Portsmouth CITY COUNCIL Public Document Pack

NOTICE OF MEETING

CABINET

TUESDAY, 25 JUNE 2019 AT 4.30 PM

EXECUTIVE MEETING ROOM - THE GUILDHALL - FLOOR 3

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If any member of the public wishing to attend the meeting has access requirements, please notify the contact named above.

Membership

Councillor Gerald Vernon-Jackson CBE (Chair)
Councillor Steve Pitt (Vice-Chair)

Councillor Dave Ashmore	Councillor Lynne Stagg
Councillor Suzy Horton	Councillor Matthew Winnington
Councillor Darren Sanders	Councillor Rob Wood
Councillor Jeanette Smith	Councillor Lee Hunt

(NB This Agenda should be retained for future reference with the minutes of this meeting.)

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AGENDA

1 Apologies for Absence

2 Declarations of Interests

3 Assessment of Air Quality - Annual Statement Report 2019 (Pages 3 - 190)

The purpose of the report by the Director of Culture, Leisure and Regulatory Services is to provide the Cabinet information on the:

- Local Air Quality Management (LAQM) process and the 2018 Review and Assessment (R&A) of air quality (AQ) in Portsmouth through the

publication of the 2019 Annual Status Report (ASR)

- Legal responsibilities placed upon Portsmouth City Council (PCC) in respect to AQ by the Department for Environment, Food and Rural Affairs (DEFRA)

- Actions undertaken and proposed by PCC which are likely to positively impact upon air pollution levels in Portsmouth.

RECOMMENDED that the Cabinet approves:

(1) The submission of the 2019 ASR (as attached as Appendix 1) to DEFRA
(2) The publication of the documentation set out in Section 9.4

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Portsmouth CITY COUNCIL

Title of meeting: Cabinet Decision Meeting

Date of meeting: 25th June 2019

Subject: Assessment of Air Quality - Annual Statement Report 2019

Report by: Director of Culture, Leisure and Regulatory Services

Wards affected: All

Key decision: No

Full Council decision: No

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1. Purpose of report

1.1 To provide the Cabinet information on the:

- Local Air Quality Management (LAQM) process and the 2018 Review and Assessment (R&A) of air quality (AQ) in Portsmouth through the publication of the 2019 Annual Status Report (ASR)
- Legal responsibilities placed upon Portsmouth City Council (PCC) in respect to AQ by the Department for Environment, Food and Rural Affairs (DEFRA)
- Actions undertaken and proposed by PCC which are likely to positively impact upon air pollution levels in Portsmouth.

2. Recommendation

2.1. That the Cabinet approves the:

- **submission of the 2019 ASR as attached as Appendix 1 to DEFRA**
- **publication of the documentations set out in Section 9.4.**

3. Reason for the recommendations

3.1. To fulfil the duties placed upon PCC under the Environment Act 1995. LAQM is the statutory process by which the government requires PCC to monitor, assess and take action to improve local AQ.

3.2. The main pollutant of concern in Portsmouth is Nitrogen Dioxide (NO_2). Public Health England (PHE) advises that it is well established that NO_2 is a respiratory irritant that can cause inflammation of the airways. PHE state that studies have demonstrated that long-term exposure to air pollution (over several years) reduces life expectancy, mainly due to cardiovascular and respiratory causes from lung cancer.

3.3 In 2018 there were no exceedances of the national AQ objectives (NAQO) for particular matter (particulates that are less than 10 microns (µm) or 2.5 µm in diameter (PM_{10} and $PM_{2.5}$)). There is however an extensive body of evidence that long-term exposure to PM increases mortality and morbidity from cardiovascular and respiratory diseases. Outdoor air pollution particularly PM, has also been classified by the International Agency for Research on Cancer (IARC) as carcinogenic to humans (a Group 1 carcinogen) and causing lung cancer.

3.4. It should be noted that upon approval the 2019 ASR will be submitted to DEFRA on or before the 30th June. DEFRA will then consider the suitability of its content in accordance with its guidance. Only following approval by DEFRA can the document be considered to be officially accepted. Any comments made by DEFRA will be brought to the attention of the Cabinet at the earliest possible point in time.

4. Summary of key AQ actions for 2019 / 2020

- Deliver reductions in air pollution
- Achieve compliance with statutory obligations under LAQM regime
- Publish the 2019 ASR by the 30th June 2018
- Comply with the Ministerial Directions issued under the Environment Act 1995 by the Parliamentary Under Secretary of State for DEFRA issued in 2018 to achieve compliance with the NO_2 statutory limits in the shortest possible timeframe
- Deliver a new comprehensive plan to tackle air pollution by 31st October 2019.

5. The need for action

5.1. Air pollution has substantial health, economic and environmental impacts in the UK and locally. LAQM seeks to reduce the impact of air pollution upon human health. In March 2019 PHE published a review of evidence on how to improve air quality in the United Kingdom UK. Within this document PHE state that air pollution has a significant effect on public health, and poor air quality is the largest environmental risk to public health in the UK. PCC recognises the serious consequences of these harmful impacts and acknowledges that the costs to UK society are estimated at more than £20 billion every year.

5.2 DEFRA has identified that nationally, the most deprived groups tend to have the highest ambient levels of air pollution, including NO_2. This is also the case in Portsmouth where our areas of highest deprivation correspond to the areas of poorest air quality air pollution.

6. LAQM

6.1 PCC uses the LAQM R&A process to assess and take action to improve local AQ. Where we identify areas of non-compliance with the NAQO set to protect human health and where there is relevant public exposure, we have a statutory duty to declare the geographic extent of non-compliance as an AQ Management Area (AQMA) and to draw up plans detailing remedial measures to address the problem.

6.2 PCC is required to produce the AQ ASR which must present the measures employed to improve AQ and document any progress that has been made.

6.3 The ASR process is designed to allow sufficient understanding in the analysis of pollutant occurrence to support the identification of new non-compliant areas (i.e. 'hot spots') and to report on progress within existing AQMAs.

6.4 Whilst the use of the DEFRA ASR template is mandatory, this approach does not preclude the flexibility to provide added detail, updated information, or further analysis where this has taken place. The 2019 ASR takes advantage of this allowance.

7. New NO_2 monitoring data in Portsmouth

7.1 In 2018 a different assessment regime of the European Union (EU) Directive on AQ led to DEFRA placing an obligation on PCC to develop a plan to tackle areas where NO_2 levels are in excess of the NAQO standards set to protect human health.

7.2 This new assessment criteria was in addition to where we have previously identified pollution hotspots and where we have being monitoring pollution concentrations for many years (and accordingly have obtained long term data sets). Consequently, in 2018 a part of Portsmouth not previously assessed under the LAQM regime and where there is an absence of long-term public exposure (i.e. pavements alongside busy roads with no nearby residential uses) became a new focus. The main areas of concern centred around Alfred Road between Hope Street roundabout and the Queen Street / Anglesea Road / Alfred Road intersection and Mile End Road between the southern end of the M275 and Church Street roundabout. These areas were mentioned in the 2018 ASR however we now have limited (short term) NO_2 monitoring data for these sites.

7.3 In addition to deploying monitoring devices along the above named roads, during 2018 PCC further increased its number of NO_2 diffusion tube monitoring locations around the city. The reason for this was twofold, firstly as a consequence of DEFRA's interest in new geographic areas where exposure to NO_2 is possible and secondly to assess the impact of PCCs activities to reduce NO_2 in these areas over the longer term.

7.4 This increased level of monitoring, in new areas not previously assessed has enabled a higher resolution picture to be formulated in respect to NO_2 concentrations than that which was available in previous years. Consequently this has created a slightly different narrative in respect to areas *displaying an*

exceedance of the NAQO standards and those which are *demonstrating levels in excess* of the NAQO.

7.5 For further clarity, the pre-2018 NO_2 monitoring focused upon areas exceeding the NAQO standards where *relevant exposure* occurred. Relevant exposure is defined as areas where there are homes, schools, hospitals and similar building uses. During and post-2018 monitoring has also focused upon areas *in excess* (or likely to be in excess) of the NAQO standards where the public may be exposed to high levels of pollution. Exposure of this type is deemed to occur at roadside locations where the public may be present for short durations such as pavements.

7.6 Whilst the data sets from the new monitoring locations are of short duration all data achieving the minimum level of validation (i.e. 3 months or more) have been verified and included within the 2019 ASR.

7.7 PCC is in regular discussion with officials of DEFRA's Joint Air Quality Unit (JAQU) to determine the extent of measures necessary to achieve a satisfactory outcome to the issues identified in Portsmouth and a report detailing these will be published in 2019 (See section 9).

7.8 PCC currently has 5 AQMAs declared on the grounds of monitored or modelled exceedances of the annual mean NO_2 NAQO.

7.9 As a result of the increased monitoring regime in and around the AQMAs which have previously demonstrated long term compliance with the NAQO objectives we have no intention to revoke AQMAs even where levels have been consistently recorded in compliance with the NAQO. The new monitoring sites have increased the number of locations known to be in excess of the NAQO however where long term monitoring has been established the number of exceedances remains consistent with previous years.

8. AQ action planning

8.1 Within DEFRA's 2019 Clean Air Strategy DEFRA acknowledge that an efficient transport system is an essential part of modern life and a healthy economy, and that average levels of NO_2 at the roadside are at their lowest level since the government first started to collect their statistics. Despite this PCC recognises the fact that our most immediate air quality challenge is to reduce roadside concentrations of pollutant below the NAQO in the shortest possible timeframe and therefore our primary focus is upon reducing emissions from road vehicles.

8.2 DEFRA is currently providing extensive direction, guidance and support to PCC, requiring us to develop plans to reduce pollution and access their predicted positive impacts upon pollution concentrations.

8.3 DEFRA require us to benchmark our actions against the Clean Air Zone (CAZ) Framework for England published in 2017 so that they can have confidence that our plans will achieve compliance in the same time or a quicker time than the implementation of a CAZ. This is the reason why DEFRA use the terminology of *"the shortest possible timeframe*".

8.4 The support provided by DEFRA includes funding to enable PCC to help take the necessary action to improve air quality whilst minimising the impact of these plans on individuals and businesses. Where impact occurs DEFRA have confirmed that they will be working with us to consider viable mitigation measures whilst delivering the required improvements in pollution levels.

8.5 In 2018 Ministerial Directions were issued to 33 local authorities, including Portsmouth, requiring the identified authorities to submit studies (See section 9) on the steps we can take to comply with roadside NO_2 limits in the shortest amount of time. In October 2018 the government published a supplement to this original plan prescriptively setting out what work we need to do. Portsmouth is now required to take forward, following approval of our plan, new measures to tackle air pollution.

8.6 Additionally, and critically, PCC are now able to carry out a more comprehensive study outlining in detail how we will tackle the more persistent air quality problems we have previously identified and those identified by DEFRA in 2018.

8.7 PCC further acknowledges that this work has dramatically surpassed our previous action planning aspirations. The government's procedural requirements and financial assistance has significantly exceeded our unilateral abilities to assess and deliver solutions to areas of localised pollution and develop a city wide approach to reduce harmful emissions. To further assist us in our endeavours DEFRA has also produced guidance on the more directly effective and ambitious measures and how these need to be assessed which we will need to adopt to improve air quality.

9. AQ local plan - the government's requirements

9.1 The study DEFRA is mandating PCC to undertake is called the Air Quality Local Plan (AQLP). It comprises of a local assessment of air quality to consider the best option to achieve compliance with the NAQO within the shortest possible time.

9.2 The first section of the AQLP is the strategic outline case (SOC). Our draft SOC was presented to DEFRA in January 2019. The government requires that our final plan is submitted no later than 31 October 2019, in the form of an Outline or Full Business Case. The purpose of the SOC is to establish the case for change by providing the context for the rationale that supports options for the reduction of NO_2 concentrations in Portsmouth. It seeks to provide a suggested way forward by refining a long list of options to a short list of options to be further developed in the Outline Business Case.

9.3 The government also requires that the submission of our short list of actions to improve air quality must include a benchmark option that will achieve compliance in the shortest possible time. The government's starting assumption is that the benchmark option will be a charging CAZ of a high enough class to bring about compliance and therefore PCC must comply with this requirement.

9.4 The SOC and the information from which it is formed are available from the background links provided at the end of this report. These documents include:

- Portsmouth Source Apportionment Study (PCC, 2017) that quantified the contributions of different road vehicle types to ambient pollutant concentrations in the areas of exceedance and determined the emissions reductions to achieve compliance

- Targeted Feasibility Study 1 (PCC, 2018) to deliver NO_2 compliance in the shortest possible time – focusing on two links identified in the Defra Pollution Climate Mapping National Model as having projected excesses of the annual mean NO_2 NAQO

- Targeted Feasibility Study 2 (2018) to deliver NO2 compliance in the shortest possible time – focusing on the A2047 London Road (AQMA 6) identified from local air quality monitoring data as having projected exceedances of the annual mean NO_2 NAQO

- Proposal for Local Plan Development (2018) - focusing on PCC studies to implement actions to meet the annual mean NO_2 NAQO within the shortest possible timeframe

10. 2019 ASR conclusions

10.1 5 key conclusions of the 2019 ASR are:

- NO_2 levels in Portsmouth are a significant concern

- Delivering compliance with statutory obligations and further reducing harmful levels of pollution is the key priority. Compliance may require the deployment of CAZ.

- Despite having information in respect to pollution levels in areas of the city not previously assessed, at sites where historical information is available the data contained within the 2019 ASR is not considered to represent a significant deterioration in air quality.

- In 2019 PCC will continue to increase its knowledge of NO_2 levels by redeploying its current number of monitoring sites to further explore the geographical extent of possible hotspot areas and to seek evidence of longer term trends.

- PCC commits to working together with DEFRA and other interested parties through the AQ Steering Group to assess the complex needs of the city whilst undertaking this necessary and important work.

10.2. The key results are shown in Table 1 below:

Table 1

NDDTS = Nitrogen Dioxide Tube Survey
CAQMS = Continuous Air Quality Monitoring Station
*All results are annual averages
N/A = Not applicable

NDDTS year	NO_2 DOWNWARD trend* recorded at long term monitored locations	Improvement?
2014 - 2018	60.71%	Yes
2013 - 2017	34.37%	
2018	53.57%	No
2017	64.28%	
NDDTS year	Locations in excess of NO_2 NAQO* (long term sites)	Improvement?
2018	7.14%	No
2017	7.14%	
NDDTS year	No. of sites exceeding NAQO* (long term sites) located outside an AQMA	Improvement?
2018	0	N/A
2017	0	
CAQMS Station	5 year NO_2 trend*	Improvement?
London Road	Downward	Yes
Gatcombe Park	Downward	Yes
Burrfields Road	Downward	Yes
Mile End Road	Downward	Yes
CAQMS Station	NO_2 2017 compared with 2018*	Improvement?
London Road	10.08% decrease	Yes
Gatcombe Park	1.83% decrease	Yes
Burrfields Road	3.03% decrease	Yes
Mile End Road	1.03% increase	No
CAQMS Station	Exceeding NO_2 NAQO*	
London Road	Yes	
Gatcombe Park	No	
Burrfields Road	No	
Mile End Road	No	
Anglesea Road	No	

10.3 The 2018 data demonstrates that no exceedances of the objective levels set in respect to PM (both PM_{10} and $PM_{2.5}$) have occurred.

11. Equalities Impact Assessment

11.1. A full equality impact assessment is not required as the recommendations do not have a negative impact on any of the protected characteristics as described in the Equality Act 2010. The provisional EIA is attached as **Appendix 2**.

12. City Solicitor's comments

12.1. The timetable submitting the ASR is provided Section 2.5 of the Local Air Quality Management Technical Guidance 2016 (updated in February 2018).

12.2. The aim of the assessment of AQ is to identify with reasonable certainty whether or not a likely exceedance of the NAQO will occur. The AQ (England) Regulations 2000 (SI 928) and The Air Quality (England) (Amendment) Regulations 2002 (SI 3043) make it clear that likely exceedances of the objectives should be assessed in relation to the quality of the air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present. It is particularly important that our assessments focus on those locations where members of the public are likely to be regularly present and which are likely to be exposed for a period of time appropriate to the averaging period of the objective.

12.3. **It has been previously confirmed (Decision Report 2018 regarding the 2018 ASR) that current EU enforcement is in train and will, in effect 'carry-over' post Brexit.** Additionally in the context of national engagement the government, by reason of a series of successful Judicial Reviews, continues to be put to task to cascade the message that the consequence will be applicable enforcement, further directly applicable legislation and a greater requirement upon local authorities to engage and achieve targets of compliance.

12.4. It remains sensible to again confirm that whilst the current Judicial Review applications focus upon the government there is nothing in law to prevent such private applications being aimed at local authorities either failing to engage or failing to achieve compliance suitably interested individuals or groups could mount significant challenges. The defence is to fully commit and act as a reasonable Local Authority would.

13. Head of Finance comments

13.1. The costs of continuing to R&A AQ in Portsmouth will need to be met from within existing budgets.

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

Appendix 1: 2019 Annual Status Report of AQ
Appendix 2: Equality 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
Gov. UK - Guidance Health Matters: air pollution - Public Health England	https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution
DEFRA - UK and EU Air Quality Limits	https://uk-air.defra.gov.uk/air-pollution/uk-eu-limits
DEFRA - LAQM Technical Guidance (TG16)	https://laqm.defra.gov.uk/technical-guidance/
Gov.UK - Policy Paper - Clean Air Strategy 2019	https://www.gov.uk/government/publications/clean-air-strategy-2019
Gov.Uk - Policy Paper - Air quality plan of NO_2 in UK 2017	https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017
Gov.UK - Government to fund local authority plans to tackle air pollution	https://www.gov.uk/government/news/government-to-fund-local-authority-plans-to-tackle-air-pollution
Gov.UK - Air quality: clean air zone framework of England	https://www.gov.uk/government/publications/air-quality-clean-air-zone-framework-for-england
Access to the documents detailed in Section 9.4	https://preview-portsmouth.cloud.contensis.com/Preview/1/ext/environmental-health/air-quality-and-pollution/air-quality-in-portsmouth.aspx

The recommendations set out above in 2.1 above were approved / approved as amended / deferred / rejected by the Cabinet on 25th June 2019

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Signed by: Councillor Gerald Vernon Jackson, Leader of Portsmouth City Council

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Portsmouth
CITY COUNCIL

2019 Air Quality
Annual Status Report (ASR)

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

April 2019

Local Authority Officer	Portsmouth City Council
Department	Regulatory Services
Address	Civic Offices, Guildhall Square, PO1 2AL
Telephone	02392834245
E-mail	redouan.sadak@portsmouthcc.gov.uk
Report Reference number	ASR 2019
Date	June 2019

Executive Summary: Air Quality in Our Area

Air Quality in Portsmouth

In line with the Department of Environment, Food and Rural Affairs (DEFRA) requirements this 2019 Annual Status Report (ASR) has been designed to:

- provide the public with information relating to Local Air Quality (LAQ) in the city of Portsmouth
- confirm Portsmouth City Council's (PCC) statutory duty to Review and Assess (R&A) air quality (AQ) within its area
- determine whether or not the National Air Quality Objectives (NAQO) are being or are likely to be achieved.

Whilst comprehensive this report does not seek to provide comprehensive detail on all LAQ related activities in Portsmouth during 2018.

In March 2019 Public Health England (PHE) published a review of evidence on how to improve AQ in the United Kingdom (UK). Within this document PHE state that air pollution has a significant effect on public health, and poor AQ is the largest environmental risk to public health in the UK. PCC recognises the serious consequences of these harmful impacts and that acknowledges that the costs to UK society are estimated at more than 20 billion pounds every year.

PHE confirm that epidemiological studies have shown that long-term exposure to air pollution reduces life expectancy, mainly due to cardiovascular and respiratory causes and from lung cancer. The annual mortality burden of human-made air pollution in the UK is roughly equivalent to between 28,000 and 36,000 deaths. Short-term exposure to elevated levels of air pollution can also cause a range of effects including exacerbation of asthma, effects on lung function, increases in respiratory and cardiovascular hospital admissions and mortality.

The main pollutant of concern in Portsmouth is Nitrogen Dioxide (NO_2). PHE advise that it is well established that NO_2, particularly at high concentrations, is a respiratory irritant that can cause inflammation of the airways. Studies have shown associations of NO_2 in outdoor air with reduced lung development and respiratory infections in early childhood and effects on lung function in adulthood. A number of studies have

also demonstrated that long-term exposure to air pollution (over several years) reduces life expectancy, mainly due to cardiovascular and respiratory causes from lung cancer.

PHE go on to say that currently there is no clear evidence of a threshold concentration of NO_2 in ambient air below which there are no harmful effects for human health. Therefore, further reduction of NO_2 concentrations below the NAQOs is likely to bring additional health benefits. Despite the associations of outdoor NO_2 with adverse effects on health, including reduced life expectancy it has been unclear whether these effects are caused by NO_2 itself or by other pollutants emitted by the same sources (such as road traffic). Evidence associating NO_2 with health effects has strengthened substantially in recent years but there is debate as to whether it is causal or a marker for other traffic-related pollutants.

New Nitrogen Dioxide Monitoring Data

In 2018 a different assessment regime of the European Union (EU) Directive on Air Quality led to an obligation on PCC to develop a plan to tackle exceedances where these have been identified by DEFRA. This was addition to where we have previously identified pollution hotspots and where we have been monitoring for many years. Consequently, in 2018 a parts of Portsmouth not previously assessed under Local Air Quality Management (LAQM) regime and where there is an absence of long-term public exposure (pavements alongside busy roads with no nearby relevant exposure as identified in the 2016 Local Air Quality Management Technical Guidance (LAQM.TG(16)) became a new focus.

This increased level of monitoring through the deployment of NO_2 Diffusion Tubes (NDDT), in new areas not previously targeted, has enabled a higher resolution picture to be formulated in respect to NO_2 concentrations than that which was available in previous years. Consequently this has created a different narrative in respect to areas of exceedance which exist. Whilst the data sets from the new monitoring locations are of short duration all data achieving the minimum level of validation (i.e. 3 months or more) have been verified and included within this ASR.

PCC is in regular discussion with officials of the DEFRA's Joint Air Quality Unit (JAQU) in respect to our monitoring data and to determine the extent of measures

necessary to achieve a satisfactory outcome to the issues identified in Portsmouth. A report detailing these will be published in 2019.

PCC currently has 5 Air Quality Management Areas (AQMAs) declared on the grounds of monitored or modelled exceedances of the UK annual mean NO_2 NAQO. As a result of the increased monitoring regime in and around the AQMAs which have previously demonstrated long term compliance with the NAQO objectives we have no intention to revoke AQMAs even where levels have been consistently recorded in compliance with the NAQO. The new monitoring sites have increased the number of locations known to be in excess of the NAQO however where long term monitoring has been established the number of exceedances remains consistent with previous years.

Actions to Improve Local Air Quality

Within DEFRA's 2019 Clean Air Strategy DEFRA acknowledge that an efficient transport system is an essential part of modern life and a healthy economy, and that average levels of NO_2 at the roadside are at their lowest level since the government first started to collect their statistics. Despite this PCC recognises the fact that our most immediate AQ challenge is to bring roadside concentrations of pollutant within legal limits in the shortest possible timeframe.

DEFRA is currently providing extensive direction, guidance and support to PCC, requiring us to develop local action plans and to benchmark these against the Clean Air Zone (CAZ) Framework for England published in 2017. The support provided includes funding to enable us to help take the necessary action to improve AQ whilst minimising the impact of these plans on individuals and businesses.

In 2018 Ministerial Directions (MDs) were issued to 33 Local Authorities (LAs), including Portsmouth, requiring PCC to submit studies on the steps we can take to comply with roadside NO_2 limits in the shortest possible timeframe. In October 2018 the government published a supplement to this original plan prescriptively setting out what work we need to do. Portsmouth is now required to take forward new measures to tackle air pollution.

Additionally, and critically, PCC are now able to carry out a more comprehensive study outlining in detail how we will tackle the more persistent AQ problems we have

previously identified and those identified by DEFRA in 2018. These studies need to be presented to DEFRA by 31st October 2019 at the very latest.

PCC further acknowledges that this work and the requirements to meet the October 2019 deadline have dramatically surpassed our previous action planning aspirations. The government's procedural requirements and financial assistance has significantly exceeded our unilateral abilities to assess and deliver solutions to areas of localised pollution and develop a city wide approach to reduce harmful emissions. To further assist us in our endeavours DEFRA has also produced good practice guidance on the more directly effective and ambitious measures which we will need to adopt to improve LAQ.

Local Engagement and How to Get Involved

As the only island city in the UK Portsmouth is quite unique. The city is densely populated with just three roads onto the island, a thriving economy and international ferry and Ministry of Defence ports, so we know that to resolve our air pollution problems we need to seek to engage with as many people as possible that visit, work, study and live in the city.

To provide governance and work in partnership with all teams within PCC that contribute to engaging the community an Air Quality Board (AQB) has been established. To support the AQB, key stakeholders in the city form an Air Quality Steering Group (AQSG). The feedback from this group has been essential in assisting with the development of the updated Local Air Quality Plan (LAQP).

Various campaigns have been developed to highlight and raise awareness such as an anti-idling campaign using *"Cough Cough switch your engine off"* as its tagline. This has used regularly on main routes into the city through the use of visual messaging signs.

We have worked with schools and businesses so that they can support us in engaging their children and staff to further raise the profile of AQ and additionally, a *"join the fight for cleaner air"* leaflet has been delivered to every household in Portsmouth explaining and discussing the AQ problems the city is facing and asking for everyone's help to tackle this problem. A copy of this leaflet is provided under "Correspondence 1", in Appendix G.

Throughout the year we support national campaigns and hold specific active travel events, such as *"Glow Ride"* to encourage model shift through safe cycling. We promoted active safer travel within schools through our fun Pompey Monsters Walk to School Challenge which was initially a pilot scheme to encourage children to walk to school regularly however, following its success 11 Portsmouth schools are currently taking part. This challenge takes place over a seven week period during which children need to stomp (walk, scoot or cycle) to school at least three times a week. Children successfully completing the challenge each week are awarded a different Pompey Monster keyring.

We have carried out a targeted campaign with local residents to highlight the importance of clean air and make them aware that we are expecting our AQ to have deteriorated and to advise that tough measures and difficult decisions are required. These hard hitting messages further draw attention to the fact we all need to get involved to solve Portsmouth's AQ problems.

We will continue to develop clearer narratives in support of our cleaner air strategies. This will flow through all activity that is associated with air pollution creating many opportunities for all to get involved and communicate with us in vitally important issues such as development consultations and regeneration plans. We hope that the local community will see our campaigns and join with us in finding and delivering solutions. Those that are interested will be able to find out more through our website pages and have access to toolkits to get people out of cars and more involved with active travel and using greener modes of travel.

Local Elected Members have taken a leadership role in respect to the levels of air pollution being recorded in Portsmouth and the complexity of the solutions which are necessary to effectively tackle them. In March 2019, the Leader of PCC wrote to the Secretary of State for the Environment in respect to the MDs served upon us providing suggestions to help reduce pollution caused by vehicular traffic and to provide incentives to use non-car based travel. A copy of this letter provided under "Correspondence 2", in Appendix G. The content of this 2019 ASR has been discussed by PCC's Cabinet and approved prior to submission to DEFRA.

Conclusions and Priorities

1. NO_2 levels in Portsmouth are a significant concern.
2. Delivering compliance with statutory obligations and further reducing harmful levels of pollution is the key priority.
3. Despite having new short term monitoring information in respect to pollution levels in areas of the city not previously assessed, at sites where historical information is available the data contained within the 2019 ASR is not considered to represent a significant deterioration in air quality.
4. In 2019 PCC will continue to increase its knowledge of NO_2 levels by redeploying its current number of monitoring sites to further explore the geographical extent of possible hotspot areas and to seek evidence of longer term trends.
5. PCC commits to working together with DEFRA and other interested parties through the AQ Steering Group to assess the complex needs of the city whilst undertaking this necessary and important work.

Summary of Nitrogen Dioxide Monitoring Results

NDDTS = Nitrogen Dioxide Tube Survey
CAQMS = Continuous Air Quality Monitoring Station
*All results are annual averages
N/A = Not applicable

NDDTS year	NO_2 DOWNWARD trend* recorded at long term monitored locations	Improvement?
2014 - 2018	60.71%	Yes
2013 - 2017	34.37%	
2018	53.57%	No
2017	64.28%	
NDDTS year	Locations in excess of NO_2 NAQO* (long term sites)	Improvement?
2018	7.14%	No
2017	7.14%	
NDDTS year	No. of sites exceeding NAQO* (long term sites) located outside an AQMA	Improvement?
2018	0	N/A
2017	0	
CAQMS Station	5 year NO_2 trend*	Improvement?
London Road	Downward	Yes
Gatcombe Park	Downward	Yes
Burrfields Road	Downward	Yes
Mile End Road	Downward	Yes
CAQMS Station	NO_2 2017 compared with 2018*	Improvement?
London Road	10.08% decrease	Yes
Gatcombe Park	1.83% decrease	Yes
Burrfields Road	3.03% decrease	Yes
Mile End Road	1.03% increase	No
CAQMS Station	Exceeding NO_2 NAQO*	
London Road	Yes	
Gatcombe Park	No	
Burrfields Road	No	
Mile End Road	No	
Anglsea Road	No	

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1 Local Air Quality Management

This report provides an overview of air pollution in Portsmouth during 2019. It fulfils the requirements of LAQM as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all LAs to regularly R&A AQ in their areas, and to determine whether or not the NAQOs are likely to be achieved.

Where an exceedance at sensitive locations (Relevant Exposure) is considered likely we must declare an AQMA and prepare an AQAP setting out the measures we intend to put in place in pursuit of the NAQOs.

This ASR, which follows the prescriptive template requirements provided by DEFRA, is an annual requirement outlining the strategies employed by PCC to improve LAQ and any progress or otherwise that has been made in reducing air pollution.

The statutory NAQO applicable to LAQM in England can be found in Table E.1 in Appendix E.

Actions to Improve Air Quality

On 26 July 2017, the government published the UK Plan for tackling roadside NO_2 concentrations. This set out how government would bring the UK NO_2 concentrations within the statutory annual limit of 40 micrograms per cubic metre (µg/m3) in the shortest possible time.

As part of the UK Plan, government set out how 28 LAs (first and second wave local authorities) with the most severe NO_2 exceedances[1] should develop local plans to implement measures to achieve compliance with statutory NO_2 limits (set out in the Ambient Air Quality Directive (AAQD) within the shortest possible time.

On 5 October 2018, the government published a supplement to the UK Plan, setting out conclusions for each of the 33 ‘third wave’ local authorities[2], based on Targeted Feasibility Studies (TFS) undertaken for each of these LAs. The supplement set out

[1] Based on DEFRA Pollution Climate Mapping (PCM) model outputs, these authorities were forecast to exceed legal NO_2 limits in 2020.
[2] Identified in the UK Plan as having shorter-term NO_2 exceedances with projected compliance with legal limits by 2021.

that there are 8 LAs that have identified more persistent long term exceedances. Portsmouth is one of these 8 LAs falling into this category.

Under the terms of the Environment Act 1995, the government has issued a MD to this group of LAs. This MD requires PCC to develop a local plan to identify options which will deliver compliance with legal limits for NO_2 in the shortest possible timeframe.

PCC is therefore required to undertake a local assessment to consider the best option/s to achieve compliance within the shortest possible timeframe.

An initial draft plan (in the form of a Strategic Outline Case (SOC)) was provided to DEFRA in January 2019. A final plan must be submitted no later than 31 October 2019, in the form of an Outline Business Case (OBC) or Full Business Case (FBC). If statutory public consultation is required, an OBC that outlines the final plan must be submitted at the earliest opportunity and no later than 31 October 2019, with the FBC to follow shortly after.

In the technical report published alongside the UK Plan, government identified a charging CAZ[3] as the measure, able to be modelled nationally, which would achieve compliance with NO_2 limits in the shortest possible timeframe.

Given the potential impacts on individuals and businesses, the government believes that if a LA can identify measures other than charging CAZ that can be shown to deliver NO_2 compliance as quickly as a charging CAZ then those measures should be preferred.

The UK Plan states that local plans should seek to target measures so as to minimise their impact on local residents and businesses. Where local plans will have a significant impact on residents and businesses, government will work with LAs to consider mitigation options.

JAQU is responsible for overseeing the delivery of the UK Plan which includes supporting LAs and other organisations on the delivery of local plan measures in their area.

[3] A CAZ defines an area where targeted action is taken to improve air quality and resources are prioritised and coordinated in order to shape the urban environment in a way that delivers improved health benefits and supports economic growth. It may or may not include a charging element.

The SOC establishes the case for change provides the context for the rationale that supports options for the reduction of NO_2 concentrations in Portsmouth. It seeks to provide a suggested way forward by refining a long list of options to a short list of options to be further developed in the OBC.

The short and long list includes a mandatory benchmark that will achieve compliance in the shortest possible time. The starting assumption is that the benchmark will be a charging CAZ of a high enough class to bring about compliance.

DEFRA have specified five cases model, covering the 5 core elements of a business case. These are:

- **Strategic Case** - Makes the case for change. Analyses the current situation and identifies the required change, what outcomes are expected, and how this fits with wider government policies and objectives
- **Economic Case** - What is the net value to society (the public value) of the proposal? What are the risks and their costs, and how are they best managed
- **Commercial Case** - Can a realistic and credible implementation approach be developed, who will manage which risks
- **Financial Case** - What is the impact of the proposal on the budget of the public sector in terms of total cost both capital and revenue and
- **Management Case** - Are there realistic and robust delivery plans, how can the proposal be delivered?

The information presented in the SOC report draws heavily on the following evidence sources:

- Portsmouth Source Apportionment Study (PCC, 2017)[4] that quantified the contributions of different road vehicle types to ambient pollutant concentrations in the areas of exceedance and determined the emissions reductions to achieve compliance

[4] Portsmouth City Council (2017). Source Apportionment Study 2017. Available on request from Portsmouth City Council Regulatory Services.
[5] Portsmouth City Council (2018a). Targeted Feasibility Study to delivery nitrogen dioxide concentration compliance in the shortest possible time. Submitted to Defra, September 2018.

- TFS1 to deliver NO_2 compliance in the shortest possible timeframe (PCC, 2018a)[5] – which focused on two links identified in the DEFRA Pollution Climate Mapping (PCM)[6] - National Model as having projected exceedances of the NO_2 annual mean EU limit Value of 40 µg/m^3 and
- TFS2 to deliver NO2 compliance in the shortest possible time (PCC, 2018b)[7] – which focused on the A2047 London Road (AQMA6) identified from LAQ monitoring data as having projected exceedances of the NO_2 annual mean EU limit Value of 40 µg/m^3.

LAQ modelling has been undertaken for the 3 TFS study areas based on the traffic data collected in 2015 and forecast to future years. This included modelling measures that targeted the main road traffic sources within these exceedance areas to identify when compliance may be achieved. These measures included a programme of bus retrofitting, promotion of Electric Vehicles (EV) and travel planning to reduce private car use.

PCC's existing local plan (known as the Air Quality Action Plan (AQAP)) will be updated following the production of the DEFRA necessitated plan as the outcomes of this process will effectively become the PCC AQAP moving forward.

Clarification of the "shortest possible timeframe" and why "new monitoring has been undertaken in areas not previously assessed"

Shortest possible timeframe

DEFRA is clear that action must be taken in the shortest time possible to improve AQ in areas where air pollution is above legal limit values.

DEFRA will therefore assess our local plan to ensure it is effective, fair, good value, and deliver the necessary AQ compliance as quickly as possible.

JAQU will provide feedback to PCC in respect to our plans and will decide whether or not to approve our proposals. Our local plan will only be approved by DEFRA, and be considered for appropriate funding support, if:

[6] Pollution Climate Mapping UKAir The Pollution Climate Mapping (PCM) model is a collection of models designed to fulfil part of the UK's EU Directive (2008/50/EC) - https://uk-air.defra.gov.uk/research/air-quality-modelling?view=modelling

[7] Targeted Feasibility Study to delivery nitrogen dioxide concentration compliance in the shortest possible time – London Road. September 2018 London Road. September 2018 Portsmouth City Council (2018b).

- it is likely to cause NO_2 levels in the area to reach legal compliance within the shortest possible timeframe.
- Compliance must be achieved as quickly or quicker than the implementation of a CAZ which has been proven, through modelling, to deliver compliance by a certain date
- the effects and impacts on local residents and businesses have been assessed, including on disadvantaged groups, and there are no unintended consequences and
- proposals that require central government funding demonstrate value for money.

If the government deems PCC's plan to be insufficient, DEFRA will require PCC to implement alternative measures in Portsmouth to deliver the necessary improvement in the shortest possible timeframe.

Where there are no other viable options to reduce air pollution to legally-permissible levels in the shortest possible time, the Government have confirmed that Portsmouth will be required to introduce access restrictions on vehicles, such as charging CAZs or other measures to prevent certain vehicles using particular roads at particular times.

New monitoring

In 2018 a different assessment regime of the European Union (EU) Directive on AQ led to DEFRA placing an obligation on PCC to develop a plan to tackle areas where NO_2 levels are in excess of the NAQO standards set to protect human health.

This new assessment criterion was in addition to where we have previously identified pollution hotspots and where we have been monitoring pollution concentrations for many years (enabling us to obtain long term data sets). Consequently, in 2018 a part of Portsmouth not previously assessed under the LAQM regime and where there is an absence of long-term public exposure (i.e. pavements alongside busy roads with no nearby residential uses) became a new focus.

The main areas of concern centered around Alfred Road between Hope Street roundabout and the Queen Street / Anglesea Road / Alfred Road intersection and Mile End Road between the southern end of the M275 and Church Street

roundabout. These areas were mentioned in the 2018 ASR however we now have limited (short term) NO_2 monitoring data for these sites.

This increased level of monitoring, in new areas not previously assessed has enabled a higher resolution picture to be formulated in respect to NO_2 concentrations than that which was available in previous years. Consequently this has created a slightly different narrative in respect to areas *displaying an exceedance* of the NAQO standards and those which are *demonstrating levels in excess* of the NAQO.

For further clarity, the pre-2018 NO_2 monitoring focused upon areas exceeding the NAQO standards where *relevant exposure* occurred. Relevant exposure is defined as areas where there are homes, schools, hospitals and similar building uses. During and post-2018 monitoring has also focused upon areas *in excess* (or likely to be in excess) of the NAQO standards where the public may be exposed to high levels of pollution. Exposure of this type is deemed to occur at roadside locations where the public may be present for short durations such as pavements.

1.1 Air Quality Management Areas

AQMAs are declared when there is an exceedance or likely exceedance of the NAQO. After declaration, authorities must prepare an AQAP within 12 to 18 months setting out measures intended to put in place in pursuit of the NAQOs.

A summary of AQMAs declared by PCC can be found in Table 1.1.

Alternatively, see Appendix D: Map(s) of CAQMSs and AQMAs, which provides for a map of AQ monitoring locations in relation to the AQMAs.

Further information relating to declared or revoked AQMAs, including maps of AQMAs boundaries are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=198.

There are 5 AQMAs currently in place within Portsmouth statutory boundary which were declared due to exceedances in the annual NO_2 NAQO:

- AQMA6 - which extends north along Fratton Road from Fratton Bridge to Kingston Road, continuing into London Road until the roundabout junction with Stubbington Avenue and Gladys Avenue

- AQMA7 - covering Hampshire Terrace and the St Michael's Road gyratory
- AQMA9 - covering the southernmost section of Eastern Road from Sword Sands Road south into Velder Avenue and its junction with Milton Road
- AQMA11 - which extends from Rudmore Roundabout south to Church Street roundabout and
- AQMA12 - encompassing the greater part of Queen Street from The Hard to St James's Street.

Additionally, as a result of DEFRA's focus on additional areas of the city through the PCM model, the following 2 road links in Portsmouth have subsequently been modelled and are predicted to exceed the annual mean NO_2 limit value (PCC, 2018a)[7]: The short term monitoring data acquired during 2018 also confirms that this is likely to be the case. These 2 road links are:

- A3, Alfred Road between Hope Street roundabout and the Queen Street / Anglesea Road / Alfred Road intersection. The PCM model predicts that this road link will achieve compliance in 2020 (due to the natural upgrade of the national vehicle fleet to cleaner models), but data from a recent local modelling study suggests that this may not be achieved until 2023.
- A3, Mile End Road between the southern end of the M275 and Church Street roundabout (located within AQMA 11). The PCM model predicts that this link will achieve compliance in 2021, although results from recent local modelling suggest compliance may be achieved one year earlier in 2020.

[7] Portsmouth City Council (2018a). Targeted Feasibility Study to delivery nitrogen dioxide concentration compliance in the shortest possible time. Submitted to Defra, September 2018.

Table 1.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan	
						At Declaration	Now (From 2016 to 2017)	Name	Date of Publication
AQMA 6	2005	NO_2 Annual Mean	PCC	An area encompassing a large number of residential properties extending north along Fratton Road; from Fratton Bridge into Kingston Road, continuing into London Road until the roundabout junction with Stubbington Road and Gladys Avenue	NO	59.9 µg/m^3	From 49.16 µg/m^3 to 43.09 µg/m^3	PCC's AQAP was set up as a citywide AQAP rather than specifying actions for individual AQMAs. PCC's AQAP in the process of being reviewed	2011
AQMA 7	2005	NO_2 Annual Mean	PCC	An area encompassing a number of residential properties along Hampshire Terrace and St Michaels Road gyratory	NO	43.36 µg/m^3	From 43.52 µg/m^3 to 38.8 µg/m^3	PCC's AQAP was set up as a citywide AQAP rather than specifying actions for individual AQMAs. PCC's AQAP in the process of being reviewed	2011

AQMA 9	2005	NO_2 Annual Mean	PCC	An area encompassing a number of residential properties near to the southernmost section of Eastern Road from Sword Sands Road south into Velder Avenue and its junction with Milton Road	NO	43.1 µg/m^3	From 39.61µg/m^3 to 34.72µg/m^3	PCC's AQAP was set up as a citywide AQAP rather than specifying actions for individual AQMAs. PCC's AQAP in the process of being reviewed	2011
AQMA 11	2010	NO_2 Annual Mean	PCC	This area encompasses a large number of residential properties east of the west transport corridor extending along part of the M275 and Mile End Road stretching from Rudmore roundabout south to Church Street roundabout	NO	46.25 µg/m^3	From 39.34 µg/m^3 to 38.48 µg/m^3	PCC's AQAP was set up as a citywide AQAP rather than specifying actions for individual AQMAs. PCC's AQAP in the process of being reviewed	2011
AQMA 12	2005	NO_2 Annual Mean	PCC	An area encompassing a number of residential properties along Queen Street mainly an area stretching from The Hard to St James's Road	NO	33.11 µg/m^3	From 34.7µg/m^3 to 34.2µg/m^3	PCC's AQAP was set up as a citywide AQAP rather than specifying actions for individual AQMAs. PCC's AQAP in the process of being reviewed	2011

☒ **PCC confirm the information on UK-Air regarding their AQMA(s) is up to date**

1.2 Progress and Impact of Measures to address Air Quality in Portsmouth

DEFRAs appraisal of PCC's 2018 ASR

In July 2018 DEFRA submitted to PCC their appraisal of the 2018 ASR. In summary DEFRA stated that the 2018 document was well structured, detailed and provided information specified in LAQM.TG(16). Looking forward to the publication of the 2019 ASR, DEFRA's recommended that PCC's AQAP processes included additional information in respect to prioritisation and implementation criteria highlighting the cost-effectiveness of measures. An additional narrative in respect to such has therefore been included below and the progress Table 2.2 has been updated in this regard.

Air Quality Action Planning

PCC has taken forward a number of new measures during the current reporting year of 2019 in pursuit of improving LAQ in the shortest possible timeframe. Details of all the measures are set out in Table 1.2. PCC has provided information within the table of when measures are expected to be completed. Additionally, narrative in respect to the progress made in delivering key actions and where reduction air pollution is possible has been provided. PCC has prioritised actions where funding has already been secured and where the need is greatest.

The problems that PCC are facing are complex. Portsmouth is a densely populated partial island city with 3 primary north south main road links. NO_2 pollution from road traffic is the most significant problem in Portsmouth particularly and where high volumes or congested traffic travels through street canyons.

Combinations of the measures contained within Table 1.2 are required to contribute towards compliance. At this point in time PCC does not rule out a possibility that a CAZ (of some description) will be necessary to achieve compliance with NAQO and therefore details of these actions are included with the table.

Summary of measures to reduce emissions

A number of measures have been implemented, are currently being implemented, or are expected to be implemented very soon. Some of the forthcoming measures are therefore not reflected in DEFRA's baseline 2018 PCM modelling however those with potential to make a positive contribution to improving AQ in the newly identified exceedance links are highlighted below:

Road Link A3 Mile End Road

- Church Street Roundabout improvement - Expected to have alleviated stop-start conditions on Mile End Road. Implemented 2016. Emissions impact will depend on how average speeds have changed, due to the fact that speed emission factors show a polynomial relationship.
- Mile End Relining Scheme - Expected to smooth northbound traffic flow from Church Street roundabout. Expected to be implemented 2019. Emissions impact will depend on how average speeds have changed.
- Bus retrofit programme - DEFRA funding to retrofit 105 buses which pass through the A3 exceedance links to Euro 6 emissions standard. Could contribute to a 2% reduction in annual mean NO_2 concentrations on Mile End Road. Expected to be delivered in 2019

Road Link A3 Alfred Road

- Bus retrofit programme (as above) - Could contribute to a 2% reduction in annual mean NO_2 concentrations on Alfred Road. Expected to be delivered in 2019.

AQMA6 A2047 London Road

- A2047 Route long cycle safety improvements - PCC has been working to reduce accidents, reduce speeds and smooth traffic flow along this road from 2012-2017 by implementing a combination of new surfaces, lining and traffic calming at junctions.

Citywide

- Re-development of The Hard Gateway was completed in May 2017, providing improved links to rail and ferry services and improved pedestrian and cycle links to Gunwharf Quays and city centre principle shopping areas, helping to make public transport easier and more attractive to use. This work compliments the previous work carried out to improve the concourse and provide more secure cycle facilities at Portsmouth and Southsea station, which was completed in 2015.
- The Park and Ride 2 (PR2) service was launched in September 2018, and is a brand new half hourly service that accommodates the University and travels a new route from the Park and Ride to the heart of the city, also servicing businesses. The new route is popular and has been very well received and is part of a wider strategy to develop additional park and ride routes across Portsmouth.
- Sustainable Travel Transition Year Programme 2016-2017 - PCC were awarded £455,000 to deliver a package of proven behaviour change measures including personalised journey planning, workplace travel planning, travel to school initiatives and measures to support cycling and walking.
- Air Quality Grant Programme - PCC were awarded an Air Quality Grant (AQG) of £450,000 in 2017-2018 from Defra for targeted improvements in AQ within Portsmouth. The funding covers infrastructure improvements, communications and marketing, initiatives to promote sustainable travel in workplaces and schools, and eco-driving.
- EV Charging Points - Funding from the Office for Low Emission Vehicles (OLEV) to install charging points in residential areas. PCC are also undertaking a trial in off-street car parks. This work is currently on-going.

