

# A30 Crooked Billet

**Client:** Connect Plus

**Value:** £7.5m

**Delivered:** May 2020 – Oct 2021

**Contract:** NEC3 Option C



## Scope of works

- ECI
- Site investigations and enabling works
- Traffic management
- Widening and realigning of lanes and carriageways
- Removal of existing subway and construction of new surface level footway and cycleway across the roundabout with new crossings for pedestrians and cyclists
- Upgrades to other pedestrian and cycle routes
- Drainage upgrades and associated excavation works
- Upgrades to traffic signals, signs and street lighting, and installation of a new signal control system, including ducting, foundations and commissioning
- New VRS, pedestrian guard rails, bollards and kerbing
- Resurfacing, including high friction surfacing and road markings
- Service diversions



## Project description and scope of works

Major improvements to the A30 Crooked Billet roundabout to improve traffic flow, capacity and safety, and improve facilities at the roundabout for pedestrians and cyclists, increasing pedestrian and cyclist safety. The junction is dissected by the Staines Bypass from Junction 13 of the M25, which leads onto the London Road taking traffic into Staines, London, and Heathrow Airport.

**The scheme was delivered to programme and within 5% of the Target Price. It also achieved a Considerate Constructors Scheme Certificate of Excellence for a score of 44/45 (top 2% across entire construction industry).**

## Integration of projects in a wider programme of works

We delivered this scheme as part of a wider programme of works through COFA 2. Other works we have delivered include major projects such as Junction 13, plus smaller schemes such as VRS works, drainage and CCTV installation. We are fully integrated in the COFA community, partaking in strategic planning and ECI and participating in community meetings, steering groups and forums.

## Management of multiple stakeholders

**Natural England:** With an SSSI and livestock adjacent to A30 westbound carriageway, we closely liaised with Natural England to develop working methodology and gain the required consent. This included employment of an ecologist, installation of a safety zone to segregate the work area from the SSSI and, where we needed to divert a pedestrian footpath through the SSSI, we installed specialist matting to protect the grass.

**Environment Agency (EA):** The site was located in a Flood Zone 2, with the River Ash running through a culvert. A Flood Risk Activity Permit (FRAP) was required due to the design for parts of the new infrastructure impacting on the watercourse. We supported Connect Plus Service (CPS) with the FRAP application from a construction perspective, helping to develop applications and consents in meetings with CPS and the EA.

**National Highways (NH):** we and CPS engaged with the NH communications team to discuss all traffic management (TM) affecting the road network to give advance warning to road users.

**Public:** we attended three public information events with Connect Plus (CP) and NH and employed a part time Public Liaison Officer to engage with the local community (residents, businesses, public, etc.). The scheme received an overall 44/45 Considerate Constructors Scheme score, including 9/9 for the category of 'Respecting the Community'.

### **Spelthorne Council Local Authority (LA):**

the LA was concerned about the effects of noise on residents. Their solution was for us to accommodate local residents in hotels or to install double/triple glazing to properties, which would have been costly. Through careful consultation, we instead proposed, applied for and constructed works in line with a Section 61 agreement, to manage noise levels, with measures such as noise monitoring equipment, careful phasing of noisy works, using silenced equipment and acoustic barriers. This resulted in zero complaints for noise throughout delivery. We also liaised with the LA to coordinate road space bookings and avoid TM clashes with other works such as surfacing works and vegetation clearance by the LA and CPS, enabling us to share road space and coordinate the interfaces, while minimising impact to road users.

