



# Carlisle City Council

## Report to Health and Wellbeing Scrutiny Panel

Meeting Date: 25 November 2021  
Portfolio: Environment and Transport  
Key Decision: No.  
Policy and Budget Framework: No.  
Public / Private: Public

Title: Local Air Quality update  
Report of: Corporate Director Governance and Regulatory Services  
Report Number: GD.83/21

### **Purpose / Summary:**

A report informing the Panel of the latest review and assessment of air quality in the District. The report discusses the 4-declared air quality management areas (AQMAs) and the most recent data from the Annual Status Report 2021, which covers data collected during 2020.

### **Recommendations:**

1. Consider the most recent air quality monitoring data.

### **Tracking**

Executive:	N/A
Scrutiny:	<b>25 November 2021</b>
Council:	N/A

## **1.0 Introduction**

- 1.1 Local authorities have a major role to play in monitoring and improving air quality. The Environment Act 1995 included the responsibilities of local authorities to actively review and assess potential concentrations and sources of air quality pollutants. The 2019 Clean Air Strategy<sup>1</sup> sets out the case for action, with goals even more ambitious than EU requirements, to reduce exposure to harmful pollutants. The Road to Zero<sup>2</sup> sets out the approach to reduce exhaust emissions from road transport through several mechanisms.
- 1.2 Monitored air pollution levels are steadily declining, year on year in Carlisle. Our extensive monitoring programme has shown that Nitrogen Dioxide (NO<sub>2</sub>) is the only health pollutant of concern. There are four localised areas, where levels are exceeding or could potentially exceed the national objective level. In these areas Air Quality Management Areas (AQMA's) have been declared.
- 1.3 In declaring Air Quality Management Areas, the Council is obliged to produce an Action Plan, that sets out the measures that it, and its partners, intend to take to reduce NO<sub>2</sub> concentrations.
- 1.4 The annual air quality assessments and Action Plan 2021 were undertaken by Carlisle City Council's Environmental Health service and can be viewed on the City council's website:  
[http://www.carlisle.gov.uk/environment\\_and\\_waste/environmental\\_health/air\\_quality/air\\_quality\\_documents.aspx](http://www.carlisle.gov.uk/environment_and_waste/environmental_health/air_quality/air_quality_documents.aspx)

## **2.0 Air Quality Management Areas (AQMA) update**

- 2.1 Between 2005-08 a total of six Air Quality Management Areas were declared in Carlisle due to annual average concentrations of Nitrogen Dioxide (NO<sub>2</sub>), which exceeded the national objective. Nitrogen Dioxide in the District primarily caused by motor vehicle exhaust emissions. In 2019 the AQMA's were reduced to four. AQMA 3 and 6 have been revoked, due to improvements in air quality. AQMA 1 was also significantly reduced in size. It now includes just an area extending for approximately 100 m from the Stanwix Bank junction (A7) along Brampton Road including properties 1 to 17 on Brampton Road.
- 2.1.2 The monitoring data shown below for 2020 is artificially low due to the Covid-19 lockdowns and the associated reduction in traffic and commercial activity.

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<sup>1</sup> Defra. Clean Air Strategy, 2019

