

## SCC Air Quality Consultee comments

Southampton City Council's Scientific Service has considered the document 'Environmental Statement (ES) Chapter 7 Air Quality' submitted for Southampton International Airport, Eastleigh (19/020/21/CONSUL) prepared by WSP in 2019. We note the report concludes that the modelled pollutant concentrations within Southampton City Council's boundaries are not likely to threaten our ability to maintain compliance with statutory air quality standards or our ability to sustain an ongoing general improvement in Southampton's air quality. However, we have several concerns regarding the methodology applied, assumptions used and have noted several inconsistencies. These are listed below:

- *Para 7.3.16. It is unclear if construction traffic data is in the format of annual average daily flows or another averaging time.*
- *Para 7.5.6. The potential dust emission magnitude from track-out, based on the numbers of vehicles likely to be accessing the site per day (less than 50 HGVs but potentially more than 10 on any given day), is estimated to be medium. However, this section states more than 100m of unpaved/unconsolidated road could be in use. According to IAQM Guidance, this would make the magnitude large.*
- *Para 7.3.24. The reported method claims that the assessment has used a 'theoretical worst-case scenario' by applying current aircraft emissions across all years – assuming no improvement in future year aircraft emission rates. It is unclear on what basis current emissions of oxides of nitrogen have been assumed to be lower than newer aero-engines. Additional evidence should be provided to justify the assertion of a worst-case scenario and that there is not a risk that newer aero-engines might generate greater emissions.*
- *Appendix 7.2. The relationship between monitored and modelled road contribution to NO<sub>x</sub> clearly demonstrated that the model was performing differently in certain locations. As such the model verification done using 2 zones, one with a factor of 3.052 and one with a factor of 2.21. The ES appendix should clearly outline the reasons for the differences in model performance in the two areas.*
- *Para 7.3.48/49 states that motorways and A-Roads have been sector removed but not the contribution from the airport. Section 7.4.17 states the airport and road contributions have been removed which is a contradiction.*
- *Para 7.4.21 states 'For future years, deposition levels have been reduced by 2% per annum from the APIS mapped data for the 3 year average between 2015 – 2017. This is contrary to the IAQM guidance document, 'A guide to the assessment of air quality impacts on designated nature conservation sites' (version 1.0) . which suggests that an alternative approach is to assume no change in future baseline concentrations or deposition rates, where there is no evidence to indicate that they may decrease in value. If the DMRB methodology is used, it is recommended that evidence of the decreasing trends in nitrogen deposition is provided.*
- *Para 7.3.44. No information is provided on hourly or daily profiles of future aircraft movements. However, it should have been a relatively simple matter to make assumptions based on professional experience to distribute the annual average LTOs within the airports permitted operating restrictions. By not doing this, it is considered that the following limitations are introduced into the assessment:*
- *The combined impacts from energy plant, airside activities and landside road traffic are not reported at any sensitive receptor.*

- *The annual mean concentrations reported are not based on emissions being modelled under the combination of meteorological conditions likely to be experienced at the time the activities are most likely to occur.*
- *Appendix 7.1 Includes emission rate data sourced from the appropriate databases. Clarification should be provided that all values (including those for the E195) are reported on a per engine basis as stated or on a per plane basis as this is not clear in the document.*
- *Figure A7.1.1 illustrates meteorological conditions for Southampton airport in 2018. There is no evidence provided that 2018 was a typical year.*
- *Appendix 7.3. fNO<sub>2</sub>(AIR) values are reported as being based on national data published by the UK government for the fraction of oxide of nitrogen emitted in the form of nitrogen dioxide and not based on data for the subset of the data that represents the specific fleet modelled. More detailed justification of why the data used is representative should be provided.*
- *Table A7.3.1. Reports The fNO<sub>2</sub> factors as a single emission weighted average factor. But there is an opportunity to refer to nitrogen dioxide emissions that are specific to the airport conditions, for example length of taxi-ways, actual usage of plant. The dispersion modelling has modelled the dispersion from the actual sources separately to take account of the distance from each source to each receptor and the associated dilution on an hour by hour basis. However, this detail is then lost by applying a single weighted emission factor. More detail should be provided to demonstrate that the approach used does not result in under representing nitrogen dioxide concentrations at receptors nearest to the airport.*

Despite the limitations of the assessment , we are of the opinion that the assessment is unlikely to introduce sufficient bias/ uncertainty which could affect the conclusions. However, we would anticipate the Developer be asked to provide adequate assurances before any formal planning decision is made.