A62 to Cooper Bridge Corridor Improvement Scheme

Non-Technical Summary of justification for use of Oak Road

August 2021

Strategic Aims

The Kirklees Local Plan sets out the housing and employment needs of the district, it also identifies the development sites required to meet these needs.

Our transport network is fundamental to enabling businesses to operate effectively and competitively. The ability to move goods and people is an important factor in businesses deciding to invest in our district, ultimately strengthening our local economy.

To improve the road network, we need to both ease existing congestion and plan for future growth which will be generated from development and natural traffic growth.

Kirklees Council, in partnership with Calderdale Council and the West Yorkshire Combined Authority is making a range of investments in the local road network across the Kirklees and Calderdale districts. The intention is that once delivered these schemes will collectively improve access into Huddersfield and its connectivity with existing and planned neighbourhoods and other local towns.

Separately, Network Rail and Highways England are also developing plans to improve the rail and motorway networks respectively through the Kirklees district to enhance transport links to the wider region.

The A62 to Cooper Bridge scheme is one part of a much wider plan to deliver the transport infrastructure needed to grow our economy, providing better employment opportunities for our residents in the future.

Other improvements include our A62 Smart Corridor, A629 Halifax Road, A641 Improvement and Bradley to Brighouse Greenway schemes which jointly aim to improve facilities for not just vehicles, but pedestrians and cyclists too to encourage more use of sustainable modes of transport. The A62 Smart Corridor will deliver a range of improvements between Huddersfield town centre and Old Fieldhouse Lane including upgrades to bus facilities to promote more use of public transport too.

The A62 to Cooper Bridge scheme aims to directly complement that scheme by further reducing journey times along the A62 between Oak Road and the Three Nuns junction. The strategic objectives of the Cooper Bridge scheme are to:

- relieve congestion and improve journey times and reliability
- support economic and housing growth
- improve road safety
- improve pedestrian and cyclist facilities to encourage more use
- support the improvement of air quality

How we determine whether to invest

The Department for Transport (DfT) has published guidance about how to appraise transport schemes. This includes how to determine the value for money offered by individual projects to inform decisions about whether a scheme is worth investing in.

Our appraisal of the A62 to Cooper Bridge scheme has followed this guidance.

To establish the economic benefits of investing in a road scheme we need to use a traffic model (more details about the model we have used are provided below) to enable us to make predictions and comparisons between different scenarios. This includes considering different options, but also comparing with and without scheme situations.

Using DfT approved software we are then able to understand the benefits and disbenefits offered by the scheme. In accordance with guidance, benefits are monetised, where possible, to determine the financial benefit (or disbenefit) to the economy of the proposal. This appraisal process considers the area wide impacts and benefits, presenting the best outcome for all users of the road network. It is, however, possible that schemes will need local changes to existing travel patterns, requiring residents to change and adapt to new road layouts.

When monetising benefits and disbenefits we consider a range of impacts of the scheme, including:

- changes to journey times, i.e., journey time savings to businesses, commuters and other road users
- environmental impacts such as greenhouse gases emissions and changes to noise levels
- public transport benefits – journey time savings for bus services
- construction impacts – this is a disbenefit and recognises that whilst a project is being constructed there will be additional delays and congestion
- accidents, this considers the financial implications associated with accidents dependent on the severity of the accident e.g. police and ambulance costs, damage to property and insurance costs etc.
- Journey time reliability, i.e., how consistent is the journey time through a section of the network - how confident can road users be in the time their journey will take?

The government publishes and regularly updates the values to be used in transport appraisals associated with each type of benefit/disbenefit to enable them to be monetised. For instance, a Value of Time is established for each type of road user, this is used to determine the cost to the economy for time taken by a particular type of road user (e.g., a commuter) completing their journey.

Again, it's important to note that the impacts of the scheme are not just contained to the area of the network being changed but will result in changes to travel patterns on the surrounding road infrastructure too and the appraisal takes account of these effects across the wider network. Road projects are also appraised over a 60-year

period, so whilst individual time savings may seem small (a few minutes or seconds) once this is multiplied by the number of road users (our current forecasts predict c. 27,000 vehicles per day on this section of the A62 in 2026) and considered over a 60-year period, the financial benefits to the economy can be significant.

Once the financial benefits of the scheme have been determined these are divided by the costs to build the scheme to generate a Benefit Cost Ratio (BCR). The Value for Money Framework, published by the government, establishes six Value for Money categories to support decision making, the BCR of a project determines which category it falls into. The categories are presented below for information:

Value for Money Category	BCR range
Very High	Greater than or equal to 4
High	Between 2 and 4
Medium	Between 1.5 and 2
Low	Between 1 and 1.5
Poor	Between 0 and 1
Very Poor	Less than or equal to 0

The government has very recently (July 2021) published updated values which we are currently taking account of in the preparation of the business case and will change the level of benefit offered by the scheme. However, the work we have undertaken using the previously published values has given a BCR of 3.559, which means each £1 spent on the scheme will return an economic benefit of £3.56, offering High value for money.

As the scheme design and costs become more clearly defined, these assessments will be updated again in future project stages.