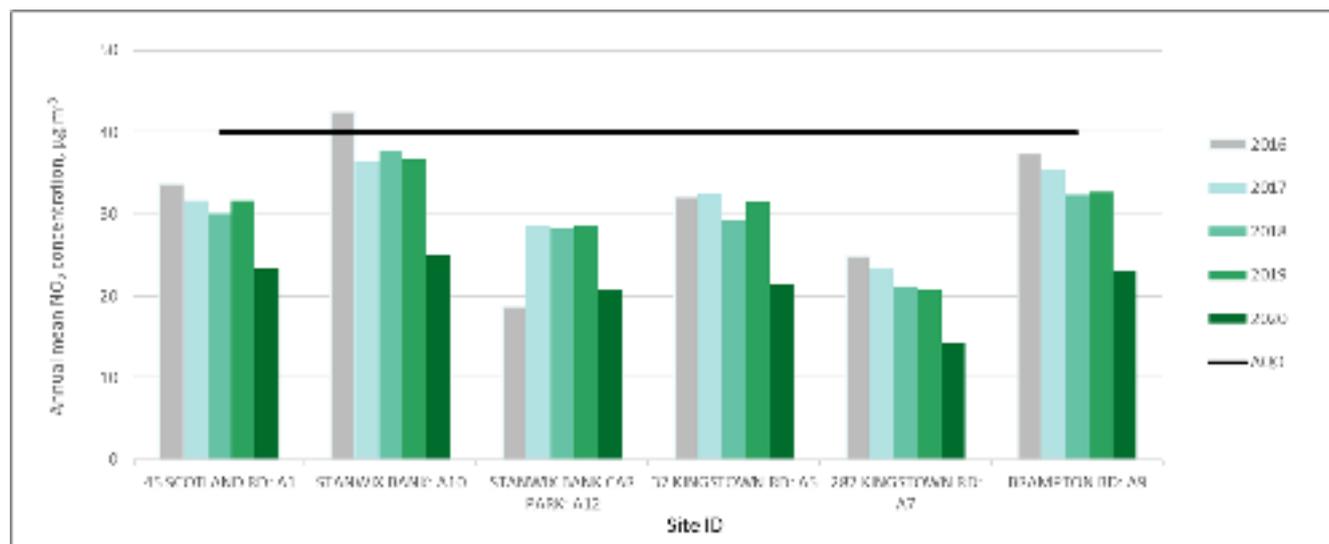
<sup>2</sup> DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

The national annual average objective level for NO<sub>2</sub> is 40 µg m<sup>-3</sup>. This is shown by the horizontal line on each chart.

## 2.1 AQMA 1:

Brampton Road: Concentrations continue to steadily reduce. There was a marked reduction after 2012, which can be attributed to the opening of the Carlisle Northern Development Route. The concentration for 2020 was 23.0 µg m<sup>-3</sup>.

**Figure 1 - Trends in annual mean NO<sub>2</sub>: along A7**



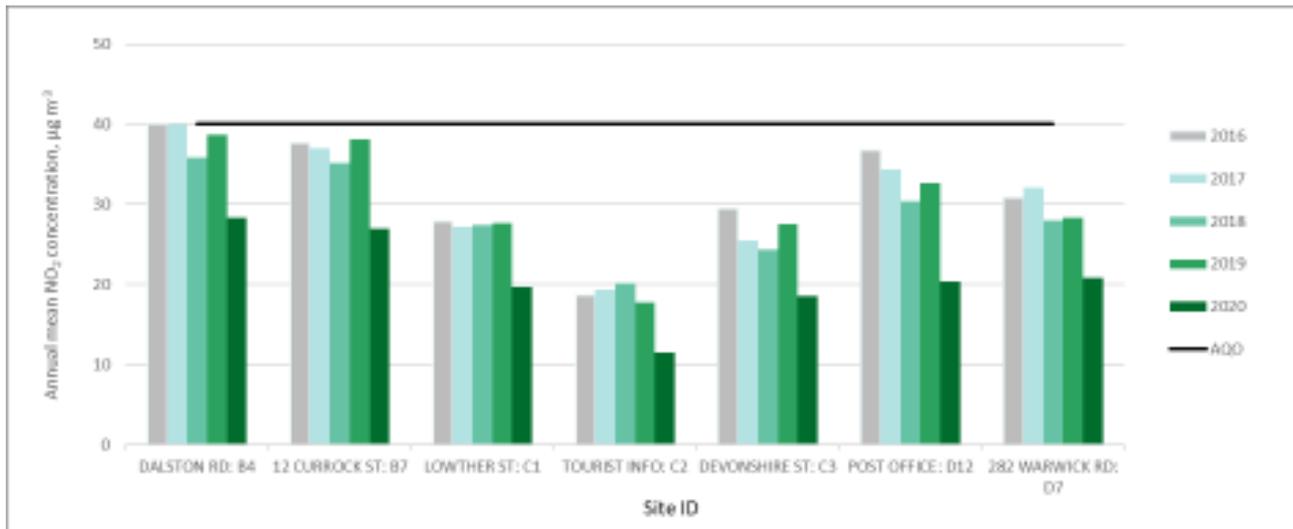
## 2.2 AQMA 2:

Currock Street: Concentrations continue to steadily reduce and remain below the annual objective concentration. However, concentrations remain close to the objective level. The concentration for 2020 was 27 µg m<sup>-3</sup>. (See figure 2 below for monitoring data).