Wider measures to improve air quality

Portsmouth Air Quality Strategy (2017-2027)

Portsmouth's Air Quality Strategy (PAQS) sets out a commitment to "work collaboratively to improve and maintain a healthy LAQ in the city in order to protect health and the environment, enhancing our status as a great waterfront city".

It sets out the following strategic aims to:

- foster closer working relationships between PCC's directorates and external partners;
- create a focus on sustainable travel, including the promotion of a modal shift in transport from the car to active travel;
- provide high quality information and guidance on LAQ to members of the public;
- develop and implement measures to reduce traffic and congestion-related emissions, addressing road network flow and functionality;
- support and stimulate sustainable citywide economic growth, including a focus on reducing carbon emissions; and
- ensure that as a council we lead by example in supporting sustainable working practices, minimising our own emissions and carbon footprint.

The strategic objectives are underpinned by the following core principles: evidenced-based practice, innovation, collaborative working, monitoring and evaluation, ambition, seeking funding, and analysis.

In addition, various approaches and actions PCC intend to take to improve LAQ are detailed, to guide the development of the local AQAP which is being undertaken alongside the development of the UK Plan.

The Air Quality Board

The AQB was set up in 2018. It comprises of senior officers of PCC who meet approximately on a bi-monthly basis with updates to PCC Cabinet as appropriate. Its purpose is:

- To consider and enable resolution to key issues of concern with regards to AQ issues within Portsmouth, providing strategic oversight of the investment programmes underway for AQ.

The AQB's objectives are clearly defined as:

- championing improvements in AQ across the city
- providing a strategic platform to strive towards achieving compliance with the NAQO in the shortest possible timeframe
- overseeing the development of the AQAP, and the implementation of interventions
- fostering collaborative working and sharing of information
- reviewing updates on schemes or projects related to AQ
- building upon best practise ideas and solutions to resolve areas of concern
- develop a co-ordinated approach to drive forward improvements in LAQ and associated public health outcomes, achieving compliance with the NAQO in the shortest possible time
- ensure regular communication between departments supporting effective measures to address air quality issues occurs
- deliver on an effective and comprehensive local AQAP, and implementation of PAQS
- ensure compliance with the 2018 MD
- deliver best practise measures where possible
- devise coherent, strategic approach to continual citywide LAQ improvements

Air Quality Steering Group

The AQSG has been set up comprising of a wide range of invitees consisting of PCC officers, Elected Members, interested business representatives, members of the public and other concerned parties, such as environmental groups and campaigners.

The AQSG met 3 times in 2018 - 19th July, 19th September and the 26th November. Additionally, two meetings have taken place in 2019 the 16th January and 20th March.

The purpose of the AQSG is to:

- share local knowledge on AQ issues and consider the actions necessary to address these issues
- assist in the formation of the updated local AQAP
- assist in driving forward the clean air agenda

The AQSG's objectives are to:

- share local knowledge on LAQ related issues to help to determine potential measures to address these issues
- consider potential schemes for inclusion in in local AQAP
- champion improvements in AQ across the city.

Table 1.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
PI 1	**Air Quality Information Provision of information regarding air quality, including real time monitoring data and information regarding assessments of air quality to enable public awareness of issues and success of actions implemented**	Public Information	Other	PCC	Ongoing	Ongoing	Collection of monthly air quality readings Production of Annual Status Report to inform public of monitored data	N/A	Widespread monitoring of NO_2 is undertaken across the city. The number of diffusion tube sites were increased during 2017/2018, there are now 119 monitoring sites in Portsmouth, including the five continuous monitoring locations. Data on levels of particulate matter is collected at 3 locations. This data is available through the Annual Status Report	Ongoing	
PI 2	**Air Quality Communications and Marketing - Clean Air Day 2019**	Public Information	Via the internet Via leaflets Via other mechanisms	PCC	2019	20th June 2019	Involvement and participation in Clean Air Day events	Whilst there are not likely to be significant reductions in air pollution during this day, it will assist in raising awareness of air pollution, its effects on health, and ways in which people could consider travelling more sustainably	Various events to be held raising awareness of air quality and its effects on health, and promoting sustainable travel, focussing on PCC staff, residents and local businesses Initial preparation for events underway	To be held on 20/06/19	Ongoing engagement with Clean Air Day is depended upon future funding. It is hoped that engagement in forthcoming years will be possible
PI 3	**Air Quality Steering Group**	Public Information	Other	PCC	2018	2018 and ongoing	Attendance on Air Quality Steering Group	N/A	An Air Quality Steering Group was formed in 2018, with several meeting having been held in 2018 and the first part of 2019. This group includes representation from local residents groups, businesses and organisations active travel groups, and relevant officers from PCC	Ongoing	Members of the Air Quality Steering Group have taken a role in feeding in ideas to the Air Quality Action Plan, which will be completed 2019/20, and the emerging Air Quality Local Plan. It is hoped that members of this group will also form part of the Clean Air Network

PI 4	**Sustainable Travel Behaviour Change**	Public Information	Other	Some historical schemes funded through DEFRA PCC	2012	Ongoing	Increase in change in travel behaviour away from the private car to more sustainable modes of travel, particularly for short local journeys around the city	<0.1µgm3 Raising awareness of sustainable travel options through various schemes and initiatives, and encourage consideration of uptake	Much good work has been carried out through Local Sustainable Transport Fund, Sustainable Travel Transition Year Grant and Clean Air Grant 2018/19 Further sustainable travel behaviour work will form an element of some schemes moving forward	2018/19 and ongoing	The promotion of sustainable travel is an ongoing element of many schemes, and the My Journey programme. Future running of specific behaviour change programmes will be dependent upon securing future funding
PI 5	**Clean Air Network**	Public Information	Other	PCC (funding yet to be identified)	2019	2020 and ongoing	Sign up rate for the Clean Air Network	N/A	A Clean Air Network (CAN) is to be set up, to engage with local businesses, interest groups, residents and educational institutions, to encourage reduced levels of air pollution in the city through changes in personal and organisational actions	Ongoing	Initial research into the setting up of a CAN in Portsmouth has been undertaken, with a view to initiating this network in 2020
PI 6	**Personal Journey Planning**	Public Information	Via leaflets Via other mechanisms	Funded through Defra Air Quality Grant in 2018/19	2018	2018	No. of people engaged within residential and events based activities	<0.1µgm3 Awareness raising with local residents and visitors	Personal Journey Planning (PJP) work was undertaken during 2018 as part of the Air Quality Grant work. An element of this programme focussed on PJP in AQMA 6, involving both residential and event based activities. Previous PJP work has also be carried out with the use of Travel Advisors, through the LSTF and Sustainable Travel Transition Year programmes. Where funding has been available on street travel advisors has been used at various events held across the city	2018	Future Personal Journey Planning dependent upon further funding

PI 7	**Air Quality Communications and Marketing - Market Research**	Public Information	Via the internet Via leaflets Via other mechanisms	Funded through DEFRA Air Quality Grant	2018	2018	Number of responses received to the market research exercise	N/A	Completed	Completed	This consultation, which was open for five weeks, gave residents and employees of businesses in Portsmouth the opportunity to provide insight into views of current air quality in the city, and gave opportunity to explore where people think are the most impacted areas with regards to air pollution. It was promoted through various channels, and attracted 628 responses.
PI 8	**Air Quality Communications and Marketing - Anti Idling Campaign**	Public Information	Other	Funded through DEFRA Air Quality Grant	2018	2019	Reduction of idling vehicles in city	<0.1µgm3 Whilst not delivering a significant reduction in air pollution, this campaign has raised significant awareness of the need to switch off vehicle engines when stationary for more than a couple of minutes.	Anti-idling campaign complete but lamppost banners still in place, to remain for foreseeable future	Completed	This recent campaign has focussed known areas of congestion in the city, and Air Quality Management Areas
PI 9	**Air Quality Communications and Marketing - Clean Air Day 2018**	Public Information	Via the internet Via leaflets Via other mechanisms	Funded through DEFRA Air Quality Grant	2018	21st June 2018	Involvement and participation in Clean Air Day events	Whilst there were not significant reductions in air pollution during this day, it assisted in raising awareness of air pollution, its effects on health, and ways in which people could consider travelling more sustainably	Completed	Completed on 21/06/19	Various activities were held across the city to coincide with Clean Air Day. Activities included: Roadshow type event at various locations, free park and ride access on Clean Air Day to people previously signed up, electric bike demonstration, Bike Doctor, resources including air quality facts/myths and sustainable travel information

PGD C 1	**Air Quality Board**	Policy Guidance and Development Control	Other	PCC	2018	2018 and ongoing	Regular meetings/updates to Air Quality Board	N/A	An Air Quality Board was formed in 2018 and includes wide departmental involvement from Transport Planning, Regulatory Services, Planning, Public Health, Housing and the Port Authority	Ongoing	
C1	**The provision of appropriate cycle parking at key destinations across the city**	Promoting Travel Alternatives	Promotion of cycling	PCC	Ongoing	Ongoing	N/A	N/A	Cycle parking is continually introduced and improved as required and funding is available. Further cycle parking will be provided at various locations through ongoing schemes. A facility has recently been added to the PCC website whereby people can suggest locations where they feel cycle parking should be considered.	Ongoing	The ongoing continuation of this will be dependent upon funding resources. A small amount of funding is available for 2019/20, which will be prioritised according to need
C2	**Community Cycle Hub Continued partnership working to support and generate income through community events and initiatives using Bike Doctor**	Promoting Travel Alternatives	Promotion of cycling	PCC	2011	2023	Level of uptake of Cycle Hub services	N/A	Ongoing - support of a cycle hub providing maintenance, training and retail of cycle goods. Cycle hire provision also available. Continuation of the Bike Dr maintenance sessions across the city for 2019/20	Ongoing	This measure is annually assessed, further rollout is based on funding allocation. Bike Doctor is funded for 2019
C3	**Supply of sustainable travel options for staff business travel**	Promoting Travel Alternatives.	Promotion of cycling.	PCC	Ongoing	Ongoing	Uptake of pool bikes, electric vehicles for business staff travel	<0.1µgm3	Pool bikes are available for staff business use. This initiative is currently being relaunched with the booking system being updated to enable online bookings, a cycle maintenance stand to be provided at the PCC Civic Offices	Ongoing	The cycle maintenance stand will be available for use by staff using the pool bikes, but also by staff travelling to work by bike, adding a further incentive to staff to consider sustainable travel to work
C4	**Central Corridor Scheme**	Transport Planning and Infrastructure	Cycle Network	Funded through DEFRA Air Quality Grant	2018	2019	Completion of scheme and improvements to cycle safety along route	<0.1µgm3 This measure will support cycling in the city	Proposed works to started March 2019 for approximate 5 months. It involves the construction of raised tables at various sites along the A2047 and improvements to the cycle lane. All works proceeding within budget and programme	2019	

C5	**City-wide Early Release Low Level Cycle Signals**	Promoting Travel Alternatives	Promotion of cycling	PCC	2018/19	2019	Installation of early release signals	<0.1µgm3 This measure will support cycling in the city	The installation of low level signals and early release at existing signalised junctions, this will improve cycle safety. The first site is all ready to go, and is currently in procurement.	2019	
C6	**Quieter Routes**	Promoting Travel Alternatives.	Promotion of cycling.	PCC	2016	2019/20	Upgrading of singage	<0.1µgm3 Supports travel behaviour change, strengthening the cycle routes in the city, particularly for short local journeys	A number of 'Quieter Routes' have been marked out in the city, with the use of coloured stickers on lampposts. There are currently five routes between the north and south of the city, and five between the east and west. Physical signage was installed at the majority of the Quiet Route locations last year. The rest of the signage is due to be upgraded in 2019/2020	19/20	The existing network of 20mph roads support the formation of the 'Quiet Routes' network
C7	**Road Safety and Active Travel Events Programme**	Promoting Travel Alternatives.	Promotion of cycling.	PCC	2017	Ongoing	Delivery of cycling events and attendance levels.	N/A Whilst the events themselves won't deliver a significant reduction in pollution levels, the awareness raising achieved will have longer term benefits	Successfully delivered Pedal Portsmouth events, Glow Ride, Changing Places and Be bright be seen in 2017 and 2018. Pedal Portsmouth Events, Glow Ride, Changing Places and Be Bright Be Seen events will all due to be run again in 2019	Ongoing	Events being run in 2019 will be dependent upon funding
C8	**Promote Road Safety & Active Travel initiatives. For example; - educational programmes in schools include Bikeability, Transition years and Pompey Monsters Challenge. -Road safety behaviour change with students and commuters - Be bright, Share the Roads, bike security and businesses using light good vehicles. -Cycle promotion through community based cycle**	Promoting Travel Alternatives	Promotion of cycling	PCC,	2010	Ongoing	Delivery of cycling, road safety and active travel initiatives	N/A Promotion of active travel initiatives will support the uptake of sustainable travel modes and contribute to positive travel behaviour change	Walking and cycling map is a popular resource. Further redesign of the map is required and will be taken forward when funding becomes available. Works in conjunction with stakeholders such as Portsmouth Cycle Forum continues Education programmes in schools, such as Bikeability and Pompey Monsters continue to be delivered.	Ongoing	A small amount of funding is available for 2019, but further funding will be required to take forward into the future

	events to promote Quieter routes and 'Glow Ride'. Cycle Hub to support events with the provision of Bike Dr. Stake holder engagement to support CyclingUK set up Community cycle groups										
C9	**Local Cycling and Walking Infrastructure Plan (LCWIP)**	Promoting Travel Alternatives	Promotion of cycling	Feasibility funded by PCC, technical support provided by DfT	2017	Ongoing	Completion of LCWIP	<0.1µgm3 This measure will support cycling in the city	The production of a Local Cycling and Walking Infrastructure Plan (LCWIP) for Portsmouth is underway, following the production of Government's Local Cycling and Walking Investment Strategy. PCC were successful in securing technical support for the development of the LCWIP, which is currently underway	Draft completed Nov 2019	Draft LCWIP will be completed Nov 2019 for consultation
C10	**Active Travel Improvements**	Promoting Travel Alternatives	Promotion of cycling	No funding currently available	Ongoing	Ongoing	Increased model shift to walking/cycle, indicated by increased levels of walking and cycling	<0.1µgm3	Various small-scale infrastructure improvements (such as cycle parking, signage and lining) across the city to assist modal shift away from the car toward more active travel modes such as walking and cycling. In 2018/19 various improvements were made, including the removal of traffic signage posts on Hope Street's shared use paths	Ongoing	No current funding
C11	**Bike Hire Scheme**	Promoting Travel Alternatives	Promotion of cycling	No funding currently available	2017	Ongoing	Delivery and uptake of Bike Hire scheme	<0.1µgm3 This scheme is likely to provide only a very small reduction in air pollution initially, however, there is the possibility that greater overall reductions could be achieved over time, as uptake of the scheme increases.	Implementation of a city wide bike hire scheme. This scheme will require development and funding to be progressed	Currently unknown	Promotion and marketing of this scheme will be required to support its launch and delivery

C12	**Potential development of 'Play Streets'**	Promoting Travel Alternatives	Promotion of cycling	No funding currently available	2019	2020	Delivery of Play Streets	<0.1µgm3 There is the potential for reductions in NO2 to be achieved in the play street locations	Initial investigation is being undertaken into the development of a Play Street initiative in Portsmouth	2020	Development of scheme dependent upon collaboration from stakeholders and funding availability. This measure could potentially link to Healthy School Street schemes in the future
C13	**Family Cycle Grants and Family Cycle Training**	Promoting Travel Alternatives	Promotion of cycling	PCC, funded through Defra Air Quality Grant	2017	2018/19	Uptake of Family Bike Grant scheme and cycle training	N/A	Successfully delivered in 2016/17, enabling lower income families to access safe cycling and move away from the private car. Also successfully delivered in 2018/19 through the Air Quality Grant. For the family cycle training scheme, 36 families received cycle training, to increase skills and confidence, learn to effectively shepherd children and to journey plan. A further 22 sessions have run cycle maintaining training. Evaluation suggests that both training sessions have been very well received and have been effective in increasing confidence and rates of cycling, and reducing the barriers to cycling. For the family cycle grants, 24 families received a grant towards new bikes and associated safety equipment (helmets, lights, locks and high vis). 36 adult bikes were funded and 33 children's bikes. Feedback suggests that the families in receipt of the bikes and safety equipment are cycling more, using the bikes for leisure, school and work and are cycling more as families.	Completed in March 2019	Further roll out of this scheme will be dependent upon further funding becoming available

C14	**Bike Doctor**	Promoting Travel Alternatives	Promotion of Cycling	DEFRA Air Quality Grant	2018	2019	Uptake of Bike Doctor sessions	N/A	Motiv8 have delivered, on behalf of PCC, a total of 28 Bike Dr sessions within the Air Quality Boundary to both members of the public and workplaces. The Bike Dr provides free bike safety checks and basic servicing and repairs (along with general bike safety advice) in order to alleviate some of the prohibitive issues related to cycling (i.e. having a bicycle in working order).	Completed	
W1	**Rights of Way / Way finding and signage rationalisation Routes4U Piloted programme (City-centre) to detail accessible routes for the elderly, visually and physically impaired. Reactive response to rights of way requests. Sustainable way finding signage and repair of damage**	Promoting Travel Alternatives.	Promotion of walking.	PCC	2012	Ongoing	Delivery of access improvements for pedestrians	N/A	Rights of Way Improvement Plan review completed by 2019 PCC currently working on a contract for Routes4U, to bring about access improvements for pedestrians. It is intended to complete This contract has been signed until the end of 2022 .	Ongoing	

W2	Promote walkingRoad Safety & Active Travel initiatives set and prioritised around improving road safety for pedestrians and behaviour change. Educational programmes in schools such as, pedestrian training, Junior Road Safety Officers and Pompey Monster Walk to School Challenge, along with supporting measures such as Park and Stride. Partnership work with Routes4U and local action groups to support local walking initiatives	Promoting Travel Alternatives.	Promotion of walking.	PCC	2010	2030	Development of new walking and cycling strategy, uptake of initiatives such as Pompey Monsters Walk to School Challenge	N/A Whilst not providing a direct pollution reduction target, promotion active travel initiatives will support the uptake of sustainable travel modes and contribute to positive travel behaviour change	Walking and cycling map is a popular resource. Further redesign of the map is required and will be taken forward when funding becomes available. Works in conjunction with stakeholders such as Portsmouth Cycle Forum continues Education programmes in schools, such as Bikeability and Pompey Monsters continue to be delivered. Junior Road Safety Officers are recruited annually and Portsmouth Smart Steps awards scheme has been developed in line with this.	Ongoing	A small amount of funding is available for 2019, but further funding will be required to take forward into the future
W3	**Local Cycling and Walking Infrastructure Plan (LCWIP)**	Promoting Travel Alternatives	Promotion of walking	Feasibility funded by PCC, technical support provided by DfT	2017	Ongoing	Completion of LCWIP	<0.1µgm3 This measure will support walking in the city	The production of a Local Cycling and Walking Infrastructure Plan (LCWIP) for Portsmouth is underway, following the production of Government's Local Cycling and Walking Investment Strategy. PCC were successful in securing technical support for the development of the LCWIP, which is currently underway	Draft completed Nov 2019	Draft LCWIP will be completed Nov 2019 for consultation
W4	**Potential development of 'Play Streets'**	Promoting Travel Alternatives	Promotion of walking	No funding currently available	2019	2020	Delivery of Play Streets	<0.1µgm3 There is the potential for reductions in NO2 to be achieved in the play street locations	Initial investigation is being undertaken into the development of a Play Street initiative in Portsmouth	2020	Development of scheme dependent upon collaboration from stakeholders and funding availability. This measure could potentially link to Healthy School Street schemes in the future

W5	**Active Travel Improvements**	Promoting Travel Alternatives	Promotion of walking	No funding currently available	Ongoing	Ongoing	Increased model shift to walking and cycling, indicated by increased levels of walking and cycling	<0.1µgm3	Various small-scale infrastructure improvements (such as cycle parking, signage and lining) across the city to assist modal shift away from the car toward more active travel modes such as walking and cycling. In 2018/19 various improvements were made, including the removal of traffic signage posts on Hope Street's shared use paths	Ongoing	No current funding
PLE T1	**Electric Vehicle Charge Point scheme - off street**	Promoting Low Emission Transport	Other	Charge points funded by City EV Bay marking and electricity funded by PCC	2018	2020	Installation of charge points and level of usage	<0.1µgm3 This measure will initially only achieve a very low level of NO2 reduction. There is potential for greater reductions to be achieved over time as EV usage increases across the city	Off street charge points have been installed at 3 car parks in the city: Isambard Brunel Multi storey, Esplanade car park and Clarence Pier car park	2020	The trial will be completed in 2020. An off- street charging policy is currently being produced.
PLE T2	**Electric Vehicle Residential Charge point schemes - phase 1**	Promoting Low Emission Transport	Other	Office for Low Emission Vehicles (ORCS) Grant	2018	2019	Installation of charge points and level of usage	<0.1µgm3 This measure will initially only achieve a very low level of NO2 reduction. There is potential for greater reductions to be achieved over time as EV usage increases across the city	36 on-street charge points have been installed through the ORCS scheme, at various locations in the city, where requested by residents. All charge points have been installed at locations where the resident does not have off street parking.	May2019	Information is being gathered on further residents interested in a residential on-street charge point, to further develop the network when funding becomes available
PLE T3	**Electric Vehicle Residential Charge Point scheme - phase 2**	Promoting Low Emission Transport	Other	No funding currently available	2019	Currently unknown	Installation of further charge points and level of usage	<0.1µgm3	A phase 2 on street electric charge point scheme is currently being considered, however no funding has yet been identified for this.	Currently unknown	

PLE T4	**Review of PCC fleet and moving away from diesel vehicles**	Promoting Low Emission Transport	Company vehicle procurement	PCC	Ongoing	Ongoing	Reduced emissions from Council vehicles	N/A	Future consideration to be given to PCC fleet procurement, with a view to moving away from Diesel vehicles	Ongoing	Further work is necessary to progress this further, however it is a clear aspiration of PCC.
PLE T5	**Electric Vehicle Promotion**	Promoting Low Emission Transport	Other	Funded through Defra Clean Air Grant	2018	2019 and ongoing	Uptake of electric vehicles/ULEV	N/A	Promotion of electric vehicle charge points available through OLEV's ORCS scheme, encouraging further uptake of electric and hybrid vehicles in the city. An off street EV charge point trial also taking place at three city car parks	Completed	35 charge points have been installed through the ORCS scheme, and all three off street EV charge points are now fully operational which have had good usage.
E1	**Domestic heating emissions**	Other	Other	PCC	2014	2021	Uptake of scheme	Unknown	PCC have received funding for a boiler replacement scheme in 2018/19 and to date have installed 40 new boilers. Fuel Cell Micro-CHP Installations were also carried out in 2018/19, With monitoring of the performance of the systems being conducted by remotely accessing generation data. 8 completed installs have been carried out in 2018/19	Ongoing	

E2	**Energy saving measures**	Other	Other	PCC	2014	2021	Monitoring of the performance of the measures	Unknown	Improved energy efficiency of commercial and domestic stock is currently being undertaken. 138 cavity wall insulations were installed in 2018/2019	Ongoing	
S1	**Safer Routes to School Minor Remedial Works**	Promoting Travel Alternatives	School Travel Plans	PCC	2014	2030	Completion of schemes , and uptake by parents/pupils	<0.1µgm3 Safer routes to school schemes tend to be small scale, supporting sustainable travel to school through increasing safety and supporting walking to school	This work is on-going and will be completed year on year. A number of schemes were successfully delivered in 2018/19. A series of small scale schemes are planned for 2019/20 at a number of schools	Ongoing	
S2	**Pompey Monster Walk to School Challenge - school behaviour change**	Promoting Travel Alternatives	Promotion of walking	PCC, further work funded through Defra Clean Air Grant	2016	Ongoing	Uptake of scheme by schools	<0.1µgm3 Supporting sustainable travel to school	The Pompey Monsters Scheme was introduced in 2016/7, and a trial of the scheme was carried out at three schools in the city, as part of the STTY scheme. This successful initiative is popular with the children and encouraged an increase in walking to school. This scheme was delivered to 4 further schools within or close to AQMA's in 2018/19, through the DEFRA Air Quality Grant	2018/19	4 schools have benefitted from the Pompey Monster Walk to School Challenge through the Clean Air Grant. 953 pupils engaged in the Challenge. Launch and closing assemblies took place at all schools. Half term events in libraries encouraged children to walk with their families. Evaluation is underway to assess modal shift. A new air quality Pompey Monster was developed, Breezy, and air quality messages promoted in the school via the assemblies, and also the Pompey Monster packs. Further delivery of schemes dependent upon further funding

S3	**School travel plans**	Promoting Travel Alternatives	School Travel Plans	PCC, with funding from Air Quality Grant to deliver further schemes in 2018/19	2014	Ongoing	Delivery of school travel plan schemes, and effect on school travel modes	<0.1µgm3 Supporting sustainable travel to school	In 2018/19, 14 schools in AQMA areas took part in gathering parent pledges to travel to school sustainably to improve air quality. Park and Stride maps were created and distributed to 2 schools and 15 schools have received Scootability training. Evaluation suggests that the training was well received and has increased following the training.	2018/19 and ongoing	Further development of school travel plan schemes dependant on funding beyond 2018/19
NM 1	**LTP Programme**	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane.	PCC	Ongoing	Ongoing	Implementation of LTP schemes	<0.1µgm3 Pollution reductions achieved by individual LTP schemes will be low, however the combination of these measures would likely have an overall positive impact on assisting with reducing levels of NO2	On-going schemes being developed through the LTP will provide improvements to local air quality	Ongoing	
NM2	**Eastern Corridor Phase 2 Works**	Traffic Management	Other	PCC	2017	2020	Completion of all schemes of works	Milton Common cycle path design/planning permission/ Milton Common Restoration and Management Framework possible update to allow the cyclepath is underway. Phase 2 feasibility study regarding carriageway widening and one left slip lane onto A27 is underway.	A comprehensive study of the Eastern Road corridor was conducted, which will deliver identifiable solutions for this key corridor into the city. The study identified problems of current uses and identified future uses and solutions	2020	Milton Common Cycle Path falls within a site of importance for Nature Conservation (SINC) and is close to sites that are important for Brent Goose feeding. Planning permission or permitted development is required, that could affect the delivery time. Milton Common Restoration and Management Framework will need to allow for the proposed cyclepath - existing plan doesn't
NM3	**A27 Safer Roads Funds**	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access	PCC	2017	2020	Delivery of traffic safety measures	<0.1µgm3	Traffic safety measures including improved facilities for active travel modes Improvements to cycle facilities to	2020	

			management, Selective vehicle priority, bus priority, high vehicle occupancy lane						be implemented in 2019/20. Upgrade of a crossing to a toucan crossing is proposed in Compass Road, with likely implementation in 2020.		
NM4	**Speed Reduction Schemes 2018/19**	Traffic Management	Other	PCC	2018	2020	Implementation of schemes	<0.1µgm3 Speed reduction measures can help in increasing uptake of walking and cycling through improved safety	Various speed reduction schemes were completed in 2018/19 to improve safety and encourage uptake of walking and cycling. Measures included additional speed cushions and coloured surfacing. Further speed reduction schemes will be implemented in 2019/20, across the city to improve road safety.	2019/2020 Ongoing	
NM5	**Signs and Lines**	Traffic Management	Other	PCC	2018	2020	Implementation of schemes	N/A Whilst these measures will not deliver measurable air pollution targets, they will assist in improving traffic flow	Various small city wide improvements to existing road signage and markings were carried out in 2018/19. A number of further small city wide improvements to road signage and markings will be carried out in 2019/20	2019/2020 and ongoing	
NM6	**Milton Road/ Priority Crescent Junction/crossing improvement**	Transport Planning and Infrastructure	Other	PCC	2019	2019/20	Completion of works	<0.1µgm3 Will increase safety for cyclists and pedestrians to encourage active travel	To improve an existing junction to increase visibility and build cycle lanes to improve safety. This will provide improved cycle safety and improved pedestrian facilities.	2019/2020	
NM7	**Guildhall Walk/ Alec Rose Lane**	Transport Planning and Infrastructure	Other	PCC	2019	2019/20	Completion of works	<0.1µgm3 Will increase safety for cyclists and pedestrians to encourage active travel	A junction improvement to reduce speeds and increase visibility as this is a high casualty site for pedestrians and cyclists.	2020	
NM8	**New Road Copnor-Junction Treatment**	Transport Planning and Infrastructure	Other	PCC	2019	2019/20	Completion of Scheme	<0.1µgm3 Will provide improved journey times and less congestion in specific areas	To improve an existing junction, to make safety improvements at the junction and its approaches. This will provide improved pedestrian facilities as well as increased cycle safety.	2019	Due to go out to tender June 2019
NM 9	**Holbrook Road/ Arundel Street Roundabout**	Transport Planning and Infrastructure	Other	PCC	2019	2019/20	Completion of works	<0.1µgm3 Will increase safety for cyclists and encourage cycling	Improve signage and lane discipline which will reduce the risks to cyclists at this roundabout, cycling on this route will be more attractive and therefore may increase the number of people choosing to cycle.	2019	Largely completed, lining completed, signage due to be installed in June 2019

NM 10	**Northern Parade- Gladys Avenue junction improvement.**	Transport Planning and Infrastructure	Other	PCC	2019	2019/20	Completion of works	<0.1µgm3 Will increase safety for cyclists and pedestrians to encourage active travel	A junction improvement that will make safety improvements for both pedestrians and cyclists, through larger pedestrian islands and a surface treatment to increase driver awareness of cyclists.	2019	Due to go out to tender June 2019
NM 11	**Zebrite**	Transport Planning and Infrastructure	Other	PCC	2018/19	Ongoing	Successful implementation of beacons.	N/A	Roll out of enhanced LED belisha beacons which provide greater increased visibility of zebra crossings and are especially effective at crossings that experience vehicles not stopping for pedestrians. The Zebrite beacons draw attention to the crossing thus making it more likely that a pedestrian waiting to cross will be seen and therefore road safety is improved. So far one has been installed at the Highland Road junction with Kimberley Road, with others to be installed later this year	2019	Completion of the project has been slightly delayed due to the wavier and contract.
NM 12	**Fratton to the Hard Interchange Active Travel Corridor**	Transport Planning and Infrastructure	Cycle Network	PCC	2019	2019/20	Implementation of cycle route and usage of route by cyclists	<0.1µgm3 Will increase safety for cyclists and encourage cycling	As part of the Fratton to The Hard Interchange Active Travel Corridor to provide a segregated cycle lane, where feasible between the junction with Haslemere Road/ Goldsmith Avenue and the eastern approach to the Fratton Roundabout. Significant infrastructure. This scheme is currently in the design stage, with consultation due to begin summer 2019	2019	
NM 13	**South East Hampshire Rapid Transit (SEHRT)**	Public Transport and Infrastructure	Bus Route Improvements	DfT, with PCC/ Hampshire and IOW funding developme nt bid	Ongoing	Ongoing	Submission of bid	<0.1µgm3 This scheme would deliver significant benefits to the city in terms of public transport provision	A joint bid is to be submitted for a SEHRT scheme linking Portsmouth to the wider south east Hampshire area, with the key aim of driving up productivity and supporting economic growth.	Currently unknown	The Portsmouth & South East Hampshire City Region Transforming Cities Bid was 1 of 12 cities shortlisted into the co-design phase with the DfT. The Portsmouth City Region bid was successful for £4.5m funding for tranche 1 (2019/20). This included Real Time Information, signal upgrades to MOVA on 3 key junctions, extension to the HCC Eclipse Busway

											corridor. Work is currently underway on the strategic outline business case, draft submission is due to the DfT on 20th June 2019, with final submission due 28th Nov 2019.
NM 14	**City Centre Transport Link**	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	PCC	2017	Ongoing	Completion of the City Centre Transport Link	<0.1µgm3	PCC is developing an area of highway improvement known as City Centre Transport Link (CCTL). This includes Hope Street, Commerical Road, A3 Marketway down to Unicorn Road and associated roundabouts. This scheme will prioritise public transport, walking and cycling.	Currently unknown	
NM 15	**Variable message signs**	Traffic Management	Other	PCC	2009	Ongoing	Installation of VMS	<0.1µgm^3	Several VMS signs are already in place in the city. In late 2017 five new signs displaying live car park occupancy information were installed. These signs incorporated the 'Cough Cough Engine Off' anti idling campaign messages between January and April 2019. One main sign is still displaying this message, and will continue to do so for the foreseeable future. Potentially a further 3 or 4 signs will be installed during 2019/20	2018 and ongoing	Ongoing as need and funding arises
NM 16	**Traffic Signal Reconfiguration**	Traffic Management	Other	PCC	2014	Ongoing	Completion of signalised junction and crossing review	<0.1µgm3 Will provide improved journey times and less congestion in specific areas	TSOP was delivered at eleven junctions in the city in 2017, with MOVA technology being introduced. These schemes delivered more efficient traffic flow Some minor junction improvements, such as timing improvements, were carried out in 2018/19, which will incorporate improvements to cycle safety. A number of signalised junctions and crossings will be reviewed to ensure correct and efficient	Ongoing	Further improvements are dependent on funding

									operation		
NM 17	**Junction improvements**	Traffic Management	Strategic highway improvements	PCC	2013	Ongoing	Completion of citywide junction review	<0.1µgm3 Will provide improved journey times and less congestion in specific areas	On-going improvements to junctions. A number of junction improvements were completed in 2017, with further work planned for 2018/19. A review of all junctions is to be undertaken citywide, with five junctions being reviewed in 2018, and a focus being given to junctions within AQMA's. This will increase effectiveness and prevent unnecessary congestion.	Ongoing	Further improvements are dependent on funding
NM 18	**Smart Motorways M27 Jct. 11**	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	No funding available	2017	Not currently planned	Completion of works	Unknown	Request to HE for an upgrade and improvements from M27 Junction 4 - junction 11 to the A27/A3 (M) junction to include: Smart Motorways, ALR, and off-HE network investment in connecting junctions including Farlington and Portsbridge roundabouts. Not in HE's current plans	Unknown	Programme to junction 11 is underway
NM 19	**Wightlink increased vehicle stacking capacity and reduced queuing**	Traffic Management	Other	Wightlink	2017	2018	Reduced queuing of vehicles entering the ferry port following completion of planned works	<0.1µgm3 Significant congestion can occur at this location. The introduction of ANPR will go some way in addressing this issue and reducing localNO2 levels	Wightlink undertook work to facilitate increased capacity, improved loading and vehicle waiting facilities in 2017.Further work was completed in 2018 to implement Auto Number Plate Recognition (ANPR), which allows for faster check in times and reduce ferry related congestion. Electric vehicle charge points were installed at the Wightlink terminal in 2018.	Completed	Wightlink have reported reduced queuing times since the scheme was completed

NM 20	**Re-development of Hard Interchange**	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	PCC	2014	New Interchange opened in 2017, but benefits to supporting sustainable travel are ongoing	Increase in bus patronage at The Hard Interchange	<0.1µgm3	The new Interchange opened in May 2017, and provides improved links to rail and ferry services and improved pedestrian and cycle links to Gunwharf Quays and tourist attractions, helping to make public transport easier and more attractive to use The interchange provides a modern, state of the art gateway to the city, with a secure environment for customers	Completed	Bus and coach operators have reported an increase in bus patronage boarding at The Hard, and increased passenger satisfaction. Interchange. Ridership is up 3% for First Group
A1	**Access for people with disabilities**	Transport Planning and Infrastructure	Other	PCC	2016	Ongoing	Delivery of measures to support access for people with disabilities	N/A Whilst not delivering a high levels of direct pollution reduction, these measures will support mobility	To provide low cost measures Portsmouth citywide where improvements to the kerb lines, signing and street furniture will aid mobility for the disabled and parents with young children in prams and pushchairs. Encouraging active travel modes. Further small scale schemes will be delivered in 2019/20	Ongoing	
PT1	**Bus Retrofit Programme**	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	DEFRA	2018	2019	Upgrading buses travelling along specific route to Euro 6 standard	Buses upgraded to Euro 6 standard can result in significant reductions in levels of local air pollution	The bus retrofit programme is for Stagecoach and First buses running along routes 48196 and 18114, it will enable pre-Euro VI buses running along these routes to be upgraded to the higher emission standard of Euro VI. 105 buses are due to be retrofitted by the end of 2019	2019	Further bus retrofitting to be carried out if further funding becomes available
PT2	**Traveline**	Public Information	Other	PCC	2016	Ongoing	Continued up to date travel and public transport information on Traveline	N/A Although not delivering measurable air pollution reduction targets, public transport information supports uptake of active travel	Traveline consists of a national database for all bus stops and timetables which is updated daily, providing comprehensive information and is used to populate all journey planning engines	Ongoing	
PT3	**Public Transport Network Maps**	Public Information	Other	PCC	2017	Ongoing	Completion of online mapping system	N/A Supporting public transport use	New Public Transport Network Hub map produced in 2017 An online mapping system using network maps was developed and completed June 2018	Ongoing	Bus route maps are updated on a regular basis

PT4	**Public transport information**	Public Information	Other	PCC, with TCF element funded by DfT	2012	Ongoing	Provision of public transport information	N/A Although not delivering measurable air pollution reduction targets, public transport information supports uptake of active travel	SMS/ texting / bus timetable downloads; Improved Shelters with 90 real-time passenger information units have been installed in 2017/18. A further 112 real time units to be installed in bush shelters and bus stops in 2019/20 as part of TCF Tranche 1	Ongoing	
PT5	**Promoting bus use**	Alternatives to private vehicle use	Bus based Park & Ride	Bus Operators	2009	Ongoing	Increase in bus patronage	N/A	Increasing bus vehicle miles and bus patronage is the responsibility of the bus operators. Portsmouth City Council work closely with the operators to encourage usage and increased punctuality so making public transport more attractive	Ongoing	
PT6	**Working with South Western Railway to implement investments through the new Rail Franchise**	Alternatives to private vehicle use	Other	PCC/SWR	2019	Ongoing	N/A	N/A	PCC are working with South Western Railway to see improvements to rail stations in Portsmouth. This includes improved and additional electronic signage at stations and improved information on onward connections, by bus and ferry, to be completed 2019/20/ Meetings continue to be held with rail operator to work through proposals to improve stations and services	Ongoing	

PT7	**Park and Ride decking**	Alternatives to private vehicle use	Bus based Park & Ride	PCC funding feasibility study	2017	Ongoing	Initial completion of additional scoping work. Long term - introduction of Park and Ride decking	<0.1µgm3 If this development is successful it would potentially double the parking spaces available at the park and ride, assisting in reducing traffic flow through into the city through AQMA 11	The feasibility study has been completed for this scheme, and if developed will provide increased parking space availability at the Park and Ride site, allowing for increased usage of the service. At present, the Park and Ride provides 665 parking spaces. If the new decking is developed to make the car park a multi-storey, it is proposed that an additional 1000 spaces will be provided, taking the total car parking spaces up to 1650	Ongoing	Currently no funding to take this scheme forward to the next stage
PT8	**Public Transport Hub Maps**	Public Information	Other	PCC	2018	2018	Feedback from forthcoming 2019 National Highways and Transport (NHT)survey will give some indication of public satisfaction of public transport information provision	N/ASupporting public transport use	Bespoke Hub Map created for all Portsmouth Stations excluding HIlsea, International Ferry Port and Q.A. Hospital and These maps were created in 2018	Completed	A specific question on public transport information in included in NHT surveys, which provides some indication of levels of satisfaction for this
WP1	**Workplace travel plans (WPTP)**	Promoting Travel Alternatives	Workplace Travel Planning	PCC, and DEFRA Air Quality Grant	2014	Ongoing	Number of travel plans implemented, or engagement with WPTP activities	<0.1µgm3 Workplace travel plans can support increases in sustainable travel	There are over 40 active WTP in total. More WTPs expected. Easit offers a range of benefits including discounts on peak train travel, cycling, & electric vehicle for employees of member organisation. Many large employers provide discounted bus travel for staff. PCC works with these employers to promote sustainable travel Through the Clean Air Grant fund, workplace travel planning activities were carried out with 4 large businesses located within or close to an AQMA	Ongoing	The work delivered through the Clean Air Grant 2018/19 provided various engagement materials to the 4 businesses involved, including, Clean Air Initiative flyers, travel information flyers, printed and online pledge cards. Clean Air Initiative flyers were also distributed to SME's along the AQMA 6 corridor. Through "lunch and Learn" sessions, eco driving, bike doctor and engagement, 94 people have pledged to travel to work more sustainably. Follow up emails will be sent to all those that have

											pledged to see if there has been any modal shift. Further Workplace Travel Planning activities are dependent upon further funding becoming available
WP2	**Workplace Sustainable Travel Fund (WSTF)**	Promoting Travel Alternatives	Workplace Travel Planning	PCC, further work funded through Defra Air Quality Grant	2016/2017	Ongoing	Delivery of WSTF to businesses located close to or within an AQMA	<0.1µgm3 Whilst this fund would only make a very small impact on local air pollution levels, it is a useful measure in raising awareness of and supporting sustainable travel for local work related journeys	The WSTF was carried out in 2016/17 through STTY, with 8 organisations successfully receiving funding for sustainable travel and a total of 11 organisations receiving a package of supporting measures. Through the Clean Air Grant 2018/19, 9 small businesses received grants of up to £2000 to implement changes to allow employees to travel to work more sustainably. Evaluation suggests that employees are making use of the new facilities and walking/cycling has increased.	Complete d	Further provision of this scheme will be dependent upon further funding becoming available
WP3	**Eco Driver Training**	Vehicle Fleet Efficiency	Driver training and ECO driving aids	PCC, further work funded through Defra Air Quality Grant	2013	2018/19	Delivery of Eco Driver training to businesses located within or close to AQMA	<0.1µgm3 Whilst this training would only make a very small impact on local air pollution levels, it is a useful measure in raising awareness of and promoting eco driving techniques	Eco Driver Training was delivered as part of the STTY project, with the training being offered to local businesses. Through funding received from Defra's Clean Air Fund, 104 drivers from 6 companies received eco driving training from the Blue Lamp Trust. Businesses within or close to an AQMA area were selected Evaluation from these sessions showed an average fuel consumption decrease of 15%.	Completed	Further provision of this scheme will be dependent upon further funding becoming available
T1	**Explore new technology**	Other	Other	PCC	2017	Ongoing	Implementation of research into new technology, as opportunities arise	There is the potential for significant reductions in NOX to be achieved through the introduction of new technologies	Undertake research and test new transport technologies to reduce levels of NOx and consider their potential use within future strategies	Ongoing	

P1	**AQ improvements through the planning process**	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	PCC	Ongoing	Ongoing	N/A	<0.1µgm3	There is an ongoing involvement with Planning Policy on the air quality effects of developments through the Planning Process. Consideration is given to limiting air pollution issues which may arise from new developments both during and after construction	Ongoing	The Planning Department are represented on the Air Quality Board
O1	**Bidding for Funding**	Other	Other	N/A	Ongoing	Ongoing	Successful applications for additional funding towards Air Quality improvements and initiatives	N/A	We will seek funding opportunities to assist with air quality initiatives wherever possible	Ongoing	

Key

Funding available / In an Air Quality Management Area

No funding currently available, but likely

No funding currently available

Completed

1.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in 2016 Local Air Quality Management Policy Guidance (LAQM.PG(16)) (Chapter 7) LAs are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$. There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Given that the main source of air pollution in Portsmouth is road traffic related and that the main sources of PM_{10} and NO_2 are the same as that of $PM_{2.5}$ PCC is taking no specific measure(s) to reduce $PM_{2.5}$. Dealing with the automotive related pollutants of PM_{10} and NO_2 will inherently deal with $PM_{2.5}$.

2 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

2.1 Summary of Monitoring Undertaken

This section sets out what monitoring has taken place by PCC.

PCC's NO_2, $PM_{2.5}$ and PM_{10} monitoring programmes are annually assessed to ensure that the LAQ monitoring requirements of the R&A process are met.

In this LAQ monitoring review an additional factor was taken into account in the selection of monitoring sites in addition to the above that is AAQD measurement requirements.

According to AAQD measurements must meet specific requirements. These requirements must be met for measurements collected by either method (automatic chemiluminescence analysers or NDDT). A summary of the AAQD siting requirements as provided in Annex A outlines that siting requirements for NO_2 measurements at roadside / urban traffic sites must be carried out at locations which meet the siting requirements set out in Annex III of the AAQD. For example:

- Measurements should not be sited within 25m of a major junction
- Measurements should be made within 10m from the kerbside (*NB. given the uncertainties in assessing access using aerial photography, roads with no clear access within 15m may be excluded from the PCM modelling*)
- The inlet sampling point should be within 1.5-4m above the ground
- Measurements should be representative of air quality for a street segment no less than 100m in length.

Hence, LAQ monitoring program has been subjected to the following changes since the publication of the 2017 ASR:

- In accordance with AAQD monitoring requirement, there has been significant change to PCC's AQ monitoring program within the period 2017 to 2018 as the number of the newly added NDDT sites increased by 205.13% (an addition of 80 sites) to reach 119 sites. This substantial increase in NO_2

monitoring using NDDT is to meet both PCC requirement under LAQM regime and the AAQD monitoring requirements. Some of the added monitoring locations are within the two exceedance road links as identified by PCM model for Portsmouth. This LAQ monitoring is to use instead of the corresponding PCM modelled concentrations for the purposes of determining compliance or non-compliance with the 40 µg/m^3 limit value. Other added monitoring locations across the city were identified as having similar criteria to those identified in the two road links by the PCM model.

- The location of a new DEFRA CAQMS within Portsmouth also was sited according to the AAQD monitoring requirement for determining Portsmouth compliance or non-compliance. In the meantime this addition enhanced the local CAQMS's network from which both DEFRA and PCC will benefit tremendously.

- The characteristics and the locations of each of the CAQMS sites are summarised and shown respectively in Table A.1, Appendix A and Map1.

PCC currently monitor LAQ and in doing so meeting the following 2 requirements:

- According to LAQM.TG(16), emphasis in Section 1.37 and 1.39; including Box 1.1 has been placed, for the annual mean NAQO, on monitoring and assessing non-occupational above or below ground level outdoor locations, where members the public might be regularly exposed. These include:

    - Building facades of residential properties

    - Schools, hospitals, care homes, library facades etc.

