

CABINET MEETING: 21 NOVEMBER 2019

**LOCAL AIR QUALITY MANAGEMENT – CARDIFF COUNCIL AIR
QUALITY ANNUAL PROGRESS REPORT 2019**

**STRATEGIC PLANNING & TRANSPORT (COUNCILLOR CARO
WILD)**

AGENDA ITEM: 11

Reason for this Report

1. The purpose of this report is to seek approval for the 2019 Cardiff Council (CC) Local Air Quality Management (LAQM) Annual Progress Report (APR) based upon on air quality datasets obtained in 2018. This report requires Cabinet to approve and recommend the finalisation of the 2019 Annual Progress Report for submission to Welsh Government for approval.

Background

2. Under Section 82 of the Environment Act 1995 every local authority has an obligation to regularly review and assess air quality in their areas, and to determine whether or not air quality objectives to protect health are likely to be achieved. Where the air quality reviews indicate that the air quality objectives are not being achieved, or are not likely to be achieved, Section 83 of the 1995 Act requires local authorities to designate an Air Quality Management Area ('AQMA'). Section 84 of the Act ensures that action must then be taken at a local level which is outlined in a specific Air Quality Action Plan (AQAP) to ensure that air quality in the identified area improves.
3. The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138) and Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298).
4. The Annual Progress Report provides details on the ratified data for air quality monitoring undertaken in 2018 within the Cardiff Council area.
5. Welsh Government issue statutory policy guidance to Local Authorities under section 88 of the Environment Act 1995 to bring the local air quality management system in Wales into line with the sustainable development principle outlined in Welsh Government's Well-being for Future Generations legislation, 2015. This guidance, with which local authorities

must have regard to when carrying out their air quality functions under the Environment Act 1995, sets out that authorities in Wales have to produce an Annual Progress Report in **draft** by 30th September each year and publish it by 31st December at the latest. This report must include monitoring results for the previous calendar year, a progress report on action plan implementation and an update on any new policies or developments likely to affect local air quality.

6. This Annual Progress Report satisfies the above criteria examining ratified datasets for air quality monitoring undertaken in 2018 within the Cardiff Council area.
7. Poor air quality is now considered the largest environmental risk to public health in the UK.¹ There is clear scientific evidence that shows that air pollution exposure reduces life expectancy by increasing mortality and morbidity risk from heart disease, and strokes, respiratory diseases, lung cancer and other conditions.
8. In the UK, in the context of air quality management, the main air pollutants that are the primary public health concern are particulate matter and Nitrogen Dioxide (NO₂). In the UK, it has been estimated that an equivalent of 23,500 deaths can be attributed to long-term exposure to NO₂ each year.²
9. The principle source of these pollutants is from road transport emissions, particularly from diesel cars. In 2012, the International Agency for Research on Cancer listed diesel exhaust pollution as a Class 1 carcinogen³ and extended this to all ambient air pollution in 2013.⁴
10. Public Health Wales has stated that poor air quality is the second greatest public health concern after smoking and is the most significant environmental determinant of health. In Wales, based on data for the period 2011-2012, it has been estimated that an equivalent of 1,100 avoidable deaths can be linked to NO₂ exposure each year.
11. Poor air quality does not only cause ill health, it also has a wider societal cost. Accounting for health service costs and reduced productivity through lost workdays in the UK this is significant, standing at around £20bn every year.⁵
12. Some people are more at risk than others. Air pollution can disproportionately affect vulnerable population groups (e.g. children, older people, people with underlying chronic disease), as well as those

¹ 'Estimating local mortality burdens associated with particulate air pollution', Public Health England, (2014)

² 'Improving air quality in the UK: tackling nitrogen dioxide in our towns and cities: UK overview document' Defra (2015)

³ International Agency for Research on Cancer, (June 2012)

⁴ International Agency for Research on Cancer, (October 2013)

⁵ 'Every breath we take: the lifelong impact of air pollution', Royal College of Physicians and Royal College of Paediatrics and Child Health (2016).

exposed to higher levels because of living or commuting in urban or deprived locations.⁶

