

HPBC Item	National Highways response	Status
<b><u>Construction dust monitoring</u></b>		
<p><u>Item 8.37</u>  HPBC <a href="#">[REP4-011]</a> requested further clarification on whether construction dust monitoring will be carried out at high-risk sites.</p>	<p><a href="#">National Highways Notes</a></p> <p>National Highways is committed to updating the EMP (First iteration) at the detailed design stage. The EMP (Second iteration) submitted at this stage will include further detail on the construction monitoring. The local authorities will be consulted on the EMP (Second iteration) as required through requirement 4 of DCO with the parameters used to identify whether monitoring would be required agreed with both the local authority's and appointed Principal Contractor.</p> <p>This approach including timescales for consultation has been discussed and agreed with High Peak Borough Council (HPBC) (virtual meeting held 4<sup>th</sup> March 2022).</p> <p><b>HPBC Comment - Agreed</b></p>	Closed
<b><u>Figure 5.4 Air Quality Compliance Risk Assessment – receptor labels</u></b>		
<p><u>Item 8.38</u>  HPBC <a href="#">[REP4-011]</a> asked for the A57 Brookfield qualifying features used in the NO2 compliance assessment to be labelled on ES Figure 5.4 <a href="#">[APP-080]</a>.</p>	<p><a href="#">National Highways Notes</a></p> <p>Given the number of qualifying features and public access receptors included in the compliance assessment it was not possible to practically label the qualifying features in ES Figure 5.4 (APP-080) however, an extract of ES Figure 5.4 zoomed in on the A57 Brookfield area with receptor ID labels for qualifying features and public access receptors adjacent to the A57 Brookfield will be provided.</p> <p><b>HPBC Comment - Agreed &amp; will comment further once in receipt of figure</b></p>	Figure to be submitted to DCO at Deadline 7
<b><u>Adjustment of Background Concentrations Data used in Air Quality Assessment</u></b>		
<p><u>Item 8.39</u></p>	<p><a href="#">National Highways Notes</a></p>	Closed

<p>HPBC raised concerns about the lack of adjustment to the background concentrations used in the air quality assessment. HPBC <a href="#">[REP4-011]</a> suggest they are concerned about over representation of beneficial effects.</p>	<p>The HPBC query relates to the verification and adjustment of the Department for Environment, Food and Rural Affairs (Defra) mapped background concentrations. National Highways provided a response to question 8.39 in REP3-018. As stated in REP3-018, where the Defra background maps underpredict background monitoring data this could lead to a need to apply a higher adjustment factor in the air quality model verification. The higher the adjustment factor applied, the more conservative the results of the assessment given that the adjustment is applied to both the modelled total concentration with and without the Scheme, which has the effect of increasing the change in concentration. Where concentrations are expected to decrease with the Scheme this could lead to some over representation of the benefits in the results, however, given the balance of benefits and disbenefits this is not considered to impact the overall conclusions on significance of effect, which is stated in the ES as not having a significant adverse effect on air quality due to the Scheme. National Highway's response to question 8.43 in REP3-018 provides an explanation of the DMRB LA 105 terminology regarding significance as applied to beneficial effects.</p> <p>The approach to the background concentrations used in the air quality assessment has been further discussed with HPBC (virtual meeting held 4 March 2022). Comparisons of Defra mapped background concentrations and monitoring data for background sites is presented in ES Appendix 5.3 (APP-157). This indicates the absolute difference in between mapped and monitored concentrations is small, the majority of comparisons of mapped concentrations are within 10% of monitored concentrations and there was also no systematic bias in the comparison. On this basis HPBC agreed that the approach applied in the air quality assessment as presented in the ES was appropriate (virtual meeting held 4<sup>th</sup> March 2022).</p> <p><b>HPBC Comment - Agreed</b></p>	
<p><b><u>Application of Road Gradient Effects within the Air Quality Assessment</u></b></p>		
<p><u>Item 7.2</u></p>	<p><a href="#">National Highways Notes</a></p>	<p>Closed</p>

HPBC [\[REP4-011\]](#) highlighted that DEFRA guidance (DEFRA LAQM TAG16 paragraph 7.449) suggests identification of all roads with a gradient of more than 2.5% for the modelling of gradient effects which HPBC suggest that all roads above 2.5% gradient should be considered in the air quality assessment