- According to AAQD measurements must meet siting certain requirements as outlined at the beginning of this section.

2.1.1 Automatic Monitoring Sites

PCC undertook automatic (continuous) monitoring at PCC owned 4 CAQMSs during 2018. In addition, AQ monitoring data, from DEFRA installed CAQMS to expand its

national network into south, is included in this report. Details of the sites are shown in Table A.1 in Appendix A.

Maps showing the location of individual CAQMSs and their proximity to AQMAs are provided in Map 1 to Map 6 in Appendix D as follows:

- Map 1 shows the CAQMS locations across the city.
- Map 2, Map 3, Map 4, Map 5 and Map 6 show individual locations of PCC's and DEFRA's owned CAQMSs: London Road, Gatcombe Park, Burrfield Road, Mile End Road and Anglesea Road CAQMSs.

NO_2, $PM_{2.5}$ and PM_{10} continue to be continuously monitored as outlined below in accordance with the QA / QC protocols documented in Appendix C:

- CAQMS C2: This station is located in a narrow busy roadside shopping area where large numbers of pedestrians are present (with pavements in places approximately only 2 metres). This station is located within AQMA6. It is originally a fixed kerbside station set up to monitor NO_2, PM_{10} and $PM_{2.5}$ generated by the road traffic along London Road (Map 3, Appendix D) before the pavement was enlarged. Buildings in the immediate vicinity are predominantly commercial. However, residential units are located further north and south of the site typically at first floor level above retail outlet units. This shopping location has some of the characteristics of a street canyon-like sitting with slow moving road traffic often causing congestion. It was refurbished in January 2017 with a new HORIBA's APDA-372 $PM_{2.5}$ and PM_{10} analyser; that replaced the aged Eberline to meet DEFRA's AQ monitoring requirements.

- CAQMS C4: An Automatic Urban and Rural Network (AURN) station located in an urban background location at Gatcombe Park Primary School, Curtis Mead (Map 2, Appendix D). The pollutants monitored at are NO_2, PM_{10} and $PM_{2.5}$.

- CAQMS C6: This is a fixed roadside station established since 2007 to monitor NO_2 and PM_{10} generated by the road traffic along Burrfield Road (Map 4, Appendix D). This station is located at a junction with large numbers of pedestrians and residential properties. Buildings in the immediate vicinity are a

mixture of both commercial and residential. This station was mainly set up to monitor road traffic related pollution generated from the adjacent Burrfield Road / Copnor Road junction within the revoked AQMA3. The aging PM_{10} analyser in this station was removed in mid of 2018 and has not been replaced since. However there is plan to replace this analyser in the nearest future with a Horiba APDA-372 or similar analyser.

- CAQMS C7: This station is located within AQMA11 approximately 6.5 metres from Mile End Road kerbside in a residential area. Buildings in the immediate vicinity are all residential. It is a fixed Roadside station established since 2007 to monitor road related NO_2 PM_{10} and $PM_{2.5}$ along Mile End Road and the southern end of the M275 into the City (Map 5, Appendix D). It was refurbished in January 2017 with a new HORIBA APDA-372 $PM_{2.5}$ and PM_{10} analyser; that replaced the aged Eberline to meet DEFRA's AQ monitoring requirements.

- CAQMS C8: In accordance with Ambient Air Quality Directive 2008/50/EC, Bureau Veritas identified Anglsea Road (A3) as a road link of main interest in respect of compliance in May the 5th 2016 to enhance the UK coverage of sites in order to better understand the nature of the compliance challenges. As a result the required site type in the Portsmouth Urban Area was identified as an urban traffic site, which namely requires the site to be located close to a main road. Specifically, the site is required to be within 10m of a road where high level of traffic pollution (NO_2 and PM_{10}) are either modelled, or are already measured. The site must not be located within 25m of a junction and the location must be representative of 100m of road length. Bureau Veritas installed a fixed roadside CAQMS (C8) as outlined above approximately 2.5 metres from Anglsea Road kerbside in a non-residential urban area. The nearest buildings are some distance and are either Portsmouth University buildings or Her Majesty's naval administrative buildings. This station was established since the beginning of 2018 to monitor road related NO_2 and PM_{10} (Map 6, Appendix D).

2.1.2 Non-Automatic Monitoring Sites

PCC revised its non-automatic (passive) monitoring of NO_2 network, NDDT network, to expand it to reach 119 sites up-to-date (2019) including co-locations sites.

This network was further expanded as a result of DEFRA's commentary on PCC's 2017 ASR with an additional 57 sites in 2017 including the additional co-location site and a further 22 sites in 2018 (totalling 80 sites).

Table A.2 in Appendix A shows the details of the sites:

- **Yellow highlighted sites**: Ongoing monitoring sites for many years (**32 sites including co-locations**).
- **Blue highlighted sites**: The additional monitoring sites in year 2017 (**7 sites**).
- **Green highlighted sites**: The additional monitoring sites since year 2017 as results of DEFRA's commentary on PCC 2017 ASR report (**57 sites**).
- **Red highlighted sites**: The second additional monitoring sites located in 2018 mainly as a result of DEFRA's MD and to aid the TFS (**23 sites**).

Maps showing the NDDT locations of the monitoring sites and their proximity to AQMAs are provided in Appendix D.

Due to the large number of monitoring locations and their respective spread across the city maps showing PCC's NDDT monitoring network has been subdivided into 10 maps covering various zones in the city. These are numbered from 1 to 10 to allow clear identification of the site locations:

- Map 7: Portsmouth map showing the 10 Zones for NDDT monitoring site locations.
- Maps 8 to Map 17: individual "zoomed in" area maps.

Further details on Quality Assurance / Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and / or distance correction) are included in Appendix C.

2.2 Individual Pollutants

The LAQ monitoring results presented in these sections were subjected to various corrections depending on the monitored pollutant, monitoring methodology, and

monitored duration. Hence, LAQ monitoring results presented in this section were, where relevant, adjusted for bias (only NDDT), annualised and distance correction. Further details on adjustments are provided in Appendix C.

The CAQMS's NO_2 data for 2014 / 2018 period is presented on last 5 rows of Table A.3, Appendix A.

2.2.1 Nitrogen Dioxide (NO_2)

The NO_2 continuous monitoring program is supplemented by a non-automatic passive monitoring survey using an extensive NDDT network. These sites are located mainly near busy junctions at kerbside and roadside locations at relevant exposure locations as defined in Box 1.1 of the LAQM.TG(16) guidance. Additional monitoring locations were needed to cover the ministerial direction in the TFSs for the road links to validate compliance in respect of the AAQD 2008/50/EC.

This monitoring program is no longer focusing on declared/ revoked AQMAs but was expanded as outlined above to include locations within the two exceedance road links as identified by PCM model for Portsmouth and monitoring sites in road links of similar criteria across Portsmouth.

The NDDT survey locations and monitoring site characteristics are summarised in Table A2, Appendix A and illustrated in Maps 7-17, Appendix D.

NDDT survey has been conducted in accordance with the QA / QC outlined in Appendix C.

The NDDT network covered 119 locations in 2018. Five of these locations are dedicated to co-location studies.

The 2014, 2015, 2016, 2017 and 2018 NDDT survey data was subjected up to 3 stage adjustments to be directly compared to the NO_2 annual mean NAQO:

a) Data annualisation:

According to Box 7.10 of LAQM.TG(16), data generated from NDDT survey was firstly annualised where monitoring had been carried out for a period greater or equal to 3 months and fewer than 9 months. As a result, this assessment covers 103 NDDT monitoring locations only, excluding co-locations.

b) Bias correction:

Secondly NDDT data was subjected to bias correction using locally generated bias correction factor from local co-location study involving the exposure of a triplicate NDDTs at each of the 5 CAQMSs.

The bias correction factors was generated following the approach prescribed on Section 7.190 to 7.198 of LAQM.TG (16) using the calculating precision and accuracy spreadsheet (http://laqm.defra.gov.uk/documents/AEA_DifTPAB_v04.xls) using DEFRAs spreadsheet based Local Bias Adjustment Factor tool.

For 2018 as the reporting year the NDDT collocation study generated the following bias correction factors:

- Tubes exposed at the London Road station (Kerbside station) generated 0.88 as the bias correction factor
- Tubes exposed at both Mile End Road and Burrfield Road stations (both roadside stations) generated 0.94 and 0.97 respectively as the bias correction factors
- Tubes exposed at the Gatcombe Park station (Urban Background station) generated 0.85 as the bias correction factor.
- Tubes exposed at DEFRA's station (Roadside station) generated 0.83 as the bias correction factor.

The above bias correction factors were averaged using the methodology prescribed in Section 7.192 of the LAQM.TG(16).

The 2018 NDDT survey results were bias adjusted using 0.891 as the average of all the above mentioned bias correction factors.

c) Distance correction to the nearest relevant exposure:

To predict the level of the pollutant at the façade of the receptors property should the monitoring location be at some distance from the receptor. This was carried out using

the calculator that was made available by 'Air Quality Consultants'. This tool is provided to local authorities to predict the annual mean NO_2 concentration for a receptor location that is close to a monitoring site, but nearer or further to the kerb than the monitor.

Two NDDT locations were however subjected to a further adjustment as the monitoring points at these locations are distant from the façade of the nearest relevant exposure.

The two locations are:

- 106 Victoria Road North
- Anchorage Road.

3.2.1.1 NO_2 data sets (2014-2018)

2014 NDDT: The 2014 NDDT survey data concluded that NO_2 annual mean levels increased compared with those of 2013 at 65.51% of the monitored locations across the City:

- The highest increase was recorded at the 17 Kingston Road location (AQMA6) and at the Addison Madden Hampshire Terrace (adjacent to AQMA7)
- 7 Velder Avenue (AQMA9), 4 Merlyn Drive, Market Tavern, Mile End Road (AQMA11), 103 Elm Grove, Larch Court Church Road (Corner) adjacent to AQMA11), 121A High Street, Anchorage Road, 116 Albert Road and 2 Victoria Road North with an increase of 13.49, 12.46, 7.15, 5.60, 5.30, 4.48, 3.84, 3.57, and 3.00µg/m^3 respectively
- The NDDT survey data of 2014 also concluded that NO_2 annual mean levels were in excess of the NO_2 annual mean NAQO in 2014 at the following seven monitored locations:
    - Lord Montgomery Way, **AQMA7**
    - London Road CAQMS (C2), **AQMA6**

- 221 Fratton Road, **AQMA6**
- 117 Kingston Road, **AQMA6**
- The Market Tavern Mile End Road, **AQMA11**
- The Tap Public House London Road, **AQMA6**
- Addison Madden Hampshire Terrace, South of **AQMA7**

2015 NDDT: The 2015 NDDT survey data concluded that:

- 2015 NO_2 annual mean levels decreased compared with those of 2014 at 72.41% of the monitored locations across the City resulting in an improvement of LAQ
- Most significant improvement was registered at Addison Madden (Hampshire Terrace), 117 Kingston Road, Market Tavern (Mile End Road), 103 Elm Grove, Anchorage Road (Column 6), 221 Fratton Road, Larch Court Church Road (Corner), 2 Victoria Road North, 7 Velder Avenue, 4 Milton Road with a decrease of 12.95, 10.39, 9.81, 5.81, 4.40, 4.18, 3.25, 2.74, 2.16 and 1.99µg/m^3 respectively
- The highest increase was recorded at 88 Stanley Road, in Queen Street, the Tap Public House in London Road, 106 Victoria Road North and Lord Montgomery Way with an increase of 11.21, 2.57, 2.32, 2.20, and 1.76µg/m^3 respectively. However, Data capture at 88 Stanley Road was very poor (two month of readings only) and therefore the increase at this location by 11.21µg/m^3 can be considered as incorrect and not recorded as an exceedance of the NO_2 annual mean NAQO in 2015 at this location
- NO_2 annual mean levels were in excess of the NO_2 annual mean NAQO at:
  - 117 Kingston Road, **AQMA6**
  - The Tap Public House London Road, **AQMA6**
  - Lord Montgomery Way, **AQMA7**

- 88 Stanley Road (It is important to note that this location is represented by NDDT survey data for only two months which was subjected to all necessary corrections).

2016 NDDT: The 2016 NDDT survey data concluded that NO_2 annual mean levels were in excess of the annual mean NAQO at the following monitored locations:

- Lord Montgomery Way, **AQMA7**
- Northern Road
- Albert Road
- London Road CAQMS (C2), **AQMA6**
- 117 Kingston Road, **AQMA6**
- The Tap Public House London Road, **AQMA6**

2017 NDDT: The 2017 NDDT survey data concluded that NO_2 annual mean levels were in excess of the annual mean NAQO at the following monitored locations:

- "The Tap" public house on London Road, **AQMA6**
- London Road CAQMS (C2), **AQMA6**
- 117 Kingston Road, **AQMA6**

A closer examination at the NDDT survey data for the period 2013 to 2017 revealed that:

- a downward trend emerged at 34.37% monitored locations in the last 5 years since 2013 compared to 40.6% monitored locations for the 5 year commencing year 2012 (From Figure F1 to Figure F28, Appendix F)
- The 2017 NDDT annual mean levels decreased at 64.28% of the monitored locations compared to 2016. However, the 2016 NO_2 annual mean levels decreased at only 10.71% of the monitored locations compared to 2015

- Only 7.14% of the monitored locations were in excess of the NAQO in 2017 compared to 17.86% in 2016.

Despite the seemingly contradicting statements above PCC concludes that we are moving towards compliance with the NAQO.

It is not possible to categorically state why the NO_2 levels increased across the city in 2014, decreased in 2015, and to increase again in 2016 just to drop again in 2017 as a multitude of factors influence pollutant generation and their subsequent dispersion. Such influences are wide ranging and complex.

2018 NDDT:

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the NAQO of 40µg/m^3.

For diffusion tubes, the full 2018 dataset of monthly mean values is provided in Table B1, Appendix B.

The 2018 NDDT survey data concluded that NO_2 annual mean levels were in excess of the annual mean NAQO at 13 monitoring locations mostly in/very close to declared/revoked AQMAs while others were located within the two exceedance road links as identified by PCM model for Portsmouth, and were as follows:

- The long-term monitoring locations registered 2 exceedances:
    - Lord Montgomery Way (SL: 1, DC: 100%, AM: 42.92µg/m^3, **AQMA7**):
        - The NO_2 annual average has remained **above** the NAQO in the last 5 years with the exception of 2017.
        - The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

- The TAP (PH) London Road (SL: 26, DC: 100%, AM:46.02µg/m^3, **AQMA6**):
  - The NO_2 annual average remained **above** the NAQO for the last 5 years.
  - The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating a continued AQ deterioration in the long-term, similar to the previously reported 5 year trend.

- The newly established monitoring locations since the beginning of 2018 registered 11 exceedances:
  - 2-3 Selbourne Terrace (SL: 94, DC: 41.67%, AM:40.33µg/m^3, **AQMA6**)
  - 47 Queen Street (SL: 50, DC: 66.67%, AM:40.37µg/m^3, **AQMA12**)
  - 98/100 Albert Road (SL:85, DC: 66.67%, AM: 40.41µg/m^3, just outside,west **Revoked AQMA2**)
  - 4 Market Way (SL: 44, DC: 58.33%, AM: 40.41µg/m^3, just outside, west **AQMA11**)
  - Opposite 6 Market Way (SL: 45, DC: 41,67%, AM:41.97µg/m^3, just outside,west **AQMA11**)
  - 145 Albert Road (SL: 84, DC: 41.67%, AM:42.82µg/m3, just outside, north **Revoked AQMA2**)
  - 137 London Road (SL: 108, DC: 50%, AM:44.18µg/m^3, north **AQMA6**)
  - Mile End Road, Column 5 (SL: 46, DC: 50%, AM:44.51µg/m^3, **AQMA11**)
  - Alfred Road, Opposite MW-StABS (SL: 120, DC: 25%, AM: 47.51µg/m^3, South/West of **AQMA11**).

- Alfred Road, Column 12 (SL: 118, DC: 25%, AM: 50.38µg/m^3, South/West of **AQMA11**).

- Alfred Road, Column 9 (SL: 117, DC: 25%, AM:50.42µg/m^3, South/West of **AQMA11**).

A closer examination at the NDDT survey data for the period 2014 to 2018 at the 28 long-term monitoring locations as presented on Table A.3 (Appendix A) revealed that:

- In the Long-term a downward trend emerged at 60.716% (17 locations) monitored locations in the last 5 years since 2014 compared to 34.37% monitored locations for the 5 year commencing year 2013 (From Figure F1 to Figure F28, Appendix F). Therefore, AQ could be considered to be improving.

- In the short term NDDT monitoring revealed that:

  - The 2018 NDDT annual mean levels decreased at 53.57% of the monitored locations compared to 2017. This level of AQ improvement was lower than that registered in 2017 where the NDDT annual mean levels decreased at 64.28% of the monitored locations compared to 2016. Hence, LAQ improved in 2018 in a number of monitored locations that is less to that of 2017 amounting to AQ deterioration.

  - The 2018 NDDT annual mean levels exceeded the NO_2 NAQO at 7.14% of the monitored locations (2 locations). This percentage of difference was similar to the one registered in 2017 but with the following differences:

    1. **Lord Montgomery Way** (**AQMA7**, Figures F1, Appendix F):

       a. The NO_2 annual average has remained **above** the NAQO in the last 5 years with the exception of 2017.

       b. The NO_2 annual average at this **roadside** monitoring location **increased** by 4.12µg/m^3 (an increase of 10.29%) between 2017 and 2018 to exceed the NAQO

in 2018 (42.9µg/m^3) exhibiting an AQ deterioration in the short-term.

c. The 2017-2018 NO_2 annual average change is described as being **substantially adverse**.

d. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

2. **The Tap (PH) London Road** (**AQMA6** Figures F15, Appendix F):

a. The NO_2 annual average remained **above** the NAQO for the last 5 years.

b. The NO_2 annual average at this **kerbside** monitoring location **increased** by 2.93µg/m^3 (an increase of 7.33%) between 2017 and 2018, and remains above the NAQO in 2018 (46µg/m^3) exhibiting an AQ deterioration in the short-term.

c. The 2017-2018 NO_2 annual average change is described as being **substantially adverse**.

d. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating a continued AQ deterioration in the long-term, similar to the previously reported 5 year trend.

3. **117 Kingston Road** (**AQMA6**, Figures F17, Appendix F):

a. The NO_2 annual average has fallen below the NAQO for the first time in the last 5 years.

b. The NO_2 annual average at this **roadside** monitoring location **decreased** by 6.07µg/m^3 (a decrease of 15.17%) between 2017 and 2018 and remains below the NAQO in 2018 (38.2µg/m^3) exhibiting an AQ improvement in the short-term.

c. The 2017-2018 NO_2 annual average change is described as being **substantially beneficial**.

d. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating AQ improvement in the long-term contrary to the previously reported 5 year trend.

Monitoring at all added locations since the beginning of 2018 will continue.

Continuous Air Quality monitoring 2014 - 2018

The NO_2 continuous monitoring program for the period stretching between 2014 and 2018 concluded that:

- The 2014 NO_2 levels increased across the 4 CAQMSs compared to that of 2013, exceeding the NO_2 annual mean NAQO at the kerbside London Road CAQMS (45.68µg/m^3). This demonstrated a worsening in LAQ in this year.

- The 2015 NO_2 annual mean levels fell compared to that of 2014 to a level below the NO_2 annual mean NAQO at all 4 CAQMSs. This demonstrates an improvement in LAQ. The maximum recorded concentration was at London Road kerbside CAQMS (38.4µg/m^3). This level was close to breaching the NO_2 annual mean NAQOs.

- The 2016 NO_2 annual mean level increased a cross the 4 CAQMS compared to that of 2015 to a level below the NO_2 annual mean NAQO at all but London Road CAQMSs to result in a worsening in LAQ. The maximum recorded concentration was at London Road kerbside CAQMS (41.21µg/m^3). This level breaches the NO_2 annual mean NAQO.

- The 2017 NO_2 annual mean level increased cross 50% of CAQMSs compared to that of 2016, meeting the NO_2 annual mean NAQO at all but London Road CAQMSs to result in a worsening in LAQ. The maximum recorded concentration was at London Road kerbside CAQMS (44.6µg/m^3). This level breaches the NO_2 annual mean NAQO. The largest increase in 2017 NO_2 annual mean was registered at C2 London Road CAQMS as it increased by 3.39µg/m^3 compared to the level recorded in 2016.

- The 2018 NO_2 annual mean level increased slightly (From 33.54 µg/m^3 to 33.95µg/m^3) only at one of CAQMSs (Mile End Road, C7, **AQMA11**) compared to that of 2017 (London Road and Burrfields Road), but met the NO_2 annual mean NAQO at all but London Road CAQMSs. This could be considered as an overall improvement in LAQ. The maximum recorded concentration was at London Road kerbside CAQMS (40.57µg/m^3). This level constitutes a breach of the NO_2 annual mean NAQO. This exceedance is located in **AQMA6**.

- The 5 year trend was downward across the 4 PCC's owned CAQMS network:

    - **London Road CAQMS** (LR-C2, **AQMA6**, as per Figures F29, Appendix F):

        - The NO_2 annual average has remained **above** the NAQO in the last 5 years with the exception of year 2015.

        - The NO_2 annual average at this **kerbside** monitoring location **decreased** by 4.03µg/m^3 (a decrease of 10.08%) between 2017 and 2018, but remains above the NAQO in 2018 (40.57µg/m^3) exhibiting an AQ improvement in the short-term.

        - The 2017-2018 NO_2 annual average change can be described as being **substantially beneficial.**

        - The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement contrary to the previously reported 5 year trend.

- **Gatcombe Park CAQMS** (AURN-C4, as per Figures F30, Appendix F):
  - The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.
  - The NO_2 annual average at this **urban background** monitoring location **decreased** by 0.73µg/m^3 (a decrease of 1.83%) between 2017 and 2018, and remains below the NAQO in 2018 (18.67µg/m^3) exhibiting an AQ improvement in the short-term.
  - The 2017-2018 NO_2 annual average change can be described as being **negligibly beneficial**.
  - The NO_2 annual average exhibit a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.
- **Burrfield Road CAQMS** (BR-C6, **Revoked AQMA3**, as per Figures F31, Appendix F):
  - The NO_2 annual average has remained **below** the NAQO in the last 5 years.
  - The NO_2 annual average at this **roadside** monitoring location **decreased** by 1.22µg/m^3 (a decrease of 3.05%) between 2017 and 2018, and remains below the NAQO in 2018 (34µg/m^3) exhibiting an AQ improvement in the short-term.
  - The 2017-2018 NO_2 annual average change is described as being **slightly beneficial.**
  - The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.
- **Mile End Road CAQMS** (MER-C7, **AQMA11**, as per Figures F32, Appendix F):

- The NO_2 annual average has remained **below** the NAQO in the last 5 years.

- The NO_2 annual average at this **roadside** monitoring location **increased** by 0.41µg/m^3 (an increase of 1.03%) between 2017 and 2018, but remains below the NAQO in 2018 (33.95µg/m^3) exhibiting an AQ deterioration in the short-term.

- The 2017-2018 NO_2 annual average change is described as being **negligibly adverse**.

- The NO_2 annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend..

Table A4 in Appendix A compares the ratified continuous monitoring NO_2 hourly mean concentrations for the past 5 years with the NAQO of 200µg/m^3 (not to be exceeded more than 18 times per year).

The NO_2 hourly mean was in excess 200µg/m^3 in 2018 once at DEFRA's CAQMS at Anglsea Road Rroadside CAQMS (C8). These do not amount to any exceedances of the NO_2 hourly mean NAQO.

Data collected at PCC CAQMSs did not register any exceedance of the NO_2 hourly mean NAQO up to date since the highest registred NO_2 annual mean was 45.68µg/m^3 in 2014 at the London Road (C2) kerside CAQMS.

In addition, none of CAQMS NO_2 annual mean exceeded 60µg/m^3 which indicates that an exceedance of the 1-hour mean NAQO is unlikely.

2.2.2 Particulate Matter (PM_{10})

Table A.5 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past 5 years with the NAQO (40µg/m^3).

There has been no exceedance of the PM_{10} annual mean NAQO since 2014 at any of Portsmouth based CAQMSs. The highest registered annual mean since then was recorded in 2015 at London Road kerbside CAQMS (34.36µg/m^3).

The 2018 PM_{10} monitoring at each of the CAQMSs concluded:

- **London Road CAQMS** (LR-C2, as per Figure F33, Appendix F)**:**
    - The PM_{10} annual average has remained considerably **below** the NAQO in the last 5 years.
    - The PM_{10} annual average at this **kerbside** monitoring location **decreased** by 1.99µg/m^3 (a decrease of 4.98%) between 2017 and 2018, and remains below the NAQO in 2018 (17.72µg/m^3) exhibiting an AQ improvement in the short-term.
    - The 2017-2018 PM_{10} annual average change is described as being **negligibly beneficial**.
    - The PM_{10} annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

- **Gatcombe Park CAQMS** (AURN-C, as per Figure F34, Appendix F):
    - The PM_{10} annual average has remained considerably **below** the NAQO in the last 5 years.
    - The PM_{10} annual average at this **urban background** monitoring location **increased** by 0.02µg/m^3 (an increase of 0.05%) between 2017 and 2018, and remains below the NAQO in 2018 (14.67µg/m^3) exhibiting an AQ deterioration in the short-term.
    - The 2017-2018 PM_{10} annual average change is described as being **negligibly adverse**.
    - The PM_{10} annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

- **Burrfields Road CAQMS** (BR-C6, as per Figure F35, Appendix F):
    - The PM_{10} annual average has remained considerably **below** the NAQO in the last 5 years.
    - The PM_{10} annual average at this **roadside** monitoring location **increased** by 1.73µg/m^3 (an increase of 4.33%) between 2017 and 2018, and remains below the NAQO in 2018 (21.69µg/m^3) exhibiting an AQ deterioration in the short-term.
    - The 2017-2018 PM_{10} annual average change is described as being **negligibly adverse**.
    - The PM_{10} annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

- **Mile End Road CAQMS** (MER-C7, a per Figure F36, Appendix F):
    - The PM_{10} annual average has remained considerably **below** the NAQO in the last 5 years.
    - The PM_{10} annual average at this **roadside** monitoring location **increased** by 0.67µg/m^3 (an increase of 1.68%) between 2017 and 2018, and remains below the NAQO in 2018 (16.78µg/m^3) exhibiting an AQ deterioration in the short-term.
    - The 2017-2018 PM_{10} annual average change is described as being **negligibly adverse**.
    - The PM_{10} annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

The 2018 PM_{10} annual mean remains below the NAQO at all CAQMSs, with the highest annual mean level (21.69 µg/m^3) being recorded at Burrfield Road Station (C6).

PM_{10} levels are in decline across the 4 PCC owned CAQMSs in the long-term. However, PM_{10} levels increased in the short term at 3 out of the 4 CAQMSs.

Table A.6 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past 5 years with the daily NAQO (50µg/m^3) not to be exceeded more than 35 times per year.

The highest number of PM_{10} daily means in excess of 50µg/m^3 was recorded in 2014 at Burrfields Road CAQMS (7 times). This does not amount to an exceedance.

In 2018 the highest number of daily means in excess of 50 µg/m^3 was recorded at both London Road kerside and Mile End roadside CAQMSs (5 times). This does not amount to an exceedance.

2.2.3 Particulate Matter ($PM_{2.5}$)

PCC monitors $PM_{2.5}$ at the AURN CAQMS of Gatcombe Park (C4), and commenced monitoring $PM_{2.5}$ from January 2017 at London Road (C2) and Mile End Road (C7) CAQMSs.

Table A.7 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past 5 years.

The 2018 $PM_{2.5}$ annual mean remains below the NAQO at all 3 CAQMSs, with the highest annual mean level (12.32 µg/m^3) being recorded at Gatcombe Park AURN CAQMS (C46).

The 2018 $PM_{2.5}$ annual mean increased at two out of 3 CAQMSs (C4 and C7) resulting to AQ deterioration.

Historically, the highest $PM_{2.5}$ annual mean recorded in Portsmouth was 14.26µg/m^3 back in 2014. This level dropped in 2018 to reach 12.32µg/m^3.

Gatcombe Park $PM_{2.5}$ CAQSM (AURN-C4) exhibits as per ***Figure F37, Appendix F*** the followings:

- The $PM_{2.5}$ annual average has remained considerably **below** the NAQO in the last 5 years.

- The $PM_{2.5}$ annual average at this **urban background** monitoring location **increased** by 1.15µg/m^3 (an increase of 4.6%) between 2017 and 2018, and remains below the NAQO in 2018 (12.32µg/m^3) exhibiting an AQ deterioration in the short-term.

- The 2017-2018 $PM_{2.5}$ annual average change is described as being **negligibly adverse**.

- The $PM_{2.5}$ annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

2.2.4 Sulphur Dioxide (SO_2)

PCC do not monitor for sulphur dioxide as it is not an AQ issue in Portsmouth.

2.2.5 Conclusion

2.2.5.1 Nitrogen Dioxide (NO_2)

2.2.5.1.1 NDDT

The 2018 NDDT survey data concluded that NO_2 annual mean levels were in excess of the annual mean NAQO at 13 monitoring locations, mostly in/very close to declared/revoked AQMAs while others were located within the two exceedance road links as identified by PCM model for Portsmouth, and were as follows:

- The long-term monitoring locations registered 2 exceedances (at 7.14% of the monitored locations):
    - Lord Montgomery Way (SL: 1, DC: 100%, AM: 42.92µg/m^3, **AQMA7**)
    - The TAP (PH) London Road (SL: 26, DC: 100%, AM:46.02µg/m^3, **AQMA6**)
- The newly established monitoring locations since the beginning of 2018 registered 11 exceedances:

- 2-3 Selbourne Terrace (SL: 94, DC: 41.67%, AM:40.33µg/m^3, **AQMA6**)
- 47 Queen Street (SL: 50, DC: 66.67%, AM:40.37µg/m^3, **AQMA12**)
- 98/100 Albert Road (SL:85, DC: 66.67%, AM: 40.41µg/m^3, just outside,west **Revoked AQMA2**)
- 4 Market Way (SL: 44, DC: 58.33%, AM: 40.41µg/m^3, just outside, west **AQMA11**)
- Opposite 6 Market Way (SL: 45, DC: 41,67%, AM:41.97µg/m^3, just outside,west **AQMA11**)
- 145 Albert Road (SL: 84, DC: 41.67%, AM:42.82µg/m3, just outside, north **Revoked AQMA2**)
- 137 London Road (SL: 108, DC: 50%, AM:44.18µg/m^3, north **AQMA6**)
- Mile End Road, Column 5 (SL: 46, DC: 50%, AM:44.51µg/m^3, **AQMA11**)
- Alfred Road, Opposite MW-StABS (SL: 120, DC: 25%, AM: 47.51µg/m^3, South/West of **AQMA11**).
- Alfred Road, Column 12 (SL: 118, DC: 25%, AM: 50.38µg/m^3, South/West of **AQMA11**).
- Alfred Road, Column 9 (SL: 117, DC: 25%, AM:50.42µg/m^3, South/West of **AQMA11**).

In the long-term the NDDT monitoring revealed a downward trend emerged at 60.716% (17 locations) monitored locations in the last 5 years since 2014 compared to 34.37% monitored locations for the 5 year commencing year 2013 (From Figure F1 to Figure F28, Appendix F). Therefore, AQ could be considered to be improving in the long term.

In the short term the NDDT monitoring revealed that the 2018 NDDT annual mean levels decreased at 53.57% of the monitored locations compared to 2017. This level of AQ improvement was lower than that registered in 2017 where the NDDT annual mean levels decreased at 64.28% of the monitored locations compared to 2016. Hence, LAQ improved in 2018 at a lower number of monitored locations than in 2017 which could be considered to be an AQ deterioration in the short term.

2.2.5.1.2 Continuous monitoring

The 2018 continuous NO_2 annual mean level increased slightly (From 33.54 µg/m^3 to 33.95µg/m^3) only at one of CAQMSs (Mile End Road, C7, **AQMA11**) compared to that of 2017 (London Road and Burrfields Road), but met the NO_2 annual mean NAQO at all but London Road CAQMSs. This could be considered as an overall improvement in LAQ. The maximum recorded concentration was at London Road kerbside CAQMS (40.57µg/m^3). This level constitutes a breach of the NO_2 annual mean NAQO. This exceedance is located in **AQMA6**.

The 5 year trend was downward across PCC's owned CAQMS network. Data collected at PCC CAQMSs did not register any levels in excess of the NO_2 hourly mean NAQO up to date since the highest registred NO_2 annual mean was 45.68µg/m^3 in 2014 at the London Road (C2) kerside station.

In addition, none of the CAQMs NO_2 annual means was greater than 60µg/m^3 which indicates that an exceedance of the 1-hour mean objective is unlikely.

2.2.5.2 Particulate Matter (PM_{10})

There has been no exceedance of the PM_{10} annual mean NAQO since 2014 at any of Portsmouth based CAQMSs. The highest registered annual mean since then was recorded in 2015 at London Road kerbside CAQMS (34.36µg/m^3).

PM_{10} annual mean levels are in decline across the four PCC owned CAQMSs in the long-term. However, the 2018 PM_{10} annual mean levels increased in the short term at 3 out of the 4 CAQMSs, with the highest annual mean level (21.69 µg/m^3) being recorded at Burrfield Road Station (C6).

The highest number of PM_{10} daily means in excess of 50µg/m^3 was recorded since 2014 was in 2014 at Burrfields Road CAQMS (7 times). This does not amount to an exceedance of the PM_{10} daily means NAQO.

2.2.5.3 Particulate Matter ($PM_{2.5}$)

The 2018 $PM_{2.5}$ annual mean remains below the NAQO at all CAQMSs, with the highest annual mean level (12.32µg/m^3) being recorded at Gatcombe Park AURN CAQMS (C4).

The 2018 $PM_{2.5}$ annual mean increased at 2 out of 3 CAQMSs (C4 and C7) resulting to an AQ deterioration. Historically, the highest PM2.5 annual mean recorded in Portsmouth since 2014 was 14.26µg/m^3 back in 2014. This level dropped in 2018 to reach 12.32µg/m^3.

2.2.5.4 Conclusion

In summary:

- In the long-term 60.71% of the monitored locations exhibited a downward trend when looking at the last 5 year trends commencing 2014 compared with 34.37% of location with a downward trend in previous rolling year commencing on 2013. Representing a possible improvement in AQ.

- In the short term 53.57% of the 2018 monitored locations exhibited an improvement in the annual mean levels as it decreased from the levels registered in 2017 compared with 64.28% in those registered in 2017 that decreased from the levels registered in 2016. Representing a possible deterioration in AQ.

Despite the seemingly contradicting statements above PCC concludes that when looking at the 5 year trends we are moving towards compliance with the NAQO.

It is not possible to categorically state why the NO_2 levels increased in several areas across the city in 2018 given that a multitude of factors influence pollutant generation and their subsequent dispersion. Such influences are wide ranging and complex.

Localised influences such as route popularity or road changes / roadworks may be part of the cause. Others may be of a regional nature perhaps dictated by the

meteorological conditions. National or international stimuli such as requirement for improved vehicle emissions technologies are also likely to play a part.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest major road (m) (2)	Inlet Height (m)
C2	London Road	Kerbside	464925	102129	NO_2 $PM_{2.5}$ PM_{10}	Y	Chemiluminescent, HORIBA's APDA- 372	1.8m of the kerbside further to the south of the station	1m	1.8m
C4	Gatcombe Park Primary School (AURN)	Urban Background	465403	103952	NO_2 PM_{10} $PM_{2.5}$ O_3	N	Chemiluminescent, FDMS	0m Within the school peremiter	119 m	2.5m
C6	Burrfields Road	Roadside	466004	102348	NO_2	N	Chemiluminescent	0.5m	4.5m of Burrfields Road & 5.5m of Copnor Road	1.8m
C7	Mile End Road	Roadside	464397	101270	NO_2 $PM_{2.5}$ PM_{10}	Y	Chemiluminescent, HORIBA's APDA- 372	2m	6.5m	1.8m
C8	Anglesea Road (DEFRA)	Roadside	463835	100259	NO_2 PM_{10}	Y	Chemiluminescent, FDMS	5m	2.5m	1.8m

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m) (3)
1	Lord Montgomery Way (LMW-FST)	Roadside	463872	99874	NO2	Y	0	3.7m	No	2 m
2	12 Chadderton Gardens (CG-12)	Urban background	463705	99371	NO2	N	0	N/A	No	2 m
3	121A High Street (HS-121A)	Roadside	463408	99460	NO2	Y	0	3.1m	No	2 m
4	Queen Street, Column 30 (QS-Col 30)	Roadside	463190	100390	NO2	Y	N/A	3m	No	2 m
5	119 Whale Island Way (WIW-119)	Roadside	464230	102194	NO2	N	0	16.23m	No	2 m
6	88 Stanley Road (SR-88)	Roadside	464331	102197	NO2	N	0	9.88m	No	2 m
7	138 Lower Derby Road (LDR-138)	Urban background	464291	102279	NO2	N	0	37.57m	No	2 m
8	492 Hawthorn Crescent (HC-492)	Urban background	466690	104355	NO2	N	0	34m	No	2 m
9	6 Northern Road (NR-6)	Roadside	465621	105528	NO2	N	0	5.43m	No	2 m
10	20 Stroudley Avenue (SA-20)	Urban background	467107	104850	NO2	N	0	N/A	No	2 m
11	Anchorage Road, Column 6 (AR-Col6)	Roadside	466869	103457	NO2	N	11.76m	6.56m	No	2 m
14	4 Merlyn Drive (MD-4)	Roadside	466109	103736	NO2	N	0	11.26m	No	2 m
15	29 Milton Road (MR-29)	Roadside	466120	101324	NO2	N	0	7.04m	No	2 m
16	Parade Court, London Road (LR-PC)	Roadside	465474	104205	NO2	N	5.32m	5.15m	No	2 m
18	4 Milton Road (MR-4)	Roadside	466097	101332	NO2	N	0	6.13m	No	2 m
19	7 Velder Avenue (VA-7)	Roadside	466392	100226	NO2	Y	0	4.44m	No	2 m
20	136 Eastney Rd (ER-136)	Roadside	466712	99415	NO2	N	0	6.23m	No	2 m
21	116 Albert Road (AR-116)	Roadside	465209	98964	NO2	Y	0	2.36m	No	2 m
22	2 Victoria Road North (VRN-2)	Roadside	464778	99306	NO2	N	0	5.53m	No	2 m
23	106 Victoria Road North (VRN-106)	Roadside	464974	99766	NO2	N	2.37m	2.42m	No	2 m
24	221 Fratton Road (FR-221)	Roadside	465111	100737	NO2	Y	0	4.21m	No	2 m

25	117 Kingston Road (KR-117)	Roadside	465036	101547	NO2	Y	0	2.46m	No	1.8m
26	The TAP (PH), London Road (LR-TAP)	Kerbside	464900	101976	NO2	Y	0	1.91m	No	2 m
30	Market Tavern (PH), Mile End Road (MER-MT)	Roadside	464478	101457	NO2	Y	0	12.73m	No	2m
32	Larch Court, Church Road (CR-Corner)	Roadside	464559	100980	NO2	N	0	5.84m	No	2m
34	Sovereign Gate, Commercial Road (CR-UF)	Roadside	464425	100893	NO2	Y	0	4.40m	No	2m
35	Hampshire Terrace (HT-AM)	Roadside	463837	99759	NO2	N	0	4.9m to 10.74m	No	2m
36	103 Elm Grove (EG-103)	Roadside	464501	99329	NO2	N	0	2.26m	No	2m
37	London Road	Kerbside	464925	102129	NO2	Y	1.8m of the kerbside further to the south of the station		Y	1.8m
38	Gatcombe Park (AURN)	Urban background	465403	103952	NO2	N	0m		Y	3.5m
39	Burrfields Road	Roadside	466004	102348	NO2	N	0.5m	4.5m of Burrfields Road & 5.5m of Copnor Road	Y	1.8m
40	Mile End Road	Roadside	464397	101270	NO2	Y	2m	6.5m	Y	1.8m
42	Admiral Drake (PH), Kingston Crescent (KC-ADPH)	Roadside	464552	101940	NO2	Y	0		No	2m
43	Vanguard House, Kingston Crescent (KC-VH)	Roadside	464774	101922	NO2	N	0		No	2m
44	4 Market Way (MW-4)	Roadside	464336	100833	NO2	Y	0			2m
45	Opposite 6 Market Way (Opp MW-6)	Roadside	464344	100808	NO2	Y	0			2m
46	Mile End Road, Column 5 (MER-Col5)	Roadside	464339	101273	NO2	Y	0		No	2m
47	1 Stamshaw Road West (SR-W1)	Roadside	464586	102125	NO2	N	0		No	2m
48	28 Stamshaw Road East (SR-E28)	Roadside	464597	102119	NO2	N	0		No	2m

49	The Ship and Castle(PH), Half Moon Street (HMS-S&CPH)	Roadside	463042	100315	NO2	Y	0		No	2m
50	47 Queen Street (QS-47)	Roadside	463388	100398	NO2	Y	0		No	2m
51	57 Queen Street (QS-57)	Roadside	463333	100395	NO2	Y	0		No	2m
52	Queen Street, Column 29 (QS-Col29)	Roadside	463235	100412	NO2	Y	11.76m		No	2m
53	DEFRA CAQMS, Anglsea Road (AR-DEFRA)	Roadside	463835	100259	NO2	N	5m	6.5m	Y	1.8m
54	Anglesea Road, Victoria Park, Column 234 (AR-VP-Col234)	Roadside	463835	100257	NO2	N	0	1.5	No	2m
55	Gunwharf Road, Column 12 (GWR-Col12)	Roadside	463224	99590	NO2	N		1.5 m	No	2m
56	Gunwharf Road, Column 4 (GWR-Col4)	Roadside	463261	99782	NO2	N		1.5 m	No	2m
57	23 St Nicolas Street (StNS-23 Formal StJSc-Col7)	Urban background	463478	99348	NO2	N	5m	0.5 m	No	2m
58	9 St Georges Street (St GS-9)	Roadside	463487	99659	NO2	N	N/A	6	No	2m
59	Milton Road-Column 41 (MR-Col41)	Roadside	466263	100334	NO2	N		1.5 m	No	2m
60	Milton Road, Column 42 (MR-Col42)	Roadside	466201	100478	NO2	N	5.32m		No	2m
61	1/10 Southwick House Milton Road. On the fence (MR- SH)	Roadside	466136	100610	NO2	N	0		No	2m
62	12 Hambrook House Milton Road (MR-HH)	Roadside	466165	100573	NO2	N	0		No	2m
63	209 Milton Road (SR-209)	Roadside	466354	100172	NO2	Y	0		No	2m
64	Summerson Lodge, Milton Road (MR-SL)	Roadside	466326	100165	NO2	Y	0		No	2m
65	12 Mooring Way (MW-12)	Roadside	466681	100373	NO2	Y	11.76m	1.5 m	No	2m
66	1 Velder Avenue (VA-1)	Roadside	466267	100216	NO2	Y	0		No	2m
67	23 Velder Avenue (VA-23)	Roadside	466457	100253	NO2	Y	2.37m		No	2m
68	36 Velder Avenue (VA-36)	Roadside	466501	100277	NO2	Y	0		No	2m
69	Velder Avenue, Column 4 (VA-Col4)	Roadside	466396	100248	NO2	Y	0		No	2m
70	Milton Primary School, Eastney Road (ER-DS)	Roadside	466667	99546	NO2	N	0	5 m	No	2m
71	19 Havant Road (HR-19)	Kerbside	465711	105624	NO2	N	0		No	2m
72	60 Northern Road (NR-60)	Roadside	465657	105577	NO2	N	0		No	2m

73	52 Northern Road (NR-52)	Roadside	465653	105544	NO2	N	0		No	2m
74	Northern Road, Column 38 (NR-Col38)	Roadside	465610	105383	NO2	N	0		No	2m
75	1-6 Chipstead House, Southampton Road (SR-CH)	Roadside	465618	105619	NO2	N	0		No	2m
76	142 Copnor Road (CR-142)	Roadside	466002	102053	NO2	N	0		No	2m
77	Copnor School Playground, Copnor Road (CR-School)	Roadside	466008	102097	NO2	N	0		No	2m
78	3 Goldsmith Avenue (GA-3)	Roadside	466523	99599	NO2	N	0		No	2m
79	Goldsmith Avenue, Column 1 (GA-Col1)	Kerbside	466555	99598	NO2	N	1.8m		No	2m
80	147 Albert Road (AR-147)	Roadside	465204	98978	NO2	Y	0		No	2m
81	Albert Road, Column 22 (AR-Col22)	Roadside	465278	98968	NO2	Y	0.5m		No	2m
82	106-108 Albert Road (On Waverley Road) (AR-WR)	Roadside	465178	98945	NO2	Y	2m		No	2m
83	141 Albert Road (AR-141)	Roadside	465166	98982	NO2	Y	0		No	2m
84	145 Albert Road (On Lawrence Road) (AR-145)	Roadside	465198	98996	NO2	Y	0		No	2m
85	98/100 Albert Road (AR-98/100)	Roadside	465150	98968	NO2	N	0		No	2m
86	91 Fawcett Road (FR-91)	Roadside	465201	99734	NO2	N	N/A		No	2m
87	Priory School, Fawcett Road (FR-PSc)	Roadside	465183	99904	NO2	N	0		No	2m
88	1-8 Brandon House, Lawrence Road (LR-BH)	Roadside	465186	98996	NO2	Y	0		No	2m
89	114 Waverley Road (WR-114)	Roadside	465190	98946	NO2	N	0		No	2m
90	18 Baffins Road (BR-18)	Roadside	466095	100813	NO2	N	0		No	2m
91	3 Baffins Road (BR-3)	Roadside	466070	100819	NO2	N	0		No	2m
92	Locksway Road-13 (LR-13)	Roadside	466525	99736	NO2	N	0	2.5 m,	No	2m
93	40 Victoria Road North (Back of nursery) (VRN-40)	Roadside	464826	99500	NO2	N	0		No	2m
94	2-3 Selbourne Terrace (ST-2/3)	Roadside	465162	100077	NO2	Y	11.76m		No	2m
95	189 Collins Place Fratton (CP-189)	Roadside	465109	100005	NO2	N	0		No	2m
96	Mary Rose Centre, Albert Road (AR-MR)	Roadside	465465	98937	NO2	N	0		No	2m
97	29 Rowan Court, Goldsmith Avenue (GA-	Roadside	465896	99852	NO2	N	5.32m		No	2m

	29)									
98	13-29 Eastern Road (ER-13/29)	Roadside	466700	100591	NO2	Y	0		No	2m
99	64-80 Eastern Road (ER-64/80)	Roadside	466727	100572	NO2	Y	0		No	2m
100	340 Havant Road (HR-340)	Roadside	467783	105677	NO2	N	0		No	2m
101	Havant Road, Column 52 (HR-Col52)	Roadside	467693	105687	NO2	N	0		No	2m
102	Hillside & Wymering Centre, Service Road (SR-HWC)	Roadside	464585	105714	NO2	N	0		No	2m
103	UTC Portsmouth	Roadside	465556	103968	NO2	N	2.37m		No	2m
108	137 London Road (LR-137)	Roadside	464951	102418	NO2	Y	0		No	2m
109	122/124 London Road (LR-122/124)	Roadside	464961	102383	NO2	Y	0		No	2m
110	2a/2b Gladys Avenue (GA-2a/2b)	Roadside	464913	102419	NO2	N	0		No	2m
111	Gladys Avenue, Column 3 (GA-Col3)	Roadside	464898	102414	NO2	N			No	2m
117	Alfred Road, Column 9 (AR-Col 9)	Kerbside	463901	100508	NO2	N	N/A		No	2m
118	Alfred Road, Column 12 (AR-Col 12)	Roadside	463951	100531	NO2	N	N/A		No	2m
119	Alfred Road, left of St Agatha's bustop shelter (MW-StABS)	Kerbside	464098	100748	NO2	N	N/A		No	2m
120	Alfred Road, Opposite MW-StABS (MW-OppStABS)	Kerbside	464086	100765	NO2	N	N/A		No	2m
121	46 London Road (LR-46)	Roadside	464930	102071	NO2	Y	0		No	2m
122	47 London Road (LR-47)	Roadside	464918	102090	NO2	Y	0		No	2m
124	Hillsley Road, Column 23 (HR-Col23)	Urban Background	462491	106553	NO2	N	8.66m	24	No	2m
125	7 Tudor Crescent (TC-7)	Urban Background	465624	104626	NO2	N	0	18	No	2m
126	Port Way, Column 32 (PW-Col32)	Roadside	463756	105253	NO2	N	1.5m		No	2m
127	133 Southampton Road (SR-133)	Roadside	463536	105652	NO2	N	0	21.8	No	2m
128	47 Durby Road (DR-47)	Roadside	464710	102222	NO2	N	0	3	No	2m
129	50 Durby Road (DR-50)	Roadside	464711	102239	NO2	N	0	3	No	2m
130	120 London Road Road. On Stubbington Avenue Bus Stop (SA-BS)	Kerbside	464986	102344	NO2	N	1,5m	0.5	No	2m
131	16 London Road-On Chichester Road (CR-PP)	Roadside	464925	101969	NO2	N	0	1.5	No	2m
132	Milton Road, Column 50 (MR-Col50)	Roadside	466344	100139	NO2	Y			No	2m

133	Labour Party Club, Holbrook Road (HR-LPC)	Roadside	464882	100475	NO2	N			No	2m
134	Labour Party Club, Coburg Street (CS-LPC)	Roadside	464919	100464	NO2	N			No	2m
135	Southampton Road - North (SR-N)	Kerbside	464526	105665	NO2	N			No	1.8m
136	Southampton Road - South (SR-S)	Kerbside	464512	105641	NO2	N			No	2 m
137	Southampton Road, Column 96 - North (SR-Col96N)	Roadside	464082	105658	NO2	N			No	1.8m
138	Southampton Road, Column 97 - South (SR-Col97S)	Roadside	464076	105635	NO2	N			No	1.8m

Red highlighted sites: Ongoing monitoring sites for many years (**32 sites including co-locations**).

