

Applicant's Responses to ExA's Request for Further Information

The West Midlands Rail Freight Interchange Order 201X

Four Ashes Limited

DOCUMENT 18.4: APPLICANT'S RESPONSES TO EXA'S REQUEST FOR FURTHER INFORMATION (AIR QUALITY)

1 Introduction

1.1 The information below provides a response to the specific questions raised. However before addressing the specific questions, the Applicant considers it is important to draw the ExA's attention to a key point about the Air Quality Assessment. As per the scope of the assessment, and to comply with Institute of Air Quality Management (IAQM) guidance and paragraphs 5.11-5.13 of the NPS, the Air Quality Assessment comprises two separate and distinct elements of assessment which use differing methodologies:

- An Impact Assessment as part of the EIA using IAQM guidance to assess the impact of the development on local air quality and Air Quality Management Areas (AQMAs); and
- A specific Compliance Risk Assessment using data from Defra's Pollution Climate Mapping (PCM) model to assess compliance with EU Limit Values.

1.2 Regarding the second form of assessment, as stated in paragraph 7.77 of the ES Chapter 7 (Document 6.2, REP7-016), reporting against compliance with the EU Limit Values is undertaken by Defra using data from the PCM model and reported at a zonal/agglomeration level. Using data from the PCM model is the accepted methodology for assessing compliance with EU Limit Values, and the results from the Impact Assessment cannot be used for this purpose.

1.3 A Compliance Risk Assessment (paragraphs 7.85 to 7.92 of ES Chapter 7 (Document 6.2, REP7-016) and ES Technical Appendix 7.7 (Document 6.2, REP7-026)) has been undertaken to determine whether the Proposed Development will have an impact on compliance with the EU Air Quality Directive by adding the modelled development contribution to the predicted concentrations from the PCM model for the relevant zones. This risk assessment considers the West Midlands (UK0035) and West Midlands Urban Area (UK0002) zones, and this is the appropriate geography to test to address paragraph 5.13 of the NPS.

1.4 As per paragraph 7.205 and 7.206 of the ES (Document 6.2, REP7-016) the impacts of the Proposed Development, as set out in accordance with IAN 175/13, are provided in Tables 7.7.1 to 7.7.3 in ES Technical Appendix 7.7 (Document 6.2, REP7-026). In all three assessment years the PCM assessment predicts that the EU limit value for NO₂ will be met at all receptor locations even assuming the most conservative scenario of no implementation of Clean Air Zones. Therefore, as concluded in ES paragraph 7.207 (Document 6.2, REP7-016):

"Following the flow chart set out in Figure 7.1, the Proposed Development would not delay compliance with the EU Limit Value. The Proposed Development would not cause the EU limit value of 40 µg/m³ to be exceeded as a result of the predicted change in concentrations and there would be no increase on road links predicted by the PCM model to exceed 40 µg/m³."

1.5 Therefore the *"Proposed Development would not therefore change the compliance status of the West Midlands or West Midlands Urban Zones."* (ES paragraph 7.208 (Document 6.2, REP7-016)).

1.6 In terms of addressing specific questions raised please refer to further information below.

2 Examining Authority Questions

"Q1. In comparing the NO₂ predicted concentrations at 2028 with and without development, the Table records the development contribution to those concentrations as being 1%. As this does not reflect the actual percentage contribution, the ExA assumes that this figure has been rounded up. Can the Applicant please confirm: (a) whether this is the case; (b) set out the method or approach that has been adopted in respect of rounding such figures up or down in the tables in Appendix 7.6, and (c) confirm whether that methodology has been consistently applied to all such tables in this part of the assessment?"

- 2.1 The percentage change numbers are the percentage change relevant to the air quality assessment level, which for annual mean NO₂ is 40 µg/m³. The methodology is in accordance with Table 6.3 of the IAQM guidance that is referenced in paragraph 7.114 of the ES (Document 6.2, REP7-016). For ease of reference, Table 6.3 is reproduced below which matches Table 7.7 of the ES (Document 6.2, REP7-016).

Table 6.3: Impact descriptors for individual receptors.

