

Glasgow City Council Air Quality and Planning Guidance

Environmental Health & Trading Standards
Land & Environmental Services
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1 **Introduction**

1.1 The aim of this Air Quality and Planning Guidance is to help improve air quality by providing information on the way in which air quality and air pollution issues will be dealt with through the development management system in Glasgow. This guidance helps to fulfil three of the five Council objectives:

- making Glasgow a cleaner, safer city;
- building a prosperous city; and
- improving health and wellbeing

1.2 This document will be considered when determining planning applications where air quality may be a material consideration. To help ensure consistency in approach, it should be taken into account by developers and their consultants when proposing development within the City. The planning system has a key role in protecting people from the risks to their health associated with poor air quality, and this document complements the air quality considerations stated within City Plan 2.

1.3 When considering planning applications in relation to air quality, the following will be considered by the planning authority:

- Is an air quality assessment required?
- If so then has the air quality assessment produced been carried out in line with relevant guidance and agreed by the planning authority?
- How significant is the impact of the development on air quality?
- Are the proposed mitigation measures to address any air quality issues adequate?

1.4 Ideally, air quality should be assessed prior to the submission of a planning application. Therefore Glasgow City Council recommends early consultation to avoid any unnecessary delays in the planning application process.

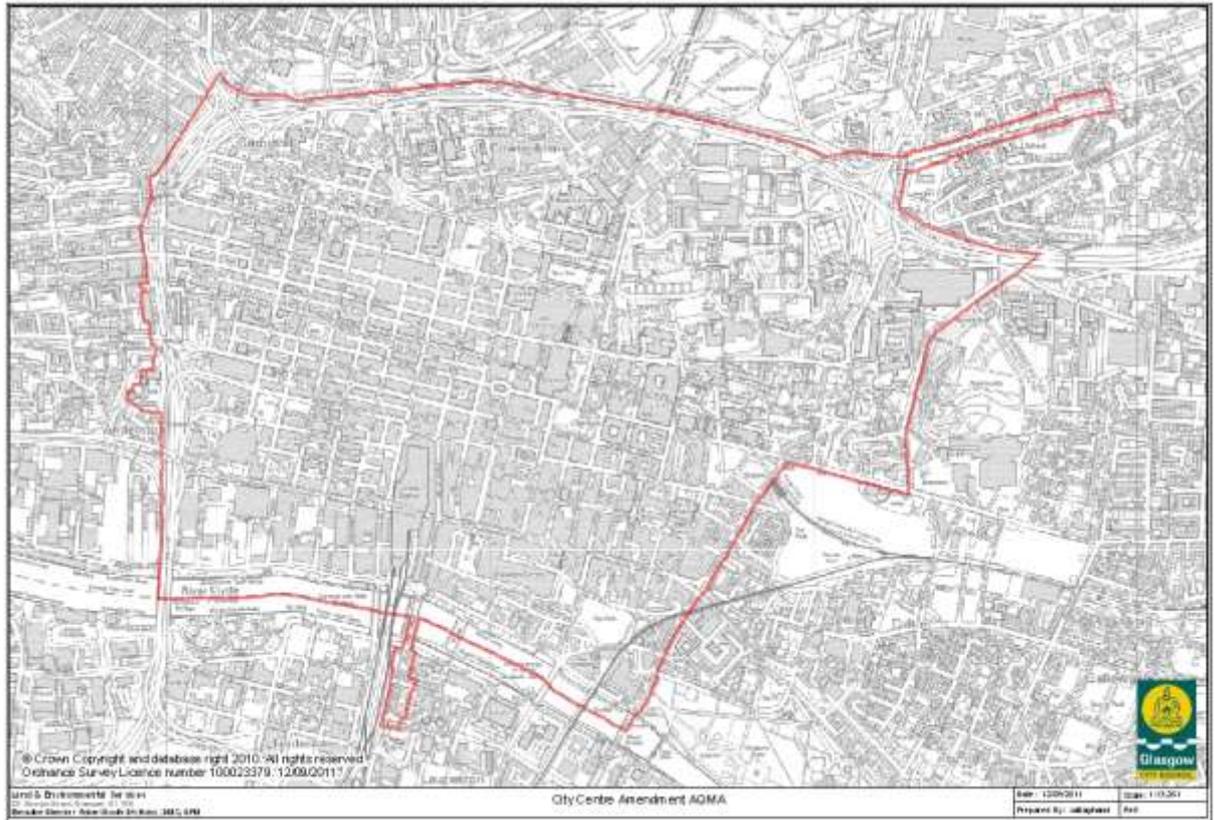
2 **Air Quality & Planning in Glasgow**

Background

- 2.1 The Environment Act 1995 introduced the National Air Quality Strategy which placed statutory requirements on all local authorities to review and assess air quality within their areas. Eight pollutants require to be assessed against recognised health based standards. The Act also requires that if an assessment by a local authority indicates that a target level for any of these pollutants is unlikely to be achieved, then the local authority must designate these areas as Air Quality Management Areas (AQMA) by Order. It must then take any necessary action in order to reduce relevant pollutant levels by the set date within the Air Quality Management Area. This is achieved through the production of an Air Quality Action Plan, which sets out the actions which the local authority intends to take in pursuit of the air quality targets.
- 2.2 To date, Glasgow City Council has declared 3 AQMAs for nitrogen dioxide (NO₂). These are the City Centre, Byres Road/Dumbarton Road and Parkhead Cross. The City Centre and Byres Road/Dumbarton Road have also been declared an AQMA for particulate matter (PM₁₀.) The Council's Environmental Health division has produced an Air Quality Action Plan to improve air quality in these AQMAs.

