



Supplementary Planning Document on Air Quality and Development

Report for Mid Devon District Council

Customer:

Mid Devon District Council

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Summary: SPD on Air Quality and Development

Background

The 2008 Ambient Air Quality Directive¹ sets legally binding limits for concentrations in outdoor air of major air pollutants including particulate matter (PM₁₀ and PM_{2.5}) and nitrogen dioxide (NO₂). The planning of a new development has a direct influence on local air quality and therefore the health of people and ecosystems. Air quality should therefore be a material consideration when planning new developments to ensure they are designed and constructed in ways to minimise emissions and reduce the exposure of people to air pollution.

Purpose

The purpose of this guidance is to:

1. Provide direction on the relevant policies adopted in the Mid Devon Local Plan 2013 – 2033² in relation to air quality
2. Assist developers in determining when an air quality assessment is required for a new development
3. Provide guidance through the emissions and air quality assessment procedures
4. Identify suitable mitigation measures to be included at the planning stage

Through application of this guidance the Council aims to:

1. Sustain and contribute towards compliance with the national air quality objectives, with consideration given to the presence of AQMAs in Crediton and Cullompton, and the cumulative impacts from individual sites in local areas.
2. Encourage early engagement in the development process to identify the points that need to be considered and addressed prior to making a planning application and decrease the risk of any potential delays during the assessment process.
3. Set out a clear and consistent method for developers to provide the relevant information that will be required to be submitted with planning applications for developments that are likely to have an impact on local air quality.
4. Ensure better regulation by setting out the approach to undertaking air quality assessments and determining mitigation; and applying these consistently in planning decisions.

Who should use this document?

This guidance is designed to be used by developers, consultants and the MDDC Planning Department in support of applications for proposed developments. The guidance should be used to determine the necessary assessments of air quality impacts to complete in support of applications for new developments.

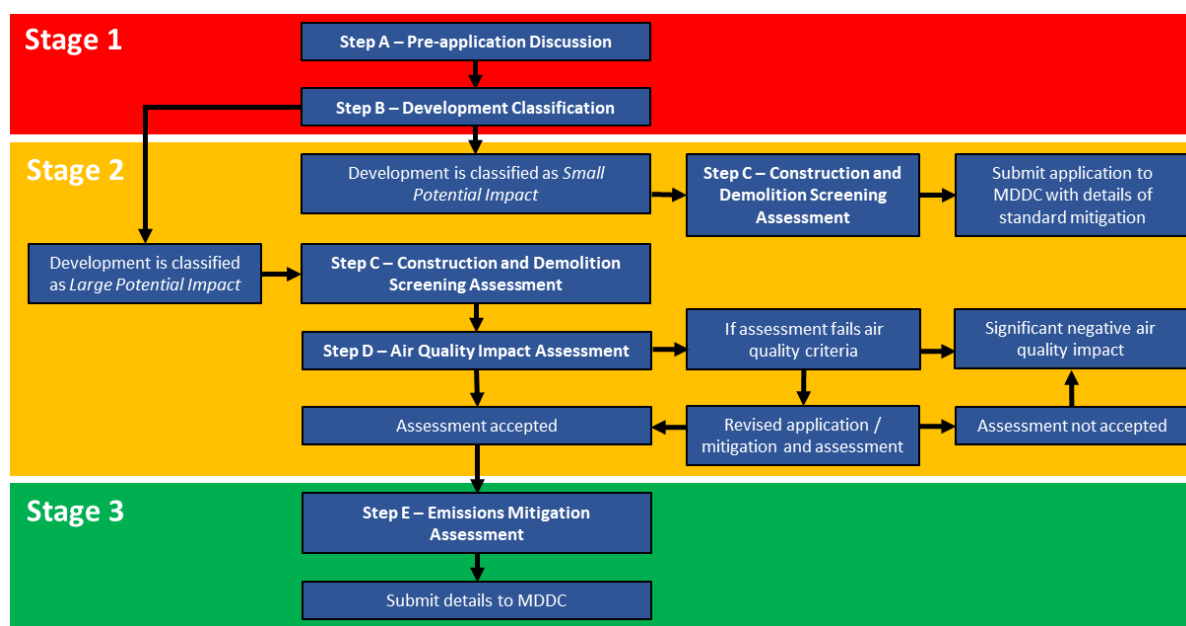
What the guidance includes

The guidance sets out a process for determining the classification of a proposed development and assigning the appropriate level of mitigation for air quality impacts. A summary of the process is set out below.

¹ Ambient Air Quality Directive (2008/50/EC) <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:152:0001:0044:EN:PDF>

² MDDC Adopted Local Plan. Available from: <https://www.middevon.gov.uk/residents/planning-policy/adopted-local-plan/>

Figure 1.1: Process for evaluating new developments



The guidance explains each stage of the above process and offers worked examples to illustrate how the guidance should be applied to individual development types.

Please contact Mid Devon District Council if you have any questions regarding this guidance document.

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Glossary

Abbreviation	Definition
AADT	Annual Average Daily Traffic
AIDPD	Allocations and Infrastructure Development Plan Document
AQ	Air Quality
AQIA	Air Quality Impact Assessment
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EFT	Emissions Factors Toolkit
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
MDDC	Mid Devon District Council
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
NPPF	National Planning Policy Framework
PM ₁₀ and PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 10 microns (µm) (PM ₁₀) or less than 2.5µm (PM _{2.5}), expressed in units of µg/m ³
SPD	Supplementary Planning Document
SPG	Supplementary Planning Guidance

1 Introduction

1.1 Air quality in Mid Devon

Poor air quality can be damaging to health and reduce quality of life. Mid Devon District Council (MDDC) is committed to minimising the impacts of air pollution on local residents and visitors to the area. Long-term exposure to air pollution has many harmful effects and reduces life expectancy by increasing the incidence of lung, heart and circulatory conditions. Recent estimates have shown that long-term exposure to anthropogenic emissions or man-made air pollution in the UK has an annual impact on shortening lifespans, equivalent to between 28,000 and 36,000 deaths.³ Air pollution also exacerbates existing conditions including asthma, chronic bronchitis, chronic heart disease, and strokes. The economic cost from the impacts of air pollution in the UK is estimated at £9 – 19 billion every year, which is comparable to the economic cost of obesity (over £10 billion).⁴

The main source of air pollution in Mid Devon are road traffic emissions from major roads – notably the M5, A373, A361, A377, A396 and A3126. Traffic emissions contribute to levels of nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}). Other pollution sources include commercial, industrial and domestic activities.

Currently there are two Air Quality Management Areas (AQMAs) declared within the district. Both AQMAs are related to traffic emissions; the Crediton AQMA has been designated for exceedances of the NO₂ annual mean objective as well as the PM₁₀ 24-hour mean objective, and the Cullompton AQMA has been designated for exceedances of the NO₂ annual mean objective.

During 2019, no exceedances of the annual mean objective for NO₂ were reported within the district. However, two NO₂ monitoring locations reported concentrations within 10% of the objective, one was reported within the Cullompton AQMA and one within the Crediton AQMA. At present, ambient concentrations of particulate matter in Mid Devon comply with air quality standards, hence there are plans for the Crediton PM₁₀ AQMA to be revoked. However, the Council will still consider measures to reduce exposure to PM.

1.2 Supplementary planning guidance

This document provides more detailed advice and guidance on policies in the current adopted Local Plan and references the latest technical guidance to be followed for air quality assessments. This document is intended to be applied as a material consideration in the decision-making process and should not add unnecessarily to the financial burdens on development.

