

## File Note



Project:	<b>High Malton</b>	Job No:	<b>60338643</b>
Subject:	<b>Air Quality - Response to Objections</b>	Date:	<b>23 September 2015</b>

This technical note has been prepared in response to objections, received by Ryedale Council, regarding the AECOM air quality assessment undertaken in respect of the proposed High Malton development (14/00678/MOUTE). The purpose of the note is to provide the planning committee with a balanced appraisal of the issues identified by the objectors.

The (air quality elements of) objections that this note responds to are:

1. Objection e-mail dated 19<sup>th</sup> August, from Ian Conlan, on behalf of West Malton Residents Group
2. Objection letter dated 2<sup>nd</sup> September, from Simon Thackray, Brawby, Malton
3. Objection e-mail dated 3<sup>rd</sup> September (8.34am), from Ian Conlan, on behalf of West Malton Residents Group
4. Objection e-mail dated 3<sup>rd</sup> September (9.51am), from Ian Conlan, on behalf of West Malton Residents Group
5. Objection e-mail dated 4<sup>th</sup> September, from Ian Conlan, on behalf of West Malton Residents Group
6. Objection e-mail dated 15<sup>th</sup> September, from Ian Conlan, on behalf of West Malton Residents Group

The issues raised in the numbered Objections have been summarised as follows:

Topic	Objection ID					
	1	2	3	4	5	6
Future NO <sub>2</sub> /NO <sub>x</sub> Background Concentrations	x					
Over prediction of future NO <sub>2</sub> reductions in the AQMA / effect of diesel vehicles			x			x
Failure to meet EU limits for NO <sub>2</sub>		x				
Cumulative Impacts		x	x		x	
Mitigation (Insufficient/Quantification of/HGVs)		x	x	x		
Model Uncertainty / Model error		x				
Monitored Trends in the AQMA / Model Verification			x		x	
Vehicle speeds / congestion / queuing			x	x	x	
Discrepancies with planning application 14/00426/MOUTE						x

This note contains four sections which provide:

1. a short background to the air quality assessment work undertaken so far;
2. a discussion of all of the cautious/conservative aspects of the work undertaken, that together would have overestimated impacts/pollutant concentrations
3. a discussion of the aspects of work that may be considered to have downplayed/underestimated impacts/pollutant concentrations
4. a conclusion to pull together the issues raised

Reference is made to the Objection topics as appropriate. Section 4 picks up on some Objection topics not covered in Sections 2 and 3.

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## 1. Background

AECOM undertook an assessment (dated June 2014) to support the outline planning application for a residential led mixed use development to the west of Malton. Following comments received from the Environmental Protection Officer at Ryedale District Council a 'Report Update' was prepared, dated February 2015.

## 2. Cautious / Conservative aspects of the assessment

Many factors must be considered when undertaking an air quality assessment. Each of these factors can have an influence directly or indirectly on the overall assessment outcomes. Typically AECOM aims to err on the side of caution, particularly for an outline planning application, so as to ensure that overall, a robust assessment, where development impacts are not underestimated, is undertaken.

The following list provides details of those aspects of the assessment where a cautious approach was adopted:

### a. Assumed opening year

The AECOM assessment assumes for the purpose of the modelling predictions that the entire development will be operational (fully occupied) by 2019. In reality however, the construction will be phased over 10-15 years, and so the very earliest that the development will be fully occupied will be 2025. This therefore represents a very cautious approach as ambient air quality is forecast to be greatly improved by 2025, compared with the present day and compared with the assumed operational year of 2019. Not only will 'background' air quality throughout Malton be greatly improved by 2025, but the impact of the development, associated with vehicles travelling to and from the development will be of far lesser magnitude due to improvements in vehicle emissions technologies and the likely increased proportion of electric vehicles and other ultra low emission vehicles.

If the assessment had quantified the NO<sub>2</sub> concentrations in Malton in 2025 and the development impact in 2025, it would have been predicted that NO<sub>2</sub> concentrations would be well below the EU annual mean limit value (of the order of 50-75% of the EU limit value), and the development impact would have been predicted to be far smaller (of the order of 30-50% smaller than was predicted for 2019 in our assessment).

**By 2019 it is perhaps more realistic that the development will be 30% complete, and therefore, taken in isolation, the AECOM assumption that it would be fully complete may have caused an overestimation of the impacts in 2019 of the order of approximately 70%.**

### b. Treatment of HGVs

For the purposes of the modelling assessment it was assumed that the development would have no effect on the proportion of HGVs (and buses/coaches) that are currently on the roads in Malton. However, the development traffic, given the type of development (residential-led) will be predominantly cars, and therefore it would be reasonable to expect that overall the proportion of HGVs (and buses/coaches) in Malton will in fact reduce.

