

COFNOD O BENDERFYNIAD WEDI'I DDIRPRWYO GAN SWYDDOG
RECORD OF DELEGATED OFFICER DECISION

Penderfyniad Allweddol | Key Decision ✓

PWNC | SUBJECT: Publication of the 2018 Air Quality Progress Report

DIBEN YR ADRODDIAD | PURPOSE OF THE REPORT:

The purpose of this report is to seek approval to publish the "2018 Air Quality Progress Report" for public consultation and delegate authority to the Director, Public Health, Protection & Community Services to consider the outcome of the public consultation and should it be deemed appropriate, accept the 2018 Air Quality Progress Report

In accordance with the Council's Scheme of Delegation, this report has been prepared to accompany the intended officer decision of the Director of Public Health, Protection & Community Services as described below.

PENDERFYNIAD WEDI'I DDIRPRWYO | DELEGATED DECISION:

1. To publish the "2018 Air Quality Progress Report" for public consultation; and
2. Subsequent to said public consultation, delegate authority to the Director of Public Health, Protection & Community Services to consider the outcome of the public consultation and should it be deemed appropriate, accept the "2018 Air Quality Progress Report".



Llofnod y Prif Swyddog
Chief Officer Signature

PAUL WIFE

Enw (priflythrennau)
Name (Print Name)

24.1.19

Dyddiad
Date

Mae'r penderfyniad yn cael ei wneud yn unol ag Adran 15 o Ddeddf Llywodraeth Leol 2000 (Swyddogaethau'r Corff Gweithredol) ac yn y cylch gorchwyl sy wedi'i nodi yn Adran 5 o Ran 3 o Gyfansoddiad y Cyngor.

The decision is taken in accordance with Section 15 of the Local Government Act, 2000 (Executive Functions) and in the terms set out in Section 5 of Part 3 of the Council's Constitution.

YMGYNGHORI | CONSULTATION



24 / 01 / 2019

**LLOFNOD YR AELOD YMGYNGHOROL O'R CABINET
CONSULTEE CABINET MEMBER SIGNATURE**

DYDDIAD | DATE

**LLOFNOD SWYDDOG YMGYNGHOROL
CONSULTEE OFFICER SIGNATURE**

DYDDIAD | DATE

RHEOLAU'R WEITHDREFN GALW-I-MEWN | CALL IN PROCEDURE RULES.

A YW'R PENDERFYNIAD YN UN BRYG A HEB FOD YN DESTUN PROSES GALW-I-MEWN GAN Y PWYLLGOR TROSOLWG A CHRAFFU?:

IS THE DECISION DEEMED URGENT AND NOT SUBJECT TO CALL-IN BY THE OVERVIEW AND SCRUTINY COMMITTEE:

NAC YDY | NO✓

Rheswm dros fod yn fater bryg | Reason for Urgency:

.....

Os yw'n cael ei ystyried yn fater bryg - llofnod y Maer/Dirprwy Faer/Pennaeth y Gwasanaeth Cyflogedig yn cadarnhau cytundeb fod y penderfyniad arfaethedig yn rhesymol yn yr holl amgylchiadau iddo gael ei drin fel mater bryg, yn unol â rheol gweithdrefn trosolwg a chraffu 17.2:

If deemed urgent - signature of Mayor or Deputy Mayor or Head of Paid Service confirming agreement that the proposed decision is reasonable in all the circumstances for it being treated as a matter of urgency, in accordance with the overview and scrutiny procedure rule 17.2:

.....
(Maer | Mayor)

.....
(Dyddiad | Date)

DS - Os yw hwn yn benderfyniad sy'n cael ei ail-ystyried yna does dim modd galw'r penderfyniad i mewn a bydd y penderfyniad yn dod i rym o'r dyddiad mae'r penderfyniad wedi'i lofnodi.

NB - If this is a reconsidered decision then the decision Cannot be Called In and the decision will take effect from the date the decision is signed.