This Supplementary Planning Document (SPD) on Air Quality and Development provides an update on the previous issue⁵ and sets out the Council's preferred approach to applying development plan policies in relation to air quality. The document is designed to aid developers to prevent or minimise adverse impacts on local air quality associated with their development and highlights suitable methods of mitigation expected by the Council.

Through application of this guidance the Council aims to:

1. Sustain and contribute towards compliance with the national air quality objectives, considering the presence of AQMAs in Crediton and Cullompton, and the cumulative impacts from individual sites in local areas.

³ The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom. The Committee on the Medical Effects of Air Pollutants (COMEAP) (2010) www.gov.uk/government/publications/comeap-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk

⁴ www.defra.gov.uk/environment/quality/air/air-quality/impacts/ 11 IARC Scientific Publication No. 161 Air Pollution and Cancer, Editors: K. Straif, A. Cohen, and J. Samet, 2013, Lyon

⁵ Supplementary Planning Document on Air Quality and Development (2008), Mid Devon District Council

2. Encourage early engagement to identify the points that need to be considered and addressed prior to making a planning application and decrease the risk of any potential delays during the assessment process.
3. Set out a clear and consistent method for developers to provide the relevant information that will be required to be submitted with planning applications for developments that are likely to have an impact on local air quality.
4. Ensure better regulation by setting out the approach to undertaking air quality assessments and determining mitigation; and applying these consistently in planning decisions.

Planning policy guidance

This SPD has been developed to align with existing plans and policies that influence air quality impacts. Appendix A1 provides a summary of relevant air quality guidance within planning policy context. Under the Council's Local Plan, Policy DM3 (Transport and air quality) states that: 'Development proposals that would give rise to significant levels of vehicular movement must be accompanied by an integrated Transport Assessment, Travel Plan, traffic pollution assessment and Low Emission Assessment.'

Under DM3 these assessments are only required where there are significant levels of vehicular movement. Whereas in following this SPD, large potential impact can include smaller developments in planning terms, particularly where they are within or adjoining an Air Quality Management Area (AQMA). Under this SPD, 'significant levels of vehicular movement' in relation to air quality is defined by its potential impact, as per Figure 2.2. ***As such, development that has a 'large potential impact' as indicated by this SPD will be considered to be 'significant' for the purposes of policy.*** Furthermore, the 'traffic pollution assessment' and 'low emission assessment' in DM3, can be considered equivalent to the Air Quality Impact Assessment and Emissions Mitigation Assessment referred to in this SPD.

2 Air Quality Impact Classification Process

The following section details the Air Quality Impact Classification Process required for all proposed developments in Mid Devon. The Process sets out when an assessment of air quality impacts is required in support of a proposed development, what type of assessment to undertake and whether the inclusion of mitigation measures is required. The Process involves three stages, and five steps – as presented below.

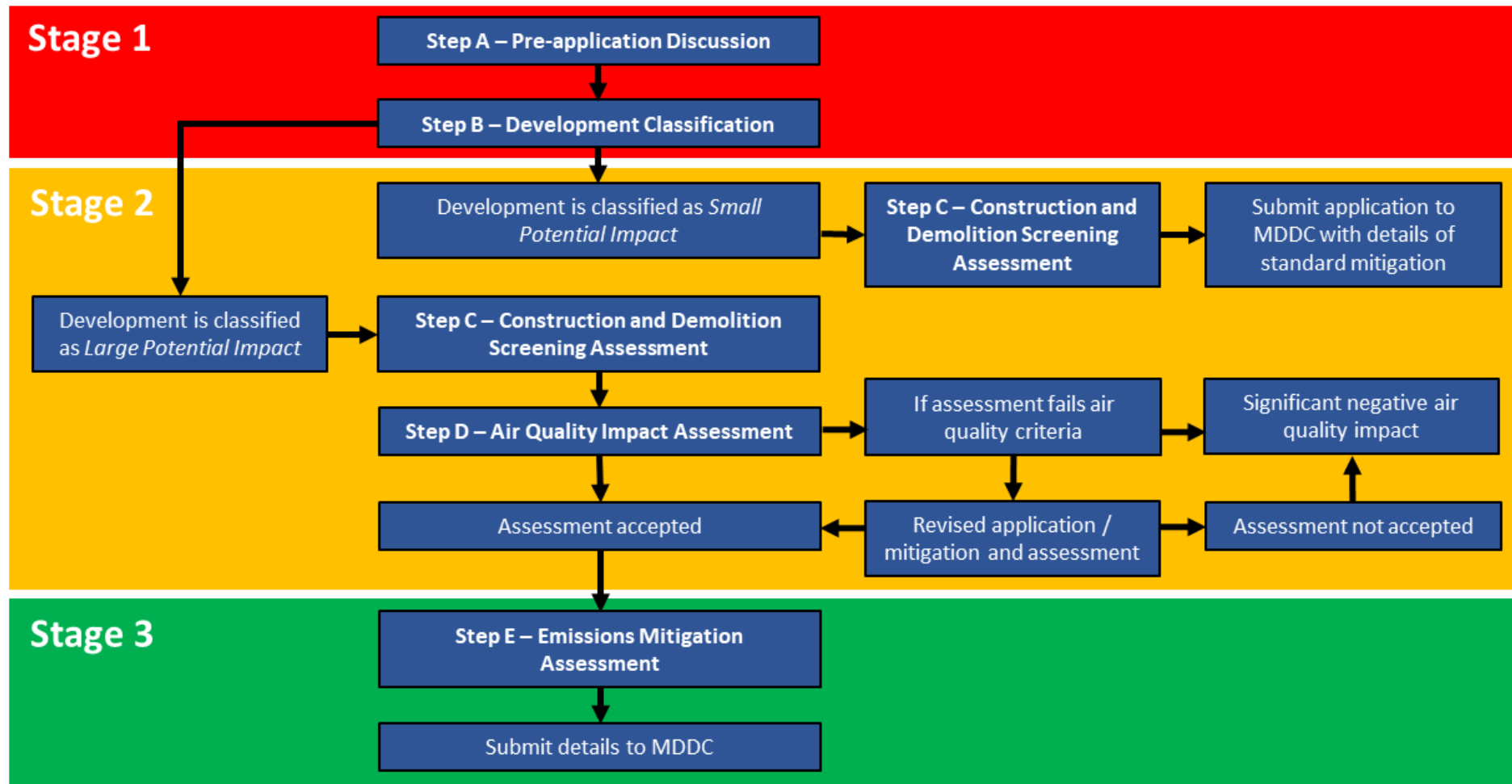
Table 2.1: Air Quality Impact Classification Process

Stage	Step
Stage 1. Determine if the development proposal should be classified as Small or Large Potential Impact dependent on an identified set of thresholds	Step A: Pre-application Discussion
	Step B: Development Classification
Stage 2. Assess and quantify the impact on local air quality and whether any mitigation is required	Step C: Construction and Demolition Screening Assessment
	Step D: Air Quality Impact Assessment
Stage 3. Determine if the proposal can be made acceptable by applying mitigation measures	Step E: Emissions Mitigation Assessment

Figure 2.1 presents a flow diagram which illustrates how the Stages and Steps of the Air Quality Impacts Classification Process interrelate.

Throughout this chapter, **Pointers** are provided which offer simple instructions on how this guidance relates to your proposed development.