**Considering that one HGV emits significantly more pollution than one car, taken in isolation, this assumption regarding the composition of the development traffic will likely have resulted in the overall impact of the development being overestimated in 2019 by approximately 10-20%.**

## c. Model verification - Background concentrations

Model verification is the process of comparing actual measured concentrations with modelled predictions, at specific roadside points where the Council conducts monitoring. An 'adjustment factor' can then be derived to 'verify' the model over the whole study area, so as to ensure that the model represents reality as close as possible. An important part of this process is the consideration of 'background' pollution levels. We model emissions from vehicles within the study area, but other sources, such as emissions from domestic heating, emissions from vehicles outside of the study area, and pollution that has been transported from nearby villages, towns and cities further afield, is accounted for through the use of a 'background' contribution. Councils sometimes undertake monitoring at 'background' locations (i.e. at locations away from roads), but Ryedale do not; however Defra have published estimates of background pollutants nationwide, with a 1km resolution, and so this was used to determine our 'background' pollutant contribution. Through experience of undertaking a great number of assessments throughout the UK we are aware that it is fairly often the case that where we are able to compare actual monitored 'background' NO<sub>2</sub> levels with Defra estimates we find that the Defra estimates are low compared with the monitored values. Indeed, one of the closest 'background' monitoring sites we are aware of is in Easingwold, approximately 25 km west of Malton, and at this site the monitored value was approximately 40% higher than the Defra estimate. The implication of this is that, had we used a *higher* background value, our model adjustment factor would have been *lower*, and consequently the magnitudes of our development impacts would have been *lower*.

**It is hard to estimate the effect of this on the assessment, but it is likely that had there been local background concentration measurements these would have been *higher* than the Defra estimates and so, taken in isolation, this will have contributed to an overestimation of development impacts of the order of 0-20%.**

## d. HGV Mitigation

At the time of writing the original assessment (June 2014) and the Update (February 2015) it was not known that as part of the development there would be a permanent ban (weight limit) on HGVs (with the exception of essential deliveries and public service vehicles) at Butcher's Corner. Such a measure will have a considerable effect on pollutant concentrations. HGVs are well known to contribute significantly to vehicular pollution nationwide; whilst the effect of diesel cars is now widely recognised to be greater than previously thought, HGVs remain a significant contributor.

**It is considered likely that an HGV ban / weight limit would reduce concentrations on those roads affected in the AQMA to be consistently below the EU limit values when it comes into force.**

**In the short term, if the ban comes into force prior to the full occupation of the development, the ban would have a significant beneficial impact and would likely result in the impact of the development being net positive (i.e. beneficial).**

**Once the development is fully occupied the impact of the ban will still be very significant, but further calculations would need to be undertaken to predict how significant, and whether the development as a whole would still be net positive.**

Overall, considering the combined effect of the first three issues (a, b, and c), **it is likely that the assessment undertaken may have overestimated the development impacts by at least 60%**. The next section discusses areas where the approach potentially may have caused impacts to be underestimated. The final point (d) raises the possibility of the development having a net positive (beneficial) effect on air quality, whilst acknowledging that further work would need to be undertaken to confirm this.

### 3. Potential Non- Cautious / Conservative aspects of the assessment

The following list provides details of those aspects of the assessment where the approach followed could have contributed to a potential underestimation of impacts and/or pollutant concentrations:

- a. Reduction in future background concentrations (Objection ID #1)

Objection ID #1 points out that it was assumed in the AECOM assessment that background pollutant concentrations would decrease in the future. These decreases are based on Defra projections, which are based on projected improvements in technology and other factors. It is important to note that many sources contribute to background concentrations; vehicles are only one such source. However the predicted reduction assumed in the assessment from 7.5  $\mu\text{g}/\text{m}^3$  of  $\text{NO}_2$  in 2013 to 6  $\mu\text{g}/\text{m}^3$  of  $\text{NO}_2$  in 2019 is a very small reduction.