AT DDEFNYDD Y SWYDDFA YN UNIG | FOR OFFICE USE ONLY

Rhagor o wybodaeth | Further Information:

Cyfadran Directorate:	Public Health, Protection & Community Services
Enw'r Person Cyswllt Contact Name:	Neil Pilliner
Swydd Designation:	Pollution & Public Health Manager
Rhif Ffôn Telephone Number:	01443 425519

RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

KEY DELEGATED DECISION

**REPORT TO ACCOMPANY A DECISION OF THE DIRECTOR OF PUBLIC
HEALTH, PROTECTION AND COMMUNITY SERVICES**

4TH JANUARY 2019

PUBLICATION OF THE 2018 AIR QUALITY PROGRESS REPORT

Author: Gareth Purnell, Pollution Control Officer (Air Quality)
Neil Pilliner, Pollution and Public Health Manager

1. PURPOSE OF THE REPORT

- 1.1 The purpose of this report is to seek approval to publish the “2018 Air Quality Progress Report” for public consultation. Appendix 1.
- 1.2 Dependent upon the outcome of said public consultation, to continue to undertake the Local Authority’s annual reporting duties in relation to the analysis of local air quality and review of local air quality management
- 1.3 In accordance with the Council’s scheme of delegation, this report has been prepared to accompany the intended Officer decision of the Director of Public Health, Protection and Community Services, as described below.

2. RECOMMENDATIONS

- 2.1 It is recommended that the “2018 Air Quality Progress Report” be published for public consultation; and
- 2.2 Delegate authority to the Director Public Health, Protection and Community Services, to consider the outcome of the public consultation and should it be deemed appropriate, accept the 2018 Air Quality Progress Report.

3. REASONS FOR RECOMMENDATIONS

- 3.1 The Local Authority conducts regular monitoring and review of ambient outdoor air quality within its area to determine compliance to statutory Air Quality Objectives, set by national government to protect public health. The 2018 Air Quality Progress Report provides the latest examination of local air quality and continues to reaffirm that the vast majority of Rhondda Cynon Taf exhibits good air quality but that there are still some localised areas which continue to be vulnerable to poor air quality.
- 3.2 It is acknowledged that local air quality will vary over time in response to changes to local, regional and national sources of pollutants as well as

fluctuations in climate and weather. As part of the regular review of local air quality, the 2018 Air Quality Progress Report has confirmed that all sixteen of the existing Quality Management Areas, declared in relation to breaches of the relevant Air Quality Objectives for Nitrogen Dioxide, are still pertinent and without local intervention, local air quality in these areas is unlikely to improve as quickly as is desirable.

- 3.3 It is likely that the compliance approach to the Air Quality Objectives, required by Local Air Quality Management and the burden reduction approach, intimated by Future Generation's requirements, will necessitate a strong collaborative approach with a number of partners. To encourage and support such an approach the Local Authority will continue to explore existing and new co-operative working arrangements with various stakeholders, including Cwm Taf Local Health Board.
- 3.4 The 2018 Air Quality Progress Report not only provides an update on measured and predicted local air quality but also assesses the various actions the Local Authority may be taking that could influence local air quality. The 2018 Air Quality Progress Report provides a review of recently proposed developments and a range of adopted policies that could influence local air quality or the progress being made towards compliance. In addition, it provides an update on the implementation of actions relevant to the adopted Air Quality Action Plans for each extant Air Quality Management Area. In doing so, it is recognised that in the current funding climate, advancing actions that have the potential to deliver multi-agenda benefits and the maximisation of overall positive outcomes is most likely to have the greatest likelihood of obtaining sufficient resourcing. Nonetheless, available resource will remain limited given the needs of other competing priorities, as such continued progress in implementing actions associated with the sixteen Air Quality Action Plans may be limited in the near term.
- 3.5 To ensure effective prioritisation of resources, continued accountability, developing co-ordination with stakeholders, public participation and continuity of the Local Authority's local air quality management duties it is necessary to publish, initially for consultation, the 2018 Air Quality Progress Report.

4. BACKGROUND

- 4.1 The Local Authority annually reports on local air quality within its area. The 2018 Air Quality Progress Report provides the latest examination of all relevant local air quality information. It confirmed that the sixteen extant Air Quality Management Areas, declared in relation to breaches of a relevant Air Quality Objective for Nitrogen Dioxide, within Rhondda Cynon Taf remain pertinent and have in place corresponding Air Quality Action Plans that are being advanced, in part, where resources allow.
- 4.2 Nitrogen Dioxide is a toxic gas which in concentrations above the relevant Air Quality Objective may reduce the quality and length of life of chronically exposed individuals. Evidence suggests that the lowest social economic

groups are most likely to experience poor air quality and are likely to be the most adversely affected by it.