Figure 2.1: Procedure for evaluating new developments



2.1 Stage 1: Classifying the development as Small or Large Potential Impact

2.1.1 Step A – Pre-application Discussion

As outlined in the NPPF (see Appendix A1 of this report), early engagement improves the efficiency and effectiveness of the planning application system for all parties and a good quality preapplication discussion enables better coordination between public and private resources and improved outcomes for the community. Preapplication discussions should therefore be coordinated where possible and appropriate (visit <https://www.middevon.gov.uk> for contact details) to confirm the scale of development and ensure that the appropriate assessment requirements are undertaken.

The discussion will consider whether the planned development is within, near to, or will likely have an impact on an AQMA and which categorisation the site should be assigned (see Section 2.1.2).

Pointer

It is recommended that you arrange a discussion with the Council at the earliest opportunity to outline your proposed development and to confirm the scope of the air quality assessment to be undertaken.

2.1.2 Step B – Development Type Classification

The development type classification should be used to identify which of the following three air quality related actions should be applied to the new development:

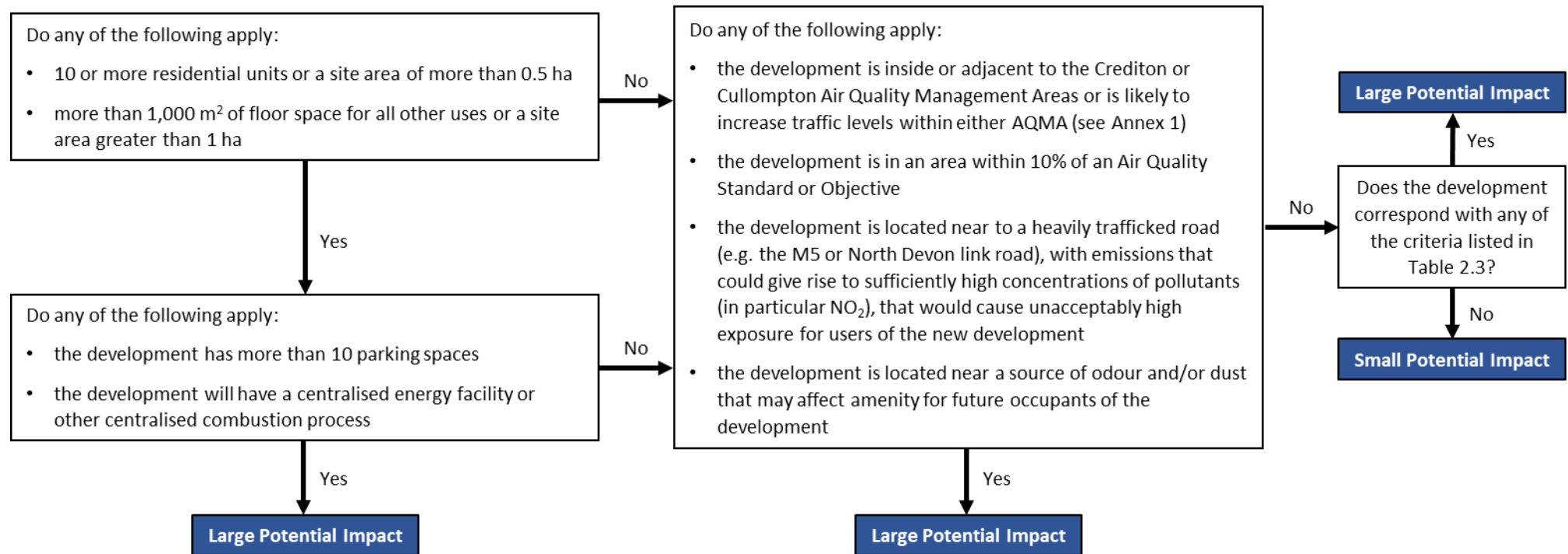
1. **No action required:** the development is considered unlikely to have an impact on local air quality. This will only be the case if the development is identified as having a Small Potential Impact, and it is decided by the Council that no further action is required to determine the impacts on air quality.
2. **Construction and Demolition Screening Assessment required:** This should determine the emissions arising from demolition and construction site activities e.g. gases and dust. The outputs should inform subsequent steps to mitigate the impact of the development associated activities on local air quality.
3. **Air Quality Impact Assessment required:** The AQIA should quantify the predicted impact of a development on local air quality. This is typically carried out by an air quality consultant.

The size classification of the proposed development should be determined using the screening procedure outlined in Figure 2.2. Schemes can be classified as having a **Small or Large Potential Impact** based on a number of predefined thresholds. Small Potential Impact development proposals should undergo a Construction and Demolition Screening Assessment (Section 2.2) to identify whether they will introduce new exposure and the level of mitigation required. Large developments will be required to undergo a Construction and Demolition Screening Assessment, AQIA and a quantification of pollutant emission costs (for traffic generation only) based on a set of defined assumptions and using Defra's damage cost approach.

Table 2.2: Development size classification and required assessment

Development size classification	Required assessment
Large Potential Impact	Construction and demolition screening assessment (see Section 2.2), Air Quality Impact Assessment (see Section 2.2.2) and Emissions Mitigation Assessment (see Section 2.3)
Small Potential Impact	Construction and demolition screening assessment (see Section 2.2)

Figure 2.2: Development size classification screening procedure



A development will also be considered Large Potential Impact if it meets any of the following criteria in Table 2.3:

Table 2.3 Indicative criteria for requiring an air quality assessment⁶

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors*. (LDV = cars and small vans <3.5 t gross vehicle weight).	A change of LDV flows of: <ul style="list-style-type: none"> more than 100 AADT within or adjacent to an AQMA more than 500 AADT elsewhere.
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5 t gross vehicle weight).	<ul style="list-style-type: none"> A change of HDV flows of: more than 25 AADT within or adjacent to an AQMA more than 100 AADT elsewhere.
3. Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5 m or more and the road is within an AQMA.
4. Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. traffic lights, or roundabouts.
5. Introduce or change a bus station.	Where bus flows will change by: <ul style="list-style-type: none"> more than 25 AADT within or adjacent to an AQMA more than 100 AADT elsewhere.
6. Have an underground car park with extraction system.	<p>The ventilation extract for the car park will be within 20 m of a relevant receptor.</p> <p>Coupled with the car park having more than 100 movements per day (total in and out).</p>
7. Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors. NB. this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	<p>Typically, any combustion plant where the single or combined NO_x emission rate is less than 5 mg/sec is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion.</p> <p>In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates.</p> <p>Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.</p>

*Appendix A2 provides a list of relevant receptors for air quality objectives

Pointer

Use the screening procedure set out in Figure 2.2 and the criteria in Table 2.3 to determine whether your development should be classified as having a **Small** or **Large Potential Impact**.

Move on to Stage 2 – Step C.

⁶ Land-Use Planning & Development Control: Planning for Air Quality (2017). Available from: www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

2.2 Stage 2: Assess and quantify the impact of your development on local air quality

2.2.1 Step C – Construction and demolition screening assessment

All proposed developments classified as having either a Small or Large Potential Impact in Stage 1 require a Construction and Demolition Screening Assessment, unless instructed otherwise by the Council.

Demolition and construction processes cause emissions, including gases and dust, which, if not adequately controlled may impact local air quality beyond the site boundary. The assessment methodology should consider⁷:

1. Annoyance due to dust soiling
2. Risk of health impacts due to increased PM₁₀ exposure
3. Harm to ecological receptors

A typical construction and demolition screening assessment is outlined below:

Further information on how to complete steps 1 to 5 is available from the following sources:

- IAQM Guidance on the assessment of dust from demolition and construction (2014). Available from: <https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>
- Mayor of London The Control of Dust and Emissions during Construction and Demolition SPG: <https://www.london.gov.uk/file/18750/download?token=zV3ZKTpP>

Pointer

If your proposed development has been classified as having a Small Potential Impact, and the Council have not indicated that no further action is required, complete a Construction and Demolition Screening Assessment in accordance with the IAQM Guidance, and proceed to Step E.

