Calderdale Council Targeted Feasibility Study for A62 at Cooper Bridge

Contents

Figures

Tables

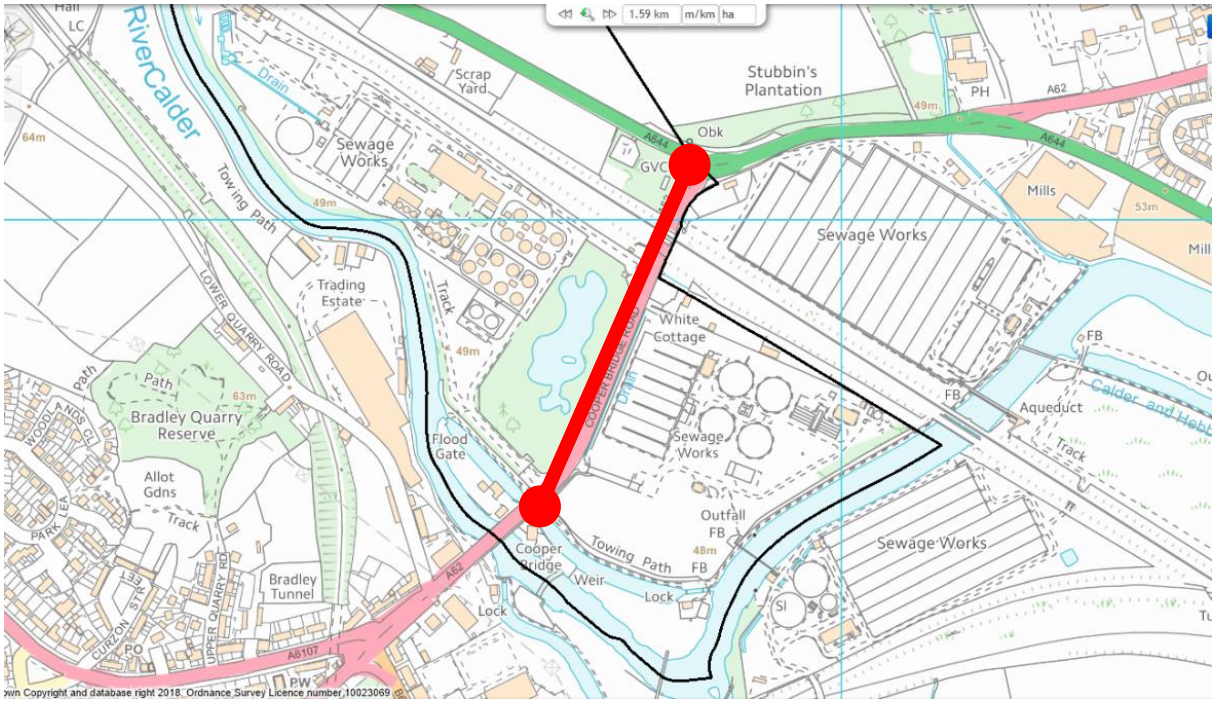
Part 1: Understanding the problem

Introduction to Part 1

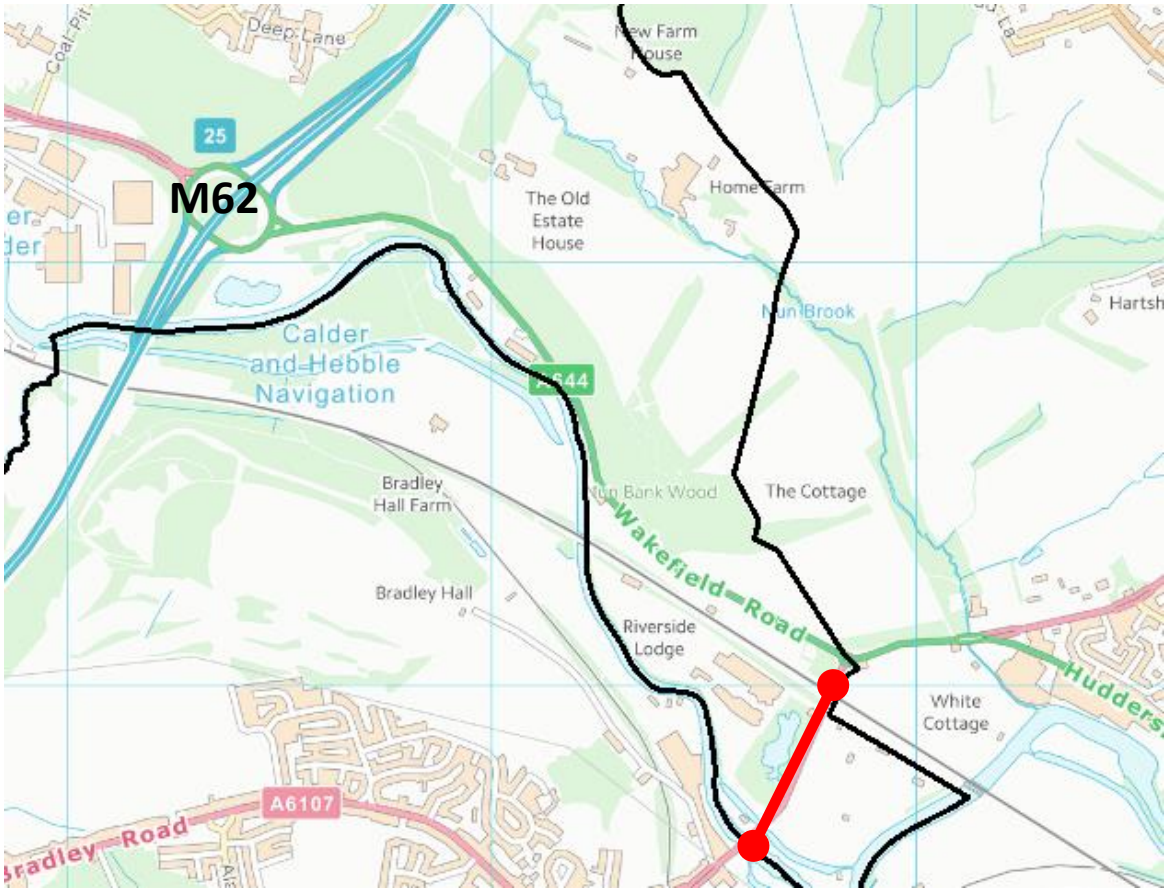
The study area covers the road network and other infrastructure influencing the link identified in Defra's PCM model at Cooper Bridge, Lower Brighouse. The link and surrounding features are shown in Map 1 and Map 2. The link and other nearby links are shown in Map 3. Part 1 of the study considers the link location and a brief account of the exceedance. It then considers source