- 4.3 Pursuant to the Well-being of Generations (Wales) Act 2015, the level of Nitrogen Dioxide in ambient air has been set as National Indicator No. 4. The National Indicator will take an alternative burden reduction approach aimed at achieving a reduction in the population weighted general level of Nitrogen Dioxide throughout Rhondda Cynon Taf. Progress in achieving improvement will be gauged against milestones, the achievement of which will be reported in a Future Trends Report produced by Welsh Government.
- 4.4 The 2018 Air Quality Progress Report provides up to date consideration of all local air quality, including the reasons why levels of Nitrogen Dioxide were elevated in certain distinct locations. It also provides the evidence base to enable the consideration of the effectiveness of actions undertaken to improve local air quality and how proposed developments or Local Authority policies could have a material effect on local air quality.
- 4.5 In considering the reasons for elevated levels of Nitrogen Dioxide within certain limited areas of Rhondda Cynon Taf, several common reasons continue to have relevance. These include the importance of local topography & urban environment and the volume, speed and composition of road traffic, as well as the management of this traffic, along roads within, or nearby to, each AQMA. Often strategic arterial roads, for instance the A470 and the A4119, are having a demonstrable effect at certain vulnerable locations.
- 4.6 It is acknowledged that when working towards achieving compliance to an AQO within an AQMA, it may be necessary to draw upon a range of both national and local actions. Currently the Local Authority has adopted corresponding AQAPs that identify and facilitates bespoke locally targeted measures which the Local Authority should draw upon to work towards achieving compliance within the associated AQMA.
- 4.7 The Air Quality Action Plans contain a wide range of actions and may include multiple actions with the aim to achieve compliance. Statutory guidance from Welsh Government and the Well-being of Future Generations (Wales) Act 2015 now requires a multi-agenda outcome approach when considering actions which may be appropriate for inclusion with an Air Quality Action Plan. This not only looks to support a compliance-effectiveness process but also requires a wider cost benefit analysis which seeks to identify and promote possible wider benefits of any programme of intervention. In particular, wider benefit considerations should take account of the wider air pollution Burden-Reduction approach as well as the Climate Change, Noise Action Planning and Public Services Board Priority agendas.
- 4.8 It is currently expected that the Local Authority will report annually on local air quality management including any progress in implementing its adopted AQAP and will, by 2020, review the AQAP effectiveness and any need to modify it to ensure pertinence in an ever changing environment.

5. EQUALITY AND DIVERSITY IMPLICATIONS

- 5.1 The 2018 Air Quality Progress Report does not in itself stipulate any actions or a course of conduct that would have equality and diversity implications, as such an EqIA is not deemed necessary at this time.

6. CONSULTATION

- 6.1 To discharge its statutory responsibilities, the Local Authority will consult upon the 2018 Air Quality Progress Report with the public and other statutory consultees including the Welsh Government who will peer review its findings.

7. FINANCIAL IMPLICATION(S)

- 7.1 The 2018 Air Quality Progress Report does not inherently allocate resources for the progression of actions associated with the Air Quality Action Plans. Instead, to date there has been a reliance on obtaining external funding opportunities to provide some resourcing of multi-agenda effecting actions. However, due to structural re-arrangements to these external funding opportunities, future accessibility may become limited.

- 7.2 The 2018 Air Quality Progress Report recommends continuing the current level of provision with regards local air quality monitoring and analysis. At present this is estimated to have a direct cost (not staff and on-costs) of approximately £20,000 per year which is covered by existing budgets. However, several significant pieces of monitoring equipment utilised by the Local Authority have been in use for more than fifteen years and are approaching their perceived end of life. As a result without some capital investment, it is likely that either annual costs will increase as a result of attempts to extend the lifespan of existing equipment or it may become necessary to rationalise elements of the current monitoring network.

8. LEGAL IMPLICATIONS OR LEGISLATION CONSIDERED

- 8.1 Rhondda Cynon Taf County Borough Council is under a legal obligation, in accordance with Section 82(1) of the Environment Act 1995 [the Act] to review local air quality within its area and make an assessment of likely compliance to the relevant statutory Air Quality Objectives as set in regulations.
- 8.2 The 2018 Air Quality Progress Report does not recommend any actions that would require further legal instruments, for instance the declaration by Order of an Air Quality Management Plan or the adoption of a statutory Air Quality Management Plan, to be initiated.
- 8.3 To maintain consistency with statutory guidance¹ and the principles and working practices necessary to facilitate the goals of the Future Generations (Wales) Act 2015, the 2018 Air Quality Progress Report has been compiled in

¹ Welsh Government, Local Air Quality Policy Guidance for Wales LAQM.PG(17)(W), 2017

accordance with the Welsh Government issued reporting template for local air quality management.