If your proposed development has been classified as having a Large Potential Impact, complete a Construction and Demolition Screening Assessment in accordance with the IAQM Guidance, and proceed to Step D.

2.2.2 Step D – Air quality Impact Assessment

An Air Quality Impact Assessment (AQIA) is required for developments categorised as Large Potential Impact in Stage 1. The assessment should quantify the predicted impact of the proposed development on air quality.

The key guidance referenced for air quality assessment methodologies is Defra's Technical Guidance Note (TG16)⁸, and the IAQM Planning for Air Quality Guidance⁹. Assessments may require dispersion modelling, which use air quality monitoring data, traffic data and meteorological data to determine concentrations of pollutants in accordance with TG16.

A typical outline for what the assessment will comprise is as follows:

1. Assessment of the existing air quality in the study area for the baseline year with agreed receptor points including the validation of any dispersion model
2. The prediction of future air quality without the development in place (typically referred to as the future baseline or do-nothing scenario)

⁷ IAQM Guidance on the assessment of dust from demolition and construction (2014). Available from: <https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

⁸ Department for Environment, Food and Rural Affairs (DEFRA) - Local Air Quality Management Technical Guidance (TG16) (April 2016). Available at <https://iaqm.defra.gov.uk/documents/LAQM-TG16-April-16-v1.pdf>

⁹ IAQM Land-Use Planning & Development Control: Planning for Air Quality (2017). Available from: <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

3. The prediction of future road transport emissions and air quality with the development in place (typically referred to as the with development or do-minimum scenario)
4. The prediction of future road transport emissions and air quality with the development and with identified mitigation measures in place (typically referred to as the do-something scenario)

According to the latest IAQM guidance, a report should be prepared detailing the results of the AQIA including:

- Details of the proposed development relevant to the assessment
- The policy context (national and local) of the assessment including the relevant Air Quality Objective (AQO)
- The assessment methodology including model verification and identification of sensitive receptors
- Baseline conditions
- Assessment of impacts
 - Construction phase
 - Cumulative impacts and effects
- Mitigation measures
- Results summary

The following table is taken from the IAQM Planning for Air Quality guidance and provides an approach to determining the impact of the proposed development on air quality, by comparing the percentage change in concentration with the long-term average concentration at a given location. The assigned magnitude of change in air quality provides an approach to determining the impact of the proposed development on air quality, by comparing the percentage change in concentration with the long-term average concentration at a given location.

Table 2.4: Impact descriptors for individual receptors

Long term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL)			
	1	2 – 5	6 – 10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 – 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

The magnitude of change assigned to the development using **Table 2.4** should then be applied to **Table 2.5** to determine the required level of mitigation and action required.

Table 2.5: Recommended outcomes of the impact descriptors

Magnitude of change in air quality from Table 2.4	Recommendation	Action
Substantial	Require mitigation to remove very high air quality impacts. Strong presumption for recommendation for refusal on air quality grounds.	Likely refusal, in some cases mitigation may be possible to remove very high air quality impacts.
Moderate	Recommend refusal unless mitigation measures implemented to the satisfaction of the planning authority. Mitigations to include reducing exposure through various measures, emissions reduction technologies and/or development redesign.	Refusal, unless recommended mitigation is maximised.
Slight	Seek mitigation to reduce air quality impacts. Mitigations to include reducing exposure through various measures, emissions reduction technologies and/or development redesign.	Ensure on-site mitigation options are maximised.
Negligible	Recommend the minimum mitigation for development scheme type.	Recommend minimum mitigation.

Applications for proposed developments that are identified as having a Large Potential Impact should also include calculate Damage Costs, which are used to determine the required investment in mitigation measures. Further detail is provided in Section 2.2.3.

2.2.3 Calculation of Damage Costs

For proposed developments with a Large Potential Impact, additional pollutant population exposure emissions costs (otherwise referred to as 'Damage Costs') should also be calculated for the transport element of the development.

Damage Costs are a set of impact values, measured per tonne of emission by pollutant, which are used to estimate the societal costs associated with small changes in pollutant emissions. They were developed by Defra to enable proportionate analysis when assessing impacts on air quality. Damage costs should be used to determine the scale of the required investment in air quality mitigation measures.

Damage costs for a 'Large Potential Impact' development should be calculated through the following steps:

1. Estimate the total vehicle trips from the development over a period of five years.
2. Use the Defra Emission Factor Toolkit¹⁰ to estimate emissions of NO_x, PM₁₀ and/or PM_{2.5} as required, for five years of scheme operation, based on the total trips and split by vehicle type. Assume an average trip distance of 10 km¹¹.
3. Use the Defra Air quality appraisal: damage costs toolkit¹² to multiply the total emission values (tonnes) by the applicable damage cost value. The toolkit will provide a damage cost (£) for each pollutant and for each of the five years of scheme operation.
4. Present the total calculated damage cost (£) and proposed mitigation to the Council. Mitigation should relate to MDDC Air Quality Action Plan where possible.

Section 2.4 provides worked examples of the Air Quality Impact Classification Process, included calculated damage costs.

Pointer

If your proposed development has been classified as having a Large Potential Impact, you will be required to prepare an Air Quality Impact Assessment in accordance with TG16 and the IAQM Planning for Air Quality Guidance.

The methodology for this assessment (including the scope of the study, the dispersion model to be used, the assumptions for the assessment and the method for determining significance) should be agreed in with the Council in advance of the assessment being undertaken.

The AQIA should be accompanied by an estimation of the Damage Costs and a Mitigation Statement – proceed to Stage 3 – Step E for further detail.

2.3 Stage 3: Determining the mitigation to be applied

2.3.1 Step E – Mitigation measures

2.3.1.1 What mitigation is required?

All developments should incorporate air quality mitigation where necessary. The type of mitigation measures that are appropriate to reduce air quality impacts are dependent on the impact of the development, as determined by the development type classification outlined in Phase 1.

Small Potential Impact developments should include mitigation measures which minimise impacts on air quality associated with demolition and construction processes, as set out in Stage 2 – Step C, whilst Large Potential Impact developments will require both mitigation applicable to demolition and

¹⁰ Defra Emissions Factors Toolkit. Available from: <https://iaqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>

¹¹ Department for Transport National Travel Survey. Available from: <https://www.gov.uk/government/collections/national-travel-survey-statistics>

¹² Defra Air quality appraisal: damage costs toolkit. Available from: <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality>

construction, as well as the operational phases. The value of the mitigation measures for the operational phases should reflect the calculated Damage Cost for the development, as set out in Section 2.2.3.

2.3.1.2 Mitigation Statements

Applications submitted in support of proposed developments will be required to submit a Mitigation Statement, which confirms the type and expected impact of the mitigation measures selected.

Small Potential Impact Developments

For Small Potential Impact developments, the Mitigation Statement is expected to include the mitigation measures identified through the construction and demolition screening assessment.

Large Potential Impact Developments

For Large Potential Impact developments, the Mitigation Statement is expected to include the mitigation measures identified through the construction and demolition screening assessment, confirmation of the calculated damage costs and confirmation of the measures to be implemented in support of the development, equal to or greater than the value of the damage costs.