## 2.3 AQMA 5:

Dalston Road: There was step down in concentration, from 2012 to 2013, which is attributed to the completion of the Carlisle Northern Development Route. Concentrations remain close to the objective level. The concentration for 2020 was 28 µg m<sup>-3</sup>.

**Figure 2** Trends in annual mean NO<sub>2</sub>: for sites in city centre and within AQMA 2 and AQMA 5



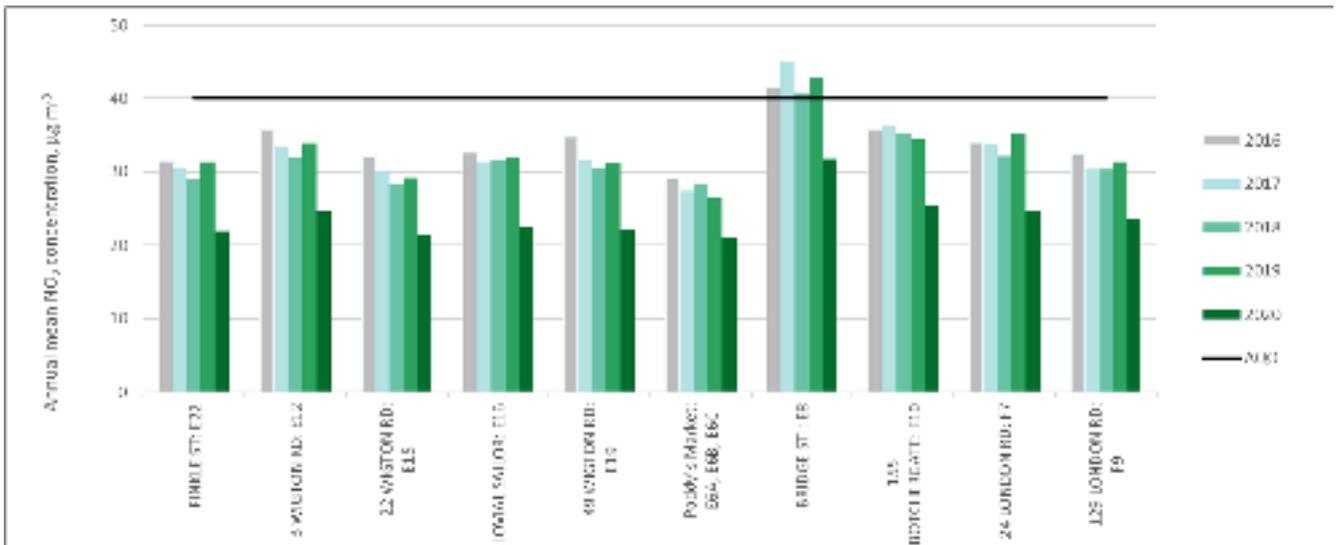
## 2.4 AQMA 4

2.4.1 Bridge Street: This location is adjacent to the main crossroad junction at Sainsburys Supermarket, near Caldewgate. This is our main area of concern at the current time. It is the only area which consistently exceeds the national objective level for NO<sub>2</sub>, based on (pre covid) 2019 data.

2.4.2 We are currently awaiting a response from Cumbria County Council, Highways Department, regarding the possible reconfiguration of traffic signalling at this junction. The aim is to reduce emissions from stop start vehicles travelling west to east over the Caldew bridge toward the castle. The data suggests that this could be achievable, by modification of traffic management, in order to increase average traffic speed. This is a priority measure which is included in our Action Plan and will require some initial investment.

2.4.3 In this location the concentrations are consistently above the objective level (pre covid). The concentration for 2020 was 31 µg m<sup>-3</sup>.