- 8.4 It is the current opinion of the Local Authority that, dependent upon public consultation, to accept the 2018 Air Quality Progress Report and to continue the monitoring and assessment of local air quality.
- 8.5 It is not believed that the Local Authority is under a legal obligation to achieve compliance to an Air Quality Objective or to immediately fully implement an Air Quality Action Plan per se. However, it is required to annually demonstrate its pursuit of achievement of compliance to an Air Quality Objective.
- 8.6 Under Section 85 of the Act the National Assembly of Wales may compel the Local Authority to act in a certain way in regard to local air quality. Recent statutory guidance has clarified that such a direction will be issued to instruct the Local Authority to undertake its local air quality management duties, including declaring, amending or revoking an Air Quality Management Area, should Welsh Government feel it necessary to do so. In addition, the Localism Act 2011 may provide a mechanism for the Welsh Minister to recover any costs as a result of infraction proceedings brought against the United Kingdom as a result of an 'EU Limit Value' air quality standard not being achieved due to the inaction of Rhondda Cynon Taf County Borough Council.
- 8.7 Current advice from Welsh Government is that until such time as the United Kingdom withdraws from the EU, all air quality management duties transposed from EU legislation shall be adhered to. It is also noted that local air quality management duties are an obligation derived from United Kingdom primary legislation in its own right.

9. **LINKS TO THE CORPORATE AND NATIONAL PRIORITIES AND THE WELL-BEING OF FUTURE GENERATIONS ACT**

- 9.1 Both mortality and morbidity factors associated with poor air quality have increased in precedence as understanding of the health impact of air quality has improved. This includes a greater appreciation of the accumulative impacts poor air quality can have on deprived communities which may already be affected by higher rates or poor health.
- 9.2 In regard to "People – Promoting independence and positive lives for everyone" within the Well-being Objectives Plan. Although not an identified action per se, local air quality management may directly bring about improved health outcomes for local communities. This could be directly achieved by improving the quality of air these communities may regularly experience, as well as addressing the perceptions of poor air quality and its affect on local amenity.
- 9.3 In regard to "Economy – Building a strong Economy" within the Well-being Objectives Plan. Many of the actions within the extant sixteen AQAPs may incidentally support the efforts to achieve this Objective. For instance measures to increase and support public transport and resultant community connectivity can have a driving effect for local and regional economic development.

9.4 Local air quality management statutory guidance now incorporates the principles and ways of working associated within the Well-being of Future Generations Act. By fully abiding by this guidance and utilising a method that acknowledges and promotes sustainable multi-agenda delivery, the 2018 Air Quality Progress Report furthers the Local Authority delivery of WFG.

10. CONCLUSION

10.1 The Local Authority has produced the 2018 Air Quality Progress Report and will publish its findings for public dissemination and comment.

10.2 The Local Authority has identified that it is necessary, subject to the outcome of public consultation, to accept the assessment of local air quality and the review of actions, developments and policies which may affect local air quality management.

10.3 To comply with statutory obligations and promote understanding of the situation, a comprehensive consultation will be undertaken. The responses received, including that from the Welsh Government, will be considered prior to any final decision being made and if necessary this matter will be re-examined.

Other Information:-

Relevant Scrutiny Committee

Health and Wellbeing Scrutiny



LOCAL GOVERNMENT ACT 1972

AS AMENDED BY

THE LOCAL GOVERNMENT (ACCESS TO INFORMATION) ACT 1985

RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

4TH JANUARY 2019

**REPORT TO ACCOMPANY A DECISION OF THE DIRECTOR OF PUBLIC
HEALTH, PROTECTION AND COMMUNITY SERVICES**

PUBLICATION OF THE 2018 AIR QUALITY PROGRESS REPORT

Background Papers:

None

Contact Officer:

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DYDDIADAU CYHOEDDI A GWEITHREDU | PUBLICATION & IMPLEMENTATION DATES

CYHOEDDI | PUBLICATION

Cyhoeddi ar Wefan y Cyngor | Publication on the Councils Website:- 24th January 2019

DYDDIAD | DATE

GWEITHREDU'R PENDERFYNIAD | IMPLEMENTATION OF THE DECISION

Nodwch: Fydd y penderfyniad hwn ddim yn dod i rym nac yn cael ei weithredu'n llawn nes cyn pen 3 diwrnod gwaith ar ôl ei gyhoeddi. Nod hyn yw ei alluogi i gael ei "Alw i Mewn" yn unol â Rheol 17.1, Rheolau Gweithdrefn Trosolwg a Chraffu.