Air Quality Management Areas

Figure 1 – City Centre Air Quality Management Area



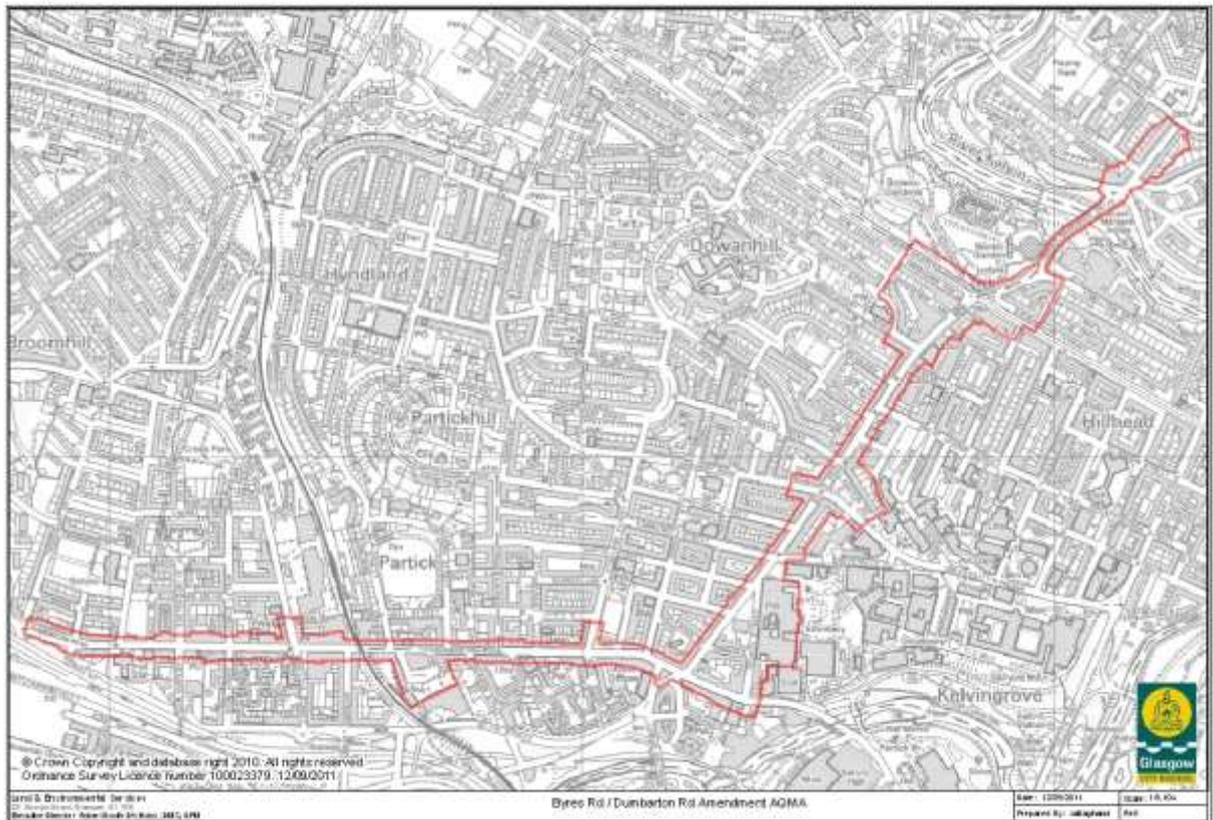
- 2.3 The city centre area is, to a significant degree, densely developed with a range of commercial, cultural, and residential uses. The City Centre AQMA is loosely bound by the M8 motorway to the west and north (with slight protrusions at North Street and Royston Road), by High Street and Saltmarket to the east and by the river Clyde to the south (with a protrusion at Bridge Street).

Figure 2 – Parkhead Cross Air Quality Management Area



2.4 Parkhead Cross is formed by the convergence of five roads in Glasgow's east end. These being Westmuir Street, Tollcross road, Springfield Road, Duke Street and Gallowgate. The area is a mixture of commercial and residential properties within mostly tenement properties.

Figure 3 - Byres Road/Dumbarton Road Air Quality Management Area



- 2.5 Byres Road and Dumbarton Road are at the heart of Glasgow's west end and comprise a mixture of residential and commercial properties within mostly tenement type properties. The Area covers from the junction of Queen Margaret Drive and Hamilton Drive, south all the way down Byres Road to Dumbarton Road and west along Dumbarton Road as far as Thornwood Drive roundabout.
- 2.6 Development proposals within or adjacent to an AQMA will be controlled so as to prevent further deteriorations in air quality within the AQMA, and to protect the occupiers of development proposals from the potential adverse effects of poor air quality. Other development proposals out with AQMAs, but which may have an impact on the AQMA by generating significant pollution within the AQMA, will also be controlled. The cumulative effect of numerous developments on air quality within the AQMAs is another factor that will be taken into account. All applications will need to be supported by such information as is necessary to allow a full consideration of the impact of the proposal on the air quality of the area, and developers may be required to provide appropriate pollution prevention or mitigation measures.

PAN 51

- 2.7 Planning Advice Note 51 Planning, Environmental Protection and Regulation suggests that air quality can be a material consideration when determining a planning application, and paragraph 62 gives guidance on the issue as follows:

“In AQMAs or adjacent to them, air quality is likely to be a material consideration for large scale proposals or if they are to be occupied by sensitive groups such as the elderly or young children or are likely to have cumulative effects. This does not mean that all such applications should be refused even if they are likely to affect local air quality, but it may mean that conditions have to be applied to mitigate adverse effects. Generally, it may be necessary to consider whether a development could lead to the designation of a new AQMA or if granting planning permission could conflict with an Air Quality Action Plan.”

- 2.8 A study of air quality issues may be warranted, particularly for proposals which are likely to have a significant impact on air quality.

Local Policy

- 2.9 This planning guidance is closely entwined with both Glasgow’s City Plan 2 and the Local Transport Strategy. Therefore all factors and developments that are integral to either of these have been taken into consideration.

City Plan 2

- 2.10 The City Plan forms part of the city’s statutory development plan. It is used to guide the location, scale and quality of developments and, also, to inform decisions on planning applications. The plan sets out a broad development strategy over a 20 year period and provides detailed guidance on the shape, form and direction of development and indicates the way in which the Council wishes to see the City’s physical structure develop over the lifetime of the Plan. Many policies are included in the Plan to help address these issues and tackle the City’s carbon footprint. The ultimate aim of the Plan is to improve the quality of the physical environment and the quality of life for people living and working in the City and provide the conditions to promote sustainable development.
- 2.11 The Infrastructure (paras 6.62-6.63) and Key Regeneration Areas (para 7.49) Sections of City Plan 2 acknowledge the link between road traffic and NO₂ emissions and identify that traffic implications of new developments are a key consideration in terms of air quality. These parts of the development strategy are supported by Policy TRANS 9: Air Quality.
- 2.12 Policy TRANS 9 states that:

“Major development proposals within or adjacent to the City Centre, Byres Road/Dumbarton Road and Parkhead Cross Air Quality Management Areas, and any subsequent extensions to them or new AQMAs, should consider the likely air quality impacts, in relation to, e.g. the level of projected traffic generation.