13. Recent work by Public Health Wales estimates that the equivalent of over 220 deaths each year among people aged 30 and over in the Cardiff and Vale area can be attributed to NO₂, with many more citizens suffering ill health as a consequence of poor air quality.⁷

Issues

Air Quality in Cardiff

14. There are currently four Air Quality Management Areas (AQMAs) declared across Cardiff which have all been declared due to exceedances of the annual mean NO₂ Air Quality Standard (40ug/m³), known to be derived from road transport. These areas are:
 - **Cardiff City Centre AQMA** (declared 1/4/13 to incorporate Westgate Street; formerly St Marys St AQMA);
 - **Ely Bridge AQMA** (declared 1/2/07);
 - **Stephenson Court AQMA** (declared 1/ 12/10); and
 - **Llandaff AQMA** (declared 1/4/13).
15. The 2019 Annual Progress Report presents monitoring data captured in 2018. In line with the Cardiff Council's (CC) statutory duties under Part IV of the Environment Act 1995, Shared Regulatory Services on behalf of CC undertakes regular air quality monitoring at specifically allocated locations across Cardiff using automated and non-automated principles for ambient air Nitrogen Dioxide (NO₂), Particulate Matter (PM₁₀ & PM_{2.5}), Sulphur Dioxide (SO₂), Carbon Monoxide (CO) & Ozone (O₃).

Automated Monitoring Network

16. Cardiff has two automatic air quality monitoring sites located at Frederick Street in the City Centre and on Richard's Terrace, just off Newport Road.
17. The Frederick Street (Urban Background) site monitors on a 24/7 basis measuring levels of NO₂, PM₁₀ & PM_{2.5}, SO₂, CO and O₃ feeding data directly into Defra's Automatic Urban and Rural Network (AURN).
18. The Richard's Terrace site (Urban Traffic/ Roadside) is a newly commissioned site (April 2018) and monitors on a 24/7 basis measuring levels of NO₂ & PM₁₀ at that location, feeding data directly into Defra's Automatic Urban and Rural Network (AURN).

⁶ National Institute for Health and Care Excellence 2017; WHO Regional Office for Europe 2016

⁷ Estimating local mortality burdens associated with particulate air pollution, Public Health Wales (2014).