The mitigation measures proposed must be agreed with the Council. This may include contributions towards measures set out in the Council's AQAP, or be specific to the individual development. The following table provides a list of example additional air quality mitigation measures. The list should not be considered exhaustive and further options may be suggested depending on the scale of development and air quality issues within an area.

Table 2.6 Mitigation measures

Type	Measure
Residential	EV charging infrastructure within the development (wall mounted or free standing in-garage or off-street points).
	Car club provision or support to local car club/eV car club.
	Designation of parking spaces for car club vehicles
	Designation of parking spaces for low emission vehicles.
	Vouchers for alternatives to private car use
	Provision of electric bikes
	Improved cycle paths to link cycle network
	Adequate provision of secure cycle storage
	Use of green infrastructure to absorb dust and other pollutants
Commercial / Industrial	Differential parking charges depending on vehicle emissions
	All commercial vehicles should comply with current European Emission Standards
	Fleet operations should provide a strategy for considering reduced emissions, low emission fuels and technologies.
	Use of ultra-low emission service vehicles.
	Support local walking and cycling initiatives
	On-street EV recharging
	Public transport subsidy for employees
	Contribute to funding measures identified in the MDDC Air Quality Action Plan
	Low emission strategies designed to offset the impact of air quality arising from new development

Type	Measure
Additional measures	Contribution to low emission vehicle refuelling infrastructure
	Low emission bus service provision or waste collection services
	Bike/e-bike hire schemes
	Contribution to renewable fuel and energy generation projects
	Incentives for the take-up of low emission technologies and fuels

2.4 Worked examples

The following provides two worked examples for applying the Air Quality Impact Classification Process [NB. these examples do not follow Planning policy and are only provided for the purposes of providing a worked example in air quality terms]:

Example 1: Large Potential Impact

In this example (Figure 2.5), a new development with 20 residential units and 20 parking spaces located outside of the Crediton and Cullompton AQMAs has been proposed. Therefore, because there are more than 10 residential units, the development would be described as having a Large Potential Impact. Once the pre-application discussion has taken place, the applicant can proceed to Step C and Step D, to complete the Construction and Demolition Screening Assessment and Air Quality Impact Assessment, respectively. Once the assessments are complete, the developer submits the application to the Council, including an estimation of the Damage Cost and the proposed mitigation measures equivalent to the value of the Damage Costs.

The following outlines how these damage costs are calculated, assuming an average distance travelled of 10 km, and provides an example mitigation statement.

Step 1

Use the Emission Factor Toolkit¹³ to calculate the annual emissions of NO_x and PM_{2.5} (tonnes per year) for each of the first five years from the development opening. In the example scenario, the traffic flow and speed would be informed by a transport assessment. A trip length of 10 km is an average derived from the DfT National Travel Surveys estimation of trip length.

¹³ Defra Emissions Factors Toolkit. Available from: <https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>

Figure 2.3 Screenshot of example EFT input data

Select Pollutants		Select Outputs		Additional Outputs		Advanced Options		Click the button to:	
<input checked="" type="checkbox"/> NOx	<input type="checkbox"/> CO2	<input type="checkbox"/> Air Quality Modelling (g/km/s)	<input type="checkbox"/> Breakdown by Vehicle	<input type="checkbox"/> Euro Compositions	<input type="checkbox"/> NOx Annual Emissions Euro Split	<input type="button" value="Run EFT"/> <input type="button" value="Clear Input Data"/>			
<input type="checkbox"/> PM10	<input checked="" type="checkbox"/> PM2.5	<input type="checkbox"/> Emissions Rates (g/km)	<input type="checkbox"/> Source Apportionment	<input type="checkbox"/> Simple Entry Euro Compositions	<input type="checkbox"/> PM10 Annual Emissions Euro Split				
Please Select from the Following Options: Area: England (not London) Year: 2021 Traffic Format: Basic Split Select 'Basic Split' or 'Detailed Option 1 to 3' or 'Alternative Technologies' above		Export Outputs <input type="checkbox"/> Save Output to New Workbook File Name: <input type="text"/>		<input type="checkbox"/> PM2.5 Annual Emissions Euro Split <input type="checkbox"/> Primary NO2 Fraction <input type="checkbox"/> Fleet Projection Tool					
SourceID	Road Type	Traffic Flow	% HDV	Speed(kph)	No of Hours	Link Length (km)	% Gradient	Flow Direction	% Load
ID_1	Urban (not London)	54	0	50	24	10			

Figure 2.4 Screenshot of example EFT output

Source Name	Pollutant Name	All Vehicles (Annual Emissions (kg/yr except CO2 tonnes/yr))	All LDVs (Annual Emissions (kg/yr except CO2 tonnes/yr))	All HDVs (Annual Emissions (kg/yr except CO2 tonnes/yr))
ID_1	NOx	49.61054	49.61054	
ID_1	PM2.5	3.58728	3.58728	

Table 2.7 Example EFT output showing NOx and PM_{2.5} emissions (kg/yr) calculated for 2021 to 2025

Year	2021	2022	2023	2024	2025
NOx	49.61	44.82	40.73	36.88	33.28
PM _{2.5}	3.59	3.53	3.49	3.46	3.44

Step 2

Using the Defra Air quality appraisal damage costs toolkit¹⁴, multiply the emissions (t/yr) for each pollutant by the relevant damage cost price (£/t) for each year (Table 2.8) and provide a cumulative total cost (£) for five years.

Table 2.8 Road transport damage costs (central value used, £/t) for NOx and PM_{2.5} in years 2021 to 2025

Year	2021	2022	2023	2024	2025
NOx	9813	10010	10210	10414	10622
PM _{2.5}	88238	90002	91803	93639	95511

Table 2.9 Cumulative total damage costs (£) calculated for NOx and PM_{2.5} in years 2021 to 2025

Year	2021	2022	2023	2024	2025
NOx	486.83	448.69	415.87	384.10	353.45
PM _{2.5}	316.53	318.04	320.63	324.16	328.45
Cumulative total	803	1570	2307	3015	3697

Total damage costs = £3697

Step 3

Propose appropriate mitigation measures to a value greater or equivalent to the calculated cumulative damage costs, based on the example mitigation measures in Table 2.6.

Example 2: Small Potential Impact

In this example (Figure 2.6), a new development with 10 residential units and no parking spaces located outside of the Crediton and Cullompton AQMAs. As the development does not correspond with any of the criteria outlined in Table 2.3, it can be classified as having a Small Potential Impact. The applicant would then be required to complete the Construction and Demolition Screening Assessment, and confirm the appropriate mitigation measures in their application. As the development is not located within the AQMAs, mitigation for the operational phase impacts would be not be required.

