Title of meeting:	Cabinet Member for Environment & Climate Change Decision Meeting.
Date of meeting:	30 January 2020
Subject:	Air Quality Compliance Monitoring
Report by:	Director of Culture, Leisure and Regulatory Services
Wards affected:	All
Key decision:	No
Full Council decision:	No

1. Purpose of report

1.1 Under the terms of the Environment Act 1995 the government has issued a Ministerial Direction to Portsmouth City Council (PCC). This Direction requires PCC to develop a Local Air Quality Plan (LAQP) to identify measures which will deliver compliance with legal limits for nitrogen dioxide (NO2) in the shortest possible timeframe[1]. The purpose of this report is to inform the Cabinet Member as to how PCC proposes to increase the monitoring of NO2 levels in key areas of Portsmouth to assess the performance of the LAQP.

2. Recommendation

2.1 It is **RECOMMENDED** that the Cabinet Member for Environment & Climate Change approves:

- the installation of an additional continuous air quality monitoring station and the continued deployment of diffusion tubes as set out within Sections 4 through to 8;
- the use of alternative 'low-cost' monitoring devices as necessary as set out in Section 6.

3. Reason for the recommendations

3.1 To continue to fulfil the duties placed upon PCC under the Environment Act 1995.

[1] In the case of the Air Quality Local Plan this is considered to be measures that can be delivered as quickly as or more quickly than a charging Clean Air Zone can be made operational. JAQU consider that a charging CAZ could be operational in Portsmouth by the end of 2021; therefore other measure must be capable of being delivered by this date to be considered

3.2 PCC's LAQP has identified five locations where the annual mean NO2 European Union (EU) Limit Value of 40µg/m^3 was modelled as being exceeded by the Department for the Environment and Rural Affairs (DEFRA). The LAQP model predicted that a charging Clean Air Zone (CAZ) would be needed to reduce levels of NO2 to compliant levels.

3.3 The CAZ will remain in force until there is firm evidence that an improvement in NO2 levels below limit value requirements have been achieved and maintained. PCC will therefore need to undertake appropriate monitoring and assessment of air quality levels in order to evaluate whether the measures implemented through the LAQP are having the anticipated impact, need adjusting, or are still needed if they have accomplished their air quality improvement outcomes.

3.4 The highest concentrations, and therefore those requiring the greatest level of NO2 reduction, have been identified as:

- A3 Alfred Road, between Hope Street roundabout and the Queen Street / Anglesea Road / Alfred Road intersection (identified as - **link road 18114 - see location plan 1**);

- A3 Mile End Road, between the southern end of the M275 and Church Street roundabout (identified as - **link road 48196 - see location plan 1**).

3.5 PCC already has a network for air quality monitoring that provides evidence of national compliance with a number of EC directives on air quality. The network is configured to provide the greatest density of measurements in key areas across areas of Portsmouth where the highest risk of air quality exceeding the Directive's limit values coincides with the greatest exposure to pollution. The highest quality of data is achieved through the use of continuous monitoring stations.

4. The need for quality data

4.1 PCC invests significantly in its air quality monitoring network. Our extensive network has been rationalised over many years and continues to evolve dynamically to meet our needs and to reflect changes in the need for data.

4.2 During the creation of the LAQP, PCC have been further encouraged by DEFRA to increase monitoring where levels of exceedance have been modelled to exist until 2022. This rationale is intended to provide the further best evidence needed to quantifiably measure the performance of the LAQP. It also ensures the highest possible level of certainty that the measures deployed are actually achieving the level of pollution reduction modelled in those specific locations.

4.3 The government have provided guidance setting out the local air quality monitoring data requirements to safeguard data consistency standards. Our monitoring is required to follow DEFRA's best practice Technical Guidance

2016 (LAQM.TG16) for data quality and needs to be carried out at locations consistent with the siting requirements set out in Annex III of the Ambient Air Quality Directive.

5. Funding provision

5.1 The need to acquire an increased capability to continuously monitor NO2 has been subjected to a successful application to the PCC capital funding programme. The estimated first year costs are £46K.

6. Cheaper alternatives

6.1 The proposed equipment is expensive. The reason for this is that it is 'MCERTS' compliant. MCERTS is the Environment Agency's Monitoring Certification Scheme for air quality monitoring equipment. It provides a delivery vehicle for compliance with European Directives.

6.2 Our proposed sophisticated analytical instruments meet the well-defined international standards for the quality of the data produced. Low-cost sensors which are designed to measure regulated pollutants in ambient air are however available at lower cost than the reference-equivalent instruments we are proposing.

6.3 Low-cost in this context can mean many things, ranging from simple single pollutant sensors in units that are sold for a few tens of pounds to relatively sophisticated multi-pollutant devices that include communications and meteorological capabilities that cost several thousands of pounds.

6.4 Low-cost sensors are highly attractive for many different reasons: they potentially allow for far greater density of measurements to be made; let individuals measure pollution in their local environment; they may be carried on a person to estimate exposure; or be integrated into networks into local air quality management systems such as our own.