Road gradients across the study area vary widely with a large number of locations with gradients of more than 2.5%. Gradient undulations along individual stretches of road mean that to account for smaller gradients (between 2.5% and 6%) consistently across the model, multiple traffic model links would need to be split into gradient specific sections. Given the size of the study area and nature of the model, there was a need to be proportionate in the approach to model set up. Therefore, when the gradient effect was introduced whilst improving the model as part of the model verification process there was a focus on A-roads within air quality management areas (AQMAs), locations where model verification was below acceptable performance, and locations with more considerable gradients (6% or greater). Although Defra Local Air Quality Management Technical Guidance (LAQM.TG16) provides relevant guidance on air quality modelling methodology, it's primary focus is on assisting local authorities with review and assessment of air quality for local air quality management and is therefore more applicable to much smaller model study areas focused on specific locations with known poor air quality where a more detailed approach to the inclusion of gradient effects may be appropriate. National Highway's DMRB LA 105 is designed for larger scale modelling exercises as required for strategic highways projects and does not require the inclusion of gradient effects in model set up. The selection of a criteria of 6% was used as this is the maximum gradient for which the Defra Emission Factor Toolkit (EFT v10.1) will calculate a gradient effect on vehicle emissions.

As stated above, road gradients across the study area vary widely with a large number of locations with gradients of more than 2.5%. It is not considered to be practical to identify all individual sections of road with a gradient over 2.5%. For those link sections modelled with gradient effects the impact on emissions have been accounted for in the calculation. Gradient effects, where relevant, have been included in the model, for those locations which are at risk of exceeding Air Quality Strategy objectives and therefore the inclusion of wider gradient effects across the study area is considered unlikely to impact the overall conclusions or Scheme assessment of significant of effects.

The approach to modelling gradient has been further discussed with HPBC (virtual meetings held 4<sup>th</sup> March 2022 and 18<sup>th</sup> March 2022). Atkins on behalf of National Highway's subsequently carried out a model sensitivity test to consider the impact of applying a gradient of less than 6% further. Following discussion of the results of the

	<p>sensitivity test (virtual meeting held 18 March 2022), HPBC agreed that the approach applied in the air quality assessment as presented in the ES was appropriate.</p> <p><b>HPBC Comment</b></p> <p>HPBC concede that given the size of the project the application of gradients across the study area, although desirable for a more accurate model, would be onerous. Gradients were applied at three locations, where the gradient appeared to be obviously greater than 6% (one location in HPBC) to improve the model performance. Given AQMA's were not really included in the assessment it is not clear how this factored into this decision.</p> <p>The sensitivity tests were conducted to determine if by <u>not</u> applying a gradient to the modelled results, which was generally the case (bar 3 locations), this affected predicted model outcomes. Sensitivity tests were thus conducted at 2 receptors in Tintwistle that had previously been predicted to have the highest modelled NO<sub>2</sub> levels but had previously been modelled with <u>no</u> gradient (not 6%), to see if the application of the gradient caused a significant increase in predicted emissions.</p> <p>The presented results indicated that application of a 2.5% &amp; 6% gradient increased predicted emissions by 3.1 &amp; 6.5% respectively.</p> <p>Consequently HPBC agrees that further consideration / alteration of this model input, within the stated ARN, is unlikely to significantly alter the given interpretation of results</p>	
<p><b><u>Verification Zoning used in Air Quality Assessment</u></b></p>		
<p><u>Item 7.2</u> HPBC [<a href="#">REP4-011</a>] requested clarification on the</p>	<p><a href="#">National Highways Notes</a></p> <p>The approach to the model verification zoning used in the air quality assessment has been further discussed and agreed with HPBC (virtual meeting held 4<sup>th</sup> March 2022).</p>	<p>Closed</p>