- 2.13 Where air quality is likely to be an issue, there will be a need to identify suitable mitigation measures, e.g. in relation to the use of new technology/energy efficiency at both the construction and occupation stages.
- 2.14 Conditions may be attached to a planning permission for a development if it is likely to affect local air quality. This includes the construction phase.
- 2.15 Full consideration will require to be taken of Planning Advice Note (PAN) 51: Planning, Environmental Protection and Regulation.”
- 2.16 Other parts of the development strategy that are relevant to air quality are Policy DES2: Sustainable Design & Construction and Policy TRANS 2: Development Locational Requirements.
- 2.17 In general terms the plan steers development, wherever possible to locations that:
- Mitigate against pollution to air
 - Reduce the need to travel
 - Have appropriate levels of public transport accessibility
 - Are accessible by foot or bicycle
 - Are not solely dependent on the car
 - Promote densities that relate to the existing and proposed availability of public transport.

Regional and Local Transport Strategies

- 2.18 The Regional Transport Strategy (RTS) for the West of Scotland was produced by Strathclyde Partnership for Transport (SPT) and set out the visions, objectives and priorities for transport within the 12 local authority areas that make up the region.
- 2.19 “Reduced Emissions” is one of the 4 key transport outcomes of the RTS and Strategy Objective no.6 is “To improve health and protect the environment by minimising emissions and consumption of resources and energy by the transport system.”
- 2.20 As one of the member councils, Glasgow has a responsibility to promote the delivery of the RTS within its local transport plan.

- 2.21 Glasgow's transport vision is to provide a world class transport system that is safe, reliable, integrated and accessible to all citizens and visitors and also supports the physical, social, economic, cultural, environmental and economic regeneration of the City.
- 2.22 In order to achieve this, the Local Transport Strategy (LTS) concentrates on promoting and enhancing sustainable transport modes (such as walking, cycling and public transport) with limited investment in roads infrastructure to tackle key congestion points; provide essential links to development areas; and enable public transport to provide effective circumferential services.
- 2.23 Objective 3 (LTS3) of the Strategy is to promote healthy and environmentally sustainable methods of transport that minimise harmful emissions and energy consumption including those that involve physical activity. Policy AQ1 is “to improve air quality throughout the City with particular emphasis on Air Quality Management Areas”. The LTS sets out 8 specific air quality actions that aim to fulfil this policy and meet the objectives.

3 **Developments that Require an Air Quality Assessment**

3.1 Glasgow City Council is likely to require an air quality impact assessment where a significant change in air quality is expected to result from a proposed development. This may be due to the nature of its size, type or location.

3.2 Issues regarding air quality are likely to be raised in circumstances where (a) new development will give rise to additional emissions of air pollutants, or (b) where new receptors are expected to be introduced to areas of poor air quality. Both the construction and operational phases of the proposed development require to be considered.

3.3 Air Quality Assessments are likely to be required for developments under the following circumstances:

- Proposals that will generate or increase traffic congestion in an area, or lower vehicle speeds and cause an increase in periods with stop/start driving on an existing road network.
- Proposals that will give rise to a significant change in either traffic volumes (typically a change in annual average daily traffic or peak traffic flows of greater than $\pm 5\%$ within AQMAs or $\pm 10\%$ at other locations), or in vehicle speed (typically of more than $\pm 10\text{kph}$), or both.
- Proposals that would significantly alter the traffic composition on local roads i.e. increase the number of HGVs or buses etc.
- Any proposals that include a significant number of new car parking spaces e.g. 100 car parking spaces, or proposals for new coach or lorry parks.
- Introduction of new receptors close to existing sources of air pollutants, including road traffic, industrial operations etc.
- Proposals that include biomass boilers or biomass-fuelled CHP plant in or in close proximity to one of Glasgow's AQMAs.
- Developments that may create street canyons or reduce dispersion of pollutants.
- Proposals that could give rise to potentially significant impacts during construction for nearby sensitive locations, e.g. residential areas, areas with parked cars and commercial operations that may be sensitive to dust;
- Large, long-term construction sites that would generate large HGV flows (>200 movements per day) over a period of a year or more.

- Any other development proposal within or in close proximity to an AQMA not listed above which may have a significant impact on air quality, or may hinder existing actions detailed in Glasgow's AQAP.

4 How to Carry Out an Air Quality Assessment/Air Quality Assessment Procedure

- 4.1 The air quality assessment should demonstrate the likely changes in air quality or exposure to air pollutants that would arise from a proposed development. This would require an assessment of the existing air quality and a prediction of the future air quality, both with and without the development. The results of this assessment can then be used to establish the significance of any air quality impacts. The developer will then be expected to propose mitigation measures to address any adverse air quality issues arising from the development. The extent and nature of suitable measures will vary depending upon the significance of the impact on air quality.
- 4.2 There is no single, definitive method for carrying out a detailed air quality impact assessment. Therefore, Glasgow does not set out its own prescribed method as this would not allow for the continuous improvements being made in methodology. However, existing detailed direction on this subject is provided in the Environmental Protection UK guidance document entitled Development Control: Planning for Air Quality (2010 Update) and in the Defra Technical Guidance LAQM.TG (09).
- 4.3 The methodology used for an air quality assessment must be appropriate for the development, and it is therefore important that discussions take place between the Council and developers/consultants before the work is undertaken. This will allow agreements on appropriate datasets such as meteorological data, traffic data, local air quality data, background concentrations, assumptions to be used, modelling tools, verification procedures etc.
- 4.4 Where an assessment is required and where air quality is likely to be a significant issue, developers are advised to enter into early pre-application discussions with the Council to seek to agree the approach to be taken. If monitoring data is likely to be required, developers should be aware that this would most probably need to be acquired over a number of months. Also, if a development is likely to generate significant additional traffic flow, air quality modelling will be required. It is important, in these cases, that traffic assessments are made and agreed with the Council prior to determining if an air quality assessment is required.
- 4.5 In general, air quality assessments should include:
- 1) Appropriate details of the proposed development (in the context of local air quality issues).
 - 2) An overview of relevant air quality policies and objectives.
 - 3) A basis for determining the significance of the air quality impacts.
 - 4) A description of the assessment methodology - including details of all input data.

