

Case Study: Collaboration

Background

The A50 Trunk Road forms part of the Highways England Strategic Road Network running through the North Midlands linking the M6 in the west with the M1 in the east.

In December 2013, the Government announced a major infrastructure investment to improve the A50 Growth Corridor. Staffordshire County Council (SCC) on behalf of the Department for Transport and Highways England has delivered the first of these growth projects, Project A.

The A50 Growth Corridor proposals are fundamentally about supporting businesses and communities right along the A50, to make this area an even more attractive and competitive place to do business. This has contributed to a number of major commercial and industrial developments being attracted to locate adjacent to the route. Rolls Royce, Toyota and JCB have all made significant investment in the area. Traffic to Alton Towers also

extensively uses the A50 Growth Corridor.

Proposed new local developments account for over 1300 new houses and 25 hectares of development land for offices, light and general industrial and storage and distribution. There are also plans for a school and local centre.

The A50 Growth Corridor Projects around Uttoxeter will support all of these developments, as well as improving the roads and other infrastructure, to keep goods and people on the move, as Staffordshire County Council works to strengthen Staffordshire's economy. Hundreds of new jobs are anticipated, and JCB has already commenced a major new engineering facility next to the site.

Project:

**A50 Growth Corridor Project A,
Uttoxeter, Staffordshire**

Client:

Staffordshire County Council (SCC)

Design consultant:

Amey Consulting

Contractor:

Tarmac

Contract value:

£28M

Length of project:

30 months

Completion date:

December 2018

Scheme details

- Construction of a new junction to the west of Uttoxeter.
- The construction of new slip roads to link the new junction to the A50 and the widening of the A50.
- The construction of a new bridge on concrete abutments with bored pile foundation over the A50.
- Extensive traffic management, including extended closures of the A50 during bridge beam installation in 2017.
- Extensive co-ordination of diversions and/or protection of the statutory undertaker's apparatus.
- Realignment of the existing A522.
- Extensive earthworks in the construction of new embankments.
- Demolition and removal of the existing overbridge carrying the A522 over the A50 (T)



Key achievements of the Scheme include:

- Over 375,000 safe hours worked
- Providing cost certainty to deliver within Highways England/SCC’s budget
- Over £6.7m savings made during an effective 18-month ECI period
- Management of opportunities resulting in over £300k of VE through the contract period
- Early recognition of risks through the Early Warning notification process
- Collaborative working initiated through partnering workshops
- Programme certainty, through agreed monthly programme updates
- Effective communications with stakeholders

ECI

The Amey design team progressed the design through planning in 2014 and a successful Compulsory Purchase Order in 2015.

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Through 2015, extensive ECI was progressed with the contractor, who was appointed via the MHA’s MSF2, this ECI led to £6 million worth of savings prior to the contract award.

The main contract Target Cost (NEC Option C) was agreed in May 2016.

Early development of a risk and opportunity register during the ECI period identified a number of opportunities to drive down the cost of the scheme and reduce the risk to the programme to deliver the scheme within the budget.

Initial Target estimates were considerably more than the client’s budget and the team had to find savings to drive the cost down. To ensure certainty of the budget, risks were assigned during the Target process so that all parties clearly understood who owned them.

Being fully aware the outturn cost and risk of overspend allowed the client to make informed choices. An example of this was to delete a section of slip road widening and spend the money on building a new filling station access thus maintaining an existing business which would otherwise have been closed down as part of the scheme.

An ECI proposal was made to use 210,000 tonnes of waste product, pulverised fuel ash (PFA) from a coal fired power station, around 10 miles away, saving £ 2.5 million. This lightweight fill along with the ecological benefits had the added advantage of reducing the programme due to a reduced settlement period.

Management of risk and opportunity through ECI

The statutory undertakers' diversions were identified as a common risk, in particular; BT had to divert a strategic fibre optic cable across the A50. This was identified during the ECI stage as a potential issue to delay the works. Various iterations of the programme identified the preferred solution would be to take the BT cable under the carriageway by directional drill rather than wait for the bridge to be complete before commencing the diversion which also reduced the programme

Poor ground conditions were also identified as a key risk. Through consultation with geotechnical experts Coffey and further deep cone penetrometer testing, alternative solutions were found to the ground improvement techniques initially priced as deep soil mixing. It was found by producing scenario programmes, that by using the lighter fill material and with the introduction of a settlement period the extent of the ground improvement works could be reduced without extending the programme and therefore overhead costs.

In addition to identifying and managing risk, opportunities were managed in a similar way to reduce the costs and the effects of changes that had a negative impact on the budget. Through regular focus on the higher value and more probable savings, over £300k of Value Engineering was achieved.

Throughout the duration of the project Early Warning Notices (EWN's) were used as a tool to manage risk and not just as a precursor to a Compensation Events.

They enabled the team to efficiently and collaboratively identify problems and potential problems and possible solutions, early. Over 750 EWN's were issued by the team, this was seen as positive in terms of identifying risks and managing them through weekly EWN meetings.

By identifying risk early and managing it only three Compensation Events affected the Contract Completion date

 **£300K**
OF VALUE
ENGINEERING

assisted in bringing the scheme within budget.

Collaboration

Collaborative workshops were key to the scheme's success, and as a result of these the scheme benefitted from close working relationships across the board.

Collaborative working sessions were instigated at the start of the scheme to involve the site teams and key stakeholders. This resulted in the formation of a Relationship Management Plan based on BS1100

These sessions were hosted by Dr Jon Broome (NEC contributor) which allowed all stakeholders to contribute to the risks management process by raising their concerns from each individual's perspective or to identify the "Moose Under the Table". Plans could then be instigated to mitigate the risk or develop the opportunity.

Effective Management of the Programme

Last Planner or Collaborative Planning process enabled the foremen, engineers, SCC representatives and subcontractors to jointly manage operations and meet key milestones by ensuring jointly that the focus was on the critical elements. Any constraints or blockages were highlighted, and the process allowed issues to be resolved or activities prioritised.

Key to management of Health and Safety was the dealing with the small things prior to leading to bigger issues. Safety observations were encouraged with over 2,500 safety observations recorded from the site team and actioned throughout the works.

 **OVER 375,000**
SAFE HOURS WORKED

Communications

Led by SCC, with assistance from Amey, Tarmac and Highways England, extensive communications updates were regularly carried out via newsletters, social media, one to one meetings, letter drops, matrix signs and local media.

During the complex six 44m span bridge beams lift in 2017, the A50 (T) was closed for over 48 hours. A major communications exercise was undertaken on social media and using Highways England's motorway and trunk road matrix signs as far afield as Manchester and Birmingham.

The major A50 closure communications exercise was repeated in 2018 for the demolition of the redundant A522 bridge. Extensive planning was carried out, with activities detailed to every 30 minutes. Environmental Health were fully consulted and fully on board for the weekend.