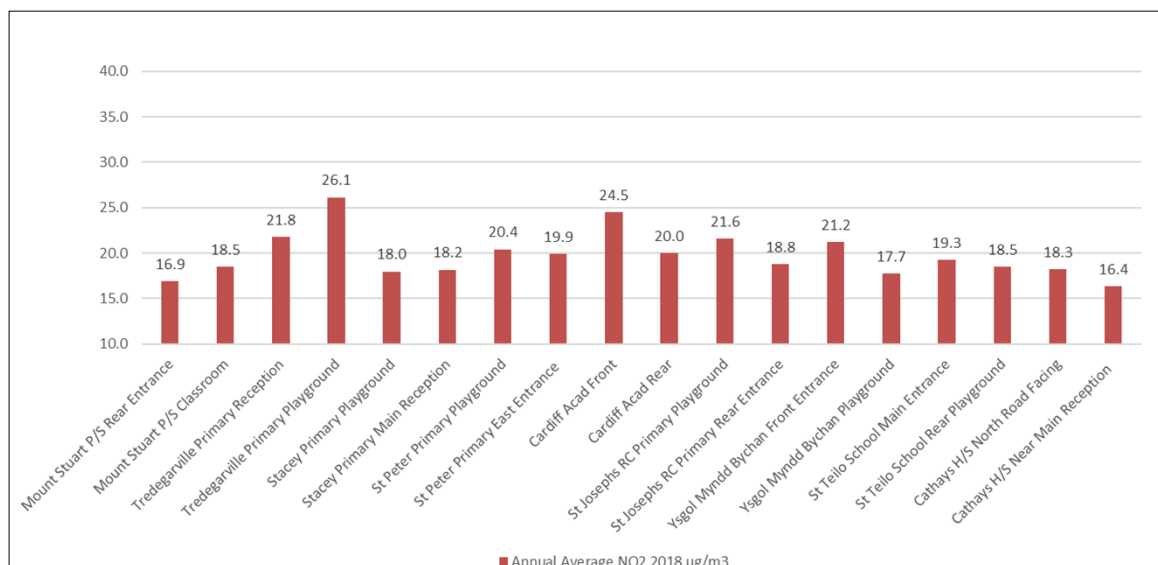
Non-automatic Monitoring Sites

19. In 2018 CC operated 85 specifically allocated non automatic monitoring sites in Cardiff which monitor levels of Nitrogen Dioxide (NO₂).
20. In 2018, out of the 85 monitoring locations only 7 recorded exceedences of the annual average objective set for NO₂ (40µg/m³). Of the 7 exceedences, 6 were recorded within the already established air quality management areas (AQMA).
21. The monitoring location which recorded an exceedance of the annual average objective for NO₂ is identified as Site 179.
22. Site 179 is not representative of relevant exposure and datasets collected at this monitoring location would apply ONLY to the 1-hour objective set for NO₂ due to its commercial nature (200µg/m³, not to be exceeded more than 18 times per year). The monitoring at this location does not indicate that the 1 hour mean objective would be exceeded.
23. The monitoring data confirms the findings of previous reports in that, for the six regulated pollutants other than nitrogen dioxide (particulate matter, sulphur dioxide, carbon monoxide, benzene, 1,3 butadiene and lead) **there were no recorded exceedences of the applicable air quality objectives**

School Monitoring and Results

24. As part of the NO₂ monitoring network, new for 2018 SRS & CC began a monitoring campaign at 9 specific schools across the borough. Cardiff Councillors motioned a review of the current air quality monitoring network established across the borough and it was highlighted that there is a requirement to monitor local air quality in and around school buildings. It was decided that those schools to be monitored will be those highlighted in last year's Client Earth report which discussed potential detrimental air quality impacts at schools in relatively close proximity to major road networks. The report detailed 9 schools within 150m of roads with potentially harmful concentrations of nitrogen dioxide (NO₂);
 - Ysgol Mynydd Bychan, Gabalfa
 - St Joseph's RC Primary, Gabalfa
 - Stacey Primary, Roath
 - Tredegarville CIW Primary, Adamsdown
 - Cardiff Academy, Roath
 - Mount Stuart Primary, Butetown
 - St Peter's RC Primary, Roath
 - Cathays High School, Cathays
 - St Teilo's CIW High School, Llanedeyrn
25. The graph below clearly demonstrates that each school's monitoring locations showed compliance with the NO₂ air quality objectives in 2018,

with a maximum result of 26.1 $\mu\text{g}/\text{m}^3$ recorded at Tredegarville Primary School.



Results in AQMAs

City Centre AQMA

26. As detailed in Table 1 average NO_2 results at residential façades within the City Centre AQMA in 2018 show evidence of improvement compared to the 2017 datasets. However it should be noted that annual levels of NO_2 at residential accommodation on Westgate Street (Sites 126, 143 & 144) remain elevated and close to the objective with NO_2 concentrations $>37\mu\text{g}/\text{m}^3$ recorded. Also increases in levels have been recorded at kerbside locations in the City Centre AQMA on Westgate Street and Havelock Street.

Ely Bridge AQMA

27. Monitoring undertaken within the Ely Bridge AQMA, at the façade of residential properties (Site 117 & Site 192) recorded annual average levels of $\text{NO}_2 >39.7\mu\text{g}/\text{m}^3$. Although levels captured are compliant with the air quality objectives, they are still of a concern and thus the AQMA should remain in place.

Llandaff AQMA

28. As acknowledged by the report, residential monitoring locations within the Llandaff AQMA, in general, indicate compliance with the annual average objective. Those sites demonstrating compliance include (Site 33, 99 & 208). It must be noted that Site 212 **does indicate** an exceedance of the annual average objective with an annual average reading of $47.1\mu\text{g}/\text{m}^3$, however data capture at this location was low for 2018 due to continued vandalism of the station, which therefore meant that ratification and adjustments were applied to calculate a corrected final result. From a professional opinion, due to the adjustments required, the final result for Site 212 does not necessarily represent a true

understanding for annual average levels at this location. Monitoring has therefore continued in 2019, and a further review of the results will be assessed provided a more accurate data set is obtained. The 2019 datasets captured to date outline lower levels than those generated in 2018, working towards the limit of compliance.

