



MEMO

TO	Steve Dring, BCP	FROM	Hattie Spray, WSP (Ecology) Alex Jones, WSP (Air Quality)
DATE	13 February 2025	CONFIDENTIALITY	Restricted - for the use of BCP, shared as appropriate.
SUBJECT	BCP Local Plan HRA – Notes in relation to assessing effects of AQ changes		

Dear Steve,

We have set out below notes describing air quality modelling and assessment completed since preparation of the evidence base documents¹ submitted with the draft Local Plan. This further work is ongoing, and this note also captures recommendations for further steps required to demonstrate clearly that the Local Plan will not lead to adverse effects upon Habitats sites due to changes in air quality.

The potential for the Local Plan to lead to air quality impacts was identified early in the plan preparation and has been considered at relevant stages as information became available. Revised, up-to-date transport modelling necessary to assess the vehicle trips expected from development proposed in the draft Local Plan became available following the draft local plan submission. This current, 2024 transport modelling informs the approach set out below.

AIR QUALITY MODELLING COMPLETED SINCE PREPARATION OF THE DRAFT LOCAL PLAN

On receipt of the revised, up-to-date transport modelling WSP has prepared a dynamic air quality tool which allows for the rapid recalculation of air quality metrics for changes to traffic flow/modelled scenarios. The dynamic tool calculates road traffic emissions of ammonia and NOx/NO2 as well as Nitrogen deposition rates, and covers all relevant Habitat Regulations Assessment (HRA) receptors² within 10km of the BCP boundary. The dynamic tool is based on a verified dispersion model and uses mathematical calculations to recalculate model outputs for scenarios, as required, without the need to re-run the model each time there is a change in traffic data. Furthermore, the tool can be expanded in the future to include new road features, layouts/alignments and updates to air quality monitoring data, meteorological data, emissions databases (including Emissions Toolkits, NOx to NO2 conversions, etc.), etc. with a single pass of additional run time.

The model outputs show the spatial distribution of air quality pollutants, along transects up to a distance of 500m into each Habitats site (where appropriate). These outputs enable assessment of likely significant effects upon Habitats sites through comparison with relevant critical loads/levels for specific habitat locations within each of the Habitats sites.

¹ Examination reference SD6d: WSP, 2024. BCP Local Plan – Determining the Potential for Air Quality Impacts at Habitats Sites. Available online: <https://www.bcpCouncil.gov.uk/documents/planning-and-building-control/Local-plan/Evidence-base/Habitats-Regulations-Assessment-Draft-Local-Plan-Air-quality.pdf>

² Habitats sites including SPA, SAC and Ramsar designations.

The dynamic tool allows transport focused mitigation measures, such as potential speed restrictions, changes to traffic flow as a result of modal shift, and/or changes to the vehicle fleet to be modelled in different future scenarios so that the changes to air quality can be rapidly quantified. This rapid calculation allows for the early identification of likely significant effects on Habitats sites, testing of mitigation scenarios, and assessment of in-combination scenarios for multiple options. This approach provides a consistent and a co-ordinated approach to managing air quality effects upon Habitats sites, through the use of a single model.

The dynamic tool utilises the latest available information at the time of development, including the following:

- Dispersion modelling using ADMS Roads v6.1, undertaken in line with Defra’s technical guidance note, TG22;
 - Traffic data provided as AADT and AM, Inter-Peak, PM and Off-Peak speeds only, with no specific fleet mix information provided – national splits have been assumed.
- Defra’s Emissions Factor Toolkit v12.1, including background mapping and NO_x-to-NO₂ calculator v9.1;
- 2024 Nitrogen Dioxide monitoring data from BCP, Dorset, and The New Forest;
- Air Quality Consultant’s Calculator for Roadside Ammonia Emissions (CREAM v1A);
- Background Nitrogen Deposition rates and ammonia concentrations taken from the APIS website;
- HRA site information, including Critical Loads and Critical Levels (APIS, MAGIC, various sources);
- Traffic Data provided by Dorset Council for a Baseline (2024), Future Year With/Without Plan (2038); and
- Meteorological data for 2023, monitored at Bournemouth Airport.

