

Appendix 6.4: Damage Cost Calculation

A damage cost calculation was requested by the North Hertfordshire Environmental Protection Officer for Air Quality during consultation.

The damage cost calculation was undertaken in accordance with NHDC's Air Quality Planning Guidance Document¹. The damage costs calculation will identify the environmental damage costs associated with the proposal and determine the amount (value) of mitigation that is expected by NHDC to be spent on measures to reduce the impacts.

Calculation

The damage cost calculation for the total air quality impact of the development was calculated using the Defra's Emission Factor Toolkit (EFT) 12.1². The inputs into the EFT toolkit are detailed in **Table 1**.

Table 1: Emission cost calculation inputs

EFT Factors	Inputs	Notes (if applicable)
Area	England (not London)	
Year	2030	
Road Type	Urban (not London)	
Traffic Flow	8,266 AADT	Estimated vehicle flows generated by the Proposed Development.
HDV%	0	
Average Speed	50kph	As per NHDC's Air Quality Planning Guidance Document
Link Length	10km	NTS UK Average

The inputs used in **Table 1** have been used to calculate the NO_x and PM₁₀ emissions generated from the first 5 years of scheme operation - presented in the **Table 2** below.

Table 2: EFT output

EFT Output	2030 (kg / annum)	2030 (tonnes / annum)
NO _x	2652.8	2.6525
PM ₁₀	983.5	0.9835

The outputs from **Table 2** were then input into Damage Costs Appraisal Toolkit to quantify the change in NO_x and PM_{2.5} (tonnes per annum) for 5 years of scheme operation from 2030 to 2034.

A price base year of 2030 was used, and the damage cost values NO_x Road Transport and PM₁₀ Road Transport were the assumptions input into the Damage Costs Appraisal Toolkit. The PM₁₀ damage cost was converted using PM_{2.5} Road Transport Urban Small (0.631) conversion factor set out in the Damage Costs and Assumptions tab of the Damage Costs Appraisal Toolkit.

¹ North Hertfordshire District Council - Air Quality Planning Guidance Document (to support the NHDC Local Plan 2011-2031) Version: October 2018 final

² Defra. 2020. Emissions Factor Toolkit (Version 10.1). August 2020. Available at [Emissions Factors Toolkit \(defra.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/464442/Emissions_Factors_Toolkit.pdf)

The damage costs for the Development are presented in **Table 3**.

Table 3: Output from Damage Cost Appraisal Toolkit

Low Sensitivity Damage Costs (£)	Damage Costs (£)* for Road Transport per tonne	Damage Costs (£) for Road Transport per annum	Damage Costs (£)* for Road Transport over 5 years (2030-2034)
NO _x	2,267	6,013.21	30,066.08
PM ₁₀	24,656.33 [^]	24,249.50	121,247.48
Total			151,313.56

*Low Sensitivity damage Cost taken from the Air Quality Damage Cost Appraisal Toolkit February 2023³

[^]PM₁₀ damage cost converted using PM_{2.5} Road Transport Urban Small (0.631) conversion factor. PM_{2.5} damage cost £39,075

³ Defra. 2023. Air quality appraisal: damage costs toolkit. 2 March 2023. Available at: <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality>