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Title of meeting: Cabinet

Subject: The 2021 Annual Status Report of Air Quality

Date of meeting: 27th July 2021

Report by: Richard Lee, Regulatory Services Manager

Wards affected: All

1. Requested by Councillor Dave Ashmore, Cabinet Member for Community Safety & Environment

2. Purpose

2.1. To provide the Cabinet information on the:

- local Air Quality Management (LAQM) process and the 2020 Review and Assessment (R&A) of air quality (AQ) in Portsmouth through the forthcoming publication of the 2021 Annual Status Report (ASR).
- the impact of the Covid-19 pandemic upon the actions undertaken by Portsmouth City Council (PCC) to monitor air pollution levels in Portsmouth during 2020 and the provisional results of the monitoring undertaken during 2020.

3. Information Requested

3.1. The formal submission deadline of PCC's 2021 ASR to Department for Environment Food and Rural Affairs (DEFRA) was 30th June 2021. DEFRA have, however, agreed to take a flexible and realistic approach when there is a risk that this deadline may be missed. The Regulatory Services team is therefore requesting an extension to this timetable as the publication of this year's ASR has been delayed.

3.2. The reasons for the extension are as a consequence of the following:

- delays experienced in receiving the data from involved third parties.
- our data set is greater than many other Local Authorities. We have an extremely robust data collection network and the time to collect and validate the data has taken longer than anticipated.

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- our resource to facilitate this function is limited to 1 FTE.
- other AQ monitoring responsibilities have been required during this period.
- the impacts of the Covid-19 pandemic are relevant.

3.2. As experienced by other Local Authorities, whilst the majority of the 2020 monitoring data has been collated, the final ASR has not been completed in time for formal submission ahead of this meeting. The provisional monitoring data obtained has not been formally validated but is not likely to be subjected to substantive revision prior to its presentation to DEFRA.

4. Impact of Covid-19 pandemic upon data collection

4.1. The provisional results of nitrogen dioxide (NO₂) for 2020 suggests that there has been a significant overall reduction in the levels of NO₂ (the primary pollutant of concern) in Portsmouth during the pandemic. It likely that NO₂ levels, in the vast majority of locations, now falls below the National Air Quality Objectives (NAQO).

4.2. A top-level summary of the provisional results (therefore subject to correction) from our diffusion tube network is provided in Table 1 below:

Table 1 - % of results beneficial (a reduction in levels) and adverse (increase in levels) - see ASR 2020 for category descriptors)

Beneficial	94.56%	%	Adverse	4.08%	%
Negligibly Beneficial	18	12.24%	Negligibly Adverse	5	83.33%
Slightly Beneficial	27	18.37%	Slightly Adverse	1	16.67%
Moderately Beneficial	75	51.02%	Moderately Adverse	0	0.00%
Substantially Beneficial	19	12.93%	Substantially Adverse	0	0.00%

4.3. Changes in level of monitoring activity by the Regulatory Services team during 2020, however, needs to be carefully interpreted in the context of the timeline of the introduction of Covid-19 lockdowns and the various impacts of such.

4.4. Of course, we are aware that the UK government advised against all non-essential travel and contacts on 16th March 2020, closed schools and restaurants on 20th March and announced full lockdown on 23rd March. Consequently we know that many businesses switched to homeworking and many industries ceased or reduced operation during the initial restrictions and the various waves of advice, guidance and restrictions that followed.

5. Reduction in NO₂ production as a result of Covid-19

5.1. Throughout the pandemic, data has been provided showing the reduction in transport activities, particularly road traffic, rail services and aviation, as well as a reduction in overall energy use. In addition, there is a general consensus that the lockdown reduced

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activities and therefore emissions from construction, commercial heating, combustion and processes in industry and power generation may also have fallen.

5.2. The situation for shipping appears more complex with large decreases in activities for some vessel types (particularly offshore, passenger vessels and fishing) and little change in others, depending on cargo type. This is obviously of interest in respect to the contribution of pollution emissions from the Portsmouth International Port.

5.3. Emissions from commercial premises would be expected to be reduced particularly from commercial heating and commercial cooking. With the move to home working, reductions of emissions in commercial areas (shops and offices) will have been partly compensated by increases from homes, but still potentially resulting in a net decrease in emissions.

5.4. Locally it is possible that solid fuel combustion in domestic fires and stoves went up initially after lockdown. However, this initial increase is likely to have subsided with rising ambient temperatures during the summer and may also be limited by fuel stocks. Nuisance reports linked to bonfires and burning of garden waste appear to have risen during the various lockdowns.

