



**Project Name:** Wakefield Road Junction Improvements

**Client:** City of Bradford Metropolitan District Council

**Value:** Original Value £2.4m (Hinko Re-Engineered offering a saving of £1.2m to CBMDC)

**Date:** Feb 2019 to July 2019

Hinko Construction were awarded this scheme based in Bradford in October 2019 by City of Bradford Metropolitan district Council. The project original scope of works involved new flagging to the central bowl, painting and lighting upgrades to the sub-ways, micro Asphalt to all subways and access steps, planting scheme to the central bowl, extensive Brickwork cladding, New steelwork handrails and balustrades, major RC strengthening works to the roundabouts perimeter parapet wall and surfacing works.

After contract award the Hinko team made a contractor's proposal to fill the roundabout and create a traffic signalled junction. This was because of the history and general nature of the sub-ways. There were dark, isolated and secluded, the scene of two vehicles crashing into the bowl of the subway including one death, clear evidence of drug abuse, prostitution & crime, sense of general fear and dread as you walk through them, strong smell of urine, used by children as a main access to get to school and were a general intimidating place to be.

The proposed scheme would involve filling the Roundabout and create a traffic signal-controlled junction offering, stacking Space, better control of traffic, CCTV install to prevent crime, safer access for all across the road, green Spaces, general Improvement and clear investment in the area, create a steppingstone to changes in procurement and showcase scheme to allow for future funding applications and removal of numerous structure which had to be maintained by CBMDC. The option offered a 1.2m saving to CBMDC.



To do this everybody had to be bought into the scheme as it was necessary to design get necessary approvals and construct the new proposal within 26 weeks to do this there need to be a combined Single Seamless Team, one Focus On ensuring What we do made things better for society, environmental considerations, application of what A Civil Engineer Is, doing things differently for the benefit of all, deliver the revised project within the timescales of the original project, public Engagement before, during and after the project.

Although Bradford Council had in house design capability, it did not have the resource to undertake all the design, to address this Hinko employed Mason Clark & Associated to undertake the bulk of the design including safety audits.



***The “key scheme components” of the scheme comprise:***

Implementation of Traffic Management on the A650 to Bradford City Centre.

Alongside Bradford City Council, a site specific Traffic Management scheme was developed to allow concurrent working between the external boundaries of the Carriageway i.e. Subway Ramps, Footpaths while works on the Internal “Bowl” of the roundabout can be undertaken at the same time whilst causing minimal disruption to the public and highway traffic.



The initial works focused preparation for New Lighting and Signal Infrastructure.

It was essential to the programme that new ducting was installed quickly to allow other works to progress.



Utilising the existing Subway Underpasses to install new ducting reduced the number of Cross Carriageway ducting from 8No down to 4No. This significantly reduced expenditure on Traffic Management costs, eliminated night working and reduced the Construction Programme down by circa 1 week.

Ducting was drilled and fixed to the soffit of each Underpass and held into position with steel banding. Each joint was taped to ensure no ingress of material was encountered during the filling operations

The initial design was to use backfill material to fill each underpass, this was to be compacted in layers and cease at 1.8m from the soffit. The remaining void would be flooded with Foam Concrete and capped off at each end.

It was decided during pre-construction meetings that the most cost effective, environmentally sustainable and programme beneficial option would be to fill approximately 85% of the void with recycled polystyrene blocks and to fill the remaining 15% of voids with Foam Concrete. Compressive strengths of polystyrene showed to be sufficient structural properties for this methodology to be implemented.



Shuttering was placed at the low end of each Subway Underpass and polystyrene blocks were slid into position and stacked up leaving a nominal distance between the blocks and the pre-installed subway ducting.



Upon completion of the Subway Underpass infill works, progressive backfill of the central roundabout bowl was able to commence. Recycled 6F2 was crushed and graded from a recently demolished council building approximately 1 mile from the site. This locally sourced materials was tipped directly into the bowl, averaging around 400 tonnes per day. Areas which were designed out of the new carriageway alignment were filled with the existing brickwork cladding, concrete from RC wall removal and excavated materials from landscaped areas. In doing this, removing the need to send material to landfill.



The import cost of material was further reduced by utilising material previously stored by Bradford Council in one of their depots. Topsoil was also stockpiled and re-used on site.



Whilst infilling of the Roundabout continued, demolition and backfilling of the Subway Access Ramps was well underway. The recycled council building was also used here, material was imported and placed within each Subway quarter and compacted in layers up to existing ground level.

Sections of existing retaining walls were removed down to 200mm below finished ground level.

Next the main alignment kerbing and UTC infrastructure was installed this included, 1500 lm of new ducting and associate chambers, 2 No new mast arm structures, 7 No new island crossings and numerous loop control boxes.

The works were undertaken in close liaison with BMDC's UTC manager.





To complete the work's, it was necessary to divert all traffic through the new highway alignment, this meant that the works to the perimeter of the works could be completed prior to the main surfacing works. This allowed the Hinko team to complete ducting infrastructure, landscaping, kerbs, grasscrete maintenance layby.

The works were completed over two weekend closures of the road involving:-

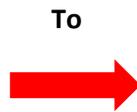
- 24/7 working
- Co-ordination of over 10,000 plant movements
- Implementation and management of major highway diversion
- 900t of plaining (which were recycled)
- 1000t of full depth road construction (using low heat asphalt, 15% carbon saving)
- 2500m2 of new Chipped HRA placed
- 1.2km of new white lines and crossing studs

Over 150 operatives and managers were involved executing these works.

Through careful planning and collaborative on-site management from Hinko, CBMDC and Mason Clark the works were executed safely and on programme opening the road to the public some 6 weeks earlier than originally planned.



**February 2019**



**July 2019**

The scheme was recognised by the Institution of Civil Engineers and was awarded the Smeaton Award Certificate of Excellence during the 2020 ICE awards ceremony. This was the second ICE award the Hinko team had won however the reognition by the ICE was down to the exceptional teamwork employed to implement innovation to deliver the scheme.