**Even if no such reduction had been assumed, which should be considered to be a cautious approach, this would have had a very minimal effect on the total concentrations predicted, and no effect on the magnitude of the development impact.**
  - b. Emissions assumptions to predict future  $\text{NO}_2$  concentrations, and recent observed pollutant trends (Objection ID #3 and #5 and #6)

Objections #3 and #6 question the validity of the assumption that vehicle emission improvements will occur between 2013 (the assessment base year) and 2019. It is now widely accepted that the emissions performance of diesel vehicles in particular has not and is not improving to the extent that had been expected several years ago. For this reason AECOM did a sensitivity test to demonstrate what the effect would be upon the 2019 predictions of assuming a lesser rate of improvement in emissions between 2013 and 2019 (i.e. emissions improvements were assumed between 2013 and 2016, but no improvements between 2016 and 2019). So rather than take a very cautious approach and assume no improvements would occur at all in the six years between 2013 and 2019, we did assume in the sensitivity test that there would be some improvements (between 2013 and 2016). We believe this to be a fair assumption to make for several reasons:
1. Between 2013 and 2019 (6 years) there will be a considerable turnover in the vehicle fleet with many older more polluting vehicles being replaced by newer less polluting vehicles
  2. Most of the uncertainty regarding future emission improvements relates to diesel vehicles, rather than petrol. Petrol fuelled vehicles still make up a significant proportion of the car fleet and are forecast to continue to do so.
  3. Over the past five years in particular, concentrations of  $\text{NO}_2$  have been steadily declining, providing evidence that air quality is improving in Malton. The Council's most recent air quality report (2015 Updating and Screening Assessment) provides a very good analysis of the improvement, indicating on average year on year reductions of 1-2  $\mu\text{g}/\text{m}^3$  at locations within the AQMA. Since the February Update was completed measured pollutant data for Malton for 2014 has become available and only one monitoring site recorded a concentration in excess of the EU limit value, compared with 5 in 2010, 6 in 2011, 6 in 2012, and 3 in 2013.
- Objection #3 examines in some detail the year on year measured improvements in air quality (2005-2014), compared with the year on year modelled improvements. The analysis reveals very similar year on year reductions; the differences between the two should not be considered to be significant. Importantly the analysis does indicate that it is reasonable to expect year on year  $\text{NO}_2$  reductions, whilst acknowledging that concentrations will always continue to fluctuate due to many factors, such as meteorology. Objection #3 does not draw attention to the fact that the majority of the improvements in air quality have taken place of over the past 5 years (2010-2014), with on average year on year reductions of 1-2  $\mu\text{g}/\text{m}^3$  at locations within the AQMA.
- Objection #3 makes reference to a recent planning appeal in Sussex (July 2015) where the planning inspector did not consider that the applicant's projected improvements in air quality due

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to improvements in vehicle emission technologies would be realised. There are many differences between the High Malton development and the Sussex case and it should not be considered to be of direct relevance. For instance in the Sussex case the applicant's air quality assessment had relied on a large reduction in background NO<sub>2</sub> to demonstrate that the development would be acceptable; that is not the case for High Malton. In addition in the Sussex case the applicant's air quality assessment predicted far greater improvements in NO<sub>2</sub> in the future than had been realised in the 'recent past'; whereas for High Malton, the predicted improvements in the future are similar or even lower than those that have been measured over the past five years.

c. Model verification (Objection ID #3 and #5)

Objection #3 and #5 question the model verification process, suggesting that only seven monitoring sites measuring the highest concentrations should have been considered. However, greater confidence in the model results is gained by comparing the model results with as many data points as possible, and therefore 12 sites were used for verification purposes, three of which are outside of the AQMA.

**Had an approach similar to that outlined in the Objection been followed, which in our professional opinion would have been of lesser accuracy, a slightly greater model adjustment factor would have been calculated, and slightly higher concentrations predicted. Concentrations of the order of 5% higher and impacts of 5-10% higher would have been predicted.**

d. Effect of the development on speeds (Objection ID #3, 4, 5)

Objections #3, 4, and 5 question how vehicle speeds were accounted for in the model, and how the effect of the development on vehicle speed was accounted for. The effect of the development upon vehicle speeds has not been quantified by the project Transport Consultants and therefore it is not known what the nature or extent of any impact may be.

**Had a sensitivity test been undertaken assuming a reduction in speed of (for example) 5 km/hour at peak times, where congestion is a current issue, this would likely result in the development impact being increased by a factor of approximately 10-20% at these locations.**

#### 4. Conclusion

With consideration of the issues discussed in Sections 2 and 3 above (with the exception of the HGV weight limit), **it is considered that overall it is very likely that the assessment approach was cautious and that the impacts of the development were most likely over estimated by approximately 50%** (i.e. the cautious assumptions/aspects of the approach far outweigh the non-cautious aspects). The most important single factor was the assumption that the development would be fully occupied in 2019.

The HGV ban / weight limit has the potential to result in the net effect of the development on air quality to be considered positive or beneficial. Such a measure could be quantified once it is known more about how such a ban would affect HGV numbers on each road. However, at this stage, even if the HGV ban would not result in net benefits it would certainly reduce the development impacts very significantly.