**Figure 3** Trends in annual mean NO<sub>2</sub>: along Wigton Road and **Bridge Street**.



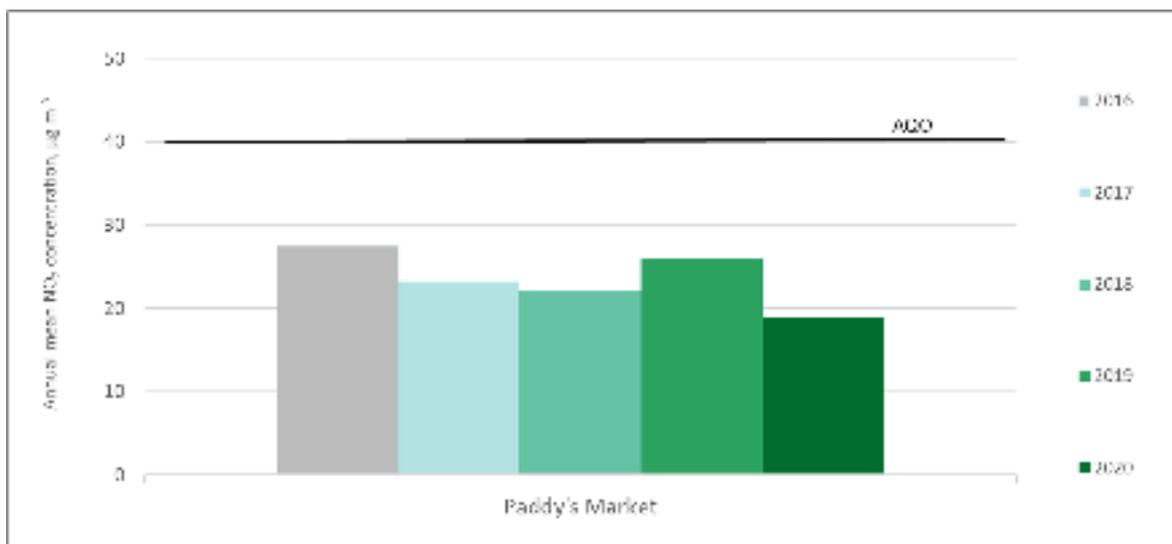
### 2.5 Continuous Monitoring Data from Paddys Market

Continuous monitoring was undertaken for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> at Paddys Market. This location is directly opposite Bridge Street. The data collected has a high level of accuracy which was contributed to the national air quality networks.

#### NO<sub>2</sub>

The Monitored NO<sub>2</sub> concentrations at Paddy's Market automatic monitoring stations is consistently below the objective concentrations. (See fig 4 below)

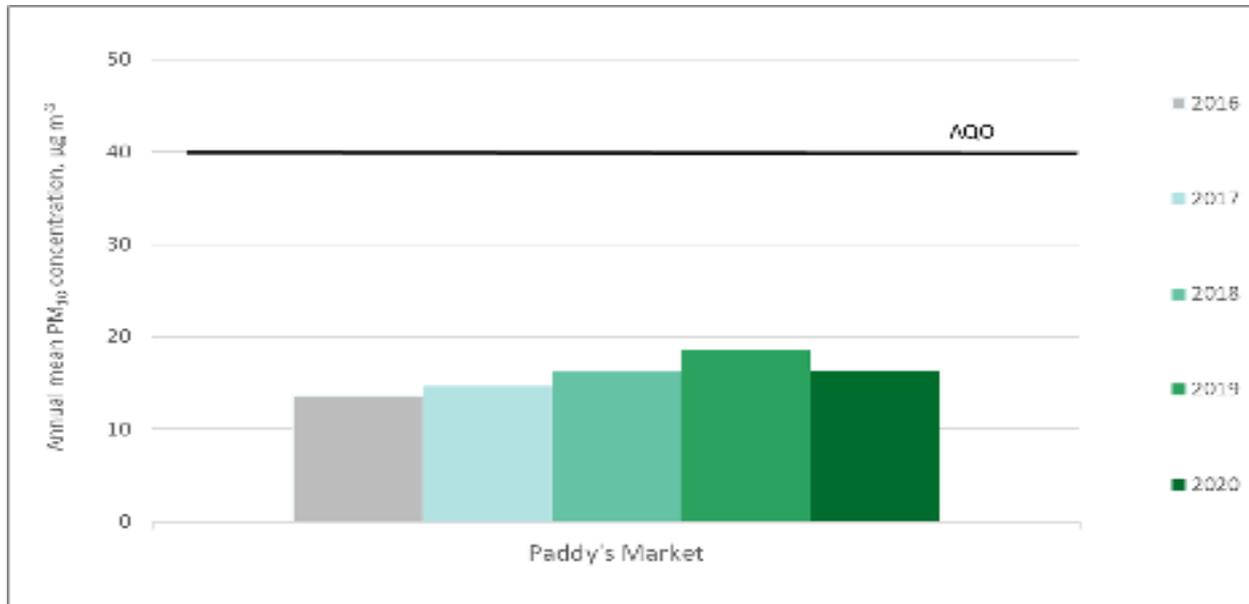
**Figure 4.** Trends in Annual Mean NO<sub>2</sub> Concentrations: Automatic monitoring at Paddy's Market