Blue highlighted sites: The additional monitoring sites in year 2017 (**7 sites**).

Green highlighted sites: The additional monitoring sites in year 2018 as results of DEFRA's commentary on PCC 2017 ASR report (**57 sites**).

Brown highlighted sites: The second additional monitoring sites in year 2018 mainly as results of DEFRA's the Ministerial Direction through the Targeted Feasibility Studies (**23 sites**).

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

(3) 2m is the minimum height above ground level.

Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2014	2015	2016	2017	2018
1	Roadside	Diffusion Tube		100.00	**42.57**	**44.33**	**43.52**	38.80	**42.92**
2	Urban background	Diffusion Tube		100.00	16.55	15.74	17.40	16.38	17.09
3	Roadside	Diffusion Tube		100.00	25.67	24.07	25.75	23.70	24.13
4	Roadside	Diffusion Tube		83.33	27.97	30.54	34.70	34.20	34.04
5	Roadside	Diffusion Tube		100.00	28.93	27.53	29.52	24.38	28.08
6	Roadside	Diffusion Tube		91.67	34.85	46.06	36.08	32.08	30.86
7	Urban background	Diffusion Tube		100.00	26.53	26.05	28.09	27.32	27.74
8	Urban background	Diffusion Tube		100.00	28.37	28.43	29.94	26.75	25.97
9	Roadside	Diffusion Tube		100.00	33.88	34.98	40.86	37.06	36.70
10	Urban background	Diffusion Tube		100.00	16.66	16.48	19.54	17.58	17.17
11	Roadside	Diffusion Tube		91.67	33.29	28.27	28.10	23.50	22.90
14	Roadside	Diffusion Tube		100.00	27.21	26.87	22.20	21.28	21.66
15	Roadside	Diffusion Tube		100.00	27.57	26.21	28.97	28.95	27.64
16	Roadside	Diffusion Tube		83.33	32.32	32.01	36.45	35.44	29.59
18	Roadside	Diffusion Tube		100.00	28.90	26.91	29.30	29.62	26.01
19	Roadside	Diffusion Tube		100.00	37.24	35.08	39.61	34.72	37.68
20	Roadside	Diffusion Tube		100.00	28.90	27.58	29.12	29.73	28.42
21	Roadside	Diffusion Tube		100.00	35.18	35.28	40.05	38.37	36.50
22	Roadside	Diffusion Tube		100.00	30.80	28.06	31.23	26.48	29.28

23	Roadside	Diffusion Tube		100.00	28.80	31.00	37.00	34.00	34.60
24	Roadside	Diffusion Tube		100.00	**40.49**	36.32	37.74	38.30	36.76
25	Roadside	Diffusion Tube		91.67	**52.18**	**41.79**	**43.65**	**44.28**	38.21
26	Kerbside	Diffusion Tube		100.00	**40.81**	**43.12**	**49.16**	**43.09**	**46.02**
30	Roadside	Diffusion Tube		91.67	**44.12**	34.31	39.34	38.48	39.17
32	Roadside	Diffusion Tube		100.00	34.93	31.68	33.51	32.87	31.87
34	Roadside	Diffusion Tube		83.33	35.52	34.65	36.06	36.17	33.34
35	Roadside	Diffusion Tube		100.00	**41.42**	28.48	30.68	30.13	30.08
36	Roadside	Diffusion Tube		75.00	34.81	29.00	33.32	29.74	31.47
42	Roadside	Diffusion Tube		66.67					38.05
43	Roadside	Diffusion Tube		66.67					32.50
44	Roadside	Diffusion Tube		58.33					**40.41**
45	Roadside	Diffusion Tube		41.67					**41.97**
46	Roadside	Diffusion Tube		50.00					**44.51**
47	Roadside	Diffusion Tube		41.67					36.77
48	Roadside	Diffusion Tube		66.67					30.54
49	Roadside	Diffusion Tube		58.33					34.64
50	Roadside	Diffusion Tube		66.67					**40.37**
51	Roadside	Diffusion Tube		50.00					33.18
52	Roadside	Diffusion Tube		66.67					32.29
54	Roadside	Diffusion Tube		58.33				33.82	36.28
55	Roadside	Diffusion Tube		91.67				30.40	25.38
56	Roadside	Diffusion Tube		91.67				36.17	35.09
57	Urban background	Diffusion Tube		100.00					20.32
58	Roadside	Diffusion Tube		100.00				33.80	29.32
59	Roadside	Diffusion Tube		25.00					38.23

60	Roadside	Diffusion Tube		58.33					29.77
61	Roadside	Diffusion Tube		91.67					33.67
62	Roadside	Diffusion Tube		100.00					22.04
63	Roadside	Diffusion Tube		66.67					34.17
64	Roadside	Diffusion Tube		58.33					37.88
65	Roadside	Diffusion Tube		100.00				27.62	28.24
66	Roadside	Diffusion Tube		66.67					31.90
67	Roadside	Diffusion Tube		66.67					36.73
68	Roadside	Diffusion Tube		66.67					36.86
69	Roadside	Diffusion Tube		50.00					31.14
70	Roadside	Diffusion Tube		100.00				23.69	25.14
71	Kerbside	Diffusion Tube		66.67					27.78
72	Roadside	Diffusion Tube		66.67					26.49
73	Roadside	Diffusion Tube		66.67					27.40
74	Roadside	Diffusion Tube		58.33					37.27
75	Roadside	Diffusion Tube		66.67					25.71
76	Roadside	Diffusion Tube		83.33					31.25
77	Roadside	Diffusion Tube		83.33					21.23
78	Roadside	Diffusion Tube		100.00					25.04
79	Kerbside	Diffusion Tube		50.00					39.32
80	Roadside	Diffusion Tube		66.67					38.35
81	Roadside	Diffusion Tube		58.33					35.22
82	Roadside	Diffusion Tube		41.67					30.79
83	Roadside	Diffusion Tube		66.67					32.43
84	Roadside	Diffusion Tube		41.67					**42.82**
85	Roadside	Diffusion Tube		66.67					**40.41**

86	Roadside	Diffusion Tube		91.67					28.89
87	Roadside	Diffusion Tube		91.67					27.30
88	Roadside	Diffusion Tube		41.67					35.35
89	Roadside	Diffusion Tube		50.00					30.85
90	Roadside	Diffusion Tube		100.00					23.98
91	Roadside	Diffusion Tube		100.00					26.69
92	Roadside	Diffusion Tube		100.00				28.69	27.27
93	Roadside	Diffusion Tube		100.00					35.04
94	Roadside	Diffusion Tube		41.67					**40.33**
95	Roadside	Diffusion Tube		50.00					29.31
96	Roadside	Diffusion Tube		58.33					23.47
97	Roadside	Diffusion Tube		58.33					25.84
98	Roadside	Diffusion Tube		58.33					22.51
99	Roadside	Diffusion Tube		58.33					23.57
100	Roadside	Diffusion Tube		50.00					22.14
101	Roadside	Diffusion Tube		50.00					28.17
102	Roadside	Diffusion Tube		33.33					28.72
103	Roadside	Diffusion Tube		50.00					24.73
108	Roadside	Diffusion Tube		50.00					**44.18**
109	Roadside	Diffusion Tube		58.33					35.76
110	Roadside	Diffusion Tube		50.00					27.72
111	Roadside	Diffusion Tube		58.33					28.73
117	Kerbside	Diffusion Tube		25.00					**50.42**
118	Roadside	Diffusion Tube		25.00					**50.38**
119	Kerbside	Diffusion Tube		25.00					31.97
120	Kerbside	Diffusion Tube		25.00					**47.51**

121	Roadside	Diffusion Tube		25.00					37.32
122	Roadside	Diffusion Tube		25.00					37.68
124	Urban Background	Diffusion Tube		25.00					28.56
125	Urban Background	Diffusion Tube		50.00					39.58
126	Roadside	Diffusion Tube		41.67					37.53
134	Roadside	Diffusion Tube		25.00					25.41
37	*Kerbside*	*Automatic*		*95.86*	***45.68***	*38.40*	***41.21***	***44.60***	***40.57***
38	*Urban background*	*Automatic*		*99.44*	*22.17*	*18.78*	*20.05*	*19.41*	*18.68*
39	*Roadside*	*Automatic*		*99.73*	*35.93*	*32.81*	*34.34*	*35.22*	*34.00*
40	*Roadside*	*Automatic*		*98.13*	*36.51*	*30.25*	*35.48*	*33.54*	*33.95*
53	*Roadside*	*Automatic*		*96.60*					*30.52*

☒ **Diffusion tube data has been bias corrected**

☒ **Annualisation has been conducted where data capture is <75%**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	NO_2 1-Hour Means > 200µg/m³ (3)				
					2014	2015	2016	2017	2018
C2	Kerbside	Automatic		95.86	1	0	0	0	0
C4	Urban background	Automatic		99.44	1	0	0	0	0
C6	Roadside	Automatic		99.73	0	0	0	0	0
C7	Roadside	Automatic		98.13	0	0	0	0	0
C8	Roadside	Automatic		96.60					1

Notes:

Exceedances of the NO_2 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

Table A.5 – Annual Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2018 (%) [2]	PM_{10} Annual Mean Concentration (µg/m^3) [3]				
				2014	2015	2016	2017	2018
C2	Kerbside		99.51	32.43	34.36	20.04	19.71	17.72
C4	Urban background		63.93	18.48	16.16	18.15	14.65	14.67
C6	Roadside		74.6	26.92	26.45	19.75	19.96	21.69
C7	Roadside		100	17.53	23.45	11.88	16.11	16.78
C8	Roadside		97.39					19.3

☒ **Annualisation has been conducted where data capture is <75% :** Data highlighted in red was annualised. Given that all background AURN network station within 50 miles did not meet the criteria of data capture, PCC used local monitoring location for the purpose of annualisation of data with less than 75% data capture as they meet the data capture criteria: C2(Kerbeside), C7(Roadside), and C8 (Roadside).

Notes:

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	PM_{10} 24-Hour Means > 50µg/m^3 (3)				
				2014	2015	2016	2017	2018
C2	Kerbside		99.51	0	1	1	4	5
C4	Urban background		63.93	0	2	2	0	0
C6	Roadside		74.6	7	4	1	1	3
C7	Roadside		100	0	1	0	1	5
C7	Roadside		97.39	0	1	0	1	1

Data highlighted in red was annualised. Given that all background AURN network station within 50 miles did not meet the criteria of data capture, PCC used local CAQMSs for the purpose of annualisation of data with less than 75% data capture as they meet the data capture criteria: C2(Kerbeside), C7(Roadside), and C8 (Roadside).

Notes:

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

Table A.7 – $PM_{2.5}$ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	$PM_{2.5}$ Annual Mean Concentration (µg/m^3) (3)				
				2014	2015	2016	2017	2018
C2	Kerbside		99.51				12.28	11.28
C4	Urban background		55.63	14.26	10.5	11.63	11.17	12.32
C7	Roadside		100				10.54	10.81

☒ **Annualisation has been conducted where data capture is <75%**

Data highlighted in red was annualised using data from Southampton Centre and Bournemouth CAQMSs.

Notes:

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Appendix B: Full Monthly Diffusion Tube Results

Table B.1 – 2018 NO_2 Monthly Diffusion Tube Results

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.891) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
1	35.91	44.74	41.89	47.41	96.13	41.01	53.49	43.72	44.62	46.59	44.20	38.32	48.17	42.92	
2	14.92	21.05	19.48	22.38	25.03	16.19	18.01	16.36	18.98	21.31	18.72	17.70	19.18	17.09	
3	22.71	31.20	24.95	29.44	35.62	23.03	27.04	23.70	28.36	30.33	22.53	26.12	27.09	24.13	
4	31.14	38.09	59.48			29.94	39.24	35.09	39.28	39.93	33.73	36.09	38.20	34.04	
5	30.01	37.18	33.09	34.93	34.10	29.61	27.77	22.88	27.52	33.98	37.20	29.89	31.51	28.08	
6	37.40		32.76	34.94	33.99	26.99	37.92	33.29	34.85	33.80	41.15	33.88	34.63	30.86	
7	31.32	32.13	31.03	31.71	33.21	23.94	31.15	28.06	31.03	31.95	37.89	30.23	31.14	27.74	
8	35.28	28.54	26.97	31.48	26.64	22.17	28.98	26.13	27.17	29.76	33.09	33.59	29.15	25.97	
9	43.67	40.87	38.89	34.48	45.82	32.95	41.51	38.48	45.60	47.06	41.14	43.74	41.19	36.70	
10	17.96	21.61	20.53	20.83	17.45	15.13	17.61	15.10	17.08	22.19	23.89	21.84	19.27	17.17	
11	34.81		32.33	27.42	27.09	22.72	28.59	25.37	24.53	30.00	32.42	29.50	28.62	25.50	22.9
14	24.32	24.84	30.02	25.57	22.46	21.41	20.48	19.23	24.58	29.61	25.31	23.90	24.31	21.66	
15	29.10	35.08	35.04	35.53	32.81	27.80	32.99	28.16	29.85	33.64	21.64	30.62	31.02	27.64	
16	36.39	38.25	36.14	35.46			29.37	24.37	32.04	36.45	30.58	33.10	33.21	29.59	
18	36.44	33.09	31.62	30.58	26.04	21.61	31.62	27.33	28.91	33.64	17.88	31.53	29.19	26.01	

19	41.14	39.57	42.54	42.33	48.50	38.02	50.24	43.52	37.81	43.45	39.02	41.37	42.29	37.68	
20	31.52	32.86	30.75	37.05	40.75	26.21	32.20	28.87	28.21	36.90	31.24	26.22	31.90	28.42	
21	36.30	38.27	38.45	43.35	47.40	35.36	51.29	40.34	39.93	42.37	39.14	39.38	40.97	36.50	
22	26.71	32.72	37.17	33.51	37.10	29.63	35.34	32.10	28.53	36.43	31.49	33.56	32.86	29.28	
23	32.23	47.35	47.65	42.77	49.39	39.29	41.59	30.92	37.87	52.00	44.26	41.15	42.21	37.61	34.6
24	41.83	39.96	39.12	38.75	52.32	35.82	38.98	41.00	43.40	49.44	38.16	36.30	41.26	36.76	
25	41.96	46.14	21.91	46.13	48.04	36.62	48.20	43.07	44.21	42.91	52.54		42.88	38.21	
26	51.52	47.18	52.39	45.93	69.42	44.94	59.21	47.13	52.30	57.02	41.99	50.82	51.65	**46.02**	
30	48.02	43.24	41.46	40.80	48.38	35.70	45.02		43.19	42.95	50.03	44.85	43.97	39.17	
32	37.32	35.82	36.10	34.03	40.45	24.56	34.99	33.86	36.74	42.35	36.82	36.23	35.77	31.87	
34	32.93		39.01	39.44	44.98		39.76	20.27	38.15	43.06	40.20	36.33	37.41	33.34	
35	25.67	38.66	31.15	35.62	45.98	30.86	31.99	28.64	34.07	38.03	32.42	32.06	33.76	30.08	
36	37.01	33.70	34.82	37.66	42.48	31.73	29.96			38.38		32.17	35.33	30.59	
42					38.46	37.03	44.44	42.74	37.49	44.86	35.66	39.71	40.05	38.05	
43					21.20	26.15	38.72	35.73	37.20	37.77	34.39	42.54	34.21	32.50	
44						38.58	43.18	39.00	41.93	50.09	43.87	40.38	42.43	**40.41**	
45						38.50	38.47	44.28	43.86			35.03	40.03	**41.97**	
46						50.51	40.65	44.16	40.22	55.19		40.18	45.15	**44.51**	
47					37.79	32.85	37.74				42.28	44.19	38.97	36.77	
48					28.20	26.92	31.52	32.71	32.33	34.40	36.10	35.02	32.15	30.54	
49					42.50	31.21	36.93	33.00	33.53	40.97		29.77	35.41	34.64	
50					48.57	35.93	44.62	37.94	41.56	48.06	42.67	40.60	42.49	**40.37**	
51					41.05	31.48	38.46			39.61	35.53	33.11	36.54	33.18	
52					39.56	30.09	30.93	31.98	36.95	36.68	32.95	32.79	33.99	32.29	
54	41.90	41.66	41.69			31.01	43.02	36.03	36.80				38.87	36.28	
55	22.52		28.43	30.71	35.89	24.42	31.29	25.32	30.06	33.36	18.88	32.48	28.49	25.38	
56	34.48	46.54		39.36	44.82	36.05	44.62	34.34	40.08	46.72	26.65	39.57	39.39	35.09	

57	19.09	26.56	25.51	21.45	29.03	18.17	22.60	19.02	21.14	26.27	23.29	21.51	22.80	20.32	
58	26.91	36.88	36.02	32.96	37.73	30.11	30.54	29.46	34.82	32.72	33.27	33.43	32.90	29.32	
59										49.79	48.26	44.42	47.49	38.23	
60					29.13	30.63	33.82		38.82	36.32	28.39	29.21	32.33	29.77	
61		46.92	45.90	36.77	22.01	38.05	39.68	30.90	33.58	41.73	39.67	40.47	37.79	33.67	
62	22.58	27.27	26.46	21.74	46.10	18.81	22.05	20.53	18.49	26.75	24.59	21.42	24.73	22.04	
63					43.57	33.51	36.07	34.46	31.78	41.23	29.93	37.21	35.97	34.17	
64					37.41	30.81	48.81	40.95	39.26		35.48	36.52	38.46	37.88	
65	35.47	32.00	31.96	32.01	31.48	24.88	32.26	32.45	31.27	35.69	28.49	32.37	31.69	28.24	
66					36.66	29.29	33.02	34.45	31.68	37.60	28.14	37.78	33.58	31.90	
67					44.46	32.71	43.09	40.27	34.66	38.77	34.82	40.49	38.66	36.73	
68					44.29	31.74	42.99	39.49	35.35	40.31	38.99	37.25	38.80	36.86	
69					34.04	33.42	34.04		30.16	35.24	33.80		33.45	31.14	
70	24.74	33.92	30.00	25.68	36.32	28.03	25.41	20.65	27.24	34.01	25.59	26.93	28.21	25.14	
71					27.02	28.14	29.38	28.30	29.42	25.66	30.77	35.23	29.24	27.78	
72					30.74	18.22	28.67	23.33	26.85	33.72	31.23	30.33	27.88	26.49	
73					32.27	20.77	26.87	22.87	29.56	38.35	28.52	31.50	28.84	27.40	
74					44.24	30.20	38.26	35.37	37.67	46.26	38.65		38.66	37.27	
75					29.83	22.22	23.33	23.54	25.43	33.25	29.39	29.52	27.07	25.71	
76			26.19	33.02	40.33	38.75	36.83	30.76	31.22	41.38	36.19	36.04	35.07	31.25	
77			20.13	22.52	24.38	19.72	25.23	22.21	24.32	28.63	22.75	28.34	23.82	21.23	
78	27.81	30.61	29.02	26.39	32.74	24.34	30.38	25.57	25.89	32.09	25.79	26.66	28.11	25.04	
79			42.21		45.54		41.18	36.88	37.10	42.92			40.97	39.32	
80					51.72	34.07	40.88	36.97	39.83	52.15	31.93	35.38	40.37	38.35	
81						34.02	42.96	32.78	35.56	42.39	33.10	38.10	36.99	35.22	
82						39.15			31.77	41.97	29.21	31.69	34.76	30.79	
83					39.22	27.98	33.13	29.60	40.00	40.80	29.50	32.90	34.14	32.43	

84					45.53	35.92	46.83	36.65	35.45				40.08	**42.82**	
85					45.22	40.75	49.48	40.01	36.65	44.98	40.01	43.18	42.53	**40.41**	
86		40.20	31.89	34.42	35.21	29.70	28.23	24.24	28.22	42.39	30.54	31.69	32.43	28.89	
87		28.13 6424	31.00 2592	30.47 4641	31.243 143	26.91 3796	32.31 2689	32.21 3018	32.78 5055	34.87 3369	26.57 0993	30.50 3224	30.64	27.30	
88					41.14	31.55		37.70			33.52	40.92	36.97	35.35	
89							31.43	30.24	30.75	40.94	32.75	32.30	33.07	30.85	
90	27.73	30.53	31.87	23.01	30.08	25.49	26.50	19.80	23.65	30.07	27.39	26.86	26.92	23.98	
91	33.92	33.97	31.77	27.31	31.03	24.52	33.54	24.49	28.99	31.96	28.87	29.09	29.96	26.69	
92	28.51	32.08	28.46	31.64	36.63	23.82	31.58	27.15	31.78	35.71	30.56	29.39	30.61	27.27	
93	31.10	43.15	43.19	32.15	45.88	40.65	46.90	33.27	37.58	42.97	36.04	39.04	39.33	35.04	
94						36.36		38.41		54.14	47.21	44.47	44.12	**40.33**	
95							29.35	27.62	28.99	34.70	34.79	33.04	31.42	29.31	
96						19.47	25.25	22.77	26.90	28.64	20.63	28.88	24.65	23.47	
97						23.47	25.38	26.85	28.55	32.02	28.66	25.02	27.14	25.84	
98						22.01	23.57	22.79	23.62	30.40	22.79	20.31	23.64	22.51	
99						20.64	26.22	22.16	24.13	28.35	28.38	23.34	24.75	23.57	
100							20.09	18.30	21.63	26.90	27.17	28.27	23.73	22.14	
101						26.27		22.24	26.17	32.68	37.37	37.35	30.35	28.17	
102						24.25			24.75		41.96	33.55	31.13	28.72	
103							22.98	20.91	26.66	30.34	29.04	29.08	26.50	24.73	
108						33.64	56.18		52.50	50.92	49.10	46.29	48.10	**44.18**	
109						33.26	38.56	30.44	35.91	40.39	44.51	39.80	37.55	35.76	
110						25.05	22.25	25.92	27.60		34.41	32.12	27.89	27.72	
111						27.31	31.46	27.54	28.34	30.37	35.44	30.70	30.16	28.73	
117										62.13	64.89	60.88	62.63	**50.42**	
118										75.21	46.49	66.04	62.58	**50.38**	

119										43.15	37.44	38.56	39.72	31.97	
120										58.59	56.48	61.99	59.02	**47.51**	
121										45.62	41.54	51.94	46.37	37.32	
122										45.70	49.81	44.94	46.81	37.68	
124										33.27	37.22	35.96	35.48	28.56	
125							76.08	32.85	37.01	31.96	37.55	39.13	42.43	39.58	
126							41.04		38.46	45.80	44.78	40.60	42.14	37.53	
127												41.83	41.83		
131												45.89	45.89		
132											41.98	47.23	44.61		
133											47.49	56.77	52.13		
134										36.79	26.81	31.09	31.56	25.41	

☒ **Local bias adjustment factor used**

☐ **National bias adjustment factor used**

☒ **Annualisation has been conducted where data capture is <75%**

☒ **Where applicable, data has been distance corrected for relevant exposure**

Data with data capture less than 25% was highlighted in Green and was not annualised.

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA / QC

1 QA / QC of automatic monitoring

1.1 Continuous Air Quality Monitoring, Quality Assurance and Quality Control

PCC manages four air quality-monitoring stations. These are all fully equipped with PCC DEFRA / NETCEN approved real-time automatic continuous monitoring analysers. These are sophisticated automatic monitoring systems housed in purpose built air-conditioned enclosures. These analysers measure and record in real-time a combination of NO_2, PM_{10} and $PM_{2.5}$.

PCC compiled continuous air quality monitoring data for the Further Assessment using Horiba's APNA-370, NO_2 based on the chemiluminescent analysis method.

1.2 Routine site operations

PCC employs a dedicated staff member to operate the network of continuous air quality monitoring stations. He is trained in all aspects of the monitoring processes including routine site operations, field calibrations and data ratification. He is also the NETCEN trained Local Site Operator (LSO) for the local affiliated AURN station. This is to ensure that both a high-level of accurate data and an acceptable percentage of data capture are obtained.

All automatic monitoring equipment has both routine remote calibration check and routine (fortnightly) on-site checks. They also have maintenance visits, which follow documented procedures that stem from equipment manuals, manufacturer instructions and the UK Automatic Network Site Operators Manual.

Routine visits include:

- visual inspection of the station
- regular inlet-filter changes
- regular sampling head-cleaning and airflow

- a two-point calibration of the NO_2 analyser using a zero-air scrubber and a Nitric Oxide (NO) gas on-site

- AIR LIQUIDE supplies the NO_x span gas with the concentration certificate. This gas is traceable to national standards

All equipment fitted within each station's enclosure (e.g. sample meteorological sensors, pumps, air conditioning units, modem etc.) is subject to independent routine maintenance and support via a service contract with Horiba. This includes:

- six-monthly minor service and equipment check visits by the manufacturer for Horiba's analysers and approved engineers covering all non-Horiba equipment following national protocols and traceable QA/QC procedures. Horiba is ISO 9001 accredited and carries out similar or identical support work for a number of AURN network stations across the UK

- six-monthly major service where a full multi-point calibration is carried out on the NO_2 analyser, using zero-air, NO and NO_2 span gas (again traceable to national standards) meaning the analyser data slope and offset factors are reset. In addition to multi-point calibration the following checks are carried out:

    - linearity

    - noise

    - response time, leaks and flow

    - converter efficiency

    - stability of the on-site gas calibration cylinder.

The local AURN station is also subject to external audit. Site Inter-calibration checks carried out by National Environmental Technology Centre Network engineers prior to each Horiba's major service.

Horiba also carries out non-routine site visits in response to equipment failure to the same standards. Contract arrangements ensure that visits are carried out within two to three days of the notification of call-out in order to minimise data loss.

All routine and non-routine site visits are fully documented and detail all works carried out, including any adjustments, modifications and repairs completed.

1.3 Calibration check methods

The calibration procedure for NO_x for sites C2, C4, C6 and C7 is based on a two point zero / span calibration check being performed at intervals of two weeks. The calibration procedure for the NO_x analyser of the C4 AURN network was based on three points, the third being span NO_2 to check the NO_2 Converter. However this was changed to two point calibration check. The methodology for the calibration procedure is followed according to the manufacturers' instruction handbooks:

- pre-calibration check - the site condition and status of the analyser is recorded prior to the zero / span check being conducted

- zero check – the response of the analyser to the absence of the gas being monitored. The stations were fitted with an integrated scrubber system incorporating a set of scrubbers, Hopcalite, activated charcoal, Purafil and Drierite, to generate a dried gas with none of the monitored pollutants. All were changed at least every six months but Hopcalite is changed more frequently due to the high levels of humidity in Portsmouth. These were changed with to be fitted with synthetic air cylinders supplied by Air Liquide UK Ltd

- span check – the response of the analyser to the presence of the gas of a known concentration. Traceable gases are used for calibration checks supplied as part of the maintenance contract

- post calibration check - the site condition and status of the analyser upon completion of all checks

- all Horiba's APNA-370 analysers have their own built in data storage facility. They are built in a multi-drop set up. The calibration checks are

done directly through the front panel. Each analyser zero / span check is fully documented with records being kept centrally

1.4 Automatic data handling

All the stations are remotely accessible from a desktop computer at the civic offices via a telemetry linkage by either landline or GSM system. The telemetry linkage software used is 'Data Communication Server'. It is set on a daily auto-dial collection mode for data retrieval. It is also set to run calibration checks every three days.

Once the connection is established, the 'Data Communication Server' software retrieves the overnight auto-calibration first and stores it in a temporary database and a calibration factor is generated according to the following steps:

- instrument span, F = C/(Vs-Vz) and
- pollutant concentration (ppb) = Fx(Va-Vz) where:
    - C is the set gas value on the gas certificate
    - Vs span value
    - Vz zero span value
    - Va is the sample value as recorded by the analyser.

Raw measured data retrieved from the station data logger(s) is then subject to the calculated correction factors and stored in the final database as corrected. The latter is then made readily available to be queried via the 'IDAZRW Central Station', database access software.

Instrument status and internal auto-calibration data can be viewed in addition to the corrected collected measured monitoring data.

The air quality data ratification is carried out manually from this station.

1.5 Manual data handling

All collected data is screened or validated by visual examination to see if there are any unusual measurements. The affected data is then flagged in the database. Any further remaining suspicious data, such as large spikes, 'flat-lines' and excessive negative data is flagged for more detailed investigation. 'IDAZRW Central Station' is capable to trace back any change made at all times with the administrator's name. An original raw dataset is always kept in the data processing software.

When data ratification has been completed the data is then made available for further statistical and critical examination for reporting purposes.

Air quality monitoring data can be imported manually into a Microsoft Excel spreadsheet. This scaled data (where values are above the lower detectable limit is considered to be valuable data) is then further converted to generate data in the National Air Quality Objective format to enable direct comparison to the standards. A file of raw data is always kept for reference in the database.

2 QA / QC of diffusion tube monitoring

2.1 Monitoring technique

The continuous NO_2 monitoring network is complemented by a secondary network of passive NO_2 tubes that are located in suspected air quality hot spots. In addition, tubes are located at the relevant continuous monitoring sites to enable data adjustment. At a selection of sites three tubes are exposed simultaneously and the data compared. Where the data is consistent, the results are averaged. Where the tubes results show significant differences the data is discounted.

This method provides a cost-effective means of monitoring a wide range of monitoring locations. The accuracy of tubes however is variable depending on the tube handling procedures, the specific tube preparation, adsorbent mixture and the analysing laboratory. These tubes are supplied and analysed by Gradko International Ltd.

PCC's NO_2 diffusion tubes are prepared by the supplier using 50% Triethanolamine (TEA) in acetone. These tubes were exposed for one-month periods in accordance with LAQM.TG (16) guidance [5].

2.2 Tube Handling Procedures

Once received by post, NO_2 tubes are stored in cool location within the supplied packaging until use. The tube end caps are not removed until the tube has been placed at the monitoring location at the start of the monitoring period. The exposed tubes are recapped at the end of the monitoring period and returned as quickly as possible to a clean cool storage environment then sent to GIL for analysis.

2.3 Laboratory QA / QC

GIL is a UKAS accredited company for the analysis of NO_2. GIL take part in the WASP scheme on a quarterly basis. An inter-comparison of results from other laboratories demonstrates that GIL's performance is good in terms of accuracy and precision.

2.4 Data Ratification

Once analysed, the NO_2 diffusion tubes results which, were significantly within the documented limit of detection, were laboratory blank corrected.

The returned results are closely examined on a monthly basis to identify any spurious data (e.g. very high or very low data).

The data is subjected to a further series of corrections for the monitored period under consideration:

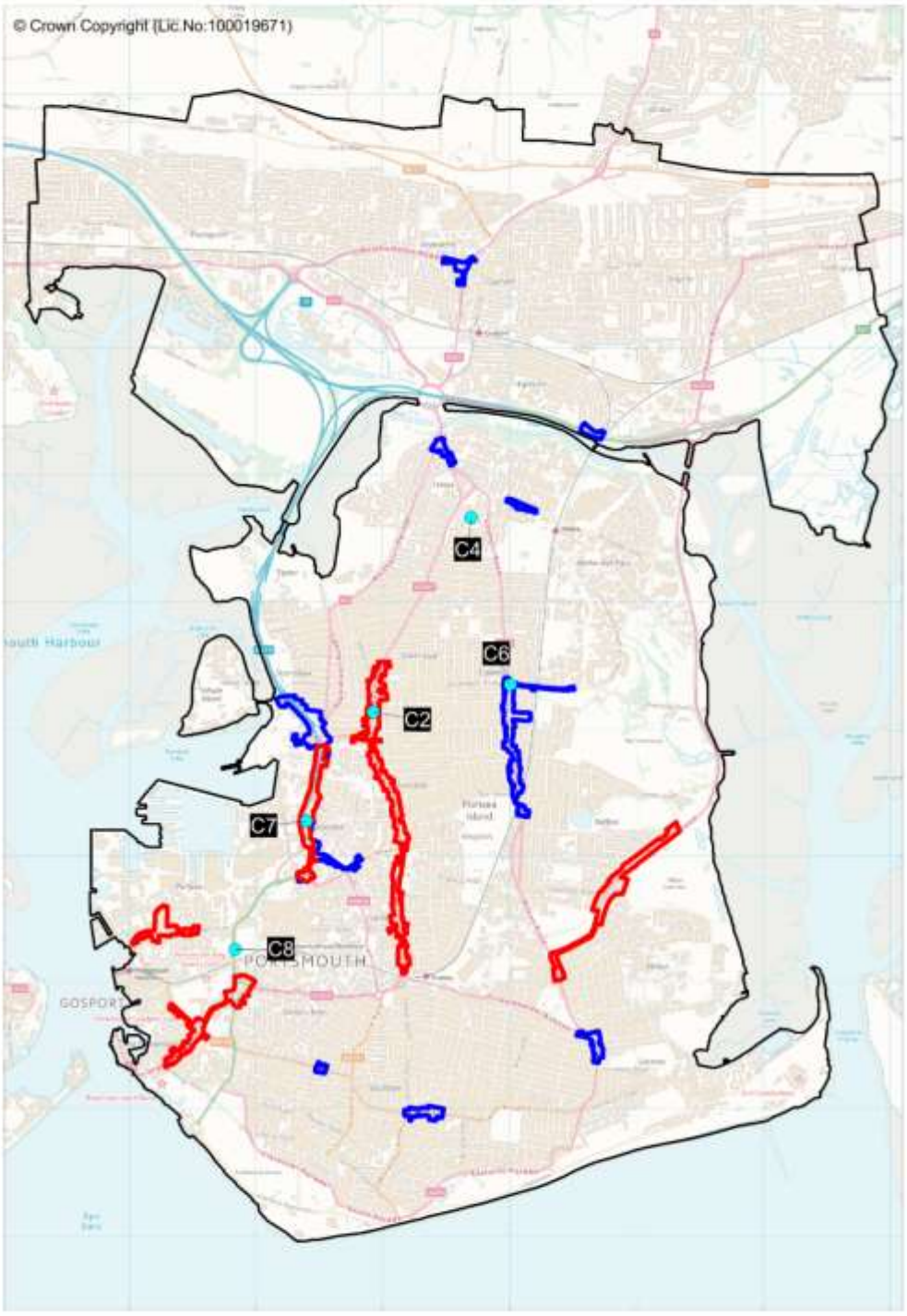
- Firstly, PCC use the data from the local collocation study of NO_2 diffusion tubes to calculate the bias following the approach prescribed in Box 6.4 of LAQM TG (16) using the appropriate continuous monitoring data from the local air quality monitoring network for individual NO_2 monitored site according to the site criteria

- Secondly, the estimation of the NO_2 annual mean is deduced for individual NO_2 diffusion tube monitored locations following the approach prescribed in Box 6.5 of LAQM TG (16) using data from both Portsmouth and Southampton AURN stations

- The corrected results are then reported and used for comparison only, i.e. not for verification processes in the Further Assessment (Review and Assessment process).

Appendix D: Map(s) of CAQMSs and AQMAs Locations

Map 1 – Locations of PCC's (C2, C4, C6, and C7) and DEFRA's (C8) CAQMSs.

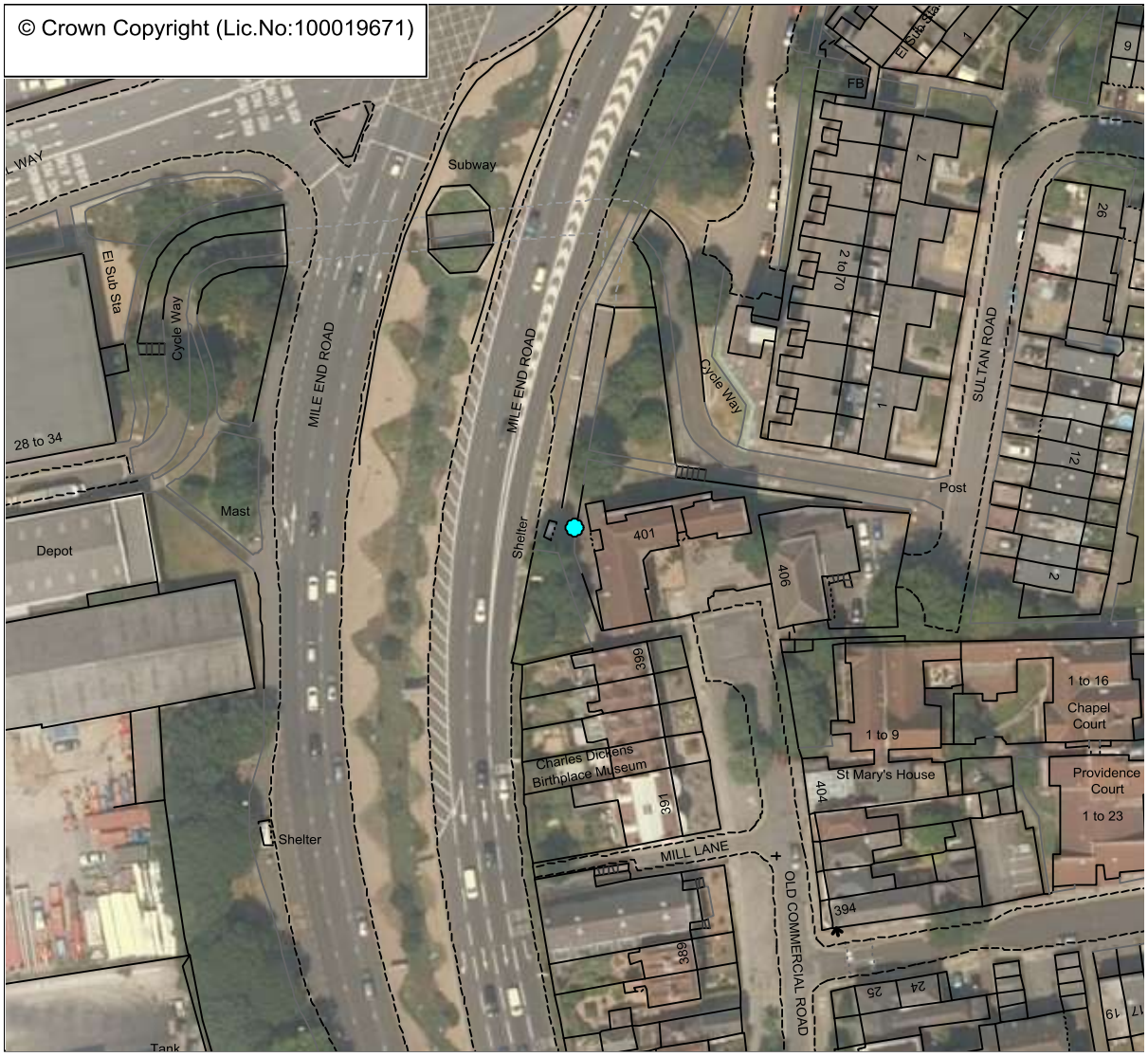


Map 2 – PCC's Kerbside CAQMS: Location (C2) along London Road, North End.

Map 3 – PCC's AURN CAQMS: Location (C4) at Gatcombe Park Primary School, Hilsea.

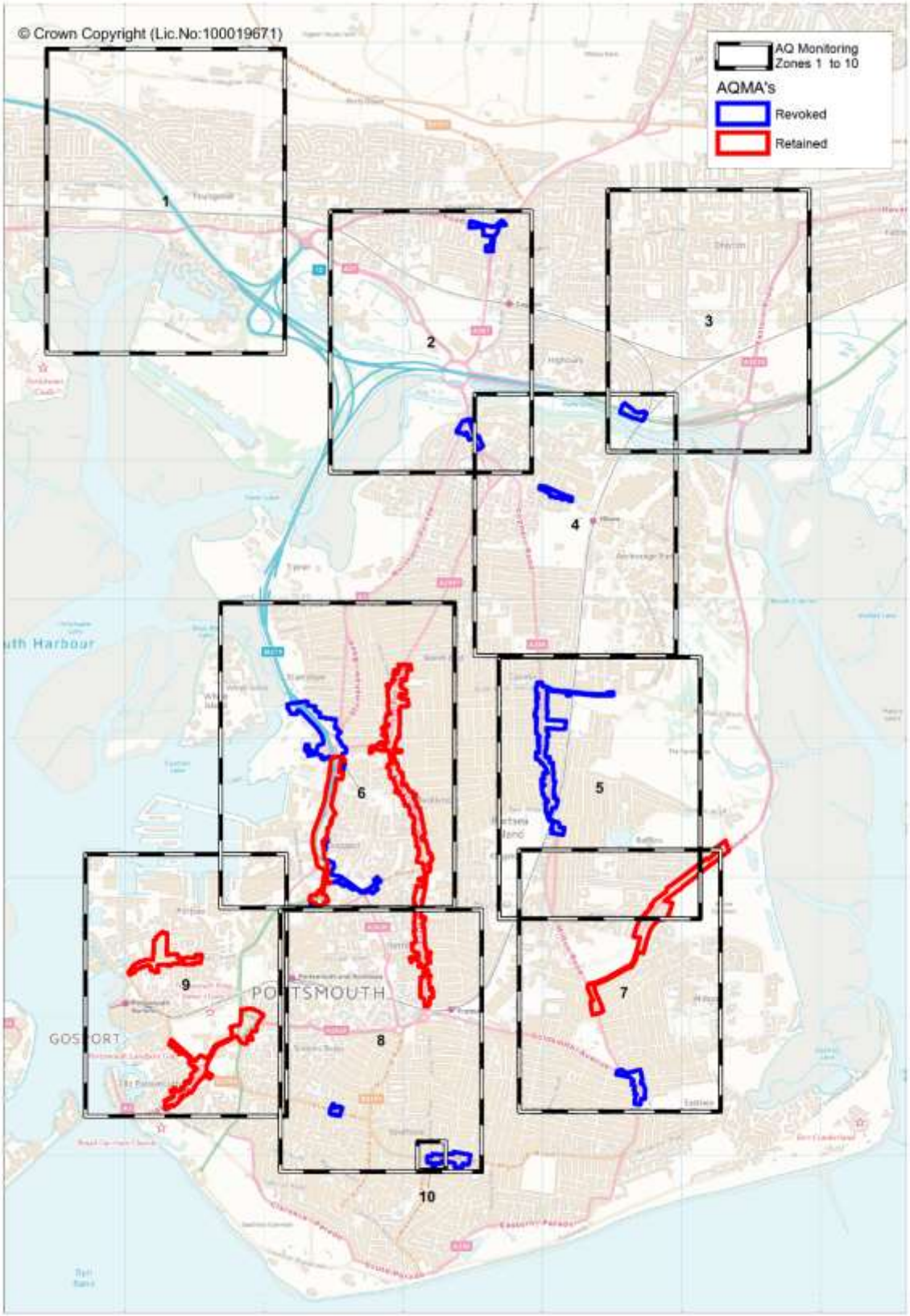
Map 4 – PCC's Roadside CAQMS: Location (C6) along Burrfields Road, Baffins.

Map 5 – PCC's Roadside CAQMS: Location (C7) along Mile End Road, Buckland.