Long term average Concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Explanation

1. AQAL = Air Quality Assessment Level, which may be an air quality objective, EU limit or target value, or an Environment Agency 'Environmental Assessment Level (EAL)'.
2. The Table is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which then makes it clearer which cell the impact falls within. The user is encouraged to treat the numbers with recognition of their likely accuracy and not assume a false level of precision. Changes of 0%, i.e. less than 0.5%, will be described as Negligible.
3. The Table is only designed to be used with annual mean concentrations.
4. Descriptors for individual receptors only; the overall significance is determined using professional judgement (see Chapter 7). For example, a 'moderate' adverse impact at one receptor may not mean that the overall impact has a significant effect. Other factors need to be considered.
5. When defining the concentration as a percentage of the AQAL, use the 'without scheme' concentration where there is a decrease in pollutant concentration and the 'with scheme,' concentration for an increase.
6. The total concentration categories reflect the degree of potential harm by reference to the AQAL value. At exposure less than 75% of this value, i.e. well below, the degree of harm is likely to be small. As the exposure approaches and exceeds the AQAL, the degree of harm increases. This change naturally becomes more important when the result is an exposure that is approximately equal to, or greater than the AQAL.
7. It is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the AQAL. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the AQAL, rather than being exactly equal to it.

- 2.2 In terms of the specific Q1 questions:
- a) The percentage change has been rounded up in accordance with Note 2 of Table 6.3 of the IAQM guidance and as stated in Paragraph 7.115 of the ES (Document 6.2, REP7-016),
 - b) The numbers have been rounded up in accordance with the referenced IAQM guidance.
 - c) The methodology has been consistently applied.

“Q2. Receptors PS_W_41b and PS_W_41c appear to be within residential areas located close to the westbound and eastbound carriageways of the M6 within Walsall district and within a designated AQMA. Can the Applicant and Walsall Council please (a) confirm whether this is the case; and (b) provide an indication of how many residential properties in these locations would be likely to be affected by emissions from traffic generated by the Proposed Development?”

- 2.3 (Q2a) The Applicant can confirm that this is the case, the two receptor locations are close to the westbound and eastbound carriageways of the M6 within Walsall district and within the designated AQMA (designated for NO₂). Receptor PS_W_41b is located approximately 10.5m to the west of the M6 whereas receptor PS_W_41c is located approximately 30m to the east.
- 2.4 (Q2b) The predicted concentrations at the two stated receptors are specific to the locations modelled, in particular, the distance from the motorway and whether the locations are to the west or east of the motorway. Receptors to the east are likely to have higher annual pollutant concentrations as the prevailing wind direction is from the south-west. In terms of the number of residential properties affected by emissions from traffic generated by the Proposed Development, the Applicant has assumed that the question relates to how many properties would have predicted moderate impacts in the 2028 scenario. For Receptor PS_W_41b the Applicant estimates that one property would have moderate impacts. For Receptor PS_W_41c the Applicant estimates that approximately 36 properties would have moderate impacts. It should also be recognised that, whilst the modelling has taken account of the noise barrier that runs alongside both sections of the motorway, it does not take account of the presence of the vegetation along the verges which would have the effect of increasing dispersion. In addition, the motorway traffic is assumed to be travelling at a constant 70mph whereas this section of the motorway is a managed motorway where speeds are reduced to smooth out flow. Reduced average speeds will lead to reductions in emissions. It is therefore likely that the modelling predictions are conservative.

“Q3. No information has been given as to the rate at which air quality is expected to improve at these locations between 2028 and 2036. Can the Applicant show at what year a reduction of NO₂ concentrations below 40µg/m³ would be predicted to be achieved without the development?”