- 5) Model verification.
 - 6) Identification of sensitive locations/receptors.
 - 7) A list of the baseline conditions found.
 - 8) An assessment of the air quality impacts of the development.
 - 9) Consideration of any construction phase impacts.
 - 10) Proposed mitigation measures.
 - 11) An overall summary of the results.
- 4.6 All parts of the assessment must be carried out before the report is passed on to the City Council. The structure of reports must be clear to follow and all sources of information must be referenced. Clear, informative, well-written reports are likely to be assessed more quickly by the planning authority and costly delays and misunderstandings should then be avoided.
- 4.7 The Council's Environmental Health division periodically assesses air quality in the City, and recent and historic reviews are available on the Council's website. Information is also available by contacting Environmental Health directly. Developers should check with the local authority to ensure they have the latest available information. The City Council will, when making its decisions, always make use of the most up to date information available. In addition, given the possibility of changes in legislation and advice at European, national and local level, developers are advised to check for any such changes that may affect their development proposals.
- 4.8 A copy of the checklist used by Environmental Health when assessing air quality reports can be found in Appendix 1.

5 **Assessing Significance**

- 5.1 The significance of the impact on air quality presented by a particular proposed development requires to be addressed at two stages. The first is within the air quality assessment report, submitted before or alongside the planning application, where significance should be assessed by the report authors. The second is an evaluation by local authority of the assessment report, particularly the significance of any air quality impacts using the professional judgement of its officers, to help reach a decision on the planning application.

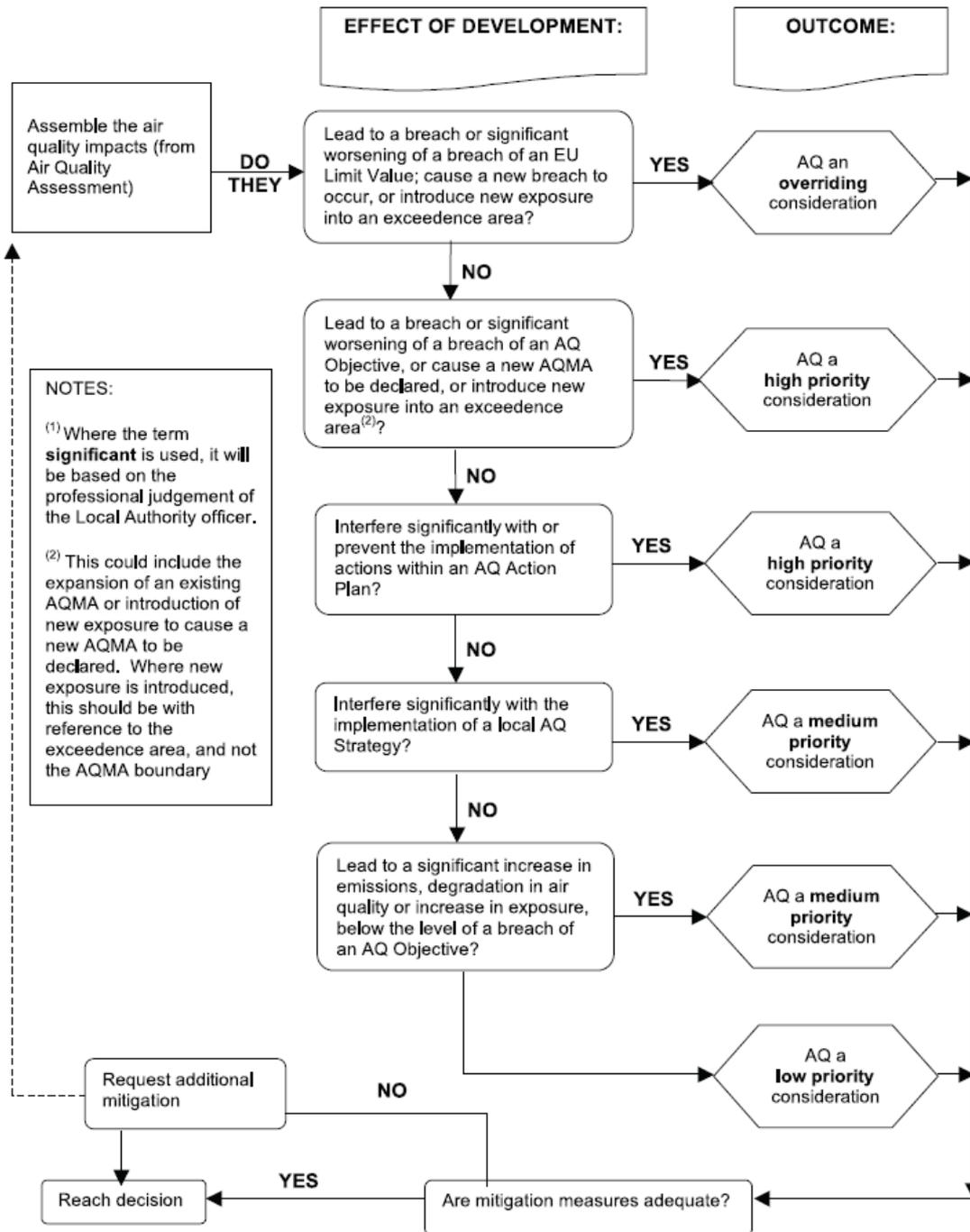
Within the air quality assessment report

