



Subject:	Local Air Quality Management Update for Belfast.
Date:	8 th October 2019
Reporting Officer:	Nigel Grimshaw, Strategic Director of City and Neighbourhood Services
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Restricted Reports	
Is this report restricted?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If Yes, when will the report become unrestricted?	
After Committee Decision	<input type="checkbox"/>
After Council Decision	<input type="checkbox"/>
Some time in the future	<input type="checkbox"/>
Never	<input type="checkbox"/>

Call-in	
Is the decision eligible for Call-in?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

1.0	Purpose of Report or Summary of main Issues
1.1	<p>At the People and Communities Committee meeting of 6th August 2019, a Member advanced a Notice of Motion concerning ambient air quality for the city. Actions arising from the Notice of Motion included that the council would agree to engage formally with the Department of Agriculture, Environment and Rural Affairs (DAERA) and the Department for Infrastructure (DfI) on areas of concern and to produce reports on:</p> <ul style="list-style-type: none">• Enhancing monitoring and reporting of air pollution, including recommended limits in line with the more stringent World Health Organisation Standards; and• Introducing a Clean Air Zone in Belfast, in line with UK Government Guidance.

1.2	This report serves to provide an interim response to the Committee in respect of enhancing the council's current monitoring and reporting of air pollution and regarding the introduction of a Clean Air Zone (CAZ) for Belfast. This interim report has been provided as an update on monitoring and CAZs and in advance of any direct engagement with DAERA or DfI.
2.0	Recommendations
2.1	<p>The Committee is asked to;</p> <ul style="list-style-type: none"> • Consider the contents of the report and to agree that recommendations regarding the adoption of WHO air quality standards and Clean Air Zone / Low Emission Zone legislation should be formally provided to DAERA and DfI as part of the council's consultation response to the forthcoming DAERA Air Quality Strategy for Northern Ireland.
3.0	Main report
3.1	<p><u>Key Issues.</u></p> <p>Current national statutory obligations in respect of ambient air quality management are broadly established through the requirements of Directive 2008/50/EC on ambient air quality and cleaner air for Europe as well as the 4th Daughter Directive. The 2008 Directive includes detailed requirements for ambient air quality monitoring, monitoring locations and reference monitoring methodologies for sulphur dioxide, nitrogen dioxide, oxides of nitrogen, carbon monoxide, benzene, particulate matter (both PM₁₀ and PM_{2.5} fractions), lead and ozone. Limit values for these pollutants have been established with regard to World Health Organisation standards, guidelines and programmes.</p>
3.2	<p>The numerous European ambient air quality management requirements have been transcribed into Northern Ireland legislation via Part III of the Environment (Northern Ireland) Order 2002, the Air Quality Standards Regulations (Northern Ireland) 2010 and supporting statutory policy and guidance. Part III of the Environment (NI) Order 2002 places a duty upon councils to periodically review and assess ambient air quality within their districts in order to determine the likelihood of achieving national air quality objectives by relevant compliance dates. These national objectives are broadly analogous to the various EC limit values detailed within the 2008 Directive. The council conducted its first review and assessment of ambient air quality for the city in 2003 and as a consequence, declared four Air Quality Management Areas (AQMA) in 2004 for exceedences of nitrogen dioxide and particulate matter objectives. These AQMAs were all declared around arterial road transport routes into and out of the city and source apportionment subsequently revealed that the exceedences were principally connected with road transport emissions. Since this first review and assessment, the council has developed a series of Air Quality</p>

Action Plans with partner organisations including DfI, Translink, the Freight Transport Association, the Road Haulage Association and Sustrans. Members will be aware that DfI has responsibility for public transport, roads, road improvement schemes and active travel, etc. The council has also completed a series of further review and assessments, updating and screening assessments and progress reports in order to monitor progress towards achieving the air quality objectives. Particulate matter concentrations have declined over recent years to the extent that only pollutant of present concern is nitrogen dioxide.

3.3 In order to accurately measure compliance with the objectives for nitrogen dioxide, the council has installed a series of real time analysers across the city within our AQMAs and within the city centre at Lombard Street. These real time monitoring sites have been located so as to comply with the requirements of European legislation and the government's local air quality management technical guidance (LAQM.TG(16)). The Lombard Street monitoring site is classified as an urban background site and is therefore not influenced significantly by any single source or road, but rather by the integrated contribution from all sources upwind of the site. This site therefore provides an indication of the underlying levels of air pollution to which residents and workers within the city centre are likely to be exposed. The other monitoring sites for nitrogen dioxide are located within our AQMAs at the Ormeau Road, Upper Newtownards Road, Stockmans Lane and Roden Street. These sites are classified as roadside and are therefore representative of 'worst case' nitrogen dioxide concentrations. It should be noted however, that nitrogen dioxide concentrations are known to drop off rapidly with distance from the kerbside.

