

INFRASTRUCTURE

Proven performance

A50 truck road improvements

A50 Uttoxeter

The challenge

As part of the Midlands Engine Regeneration, the Government set to improve the A50 around Uttoxeter which included the construction of a grade-separated junction on the A50 at its intersection with the A522.

With over 37,000 vehicles using the A50 on a daily basis the project was aimed at improving safety, easing congestion and journey times. It also aimed to provide economic benefits, allow development for houses and growth for businesses in and around Uttoxeter.

This was a complex undertaking and the £28m project was at risk of stalling due to the threat of costs exceeding Staffordshire County Council's budget. Key issues surrounding the project included, difficult ground conditions, local sourcing of 180,000m³ of fill material, producing a time effective solution to deal with extensive statutory undertakers requirements, minimise traffic disruption and conduct all in a safe and compliant manner.

The existing poor ground conditions on the embankments posed a challenge with the designed deep soil mix solution being expensive and did not guaranteed to solve the quality of the ground.

The challenge with the statutory undertaker's equipment was twofold, there was a requirement to safely work around statutory undertaker's plant such as high volume gas pipes and high voltage electrical cables, plus there was an added complication of the requirements to divert strategic fibre optic cables.

The scheme was built over and adjacent to the live A50 whilst minimising disruption to the 37,000 vehicles travelling daily along the route.

The project required the import of 180,000m³ of granular fill from natural sources and the disposal of around 30,000m³ of excavated material to landfill.

Solutions to all of these requirements need to follow health and safety compliance, keep within the specified

budget, be delivered on time and be deployed whilst ensuring traffic disruption was kept to a minimum. Early identification, effective risk management and effective planning were key to project safely and to ensure highest quality standards.

Tarmac; in collaboration with Staffordshire County Council and delivery partner Amey were responsible for the safe and prompt delivery of the scheme on behalf of Highways England (HE).

Our solution

By taking a collaborative approach with all parties involved in the project and deploying innovative and sustainable solutions, the scheme was delivered within the tight budget.

Tarmac liaised with geotechnical specialist Coffey to find a solution to poor ground quality. The poor material was excavated and stabilised for reuse on site. A virgin material was then used around bridge abutments that met the project requirements.

This sustainable solution omitted the cost of soil mixing, saved 1 month of site mobilisation and also installation time was reduced. Natural settlement of the embankment saved time and reduced the settlement effect without increasing the project plan timings.

Rather than wait for the embankment to be constructed and transfer the statutory undertakers services over the new bridge deck, Tarmac deployed directional drilling across the A50 and a utilities corridor was formed to realign them away from the works. This approach minimised traffic disruption, reduced risk and with extensive planning with the authorities around 6 month programme time was saved.

During the ECI process a proposal was made to use 210,000 tonnes of waste product, pulverised fuel ash, that was sourced from a local coal fired power station 10 miles away. The sustainable lighter weight material had the added advantage of reducing the programme due to a reduced settlement period, required for the ground to consolidate prior to constructing the road.

Tie in works were programmed overnight and at weekends to avoid disruptions. Where it was not possible to avoid disruption, extensive planning was carried out with activities detailed to every 30 minutes. The general public were kept up-to-date through newsletters, social media, one to one meetings, letter drops, matrix signs and local media, organised by SCC using information given by Tarmac.

Safely managing a site with over 364,000hrs worked throughout the construction process was challenging but safety remained a priority. Safety observation reporting was encouraged and over 2,500 items were submitted, dealing with issues before they became a hazard. One example was the development of an innovative socket system, developed to avoid the need to drive kerb pins into the ground around cables.

Results and benefits

By taking a collaborative approach and deploying innovative and sustainable solutions, the scheme was delivered on time within the tight budget. The team met all milestone and targets to deliver the completed bridge ahead of schedule, and successfully demolish the old bridge during a 54 hour carriageway closure, the culmination of many months of advanced planning and risk mitigation.

With such a large number of stakeholders involved in the project, collaboration was at the heart of this project and it was essential that all parties were aligned. Through a combination of collaborative meetings, measurable targets and agreed principles the critical date for the bridge beam landing possession of the carriageway was met.

As well as delivering the scheme to budget and ahead of programme, £6.6m of savings were made during the project ECI phase and 6 months were saved through the project. This was achieved through collaborative engagement and the deployment of the innovative and sustainable solutions that have been highlighted.

Feedback from both the client and stakeholders has been extremely positive and provides solid evidence

that the client's and community's needs were met during project delivery.

During this project a great sense of community was inspired and Tarmac took their commitment to social value seriously. The team worked with local stakeholders holding monthly meetings with neighbours. JCB, who have a distribution centre and manufacturing plant that is adjacent to the site, business continued without complaints. Tarmac also offered summer placements for graduates on the scheme and took an apprentice engineer through to graduation. The scheme supported local community initiatives such as sponsorship of the Building Bridges to Schools initiative; where eager, young, local students were able to understand the type of construction processes that go into bridge building.

Now complete, the new grade-separated junction on the A50(T) has created a safe access at the intersection with the A522, opening up land for development of 700 homes and businesses and facilitating job creation; helping to deliver Highways England's and Staffordshire County Council's objectives of improved road safety and capacity, and bringing economic benefits to the region.

Additional info

John Vyse, Local Resident

"A Uttoxeter resident came into the site offices to praise the site. He commented on how well we are keeping the road clean, how the traffic lights are short and well-timed and stated he was impressed with how the traffic keeps moving well."

Andy Mason, Principal PM, Staffordshire CC/Amey

"I'd like to take this opportunity to thank you all and your team, for the assistance you have afforded me to getting to this point it has been a pleasure working with such a professional team. I hope

that we will cross paths again in the future."

Nigel Gilbert, CCS Monitor

"There are a number of exciting safety initiatives undergoing development around the site. It is good to note that the site has been involved with its JCB neighbour in the development of a new dumper aimed at improving stability, visibility & operator protection."

Andrew Butterfield, Highways England

"Congratulations! It has been a great project to be involved in. Well done to the whole team and my personal thanks for the support."