6. Analysis of NO₂ pollution concentrations

6.1. When considering the analysis of ambient pollutant concentrations and their potential change due to COVID-19 interventions, it is important to understand the general climatology. Meteorological factors are of direct importance when considering changes in pollutant concentrations due to COVID-19 for all sites and all pollutants and therefore when assessing the resultant levels for 2020 we have considered these.

6.2. As stated above, we recognise that air pollutant concentrations may have been impacted by the change in activity observed as a result of the COVID-19 pandemic and the associated measures. We therefore note that these are highly likely to have led to changes in compliance with our Air Quality Local Plan strategy objectives in our Air Quality Management Areas (AQMA) in the year 2020.

6.3. As per DEFRA's national technical guidance (LAQM.TG(16)1), current guidance states that it expects us to consider measurements carried out over a period of three to five consecutive years particularly when deliberating the revocation or amendment of an AQMA, as well as national trends in emissions and measures introduced.

6.4. Accordingly, should our levels, once published, demonstrate a reduction in levels we should follow DEFRA's advice advising against the revocation of any AQMA based solely upon compliance being achieved in 2020, as this year may not be representative of long-term trends in pollutant concentrations and we must be confident that air quality objectives will continue to be met in future years.

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6.5. When publishing our data it is therefore important to make clear how monitoring has been impacted by the COVID-19 pandemic and to highlight the fact that the data should be treated with caution. An impact matrix has been developed to assist with this process. It is important that we acknowledge that data from 2020 year may differ significantly when compared with historical trends.

7. NO₂ monitoring data set corrections

7.1. In respect to our passive monitoring diffusion tube data, guidance exists where poor data capture has occurred. Where data capture is less than 75% of the year (which has occurred in Portsmouth in a high number of locations) annualisation techniques have been used to estimate an annual mean based on current guidance. We must have a minimum of three months of data available for annualisation, however the ability to annualise data in line with current guidance has also been impacted by COVID-19. We have considered the impacts of amending the criteria for annualisation, however, DEFRA suggests that their current guidance remains valid.

7.2. The diffusion tube data processing tool has been used to process diffusion tube data. The tool has been developed to more easily calculate annual mean concentrations for the diffusion tube monthly data, by amalgamating the following individual LAQM processing tools: *the annualisation tool; the precision and accuracy tool – calculation of local bias; and NO₂ fall off with distance calculator*. In respect to diffusion tube bias adjustment it is suggested by DEFRA that diffusion tube bias adjustment studies have been affected by COVID-19.

8. NO₂ data collection complications

8.1. During 2020 we have experienced problems with the deployment of diffusion tubes, as a result of supply, analytical laboratory support and the availability of resource needed to be deploy such. DEFRA have anticipated this and confirmed that is no expectation that we should expose diffusion tubes in line with the 2020 diffusion tube monitoring calendar dates. The diffusion tube data processing tool or LAQM annualisation tool will automatically perform a time-weighted annual mean calculation, as opposed to a simple average calculation, if the required criteria are met.

8.2. COVID-19 has given rise to changes in our typical continuous monitoring procedures, service and maintenance regimes, calibration regimes and independent auditing regimes. These monitoring procedures and data collection have also been impacted by the upgrading of our stations during 2020 and we are working through the impact of these on our continuous monitoring data. We will therefore be considering the need to review our approaches to such and the technical guidance on continuous monitoring found in LAQM.TG(16)1.

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9. NO₂ results communication summary

9.1. Our provisional data sets demonstrate a significant reduction in NO₂ levels across a number of key hotspot locations and those within the geographic area of the forthcoming clean air zone. In order to communicate clearly with the public on the potential impact of the COVID-19 pandemic on the data capture and the quality of monitoring data collected during 2020, DEFRA have produced advice on how to contextualise impacts on monitoring data from diffusion tubes and continuous analysers.

9.2. Within the publication of the 2021 ASR we will therefore indicate that readers need to treat data with more caution than usual, for example where data capture was less than 75% or tubes have been exposed outside of the usual time periods, or a combination of both.

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Signed by (Director)

Appendices:

Background list of documents: Section 100D of the Local Government Act 1972

The following documents disclose facts or matters, which have been relied upon to a material extent by the author in preparing this report:

Title of document	Location
LAQM Technical Guidance (TG16) - updated April 2021	Technical Guidance LAQM.TG(16) Online Viewer - Defra, UK
2020 ASR	2020 Air Quality Annual Status Report (ASR) (portsmouth.gov.uk)