## PM<sub>10</sub>

- There were no exceedances of the air quality objectives for PM<sub>10</sub>. Levels are still well below the national objective. (See fig 5 below)

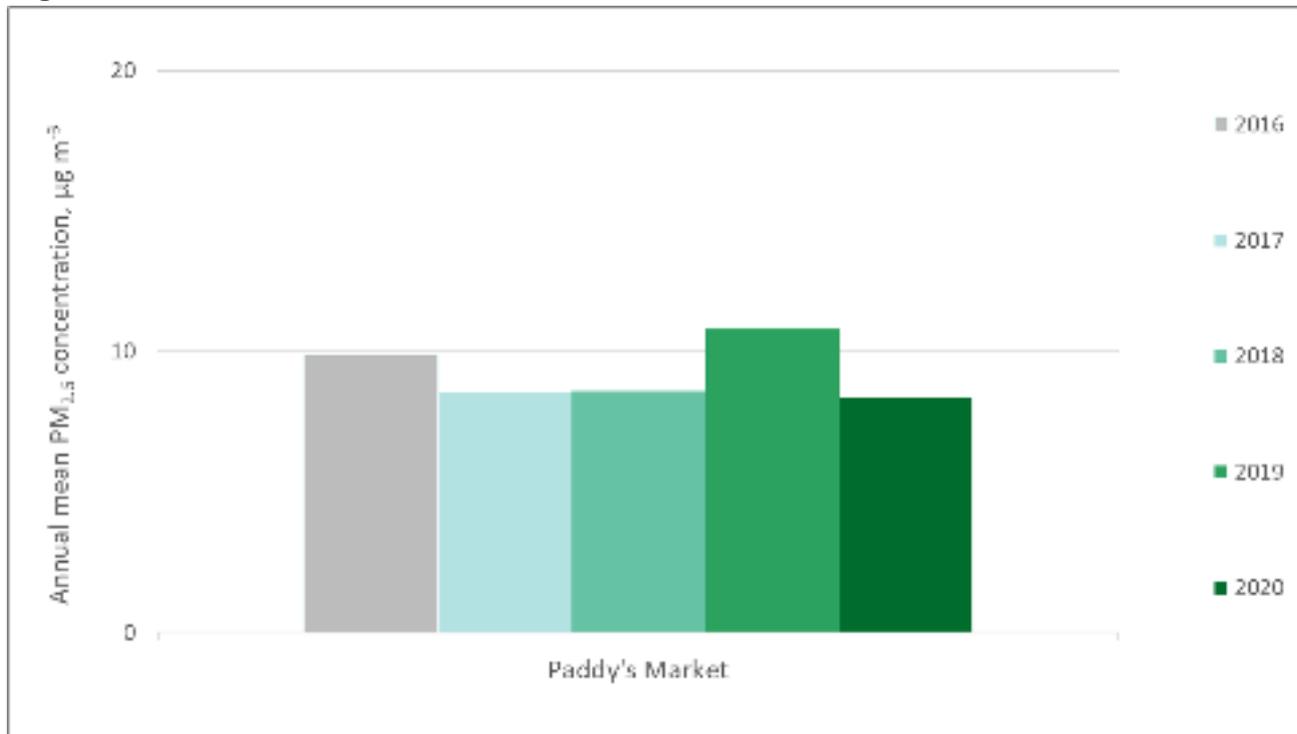
**Figure 5;** Trends in annual mean PM<sub>10</sub> concentrations (2020)



## PM<sub>2.5</sub>

- Over the last 5 years, the concentrations remain low and stable. PM<sub>2.5</sub> concentrations are monitored to ensure they do not increase in future years. (See fig 6 below)

