Strategic Employment Site (SES) Lubbesthorpe, Leicestershire

Team Achievement

MHA
Midlands Highway Alliance
Driving Collaboration

Leicestershire
County Council

AECOM

waterman

EUROVIA
CONTRACTING

The Strategic Employment Site (SES) is located near J21, M1. This development brings new jobs to the area and incorporates a new village and amenities. With the new junction for access from Leicester Lane, the assessment concluded that the B4114 / Leicester Lane junction needed improving to allow for greater capacity.

Being near a conservation village, local consultations highlighted concerns with works creating a potential disruption to the area.

It was identified that the following public services would also be affected by the works:

- Leicestershire police headquarters (PHQ) sit at the B4114 junction.
- Enderby park and ride.
- Fosse Park (retail park).
- Local bus service to Enderby.
- Farmer's premises, whose access was immediately adjacent to the site.
- Local commuters.

The works started in September 2016 and completed in May 2017, incorporating the Christmas embargo.

To carry out these works effectively, our task was to ensure all the people in the team had the right skills and experience to deliver a scheme, where these public services continued to run effectively, complete, on time and clear the network of disruption.

As the project developed, there was a growing understanding of each other's needs. Our overall goal, to deliver an effective scheme within the constraints of this particular site, placed as much emphasis on consultation and team working as design innovation and solving engineering challenges.

Project management, procurement and resources

Leicestershire County Council (LCC) were the Client, using the Midlands Highways Alliance (MHA) to support the scheme. The design was carried out by LCC staff working alongside staff sourced from Professional Services Partnership (PSP2), allowing a variety of skill sharing between them. The Principal Contractor, Eurovia, was selected from the Medium Schemes Framework (MSF2) on a call-off, which allowed an advanced ECI of 9 months. This provided cost savings from initial draft designs of £391,110 (12.7% of target).

Due to the importance of maintaining traffic flows, the Traffic Management contractor was commissioned 8 months prior to site works. They were included in ECI meetings to provide input and prepare for all phases – updates of proposals were communicated to all affected and were invited to give their input.

The project manager oversaw:– drainage, utilities, signals, street lighting, civils, TROs and contract, allowing a simple flow of communication of the design proposals between contractors and affected parties.

Statutory providers were notified early and updated continually throughout the design. Site walk-throughs were carried out to discuss programme and sharing work elements, to enable efficient delivery within the programme.

Openness and communication was key to ensuring all parties were fully aware of progress, their duties, risks, and decision-making protocols. A joint organogram was created showing client and contractor roles.

After 9 months of continued communication, and valuable liaisons from the public liaison officer, starting on site came with no issues from the locals, affected public services or the police force… all were prepared.

Earthworks for drainage and new road construction

Planning and communication

The B4114 is the busiest road in Leicestershire and part of LCC's resilient network. The use of standard temporary signals wouldn't suffice at this location, so a hardwired system was identified, and allowed for the junction to operate efficiently, incorporated the 'hurry-call' for the PHQ and enabled the traffic information to be sent to the area traffic control office.

Extract from TA of traffic flows in the area

Table 8.1.2 Comparison of Local Network Flows

	AM		PM	
	2008	2026	2008	2026
A47 – W Beggars Lane	1086	1659	1145	1597
A47 – E Kirby Lane	1462	2016	1731	1821
A47 – W A563	1673	1967	1875	2282
A563 – S A47	2195	2420	2754	3083
A563 – N Fosse	2384	2615	2623	2864
B4114 – N B582	2733	2800	3046	3084
B582 – S A47	644	828	703	885
B582 – S M69	722	1037	784	1103
Totals flows	12899	15342	14661	16725
Difference in flow		2443		2064
Percentage change		18.94%		14%

Table 8.1.3 Growth 2008 – 2026

Exceptional collaboration between traffic control, LCC, principal contractor, sub-contractors, Leicester City Council, and the TM contractor was essential for the complex switch-over to these temporary signals. Due to unfamiliarity of the technical elements, it was evident that great trust was put in each party to deliver their specialism, it had to be successful and quick. Traffic was assessed to establish the correct time of day on the lead up to the switch over, which was carried out without any issues and greatly appreciated by all parties concerned.

A water main identified on a ground penetrating radar survey was not on the provider's plans. This created a delay to a water mains diversion and became a risk to the programme. The client, contractor and subcontractor carried out meetings with the utility provider, and their operatives, to facilitate their diversions and assist with sharing the work within the programme.

Watermain diversion carried out within existing works with help from CR Civil Engineering

The Public Liaison Officer ensured the farmer was informed of water switch off periods. A good relationship had developed and they were accommodating to the disruption. We helped with any additional water supply for the cattle.

Internal relationships were built through months of team working: - information, opinions, ideas and questions were communicated at all levels and no-one was afraid to voice their opinions, which gave a sense of the scheme working almost organically.

B4114 alterations

Innovation

A flooding issue was identified on Leicester Lane. Surface water discharge from the M1 and fields was too great for the existing infrastructure and periodically flooded the highway. This caused road closures and huge amounts of traffic being diverted.

Flooding on Leicester Lane, March 2016

Although outside the scope, it was an opportunity to find an effective way to alleviate some, or all, of this flood water. Engaging with the local authority's drainage maintenance department, historic information was gathered and suggestions of what they might maintain were proposed and amended to support their needs.

