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Your Ref: TR010039
Our Ref: CIRIS 58762

Mr Robert Jackson
Examining Authority
The Planning Inspectorate
Temple Quay House
2 The Square
Bristol BS1 6PN

7th February 2022

Dear Mr Jackson

**Nationally Significant Infrastructure Project
A47 Wansford to Sutton, Response to Examination Authority's Written Questions**

Thank you for the opportunity to provide a comment on written questions (document reference: TR010039-000399-TR010039_ExQ1).

UK Health Security Agency (UKHSA) notes that we have replied to earlier consultations as listed below and this response should be read in conjunction with that earlier correspondence:

**Scheme update and Supplementary Consultations
Registration of Interest**

**18 November 2020
18 October 2021**

We wish to provide comments to the following questions for your consideration.

Air Quality and Emissions

ExQ1.1.2- Risk of Poor Air Quality

Part a)

We do not agree with the approach used by the applicant.

Part b)

Insufficient information has been provided to show that PM₁₀ emissions and concentrations are likely to be similar to PM_{2.5} concentrations. In view of the different source origins, particulate sizes and strength of evidence regarding the health effects of these particulate matter fractions, UKHSA

recommends that any estimates of PM_{2.5} concentrations be supported with reliable data, including modelling, risk and significance assessment. Reducing public exposures to non-threshold pollutants (such as particulate matter and nitrogen dioxide) below air quality standards has potential public health benefits, UKHSA therefore advocates for the principle of minimisation or mitigation of public exposure for non-threshold air pollutants and the air quality intervention hierarchy (<https://www.gov.uk/government/publications/improving-outdoor-air-quality-and-health-review-of-interventions>). We recommend that the assessment of significance for these pollutants, be driven by a robust methodology, with consideration of sensitivity of populations and magnitude of effects. Further details are provided below for ExQ1.10.23.

In support of this, we would like to provide the following additional information for consideration by the Planning Inspectorate which demonstrates that these are a proportionate and evidence-based recommendations and reflective of wider initiatives at the governmental and non-governmental level.

The evidence around the role of fine and ultrafine fractions in the health effects of air pollution is growing. The Committee on the Medical Effects of Air Pollutants (COMEAP), an expert committee of the Department of Health and Social Care (DHSC), have provided the following advice in relation to setting PM_{2.5} targets (<https://www.gov.uk/government/publications/fine-particulate-air-pollution-pm25-setting-targets>):

- The newer evidence indicates associations of adverse effects with lower concentrations than were previously studied. The studies have not indicated a threshold of effect below which there is no harm, nor a threshold below which there are decreases in relative risk (for example, the risk per 10 µg/m³ PM_{2.5}) associated with long-term average concentrations of PM_{2.5}.
- PM_{2.5} (mass concentration) has been regarded as the most appropriate particle metric for use in defining air quality guidelines or health-based targets and assessing the progress and benefits of interventions.
- Health evidence continues to suggest that a focus on PM_{2.5} mass remains appropriate.
- PM_{2.5} has more evidence of causality with health effects than the coarse fractions (PM_{10-2.5}).

The World Health Organization's new guideline for PM_{2.5} has been reduced from 10 µg/m³ to 5 µg/m³, which reflects the strength of the evidence for the health effects associated with PM_{2.5}.

In terms of the morbidity and mortality impacts, COMEAP has also undertaken the assessment of the mortality of **long-term exposure** to the man-made air pollution in the UK based on studies reporting associations of mortality risk with fine **particulate matter (PM_{2.5})**, and **nitrogen dioxide (NO₂)**. The mortality burden of long-term exposure to the air pollution mixture in the UK was an annual effect equivalent to 28,000 to 36,000 deaths at typical ages, associated with a loss of 328,000 – 416,000 life years. <https://www.gov.uk/government/publications/nitrogen-dioxide-effects-on-mortality>. It is predicted that between 2017 and 2035 in England, 1,327,424 new cases of disease would be attributable to PM_{2.5}, equivalent to 2,248 new cases of disease per 100,000 people. The highest numbers of these cases are predicted to be from coronary heart disease (CHD), diabetes and COPD. <https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution>. According to modelling reducing fine particulate air pollution in England by 1 µg/m³ could prevent an estimated 50,900 cases of coronary heart disease, 16,500 stroke strokes, 9,300 cases of asthma and 4,200 lung cancers over the next 18 years across England. <https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution> <https://www.gov.uk/government/publications/air-pollution-a-tool-to-estimate-healthcare-costs>

ExQ 1.1.8 – Air Quality Assessment

Parts a and b)

The implementation of Net Zero will likely lead to a decrease in certain primary air pollutants https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2006240802_Impacts_of_Net_Zero_pathways_on_future_air_quality_in_the_UK.pdf . For example, the shift from petrol and diesel vehicles to low emission vehicles could bring significant improvements in air quality and therefore health outcomes https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/739460/road-to-zero.pdf. It should be noted though that tyre and brake wear will continue to emit PM and could even increase if vehicles become heavier or overall vehicle-miles driven were to increase https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/917308/COMEAP_Statement_on_the_evidence_for_health_effects_associated_with_exposure_to_non_exhaust_particulate_matter_from_road_transport_-COMEAP-Statement-non-exhaust-PM-health-effects.pdf.

Socio-economic effects.

ExQ1.10.23 – Human health effects

Part a)

UKHSA/OHID is not satisfied with assessment methodology for human health effects as set out in ES.

Part b)

In principle, population and human health assessments should provide a conclusion on the assessment of significance. Whilst there is no nationally recognised specific methodological approach, DMRB LA104 provides a generic approach to assessments and the assignment of significance.

The assessment should take into account the nature of the impact(s) including whether they are direct and indirect, secondary, cumulative, short, permanent or temporary. A list of factors which should be considered in the assessment of significance of effects is outlined below:

- identification of spatial and temporal scope of the study area
- identification of sensitive populations, general and vulnerable (receptors)
- assigning levels of sensitivity to a population, general and vulnerable (receptor)
- assigning levels of magnitude of the effect including compliance with any published standards or regulatory thresholds
- plausibility and probability that an effect-receptor interaction will occur (source, pathway, receptor model)
- determination and (where possible) quantification of the level of effect on the affected population(s) (receptor), considering the probability, the spatial and temporal extents of the interaction and the significance of the resulting impact.
- A qualitative assessment will usually be the most appropriate, **with a structured and evidenced based narrative**
- identify levels of certainty or limitations

It is recommended that any proposed methodological approach to assess significance for population and human health should be discussed and agreed with relevant interested parties, including UKHSA/OHID. An example methodology to establish significance can be found in [Appendix C](#) of *Human health: Ensuring a high level of protection* (IAIA, EUPHA).

Please do not hesitate to contact us if you have any questions or concerns.

Yours sincerely

On behalf of UK Health Security Agency

nsipconsultations@phe.gov.uk

Please mark any correspondence for the attention of National Infrastructure Planning Administration