¹⁴ Defra Air quality appraisal: damage costs toolkit. Available from: <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality>

Figure 2.5: Worked example – Large Potential Impact

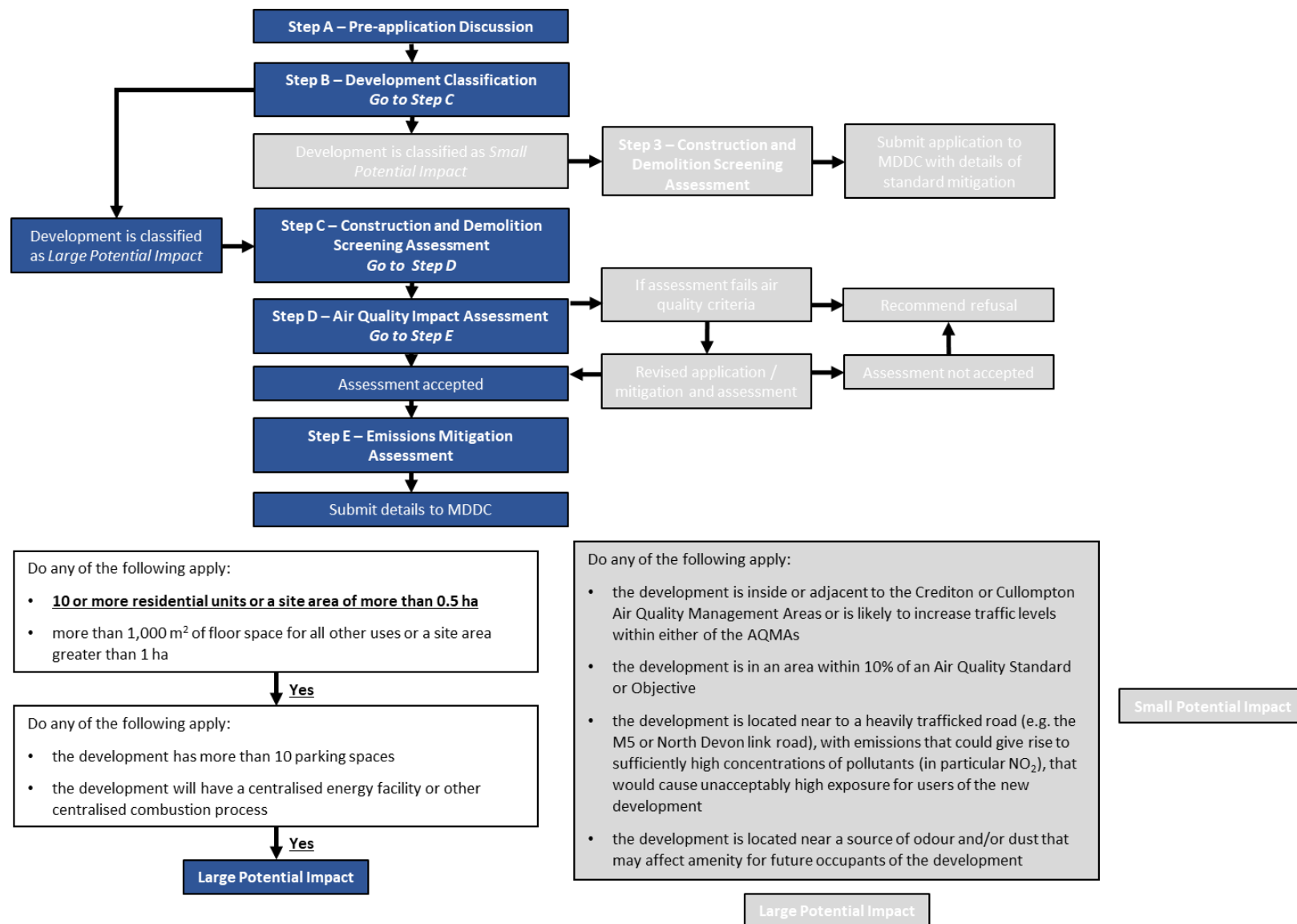
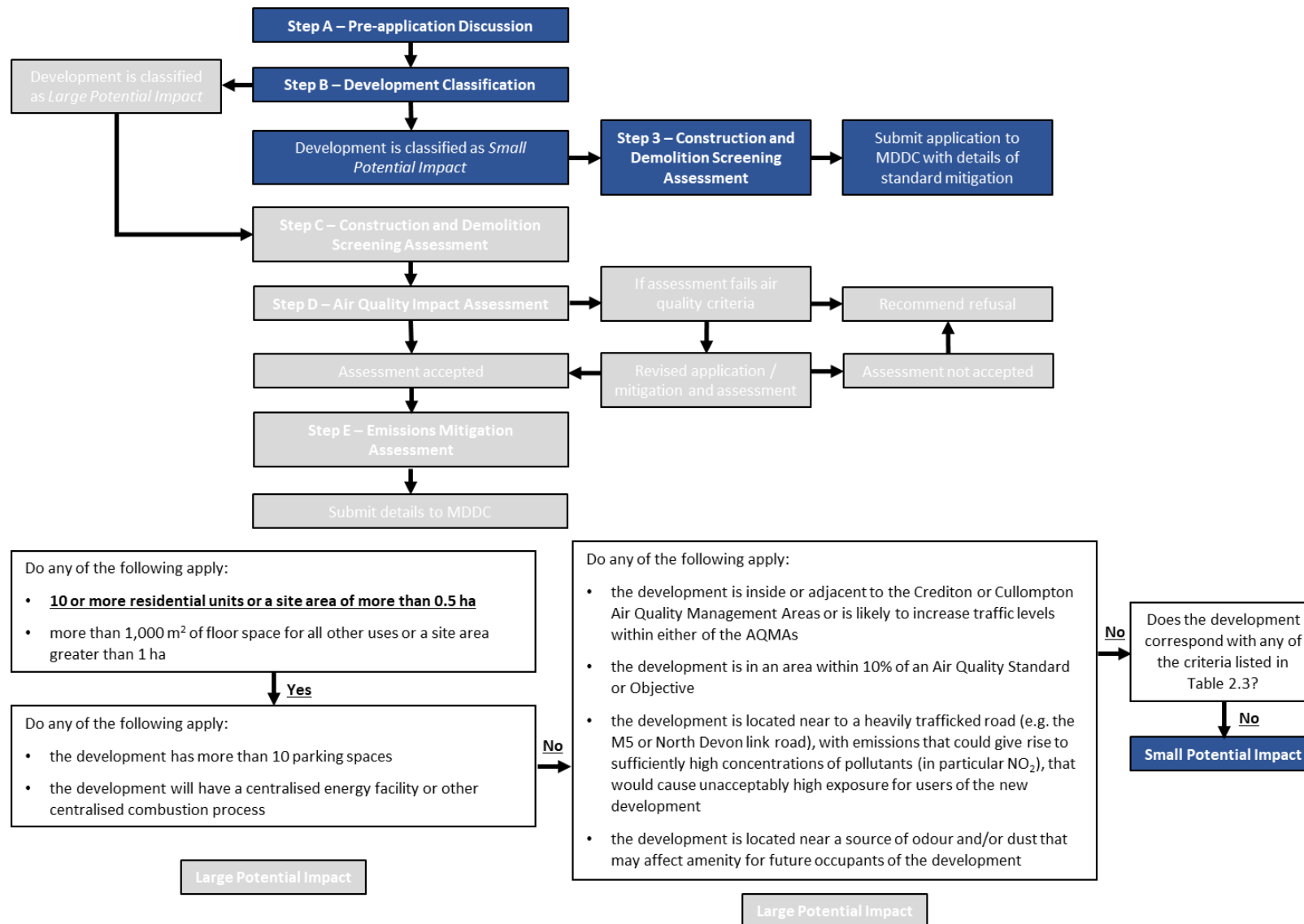


Figure 2.6: Worked example – Small Potential Impact



A1 Air quality guidance within planning policy context

A1.1 National planning context

The UK and EU air quality limits¹⁵ set out target values for ten pollutants: PM₁₀, PM_{2.5}, NO₂, ozone (O₃), sulphur dioxide (SO₂), polycyclic aromatic hydrocarbons (PAHs), benzene (C₆H₆), 1,3-butadiene, carbon monoxide (CO) and lead (Pb). The pollutants of specific concern in Mid Devon are NO₂ and particulates (PM₁₀ and PM_{2.5}), the primary source of which is road transport emissions. In 2019, concentrations within 10% of the annual mean objective for NO₂ were identified on the High Street in Crediton (within Crediton AQMA) and Fore Street in Cullompton (within Cullompton AQMA). As discussed in Section 1.1, there are currently two AQMAs declared within the district; the Crediton AQMA for exceedances of the NO₂ annual mean objective and the PM₁₀ 24-hour mean objective, and the Cullompton AQMA for exceedances of the NO₂ annual mean objective.