29. In an effort to reassure local residents, as referenced in the 2018 APR, officers have explored the idea of improving monitoring capabilities in the Llandaff AQMA by investing in an automated monitoring system. At the time of writing this report, via a S106 contribution in accordance with relevant planning applications in the vicinity of the Llandaff AQMA, a near real-time indicative air quality monitor (AQ Mesh Pod has been purchased to be installed within the Llandaff AQMA boundary).

Stephenson Court, Newport Rd, AQMA

30. All three monitoring sites within the Stephenson Court AQMA (Sites, 81, 131 & 198) show compliance with the annual average objective, however results remain elevated, particularly at Site 131 which is encroaching on the UK objective, and thus the AQMA will be maintained

Summary of Results in the AQMAs

31. Table 1 below summarises the average concentrations monitored at various at residential facades within the 4 AQMAs since 2012 representing worse case exposure i.e., at residential properties. For 2018, the datasets for annual average NO₂ do show some signs of improvement for a few of the AQMAs, namely City Centre and Stephenson Court. The results do demonstrate that annual average datasets for Ely Bridge and Llandaff have slightly worsened, however it must be noted that the results take account of new monitoring sites that were amended and added in 2018, therefore results reflect an average of different monitoring sites from previous years.

Table 1. Annual Average NO₂ Concentration (µg/m³) Air Quality Standard =40 µg/m³

AQMA	Annual Average NO ₂ Concentration (µg/m ³) Air Quality Standard =40 µg/m ³						
	2012	2013	2014	2015	2016	2017	2018
City Centre	41.5	42.1	42.1	38.2	38.7	38.2	35.6
Stephenson Court	47.9	43.9	41.2	39.5	39.6	36.7	36.1
Ely Bridge	42.6	44.9	42.3	39.5	41.3	38	39.9
Llandaff	43.0	39.1	37.2	32.3	35.0	32.5	34.2

32. Although the 2018 data indicates that compliance is met in the four AQMAs, the Welsh Government has stated that *'air just barely compliant with the objectives is not 'clean' and still carries long-term health risks and while compliance with the national air quality objectives is essential,*

*it is desirable to keep levels of pollution as low as reasonable practicable.*⁸

33. There are no monitoring sites in the district with annual average concentrations above 60 µg/m³ in 2018. Therefore this indicates it is unlikely that the hourly nitrogen dioxide objective was exceeded.

Action Plans and Development of a Clean Air Strategy

34. Cardiff Council has a statutory requirement to produce an Air Quality Action Plan (AQAP) for each identified AQMAs within the local authority area.
35. In 2017 the Council gave a commitment to produce a Clean Air Strategy and Action Plan by 2018. This objective of this report was to develop an Action Plan to address air quality issues not only in the AQMAs, but across all of Cardiff.
36. Highlighting this commitment, in 2018, SRS & CC developed a citywide Clean Air Strategy & Action Plan (CASAP) for Cardiff. The strategy coincides with Cardiff's Capital Ambition report and helps to implement and deliver the priorities outlined in the Ambition report with an overarching aim to improve air quality to protect and improve public health in Cardiff. The CAS & Action Plan appoints strategic measures that will look to generate a positive impact to citywide air quality levels, in particular traffic derived NO₂ levels. Each measure has endured a cost benefit appraisal procedure by weighting the measures in terms of air quality impact, cost and timescale. The key theme of the strategic measures is to increase the uptake of sustainable modes of transport by influencing a behavioural change in Cardiff.