6.5 Many different low-cost sensors are being commercialised and the technology and marketplace is evolving very rapidly. For this reason it is difficult for DEFRA to 'approve' the use of such. Such devices are however useful for: indicative assessments; awareness raising or educational purposes; to inform personal decision-making; as part of research studies; or integration into urban pollution control systems. However, the quality control and calibration of these devices in the field and their lifespan for producing useful data in respect to formal compliance will always be limited.

7. Proposed location

7.1 It is envisaged that the fifth and new PCC continuous air quality monitoring station be set up within one of the areas of highest pollution values. **Link road 18114** has been chosen as it is far less likely to dramatically, over the intended monitoring period, be impacted by nearby permitted development schemes than link road 48196.

7.2 The proposed AQ monitoring location is sited towards the west-end of Alfred Road alongside St John's Catholic Cathedral. Currently there are two possible location points alongside the Cathedral within **link road 18114** (**see location plan 1 and 2**):

- The first choice is highlighted with a **red** star. This is located in excess of 77m of the nearest major Junction. The sampling point at this location is not restricted by any physical structure. The nearest physical structure is at 7m to the south.

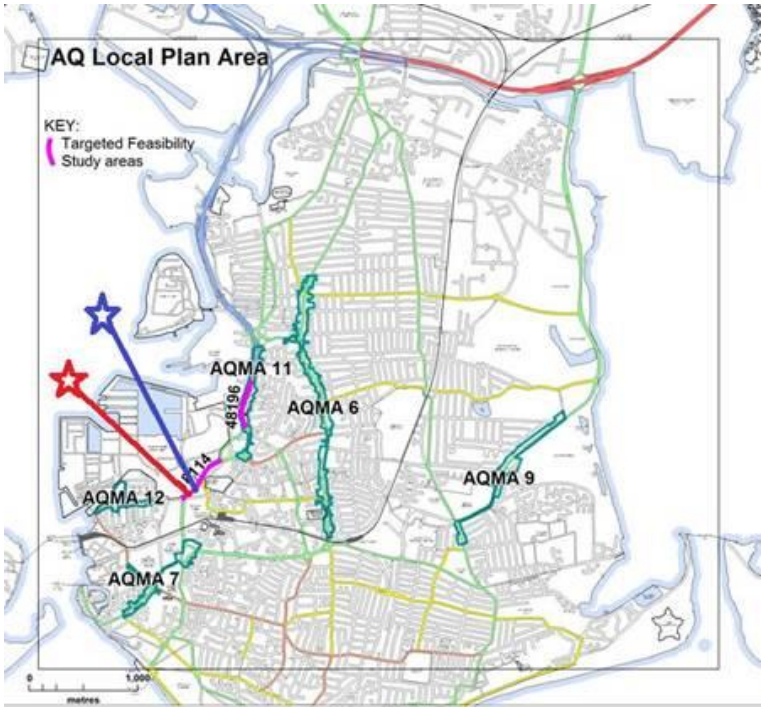
- The Second choice is highlighted with a **blue** star. This is located in excess of 99m of the nearest major Junction. The sampling point at this location is restricted by St Edmund House that is part of the Cathedral.

7.3 Following discussion with Planning Services, we can advise Members that the proposed equipment is likely to be installed as 'permitted development' using the Council's rights to undertake small ancillary works as part of the delivery of our functions. Once the final decision on the design and location of the equipment is made this can be confirmed with the Local Planning Authority. Members should note that the two preferred locations are in proximity to the Listed Catholic Cathedral. Consequently Members, in exercising their judgement regarding the placement of this essential equipment, may wish to have special regard to the desirability of preserving the setting of the Listed Building, to reflect the general duty laid out in legislation for such heritage assets albeit it does not directly apply in this case. A pictorial representation of the station is shown in picture 1.

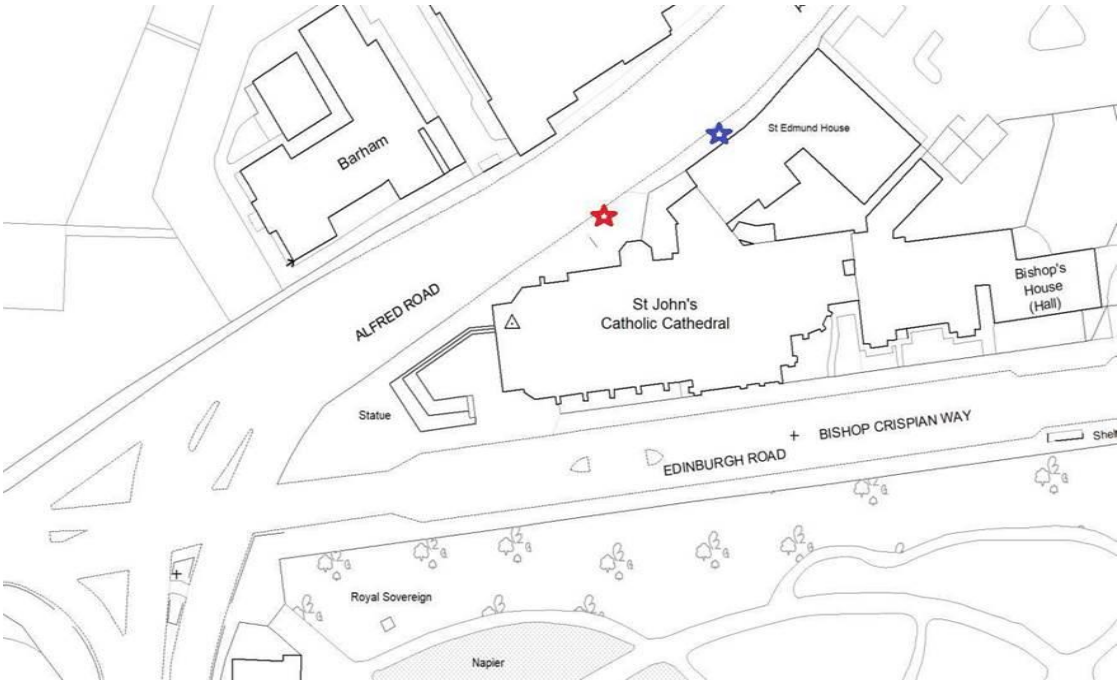
Picture 1

7.4 PCC has consulted with DEFRA as to the most suitable monitoring location to ensure their satisfaction with the final choice. DEFRA appreciate the complications caused by permitted development schemes in and around link road 84196 and have suggested that the blue star location manifests itself as a marginally better location than the red site.

Location plan 1



Location plan 2



8. Technical specification

8.1 A continuous NO2 (with Particulate Matter (PM) of 10 micrometers and PM2.5 monitoring capabilities) monitor using cross-flow modulated semi decompression chemiluminescence will be deployed. This will utilise an independent, internal dry-method sampling device to achieve the highest levels of sensitivity and accuracy. The dry method, due to its minimal maintenance requirements and capability of continuous monitoring and instantaneous analysis of gas in its unaltered state, is the preferred method for monitoring the atmospheric pollution and is ratified by DEFRA.

8.2 It is important to start the deployment procedure as soon as possible so that data collection can begin. The design process is complex as a large amount of time will be involved in coordination with our planning colleagues, our highways and traffic management team, instrument and enclosure suppliers, delivery companies, air conditioning engineers, electricity suppliers, site electricians, plinth builders and the telecommunications suppliers. Despite the complexity of the installation we expect the station to be in situ and operational within the year 2020 / 2021. If this is the case this would be prior to the CAZ being operational which would provide an opportunity for baseline NO2 levels to be obtained prior to the CAZ coming into force.

8.3 The equipment will be of a semi-permanent design to ensure that it can be relocated in another area of the city as a need necessitates.

9. Monitoring through diffusion tubes

9.1 It is important to note that PCC has already significantly increased its deployment of NO2 diffusion tube monitors along the two identified link roads and at all other locations where exceedances or near exceedances of the national air quality objectives are being predicted through the LAQP process. These additional locations and monitoring results will be published via the Annual Status Report prior to 31st July 2020.

10. Integrated Impact Assessment

10.1 An Integrated Impact Assessment (IIA) is attached. Whilst not directly impacting upon many of the criteria the need for excellent air pollution data does have an association with the majority of the assessment areas. Delivering cleaner air and monitoring the success (or otherwise) of our actions is of significant importance and relates to almost everything that we do.

11. City Solicitor's comments

11.1 LAQM.TG16 is designed to support local authorities in carrying out their duties under the Environment Act 1995. Local air quality management (LAQM) and the need to deliver the LAQP is a statutory process by which PCC is required to monitor, assess and take action to improve local air quality.

11.2 LAQM enables PCC to identify all areas where the air quality objectives are being or are likely to be exceeded. LAQM requires sufficient monitoring to be carried out so that the authority can confidently judge whether the scale of effort within the LAQP is delivering compliance with EU limit values within the timeframes predicted.

12. Head of Finance comments

12.1 The finance team confirm that the capital funding for this project has been provided. Staffing resources involved in the routine ongoing maintenance and the costs of consumables will however be needed to be found from within existing service budgets in year and onwards. These additional needs and costs are likely to place additional pressures on service finances.

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Signed by: Stephen Baily, Director of Culture, Leisure and Regulatory Services

Appendix 1: Integrated Impact Assessment

Background list of documents: The following list of documents discloses facts or matters, which have relied upon to a material extent by the author in preparing this report:

Title of Document	Location
LAQM.TG16	https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf

The recommendations set out above in 2.1 above were approved / approved as amended / deferred / rejected by the Cabinet on the 30th January 2020

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Signed by: Councillor Dave Ashmore, Cabinet Member for Environment & Climate Change