This guidance is aligned with the National Planning Policy Framework¹⁶ (NPPF) and aims to provide a consistent approach to assessing air quality impacts from planning proposals. The NPPF contains the Government's planning policies for England and is designed in favour of sustainable development, stressing the importance of local development plans, and states that the planning system should perform an environmental role to minimise pollution. The Framework also emphasises the importance of local development plans and early engagement as part of the process.

The Institute of Air Quality Management (IAQM) air quality planning guidance¹⁷ summarises the NPPF guidance on planning policies in relation to national objectives and AQMAs, and states that:

"Planning policies should sustain compliance with, and contribute towards, meeting EU limit values or national objectives for air pollutants, taking into account the presence of Air Quality Management Areas (AQMAs) and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in an Air Quality Management Area is consistent with the local Air Quality Action Plan."

Key paragraphs in the NPPF that relate to air quality include:

- **NPPF paragraph 7 (Sustainable development)**
"The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs."
- **NPPF paragraph 39 (Early engagement)**
"Early engagement has significant potential to improve the efficiency and effectiveness of the planning application system for all parties. Good quality preapplication discussion enables better coordination between public and private resources and improved outcomes for the community."
- **NPPF paragraph 92 (Promoting healthy and safe communities)**
"Enable and support healthy lifestyles, especially where this would address identified local health and well-being needs."
- **NPPF paragraph 174 (Promoting healthy and safe communities)**
"Planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water

¹⁵ National air quality objectives and European Directive limit and target values for the protection of human health. Available from: https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update.pdf

¹⁶ National Planning Policy Framework (2012, last updated 2021). Available from: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

¹⁷ Land-Use Planning & Development Control: Planning for Air Quality (2017). Available from: www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality.”

- **NPPF paragraph 185 (Promoting healthy and safe communities)**
“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment.”
- **NPPF paragraph 105 (Promoting sustainable transport)**
“The planning system should actively manage patterns of growth in support of the (sustainable transport) objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.”
- **NPPF paragraph 107 (Promoting sustainable transport)**
“If setting local parking standards for residential and non-residential development, policies should take into account: the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.”

The IAQM published a Position Statement on the Mitigation of Development Air Quality Impacts¹⁸, (last updated in June 2018). The statement advised that an *“appropriate mitigation solution for the air quality impact of any given individual general development scheme should be principle-led rather than specified by detailed prescription.”* Basic hierarchy principles were proposed to be applied as the basis for the mitigation of air quality impacts associated with development schemes. This hierarchy is based on well-established mitigation hierarchies used for EIA development¹⁹ and pollution exposure in workplace/occupational situations^{20,21}.

Prevention or avoidance
“Preference should be given to preventing or avoiding exposure/impacts to the pollutant in the first place by eliminating or isolating potential sources or by replacing sources or activities with alternatives. This is usually best achieved through taking air quality considerations into account at the development scheme design stage.”
Reduction and minimisation
<p><i>“Reduction and minimisation of exposure/impacts should next be considered, once all options for prevention/avoidance have been implemented so far as is reasonably practicable (both technically and economically). To achieve this reduction/minimisation, preference should be given first to:</i></p> <p><i>a. mitigation measures that act on the source; before</i></p> <p><i>b. mitigation measures that act on the pathway; which in turn should take preference over</i></p> <p><i>c. mitigation measures at or close to the point of receptor exposure all subject to the efficacy, cost and practicability of the available solutions. In each case, measures that are designed or engineered to operate passively are preferred to active measures that require continual intervention, management or a change in people's behaviours.”</i></p>
Off-setting
“Off-setting a new development's air quality impact by proportionately contributing to air quality improvements elsewhere (including those identified in air quality action plans and low emission strategies) should only be considered once the solutions for preventing/avoiding, and then for reducing/minimising, the development-specific impacts have been exhausted. Even then, offsetting should be limited to measures that are likely to have a beneficial impact on air quality in the vicinity

¹⁸ IAQM Position Statement – Mitigation of Development Air Quality Impacts (2018)

http://iaqm.co.uk/text/position_statements/mitigation_of_development.pdf

¹⁹ Institute of Environmental Management & Assessment (IEMA), Guidelines for Environmental Impact Assessment (2004).

²⁰ The Management of Health and Safety at Work Regulations 1999, Regulation 4

²¹ COSHH Regulation 7, Prevention or control of exposure to substances hazardous to health.

of the development site. It is not appropriate to attempt to offset local air quality impacts by measures that may have some effect remote from the vicinity of the development site."

In addition, the IAQM Guidance on the assessment of dust from demolition and construction²² provides guidance on minimising dust and other emissions to atmosphere during the construction phase and should be considered in the planning phase of a new development.

A1.2 Regional planning context

Devon and Torbay Local Transport Plan 3

The Devon and Torbay Local Transport Plan 3 (LTP3)²³ is a 15-year plan, covering the period 2011 – 2026. The plan aims to deliver a transport system that can meet economic, environmental, and social challenges. The five key objectives of the plan, which aim to develop a low carbon transport system that offers choice and encourages sustainable travel behaviour, are:

1. Deliver and support new development and economic growth
2. Make best use of the transport network and protect the existing transport asset by prioritising maintenance
3. Work with communities to provide safe, sustainable and low carbon transport choices
4. Strengthen and improve the public transport network
5. Make Devon the 'place to be naturally active'

The Strategic Connections Strategy aims to:

1. Manage maintenance of the transport network
2. Proactively address congestion and increased demand
3. Support low carbon measures
4. Promote sustainable communities

Devon Climate Emergency

On 26th June 2019 the elected Members voted unanimously to support the ambitious cut in carbon emissions by signing the Devon Climate Declaration. The declaration acknowledges the need to understand the near-term and future risks for Mid Devon and beyond, and sets out the joint ambition with our partners to plan for how our infrastructure, public services and communities will have to adapt to a 1.5°C rise in global average temperature.

It was agreed that the Policy Development Group (PDG) for Environment would act as the initial owner of policy activity regarding Climate Change Emergency within the Council.²⁴

A1.3 Local planning context

The SPD has been designed to build on the air quality and sustainability policy headings within the MDDC local plans and policies, as outlined below and aims to clarify the specific actions required to make schemes sustainable in terms of air quality.

Air Quality Action Plan

The current MDDC AQAP outlines the actions that the Council will take to improve air quality in Mid Devon 2021 – 2025. This plan aims to reduce concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to the

²² Guidance on the assessment of dust from demolition and construction (2014)
<https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

²³ Devon and Torbay Local Transport Plan 5, 2011 – 2026. Available from:
<https://www.devon.gov.uk/roadsandtransport/traffic-information/transport-planning/devon-and-torbay-local-transport-plan-3-2011-2026/>

²⁴ Devon Climate Emergency. Available from: <https://www.middevon.gov.uk/residents/devon-climate-emergency/>

Mid Devon District area. Some AQAP priorities to be considered in the planning of future developments are:

- To work with Devon County Council and the key bus service providers to maximise patronage and link the bus routes more effectively.
- To improve the Electric Vehicle Charging Network through the installation of units at Council Parks or other appropriate locations and within design specifications for future housing developments (home charging).
- To support alternative forms of transport such as local car sharing schemes, e-bikes, cycles and local bus services that minimise personal car use.
- To adopt Local Plan Policies (Low Emission Strategies) and monitor their implementation in all future development applications.
- To expand and improve the local network of foot and cycle paths to facilitate a move towards walking or cycling as an alternative to car use for short to medium length journeys.
- To pro-actively engage all stakeholders with responsibility and or/interest in the development of roads, transport and infrastructure to ensure air quality is central to planning and delivery.
- To acknowledge that the car will remain the only alternative for some rural locations and to take this into consideration when making policy or undertaking measures that may directly or indirectly affect rural communities.
- To continue to monitor Mid Devon's two AQMAs and carry out mitigation strategies that will result in their removal from the register.