- 2.5 The indicative rate at which baseline air quality is predicted to improve can be discerned from Tables 7.6.13, 7.6.14 and 7.6.15 in ES Technical Appendix 7.6 (Document 6.2, REP7-025) in terms of the improvement in vehicle NO_x emissions. However, this does not take account of changes in baseline traffic over the period, as all of the committed development traffic is assumed to be present in 2021 (in order to comprise a worst case basis) and therefore the baseline traffic is the same in each scenario. In reality, the baseline traffic is likely to be lower in 2021 than has been modelled, increasing between 2021 and 2036. Nevertheless, the predicted baseline concentrations in 2021, 2028 and 2036 for PS_W_41b are 68.9, 43.3 and 39.6µg/m³ and for PS-W_41c they are 68.2, 43.0 and 39.3µg/m³. Between the 2028 and 2036 assessment years, the baseline concentrations are predicted to reduce by 3.7µg/m³ at both receptor locations. Whilst the completed development scenario is for 2036, Defra do not provide vehicle emission factors or background concentrations beyond 2030 and therefore the 2036 predictions are actually for 2030. Based on the modelled data, compliance with the annual mean NO₂ national air quality objective will be between 2029 and 2030, although this is likely to be an approximate timetable. In terms of compliance with EU Limit Values, these results are contained in ES Technical Appendix 7.7 (Document 6.2, REP7-026) and as discussed in the answers to Questions 5 and 6 below, compliance is achieved in all of the assessment years (2021, 2028 and 2036).

“Q4. In simple terms, the addition of 0.3µg/m³ or of +1% at 2028, with potentially a larger contribution in each subsequent year as development traffic increases might be expected to reduce the expected rate of overall improvement in air quality at these receptors and the speed with which the monitored levels below the AQ objective for the AQMA might be achieved. Can the Applicant show at what year a reduction of NO₂ concentrations below 40µg/m³ would be predicted to be achieved with the development?”

- 2.6 The impact of the Proposed Development does not increase year on year as the development flows increase, because at the same time emission rates are predicted to decrease as the vehicle fleet is gradually replaced with less polluting vehicles. This is seen in the results for PS_W_41b and PS_W4_1c in Tables 7.6.14

and 15 in ES Technical Appendix 7.6 (Document 6.2, REP7-025) where the increase as a result of the development traffic is the same in 2028 and 2036 although the development traffic doubles. As shown in Table 7.6.15 in ES Technical Appendix 7.6 (Document 6.2, REP7-025), the predicted concentrations with the development in place in 2036 are below $40\mu\text{g}/\text{m}^3$. In reality, these concentrations are for 2030 as the background concentrations and vehicle emission factors are for 2030 and therefore compliance with the annual mean NO_2 national air quality objective is predicted to be 2030. Based on a reduction in baseline concentrations of $3.7\mu\text{g}/\text{m}^3$ between 2028 and 2030, the development contribution of $0.3\mu\text{g}/\text{m}^3$ is effectively equivalent to approximately 2 months' worth of reduction in baseline concentrations.

- 2.7 In terms of the AQMA, this is unlikely to have any practical impact on the decision to revoke the AQMA when concentrations are below $40\mu\text{g}/\text{m}^3$. Paragraph 3.50 of Defra technical guidance TG(16)¹ notes:

'However, pollutant concentrations may vary significantly from one year to the next, due to the influence of meteorological conditions, and it is important that authorities avoid cycling between declaring, revoking and declaring again, due simply to these variations. Therefore, before revoking an AQMA on the basis of measured pollutant concentrations, the authority therefore needs to be reasonably certain that any future exceedances (that might occur in more adverse meteorological conditions) are unlikely. For this reason, it is expected that authorities will need to consider measurements carried out over several years or more, national trends in emissions, as well as local factors that may affect the AQMA, including measures introduced as part of the Air Quality Action Plan, together with information from national monitoring on high and low pollution years.'

- 2.8 The development contribution is therefore unlikely to impact on a decision which is likely to take a number of years to make and which is more heavily influenced by baseline factors and meteorology. Furthermore, as stated previously, in terms of compliance with EU Limit Values, these results are contained in ES Technical Appendix 7.7 (Document 6.2, REP7-026) and as discussed in the answers to Questions 5 and 6 below, compliance is achieved in all of the assessment years (2021, 2028 and 2036).

"Q5. Having regard to the data presented in updated Table 7.6.14 and their responses to Questions 3 and 4 above, can the Applicant please provide further clarification and justification for the conclusion, set out at Paragraph 7.208 of revised Chapter 7, that the Proposed Development would not "affect the ability of a non-compliant area to achieve compliance within the shortest period"?"