apportionment using local and national census figures, and looks at local features that influence the emissions along the link. Other nearby exceedances are noted and the scope of the rest of the study is outlined.

After this study was begun Calderdale's own monitoring data was accepted as demonstrating that the link is already in compliance with the EU limit value. The Council's findings during the study are set out below.

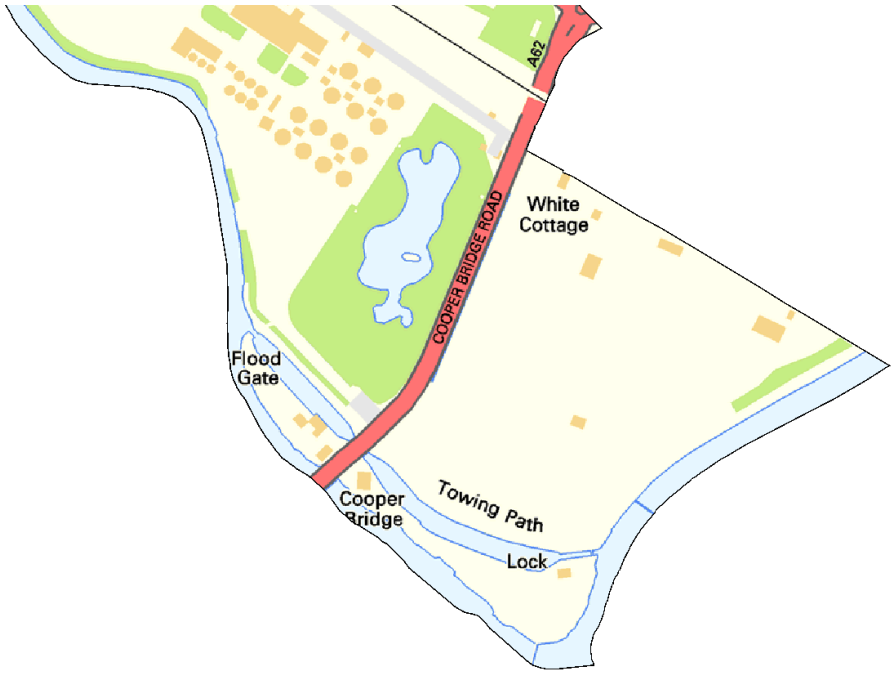
Map 3 shows the extent of Calderdale's area close to the link, showing clearly that Kirklees is the source and destination for much of the road traffic.