- 5.2 Within the air quality assessment report the author is required to describe significance in terms of the change in concentration of a specific pollutant in relation to air quality guidelines. Therefore, an important aspect of evaluating significance will be a comparison against the relevant air quality objectives. The magnitude of the changes in the concentration of pollutants also requires to be set out and taken into account, and a consistent descriptive terminology should be employed. For example overall impacts should be described by the author as insignificant, or of minor, moderate or major significance.
- 5.3 The factors to consider when assessing overall significance include:
- Number of properties affected by slight, moderate or major air quality impacts
 - Where new exposure is being introduced into an area of existing poor air quality, then the number of people exposed to poor air quality will be relevant
 - Magnitude of changes and description of impacts at receptors
 - Whether or not an exceedance of an objective or limit value is predicted to arise in the study area where none existed before, or an exceedance area is substantially increased
 - Whether or not the study area exceeds an objective or limit value and this exceedance area is removed or reduced
 - Uncertainty, including the extent to which worst case assumptions have been made
 - The extent to which an objective is exceeded
- 5.4 Air quality assessments require to be carried out by suitably qualified and competent individuals. Their qualifications and experience shall be usefully set out in an appendix to the report to enable the local authority officer reviewing it to have additional confidence in the results.

Assessment by the Planning Authority

- 5.5 When an air quality assessment report is submitted to the Council, officers within Environmental Health will carry out their own evaluation of the significance of the air quality impacts, in terms of Glasgow's local air quality policies. This assessment will be based on the content of the assessment report, the predicted impact of the proposed development, and take into account the context and the nature of the area in which the development is being proposed.
- 5.6 The following flow chart - taken from EPUK guidance document Development Control: Planning for Air Quality (2010 update) - has been adopted by the Council as a tool to help evaluate the significance of air quality impacts.

Figure 4 – Assessment of Significance of Air Quality Impacts Chart



5.7 Where air quality has been assessed as an overriding or high priority material consideration in the planning process, developers will be required to take actions to minimise these overriding and high priority impacts. The following table chart - taken from EPUK guidance document Development Control: Planning for Air Quality (2010 update) - illustrates circumstances in which mitigation is likely to be required for a proposal. Examples of measures to mitigate or compensate for impacts are discussed in the following section.

Figure 5 – Recommendations for when mitigation will be likely

Impact significance from flow chart	Recommendation
Overriding consideration	Require mitigation measures to remove "overriding" impacts. If the impact is still "overriding", there should be a strong presumption for a recommendation for refusal on air quality grounds. ⁴²
High priority consideration	Ensure that measures to minimise "high priority" impacts are appropriate in the proposal. Recommend strengthening the measures if appropriate. Consideration may also be given to compensation/offsetting. Depending on the scale of the impacts, taking into account the number of people affected, the absolute levels and the magnitude of the changes, and the suitability of the measures to minimise impacts, it may be appropriate to recommend refusal.
Medium and low priority consideration	It is unlikely that refusal would be recommended, but mitigation measures should be incorporated into the scheme design to ensure that the development conforms to best practice standards, and is "air quality neutral" as far as is reasonably practicable.

5.8 Environmental Health will make a judgement regarding the proposal taking into account the scale of the impacts; numbers affected; absolute levels; magnitude of changes; and the suitability of the proposed measures to minimise impacts.

5.9 After this process, Environmental Health will report findings on the air quality assessment report to the planning case officer, who is responsible for taking all material considerations and the relevant parts of City Plan 2 into account in making a recommendation for approval or refusal of the planning application, and for drafting any appropriate planning conditions to the planning permission.

6 Mitigation of Air Quality Impacts and Planning Agreements

- 6.1 It is not necessarily the case that planning permission will be refused in circumstances where air quality has been determined to be an overriding or highly significant consideration. Instead, the Council will liaise with developers and their consultants if it can be demonstrated that the development will have an overall net positive environmental impact, without leading to an unacceptable deterioration in air quality.
- 6.2 The extent to which air quality should influence the development proposals will depend upon significance and the nature and scale of the development. Initially, the development design and location should be considered in terms of air quality. If redesign cannot fully reduce the impact to an acceptable level, developers will be expected to include proposals for the reduction/mitigation of emissions. Off-setting through planning conditions or planning agreements can also be considered to allow the development to go ahead.
- 6.3 Where a development is likely to result in increased emissions, the developer must submit a strategy for reducing emissions from all areas of the new development, including transport, heating and energy use. Those developments with the highest levels of emissions or in areas with a large number of major developments (or close to breaching air quality objectives) will be expected to propose the most stringent emission reduction / mitigation measures.
- 6.4 For certain smaller developments, the Council accepts that it may not be feasible to redesign a scheme for new sensitive development to reduce the air quality impacts to a moderate or low significance. An example of this would be for small developments where existing sensitive uses are immediate neighbours and the proposed development is in no worse a position than the neighbouring uses. In these cases the focus is more likely to be on mitigation and offsetting.
- 6.5 In most instances where planning permission is granted, the permission is granted subject to planning conditions. Conditions are a useful tool to enhance the quality of a development and to alleviate any adverse impacts that might otherwise follow from the development. Planning agreements under Section 75 of the Town and Country Planning (Scotland) Act 1997 can also be used to improve the quality of the development and ensure the development proposals benefit both the site and the surrounding area.

- 6.6 The use of planning agreements can play a positive role in the development management process and introduce an additional degree of flexibility into the development management process. Planning agreements can accommodate the interests of the developer while safeguarding the local environment, improving the quality of the development and covering any associated costs incurred as a result of the development. Planning agreements can therefore help secure more sustainable forms of development, and may be used to help improve air quality and overcome difficulties to allow planning permission to be granted.
- 6.7 The Council may require developers to offset the air quality impacts of the development through a financial contribution to an air quality action fund e.g. for the purchase and installation of monitoring equipment; action planning; and the enforcement of air quality planning conditions. However, offsetting by providing money for schemes that improve air quality should be a last resort and may still need to be combined with mitigation measures.
- 6.8 It is important to note that the benefits or improvements offered through section 75 agreements will not make an unacceptable development acceptable. Section 75 agreements must be:
1. Necessary to make the proposed development necessary
 2. Serve a planning purpose
 3. Relative to the development in terms of the consequences arising or cumulative impacts resulting from the development
 4. Relative to the development in terms of scale and nature
 5. Reasonable in all other aspects
- 6.9 Examples of redesign, mitigation and offsetting measures are listed below. The list is not exhaustive and developers are expected to research and suggest innovative measures.
- Increasing the distance between pollution sources and sensitive uses, e.g. habitable rooms should not be located on facades facing busy roads
 - Placing sensitive uses at higher storeys only
 - Avoidance of features such as balconies that encouraging residents to spend prolonged time periods in polluted external environments
 - Ensuring the design allows for effective dispersion of pollutants and that the building height doesn't contribute to a canyon effect
 - Provision and design of adequate ventilation systems