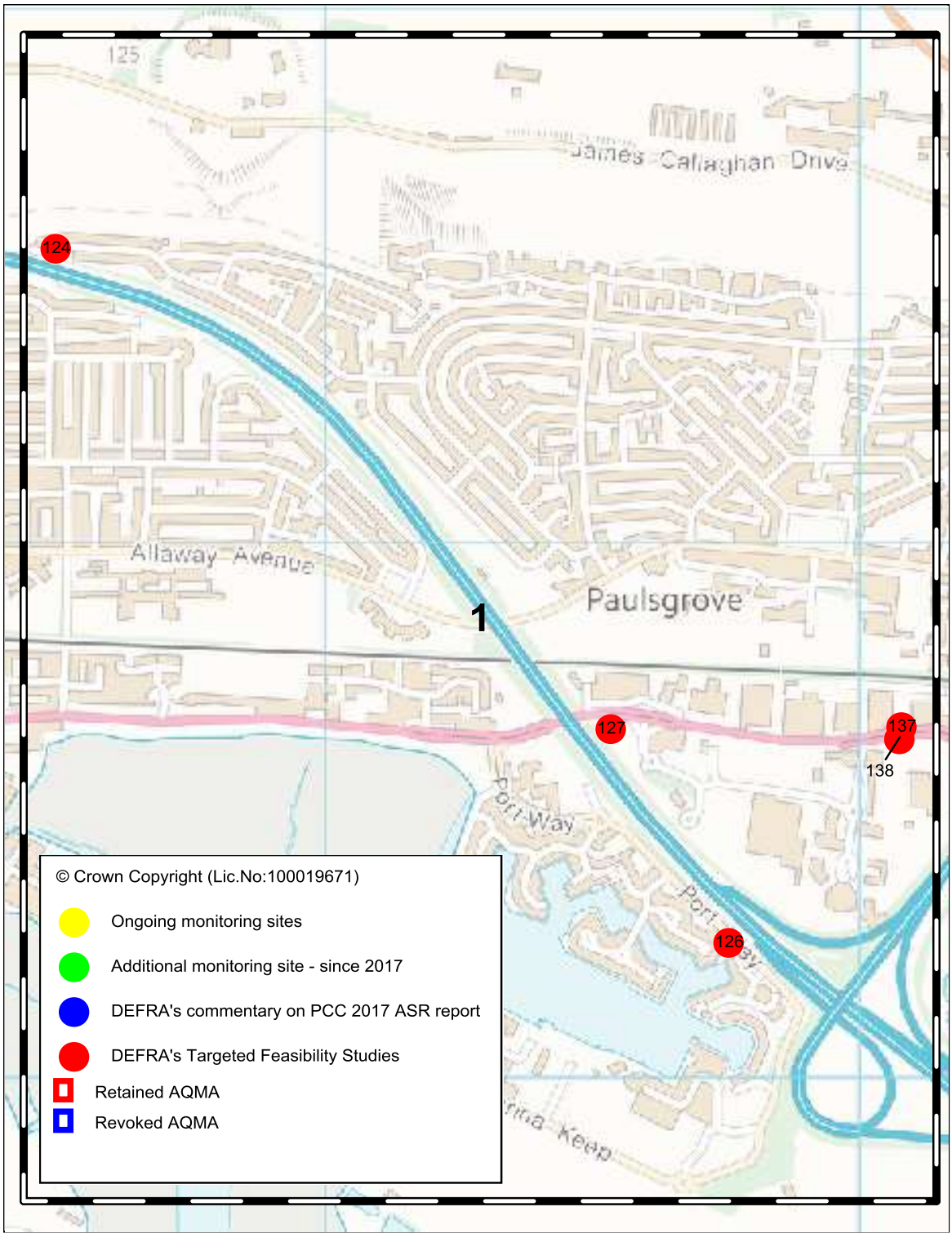


Map 6 – DEFRA's Roadside CAQMS: Location (C8) along Anglsea Road, Southsea.

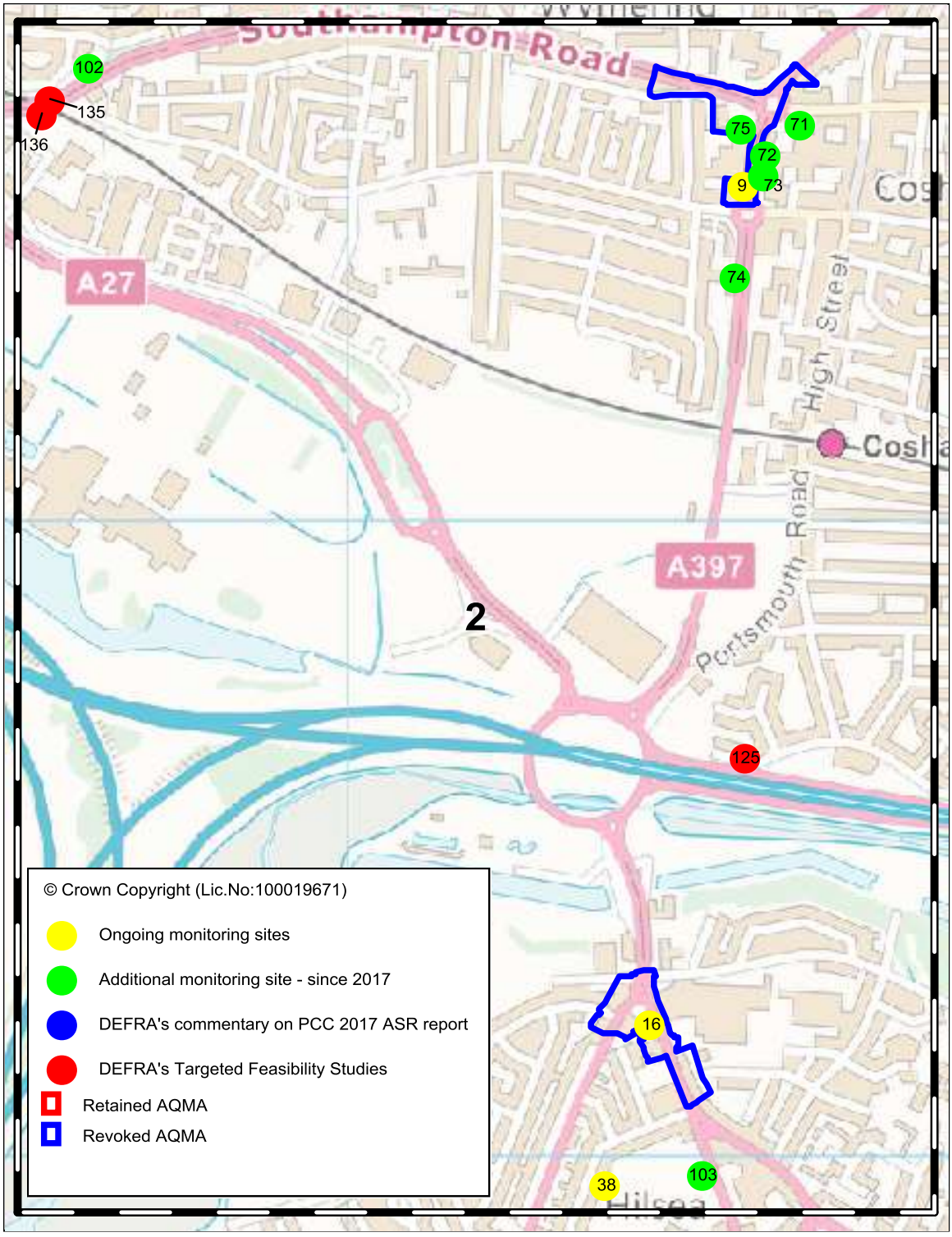
Map 7 – PCC's AQMAs and NDDT monitoring locations Zones.



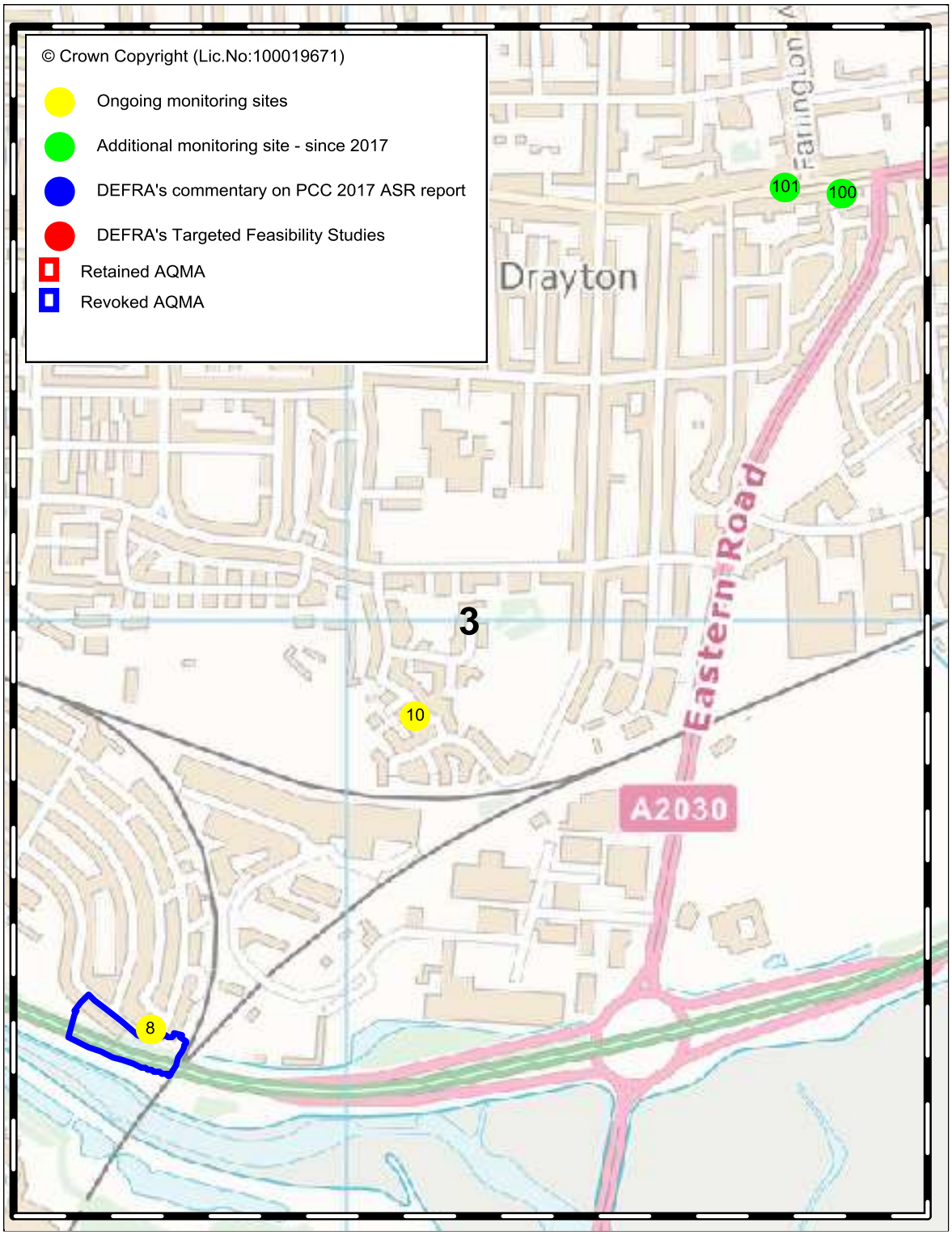
Map 8 – PCC's NDDT monitoring locations (Zone 1).



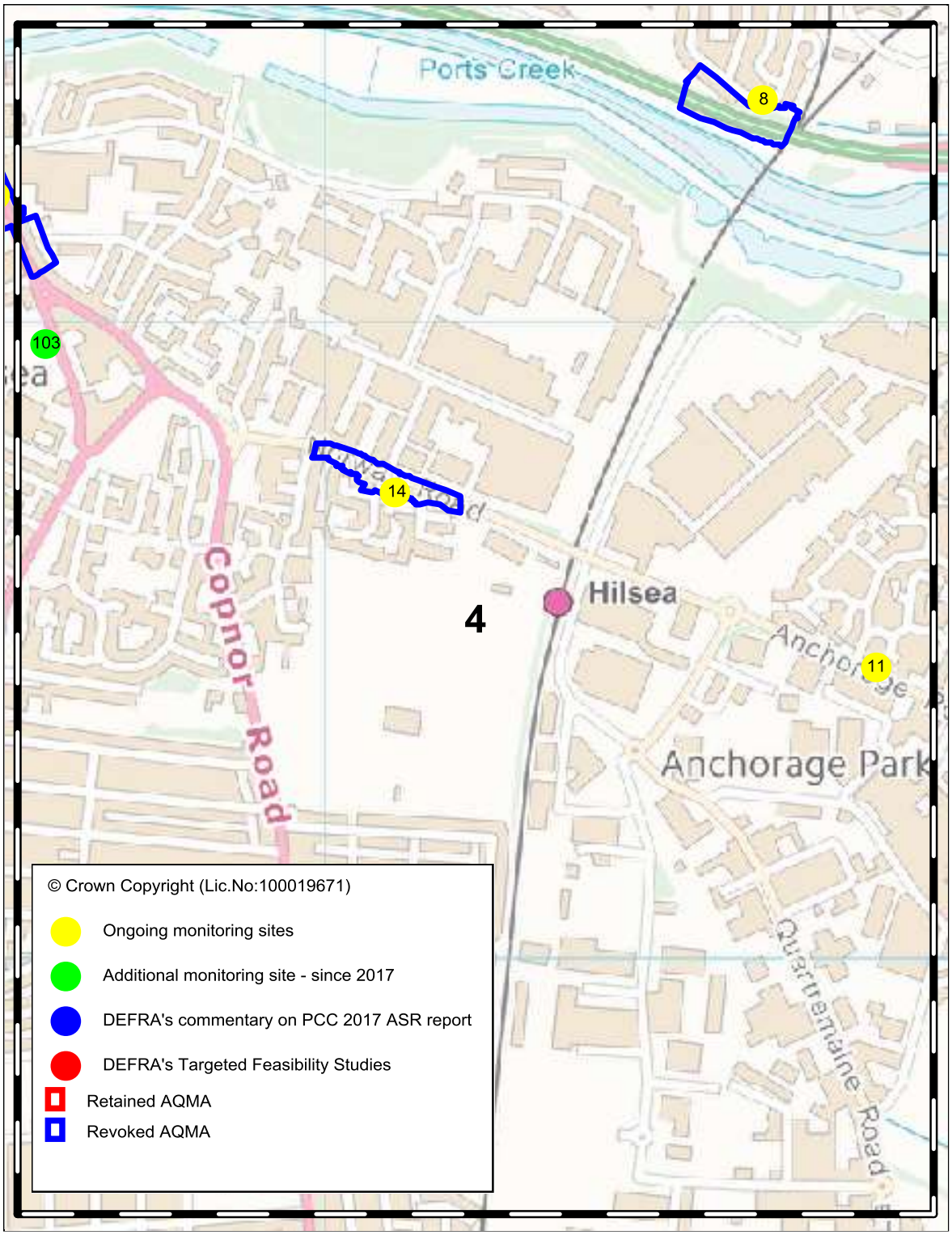
Map 9 – PCC's NDDT monitoring locations (Zone 2).



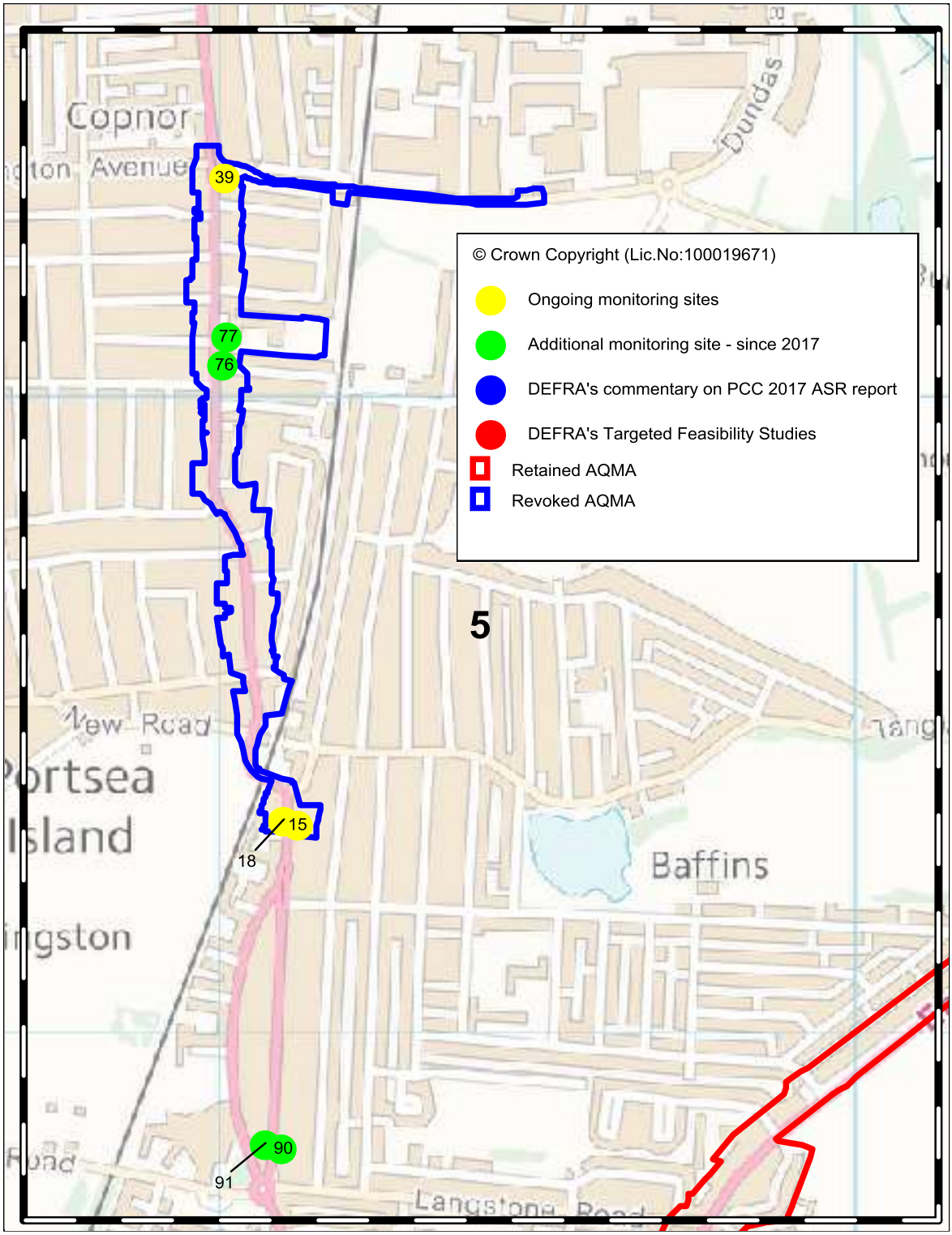
Map 10 – PCC's NDDT monitoring locations (Zone 3).



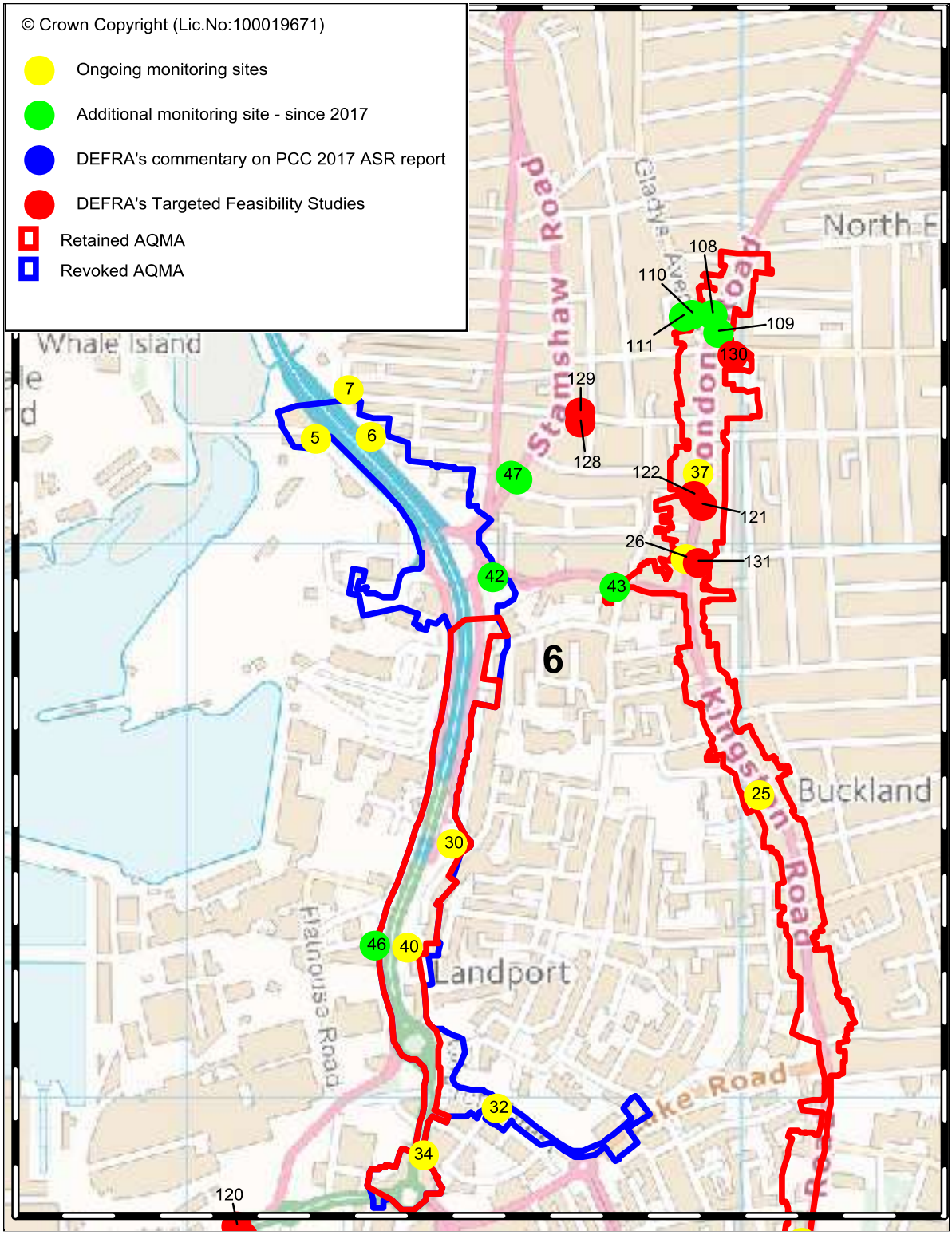
Map 11 – PCC's NDDT monitoring locations (Zone 4).



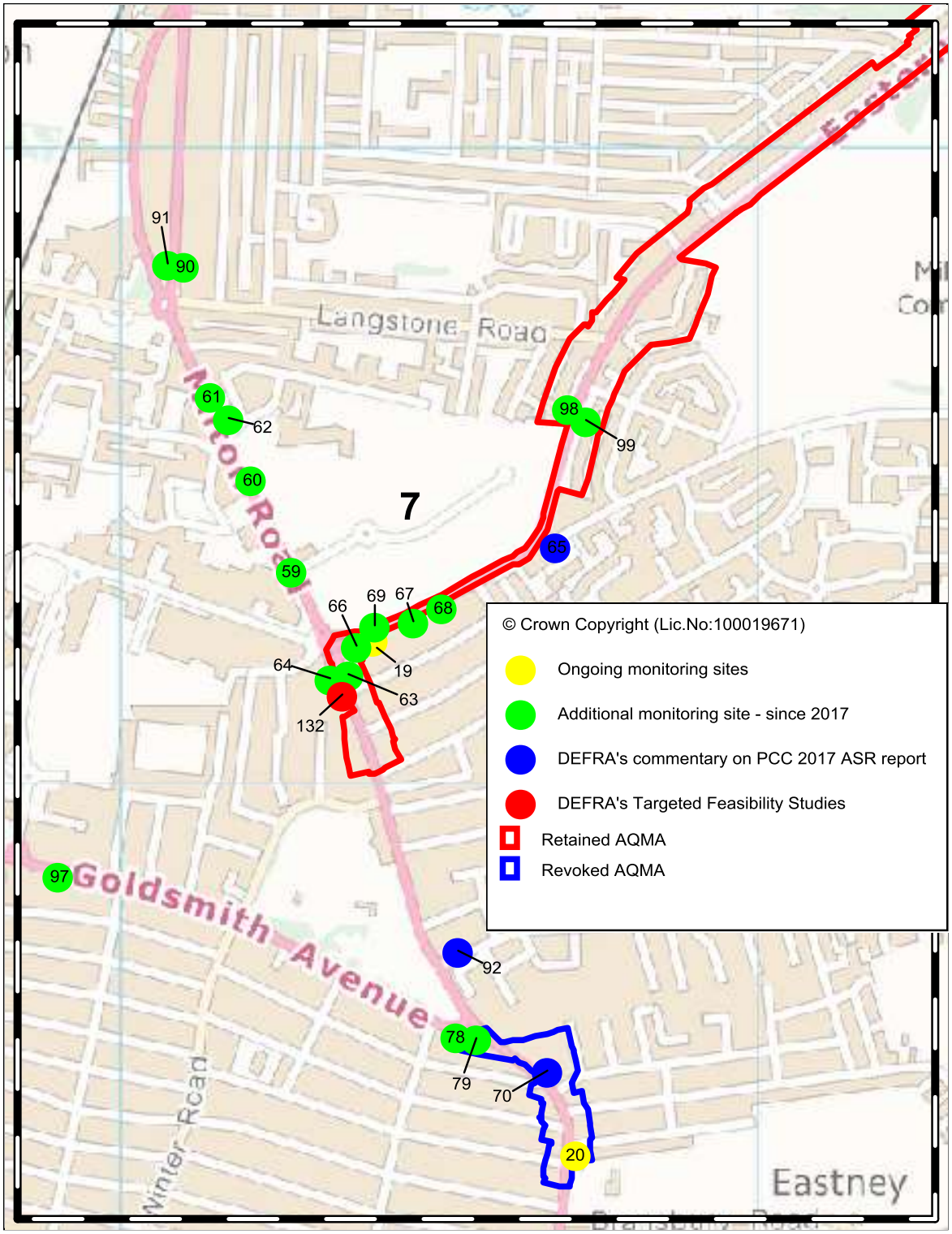
Map 12 – PCC's NDDT monitoring locations (Zone 5).



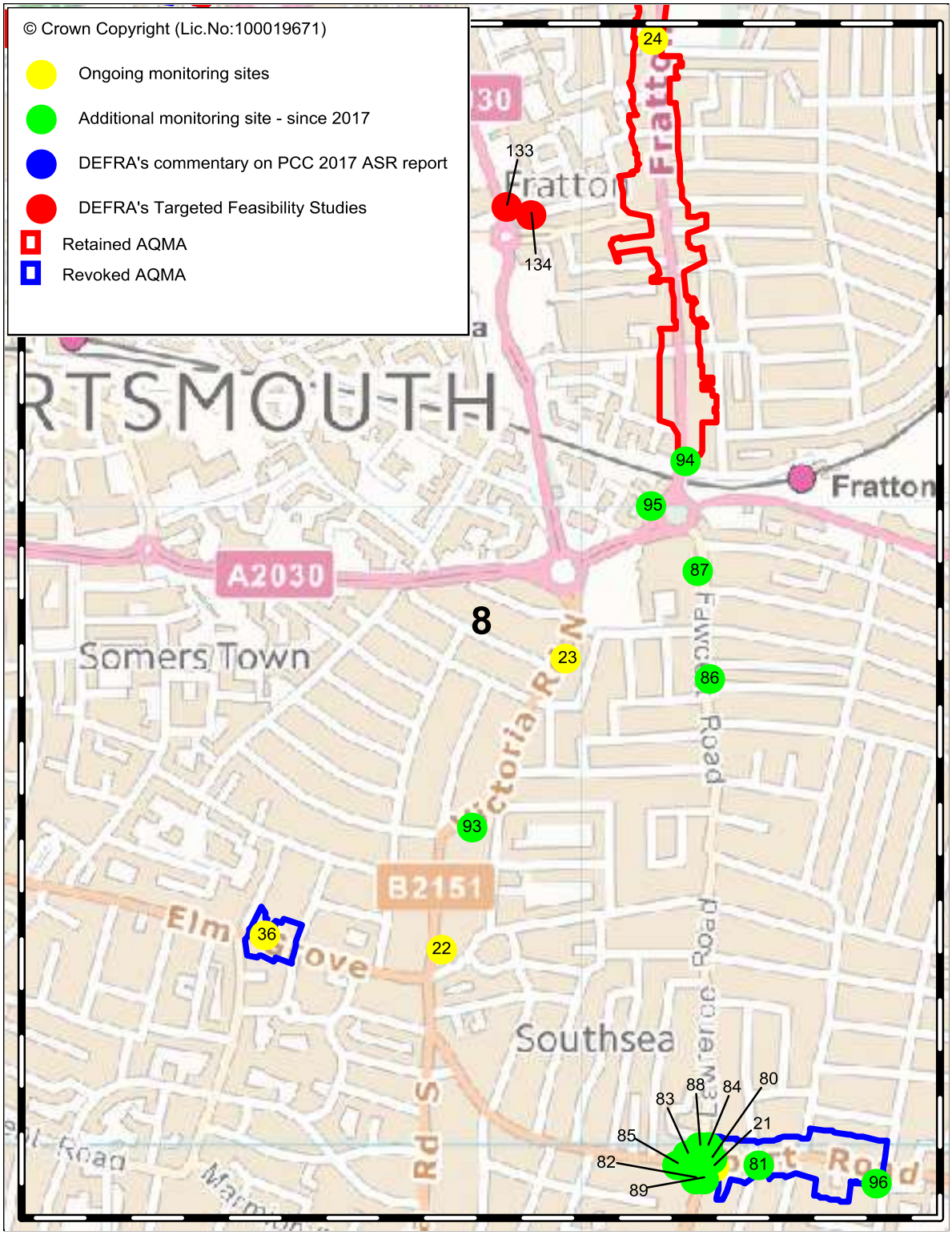
Map 13 – PCC's NDDT monitoring locations (Zone 6).



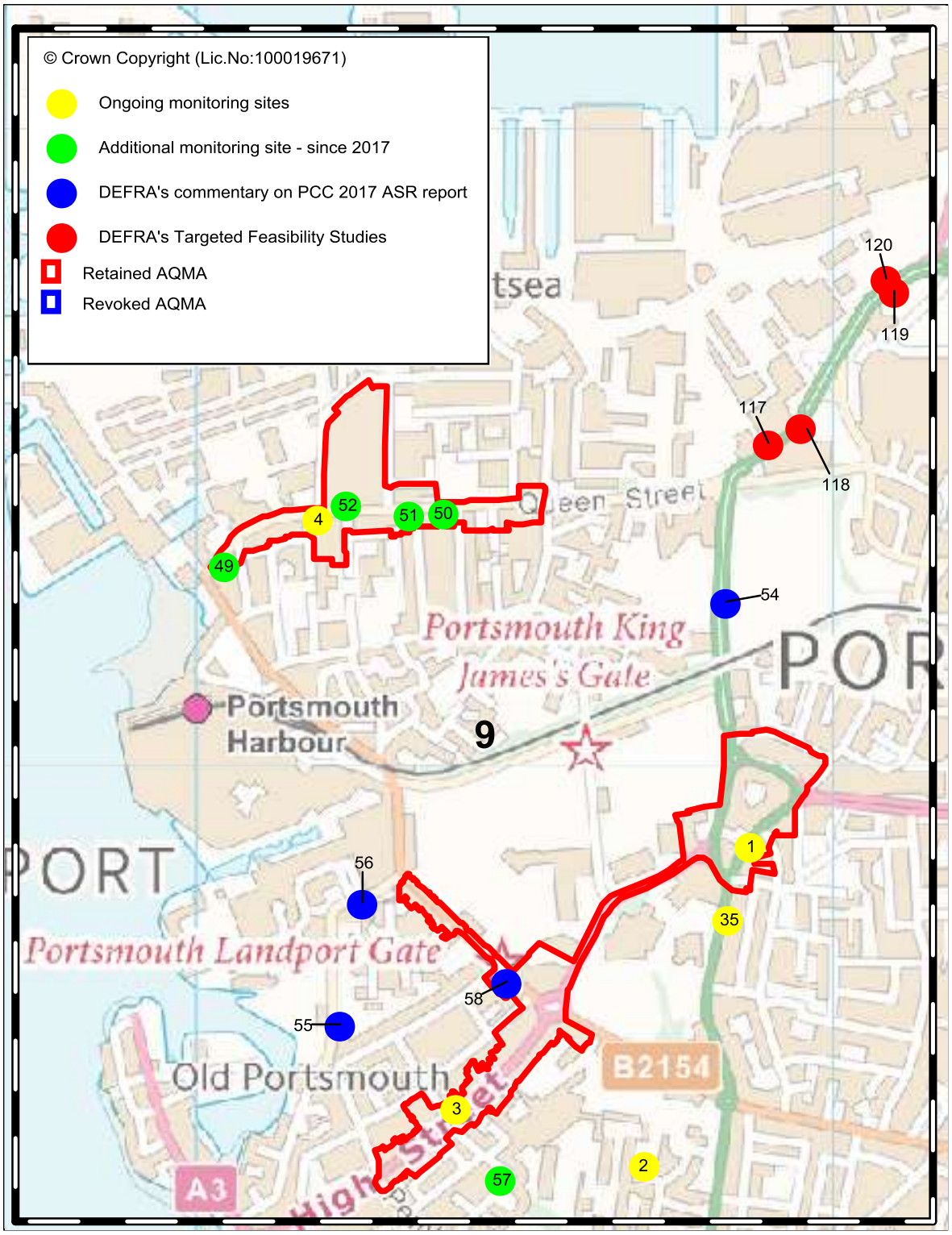
Map 14 – PCC's NDDT monitoring locations (Zone 7).



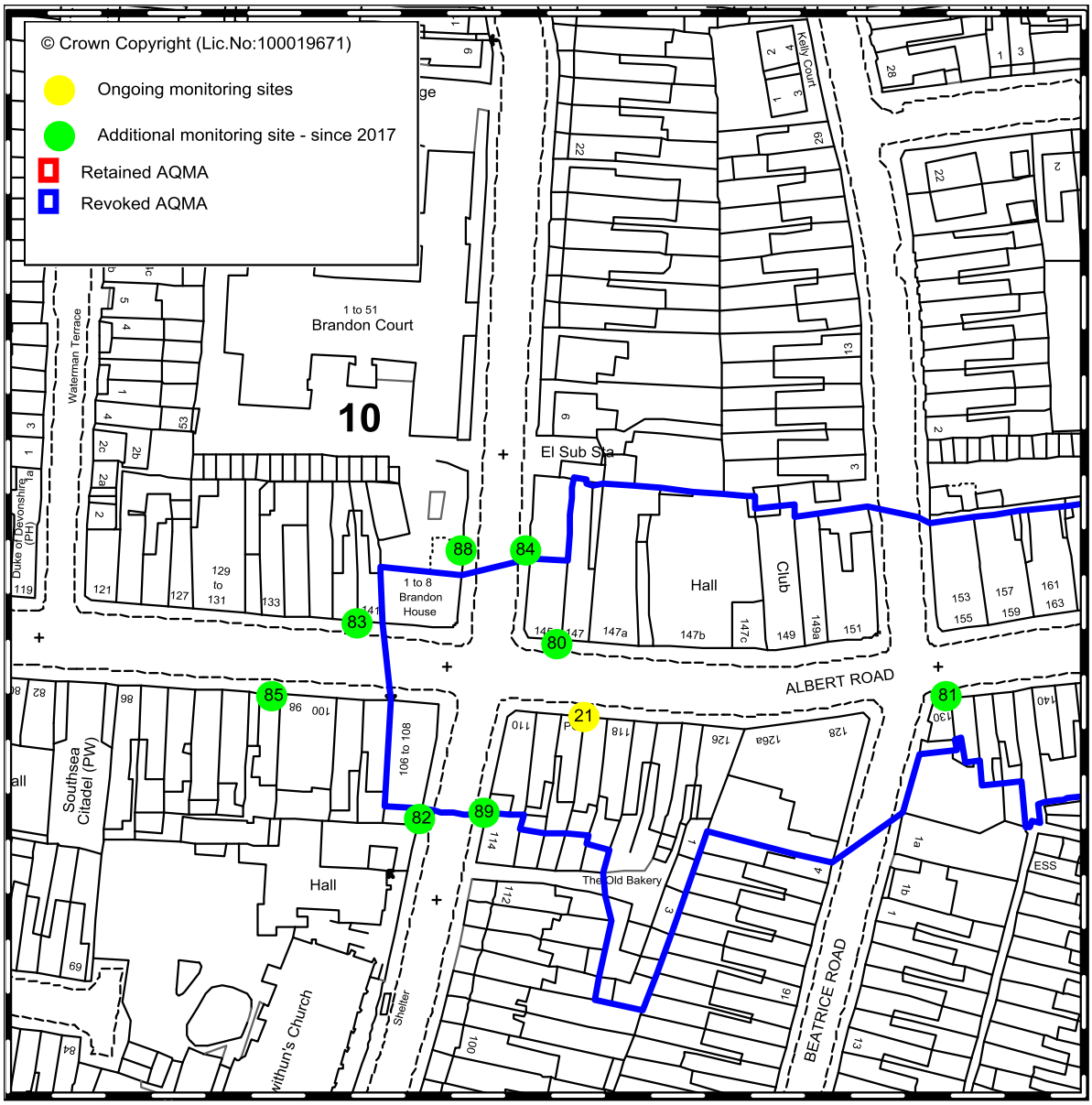
Map 15 – PCC's NDDT monitoring locations (Zone 8).



Map 16 – PCC's NDDT monitoring locations (Zone 9).



Map 17 – PCC's NDDT monitoring locations (Zone 10).



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[8]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	4 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40µg/m^3	Annual mean
Particulate Matter ($PM_{2.5}$)	25µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[8] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Appendix F: Figures for NDDT 5 year trends

According to LAQM.TG(16) this assessment covers only the last monitored five years trend i.e. from 2014 till 2018.

Significance of Local Air Quality change

The assessment and description of change in NO_2 annual averages has been carried out according to EPUK / IAQM Guidance on land use planning and development control AQ impact descriptors for annual mean pollutant concentrations (http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf).

The AQ change from year on year can be considered to be significant if it leads to significant impacts at existing sensitive receptors. In this assessment similar approaches have been adopted as presented in the EPUK / IAQM Guidance on land-use planning and development control. This guidance suggests that a two-stage approach should be adopted to determine whether or not a change in AQ is considered as a significant.

The methodology followed is:

- Firstly, qualitative descriptions are applied to the latest AQ monitoring data at individual receptors.
- Secondly, professional judgement is applied to judge whether the accumulation of the identified impacts constitute a significant impact overall.

In order to assess the potential change in LAQ, a description of the change is given based on the magnitude of change as a percentage of a relevant Air Quality Assessment Level (AQAL), based on the approach prescribed in Table 6.3 in Chapter 6 of the Guidance has been adopted with minor changes to fit our purposes:

  - AQAL = Air Quality Assessment Level, which may be an air quality objective, EU limit or target value, or an Environment Agency ‘Environmental Assessment Level (EAL)’.
  - The Table is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which then makes it clearer

which cell the impact falls within. The user is encouraged to treat the numbers with recognition of their likely accuracy and not assume a false level of precision. Changes of 0%, i.e. less than 0.5%, will be described as Negligible.

- The Table is only designed to be used with annual mean concentrations.
- Descriptors for individual monitoring locations only; the overall significance is determined using professional judgement (see Land-Use Planning & Development Control: Planning For Air Quality January 2017, Chapter 7). For example, a 'moderate' adverse impact at one receptor may not mean that the overall impact has a significant effect. Other factors also need to be considered.
- When defining the concentration as a percentage of the AQAL, use the 'the previous year' concentration where there is a decrease in pollutant concentration and the 'reporting year' concentration for an increase.
- The total concentration categories reflect the degree of potential harm by reference to the AQAL value. At exposure less than 75% of this value, i.e. well below, the degree of harm is likely to be small. As the exposure approaches and exceeds the AQAL, the degree of harm increases. This change naturally becomes more important when the result is an exposure that is approximately equal to, or greater than the AQAL.
- It is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the AQAL. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the AQAL, rather than being exactly equal to it.

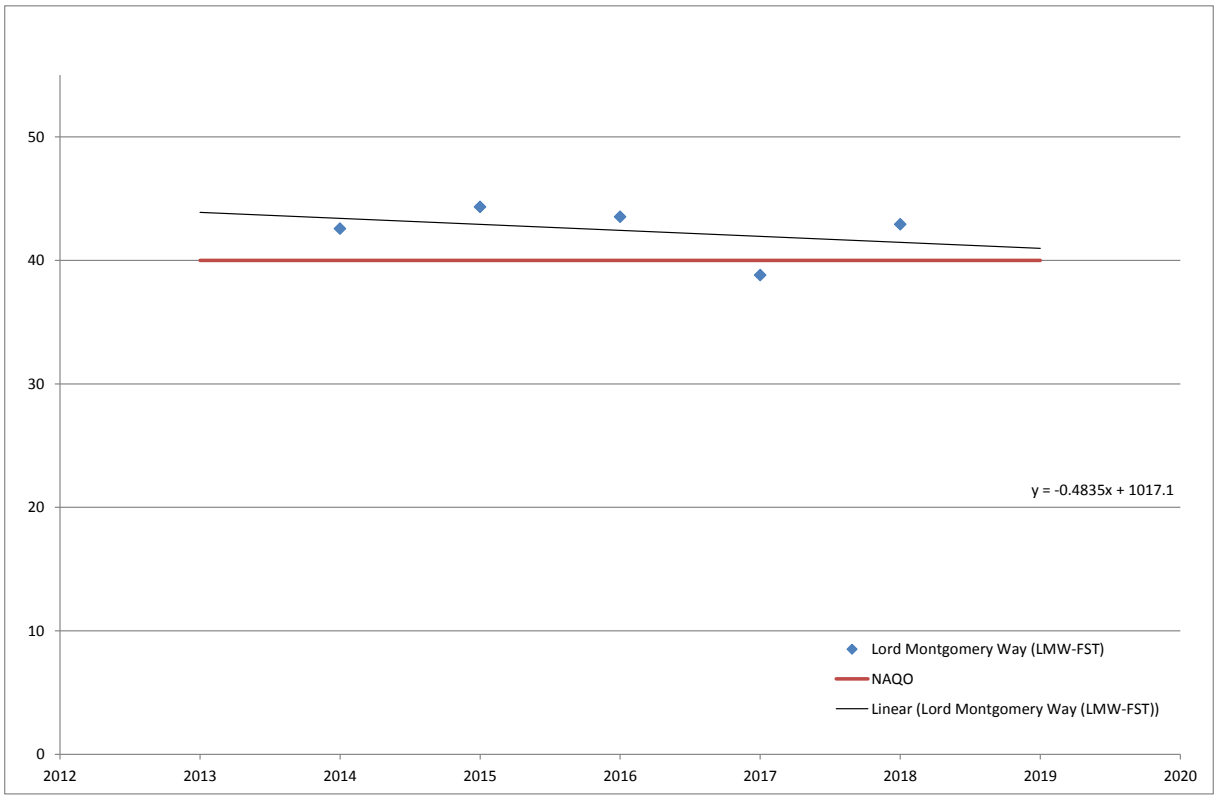
Account must also be taken of latest monitoring pollutant concentrations and their relationship to the NAQO for the pollutants of concern, i.e. NO_2 in this case.

A summary of the impact descriptors for annual mean pollutant concentrations is tabulated bellow. The impact descriptors may be adverse or beneficial depending upon whether monitored concentrations to increase or decrease. Each of the long term monitoring locations has been assessed in relation to this assessment of change and details of which are presented below each of the location summaries presented in Figure 1 to Figure 37.

Air Quality Impact Descriptors for Annual Mean Pollutant Concentrations:

Long term average Concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL)				
	0	1	2 – 5	6 – 10	>10
≤75%	Negligible	Negligible	Negligible	Slight	Moderate
76% - 94%	Negligible	Negligible	Slight	Moderate	Moderate
95% - 102%	Negligible	Slight	Moderate	Moderate	Substantial
103% - 109%	Negligible	Moderate	Moderate	Substantial	Substantial
≥110%	Negligible	Moderate	Substantial	Substantial	Substantial

Figure F.1: **Lord Montgomery Way (LMW-FST).**



Summary: *Exceedance (Yes), short-term (Substantially Adverse), long-term (Downward).*

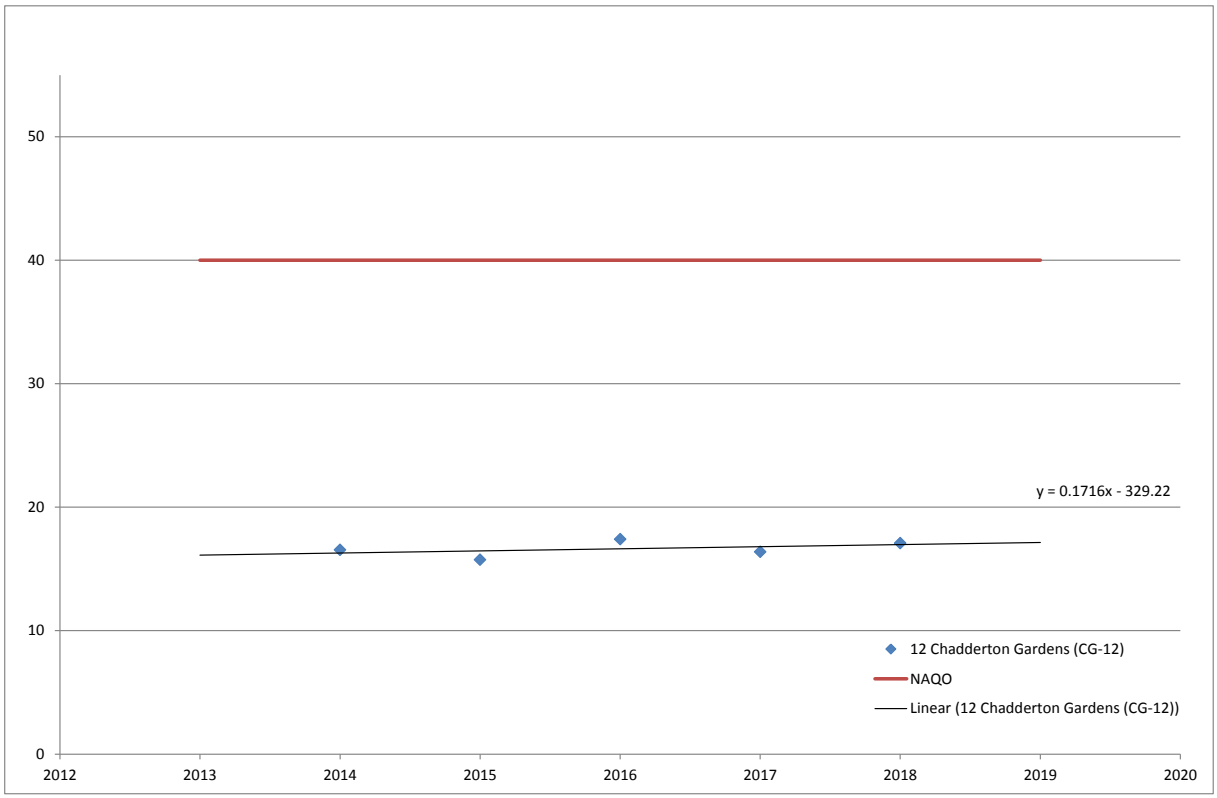
1. The NO_2 annual average has remained **above** the NAQO in the last 5 years with the exception of 2017.