The site drainage was designed in conjunction with the existing drainage infrastructure. The ditches were cleared or made easier for future maintenance with the installation of perforated pipes and stone.

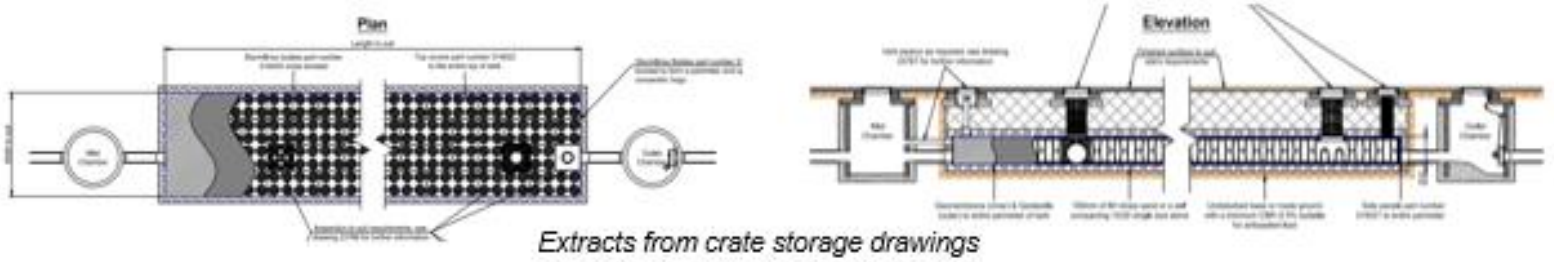
There was a sense of excitement when proposals were put to the parties affected by the works and local stakeholders. They were eager to see if this reoccurring flooding could be eradicated.

When something had to be reviewed and a solution created, there was a sense of excitement. Due to the area being prone to flooding, ideas to keep construction moving were often ideas that couldn't come from a book, this gained trust in people's thoughts and suggestions and was extremely effective and successful.

With the flooding issue in mind, the onsite drainage was designed to slow down the surface water run-off heading down-stream using the Sustainable Drainage (SuDS) principles of source control and infiltration. A cascaded attenuation system was designed, which allowed for additional surface water storage within the chambers.

A crate attenuation system was proposed for retaining the water and utilised existing drainage and ditches.

This SuDS system isn't a usual highway adoptable system in Leicestershire, but liaison with the drainage maintenance team enabled a system to be designed to meet with their approval.



Extracts from crate storage drawings

The supplier was involved in creating a system to be effective in its surroundings and allow safe access for monitoring and maintaining the system. The monitoring would allow LCC to decide if this could be an adoptable highway drainage solution in the future. Meetings between the contractor, designer and manufacturer continued during construction to monitor the installation process. This allowed changes to the next elements to be manufactured; such as suggestions made by the contractor for easier installation.

The manufacturer has updated the standard product warranty in line with LCC's requirements. The system has been shown to deal with surface water runoff from all additional hard paved areas, prevent the flooding issues identified and reduce flow rates in the existing drainage system 20-40%, dependant on the storm event.

There was a great deal of participation in the design and construction of the crate system. Even members of the public, walking by, stopped to see what this was.

Attenuation installation

Safety

Individuals were identified and their roles under the CDM regulations clarified. This is part of the QA procedures for LCC.

- The Principal Designer coordinated the design and team inputs.
- Safety of all staff is ensured and inductions carried out to all attending site.
- H&S promotional media displayed around site.
- Near-miss reporting encouraged.
- Health and safety reporting at meetings.
- Tool box talks on site.
- Operatives maintaining the traffic management and guiding members of the public safely.
- Considerate Constructors Scheme score = 45 and submitted for CCS award.

Sustainability

Social – creating jobs, access to industrial park, safe route to work.

Environmental – replanting of trees within development, protection of bronze age fields, bunds to protect views, flood alleviation, cascade system accesses within verges at rear of footway for safe access and working areas.

Economic – jobs to business park, local staff and materials during construction, programme around anticipated traffic flows to retail park, off site works only during December

Wellbeing – on site compound with above standard facilities including showers, heated offices, full IT provisions, meeting room, on-site parking… good atmosphere with designing and on site

Wider Collaboration

Due to the long-term relationships, that the MHA encourages, Eurovia and LCC had developed ways of learning how to evolve. With this came the on-line system, Conject, used to upload drawings, record instructions, raise early warnings, technical queries, and payment documents. It monitors the duration of these under the NEC3 requirements. It also enabled the facilitation of early warning meetings. The success of this, and the good relationships, means that everything was dealt with efficiently.

Monthly KPIs were also assessed as part of the MHA continuing improvements.

The repeat working with the same individuals and teams gives a chance for understanding strengths and weaknesses and how to work with each other. ISO 44001 is heavily used for relationship management.

Conclusion

This scheme has benefited from the relationships developed from all team members. The planning and communication, amongst all involved and affected, has shown how people benefit from being involved and take pride in how they deliver the scheme. We were all fully aware of what to expect and what the outcome should be. Effective team working allowed us to manage all constraints and risks and a communal feel throughout design and construction was felt by all.

B4114 / Leicester Lane Junction

Images from Google and Bing

Leicester Lane, New Junction

Before

After