- The use of pollution abatement technologies
- Carefully considering the best location for car parks and significantly trafficked access roads
- Controlling car park design to minimise queuing at exit and entry points
- Limiting the number of parking spaces associated with the development
- Provision of car free areas
- Implementation of travel plans and car sharing schemes
- Minimising the need for travel
- Provision of secure cycle parking and associated changing facilities
- Provision of bike/e-bike rental schemes
- The use of cleaner fuels for fleets of vehicles associated with the development
- Implementation of vehicle maintenance, driver training and emissions testing regimes for vehicle fleets associated with the development
- The use of lower emission vehicles e.g. higher Euro Class
- Providing electric charging points for plug-in electric hybrid vehicles, or refuelling facilities for other alternatively fuelled vehicles
- Providing a contribution to allow improvements in traffic management systems to reduce congestion
- Providing a contribution to allow changes in road design, e.g. increasing kerb width, one way systems, changing speed limits and improved signage.
- Providing a contribution to allow development of improved public transport, and facilities to encourage cycling and walking
- Providing a contribution to improve bus services, bus stop provision or facilities
- Providing a contribution for any wider air quality measures included in the Council's Air Quality Action Plan
- Providing a contribution towards the cost of additional air quality monitoring sites

- Providing a contribution towards the cost of vehicle emissions testing and idling enforcement
- Providing a contribution towards the cost of upgrading the Council's fleet of alternatively fuelled waste collection vehicles
- Committing to funding for the City Car Club
- Tree Planting
- Controlling air quality during the construction phase (see Appendix 2)

7 Air Pollution and Climate Change

- 7.1 In recent years much emphasis has been placed on the reduction of greenhouse gas emissions to mitigate against climate change effects. As Scotland's largest local authority, Glasgow City Council has an important responsibility to address climate change issues. The Council have developed a Climate Change Strategy and Action Plan which outlines how the Council's strategies and initiatives can help to reduce the City's greenhouse gas emissions as well as helping us to adapt to likely future climate changes that are now largely unavoidable. Also, the strategy highlights our ambitious plans for the future which will ensure we are in a good position to continue cutting our emissions, adapting to local climate change impacts and carrying out our duties under the Climate Change (Scotland) Act 2009.
- 7.2 For new developments, policy DES 2:Sustainable Design and Construction of City Plan 2 looks to encourage developers to make the fullest contribution to the mitigation of and adaptation to climate change and minimise emissions of carbon dioxide.
- 7.3 Local air pollution and global climate change arise broadly from the same sources, with road transport and electricity generation being the two most significant sources of air quality and climate pollutants. Greenhouse gases are most active high up in the atmosphere, whereas pollutants nearer the earth's surface affect air quality.
- 7.4 Up until now separate policy frameworks have evolved for managing air pollution and climate change, which has resulted in some conflicting policies. Some carbon reduction technologies such as wind and solar power and improving energy efficiency in buildings will also help to improve local air quality, but other measures such as biomass installations can have negative implications for air quality. However, if approached in the right way, tackling climate change can also improve air quality and closer integration between the two policies will ensure the minimisation of emissions from all development in the most cost effective way.

8 **Heating and Energy Supply**

- 8.1 The Scottish Executive is currently committed to a target of 20% of total Scottish energy use coming from renewables by 2020, and Glasgow City Council is committed to promoting and developing renewable energy.
- 8.2 Glasgow will therefore look to encourage technologies that pertain to the provision of heat such as Combined Cooling Heat and Power (CCHP), Combined Heat and Power (CHP), solar water heating, district heating, ground source/air/water source heat pumps and/or photovoltaic panels. These technologies are more efficient than gas central heating or condensing boilers and therefore reduce overall emissions and improve air quality.

9 **Biomass**

9.1 Biomass burners are marketed as being almost carbon neutral as the carbon released through the burning process is taken up again by new plants grown as future fuel for the burner. Although the Scottish Executive is promoting renewable heat technologies and encourages the adoption of biomass combustion as a heat fuel source to reduce greenhouse gas emissions and mitigate against climate change effects, it also recognises that biomass combustion could contribute to increased levels of particulate matter, and, therefore, wants to ensure that the deployment of biomass heating does not cause an unacceptable deterioration in air quality.

9.2 The use of biomass to generate energy should not have a detrimental impact on air quality, particularly where this would significantly affect public health or compromise our ability to meet legal obligations under air quality legislation. The impact on ambient air quality is likely to be especially important where:

- the proposed development is inside or adjacent to an Air Quality Management Area;
- the development could result in designation of a new Air Quality Management Area; and
- the granting of planning permission would conflict with, or render unworkable, elements of a local authority's Air Quality Action Plan.

Hence in such areas the widespread introduction of biomass burners needs to be carefully considered.

9.3 Renewable heat technologies can in fact benefit air quality in some situations. An example of where biomass installations could help improve air quality is in situations where they replace oil and coal heating. Natural gas is still the cleanest fuel to burn, but wood is generally cleaner than coal, and using modern wood fuel systems gives similar emission levels to that of fuel oil. Therefore where a modern purpose-designed wood fuelled boiler is replacing a coal or oil fired system, it would be expected that PM₁₀ emissions would decrease. However if the boiler being replaced is fired by gas, there is likely to be an increase in air pollutants.

9.4 In general, the larger the combustion unit, the easier it is to control the combustion conditions and therefore to reduce emissions. A single large boiler will tend to produce lower emissions than a series of smaller units using the same fuel and for the same energy output. The smaller the boiler the more difficult and expensive it is to fit abatement equipment; therefore good boiler design, operation and maintenance are crucial in such situations.