3.4 These automatic monitors are augmented by a series of around 60 nitrogen dioxide diffusion tubes located at relevant receptor locations across the city. Diffusion tubes are passive samplers consisting of small plastic tubes containing a chemical reagent to absorb the nitrogen dioxide directly from the air. Due to their size, diffusion tubes can be located on the façades of homes and can therefore provide an assessment of nitrogen dioxide concentrations where people live. Automatic analysers have to be located within a special air conditioned enclosure and can therefore only be installed in limited locations. Moreover, diffusion tubes typically cost around £10 per tube whereas a nitrogen dioxide automatic analyser and enclosure may cost upwards of £20,000 to install. Current locations of our diffusion tubes and automatic analysers are summarised in the council's 2019 Progress [Report](#) that has recently been technically appraised and accepted by DAERA. As advised previously, all of our diffusion tubes and automatic analysers have been located so as to

	<p>take account of the government's Local Air Quality Management Technical Guidance (LAQM.TG(16)).</p>
3.5	<p>LAQM.TG(16) highlights that most local authorities have progressively adapted their monitoring strategy in accordance with air quality issues specific to their administrative area. Defra has also advised that over the years, many local authorities have relocated kerbside monitoring sites to roadside or other sites relevant to public exposure. Monitoring networks have also been progressively extended to identify all potential hot spots, whilst a number of sites have been moved elsewhere or closed in areas where data showed continued compliance. Defra has therefore concluded that the existing monitoring network for most local authorities has been appropriately adapted to respond to all LAQM requirements.</p>
3.6	<p>Members are advised that this adaption approach has been applied to the council's ambient air quality monitoring. It is considered therefore that the current locations of the automatic analysers are appropriate to assess nitrogen dioxide concentrations within the AQMAs. Additional nitrogen dioxide monitoring data is provided through the use of diffusion tubes both within and outside of the AQMAs. The locations of existing diffusion tubes and the need for additional monitoring are periodically reviewed in light of monitoring data, emerging monitoring trends and any significant changes in road transport conditions across the city.</p>
3.7	<p>Members are also advised that the cost of the council's air quality monitoring is presently partly funded via the DAERA local air quality management grant. Monitoring not complying with the government's technical requirements would be unlikely to be funded by DAERA and the purchase, installation, ongoing operation and maintenance costs of additional monitoring equipment would likely have to be fully borne by the council.</p>
3.8	<p>The Notice of Motion also makes mention of the application of more stringent WHO limits. It should be noted that the WHO published air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide via a 2005 global update. The WHO has stated that the 2005 update represents the most current assessment of air pollution health effects, based on an expert evaluation of the scientific evidence. For nitrogen dioxide, the WHO has proposed a 200 $\mu\text{g}\text{m}^{-3}$ 1-hour mean and a 40 $\mu\text{g}\text{m}^{-3}$ annual mean; equivalent in concentration to European and national air quality standards. WHO has also recommended a 24-hour mean of 20 $\mu\text{g}\text{m}^{-3}$ and a 10-minute mean of 500 $\mu\text{g}\text{m}^{-3}$ for sulphur dioxide</p>