Map 1 Cooper Bridge Road: the red section showing the extent of the highway affected



Map 2 relation of link to the M62



Map 3 The link passing through Calderdale

Map 4 nearby exceedances. Note: outside of Calderdale boundary

Required reduction

The link identified at Cooper Bridge on the northern end of Leeds Road is the only one in Calderdale that falls to the Local Authority to study. A second link within Calderdale falls to Highways England so is out of scope of this study.

The road link is identified in the PCM modelled output as exceeding the EU limit value for nitrogen dioxide in 2018, with compliance predicted by the model by 2019. The summary below gives the predicted concentrations by year as clarified by JAQU in May 2018.

Link concentrations by year

2018: 43 μgm^{-3}
2019: 40 μgm^{-3}

To achieve compliance before the end of 2018 a reduction of 3μgm^{-3} is required in the annual average nitrogen dioxide concentration. The link is predicted to be compliant in 2019.

Source apportionment

The source apportionment from the PCM[i] model is:

- 5% Regional background,
- 8% Urban background (non-traffic),

- 8% Urban background (traffic),
- 23% Diesel cars,
- 5% Petrol cars,
- 18% Diesel LGVs,
- 0% Petrol LGVs,
- 15% HGVr,
- 10% HGVa,
- 7% Buses

There is little in the way of recent traffic counts or origin/destination data for this link, the latest available being for 2014 when an ANPR survey was carried out for Kirklees Council. The data suggest that the fleet composition is richer in heavy goods vehicles than the estimates from the national census point 6604 indicate. Further work is planned with Kirklees Council on traffic data for this link.

Diffusion tube monitoring

The Council has monitored nitrogen dioxide concentrations on the A62 since 2016 using a diffusion tube. This method does not meet the Ambient Air Quality Directive requirements but has been assessed by JAQU and may be used in place of the PCM data for this link. Table 1 shows the annual means for this location.

Diffusion tube name and location	Annual mean 2016	Annual mean 2017	notes
Ref = LV-LEE X = 417693, Y = 420711	32 μgm^{-3}	32 μgm^{-3}	Mounted on street furniture – no receptors

Table 1: diffusion tube monitoring, A62

The diffusion tube site is shown in Figure 8. The monitoring shows that the link is in compliance and that no further measures are required to meet the EU limit value.

Local context

The A62 at this point is the main route between East Huddersfield and the M62. Traffic between East Kirklees and Huddersfield also uses this stretch of the A62, with a frequent bus service serving Huddersfield and Leeds bound travellers. Traffic to and from central Calderdale, as opposed to the M62, may form a small proportion of the total. There is a large residential area to the west in Bradley, as well as significant settlements along Leeds Road into Huddersfield.

The Traffic Census data for point 6604 indicates that the proportion of HGVs is around 5%. However, observation of the daytime traffic points to this being an underestimate. There is a high proportion of heavy goods vehicles and buses on this link, and diesel cars also form a significant percentage.

Traffic flow is controlled by a major signalled junction at the southern end of the link and a signalled roundabout at its northern end. The link is subject to congestion at busy times.