2. The NO_2 annual average at this **roadside** monitoring location **increased** by 4.12µg/m^3 (an increase of 10.29%) between 2017 and 2018 to exceed the NAQO in 2018 (42.9µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **substantially adverse**.

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.2: **12 Chadderton Gardens (CG-12).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Upward).*

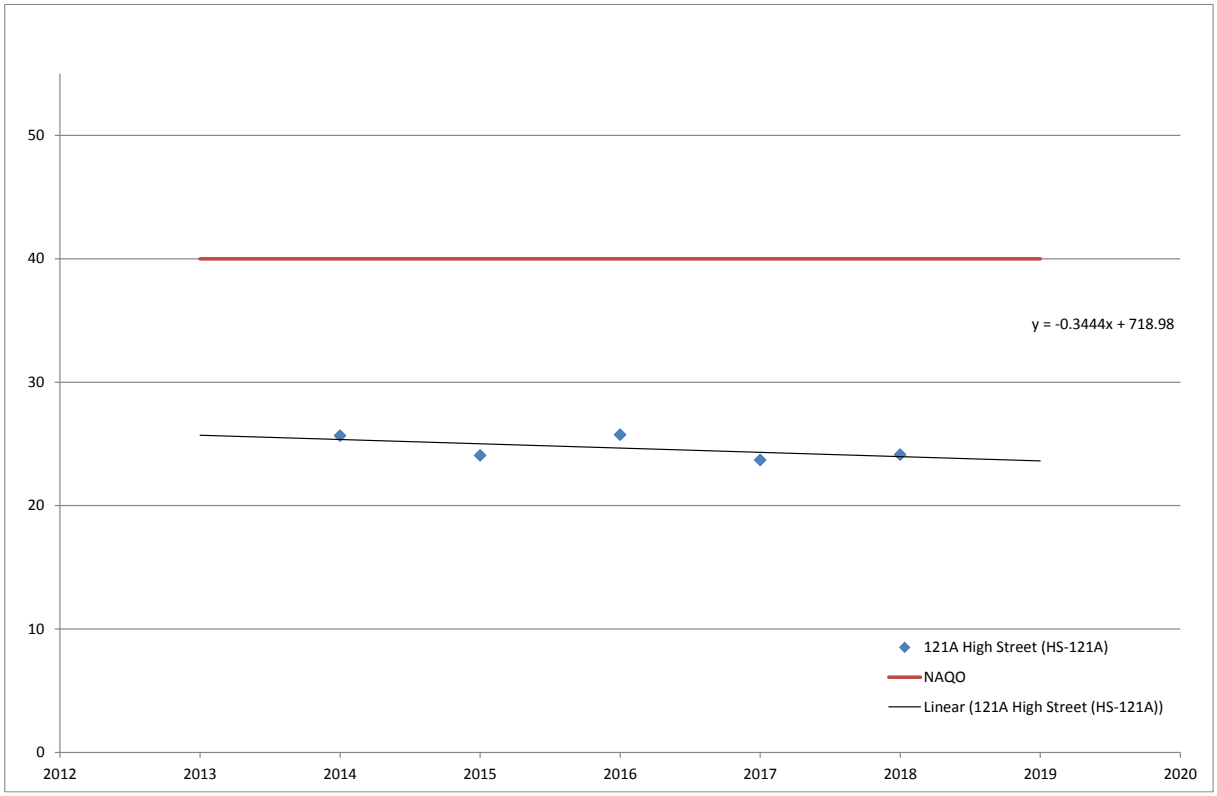
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **urban background** monitoring location **increased** by 0.71µg/m^3 (an increase of 1.77%) between 2017 and 2018 but remains under the NAQO in 2018 (17.1µg/m^3), exhibiting a slight AQ deterioration in the short-term.

3. This 2017-2018 NO_2 annual average change is described as being **negligibly adverse**.

4. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating an AQ deterioration in the long-term similar to the previously reported 5 year trend.

Figure F.3: **121A High Street (HS-121A).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Downward).*

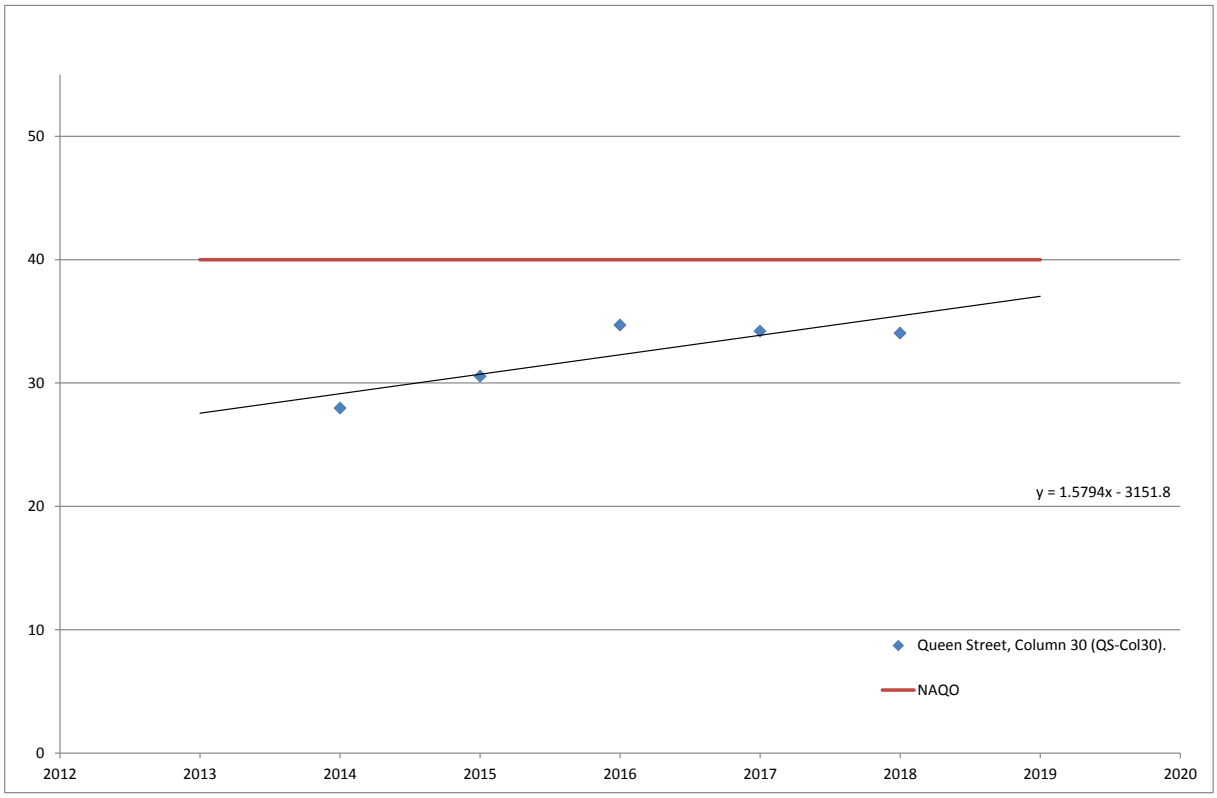
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **increased** by 0.43µg/m^3 (an increase of 1.08%) between 2017 and 2018 but remains below the NAQO in 2018 (24.1µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly adverse**.

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.4: **Queen Street, Column 30 (QS-Col30).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Upward).*

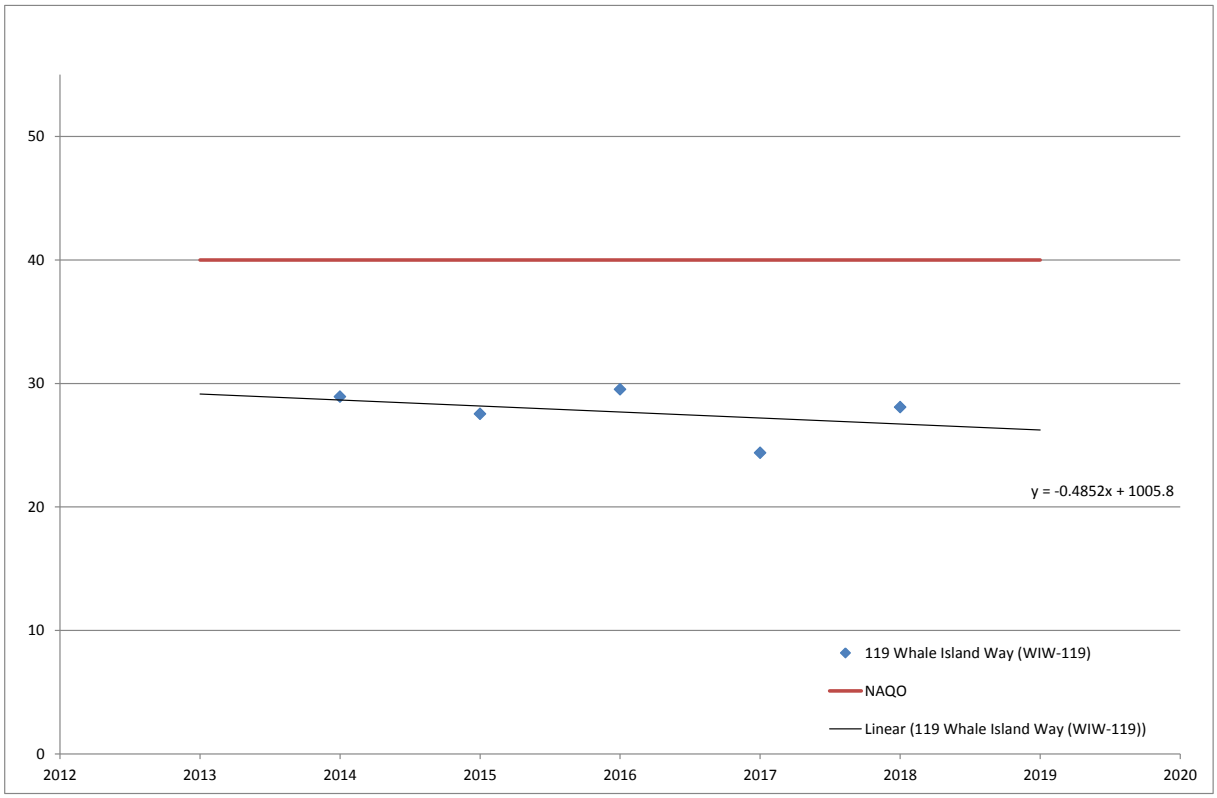
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years.

2. The NO_2 annual average **decreased** at this **roadside** monitoring location by 0.16µg/m^3 (a decrease of 0.41%) between 2017 and 2018 and remains below the NAQO in 2018 (34µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly beneficial.**

4. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating an AQ deterioration in the long-term similar to the previously reported 5 year trend.

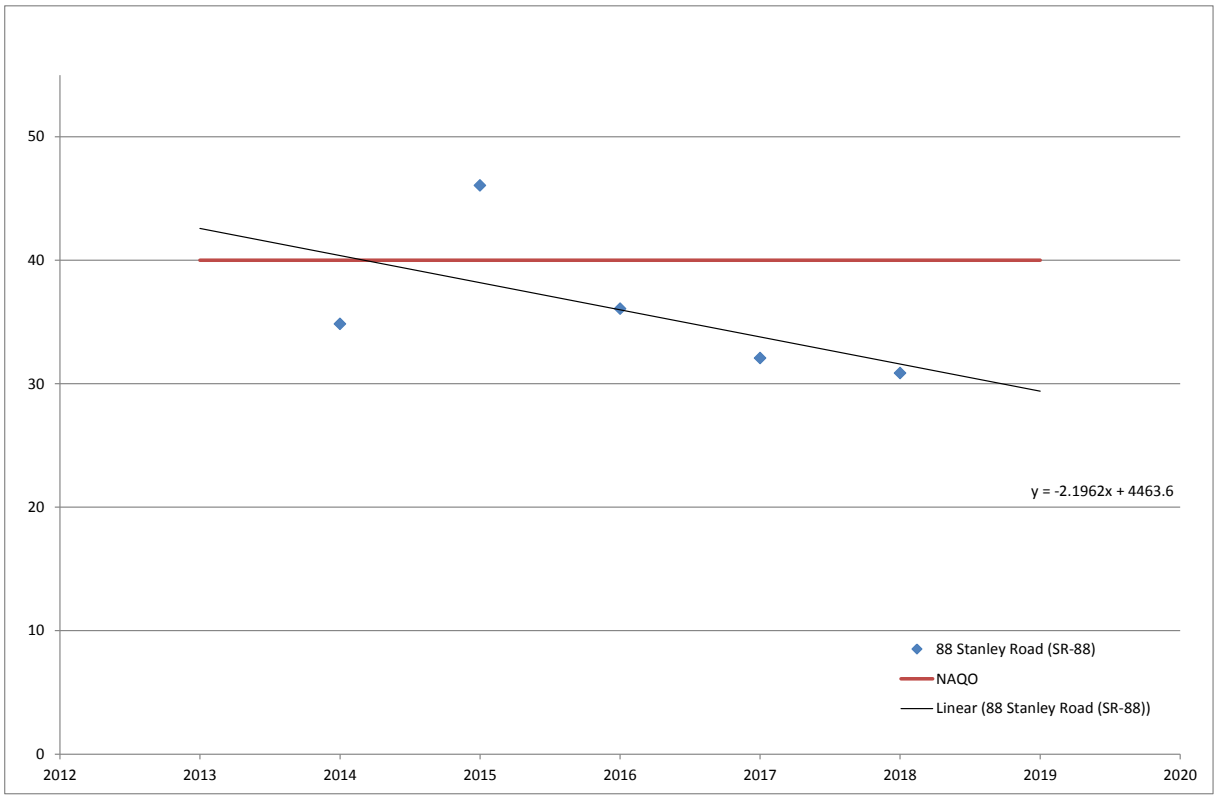
Figure F.5: **119 Whale Island Way (WIW-119).**



Summary: *Exceedance (No), short-term (Slightly Adverse), Long-term (Downward).*

1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.
2. The NO_2 annual average at this **roadside** monitoring location **increased** by 3.70µg/m^3 (an increase of 9.25%) between 2017 and 2018 but remains below the NAQO in 2018 (28.1µg/m^3) exhibiting an AQ deterioration in the short-term.
3. The 2017-2018 NO_2 annual average change is described as being **slightly adverse**.
4. The NO_2 annual average exhibited a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

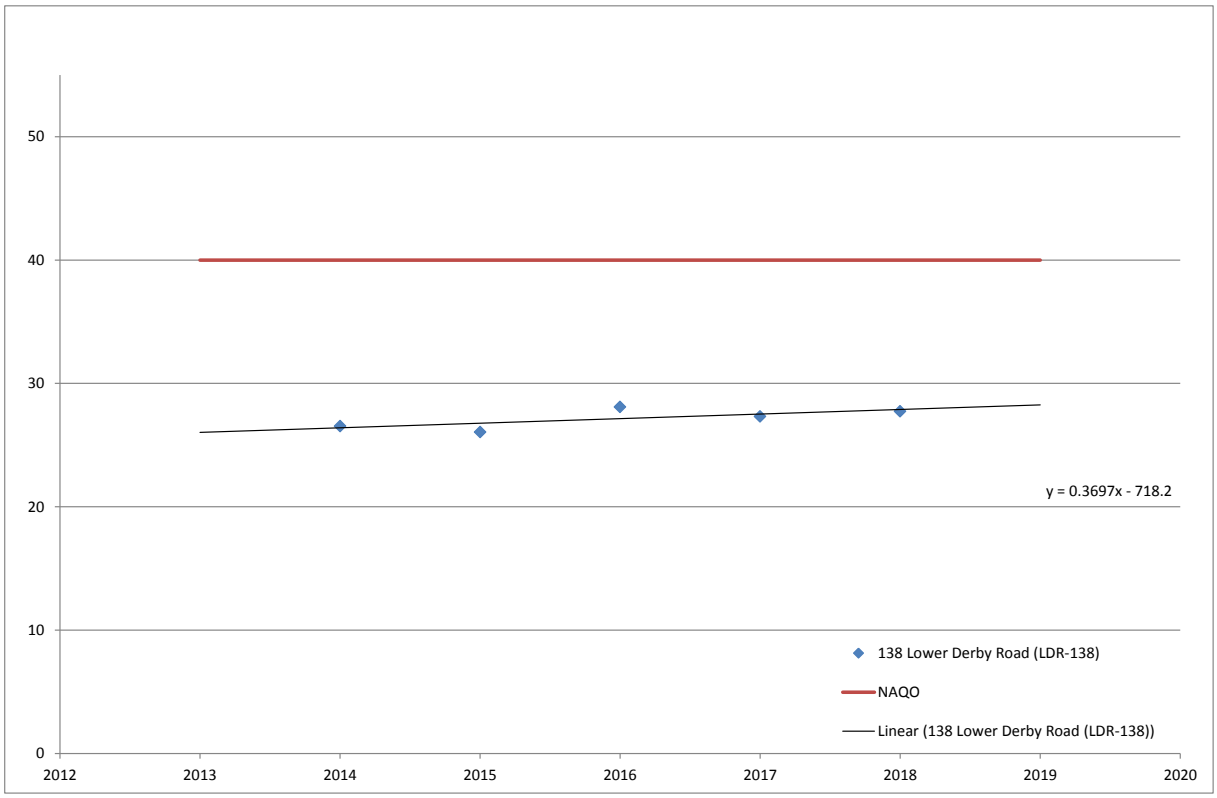
Figure F.6: **88 Stanley Road (SR-88).**



Summary: *Exceedance (No), short-term (Slightly Beneficial), long-term (Downward).*

1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years with the exception of 2015.
2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 1.22µg/m^3 (a decrease of 3.05%) between 2017 and 2018, and remains below the NAQO in 2018 (30.9µg/m^3) exhibiting an AQ improvement at this location in the short-term.
3. The 2017-2018 NO_2 annual average change is described as being **slightly beneficial**.
4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

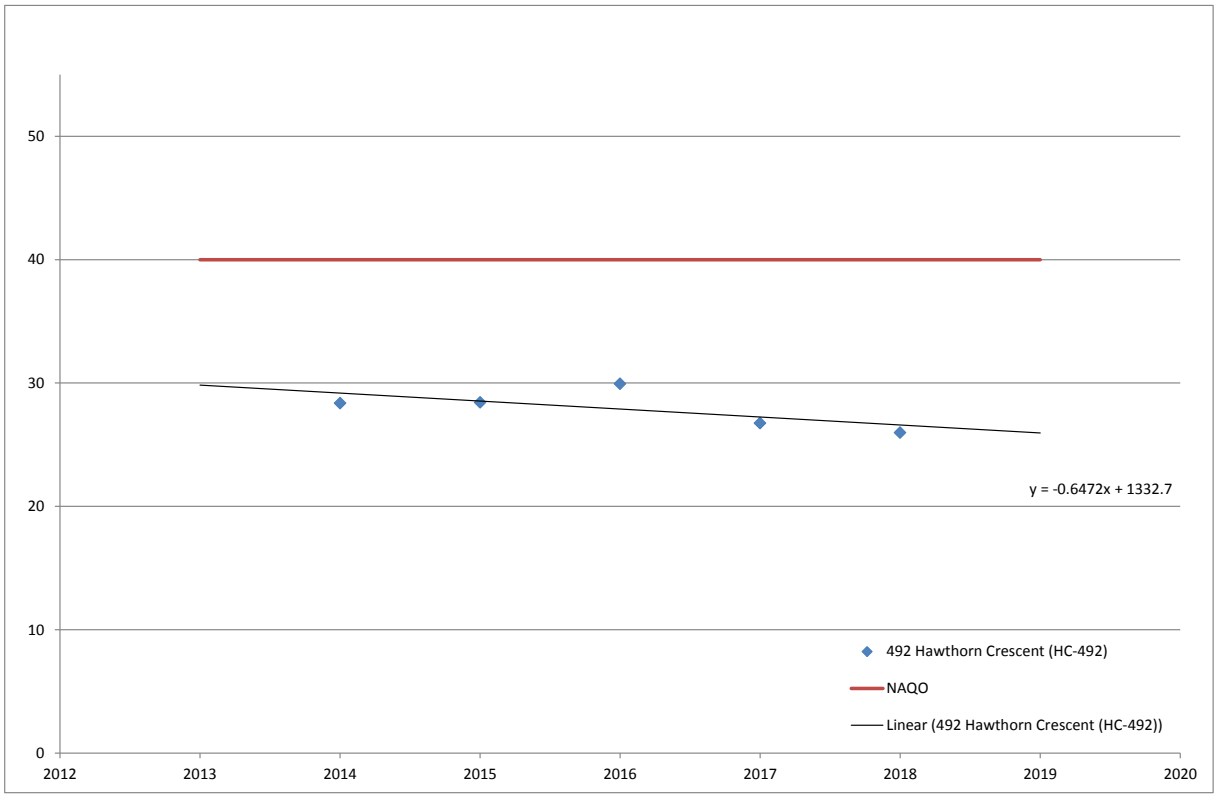
Figure F.7: **138 Lower Derby Road (LDR-138).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Upward).*

1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.
2. The NO_2 annual average at this **roadside** monitoring location **increased** by 0.42µg/m^3 (an increase of 1.06%) between 2017 and 2018, but remains below the NAQO in 2018 (27.7µg/m^3) exhibiting a slight AQ deterioration in the short-term.
3. The 2017-2018 NO_2 annual average change is described as being **negligibly adverse**.
4. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating an AQ deterioration in the long-term contrary to the previously reported 5 year trend.

Figure F.8: **492 Hawthorn Crescent (HC-492).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Downward).*

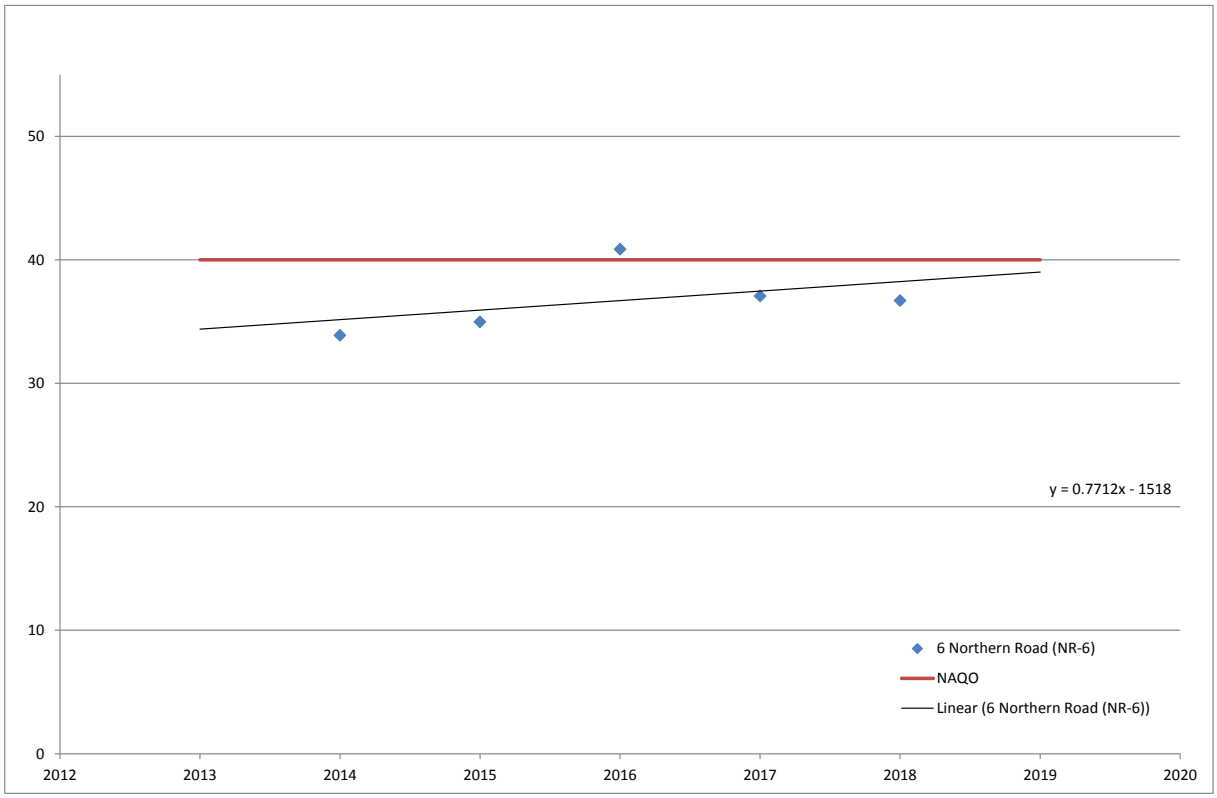
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **urban background** monitoring location **decreased** by 0.78µg/m^3 (a decrease of 1.94%) between 2017 and 2018 and remains below the NAQO in 2018 (26µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly beneficial**.

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.9: **6 Northern Road (NR-6).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Upward).*

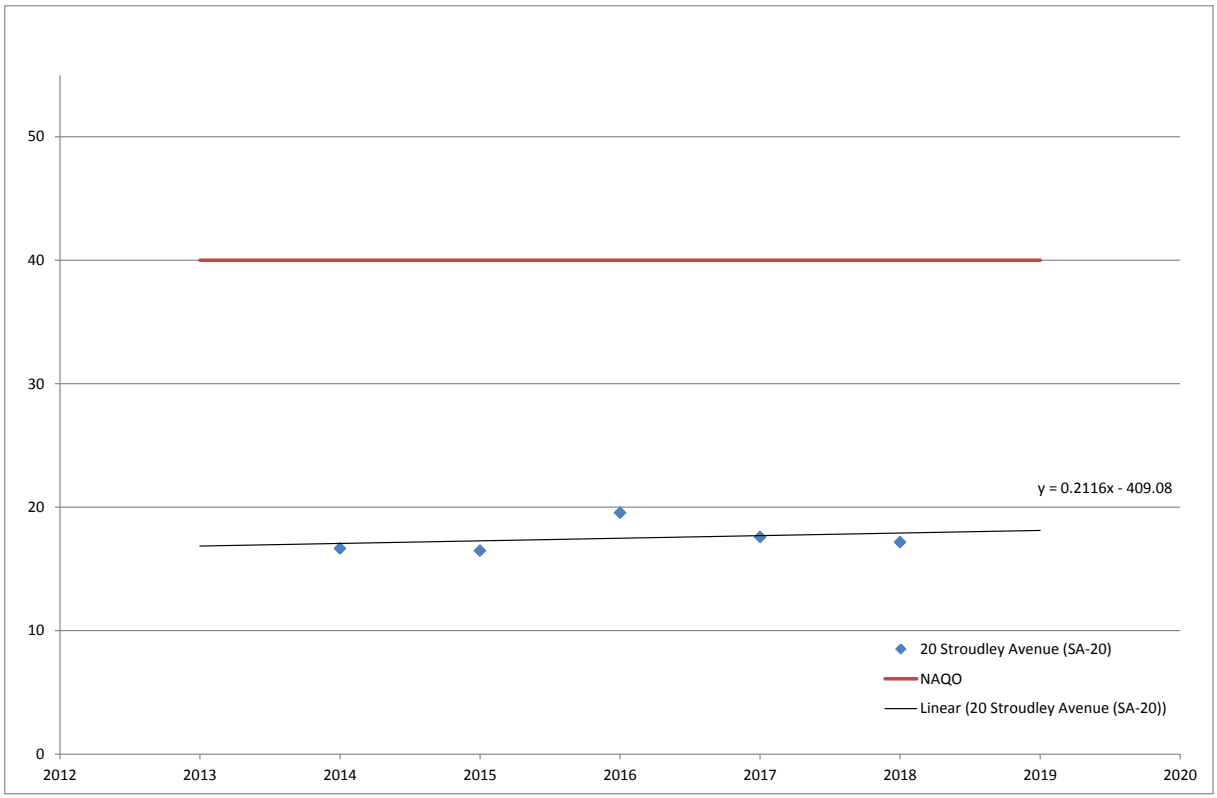
1. NO_2 annual average has remained **below** the NAQO in the last 5 years with the exception of 2016.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** slightly by 0.36µg/m^3 (a reduction of 0.91%) between 2017 and 2018 and remains below the NAQO in year 2018 (36,7µg/m^3) exhibiting a slight AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly beneficial**.

4. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating an AQ deterioration in the long-term similar to the previously reported 5 years trend.

Figure F.10: **20 Stroudley Avenue (SA-20).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Upward).*

1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **urban background** monitoring location **decreased** by 0.41µg/m^3 (a reduction of 1.03%) between 2017 and 2018, and remains well below the NAQO in 2018 (17.2µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly beneficial**.

4. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating an AQ deterioration in the long-term similar to the previously reported 5 year trend.

Figure F.11: **Anchorage Road, Column 6 (AR-Col6).**

Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Downward).*

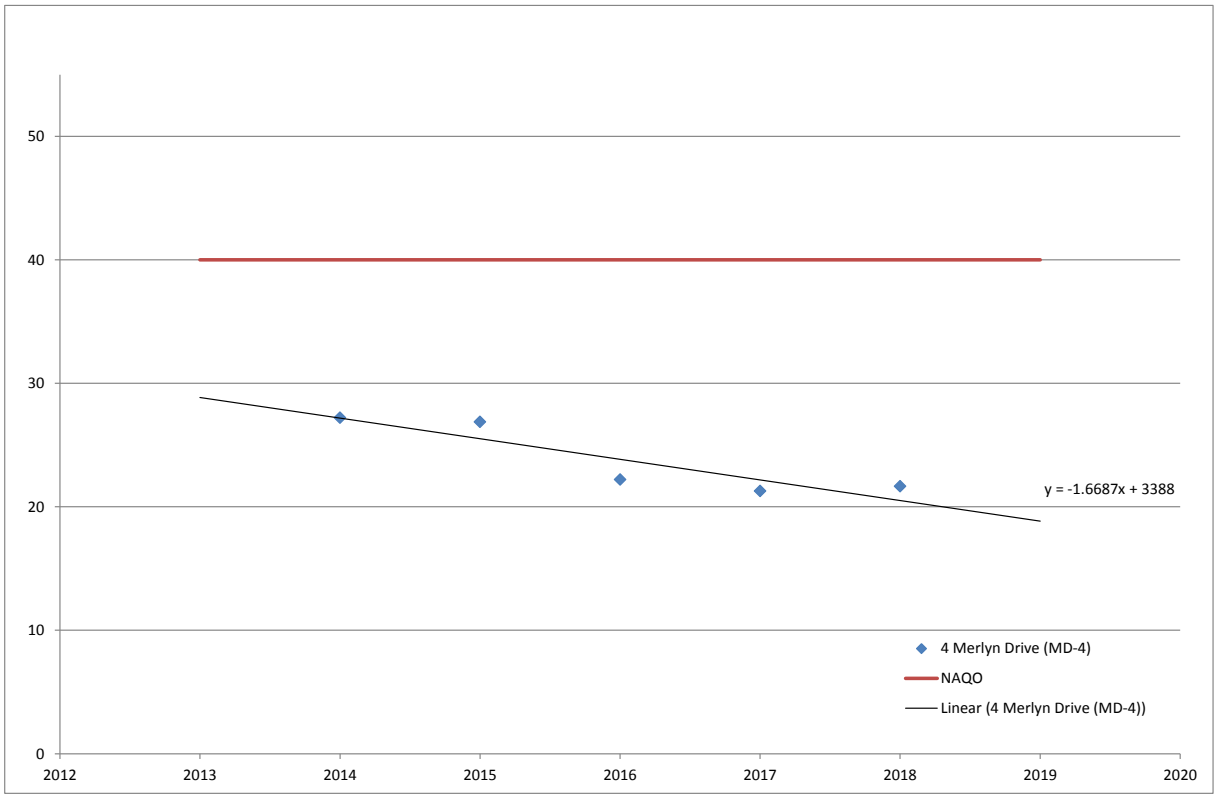
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **increased** by 2µg/m^3 (an increase of 4.99%) between 2017 and 2018 but remains well below the NAQO in 2018 (25.5µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly adverse**.

4. NO_2 annual average exhibits however a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.12: **4 Merlyn Drive (MD-4).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Downward).*

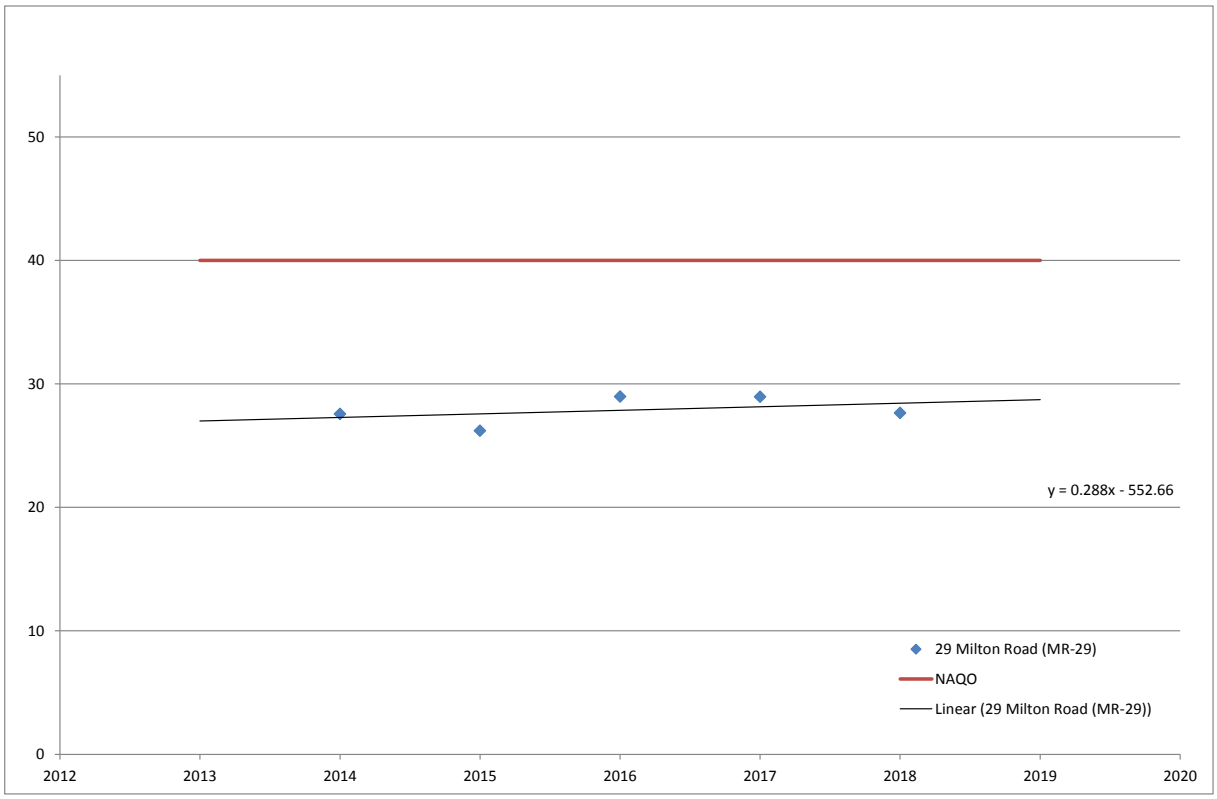
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **increased** slightly by 0.38µg/m^3 (an increase of 0.95%) between 2017 and 2018, but remains well below the NAQO in 2018 (21.7µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly adverse**.

4. The NO_2 annual average exhibits however a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

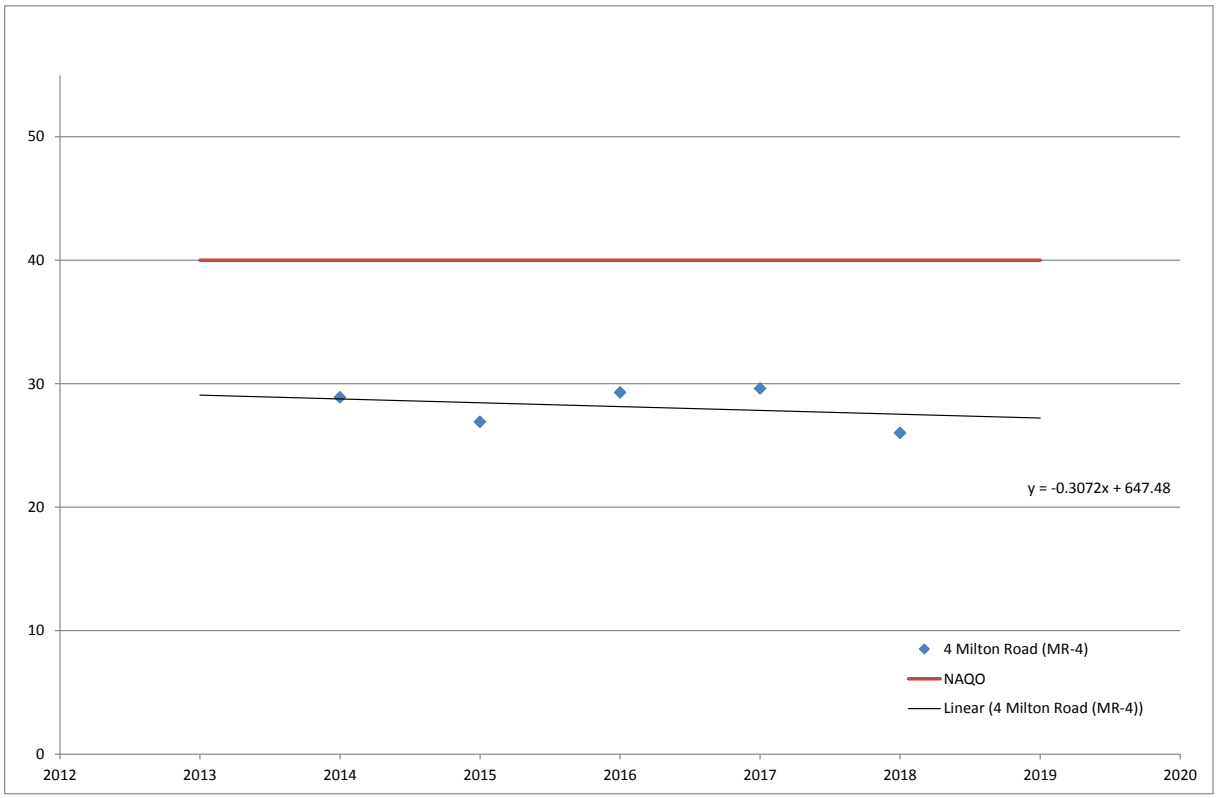
Figure F.13: **29 Milton Road (MR-29).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Upward).*

1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.
2. NO_2 annual average at this **roadside** monitoring location **decreased** by 1.31µg/m^3 (a decrease of 3.28%) between 2017 and 2018, and remains well below the NAQO in 2018 (27.6µg/m^3) exhibiting an AQ improvement in the short-term.
3. The 2017-2018 NO_2 annual average change is described as being **negligibly beneficial.**
4. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating AQ deterioration in the long-term similar to the previously reported 5 year trend.

Figure F.14: **4 Milton Road (MR-4).**



Summary: *Exceedance (No), short-term (Slightly Beneficial), long-term (Downward).*

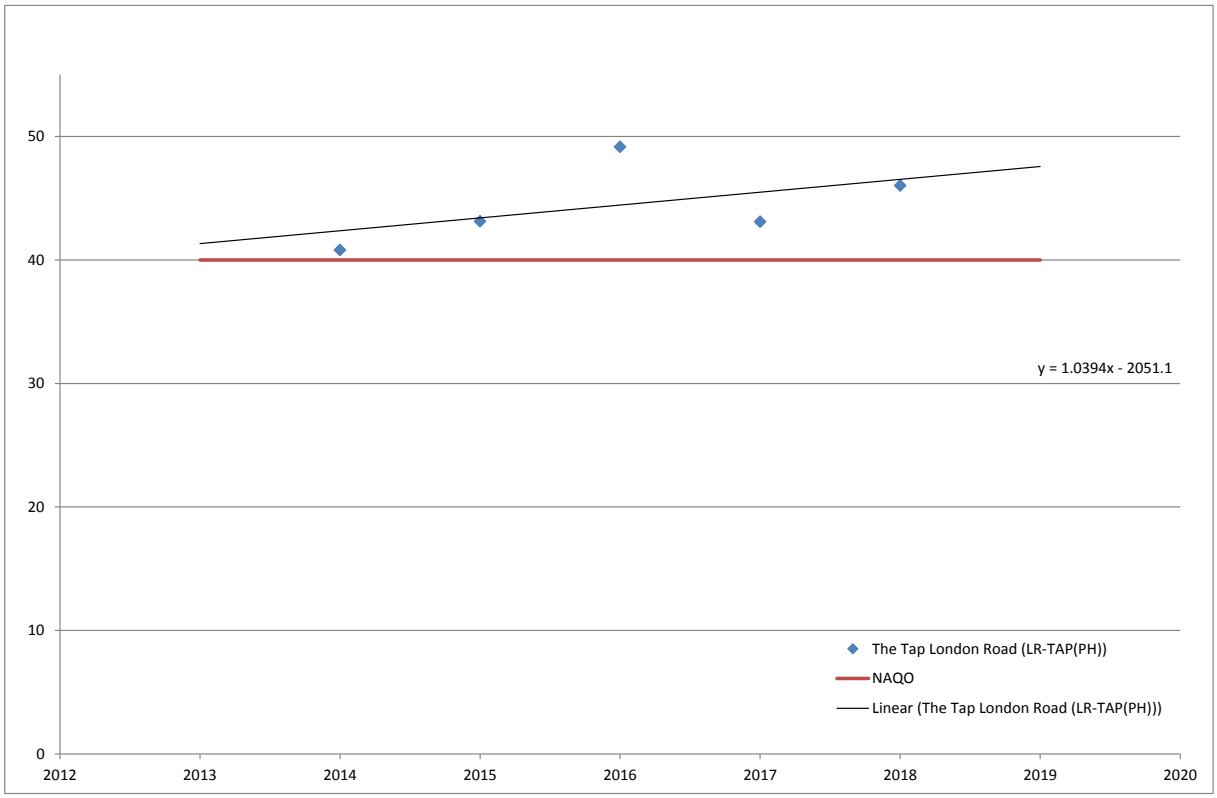
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 3.61µg/m^3 (a decrease of 9.03%) between 2017 and 2018, and remains well below the NAQO in 2018 (26µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **slightly beneficial**.

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.15: **"The Tap" Public House London Road (LR-TAP(PH)).**



Summary: *Exceedance (Yes), short-term (Substantially Adverse), long-term (Upward).*

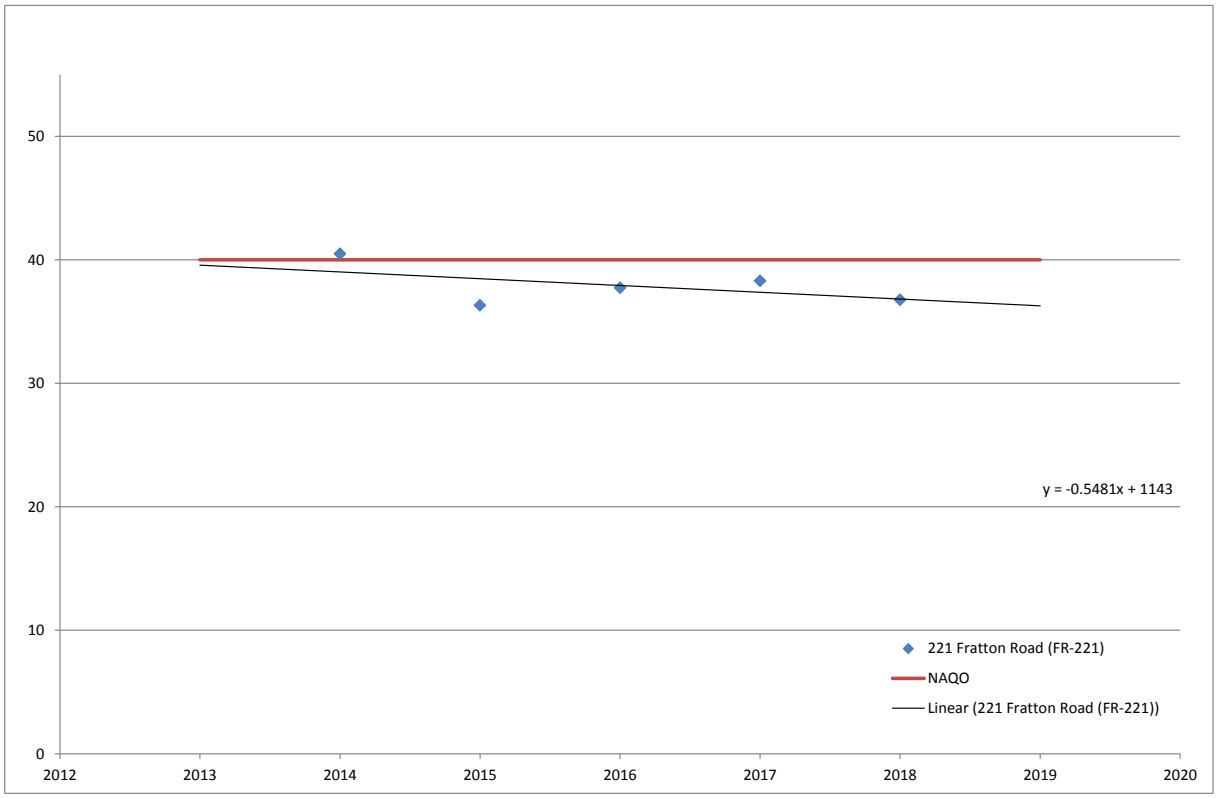
1. The NO_2 annual average remained **above** the NAQO for the last 5 years.

2. The NO_2 annual average at this **kerbside** monitoring location **increased** by 2.93µg/m^3 (an increase of 7.33%) between 2017 and 2018, and remains above the NAQO in 2018 (46µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **substantially adverse**.

4. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating a continued AQ deterioration in the long-term, similar to the previously reported 5 year trend.

Figure F.16: **221 Fratton Road (FR-221).**



Summary: *Exceedance (No), short-term (Slightly Beneficial), long-term (Downward).*

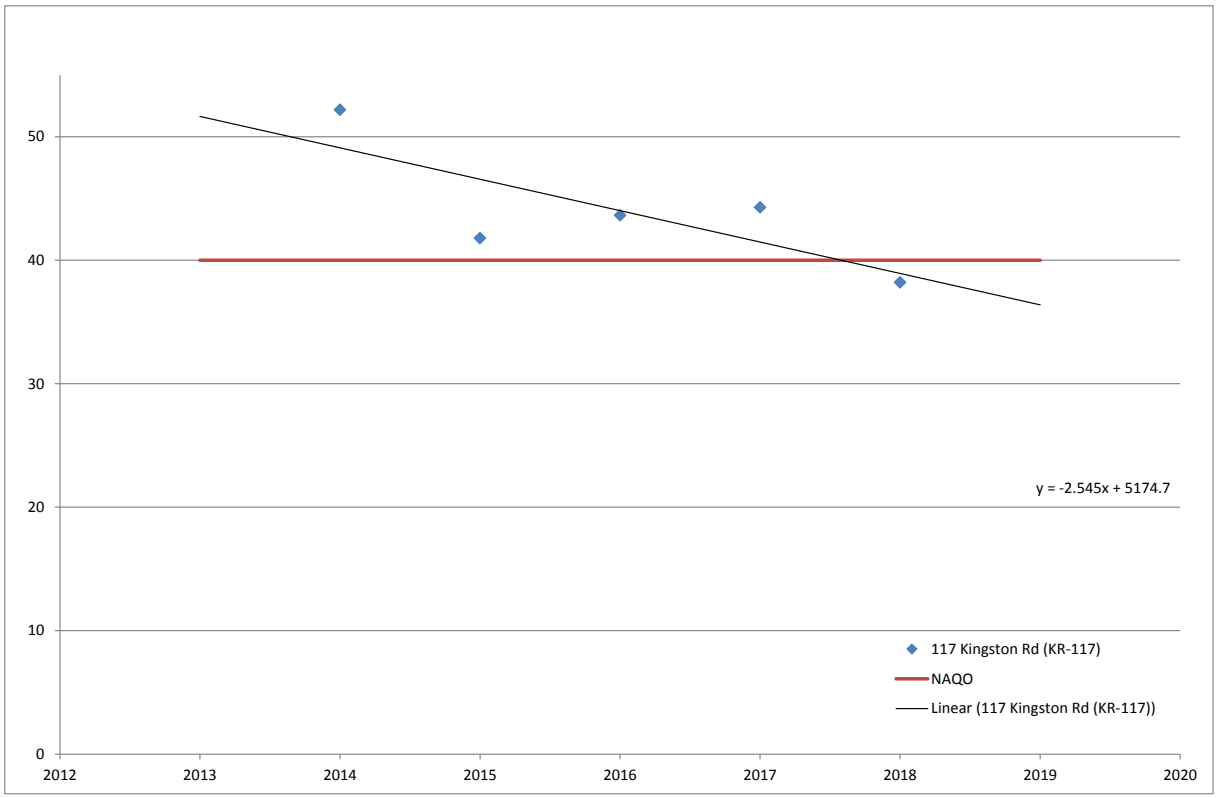
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years with the exception of 2014.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** slightly by 1.54µg/m^3 (a decrease of 3.85%) between 2017 and 2018 to remain below the NAQO in 2018 (36.8µg/m^3) for the fourth consecutive years, exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **slightly beneficial.**

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.17: **117 Kingston Road (KR-117).**



Summary: *Exceedance (No), short-term (Substantially Beneficial), long-term (Downward).*

1. The NO_2 annual average has fallen below the NAQO for the first time in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 6.07µg/m^3 (a decrease of 15.17%) between 2017 and 2018 and remains below the NAQO in 2018 (38.2µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **substantially beneficial**.

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.18: **"Market Tavern PH", Mile End Road (MER-MT).**

Summary: *Exceedance (No), short-term (Moderately Adverse), long-term (Downward).*

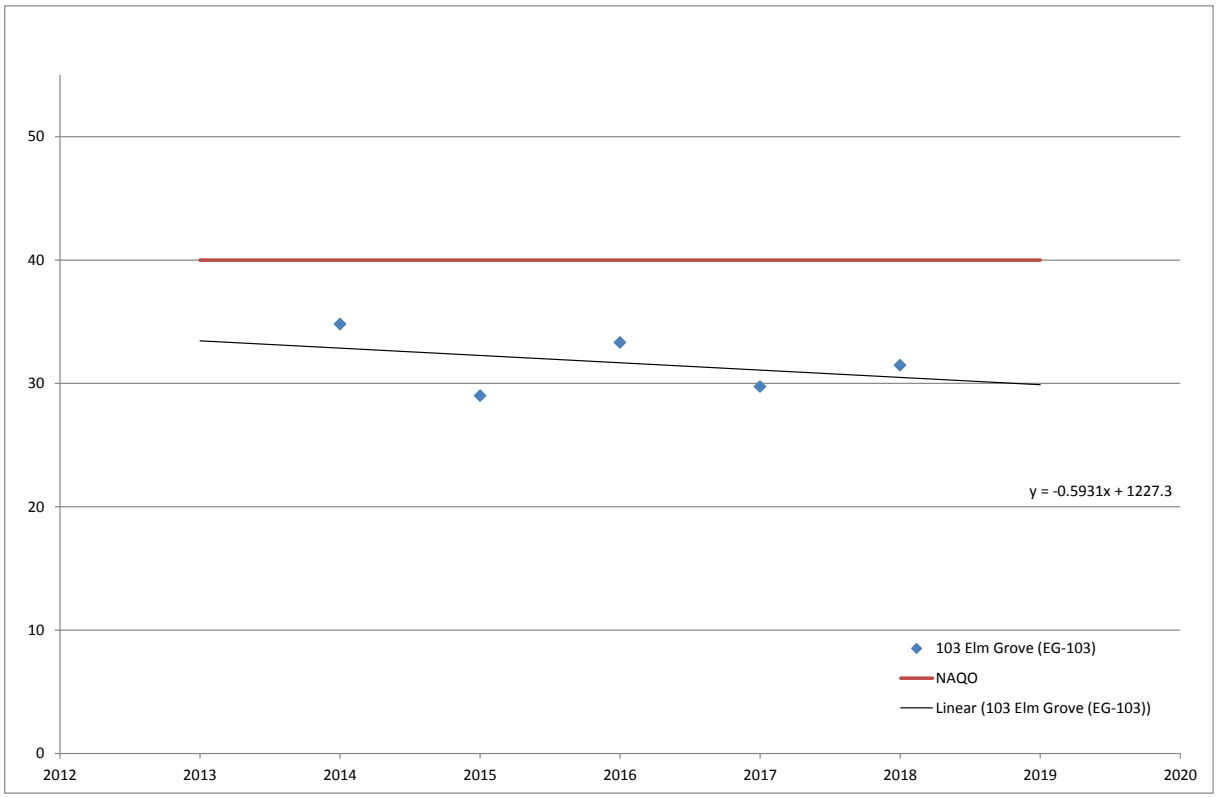
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years with the exception of 2014.

2. The NO_2 annual average at this **roadside** monitoring location **increased** slightly by 0.69µg/m^3 (an increase of 1.74%) between 2017 and 2018, to remain below the NAQO in 2018 (39.2µg/m^3) for the fourth consecutive year, exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **moderately adverse**.

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years (2014 to 2018) demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.19: **103 Elm Grove (EG-103).**



Summary: *Exceedance (No), short-term (Slightly Adverse), long-term (Downward).*

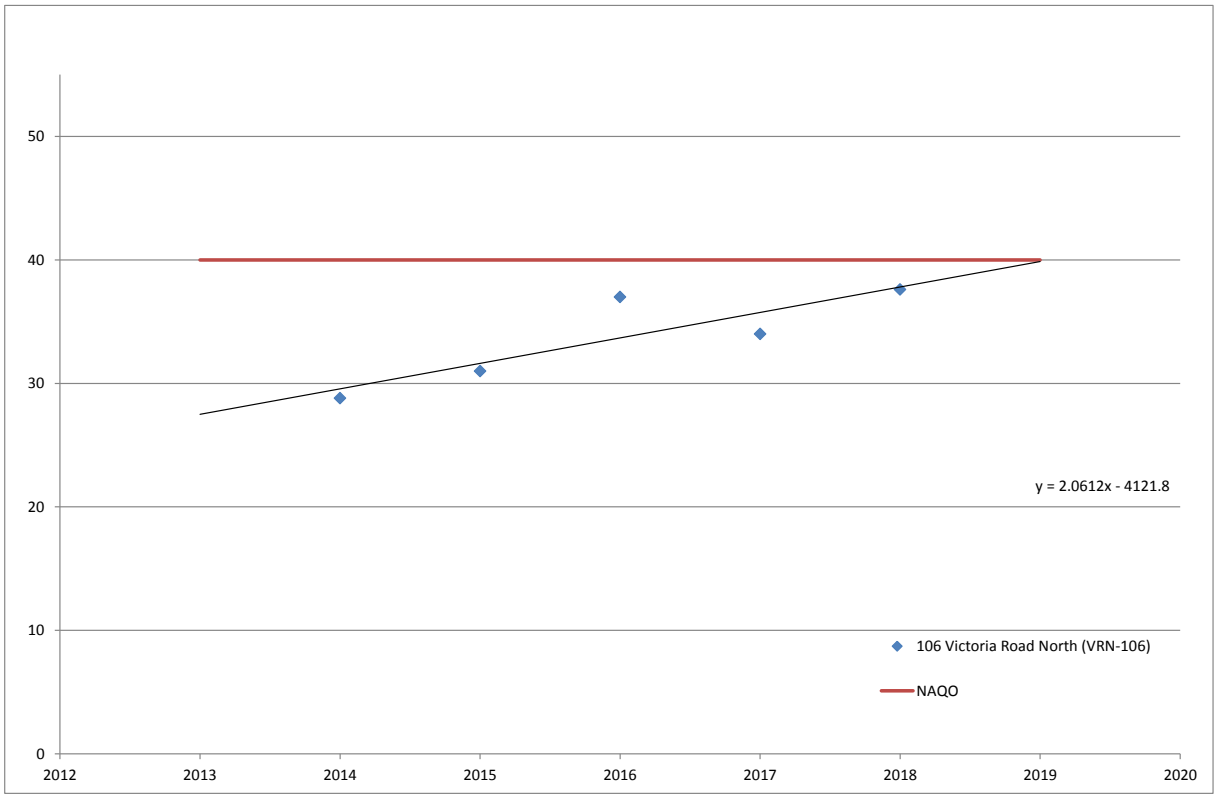
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **increased** slightly by 1.73µg/m^3 (an increase of 4.34%) between 2017 and 2018, but remains below the NAQO in 2018 (31.5µg/m^3) for the fifth consecutive year, exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **slightly adverse**.

4. The NO_2 annual average however exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.20: **106 Victoria Road North (VRN-106).**



Summary: *Exceedance (No), short-term (Moderately Adverse), long-term (Upward).*

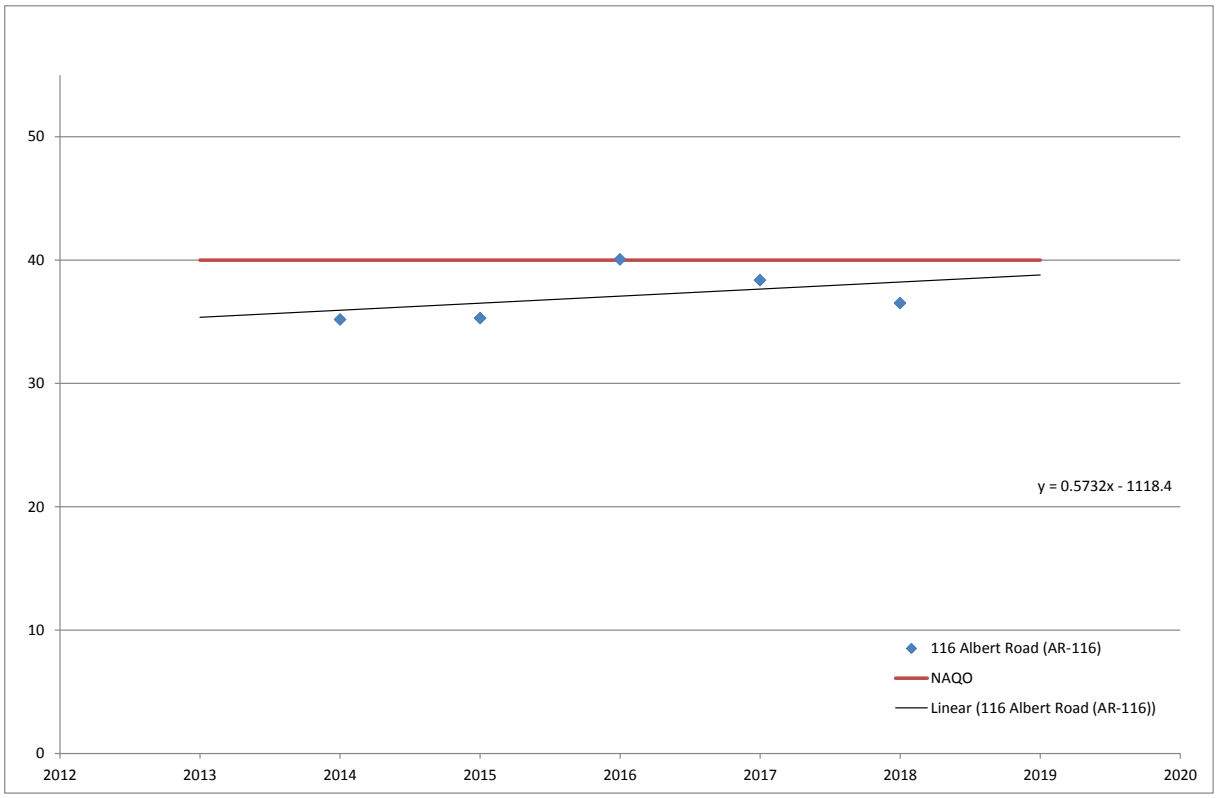
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **increased** by 3.61µg/m^3 (an increase of 9.02%) between 2017 and 2018, but remains below the NAQO in 2018 (37.6µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change can be described as being **moderately adverse**.

4. The NO_2 levels exhibits an **upward** trend in the last 5 years demonstrating an AQ deterioration in the long-term similar to the previously reported 5 year trend.

Figure F.21: **116 Albert Road (AR-116).**



Summary: *Exceedance (No), short-term (Slightly Beneficial), long-term (Upward).*

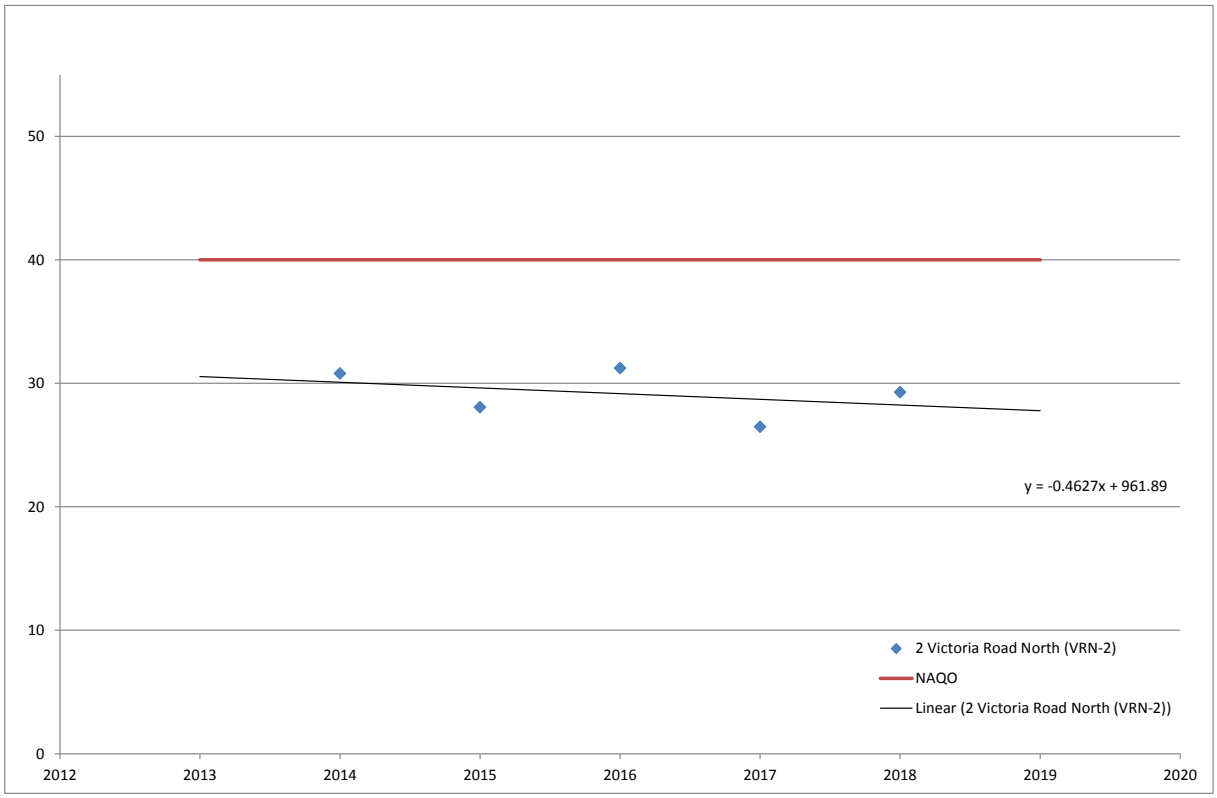
1. The NO_2 annual average has remained **below** the NAQO in the last years with an exception for year 2016.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 1.87µg/m^3 (a decrease of 4.67%) between 2017 and 2018, and remains below the NAQO in 2018 (36.5µg/m^3) for the second consecutive year, exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **slightly beneficial**.

4. The NO_2 annual average exhibits however an **upward** trend in the last 5 years exhibiting AQ deterioration in the long-term similar to the previously reported 5 year trend.

Figure F.22: **2 Victoria Road North (VRN-2).**



Summary: *Exceedance (No), short-term (Slightly Adverse), long-term (Downward).*

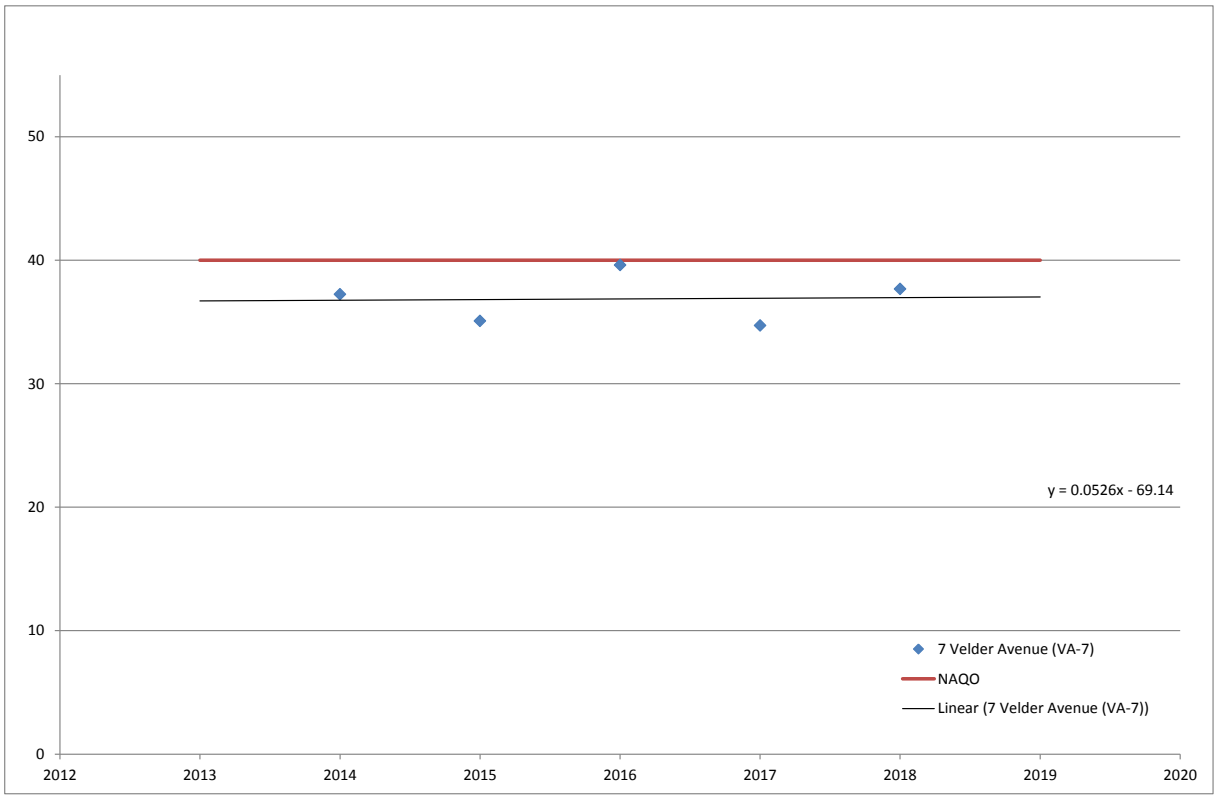
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **increased** by 2.8µg/m^3 (an increase of 6.99%) between 2017 and 2018, but remains below the NAQO in 2018 (29.3µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **slightly adverse**.

4. The NO_2 annual average exhibits however a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.23: **7 Velder Avenue (VA-7).**



Summary: *Exceedance (No), short-term (Moderately Adverse), long-term (Upward).*

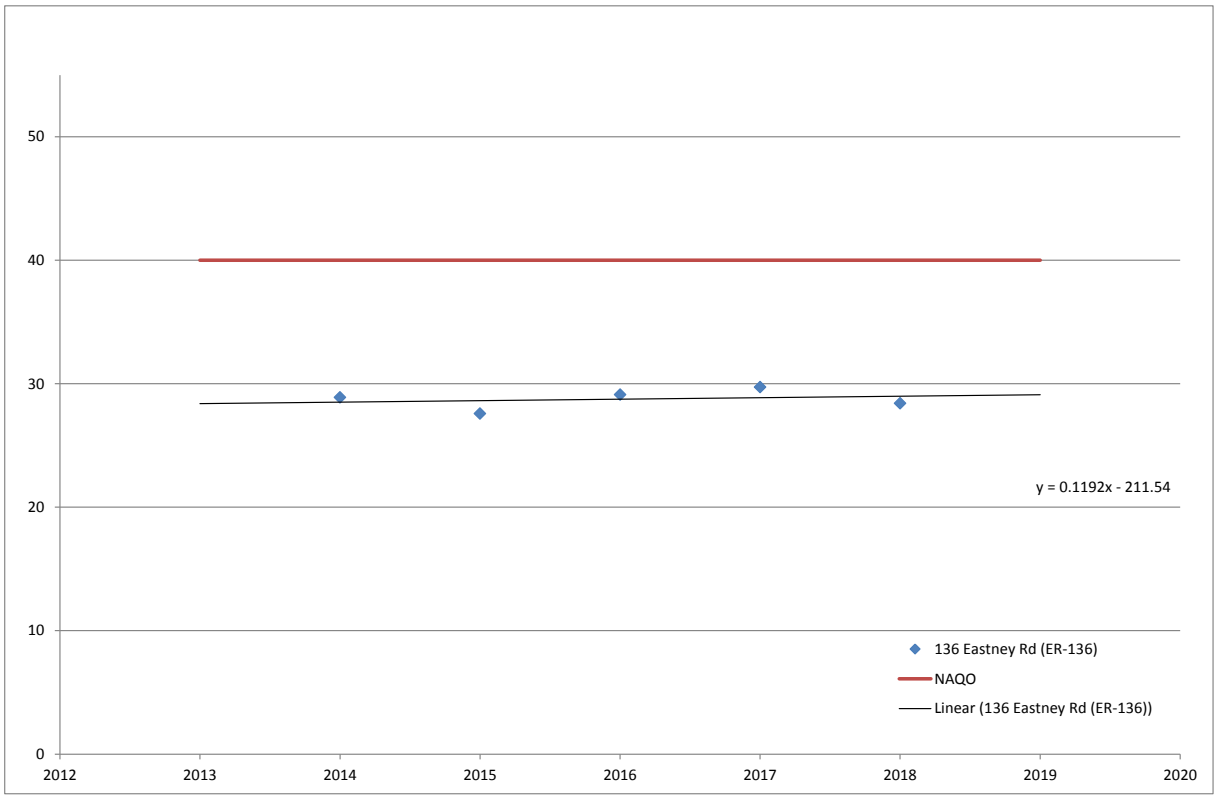
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **increased** by 2.96µg/m^3 (an increase of 7.41%) between 2017 and 2018, but remains below the NAQO in 2018 (37.7µg/m^3) exhibiting AQ deterioration in the short-term.

3. This 2017-2018 NO_2 annual average change is described as being **moderately adverse**.

4. The NO_2 annual average exhibits an **upward** trend in the last 5 years demonstrating an AQ deterioration in the long-term similar to the previously reported 5 year trend.

Figure F.24: **136 Eastney Road (ER-136).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Upward).*

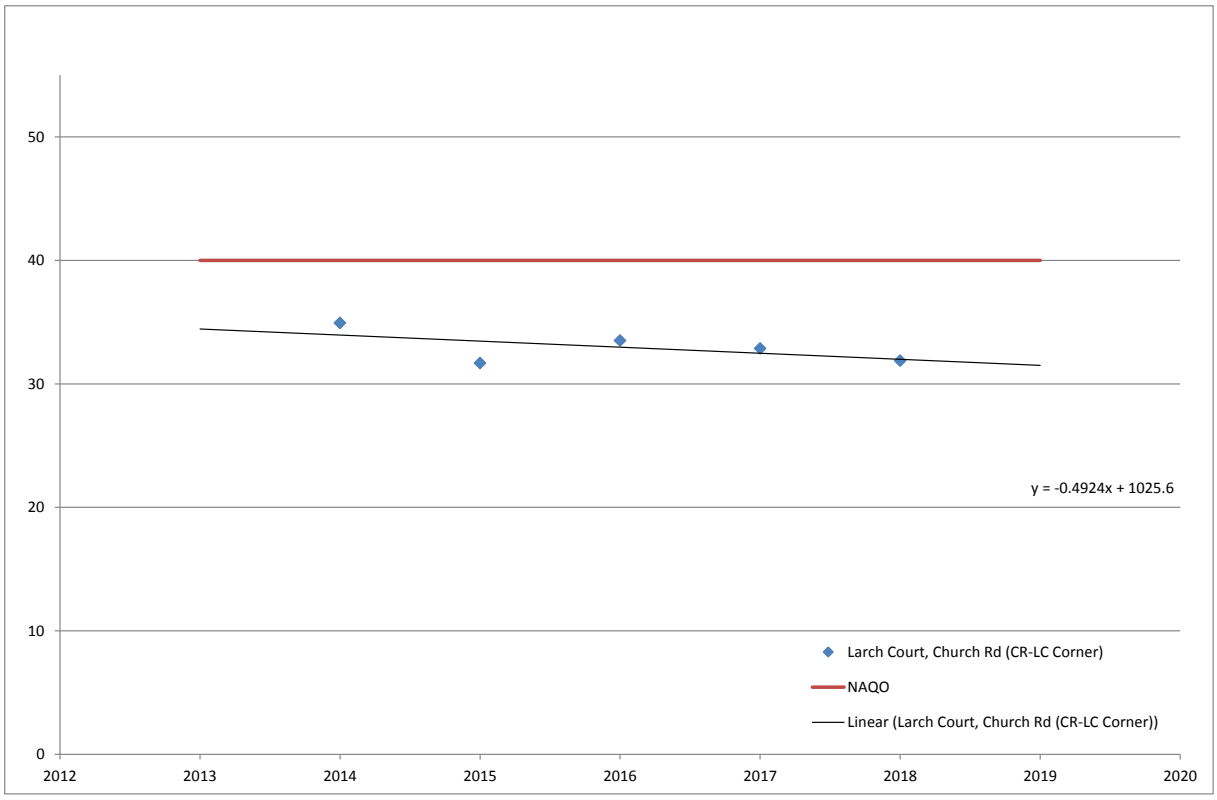
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 1.31µg/m^3 (an increase of 3.27%) between 2017 and 2018, remains below the NAQO in 2018 (28.4µg/m^3) exhibiting an AQ improvement in the short-term.

3. This NO_2 annual average change is described as being **negligibly beneficial**.

4. The 2017-2018 NO_2 annual average exhibits a relatively **upward** trend demonstrating an AQ deterioration in the long-term similar to the previously reported 5 year trend.

Figure F.25: **Larch Court, Church Road (CR-LC Corner).**



Summary: *Exceedance (No), short-term (Slightly Beneficial), long-term (Downward).*

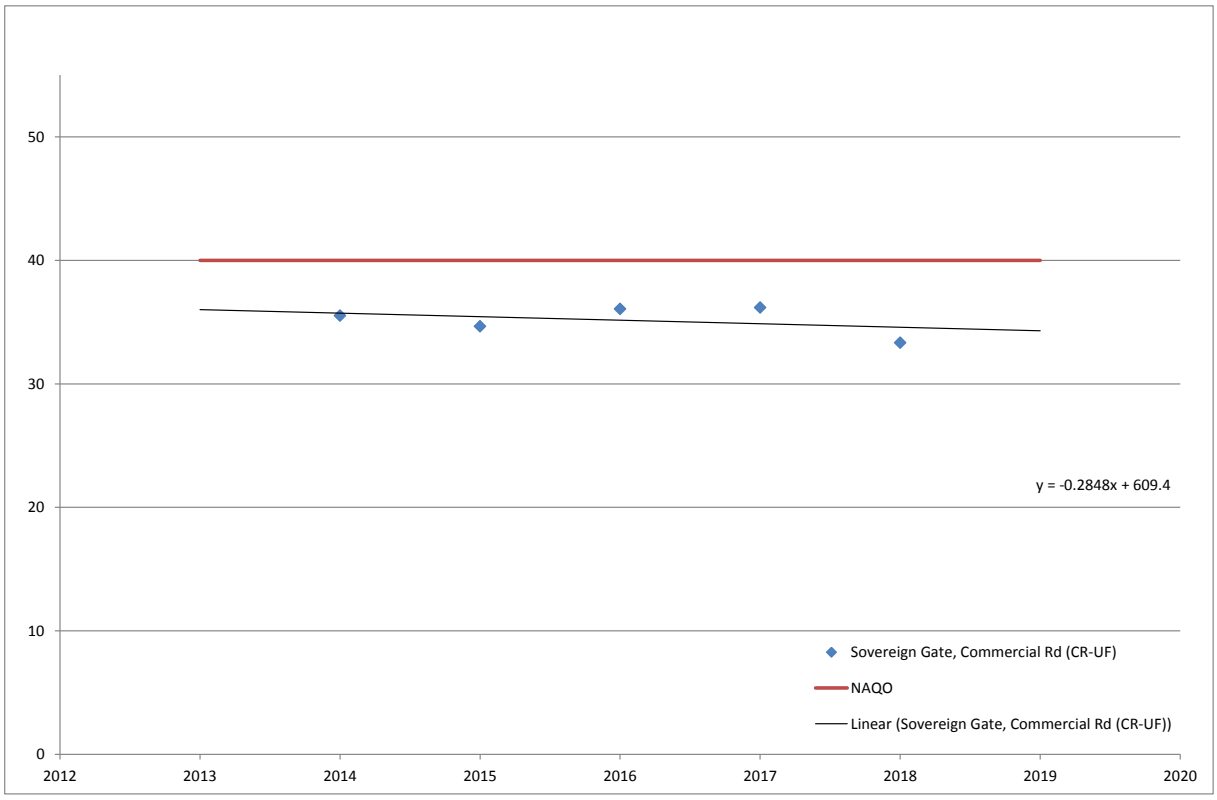
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 1µg/m^3 (a decrease of 2.49%) between 2017 and 2018, and remains below the NAQO in 2018 (31.9µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **slightly beneficial**.

4. The NO_2 annual average exhibits a **downward** trend in the last reported 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.26: **Sovereign Gate, Commercial Road (CR- UF).**



Summary: *Exceedance (No), short-term (Moderately Beneficial), long-term (Downward).*

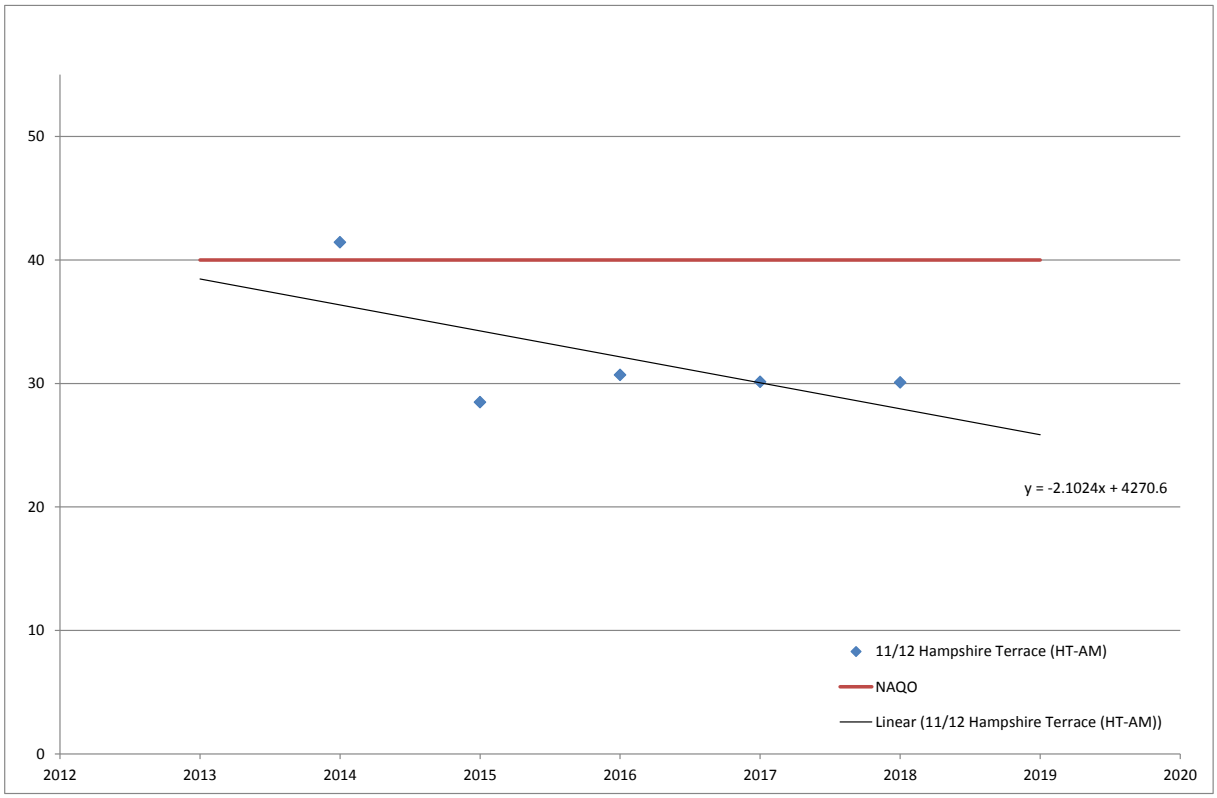
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years.

2. The annual average at this **roadside** monitoring location **decreased** by 2.83µg/m^3 (a decrease of 7.09%) between 2017 and 2018, and remains below the NAQO in 2018 (33.3µg/m^3) exhibiting an AQ improvement in the short-term.

3. This 2017-2018 NO_2 annual average change is described as being **moderately beneficial**.

4. The NO_2 annual average exhibits a **downward** trend in the last reported 5 years demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.27: **11/12 Hampshire Terrace (HT-AM).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Downward).*

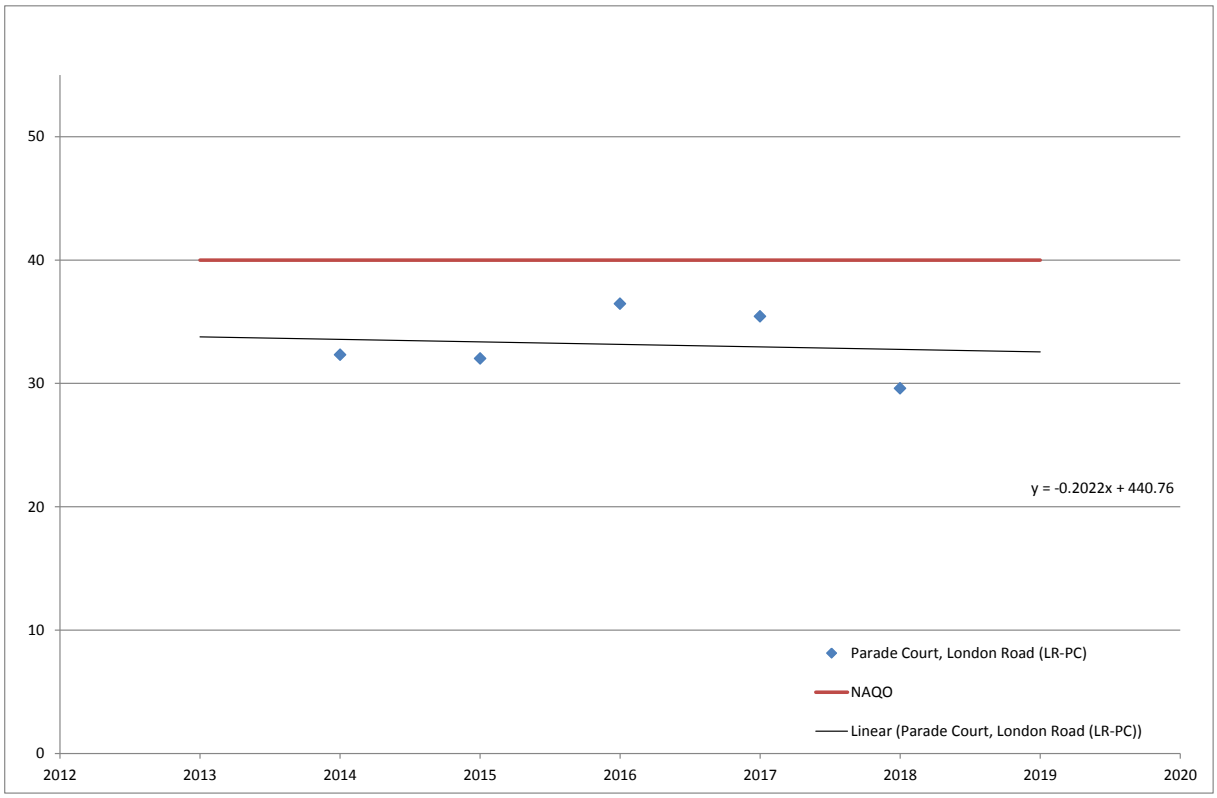
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years with the exception of 2014.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 0.05µg/m^3 (a decrease of 0.12%) between 2017 and 2018, remains below the NAQO in 2018 (30.1µg/m^3) exhibiting a negligible AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly beneficial**.

4. The NO_2 annual average exhibits a **downward** trend in the last reported 5 years demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.28: **Parade Court, London Road (LR-PC).**



Summary: *Exceedance (No), short-term (Moderately Beneficial), long-term (Downward).*

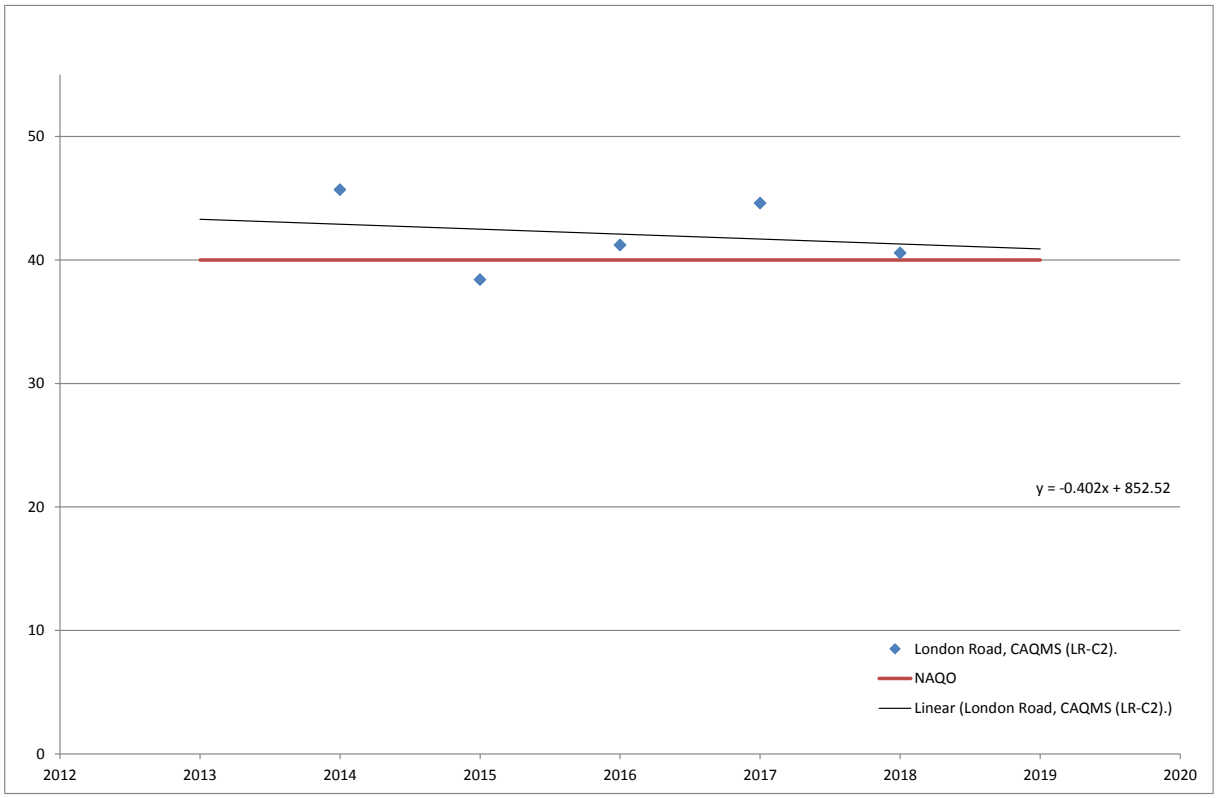
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 5.85µg/m^3 (a decrease of 14.61%) between 2017 and 2018, remains below the NAQO in 2018 (29.6µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **moderately beneficial**.

4. The 2017-2018 NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.29: **London Road CAQMS (LR-C2).**



Summary: *Exceedance (Yes), short-term (Substantially Beneficial), long-term (Downward).*

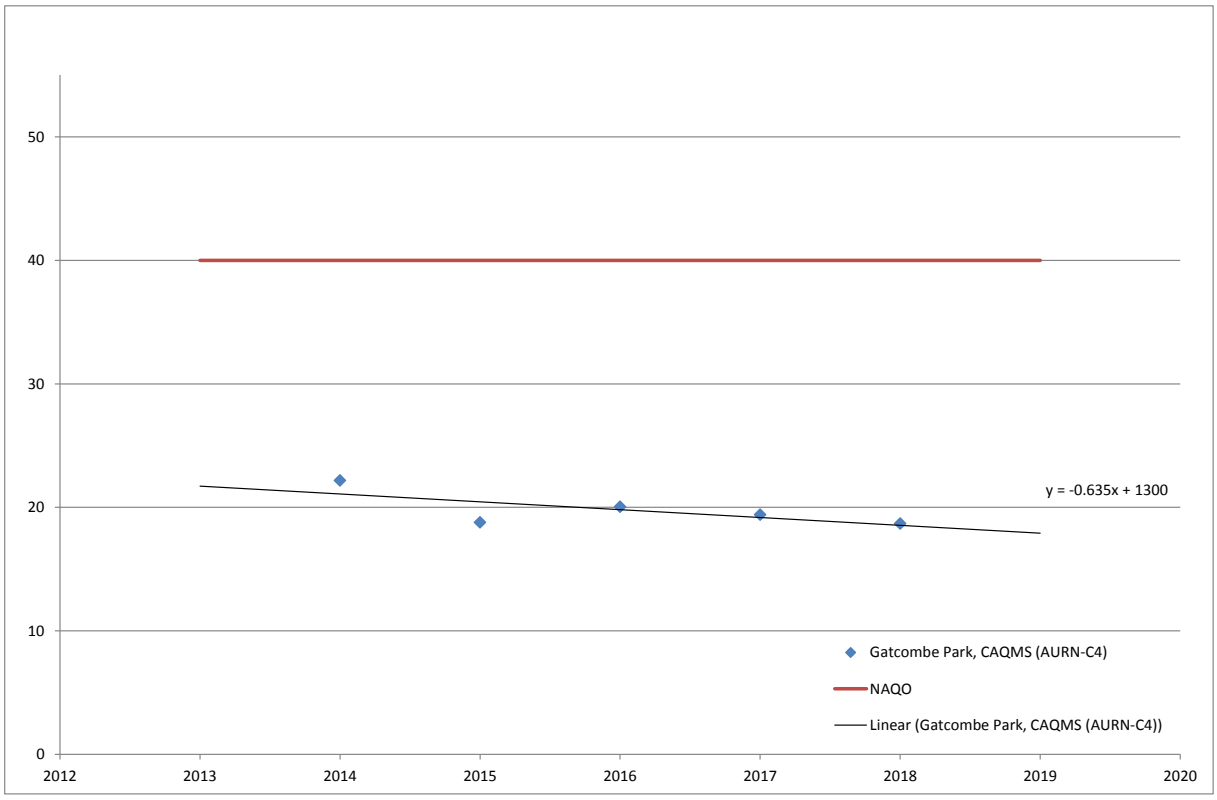
1. The NO_2 annual average has remained **above** the NAQO in the last 5 years with the exception of year 2015.

2. The NO_2 annual average at this **kerbside** monitoring location **decreased** by 4.03µg/m^3 (a decrease of 10.08%) between 2017 and 2018, but remains above the NAQO in 2018 (40.57µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change can be described as being **substantially beneficial.**

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement contrary to the previously reported 5 year trend.

