

Broadfield Road scheme – Background to modelling

- In March 2018 SCC approval was granted to accept a £3,356,000 grant from DfT for a National Productivity investment Fund (NPIF) highway improvement scheme on the A61 London Road at the Broadfield Road junction. This was on the back of the area being the next 'pinchpoint' in the corridor following on from the LSTF/BBA investment in the corridor.
- The original NPIF scheme proposed widening the narrowest section of the A61 corridor improving traffic flows (and reducing journey times) and was comprised of the following elements:
 - The addition of an additional dedicated lane on the A61 from the junction with Gleadless Road; across the existing river bridge (with one of the bridge pedestrian footways relocated to a new free standing pedestrian bridge to accommodate the additional lane); along the A61 to the junction with Sark Road
 - Improved access onto the A61 from Broadfield Road via a new dedicated left hand turn only lane
 - The 'local contribution' to the scheme was the removal of the tidal-flow system on Queens Road, which happened in 19/20.
- The proposed works were only feasible by expanding the highway beyond its previous footprint - which necessitated the acquisition and demolition of a row of five shops and residential properties. This has now occurred.
- Scheme benefits in the NPIF bid undersold in the bid as no account of journey time improvements from Broadfield Road were included in the NPIF bid

Updated modelling results

Cost increases since 2018 have meant that we have had to review the value for money, including its scope, while maintaining the majority of the schemes benefits. This has led to the current scheme retaining the Sheaf River bridge as is – so no additional traffic lane on the carriageway or new pedestrian and cyclist bridge next to the road bridge, mitigated by the investment in the parallel Sheaf Valley cycle route.

The revised scheme was modelled again, including the consideration of other options including:

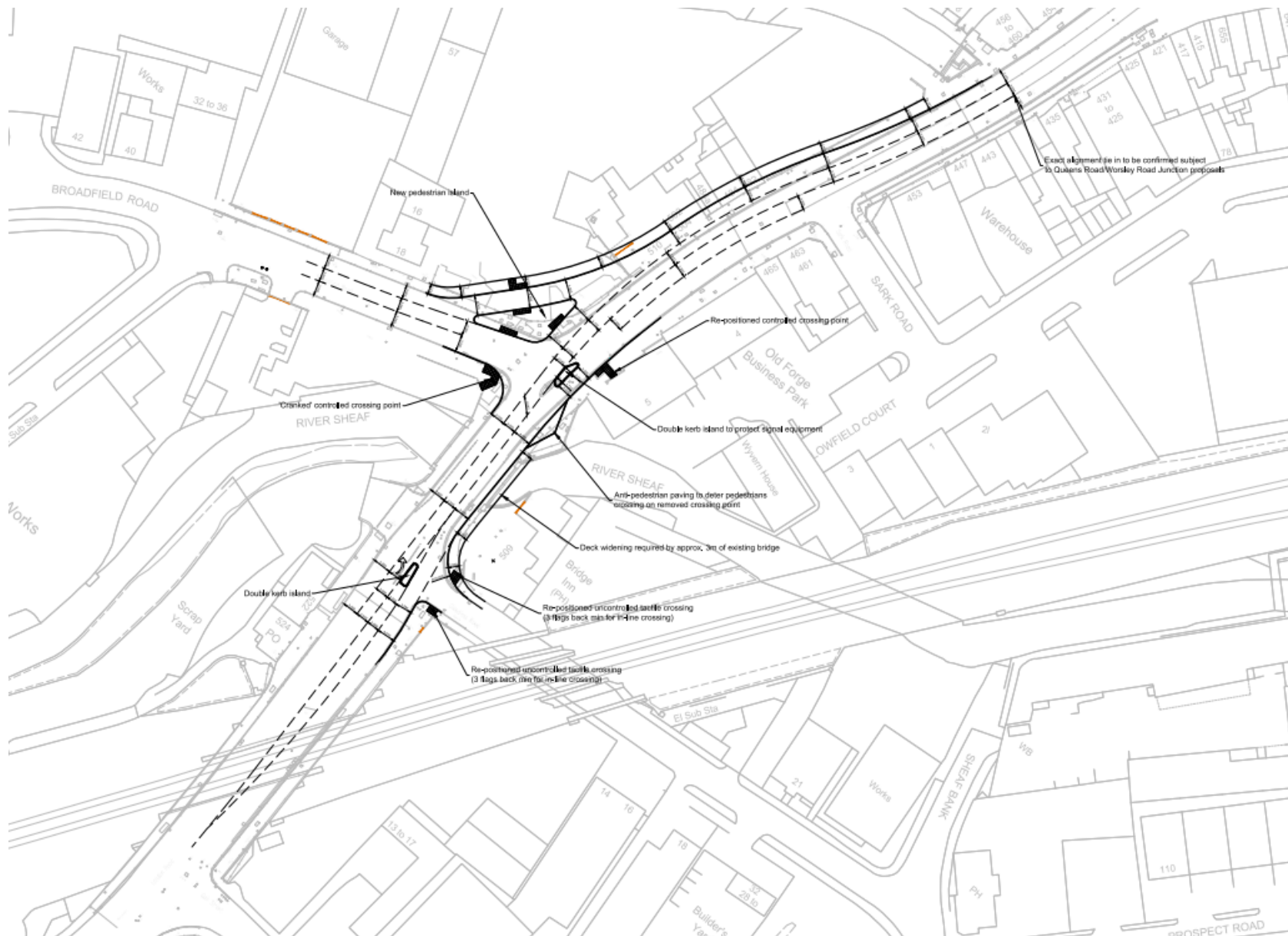
- A bus lane between the Sheaf River bridge and the Wolseley Road junction
- A bus pre-signal on the southern approach to the Sheaf River bridge

The addition of a bus lane was modelled, and sample results (morning, inbound) are shown in Tables below. Journey times for all vehicles worsen with a bus lane from the base position of 446 seconds to 471 seconds.

The table shows that the journey time benefits for all traffic do worsen slightly from the original scheme (orange box) to the current preferred scheme (red box). However, the benefits still means the scheme retains a high value for money.



Average results from Replications 1 - 5 (ALL TRAFFIC)	Totals	From Base	%change
AM Inbound - Do Min (BASE)	445.9	0	0.0%
AM Inbound - Original 1 (2 lanes on bridge with bus lane)	470.6	24.7	5.5%
AM Inbound - Original 2 (2 lanes on bridge)	372.5	-73.4	-16.5%
AM Inbound - Option 1 Single Lane on bridge (Bus Lane)	535	89.1	20.0%
AM Inbound - Option 2 Bus Pre-signals	479.5	33.6	7.5%
AM Inbound - Option 3 Single Lane	375.1	-70.8	-15.9%

Appendix A: Original design – showing two inbound general traffic lanes over the Sheaf River bridge



Rev	Revision details	Chd	Appd	Da
Drawn	AJC			Preliminary
Design	AJC			For comment
Chd	PAJ			For tender
Appd	BH			For construction
Date:	18.07.18			As constructed
				Other

Client

Project Name
**London Road South/
 Broadfield Road**

Drawing Title
**Highways
 Proposed Horizontal Alignment ex
 Queens Road Junction Works**