The Leeds Road corridor into Huddersfield is host to a variety of industrial and commercial sites including a large chemical manufacturing site, a foundry and several industrial parks. However, the study link has no residential exposure (the residences shown in Map 5 are on the land between the navigation and the river Calder) and is a fairly open stretch of road with the Lower Brighouse Sewage Treatment Works to the east, the former Sewage Sludge Incinerator to the west and the Three Nuns roundabout at its northern end. There are footways on both sides of the carriageway and bus stops. Map 5 shows these features in relation to the link.

There are no schools in the immediate area and little to attract pedestrians along the main road.

Displacement

Consideration has been given to local traffic management changes that may have influenced the emissions on the link, bearing in mind that area is already constrained by high traffic volumes on the strategic and key road networks. The aims of this Targeted Feasibility Study as initially envisaged were to include avoiding displacement elsewhere in the districts if this were likely to lead to poor environmental outcomes.

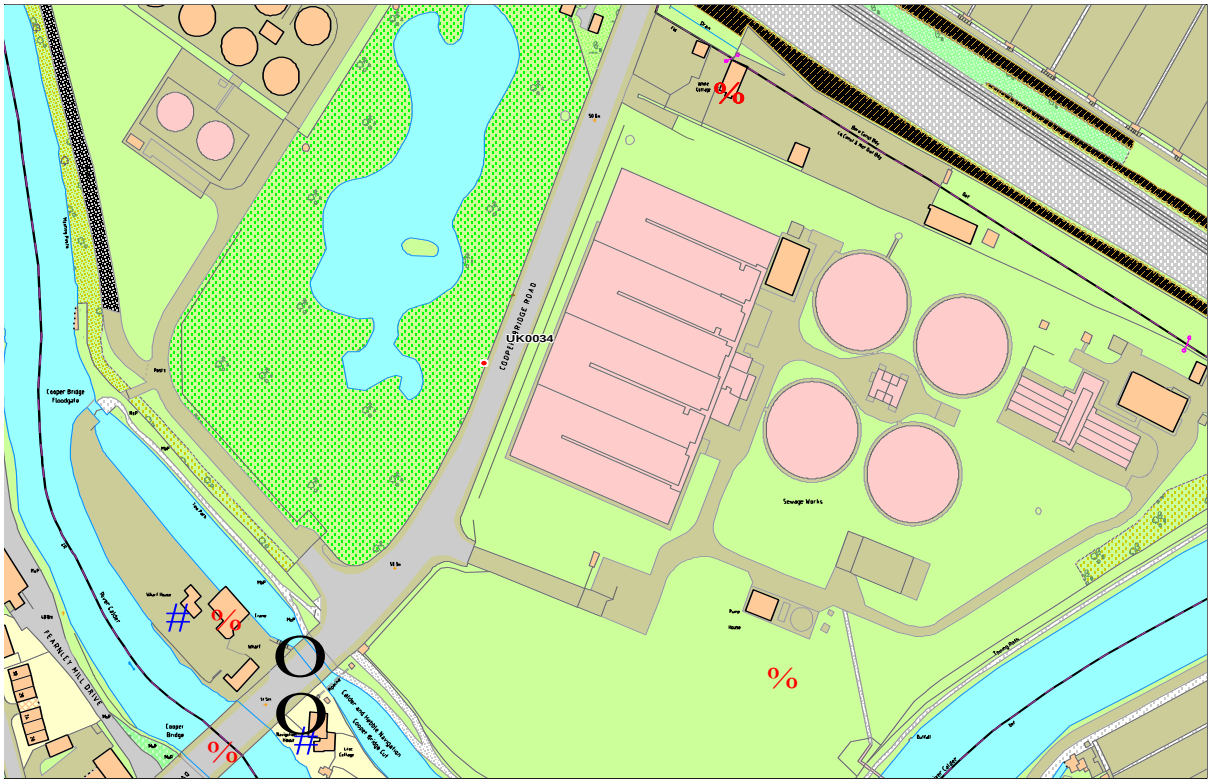
Wider Strategic Context

The M62 corridor links Liverpool to Hull via Manchester and Leeds, and represents the only East-West link across the Pennines on the strategic route network. The motorway is often congested and suffered an average of 22 road closures in Calderdale in 2015 affecting the local key route network.[ii] This lack of resilience of the SRN limits the opportunities to reduce the volume of traffic on this link and associated links connecting to the A62.