- 9.5 Abatement technologies for removing PM₁₀ and PM_{2.5} emissions from smaller sized biomass installations are in the early stages of development. Emissions abatement equipment is expensive, and is therefore impractical on cost grounds for smaller biomass burners. It is often the case that retrofitting will not be feasible for these systems. It is therefore expected that proven, cost-effective emission abatement technologies for biomass installations in urban areas will not be available for some time.
- 9.6 Based on current guidance from the UK Government and EPUK Scotland, Glasgow City Council has adopted the following policies with regard to biomass:
- all new biomass plant should be of high quality, corresponding to the best performing units currently on the market
 - biomass heat uptake should generally be encouraged to replace or displace existing coal and oil fired heating
 - Uptake levels of new biomass installations should be substantially lower in AQMAs and areas of known poor air quality than in other locations.
- 9.7 Biomass installations <20 MW for sites in or in close proximity to AQMAs will require to be assessed for a range of potential environmental impacts, and only approved where a detailed environmental cost benefit analysis can demonstrate an overall net positive environmental benefit.
- 9.8 Installations of >20MW will require to be assessed for the range of potential environmental impacts, and only approved where the deployment of biomass heating does not cause an unacceptable or significant deterioration in air quality.

10 **Air Quality During Construction**

- 10.1 Construction works can give rise to a number of sources of dust and particulate emissions that adversely affect air quality. These include emissions associated with mobile and stationary construction plant and also activities such as demolition, excavation, earthmoving, materials storage and movement of construction vehicles.
- 10.2 It is the responsibility of the developer to mitigate adverse impacts on air quality that may arise as a result of construction. For more detailed information regarding air quality during construction please see Glasgow City Council's 'Construction/Demolition Site Code of Practice for Dust and Emissions' which is included in Appendix 2.

11.0 **References**

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Glasgow City Council Climate Change Strategy & Action Plan

www.glasgow.gov.uk/en/Business/Environment/Sustainabledevelopment/publications.htm

Glasgow City Council City Plan 2

<http://www.glasgow.gov.uk/NR/exeres/7C484E09-CADC-427F-BF07-6665F309AF4D.frameless.htm?NRMODE=Published>

Glasgow City Council Council Plan Supplement

<http://www.glasgow.gov.uk/NR/rdonlyres/A0413564-D25D-4C04-AC18-BD9C3CE19B41/0/RisingToTheChallengeSupplement02Jul09.pdf>

Glasgow City Council Local Transport Strategy

<http://www.glasgow.gov.uk/en/Residents/GettingAround/LocalTransportStrategy/>

Scottish Executive (2006) Planning Advice Note PAN 51

<http://www.scotland.gov.uk/Publications/2006/10/20095106/0>

Scottish Government (2010) Planning Circular 1/2010: Planning Agreements

<http://www.scotland.gov.uk/Publications/2010/01/27103054/0>

Appendix 1:
Glasgow City Council
Air Quality Assessment Report Checklist

Site Name/Address
DC Application Number
Report Title
Date of Report
Developer
Consultant
Reviewing Officer
Date Reviewed

General Information

Description of development

- Nature of development
- Locality
- Number of units
- Floor space

Number of parking spaces

Energy usage details

- Source of energy
- Number of appliances

Road access details

Is the development within an AQMA?

Distance/direction of nearest AQMA

Overview/reference to relevant AQ policies and objectives?

Modelling and Data

Details of model used and reason for its appropriateness

Pollutants modelled

Details of receptors selected

Details of traffic flow & emissions data

Are other committed development taken into consideration?

Details of weather data used

Details of background source data used

Details of model data processing NO_x:NO₂ relationship

Details of any other model parameters used

Assumptions made

Details of model verification and calibration

Results

Pollution Sources

Expected changes to traffic volumes/vehicle compositions/speeds

Details of changes in emissions as a result of the development

Are the results presented

clearly and are the results reasonable?

Have construction phase impacts been assessed?

Significance

Criteria used to assess significance

Affect on AQ objectives

Terminology used

Is the assessment of significance reasonable?

Significance assessed by reviewing officer (see flowchart).

Is air quality an overriding or high priority material consideration in the planning process?

Mitigation/offsetting

Details of mitigation/low emission strategies proposed

Adequacy of proposals

Details of offsetting measures proposed

Suggested planning agreements

Climate change/air quality relationship

Officer recommendation

Appendix 2:

Glasgow City Council
Construction / Demolition Site Code of Practice
For
Dust and Emissions

1.0 Introduction

The aim of this Code of Practice is to help improve air quality within the city of Glasgow through the adoption of the best possible techniques for the control of dust emissions from construction and demolition sites.

All new developments that require planning approval may be subject to the requirements of this Code of Practice. It is important that site developers discuss the on-site activities and agree the level of controls which will be put in place prior to planning permission being granted. Therefore this document should be taken into account by developers and their consultants when proposing developments within the city.

This document should be used by developers, environmental consultants, local authority officers and any other parties involved in the construction and demolition process.

This document should be used in conjunction with “Glasgow City Council Air Quality Supplementary Planning Guidance” to ensure that air quality considerations are taken into account in the planning process.

1.1 Air Pollutants from Construction

Construction activities can give rise to a number of sources of dust and emissions. For the purposes of this document the following definitions of particles shall be used:

Dust – all particulate matter up to 75µm in diameter (according to BS6069) and comprising both suspended and deposited dust.

PM₁₀ – a mass fraction of airborne particles with a diameter of 10 µm or less.

Most dust particles are too big to be inhaled into the deeper parts of the lungs but can cause eye, nose and throat irritation and lead to deposition on cars, windows and properties. PM₁₀ particles are small enough to enter the deeper parts of the lungs, causing breathing and respiratory problems, with long term health effects dominated by cardiovascular rather than respiratory problems.

2.0 Impact Identification

The main impact of dust arising from construction sites is that of soiling as a result of dust deposition. Dust emissions from construction sites are highly dependant on the nature of the site and the level of controls applied at source. Stringent dust controls will be required to avoid soiling of adjacent properties and these are discussed later in this document.