Legal Direction from Welsh Government

37. In addition to Cardiff's 4 AQMAs and CASAP work, following the formal publication of Defra's UK detailed air quality plan to tackle roadside nitrogen dioxide (NO₂) concentrations in July 2017, it was identified that Cardiff would continue to exceed EU & UK Air Quality Directive Limit Values for NO₂ beyond 2020.
38. The report detailed modelled projections from the Joint Air Quality Unit (JAQU) which showed continued non-compliance of the national annual average NO₂ standard beyond 2021 along identified road networks. The roads which have been modelled as exceeding the annual limit value were the A4161, the A4232, the A4234, the A470 and the A48. These areas of exceedence also featured in the CASAP document as any mitigation measures implemented on the referenced road links will have an impact on the LAQM AQMAs.
39. As a result in March 2018 under Part IV of the Environment Act 1995, Section 85(7), Welsh Government issued a formal direction to CC to

⁸ [Welsh Government Local air quality management in Wales Policy guidance June 2017](#)

address its air quality concerns, with particular reference to the specified 5 road links. The direction has been governed by the Welsh Minister for Environment who has determined that the direction deemed necessary to meet obligations placed upon the United Kingdom under the EU Ambient Air Quality Directive (2008/50/EC).

40. The direction came into force, as signed by the Minister, on 15th February 2018, and was delivered to Cardiff Council on 09th March 2018. The direction has a schedule of specified activities, and states:

'Under the Environment Act 1995 (Feasibility Study for Nitrogen Dioxide Compliance) Air Quality Direction 2018, the Welsh Ministers make this direction having determined that it is necessary in order to meet obligations placed upon the United Kingdom under the EU Ambient Air Quality Directive.

Cardiff Council will undertake, as part of the UK plan for tackling roadside nitrogen dioxide concentrations 2017, a feasibility study in accordance with the HM Treasury's Green Book approach, to identify the option which will deliver compliance with legal limits for nitrogen dioxide in the area for which the authority is responsible, in the shortest possible time.'

41. Further to the Councils statutory duty under Part IV of the Environment Act, the Direction places, a further legal duty on Cardiff Council to undertake the requirements of the direction as detailed above within the specified timescales
42. The Direction required an Initial Plan to be submitted to Welsh Government by the 30th September 2018 and this report has now been submitted to Welsh Government.
43. The Direction also required that by 30th June 2019 at the latest a **Final Plan** Identifying in detail the preferred option for delivering compliance in the shortest possible time, must be submitted to Welsh Government.
44. The results of the local modelling presented in the Initial Plan, differed to that undertaken by Defra using the Pollution Climate Mapping model. Defra's modelling identified two road links under baseline conditions which were projected to show non-compliance beyond 2021, namely the A48 and the A4232. The localised modelling identified only one road link under baseline conditions projected to show non-compliance beyond 2021, this being the A4161 Castle Street, in the City Centre.
45. Within the Initial Plan Report a long list of measures developed from the CASAP were qualitatively assessed against a primary objective of achieving compliance with set air quality objectives in the shortest possible time. The measures were considered against secondary objectives and were subjected to further qualitative assessments against the WelTAG Well-being Aspects.
46. The Council's recently published [Full Business Case](#) (Final Plan)

documents early intervention measures as well as aspired measures the Council are endorsing to improve localised air quality on the outlined A4161 Castle Street with a vision of improving citywide air quality levels. These measures include;

- Implementation of Electric Buses – 36 Electric Buses to be implemented on a number of routes within the City Centre;
 - Bus Retro Fitting Programme;
 - Taxi Licensing Policy and Mitigation Scheme;
 - City Centre Transportation Improvements ; and
 - Active Travel Measures.
47. The FBC demonstrates that the outlined package demonstrates the greatest level of compliance on Castle Street, with 31.9µg/m³ forecasted in 2021 as a result of the implementation of the measures. In addition to achieving compliance on Castle Street, the impact of the package of measures was also been modelled at local air quality monitoring locations, including those locations within existing Air Quality Management Areas (AQMAs). The results of the modelling indicated that all monitoring locations are expected to have concentrations below the 40 µg/m³ which further demonstrates that the package of measures will improve local air quality including within existing AQMAs.
48. The feasibility Study ultimately becomes a city wide Action Plan to address air quality, as the project to date has not only focussed on roads modelled to exceed the NO₂ limit value, but has also assessed likely compliance within the AQMAs.