localised model zones used in the air quality assessment.	<b>HPBC Comment - Agreed</b>	
<b><u>The use of multiple monitoring surveys in model verification</u></b>		
<p><u>Item 7.2</u></p> <p>HPBC <a href="#">[REP4-011]</a> requested further information on the methodology used for monitoring data annualization and a comparison of results from the different surveys within the study area.</p>	<p><a href="#">National Highways Notes</a></p> <p>Air quality monitoring surveys are not always able to be undertaken in the period directly comparable to the base traffic model year. Therefore, annualisation is used to maximise the data available for model verification. This approach has been used on a number of other National Highways schemes. Defra LAQM TG16 Box 7.9 (final paragraph) provides a method for estimating an annual mean concentration in a year previous to a short term monitoring survey which has been adopted in the assessment to annualise survey data to the traffic model base year.</p> <p>Analysis of the data from each survey showed that although there is some variation in monitored results between the HPBC and the National Highways Scheme specific survey (TPU survey), these are largely within a normal range of variance as shown by the variance between the triplicate tubes from National Highways TPU survey. In addition, 2018 data for National Highways Scheme specific survey MMLR sites in same location as HPBC sites also show little variation.</p> <p>National Highways TPU annualised measured 2018 annual mean data and 2019 measured data backcast to 2018 are also within the normal range of variance between co-located tubes. Notably the National Highways TPU 2019 measured data backcast to 2018 concentrations were higher than National Highways TPU 2018 measured concentrations at tubes located at Dinting Vale Junction.</p> <p>The approach to the annualisation of monitoring surveys used in the air quality assessment has been discussed and agreed with HPBC (virtual meeting held 4<sup>th</sup> March 2022). However, HPBC had remaining concerns regarding the use of the different surveys in verification. Atkins on behalf of National Highway's subsequently carried out verification sensitivity tests to consider the impact of undertaking the verification and adjustment of HPBC zones using data from each of the individual surveys to calculate adjustment factors for each survey dataset. Following discussion of the results of the</p>	Closed

	<p>sensitivity test (virtual meeting held 18 March 2022), HPBC agreed that the approach applied in the air quality assessment as presented in the ES was appropriate.</p> <p><b>HPBC Comment</b> - The applicant undertook sensitivity tests to look at model validation using the different survey data in isolation. Generally speaking the ES applied correction factors compared reasonably well (in terms of correction factors &amp; RSME) for the generated A57 &amp; A628 zones using the other data sets (including HP only) and application of these different correction factors would not significantly affect interpretation.</p> <p>The Dinting zone is less clear, as the data set (used) is much smaller (4 sites) and therefore, only one alternative HP (and MMLR) data set can be looked at (in isolation). If the single tubes are used (not appropriate) the correction factor would be much higher. Inclusion of the HP tube (swapping out of a corresponding TPU tube) increases the correction factor slightly, but the results / interpretation remain consistent with the ES. That is that one exceedance at R319 exists but is not due (only compounded) by the scheme.</p> <p>It is accepted therefore, that based on the zoning adopted, the correction factor used in the ES is the most applicable correction factor available. However, it should be noted, that should there be a requirement to undertake a further AQ assessment of the dinting vale AQMA, it would be expected that this zone would be expanded / adjusted, to include appropriate available data sets within the AQMA to improve the confidence in this adjustment factor.</p>	
<p><b><u>Speed Band Emission Rates used in Air Quality Assessment</u></b></p>		
	<p><a href="#">National Highways Notes</a></p> <p>Speed bands applied within the air quality model within HPBC have been discussed with HPBC (virtual meeting held 18th March 2022). Discussions are ongoing.</p>	<p>Discussion ongoing</p>

**HPBC Comment - Agreed discussions ongoing**

There is currently a lack of understanding from HPBC regarding the application of the speed bands to the different roads (light congestion, heavy congestion, free flow) and the effects this may have on modelled emissions.

Results shared by NH indicate that generally, traffic is considered to be lightly congested and that that only minimal changes from DM allocated speed band are expected as a result of the scheme (D/S).

Indeed how this relates to the rerouting that occurs in the transport model is not obvious (see below).

*Additional concerns – not discussed during the meeting but subsequently raised with and will form part of the ongoing discussion*

In addition, one would also assume that the application of speed bands (and/or identification in changes in speed bands) will be dependent , in part at least, on an accurate prediction of number vehicles on a given stretch of road.

If this has been underpredicted in the TA, then the predicted number of vehicles in 2025, and possibly the level of congestion in the 2025 (DM) , and thus speed bands allocation (and traffic speed) may be affected. All of which would affect model outcomes.