Emissions from road vehicles are a major contributor to urban air pollution levels. Construction work leads to increased traffic movement both at the development site and on the surrounding road network. The vehicles involved are mainly lorries and other heavy vehicles, which generally emit significantly more pollutants, in particular PM₁₀, than other forms of road transport.

Generally there are two potentially significant sources of emissions that can adversely affect air quality:

- Coarse and fine dust from construction activities including demolition, excavation, earthmoving, materials storage and movement of construction vehicles
- Construction plant, both mobile and stationary

2.1 Site Evaluation

The size and scale of the development heavily influences the need and ability of the developers to deploy effective control measures. The Greater London Authority (GLA) Best Practice Guidance consolidates existing guidance on emissions from construction and demolition activities and takes into account the latest best practice and new techniques. The guidance provides a method for undertaking a qualitative Air Quality Impact Evaluation, whereby a site is evaluated and mitigation measures adopted dependent on the classification of the site risk (high, medium or low risk). The guidelines are detailed in the table below.

Low Risk Sites
<ul style="list-style-type: none">• Development of up to 1000 square metres of land or;• Development of up to one property and up to a maximum of ten or;• Potential for emissions and dust to have an infrequent impact on sensitive receptors
Medium Risk Sites
<ul style="list-style-type: none">• Development of between 1000 and 15000 square metres of land or;• Development of between 10 to 150 properties or;• Potential for emissions and dust to have an intermittent or likely impact on sensitive receptors
High Risk Sites
<ul style="list-style-type: none">• Development of over 15000 square metres of land or;• Development of over 150 properties or;

- | |
|--|
| <ul style="list-style-type: none">• Potential for emissions and dust to have a significant impact on sensitive receptors |
|--|

The potential for a demolition or construction site to impact at sensitive receptors is dependent on many factors, including the following:

- Location of the building site
- Proximity of sensitive receptors
- Whether demolition will need to take place
- Extent of any intended excavation
- Nature, location and size of any stockpiles and the length of time they are to be on-site
- Occurrence and scale of dust generating activities – including cutting, grinding and sawing
- Number and type of vehicles and plant required on-site
- Potential for dirt and mud to be made airborne through vehicle movements
- Weather conditions

3.0 Mitigation Measures

Prior to commencement of any on-site works, the developer should assess the risk level associated with the development based on the criteria in the previous section. Once the risk level is identified it is recommended that the following methods be used to mitigate adverse impacts on air quality.

3.1 Low Risk Sites

Those sites which are regarded as small risk will be smaller developments (up to 1000 square metres with the potential for an infrequent impact on sensitive receptors) should observe the following best practice measures:

Planning

- Barriers should be erected around dusty activities or the site boundary
- Waste materials should be removed from the site in an appropriate way and not burnt on site
- Site should be laid out in such a way as to maximise the distance to any sensitive receptors

Construction Traffic

- No idling vehicles – engines should be switched off when not in use for a period of more than a few minutes
- Vehicles to be cleaned effectively before leaving the site if exposed to significant soiling (wheel washes etc.)
- Potentially dusty loads to be covered when entering or leaving the site
- Prevent site runoff of water or mud

Demolition

- Water to be used as a dust suppressant where appropriate
- Cutting equipment to use water as a suppressant or other suitable system
- Skips to be securely covered and drop heights minimised or covered chutes used

3.2 Medium Risk Sites

Those sites which are regarded as medium risk will be developments between 1000 and 15000 square metres with the potential for an intermittent or likely impact on sensitive receptors. They should observe the following best practice measures:

Planning

- Solid barriers should be erected to the site boundary
- Waste materials should be removed from the site in an appropriate way and not burnt on site
- Machinery and dust causing activities should be located away from sensitive receptors
- Hard surface site haul routes

Construction Traffic

- No idling vehicles – engines should be switched off when not in use for a period of more than a few minutes
- Vehicles to be cleaned effectively before leaving the site (wheel washes etc.)
- All loads to be covered when entering or leaving the site
- Prevent site runoff of water or mud
- Haul routes to be cleaned effectively

Demolition Works

- Water to be used as a dust suppressant
- Cutting equipment to use water as a suppressant or other suitable system
- Skips to be securely covered and drop heights minimised or covered chutes used
- Wrap buildings to be demolished

Site Activities

- Minimise dust generating activities
- Water to be used as a dust suppressant where applicable
- Enclose stockpiles or keep them securely sheeted
- If applicable, ensure concrete crusher or concrete batcher has permit to operate

3.3 High Risk Sites

Those sites which are regarded as high risk will be developments of over 15000 square metres or of over 150 properties with the potential to have a significant impact on sensitive receptors. They should observe the following best practice measures:

Planning

- Solid barriers should be erected to the site boundary
- Waste materials should be removed from the site in an appropriate way and not burnt on site
- Machinery and dust causing activities should be located away from sensitive receptors
- Hard surface site haul route
- Trained and responsible manager to be on-site during working times to maintain logs and carry out inspections
- Real time dust monitoring may be required (extent and scope to be agreed in advance with Glasgow City Council)

Construction Traffic

- No idling vehicles – engines should be switched off when not in use for a period of more than a few minutes
- Vehicles to be cleaned effectively before leaving the site (wheel washes etc.)
- All loads to be covered when entering or leaving the site
- Prevent site runoff of water or mud
- Haul routes to be cleaned effectively
- Construction traffic movement around site to be kept to a minimum

Demolition Works

- Water to be used as a dust suppressant
- Cutting equipment to use water as a suppressant or other suitable system
- Skips to be securely covered and covered chutes used
- Wrap buildings to be demolished

Site Activities

- Minimise dust generating activities
- Water to be used as a dust suppressant where applicable
- Cover, seed or fence stockpiles to prevent wind whipping
- Re-vegetate earthworks or exposed areas
- If applicable, ensure concrete crusher or concrete batcher has permit to operate

All mitigation measures may not be appropriate for individual sites. The scope of mitigation should be agreed with the local authority prior to work commencing.

Environmental Health & Trading Standards
Land & Environmental Services
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