The Calder Valley Rail Line serving the same corridor suffers from severe capacity constraints[iii]. It currently runs at an average speed of 25 mph between Leeds and Manchester. This will increase to an average speed of 44 mph when the planned Northern Hub improvements are delivered but will still not offer a viable alternative to car and freight travel.

The Calderdale and Kirklees Local Plans have allocated a significant number of housing and employment sites within a 4 km radius to this area (8,000). The additional traffic associated with these new sites will create challenges in terms of traffic management and air quality[iv] Calderdale and Kirklees Councils are working together to deliver schemes identified in the West Yorkshire + Transport Fund. These include a proposed new road link at Bradley and a new junction 24a off of the

M62. These schemes are however in an early stage of development and will not deliver the improvements required in time for this directive.



Map 5 residential and business premises

Other nearby exceedances

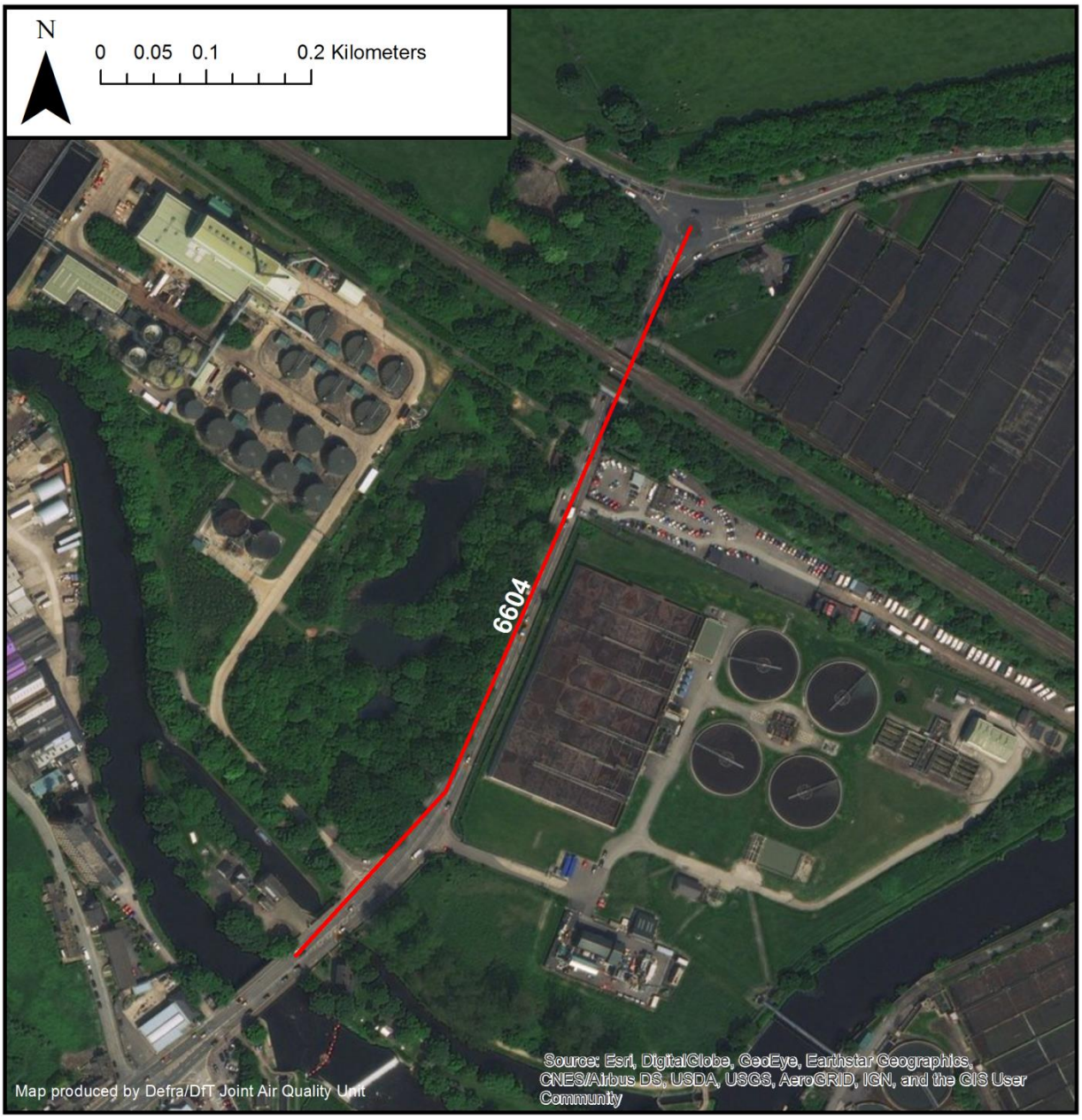
As mentioned above there are other local exceedances identified in the PCM output. These are shown in Map 3 and are links along the A62, although the predicted compliance dates for these links are earlier than that of the Calderdale link. The implication is that the A62 carries significant traffic volumes and those conditions along this link lead to the exceedance identified in the PCM.