Further details on the modelling methodology, including verification/performance metrics can be provided within a future technical note, if required. To date, the dynamic tool has been used to generate outputs for a local plan “Alone” (With Plan v Without Plan in 2038) and a “Cumulative” scenario (With Plan 2038 v Baseline modelled using 2038 vehicle emission rates, background data, and NO_x-to-NO₂ conversion rates). The Alone scenario provides an assessment of impacts arising from the implementation of the Local Plan in 2038 and the Cumulative scenario provides an indicative assessment of the impact of both the local plan and traffic growth (between 2023 and 2038) included within the traffic model. Initial overview of the results of these scenarios was presented in a call between WSP, BCP and Natural England on 28th January 2025.

Updates and further refinement have been identified to aid in the future assessment of impacts at the Habitats sites. Further development work for the tool is currently being undertaken to provide indicative contour outputs for each of the Habitats sites, in addition to the current transects. This work will provide greater spatial detail of the modelled changes to air quality relative to Habitats sites. The spatial detail will allow the assessment of effects upon Habitats sites based on the overlap of modelled changes to air quality and sensitivity of existing habitats within these areas, as identified by Natural England during the call on 28th January 2025. Refined modelling outputs will be shared with BCP in Spring 2025.

In addition to this, work could be undertaken to allow the tool to account for more detailed fleet mix (i.e. link specific changes to specific vehicle classes), should a more detailed impact assessment of modal shift be required (and availability of data from the traffic model). Furthermore, since the production of the tool, a new version of the CREAM calculator, used to provide vehicle emission data for ammonia, has been released (new version 2A, currently 1A). Current understanding of the updates show that ammonia



emission rates are generally lower in 2038 (i.e. the current data would provide a conservative appraisal), although the calculator now includes a speed dependency, not present in the earlier calculator which means that this is not true for roads with very low speeds (unlikely to be an issue for road adjacent Habitats sites). Further work to update the dynamic air quality tool to include the latest CREAM emissions dataset will be completed in Spring 2025, to ensure that the model outputs contain the most up-to-date and appropriate assumptions.

The refined modelling will robustly quantify the air quality changes resulting from the draft Local Plan, enabling corresponding mitigation to be developed by BCP and implemented to ensure that the draft Local Plan does not lead to adverse effects upon the integrity of relevant Habitats sites.

FURTHER STEPS

As you are aware, jointly with Dorset Council, BCP has an established air quality strategy in place Dorset Heathlands Interim Air Quality Strategy 2020-2025³. As set out in the BCP Matters Statement (dated 19th December 2024)⁴, it will be necessary to update the strategy taking into account the air quality modelling outcomes. The updated strategy should occur on receipt of the modelling outcomes and be published before the existing strategy period ends.

The air quality modelling will show the spatial extent of air quality changes resulting from the draft Local Plan and inform an assessment of effects upon the habitats present within these areas. Specifically, the modelling outcomes should be used by BCP to inform planned mitigation to be incorporated into the updated strategy. The approach to prioritising the delivery of mitigation should be documented in the updated air quality strategy alongside criteria appropriate to measure the effectiveness of mitigation. This is critical to ensuring that mitigation measures address potential adverse effects that may otherwise occur due to changes in air quality.

Regards

Hattie Spray
Technical Director, Ecology

cc. Joanna Rochfort (WSP), Alex Jones (WSP)

³ Examination reference ONE6: Dorset Council and BCP, 2020. Dorset Heathlands Interim Air Quality Strategy, Phase 2 – Interim Measures for 2020-2025. Available online: <https://www.bcpCouncil.gov.uk/documents/planning-and-building-control/Air-Quality-mitigation-FINAL-1.pdf>

⁴ Examination reference WS1/1: BCP, December 2024. Available online: [017f5b_4a8083a3121f49b99950ed062c217743.pdf](https://www.bcpCouncil.gov.uk/documents/planning-and-building-control/Air-Quality-mitigation-FINAL-1.pdf)