**Figure 6,** Trends in Annual Mean PM<sub>2.5</sub> Concentrations



### **3.0 Air Quality Monitoring Station Relocation**

3.1 The national air quality monitoring station is operated in conjunction with DEFRA and the Environment Agency. This was relocated from Paddy's Market Car park in summer 2021. This was due to technical issues with the location and the parameters required for the optimum accuracy of data. Officers worked through 2020 to find potential site solutions for the relocation. After several feasibility studies by the technical engineers, the final relocation site was selected. The unit is now located in Morton Manor Community Centre carpark, next to the A595 on Wigton Road.

### **4.0 Air Quality Improvements due to the Coronavirus lockdowns**

- 4.1 It has been well reported in the media that the nationwide shutdown, caused by the coronavirus pandemic, has led to a decrease in air pollution across the UK. This was also the case in Carlisle.
- 4.2 An assessment was carried out in each of our AQMAs to quantify the impact of Covid. The monthly NO<sub>2</sub> concentrations over the previous four-year period were averaged and compared to 2020 concentrations. The data revealed that in each AQMA the largest change in concentration occurred in April (this was about 60 % reduction in AQMA 1). There was another large decrease in November (about 40 % reduction in AQMA 1).
- 4.3 The average decrease in NO<sub>2</sub> during 2020, throughout the whole Council area, was around 30 %. The largest decrease (40 %) occurred at the Tourist Information Office, located directly in the city centre, and the smallest (20 %) at Stanwix Bank Car Park.
- 4.4 The full assessment of the impact on Covid-19 on NO<sub>2</sub> concentrations can be found in the Annual Screening Assessment. 2021, on the council's website.
- 4.5 It is expected that NO<sub>2</sub> will return to pre Covid-19 concentrations within 2021 or 2022. As a result, it is too early to consider changing the AQMAs within Carlisle City Council.

### **5.0 RISKS**

5.1 Report provided at the request of the Health and Wellbeing Scrutiny Panel.

### **6. CONSULTATION**

6.1 Report provided at the request of the Health and Wellbeing Scrutiny Panel.

## 7. CONCLUSION AND REASONS FOR RECOMMENDATIONS

- 7.1 Air quality is extremely important for our residents and visitors to the area. Air pollution is associated with adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues. Areas with poor air quality are often less affluent areas<sup>3,4</sup>. The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages<sup>5</sup>, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017<sup>6</sup>.
- Our monitoring data confirms that all pollutant concentrations are below the national objective levels. Carlisle complies with both the UK standards and the World Health Organisation guidelines for particulate matter. There are four small areas where NO<sub>2</sub> has the potential to exceed national guidelines, which we are working to improve.
- 7.2 Air quality will continue to be monitored in the District and focussed on those areas which are most likely to require intervention.

## 8. CONTRIBUTION TO THE CARLISLE PLAN PRIORITIES

- 8.1 The proposals will help support the Carlisle Plan priority to: Continue to improve the quality of our local environment and green spaces so that everyone can enjoy living, working in and visiting Carlisle: By continuing to monitor NO<sub>x</sub> and other pollutants we continue to ensure that where necessary steps are taken to ensure air quality is highlighted for improvement.

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**Note: in compliance with section 100d of the Local Government (Access to Information) Act 1985 the report has been prepared in part from the following papers:**

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<sup>3</sup> Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

<sup>4</sup> Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>5</sup> Defra. Air quality appraisal: damage cost guidance, July 2020

<sup>6</sup> Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

- **None**

## **CORPORATE IMPLICATIONS:**

**Legal** – Section 82 of the Environment Act 1995 provides that every local authority shall review the air quality within its area. Section 83 requires local authorities to designate air quality action areas where air quality objectives are not being achieved. Section 84 requires a local authority to carry out an assessment and then develop an Action Plan for the air quality management area. Where the Secretary of State is not satisfied that an authority has adequately discharged its duties, he may issue a direction to the authority under section 85 requiring it to prepare an action plan, or to modify an existing action plan.

**Property services** – No property implications

**Finance** – The monitoring of local air quality is contained within the Council's base budgets

**Equality** – As stated in the report, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues.

**Information Governance** – None