	<p>whereas the UK and EC have applied a 15 minute mean of 266 $\mu\text{g}\cdot\text{m}^{-3}$, a 1-hour mean of 350 $\mu\text{g}\cdot\text{m}^{-3}$ and a 24-hour mean of 125 $\mu\text{g}\cdot\text{m}^{-3}$ for sulphur dioxide. There have been no exceedances of any sulphur dioxide standards in Belfast since before 2000.</p>
3.9	<p>The WHO has also advanced an annual mean of 20 $\mu\text{g}\cdot\text{m}^{-3}$ and a 24-hour mean of 50 $\mu\text{g}\cdot\text{m}^{-3}$, assessed as the 99th percentile for PM₁₀ whereas the EC and UK have adopted a 40 $\mu\text{g}\cdot\text{m}^{-3}$ annual mean and a 24-hour mean of 50 $\mu\text{g}\cdot\text{m}^{-3}$ assessed as the 90.4th percentile. Annual mean PM₁₀ concentrations measured at the Belfast Centre and Stockmans Lane sites during 2018 were 16 $\mu\text{g}\cdot\text{m}^{-3}$ and 15 $\mu\text{g}\cdot\text{m}^{-3}$ respectively. For PM_{2.5}, the WHO has recommended an annual mean of 10 $\mu\text{g}\cdot\text{m}^{-3}$ and a 24-hour mean of 25 $\mu\text{g}\cdot\text{m}^{-3}$, assessed as the 99th percentile. For PM_{2.5}, the UK has adopted an annual target of 25 $\mu\text{g}\cdot\text{m}^{-3}$ to be achieved by 2020, although this target has not been included by DEARA within council air quality management obligations. However, it is understood that the forthcoming UK Environment Bill 2019 will enshrine World Health Organisation (WHO) limits for particulate matter in UK law It should however, be noted that Belfast City Council monitors PM_{2.5} concentrations at the Belfast Centre Lombard Street site. In 2018, the PM_{2.5} annual mean was 10 $\mu\text{g}\cdot\text{m}^{-3}$ and the maximum daily mean was 39 $\mu\text{g}\cdot\text{m}^{-3}$. PM_{2.5} concentrations at Stockmans Lane are likely to be similar.</p>
3.10	<p>In the UK, it has been agreed that responsibility for meeting air quality limit values has been devolved to the national administrations in Scotland, Wales and Northern Ireland. Accordingly, it is understood that DAERA will shortly consult upon a Northern Ireland specific Air Quality Strategy. As part of that consultation process, the council will have the opportunity to provide a detailed consultation response, including recommendations for enhanced air quality standards and monitoring, in fulfilment of the requirements of the Notice of Motion.</p>
3.11	<p>In May 2017, government published the Clean Air Zone Framework for England. Whilst this framework applies only in England, similar Low Emission Zone legislation has been introduced in Scotland. Clean Air Zones (CAZs) are designed to deliver immediate action to improve air quality and health with support for cities to grow whilst delivering sustained reductions in pollution and a transition towards a low emission economy. Where the most persistent pollution problems exist, CAZs enable control to be introduced to encourage only the cleanest vehicles to operate within the CAZ. There are two types of CAZ; (i) non-charging – a defined geographic area used as a focus for improving air quality where actions include the use of non-charged based access restrictions such as setting minimum</p>

emission standards, better land use planning, better traffic management, better fleet procurement, working with businesses to recognise and incentivise action and accelerating the transition towards a low carbon economy and accelerating the uptake of Ultra-Low Emission Vehicles; and (ii) charging – zones where, in addition to the above measures, vehicle owners are required to pay a charge to enter, or move within, a zone if they are driving a vehicle that does not meet the particular standard for their vehicle type within that zone.

3.12 Within Belfast, the current principal area of concern for nitrogen dioxide remains the M1 Motorway and A12 Westlink corridor to include areas around the Stockmans Lane roundabout and York Street. Members will be aware that this route forms part of the Regional Strategic Transport Network, connecting the M1 Motorway to the M2 and M3 motorways and that DfI has published plans to significantly re-engineer the York Street Interchange to ease congestion.

3.13 Where CAZs or LEZs have been introduced in other cities, they have typically either excluded or charged vehicles to enter, based upon the cleanliness of their tailpipe emissions. It is considered that before a CAZ or LEZ could be justified for the M1 Motorway and A12 Westlink corridor, a detailed analysis of the composition of vehicles using the strategic network corridor would have to be undertaken in order to determine whether elevated nitrogen dioxide pollution levels are due to a particular type or Euro class of vehicle or simply due to overall vehicle numbers using this part of the Regional Strategic Transport Network. Moreover, the impact of any vehicle controls to be applied to the M1 Motorway / A12 Westlink corridor would have to be carefully considered in terms of the continuing functionality of the strategic network and in order to ensure that such controls did not simply encourage vehicles to divert through adjacent residential neighbourhoods or through other areas of the city. As highlighted earlier within this report, it is understood that DAERA will shortly consult upon a Northern Ireland specific Air Quality Strategy. It is considered that this consultation exercise will provide an opportunity for the Council to make recommendations to DAERA concerning the need for Clean Air Zone / Low Emission Zone provisions for Belfast and Northern Ireland.

Financial & Resource Implications

3.14 There would be procurement, operational and maintenance costs, as well as staff cost, if the council were to increase its ambient air quality monitoring across the city. As no such

3.15	<p>financial provisions exist within current budgets, monies to cover these additional costs would likely have to be generated from ongoing efficiencies within existing budgets.</p> <p><u>Equality or Good Relations Implications / Rural Needs Assessments</u></p> <p>None.</p>
4.0	Appendices – Documents Attached
	None.