- 2.9 As noted in the introduction to our response, there are two separate elements to the air quality assessment; the local air quality impact assessment and the Compliance Risk Assessment. The compliance with EU Limit Values is assessed in relation to the PCM model results, and the results of this assessment are presented in ES Technical Appendix 7.7 (Document 6.2, REP7-026). These show that all predicted annual mean NO_2 concentrations within the West Midlands (UK0035) and West Midlands Urban Area (UK0002) zones are less than $40\mu\text{g}/\text{m}^3$, and therefore both zones are compliant.

- 2.10 In relation to Questions 3 and 4 above, the results at receptors PS_W_41b and PS_W-41c are for the impact assessment and these results are not used for assessing compliance with EU Limit Values which can only be undertaken by using the PCM model data provided by Defra.

"Q6. Can Walsall Council please provide its comments on the assertion, at Paragraph 7.208 of revised Chapter 7, that the Proposed Development would not affect the ability of a non-compliant area to achieve compliance within the shortest period?"

¹ Local Air Quality Management Technical Guidance (TG16) Defra February 2018

- 2.11 Walsall Council will respond to this question. However, as noted in the Applicant's response to Question 5, in accordance with the Compliance Risk Assessment, the West Midlands (UK0035) and West Midlands Urban Area (UK0002) zones are compliant and therefore the Proposed Development would not affect the ability of a non-compliant area to achieve compliance within the shortest period.

3 Additional Comments

- 3.1 In addition to the responses to the Examining Authority's questions, the Applicant considers it is useful to provide the following additional comments by way of response.

Significant EIA Effects

- 3.2 As noted in Paragraph 7.116 of the ES Chapter 7 (Document 6.2, REP7-016), the overall significance of effects on air quality is based on professional judgement taking into account a number of factors. This is further explained in Section 7.4 of the IAQM guidance where it is stated that:

7.4 The assessment framework for describing impacts can be used as a starting point to make a judgement on significance of effect, but there will be other influences that might need to be accounted for. The impact descriptors set out in **Table 6.3** are not, of themselves, a clear and unambiguous guide to reaching a conclusion on significance. These impact descriptors are intended for application at a series of individual receptors. Whilst it may be that there are 'slight', 'moderate' or 'substantial' impacts at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances.

- 3.3 In the case of the Proposed Development, there are moderate impacts predicted at two receptor locations in the intermediate 2028 assessment scenario. With reducing concentrations between 2028 and 2036 (in reality 2030), the same development contribution of $0.3\mu\text{g}/\text{m}^3$ is assessed as a slight impact in the full development scenario. The predicted impacts at the two receptor locations are temporary and as noted in Paragraph 7.187 of the ES Chapter 7 (Document 6.2, REP7-016) may not actually occur depending on the rate at which development traffic builds up. Overall, based on the results at all of the receptors for the three assessment scenarios the development is not considered to have a significant effect on air quality.

Mitigation

- 3.4 The following mitigation measures have been proposed in terms of road traffic impacts (as outlined ES Chapter 15, Document 6.2, APP-053):
- Site Wide HGV Management Plan, including:
 - Early arrival bays; and
 - Vehicle booking system.
 - Sustainable Transport Strategy to include:
 - Provision of new and extended bus services which could include:
 - Increase frequency and divert existing services; and
 - New shuttle buses between employee clusters and the Site, anticipated to be to Cannock Chase, Walsall and Wolverhampton.
 - New and improved pedestrian and cycle facilities including:
 - Upgrade the existing shared use cycle/footway to a 3m wide shared cycle/footway along the east of the A449 between Gailey Roundabout and the junction with Station Drive to the south;

