The Project

On 22 December 2011 the Hammersmith Flyover was closed due to structural defects in the post-tensioning system. The project team were faced with the challenge of delivering £15 million worth of strengthening works within a 23 week programme, including design. The team created a culture where innovation and ideas were welcomed from every level. An innovative solution was designed in 7 weeks and comprised a long term fully replaceable post-tensioning system. The works were technically demanding requiring specialist stressing operations, sophisticated structural monitoring and involved safety critical activities in confined spaces and operations adjacent to live traffic.

Hammersmith Flyover was re-opened on the 28 May 2012, one week ahead of programme ready to perform as a major artery into London for the Olympics. Technical ability, innovative thinking, exemplary health and safety record and total dedication from the project team led to the success of this highly complex project.

Awards to date:

- London Transport Awards – Most Innovative Transport Project – Winner
- The ICE Awards – Special Award for Emergency Engineering – Winner
- IStructE – Regional Midlands Awards – Bridges – Winner
The Benefits

Environmental aspects – Energy & Climate, Materials, Water, Ecosystems, Local Impacts
- Hydro demolition was avoided by using diamond cutting thus producing less waste.
- Gullies were covered to eliminate pollution of highway drainage.
- Waste was separated, recorded and recycled
- Noise limits were set to minimise noise pollution, including Additional acoustic tenting was constructed to protect adjacent traffic.
- No trees or landscaped areas were affected by the works.

Social aspects – Human Resources, Corporate Community Involvement, Business Ethics, Health & Safety:
- Most significant benefit was the reduction in time period for which Hammersmith Flyover was closed and the significant reduction in consequential delays and congestion.
- Work complete in time to allow the route to serve the Olympics.
- Long term solution resulted in reduced longer term maintenance liability and impact of future maintenance works.
- Health & Safety: Innovative safety measures enabled the team to achieve an excellent safety record of 169,000 person hours with ZERO reportable incidents.

Economic aspects – Project Selection, Supply Chain, Value Added, Life time costs/savings:
- The most cost effective long term solution was adopted.
- The integrated project team, including Client, Contractor, Designer and supply chain partners co-located to ensure ‘buy-in’ from all parties from the outset, including the commercial team.
- A common goal was the focus from all parties driven by senior management.
- Continual and rigorous review by the Client and Independent Checkers.
- Open book approach with the Client and Contractor’s commercial team on site.

The Process

The key to the project’s success was the level of trust between parties which allowed everyone to work together as ‘one team’. Amey invested the time and personnel to fully understand the project constraints and the need for an extremely tight programme. The implication of not meeting the specified deadline was clear to everyone. It was important the quality was not compromised. This was achieved by using collaborative planning techniques to improve efficiencies in the process without reducing the value. Any issues or blockers were identified and resolved effectively and quickly. End to end capability and early engagement ensured buildability was engineered into the design. An innovative design review process was introduced early which allowed the construction to progress in advance of the independent check. Dedicated safety supervisors were employed, whose sole objective was to ensure safe working operations in their area. More than 700 safety inductions were carried out over the project, and everyone on site had a helmet label with essential contact and medical information. Access to the structure across live carriageways was a major operational safety risk, mitigated by the installation of a temporary footbridge during planned night closures enabling the workforce to access the site safely.

Key Learning Points

Keys to success:
- One team approach with a common goal and trust
- Early contractor and supply chain engagement
- Collaborative approach to planning with a focus on identifying blockers early
- Buy in from the Project Board and Senior Management
- Authority to escalate and deal with issues quickly
- Facilitate co-location as much as possible
- Challenge processes, don’t blindly follow normal practice
- Open book approach to commercial aspects
- Engage with the media

End User Feedback

This project started out with a 5 year programme to strengthen the structure as a result of deteriorating post tensioning system. However, due to what was found during an investigation it was necessary to move to an emergency situation and define, design and then implement a new solution in 23 weeks. All the challenges that were faced by the team were met and the outcome was a highly complex project successfully delivered within an extremely challenging timescale.

“This has been a real demonstration of what the construction industry can do”
Garrett Emmerson, TfL chief operating officer for surface transport

For more information on The Green Construction Board visit www.greenconstructionboard.org or email green.board@bis.gsi.gov.uk