Having re: examined the transport data used in the assessment there would appear to be a significant discrepancy between the available published manual count data (not predicted -Dft) for the various appropriate stretches of road across the HP zones, and the data obtained from a bespoke transport assessment undertaken by HE (in 2015?).

e.g for A57 Brookfield area

HE manual count? (2015)	14800
Dft <u>manual count</u> ? (2016)	15694 (difference 894 in one year)

	<p>Predicted (2025) <b>15200</b></p> <p><a href="https://roadtraffic.dft.gov.uk/manualcountpoints/6564">https://roadtraffic.dft.gov.uk/manualcountpoints/6564</a></p> <p>This question may have been discussed with our DCC colleagues but HP would like a further explanation of this discrepancy and how it relates to the assigned speed bands.</p>	
<p><b><u>Routing of traffic in Glossop from the A57 onto Shaw Lane and Dinting Road.</u></b></p>		
<p><u>Item 8.41</u></p> <p>HPBC <a href="#">[REP4-011]</a> has questioned the rationale for showing vehicles diverting to Shaw Lane and Dinting Road from A57 Glossop High Street and whether this undermines the assessment of receptors on the A57. HPBC have also questioned whether a change to the expected routing could potentially affect flows through the Glossop Air</p>	<p><a href="#">National Highways Notes</a></p> <p>The traffic modelling used for the assessment of the Scheme provides the best indication of how future traffic demand will use the road network in response to changes in the operation of the modelled road network due to the Scheme compared to without it, whilst accounting for forecast traffic growth and other committed future modifications to the road network.</p> <p>For the routing of traffic across the modelled road network to substantially alter from that forecast by the traffic modelling, physical measures or schemes would need to be introduced onto the road network, such as changes in speed limits, traffic calming measures, additional traffic signals, etc., that would cause drivers to choose alternative competing routes. Any such proposed modifications to the road network would be subject to an impact assessment prior to their implementation that would need to consider the diversionary impact of the scheme on traffic and the consequential environmental effects. No such schemes for Dinting Road and Shaw Lane are proposed.</p> <p>Consequently, the forecast traffic flows across the modelled road network are considered to represent a reasonable and appropriate worst-case scenario of the traffic impacts of the Scheme through Glossop.</p> <p>If traffic was somehow prevented or discouraged from using Dinting Road and Shaw Lane, then additional traffic modelling would need to be undertaken to understand the</p>	<p>Discussion ongoing</p>



<p>Quality Management Area.</p>	<p>likely traffic redistribution effects across the road network, which would not necessarily mean that traffic flows on any one alternative route, such as the A57 through Glossop (including Glossop AQMA), would increase. This is because there are likely to be wider, knock-on, traffic redistribution effects.</p> <p>This issue has been further discussed with HPBC (virtual meetings held 4<sup>th</sup> March 2022 and 18<sup>th</sup> March 2022). HPBC reiterated their concern that a rerouting of traffic may trigger the need for further assessment of the Glossop AQMA and requested that a sensitivity test be carried out on the traffic modelling to understand the impact of preventing traffic using the Dinting Road and Shaw Lane diversion route.</p> <p><b>HPBC Comment - Agreed discussions ongoing</b></p> <p>As noted HPBC still do not fully appreciate the criteria /logic in the Transport model that causes traffic to divert from the more direct A57 route through Glossop and use Dinting Road / Shaw lane. One would expect perhaps the traffic to divert from routes (speed bands) that are classed as “heavily congested” to routes perceived to be less congested “e.g lightly congested or free flowing” but this is not obvious in the initial speed band data provided by NH.</p> <p>It is not yet agreed that for the forecast model to change significantly this would require these roads to become less desirable, as it is not yet clear to us that they the likely preferred route, for the reasons raised previously on numerous occasions. The crucial question is the forecast model representing likely traffic movements (I would also note traffic numbers here). To that end and as noted above, it would be desirable to not include a sensitivity tests on traffic flow should Shaw lane / Dinting Lane not be used to the extent predicted.</p>	
<p><b><u>Inclusion of HPBC AQMAs in the air quality study area</u></b></p>		