How we have developed our transport model

To determine the impact that the proposed scheme will have on traffic flows across the existing road network a transport model has been developed covering the whole of Kirklees with some coverage of the neighbouring authorities. In relation to the Cooper Bridge area the model also includes some of the Calderdale district.

The model is based on the conditions on a typical day in 2015 and uses data collected from interviews taken at the roadside to determine peoples trip origins and destinations, traffic count data and average journey time data. Three different models exist representing the different travel patterns at different parts of the day. These are a morning hour (08:00-09:00), an average hour between the morning and evening (average between 10:00-16:00) and an evening hour (17:00-1800).

The traffic flows and journey times along key roads in the model is checked against the observed traffic counts and average journey times to determine how closely the model represents reality. The DfT set criteria that the model has to meet in order to be viewed as representative of reality and suitable for use to assess the impact of a scheme such as Cooper Bridge. The model meets the criteria set and is therefore viewed to be suitable for assessing the impacts of the proposals.

The transport model takes account of how travellers choose the time of day that they travel, the mode of transport and the route that they use. When forecasting into the future two models are prepared – one without the scheme and one with it so that the change in traffic flow can be identified.

To determine the impact the scheme will have when it opens, and further into the future, the scheme has been assessed in three years, which are 2026, 2031 and 2041. Background traffic growth projections are applied to the 2015 data to establish what the forecast traffic flows will be in each of the years considered. The trips from all known future developments are added into the model along with forecast changes in car ownership.

Any future transport scheme that has had a business case approved for funding to deliver the scheme is assumed to be built in the stated timeframes set out in the respective business cases. These schemes are included in the future year models to reflect what the road network will look like at the time the Cooper Bridge scheme is completed as some of these schemes may also have an impact on traffic flows in the Cooper Bridge area. Our other transport schemes included in this exercise are listed below:

- A62 Smart Corridor
- A629 Halifax Road; and,
- Huddersfield Southern Corridors

People choose different route options between their origin and destination based on a desire to minimise the time and distance associated with a trip. The transport model considers these factors in determining the route someone chooses to take. This means that once other transport projects are considered alongside this scheme, some drivers will choose to take different routes to the ones they make now.

If we successfully secure funding to proceed with the scheme, we will update our traffic model in the next stage. This means we will base our model on a more recent traffic survey data (2019), include any other transport schemes which have secured delivery funding and update our forecasts to reflect any changes to proposed developments. Our updated assessments will also include any changes we make to the design of this project.

Once we have completed all our assessments, we will hold another public consultation to present the results. This is expected to be in late 2023.

Why we are diverting traffic onto Oak Road

A junction is defined as the general area where two or more highways join or cross, within which is included the highway and roadside facilities for controlling traffic movements in that area.

The main aspects of interest to traffic and highway engineers at junctions are:

- Capacity – how much traffic can pass through the junction within a specific period of time, the physical length of queues, and time delays

- Safety, accidents
- The physical environment

Since a junction involves conflicts between traffic travelling in different directions, its design can control accidents, delay and capacity and can lead to orderly movement of traffic.

In designing a junction there are several traffic constraints to consider

- Traffic volume and future growth
- Seasonal, day to day, hour to hour and directional traffic volume variations
- Traffic composition – what types of vehicles are using the junction
- Turning movements
- Pedestrians, cyclists, and public transport needs

To arrive at what is now the preferred scheme option for Bradley junction many layouts have been previously considered but ultimately discounted on the basis that they do not offer the vehicular capacity required to cater for both existing traffic demand and growth.

Other options considered at the junction have included:

- a roundabout
- significant widening of Leeds Road and Bradley Road on the approach to the junction, and
- banning the traffic from turning from Bradley Road onto Colne Bridge Road

Some have been discounted due their required footprint either exceeding the available space or having a detrimental effect on the built environment in terms of the need to demolish property whilst others have been discounted because they don't provide the additional capacity required. Other factors have also influenced those decisions; there are a number of private properties at the junction (e.g., the pub) which need to have their access arrangements catered for; the junction is also on a hill which must be considered in any design. These are additional issues which make a roundabout solution impractical for instance.

In the preferred option we have sought to widen as many of the approach roads into the Bradley junction as possible to increase vehicular capacity. Although this has resulted in an increase it will not be enough to satisfy future traffic growth.

Thus, to further increase its vehicle capacity, we have sought to seek to reduce the number of traffic movements that occur at the junction. Removing the right turn from Leeds Road onto Bradley Road saves time on each cycle of the traffic lights at the junction. Diverting this right turn onto Oak Road means that the saved time can be reallocated onto either Bradley Road, Leeds Road or Colne Bridge Road as required to increase the vehicle throughput at the junction.

Existing users of this junction will be aware that for some years the right turn from Leeds Road onto Colne Bridge Road has been banned. When this intervention was implemented it increased the junction's ability to manage the traffic demand that existed then, years later and with one eye on the future more change is required if we are to realise the areas strategic housing growth.

As explained earlier when assessing the impacts of the scheme the transport model takes account of expected changes to journey patterns. So, whilst the majority of traffic which turns right onto Bradley Road will use Oak Road, not all of it will. Some vehicles will be dispersed across the wider network meaning we do not predict the full volume of existing traffic to be diverted onto Oak Road.