Figure F.30: **Gatcombe Park, CAQMS (AURN-C4).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Downward).*

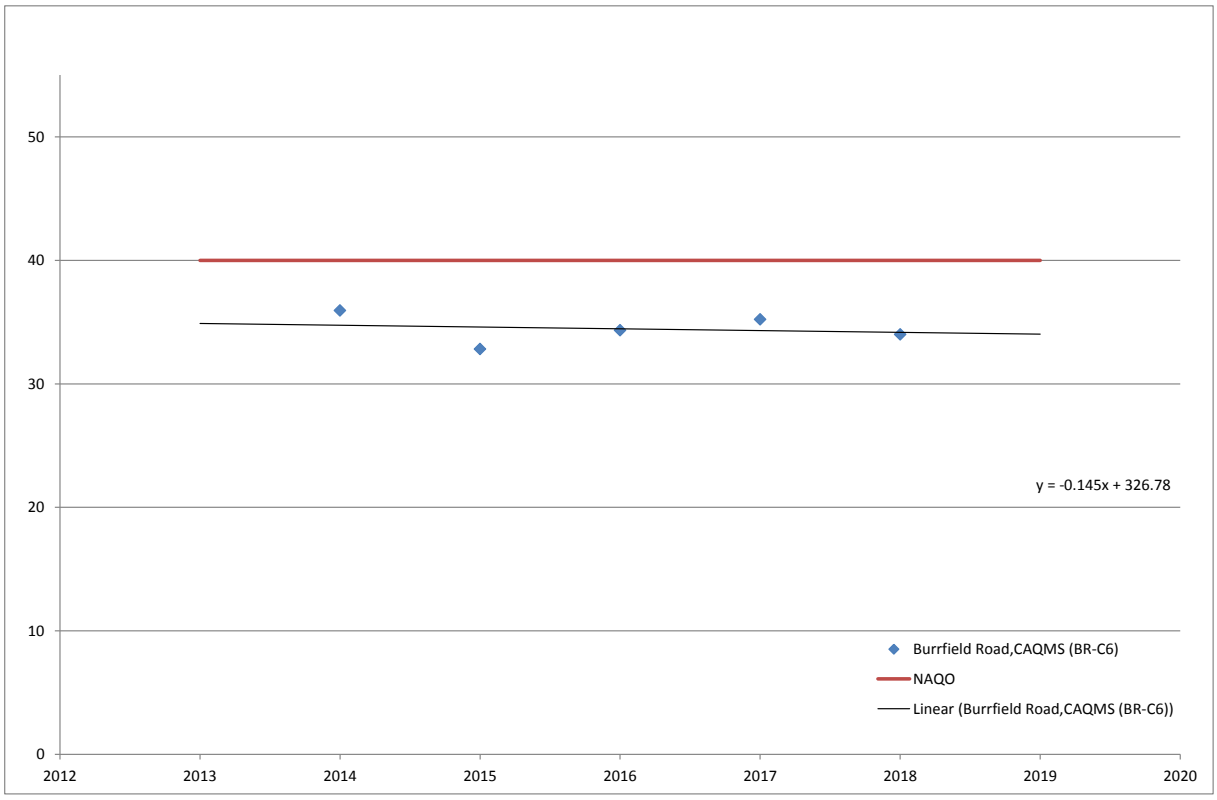
1. The NO_2 annual average has remained considerably **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **urban background** monitoring location **decreased** by 0.73µg/m^3 (a decrease of 1.83%) between 2017 and 2018, and remains below the NAQO in 2018 (18.67µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change can be described as being **negligibly beneficial**.

4. The NO_2 annual average exhibit a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term similar to the previously reported 5 year trend.

Figure F.31: **Burrfield Road, CAQMS (BR-C6).**



Summary: *Exceedance (No), short-term (Slightly Beneficial), long-term (Downward).*

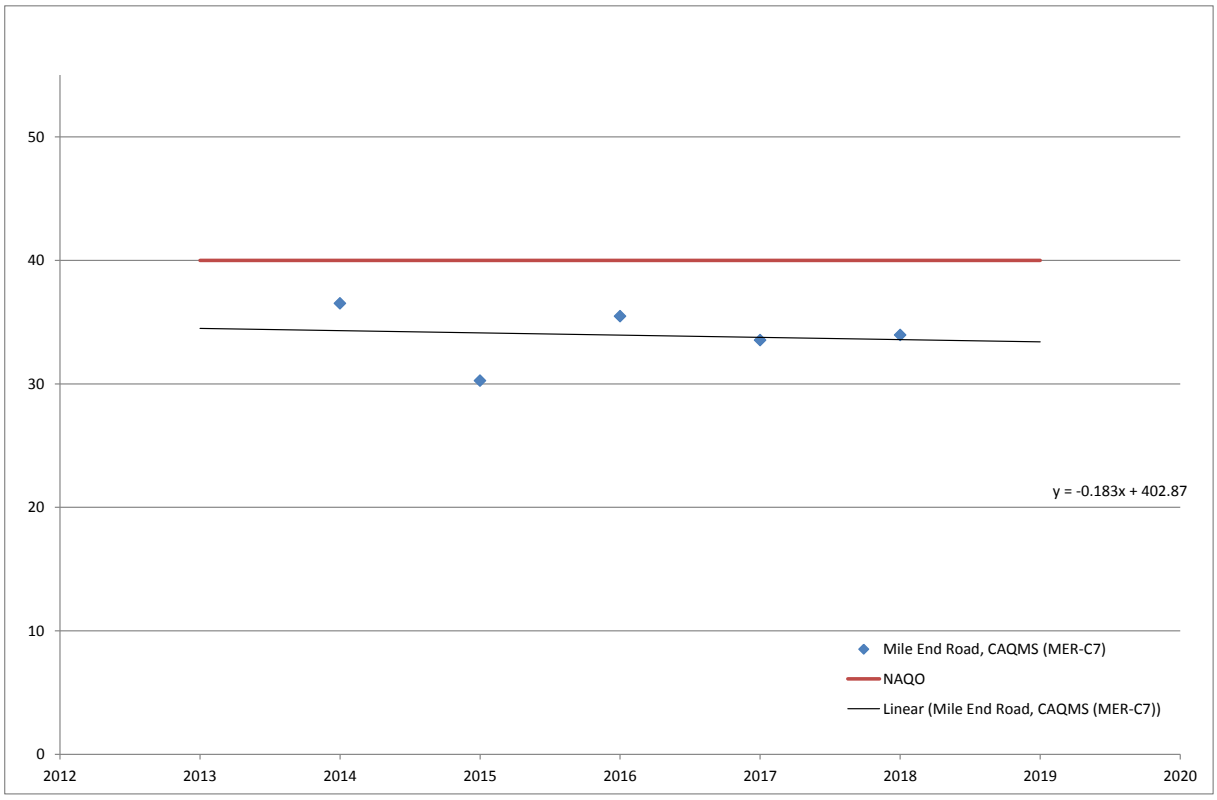
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **decreased** by 1.22µg/m^3 (a decrease of 3.05%) between 2017 and 2018, and remains below the NAQO in 2018 (34µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **slightly beneficial.**

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.32: **Mile End Road, CAQMS (MER-C7).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Downward).*

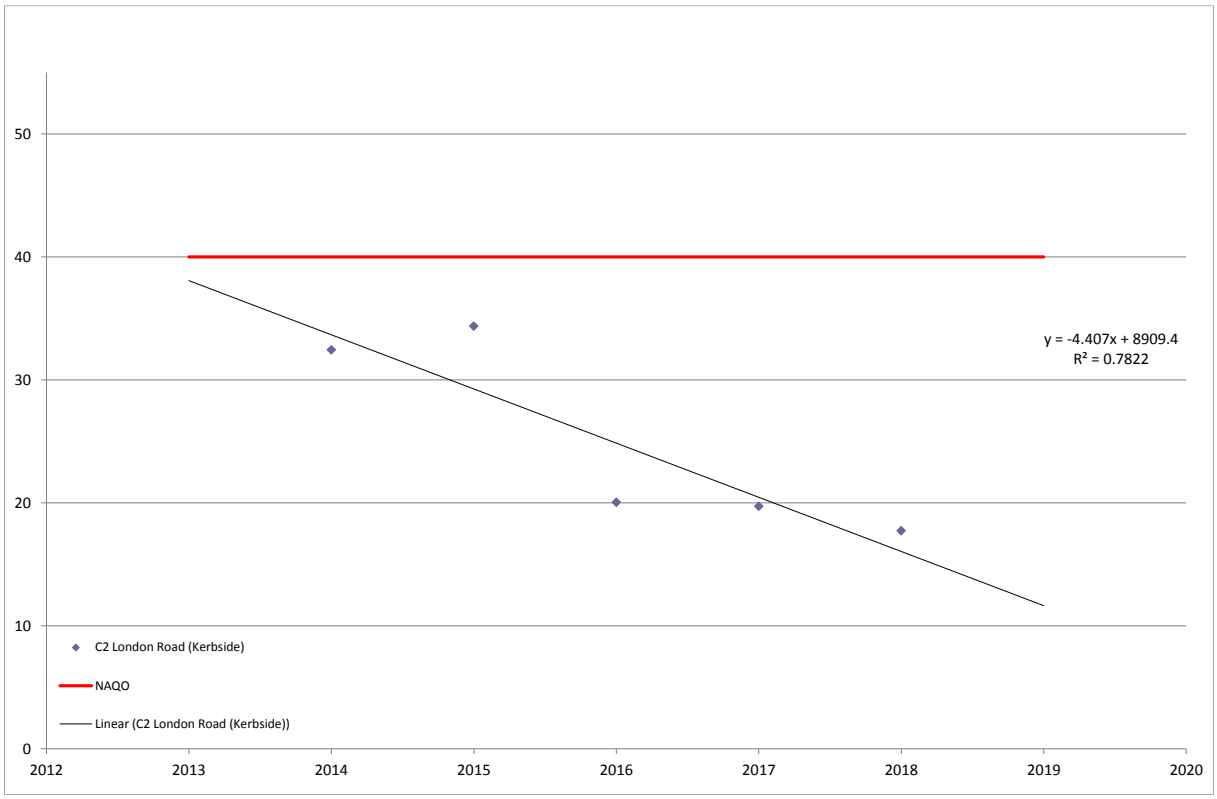
1. The NO_2 annual average has remained **below** the NAQO in the last 5 years.

2. The NO_2 annual average at this **roadside** monitoring location **increased** by 0.41µg/m^3 (an increase of 1.03%) between 2017 and 2018, but remains below the NAQO in 2018 (34µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 NO_2 annual average change is described as being **negligibly adverse**.

4. The NO_2 annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.33: **London Road PM_{10} CAQMS (LR-C2).**



Summary: *Exceedance (No), short-term (Negligibly Beneficial), long-term (Downward).*

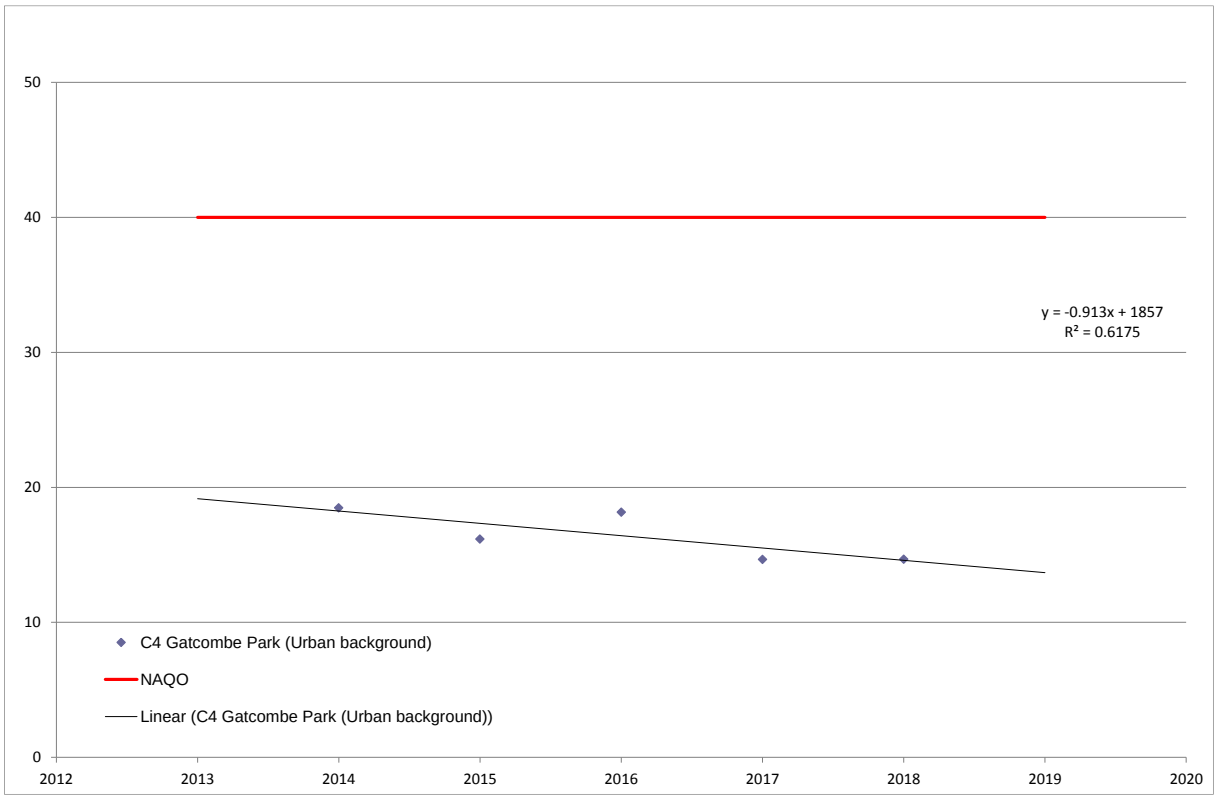
1. The PM_{10} annual average has remained considerably **below** the NAQO in the last 5 years.

2. The PM_{10} annual average at this **kerbside** monitoring location **decreased** by 1.99µg/m^3 (a decrease of 4.98%) between 2017 and 2018, and remains below the NAQO in 2018 (17.72µg/m^3) exhibiting an AQ improvement in the short-term.

3. The 2017-2018 PM_{10} annual average change is described as being **negligibly beneficial**.

4. The PM_{10} annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.34: **Gatcombe Park PM_{10} CAQMS (AURN-C4).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Downward).*

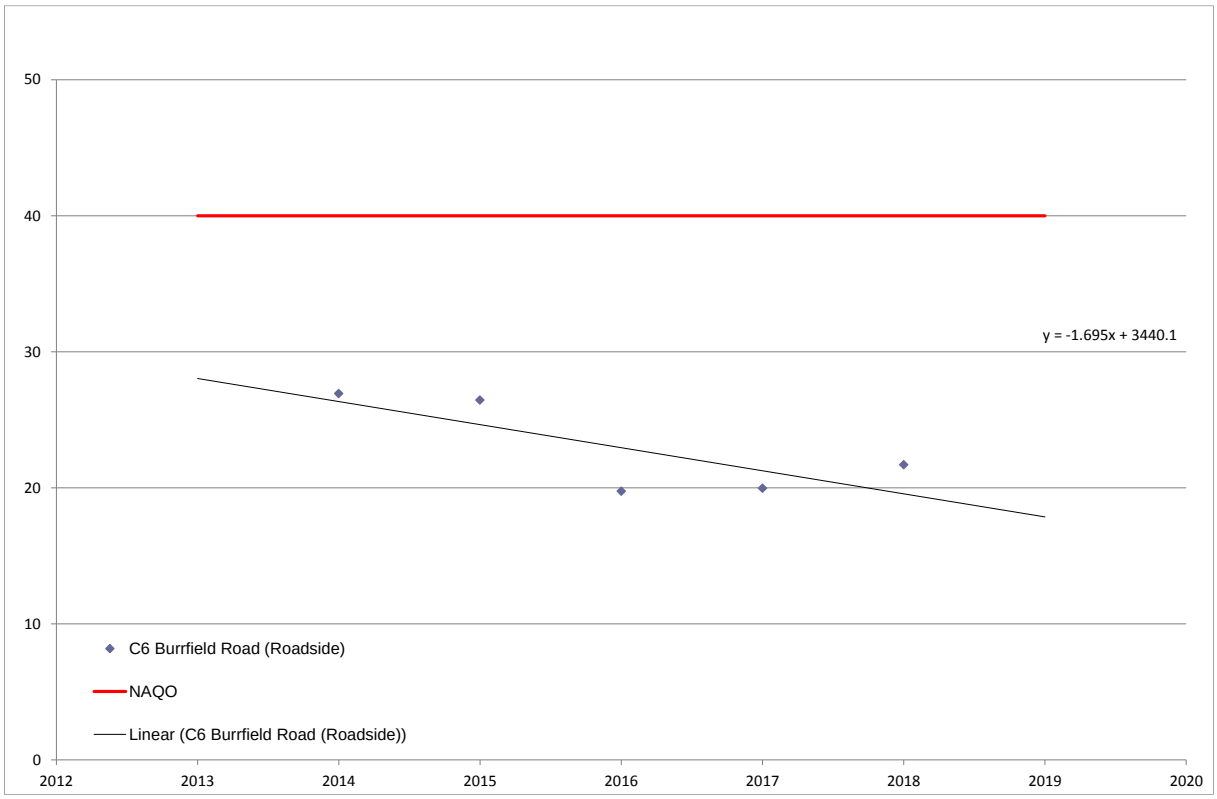
1. The PM_{10} annual average has remained considerably **below** the NAQO in the last 5 years.

2. The PM_{10} annual average at this **urban background** monitoring location **increased** by 0.02µg/m^3 (an increase of 0.05%) between 2017 and 2018, and remains below the NAQO in 2018 (14.67µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 PM_{10} annual average change is described as being **negligibly adverse**.

4. The PM_{10} annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.35: **Burrfields Road PM_{10} CAQMS (BR-C6).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Downward).*

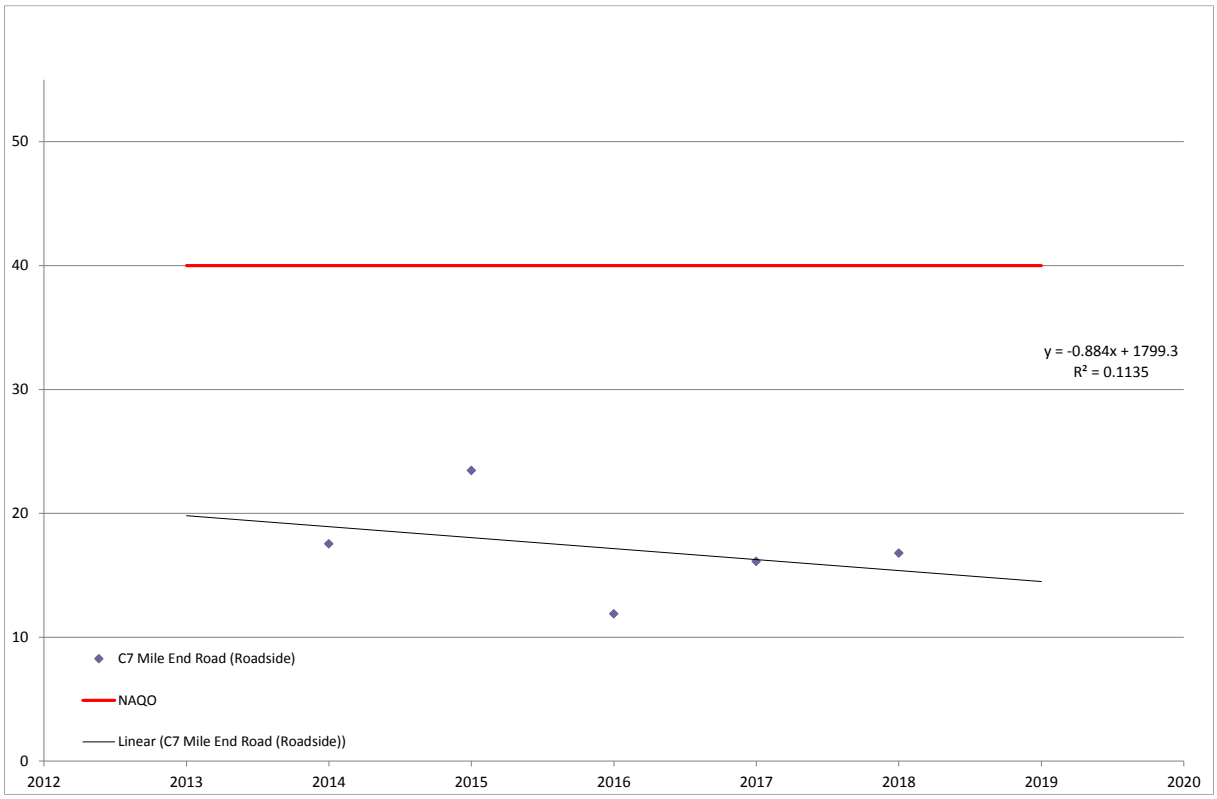
1. The PM_{10} annual average has remained considerably **below** the NAQO in the last 5 years.

2. The PM_{10} annual average at this **roadside** monitoring location **increased** by 1.73µg/m^3 (an increase of 4.33%) between 2017 and 2018, and remains below the NAQO in 2018 (21.69µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 PM_{10} annual average change is described as being **negligibly adverse**.

4. The PM_{10} annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.36: **Mile End Road PM_{10} CAQMS (MER-C7).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Downward).*

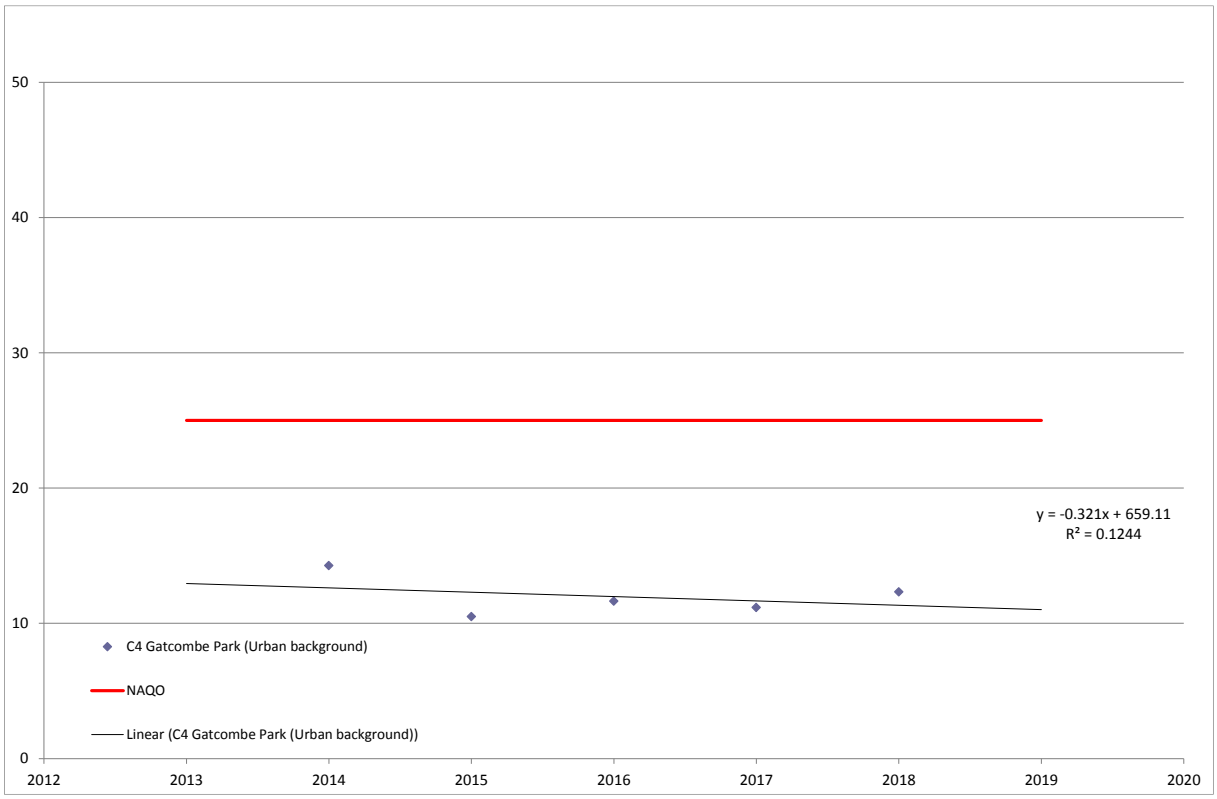
1. The PM_{10} annual average has remained considerably **below** the NAQO in the last 5 years.

2. The PM_{10} annual average at this **roadside** monitoring location **increased** by 0.67µg/m^3 (an increase of 1.68%) between 2017 and 2018, and remains below the NAQO in 2018 (16.78µg/m^3) exhibiting an AQ deterioration in the short-term.

3. The 2017-2018 PM_{10} annual average change is described as being **negligibly adverse**.

4. The PM_{10} annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Figure F.37: **Gatcombe Park $PM_{2.5}$ CAQSM (AURN-C4).**



Summary: *Exceedance (No), short-term (Negligibly Adverse), long-term (Downward).*

1. The $PM_{2.5}$ annual average has remained considerably **below** the NAQO in the last 5 years.

2. The $PM_{2.5}$ annual average at this **urban background** monitoring location **increased** by 1.15µg/m^3 (an increase of 4.6%) between 2017 and 2018, and remains below the NAQO in 2018 (12.32µg/m^3) exhibiting an AQ deterioration in the short-term.

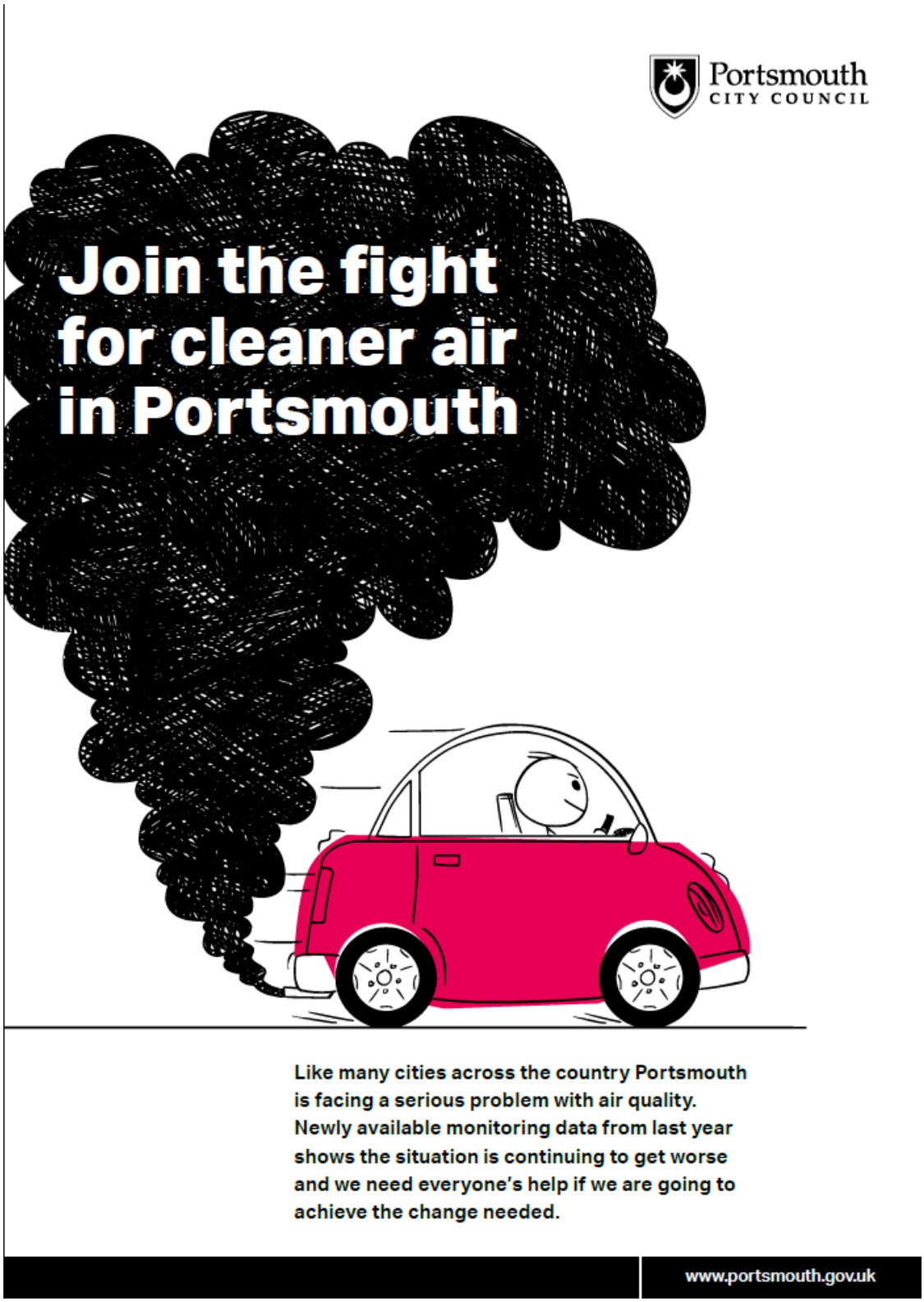
3. The 2017-2018 $PM_{2.5}$ annual average change is described as being **negligibly adverse**.

4. The $PM_{2.5}$ annual average exhibits a **downward** trend in the last 5 years, demonstrating an AQ improvement in the long-term contrary to the previously reported 5 year trend.

Appendix G: Correspondences

Correspondence 1: Leaflet "join the fight for cleaner air"

Leaflet "*join the fight for cleaner air"*



We are working on plans that will not only address air quality but also make it easier for people to travel sustainably around Portsmouth, reduce traffic congestion, improve residents' health and boost the local economy.

However we can't change things overnight and the government will take action if we don't make a significant improvement in the quickest possible time.

This leaflet explains why we're taking the situation so seriously, what we're doing and how you can help make a difference.

How is Portsmouth's air quality?

Our tests show air quality in most of Portsmouth meets government guidelines but there are certain areas that don't.

Previously our concerns focused on specific areas along the route through London Road, Kingston Road and Fratton Road as well as in the city centre from the M275 through to Anglesea Road and Queen Street.

We increased the number of sites we monitor to 92 and now have new data from 2018 and while it has not been fully analysed the early suggestion is air quality is deteriorating in other areas. Once we have the final information we will announce where the improvements are needed.

Around half of the air pollution is caused by vehicles and by addressing this factor we can make the biggest impact.

What does it mean for people's health?

Air pollution negatively impacts on people's health. Nationally air quality may have been a factor in up to 36,000 deaths a year. Children are particularly vulnerable.

This is why we are taking this issue very seriously and want you to help us make a difference.

How can people reduce exposure to air pollution?

A key thing to remember about air pollution is the further away you are from the source the less impact it will have on your health, and a surprisingly small distance can make a difference. Our monitoring shows that moving just a few metres from the edge of a road can reduce the amount of air pollution you are exposed to.

Quieter roads will have less pollution so you could change your route to reduce exposure. But for some this isn't possible and that's why we need to act.

Many people think being in a car with the windows up protects them from air pollution but it actually increases your exposure because cars take in a lot of air through their engines and are so close to other vehicles that it may not be very clean.

What is the council doing?

In the last year we have been developing a citywide plan to tackle air quality as quickly as possible.

A lot of projects we have already delivered are designed to improve this and reduce car use and encourage more sustainable travel such as:

- introducing electric vehicle charging points on-street and in our car parks, and retrofitting over 100 buses to remove dangerous chemicals from exhaust fumes
- expanding sustainable alternatives to the car with the introduction of the new Park & Ride route for the city centre

Air pollution and sources of pollutants in Portsmouth

***Regional Background pollution**
Pollution that is transported into the city by the wind from further away

***Local Background Pollution**
Other pollution sources within and around the city, e.g. from central heating systems

What is air pollution?

Air pollution can be defined as 'contaminant or pollutant substances in the air at a concentration that interferes with human health or welfare, or produces other harmful environmental effects' [REF European Environment Agency].

Most outdoor air pollution in urban areas such as Portsmouth is man-made. Sources of air pollution mainly comprise those involving combustion processes, and examples are:

- Transport, particularly road traffic
- Industrial, commercial and domestic sources
- Background and trans-boundary pollution (unavoidably brought into the city via weather systems).

- Improving traffic flow across the city with projects like moving and enhancing the Anglesea Road crossing
- making sustainable travel choices more accessible with improvements to cycling including safety improvements for cyclists at junctions along London Road, Kingston Road and Fratton Road, and a new city bus depot being investigated

Not only do these projects help air quality and improve people's health, they also make it easier for people to move around the city and have a knock-on effect of helping businesses and boosting the local economy.

We are continuing our ongoing work and actively pursuing further improvements. We have just been awarded £4m as the first part of a £200m bid to government to improve public transport across Portsmouth and the wider region. We have also written to government asking for support and funding, to take forward a host of new schemes including:

- converting all taxis to electric vehicles
- free bus passes for all residents
- new bus and tram services and a local bus depot
- removal of government housing targets (currently 830 completed homes a year)
- work to support businesses
- a car scrappage scheme
- extra funding for cycling facilities

However analysis shows the measures we are looking at won't improve the situation as quickly as the government wants, but we're continuing to work with them to try to find new solutions.

What will the government do?

The government has set legal limits for air quality and we are one of 61 places in the country that has recorded levels above this. Government has instructed us to improve the situation as quickly as possible.

The government's way of solving air quality issues is to bring in clean air zones (CAZs) which vehicles are usually charged to drive in. This can range from just charging certain vehicles, like big lorries, to charging every single car that drives in the zone.

If the government's data shows our plans won't make a big enough difference they will make us have a clean air zone. At the moment data shows a clean air zone would be the most effective measure.

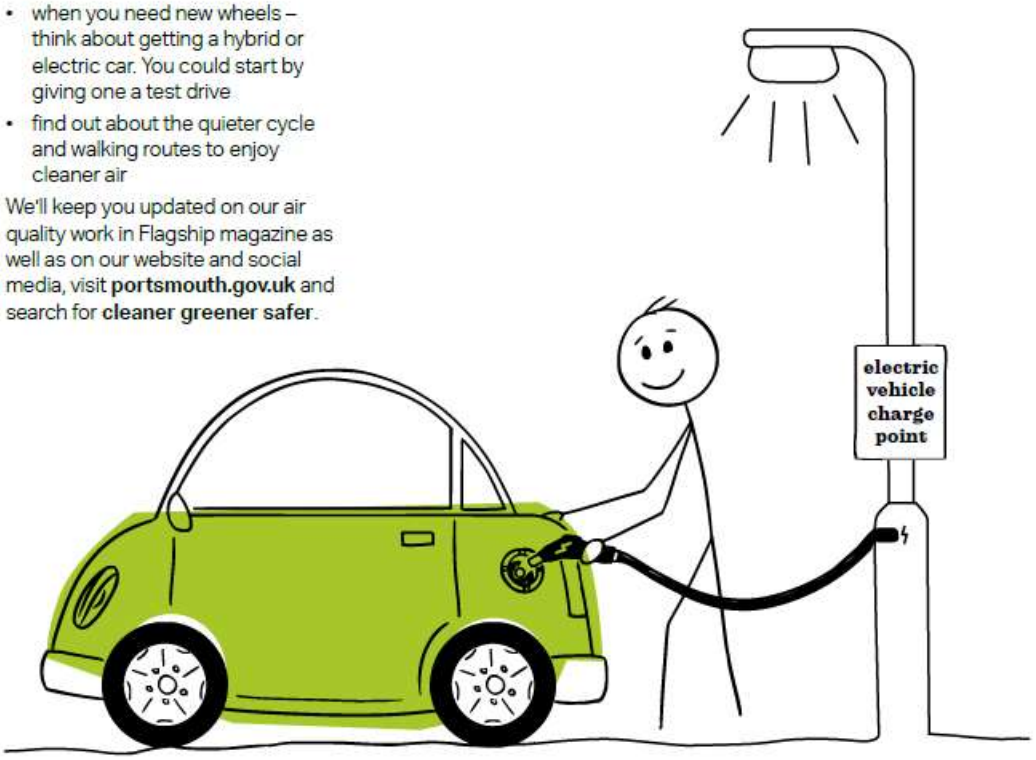
How you can help

We all have a part to play in improving the air quality within our city, and shaping the city for future generations. We're asking everyone in Portsmouth to do what they can to travel more sustainably. We know some people need to use their cars but we'd be grateful if you can:

- try choosing a cleaner commute – share a ride to work, cycle, or take the bus
- combine errands for fewer trips and walk when possible
- avoid excessive idling of your car by switching your engine off when you're not moving for a minute or so
- when you need new wheels – think about getting a hybrid or electric car. You could start by giving one a test drive
- find out about the quieter cycle and walking routes to enjoy cleaner air

We'll keep you updated on our air quality work in Flagship magazine as well as on our website and social media, visit **portsmouth.gov.uk** and search for **cleaner greener safer**.

Together we can make a difference to our city, today and in the future.



You can get this information in large print, Braille, audio or in another language by calling 023 9284 1106

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Correspondence 2: Letter to the Secretary of State for the Environment

Letter to the Secretary of State

Portsmouth CITY COUNCIL

Councillor Gerald Vernon-Jackson CBE
Leader of Portsmouth City Council
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Floor 3, Core 3-4, Civic Offices
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PO1 2AL

Phone: 023 9283 4551
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Our Ref: GVJOUT048

Date: 13 March 2019

Rt Hon Michael Gove MP
Secretary of State for Environment
Food & Rural Affairs
House of Commons
London
SW1A 0AA

Dear Michael,

I am writing to you about the ministerial directive on air quality which Portsmouth City Council has received.

My understanding is that we received this ministerial directive to produce a plan to improve air quality because of concerns in the Defra modelling about the air quality at the end of the motorway spur into Portsmouth (M275) and then further on the road towards Unicorn Gate - an access point into the Naval dockyard.

The city council has dramatically increased the number of air sampling points in the city and our initial readings were that the actual results at the end of the M275 were significantly lower than the modelling had suggested. We were though very concerned about an area not identified by Defra which is the Fratton Road/London Road central route through the middle of the island, that the city council's monitoring here suggested that there was a problem with air pollution and we have been working to produce a plan to rectify this.

I am sorry to have to tell you that the readings that we now have for last year show significantly increased areas of air pollution around the city and we therefore need to look at a much wider and much more radical plan to reduce air pollution. There is the possibility that the readings this year may have been affected by atmospheric conditions but we don't know and we need to plan. I am very concerned about the possibility of an imposition of a Clean Air Zone on Portsmouth and the increased cost this would load onto both the individual and onto businesses in Portsmouth. Portsmouth is a city with economic challenges and for both families and for businesses the extra costs of a Clean Air Zone could be hugely damaging.

Continued…/

I would therefore like to ask for your support in looking at alternative measures to be able to reduce air pollution and therefore remove the need for a Clean Air Zone. The areas I would ask for your help with may be expensive but I would hope that the government would look to fund these to be able to get the dramatic reduction in air pollution that the ministerial directive expects. I understand that the new burdens doctrine applies and therefore we should be looking to the government for funding.

A significant proportion of the air pollution comes from traffic and therefore we need to look at what we can do to significantly reduce this and give people an incentive to use non-car based travel. Some of the suggestions I have heard are as follows:-

1) A free bus pass for each resident of the city all day, every day, to encourage people onto buses and out of their cars
2) The creation of a trolley bus system like that operated in our twin city of Caen, as there seems to be a much higher usage of tram and trolley bus systems than of buses
3) Investment to convert the taxi and private hire fleet operating within Portsmouth to an entirely electric fleet
4) That Portsmouth receives the same level of government subsidy to encourage people to cycle that is received by the London boroughs/TFL
5) We would like to look at a transfer station where lorries bringing loads into the city can drop off their loads which are then taken in by electric cabs
6) The government is currently increasing the number of house completions it expects from Portsmouth from around the 430 houses/flats that we currently complete to around 830 per annum. This is clearly completely incompatible with having to significantly reduce air pollution and I would ask for Portsmouth to be relieved of any housing target so we do not make the air pollution situation any worse.
7) We also need to look at the effect that shipping has both in the commercial ferry port and in Portsmouth Naval Base on these air quality figures and to work with the ship owners on a strategy to reduce this level of pollution
8) A car scrappage scheme targeted at families on the lowest incomes who often have the most polluting vehicles but the least money to replace them with something modern with low emissions
9) We would also like to be able to run our own bus service and to have a local bus depot to reduce the pollution of buses having to drive into Portsmouth from Fareham.

We would be very happy to work with you to try to find ways in which we can have a dramatic effect in reducing air pollution.

Yours sincerely

Councillor Gerald Vernon-Jackson CBE
Leader of the Council

Glossary of Terms

Abbreviation	Description
AAQD	Ambient Air Quality Directive
AP	Air Pollution
AQ	Air Quality
AQAP	Air Quality Action Plan
AQB	Air quality Board
AQG	Air Quality Grant
AQMA (s)	Air Quality Management Area (a) – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
AQSG	Air quality Steering Group
ASR	Annual Status Report
AURN	Automatic Urban and Rural Network
CAQMS	Continuous Air Quality Monitoring Station
CAZ	Clean Air Zone
DEFRA	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
EV	Electric Vehicle
FA	Further Assessment
FBS	Full Business Case
FDMS	Filter Dynamics Measurement System
JAQU	Joint Air Quality Unit
LA(s)	Local Authority (s)
LAQ	Local Air Quality
LAQAP	Local Authority Air Quality Action Plan
LAQM	Local Air Quality Management
LAQM.PG(16)	Local Air Quality Management. Policy Guidance (16)
LAQM.TG(16)	Local Air Quality Management. Technical Guidance (16)
LAQRA	Local Air Quality Review and Assessment
LAQS	Local Air Quality Strategy
MD	Ministerial Direction
MOVA	Microprocessor Optimised Vehicle Actuation
NAQO	National Air Quality Objective
NDDT	Nitrogen Dioxide Diffusion Tubes
NDDTS	Nitrogen Dioxide Diffusion Tubes Survey
NO_2	Nitrogen Dioxides
NO_x	Nitrogen Oxides
OBC	Outline Business Case
PAQS	Portsmouth Air Quality Strategy
PCAN	Portsmouth Clean Air Network
PCC	Portsmouth City Council
PCM	Pollution Climate Mapping

PHE	Public Health England
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA / QC	Quality Assurance and Quality Control
OBC	Outline Business Case
RSW	Report Submission Website
SAS	Source Apportionment Study
SOC	Strategic Outline Case
SO_2	Sulphur Dioxide
TFS	Targeted Feasibility Study

Equality Impact Assessment

Preliminary assessment form v5 / 2013

www.portsmouth.gov.uk

The preliminary impact assessment is a quick and easy screening process. It should:

- identify those policies, projects, services, functions or strategies which require a full EIA by looking at:
  - negative, positive or no impact on any of the equality groups
  - opportunity to promote equality for the equality groups
  - data / feedback
- prioritise if and when a full EIA should be completed
- justify reasons for why a full EIA is not going to be completed

Directorate: Director of Culture, Leisure and Regulatory Services

Function e.g. HR, IS, carers: Regulatory Services

Title of policy, service, function, project or strategy (new or old) :

Assessment of air quality - publication of Annual Status Report 2019

Type of policy, service, function, project or strategy:

- ★ Existing
- ☐ New / proposed
- ☐ Changed

Q1 - What is the aim of your policy, service, function, project or strategy?

The aim of the policy is to report upon the:

• Local Air Quality Management (LAQM) process and the 2018 Review and Assessment (R&A) of air quality (AQ) in Portsmouth through the publication of the 2019 Annual Status Report (ASR)

• Legal responsibilities placed upon Portsmouth City Council (PCC) in respect to AQ by the Department for Environment, Food and Rural Affairs (DEFRA)

• Actions undertaken and proposed by PCC which are likely to positively impact upon air pollution levels in Portsmouth.

Q2 - Who is this policy, service, function, project or strategy going to benefit or have a detrimental effect on and how?

Benefits: Improving air quality by reducing air pollution has positive health impacts for all. It is recognised that poor air quality is a contributing factor in the onset of heart disease and cancer. Air pollution particularly affects the most vulnerable in society: children and older people and those with heart and lung conditions.

Q3 - Thinking about each group below, does, or could the policy, service, function, project or strategy have a negative impact on members of the equality groups below?

Group	Negative	Positive / no impact	Unclear
Age	☐	★	☐
Disability	☐	★	☐
Race	☐	★	☐
Gender	☐	★	☐
Transgender	☐	★	☐
Sexual orientation	☐	★	☐
Religion or belief	☐	★	☐
Pregnancy and maternity	☐	★	☐
Other excluded groups	☐	★	☐

If the answer is "negative" or "unclear" consider doing a full EIA

Q4 - Does, or could the policy, service, function, project or strategy help to promote equality for members of the equality groups?

Group	Yes	No	Unclear
Age	☐	★	☐
Disability	☐	★	☐
Race	☐	★	☐
Gender	☐	★	☐
Transgender	☐	★	☐
Sexual orientation	☐	★	☐
Religion or belief	☐	★	☐
Pregnancy or maternity	☐	★	☐
Other excluded groups	☐	★	☐

If the answer is "no" or "unclear" consider doing a full EIA

Q5 - Do you have any feedback data from the equality groups that influences, affects or shapes this policy, service, function, project or strategy?

Group	Yes	No	Unclear
Age	☐	★	☐
Disability	☐	★	☐
Race	☐	★	☐
Gender	☐	★	☐
Transgender	☐	★	☐
Sexual orientation	☐	★	☐

Religion or belief	☐	★	☐
Pregnancy and maternity	☐	★	☐
Other excluded groups	☐	★	☐

If the answer is "no" or "unclear" consider doing a full EIA

Q6 - Using the assessments in questions 3, 4 and 5 should a full assessment be carried out on this policy, service, function or strategy?

☐ yes ★ No

Q7 - How have you come to this decision?

Improving air quality is positive in terms of protecting human health irrespective of equality group.

The government have produced numerous reports detailing these positive impacts and quantifying the benefits in terms of increased life expectancy and reduced costs (£) in terms of delivering health care.

As the data clearly demonstrates that improved air quality will be a benefit to all it is unnecessary to seek specific data in relation to impact upon any specific equality group.

If you have to complete a full EIA please contact the Equalities and diversity team if you require help
Tel: 023 9283 4789 or email:equalities@portsmouthcc.gov.uk

Q8 - Who was involved in the EIA?

Environmental Health practitioners specialising in air quality

This EIA has been approved by: Richard Lee, Regulatory Services Manager

Contact number: 023 9283 4857

Date: June 2019

Please email a copy of your completed EIA to the Equality and diversity team. We will contact you with any comments or queries about your preliminary EIA.

Telephone: 023 9283 4789

Email: equalities@portsmouthcc.gov.uk

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