- Provide pedestrian crossing facilities at the proposed A449 Site access roundabout to facilitate access to bus facilities on the west side;
- Upgrade the existing footway to the west of the A449 in the vicinity of the proposed Site access roundabout to provide a width of 2m;
- Alter the existing footway adjacent to the north of the A5 between Gailey Roundabout and the proposed Site access to provide, where feasible, a 3m wide shared cycle/footway;
- Provide a 2m footway to the south of the A5 to connect the Proposed Development to Gailey Marina;
- Provide pedestrian crossing facilities at the proposed A5 site access roundabout;
- Provide a 3m cycleway along a section of Vicarage Road as shown on the General Arrangement Drawings;
- Provide 3m wide cycleways / footways adjacent to the roads through the Site;
- Provide a network of permissive paths within the areas of public open space. Crossing facilities would be provided across Straight Mile plus footway improvements would be provided at the junction of Straight Mile / Kings Lane / Woodlands Lane in order to allow access to these permissive paths; and
- Improvements to the canal tow path to support an increase in use and connectivity to the footpaths.
- Site Wide and Individual Occupier Travel Plans to encourage a reduction in single occupancy car journeys. This will be achieved using measures such as:
 - Appointment of a Travel Plan Co-ordinator;
 - Development of a smart phone app to provide information on bus times and capacity;
 - Provision of sustainable travel information packs for employees;
 - Personalised travel planning for employees;
 - Travel Plan website and social media feeds;
 - Bus taster tickets;
 - Employee discounts for bus services or sustainable transport related purchases;
 - Car sharing portal;
 - Staggered working hours; and
 - Remote / home and flexible working.

4 Compliance with the NPS

- 4.1 In order to conform compliance with the NPS the specific relevant paragraphs relating to Air Quality have been considered.

NPS 5.11:

“Air quality considerations are likely to be particularly relevant where schemes are proposed:

- *within or adjacent to Air Quality Management Areas (AQMA); roads identified as being above Limit Values or nature conservation sites (including Natura 2000 sites and SSSIs, including those outside England); and*
- *where changes are sufficient to bring about the need for a new AQMAs or change the size of an existing AQMA; or bring about changes to exceedences of the Limit Values, or where they may have the potential to impact on nature conservation sites.”*

- 4.2 The Air Quality Assessment has taken account of all AQMAs within the study area (Paragraphs 7.127 to 7.131 of ES Chapter 7 (Document 6.2, REP7-016)) and the relevant roads within the West Midlands and West Midlands Urban Area zones (Paragraphs 7.203 to 7.209 of ES Chapter 7 (Document 6.2, REP7-

016))Ecological receptors (including SSSIs) have been considered in the assessment (Table 7.6 of ES Chapter 7 (Document 6.2, REP7-016)).

- 4.3 The Proposed Development does not bring about the need for a new AQMA or change the size of an existing AQMA; nor bring about changes to the exceedances of the EU Limit Values or have significant effects on nature conservation sites.

NPS 5.12:

“The Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and / or where they lead to a deterioration in air quality in a zone/agglomeration”

- 4.4 As stated above, the IAQM methodology indicates that impacts are assessed at individual receptor locations and then the overall significance of effects determined using professional judgement and taking into account the impacts at all receptors. The Air Quality Assessment has not identified significant effects in EIA terms (refer to Table 7.23 (Document 6.2, REP7-016)).
- 4.5 The Compliance Risk Assessment (ES Paragraphs 7.203 to 7.207, Document 6.2, REP7-016) has demonstrated that the West Midlands and West Midlands Urban Area zones are compliant and will remain compliant with the Proposed Development in place. All predicted concentrations using the data from the PCM model are well below 40µg/m³ and therefore the Proposed Development will not lead to a deterioration in air quality in a zone/agglomeration using the methodology that is required for assessing compliance with EU Limit Values.

NPS 5.13:

“The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the scheme will:

- *result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or*
- *affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision.”*

- 4.6 As previously stated, the scheme does not result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; nor does it affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision as this is demonstrated through the Compliance Risk Assessment which shows that the West Midlands (UK0035) and West Midlands Urban Area (UK0002) zones are compliant.
- 4.7 In conclusion, the Applicant considers that ES paragraph 7.209 (Document 6.2, REP7-016) is correct in stating the *“proposed development therefore complies with the guidance and requirements set out in NPS paragraphs 5.11-5.13”*.

20th August 2019