<p><u>Item 8.40</u></p> <p>HPBC <a href="#">[REP4-011]</a> suggested that a variation of the screening threshold would be appropriate for links within the Air Quality Management Areas.</p>	<p><a href="#">National Highways Notes</a></p> <p>The traffic scoping criteria for changes in traffic flow requiring a quantitative air quality assessment as set out in the DMRB LA 105 are as follows:</p> <ul style="list-style-type: none"> <li>• Road alignment will change by 5 m or more; or</li> <li>• Daily traffic flows (two way) will change by 1,000 annual average daily traffic (AADT) or more; or</li> <li>• Heavy Duty Vehicle (HDV) flows (two way) will change by 200 AADT or more; or</li> <li>• A change in speed band (for one way or two way traffic and in any time period (morning peak, interpeak, evening peak, off peak)).</li> </ul> <p>The DMRB LA 105 provides thresholds applicable and suitable for the assessment of National Highways schemes which, as strategic interventions, impact traffic flows over a much wider area than residential and mixed used developments. This is also reflected in the difference in the nature and scale of the traffic models used for the assessment of highways schemes.</p> <p>The DMRB LA 105 traffic scoping criteria provides traffic change criteria as absolute values which if exceeded require quantitative assessment, which for large projects with receptors within 50m of roads triggering the traffic scoping criteria must follow a detailed assessment approach using air dispersion modelling (as has been used in the Scheme air quality assessment). National Highways believes that the DMRB LA 105 traffic scoping criteria provides a robust and appropriate threshold for the assessment of significant effects on road links within AQMAs.</p> <p>This issue has been further discussed with HPBC (virtual meetings held 4<sup>th</sup> March 2022 and 18<sup>th</sup> March 2022), however, HPBC's key concern remains that AQMAs should have been included in the Scheme air quality assessment on a precautionary basis. HPBC agreed that the appropriate scoping criteria for National Highway' road schemes had been used (following DMRB LA 105). Although HPBC appreciate that DMRB has been followed they believe the AQMAs should have been assessed regardless of whether the traffic scoping criteria were triggered.</p>	<p>Discussion ongoing</p>
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	<b>HPBC Comment - Agreed discussions ongoing</b>	
<b><u>The impact of construction vehicle movements at sensitive receptors in HPBC</u></b>		
<p><u>Item 8.35</u>  HPBC <a href="#">[REP4-011]</a> requested information on the level of construction traffic and duration for the eastern end of the link road where it connects at Woolley Bridge due to air quality receptors being within 200m.</p>	<p><a href="#">National Highways Notes</a></p> <p>National Highways response to item 8.35 regarding both construction vehicle movements and construction traffic management is provided in Comments on Local Impact Report submitted by Derbyshire County Council and High Peak Borough Council (REP3-018).</p> <p>There are not anticipated to be any construction vehicle movements on the public highways in HPBC. When travelling off site, construction traffic is expected to travel west from the Scheme extent on public highways towards Manchester. Most construction vehicle movements on site are expected to follow the trace of the scheme alignment with a maximum of 89 daily 2-way HDV on-site movements. Assuming the worst case, that all these vehicles travel to the far eastern edge of the trace alignment, where the link road connects with the existing A57 and the closest location to properties in HPBC, the number of daily HDV movements would not meet the DMRB LA 105 traffic scoping criteria requiring further assessment.</p> <p>The approach to the assessment of construction vehicle emissions has been further discussed and agreed with HPBC (meeting held 4<sup>th</sup> March 2022).</p> <p><b>HPBC Comment - Agreed</b></p>	Closed
<b><u>The impact of construction traffic management at sensitive receptors in HPBC</u></b>		
<p><u>Item 8.36</u>  HPBC <a href="#">[REP4-011]</a> requested further</p>	<p><a href="#">National Highways Notes</a></p> <p>With respect to construction traffic management, construction phase 2 and 3 (both of 6-month duration) are expected to have the largest impact on traffic on the local highway</p>	Closed

information on the impact of an increase of traffic during construction would impact congestion in HPBC.

network. The maximum AADT change on any road within HPBC as a result of traffic management measures across either phase is expected to be 144 AADT on A57 Woolley Lane and 20 HDV on the A628 Manchester Road. The traffic change does not therefore meet the DMRB LA 105 traffic scoping criteria requiring further assessment.

The temporary traffic management measures will generally be short term, with the arrangements, timing and phasing being designed to minimise traffic congestion and delay far as reasonably practicable. Inevitably, however, some of the temporary traffic management arrangements are likely to cause some additional short term traffic congestion and delay within the immediate vicinity of the Scheme, but this is not anticipated to be sufficient to result in any material change in traffic flows or congestion on roads within HPBC.

The approach to the assessment of the impact of construction traffic management has been further discussed and agreed with HPBC (meeting held 4<sup>th</sup> March 2022).

**HPBC Comment - Agreed**