Well-being of Future Generations (Wales) Act 2015 implications

49. SRS & CC adopt the principles of The Well-being of Future Generations (Wales) Act 2015 (WFG). The act is a significant enabler to improve air quality as it calls for sustainable cross-sector action based on the principles of long-term, prevention-focused integration, collaboration and involvement. It intends to improve economic, social, environmental and cultural well-being in Wales to ensure the needs of the present are met without compromising the ability of future generations to meet their own needs.
50. The Well-Being of Future Generations (Wales) Act 2015 places a 'well-being duty' on public bodies aimed at achieving seven national well-being goals for Wales - a Wales that is prosperous, resilient, healthier, more equal, has cohesive communities, a vibrant culture and thriving Welsh language, and is globally responsible.
51. In discharging its duties under the 2015 Act, the Council has set and published well-being objectives designed to maximise its contribution to achieving the national well-being goals. The well-being objectives are set out in Cardiff's Corporate Plan 2019-22:

52. When exercising its functions, the Council is required to take all reasonable steps to meet its well-being objectives. This means that the decision makers should consider how the proposed decision will contribute towards meeting the well-being objectives and must be satisfied that all reasonable steps have been taken to meet those objectives.
53. The well-being duty also requires the Council to act in accordance with a 'sustainable development principle'. This principle requires the Council to act in a way which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs. Put simply, this means that Council decision makers must take account of the impact of their decisions on people living their lives in Wales in the future. In doing so, the Council must:
- Look to the long term
 - Focus on prevention by understanding the root causes of problems
 - Deliver an integrated approach to achieving the seven national well-being goals
 - Work in collaboration with others to find shared sustainable solutions
 - Involve people from all sections of the community in the decisions which affect them

Reason for Recommendations

54. To enable Cardiff Council to submit the Annual Progress Report on Local Air Quality Management to Welsh Government.

Financial implications

55. SRS has an existing budget to complete a programme of air quality monitoring across Cardiff. The measures to achieve compliance with the Air Quality Legal direction have been submitted to the Welsh Government who will provide the funding for these schemes.

Legal Implications

56. The legislative framework is set out in the body of the report. However, in addition when considering this matter Cabinet should have regard to the general legal advice set out below.

General Legal Implications

57. The decision about these recommendations must be made in the context of the Council's public sector equality duties. The Council has to satisfy its public sector duties under the Equality Act 2010 (including specific Welsh public sector duties). Pursuant to these legal duties, Councils

must in making decisions have due regard to the need to (1) eliminate unlawful discrimination, (2) advance equality of opportunity and (3) foster good relations on the basis of protected characteristics. The Protected characteristics are: age, gender reassignment, sex, race –including ethnic or national origin, colour or nationality, disability, pregnancy and maternity, marriage and civil partnership, sexual orientation, religion or belief – including lack of belief.

58. Also in considering this matter Cabinet must also have regard to the Council’s wider obligations under the Welsh Language (Wales) Measure 2011 and the Welsh Language Standards.

HR Implications

59. There are no HR implications to this report.

Property Implications

60. No immediate property implications are anticipated from the Cardiff Annual Air Quality Progress Report 2019.
61. Any future requirement to use Council land or property to deliver the objectives of the Cardiff Annual Air Quality Progress Report 2019 should be done so in accordance with the Corporate Property Strategy, Council’s Asset Management process and in consultation with Strategic Estates and relevant service areas.

RECOMMENDATIONS

Cabinet is recommended to:

1. Note and accept the monitored results gathered in 2018;
2. Approve the 2019 Annual Progress Report (as attached as Appendix 1) for submission to Welsh Government for approval.

SENIOR RESPONSIBLE OFFICER	Andrew Gregory Director of Planning, Transport & Environment
	16 November 2019

The following appendix is attached:

Appendix 1: Cardiff Council Annual Air Quality Progress Report 2019.