplished for this project:

- 1) Maintaining existing traffic flow on the A4 for the duration of the works was the key deliverable benefit of the project that ensured disruption and delay was reduced for all road users. The calculated cost of delayed saved £1,654,000
- 2) The majority of work phases involved noisy operations, which if restricted to overnight construction windows, would have caused local residents severe disturbance
- 3) The ability to rapidly recover broken down vehicles, supplemented the overriding benefit of reducing disruption and delay to all road users
- 4) Enhanced standards of safety for site operatives were achieved by using Varioguard in lieu of conventional traffic management equipment
- 5) A cost benefit ratio of 3.8 was achieved

## Conclusion / Recommendations

Although the measures identified are not considered to be radically innovative in isolation, the aggregated effect of implementing these as a suite is considered to be novel. The project was hugely successful in delivering the main objective of ensuring that daytime network capacity was retained throughout the construction period. The use of these measures to mitigate disruption arising from Roadworks should be encouraged whenever possible where both operationally and economically viable, with benefits applying to all road users and highway authorities



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