Mid Devon Local Plan 2013 – 2033

As discussed, this document is designed to provide guidance to relevant policies in the adopted Mid Devon Local Plan 2013 – 2033²⁵ in relation to air quality. The Local Plan which was adopted in July 2020 supersedes the previous Local Plan which was adopted in three parts: The Core Strategy 2026 (Local Plan Part 1) adopted in 2007, the Allocations and Infrastructure Development Plan Document (AIDPD) (Local Plan Part 2) adopted in 2010 and the Local Plan Part 3: Development Management Policies, adopted in 2013.

As part of the spatial strategy, developments will be targeted to “Protect and enhance the key environmental assets including heritage, biodiversity and air quality” within Cullompton and other market towns.

A number of key strategies have been updated since the previous Local Plan, the following list provides information on the original policy and the more recently adopted policy. Where a policy has been replaced, this document will explore the details of that specific policy.

- AL/TIV/5 Eastern Urban Extension Carbon Reduction & Air Quality, deleted as covered by Development Management policies on renewable energy, air quality and transport and pollution (2013).
- AL/CU/5 North West Cullompton Carbon Reduction & Air Quality, replaced by CU5 North West Cullompton Carbon Reduction and Air Quality.
- AL/CU/15 Cullompton Air Quality, replaced in part by S11 Cullompton; also, each site allocation within Cullompton is required in their policy to have a transport assessment and implement a travel plan to minimise the carbon footprint and air quality impacts.
- AL/CRE/8 Crediton Air Quality, replaced in part by S12 Crediton CRE11 Crediton Infrastructure.
- DM6 (LP part 3) Transport and Air Quality, replaced by DM3 Transport and air quality.

The new Local Plan includes key policies which explore the relationship between the Local Plan and air quality impacts and mitigation. The policies can be split up into strategic policies, specific site allocation policies and sustainable development principles.

²⁵ MDDC Adopted Local Plan. Available from: <https://www.middevon.gov.uk/residents/planning-policy/adopted-local-plan/>

Strategic policies

There are five strategic policies within the MDDC Local Plan which relate to air quality. They are the S1 Sustainable Development Priorities, S2 Amount and Distribution of Development, S8 Infrastructure, S11 Cullompton and S12 Crediton. The key message from this set of policies is to prevent and improve air quality issues within the area, specifically at Crediton and Cullompton. This is planned to be achieved by including new road linkages to relieve traffic congestion in town centres, improve infrastructure for new developments, to offer co-benefits for air quality and other planning objectives, and to implement monitoring to assess if pollutants have been reduced to a level where AQMAs can be withdrawn.

Site allocation policies

There are three areas within Mid Devon which have been identified to include site allocation policies referencing air quality, they are Cullompton, Crediton and Tiverton. All three areas highlight policies to implement proposed developments accounting for the effects they will have on traffic congestion and subsequently air quality impacts. The developments include policies relating to transport provisions, such as a travel plans and non-traditional transport measures. Developments will also include carbon reduction and Air Quality Impact Assessments to help minimise the impacts of the development on the environment. As Cullompton and Crediton both have AQMAs there is a policy for both areas relating to infrastructure to help deliver air quality improvements within and adjacent to the AQMAs.

Sustainable development principles

There are two sustainable development principles which relate to air quality in the Local Plan; DM3 Transport and Air Quality and DM4 Pollution. DM3 encompasses developments which give rise to vehicular movement. If this is the case, the following documents are required to be submitted: Integrated Transport Assessment, Travel Plan, Traffic Pollution Assessment, and a Low Emissions Assessment. DM4 stipulates that any proposals that may negatively impact the environment must be accompanied by a Pollution Impact Assessment and implement mitigation schemes where necessary.

DM3 Transport and air quality

Policy DM3 states that “Development proposals that would give rise to significant levels of vehicular movement must be accompanied by an integrated Transport Assessment, Travel Plan, traffic pollution assessment and Low Emission Assessment. The traffic pollution assessment must consider the impact of traffic-generated nitrogen oxides on environmental assets including protected sites listed in Policy DM28, and propose mitigation measures where appropriate. The Low Emission Assessment shall include the following:

- a) Assessment of the impact on existing Air Quality Management Areas, or an impact likely to result in the declaration of an additional Air Quality Management Area, in cases where a demonstrable negative impact on ambient concentrations of air pollutants is considered likely;
- b) Modelling of local residual road transport emissions from the development without mitigation measures; and
- c) Onsite mitigation measures to reduce negative impacts on local air quality.

[NB: ‘Significant levels of vehicular movement’ in relation to air quality is defined by its potential impact as per Figure 2.2 in this SPD]

DM4 Pollution

Policy DM4 states that “Applications for development that risks negatively impacting on the quality of the environment through noise, odour, light, air, water, land and other forms of pollution must be accompanied by a pollution impact assessment and mitigation scheme where necessary. Development will be permitted where the direct, indirect and cumulative effects of pollution will not have an unacceptable negative impact on health, the natural environment and general amenity.”

Cullompton Neighbourhood Plan

The Cullompton Neighbourhood Plan²⁶ now forms part of the statutory development plan for the Cullompton area, alongside the Mid Devon Local Plan and the Devon Waste and Minerals Plans, and carries full weight for guiding planning applications submitted to the Council for determination and the decisions made on these.

The Plan outlines Policy SD01, which is consistent with the Cullompton Air Quality Management Area Action Plan 2009 which recognised the need to bring effective traffic relief to the town centre and introduce town centre traffic management measures.

Policy SD01 Traffic Impact of Major Development

Proposals for major development which are required to provide a Traffic Impact Assessment must demonstrate how the proposal will mitigate any negative impacts of the traffic generation associated with the proposed development on Cullompton town centre, including vehicular access/egress and circulation arrangements. Road infrastructure requirements should be in place in good time so as to prevent an unacceptable impact on the existing road network, and the town centre in particular, as a result of the development.

²⁶ Cullompton Neighbourhood Plan. Available from: <https://www.middevon.gov.uk/residents/planning-policy/neighbourhood-planning/cullompton-neighbourhood-plan/>

A2 Relevant Receptors for Air Quality Objectives

Averaging period	Objectives should apply at:	Objectives should not generally apply at:
Annual mean	<p>All locations where members of the public might be regularly exposed.</p> <p>Building façades of residential properties, schools, hospitals, care homes etc.</p>	<p>Building facades of offices or other places of work where members of the public do not have regular access.</p> <p>Hotels, unless people live there as their permanent residence.</p> <p>Gardens of residential properties.</p> <p>Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.</p>
Short term	<p>All locations where the annual mean objectives apply, together with hotels and gardens of residential properties, and:</p> <p>Kerbside sites (for example, pavements of busy shopping streets).</p> <p>Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more.</p> <p>Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.</p>	<p>Kerbside sites where the public would not be expected to have regular access.</p>



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