Several of the objections (#2, 3, and 5) make reference to cumulative impacts; it is stated that the assessment did not consider the cumulative impact of other schemes. However this is not the case, the cumulative impact of committed developments were considered; in the February Update it is stated that:

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*“...following comments received from the NYCC, instead of applying the national growth factor, traffic associated with specific committed developments in the vicinity of the site were used to determine the change in flows between 2014 and 2019 on each of the roads within the study area. The committed developments included in the assessment were:*

- Residential development on Broughton Road;*
- Residential development on Broughton Road known as the “allotments site”;*
- Redevelopment of Malton livestock market;*
- Retail development on Wentworth Street car park site; and*
- Fitzwilliam Trust Corporation developments (including relocation of Livestock market and various residential developments).”*

Several of the Objections (#2, 3, and 4) make reference to the fact that the assessment did not quantify the effect of the proposed mitigation. It is very hard to quantify the effect of the various measures discussed in the Travel Plan that will contribute to reducing the impact of the development on air quality. In addition it is very hard to quantify what the effect of installing electrical charging points for vehicles will be; these should encourage more people to purchase electric vehicles, but to what extent is not known. As discussed above, at the time of undertaking the assessment it was not known that a HGV ban / weight limit would be part of the development. Such a ‘mitigation’ measure can be quantified in terms of its air quality impacts once it is known more about how such a measure would affect HGV numbers on each road.

Objection #3 asserts that the assessment ‘deliberately downplays’ the predicted breach in Yorkersgate. This is not the case, the report describes the rationale followed to arrive at this conclusion referring to the cautious approach followed, *“It should be noted that a cautious approach was taken as the development is not likely to be fully occupied until 2025 and therefore the traffic impact in 2019 is likely to be considerably smaller than modelled for the purposes of this assessment. Taking this into consideration as well as the operational phase mitigation measures, the residual impacts were considered to be Negligible”*. The approach followed to arrive at this conclusion was entirely consistent with the EPUK guidance that was in place at the time of the assessment. The guidance recommends that when determining the overall significance of predicted air quality impacts the extent to which worst-case assumptions have been made should be considered.

Objection #3 states that incorrect speeds have been used in the assessment. Whilst the February 2015 report provides the speeds in Table 1, the text above the table does state that the speeds were, *“modified to account for slowing at junctions”*. In effect slow average speeds have been assumed within the AQMA due to the junctions present and the known congestion. Therefore it is considered that the effect of vehicle speeds is represented appropriately.

Objection #6 refers to the air quality assessment undertaken for planning application 14/00426/MOUTE (Livestock Market, Agricultural Business Centre, Business Park and Residential development (all in or close to Malton)), and questions certain differences between the assessments. The primary reason why NO2 concentrations predicted for High Malton were lower for the base year (2013) than those predicted for 14/00426/MOUTE (base year of 2012) was due to the fact that the models for the two applications were verified against two different base years. Measured concentrations in 2012 were notably higher than measured concentrations in 2013, resulting in higher verified modelled concentrations. The concentrations measured at several of the sites in 2012 were higher than had been measured in previous years; whereas concentrations measured in 2013 were at the majority of sites the lowest concentrations that had been measured since 2007. Concentrations measured in 2014 are lower than those measured in 2013 for almost all sites. Objection #6 also queries the differing approaches to predicted concentrations in the future; Section 3b above justifies the AECOM approach for High Malton.

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In summary:

- The development, if approved, even in the absence of a HGV weight limit would be very unlikely to have a significant negative effect on air quality in the Malton AQMA resulting in the AQMA failing to comply with EU limit values for NO<sub>2</sub>, in 2019, or after 2019.
- The implementation of a HGV weight limit, as described above, would in the short term have a beneficial impact on air quality. Once the development is fully operational, the HGV ban has the potential to still have a net beneficial impact, or if not, it will reduce the development impact very significantly. The effect of a HGV weight limit can be readily quantified once data is available.
- The assessment has calculated the cumulative impact of other committed development.
- Measured air quality in Malton has been gradually improving over the past five years, and the improvement is considered to be significant even considering year to year fluctuations.
- With consideration of all of the factors that contribute to the assessment of air quality it is considered that the air quality assessment undertaken was overall cautious in the assumptions made. Most importantly, the development will not be fully occupied until at least 2025, rather than 2019 as was assumed in the assessment. Ambient air quality in 2025 will be significantly better than in 2019.
- Based on the weight of balanced evidence presented in this document, the assessment is not in conflict with Paragraph 124 of the NPPF and air quality factors should not be a reason to refuse planning.