Conclusion of Part 1

The link is on a busy stretch of the A62, a major route serving Huddersfield. Local industry and the easy access to Junction 25 of the M62 means that significant commercial traffic is present, as well as a high volume of commuter traffic from the residential areas to the south and west. It is likely that the volume of traffic as well as its composition is responsible for the modelled exceedance. As noted, the area also suffers from congestion at peak times.

Calderdale's influence over the traffic along this link is limited, and the Council is working with Kirklees MBC to consider the problem. Calderdale's monitoring indicates that the link does not exceed the EU limit value, and is compliant.

The link is heavily trafficked and key long term challenges therefore relate to improving traffic emissions, and the question of how this may be achieved is the subject of the remainder of the study. Wider measures can be found in Calderdale Council's Air Quality Action Plan.



Map 6 the extent of the link in Calderdale

Part 2, Part 3, Part 4 – NA (see part 5)

Part 5 - Conclusion

A Ministerial Direction was served on the Council in February 2018 requiring the Council to undertake a Targeted Feasibility Study to identify measures that could bring forward compliance with EU limit value for nitrogen dioxide along the road link covered by census point 6604. The PCM model had predicted an exceedance along this link up to the end of 2018. The Council undertook Parts 1, 2, 3 and 4 of the study as required by the Ministerial Direction. In the course of the study the Council submitted its own monitoring data for the link together with supporting evidence on the validity of the data. The monitoring data was considered by the reviewers and it was agreed that the data would supersede the PCM predictions. Table 2 includes a summary of the findings. There is no exceedance along the link and no measures are required to bring forward compliance

Table 2 Summary of study findings

Road link	PCM identified link?	Summary of exceedance	Measures identified that could bring forward compliance	Costs and timetable
6604	Yes – modelled to exceed in 2018 but to comply in 2019	Local modelling shows that the link is already in compliance at 32μgm^{-3} in 2017	NA	There are no additional actions that could bring forward compliance. Additional low-cost measures may be considered in line with the Council's Action Plan.

In relation to the link identified for this study, Kirklees has confirmed that the SCOOT variable timing strategy has been in operation at both ends of the link since late 2011, with variable timing strategies evaluated in 2014. The Council has considered measures to improve air quality on the link and believes that urban traffic control measures already essentially in place would have most influence. The Council is to continue to explore the use of virtual emissions monitoring at the roundabout to evaluate different timing strategies, subject to avoiding adverse impacts on the wider network.

Calderdale Council has been revising and updating it's Air Quality Action Plan, and has identified a list of measures that are believed to have the potential to improve air quality across the Borough. An Air Quality Steering Group has been established to oversee delivery of the AQAP measures. The Council's intention is to continue to raise awareness of air quality issues and actions to address them across the Borough and, in association with partners, across West Yorkshire.

[i] From the Pollution Control Model, supplied by DEFRA 2018
[ii] Sowerby Bridge Transport Study March 2016 (WSP)
[iii] Calder Valley Line Enhancement Strategy July 2012 (ARUPS)
[iv] Calderdale Core Strategy Transport Study: Appraising the Approaches to Future Development Report, January 2010
[lv] https://laqm.defra.gov.uk/technical-guidance/index.html?d=Chapter2