"You should all be very proud for delivering a very good and a very safe job, particularly through the tough year that was 2020"

**Clive Cooper, Programme Delivery Manager, M25 DBFO, National Highways**







## Appreciation of constraints of working on live highways

Pedestrian and TM was a critical aspect of this scheme, due to it being located within an urban area close to Heathrow Airport. To ensure optimal traffic flows, we carried out works over four phases. TM included removal of existing technology (traffic signals) and installation of a temporary TM system, using permanent and temporary road closures, with advance signage informing drivers of restrictions. Disruptive works such as surfacing were carried out overnight. We opened up completed sections as soon as they were finished, as well as part completed sections (e.g. while waiting for surfacing), to optimise traffic flows. Pedestrian diversions were also in place and we used the innovative cone bar system – a reflective bar to reduce the risk of cyclists, pedestrians and moped incursions into the TM. We also trialled Safety Glasses, which could be worn by someone on site, to provide a view of the site or any issues to off site people such as designers, reducing the number of people needing to visit the site – increasing safety and reducing carbon emissions.

## Change management

Service diversions had not been allowed for in the original scope and we were subsequently instructed to coordinate and deliver these. Long lead in times posed a threat to the programme and critical path; we mitigated delays as far as possible by self delivering the BT diversions (under a watching brief by BT) and by coordinating with Virgin Media to reduce the 14-week lead-in times to two weeks. We also rephased the works, as discussed above, due to issues with the drainage design and bus stop, effectively mitigating these

## Management and execution of delivering programme on time

We produced a number of buildability reports for the client during the course of the works, to change the phasing, method of works and programme, to achieve programme and cost efficiencies. The first phase of the scheme was Area B, but due to issues with the drainage design, we moved on to the next phase of the critical path, Area A, to avoid delay. However, delays with an application for a temporary bus stop in Area A, meant we had to rephase the works in this area to avoid delay. This required new TM phasing, resequencing of works and day and night working. Our approach enabled us to progress critical path activities while the temporary bus stop application was being processed in Area A and the drainage design was being progressed in Area B, vastly reducing overall delays.



## Continual improvement and lessons learnt applied

We learnt from this scheme the importance of ensuring all aspects of the physical works are considered during ECI and design development, to mitigate risks during construction. For Crooked Billet, it would have been greatly beneficial for us to have carried out further ground investigation during ECI, i.e. for the drainage, to remove as many assumptions from the design as possible. We have subsequently applied this learning during ECI on our current Pinks Hill project for CP. Here, the pond depth and profile had been assumed in the design, which we expressed our concerns about, and it was agreed we should drain the pond to carry out a topographical survey and provide as-built information for the profile and base of the pond. This also mitigated the risk of flooding for the residents. As a result, we identified that the pond base was 2.5m deeper than assumed and the embankments far steeper. If this had been discovered during construction, it could have significantly increased costs and duration.

## Early contractor engagement or advice pre-contract

We delivered £466k worth of ECI investigatory work on this scheme. During ECI, we highlighted places alongside an existing culvert for the River Ash where there was insufficient cover for the proposed new cycleway and that some highway gullies flowed directly into the stream increasing the risk of pollution. All observations were passed back to the design team and incorporated into revised designs that avoided works over the culvert. This also informed works methodology during construction – we created a safe zone around a high-risk section of the culvert that was in poor condition to avoid any loading from our plant or vehicles that could have caused a collapse.

We also carried out ground penetrating radar surveys, excavated trial holes and brought utility providers to site prior to the works starting to identify the location and depth of their apparatus and understand and assess their impact on the scheme. For example, we identified that three high-pressure gas mains on the western corner of the junction were only 200mm below the surface. As a result, alternative designs were developed to relocate traffic signal bases to avoid the need for expensive and disruptive gas diversions, reducing risk, programme extension and costs.

## Social value

- We ensured a positive impression was created of the project and our client by our various local community activities and support. These included:
- Clearing a track and parking area to improve access for anglers to a lake owned by the local Wraysbury Angling Club
- Assisting the local Manna Foodbank by delivering food and toiletries donated by our employees and subcontractors to support local families and individuals
- Assisting the Wraysbury Dog Rescue charity by installing 40 Heras fence panels free of charge to secure an exercise area, and laying a new surface for a footpath that had become waterlogged
- Offering voluntary services to several local environmental projects, which had been postponed due to Covid-19 restrictions
- Working with local schools to promote the construction industry and encourage students to study STEM subjects