Note: This decision will not come into force and may not be implemented until the expiry of 3 clear working days after its publication to enable it to be the subject to the Call-In Procedure in Rule 17.1 of the Overview and Scrutiny Procedure Rules.

Yn amodol ar y drefn "Galw i Mewn", caiff y penderfyniad ei roi ar waith ar / Subject to Call In the implementation date will be

30th January 2019
DYDDIAD / DATE

WEDI'I GYMERADWYO I'W GYHOEDDI: ✓ | APPROVED FOR PUBLICATION :✓

CYNGOR BWRDEISTREF SIROL RHONDDA CYNON TAF
RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

2018 Adroddiad Cynnydd o Ansawdd Aer

2018 Air Quality Progress Report

Wrth gyflawni Rhan IV o Ddeddf yr Amgylchedd 1995 Rheoli
Ansawdd Aer Lleol

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



Rhagfyr 2018

December 2018

Mae'r Adroddiad ar Gynnydd 2018 wedi ei baratoi a'i gyhoeddi gan Gyngor Bwrdeistref Sirol Rhondda Cynon Taf yn unol â'i ddyletswyddau o dan Adran IV o Ddeddf yr Amgylchedd 1995. Oni nodir fel arall, barn a sylwadau Cyngor Bwrdeistref Sirol Rhondda Cynon Taf yn unig sy'n cael eu mynegi yn yr Adroddiad ar Gynnydd 2018.

Yn unol â Chynllun y Gymraeg 2018, ystyrir y ddogfen yma'n un dechnegol a fyddai o ddiddordeb i gynulleidfa fach o bobl yn unig, ac felly mae'i chyhoeddi yn y Saesneg. Fodd bynnag, bydd modd gofyn am fersiwn Gymraeg ohoni.

The 2018 Progress Report has been produced and issued by Rhondda Cynon Taff County Borough Council in fulfilment of its duties under Part IV of the Environment Act 1995. Unless otherwise stated all opinions and views contained within the 2018 Progress Report are that of Rhondda Cynon Taff County Borough Council only.

In accordance with Rhondda Cynon Taff's Welsh Language Scheme 2018 Progress Report is deemed to be a technical document of limited public interest and has therefore been produced in English. A Welsh version, however, can be made available on request.

Local Authority Officer	Neil Pilliner Pollution & Public Health Manager
Department	Public Health and Protection
Address	Ty Elai Dinas Isaf East Williamstown Tonypandy CF40 1NY
Telephone	01443 425001
E-mail	EnvironmentalPollution@rhondda-cynon-taff.gov.uk
Report Reference number	2018PR
Date	17 th December 2018

Crynodeb Gweithredol: Ansawdd Aer yn Ein Hardal

Ansawdd Aer yn Rhondda Cynon Taf

Mae Cyngor Bwrdeistref Sirol Rhondda Cynon Taf [yr Awdurdod Lleol] yn cydnabod bod modd i ansawdd aer gwael effeithio ar iechyd pobl a bod modd i ansawdd aer da fod yn bwysig o ran gwella hyd ac ansawdd bywyd. Yn ôl y gyfraith, mae angen i'r Awdurdod Lleol fesur ansawdd aer yn rheolaidd yn ei ardaloedd mewn perthynas â'r Amcanion Ansawdd Aer. Wrth wneud hynny, mae'r Awdurdod Lleol wedi amlygu dau lygrydd aer – nitrogen deuocsid [NO₂] a deunydd gronynnol mân [PM₁₀] – mae angen eu harchwilio'n fwy manwl. Mae'r Adroddiad yn cynnwys asesiad o ddata monitro diweddar ar gyfer NO₂ a PM₁₀, yn ogystal ag adolygiad o ddatblygiadau wedi eu caniatáu yn ddiweddar, manau o ddi-ddordeb parhaus a newydd, a pholisïau perthnasol yr Awdurdod Lleol.

Mae gan y rhan fwyaf o sir Rhondda Cynon Taf ansawdd aer da ac mae hynny'n debygol o barhau felly yn y dyfodol, ac mae'n bosibl y bydd hy'n well hyd yn oed. Dim ond rhai ardaloedd bach sy'n gysylltiedig â chyffyrdd ffyrdd trefol prysur, y rhwydwaith ffyrdd rhanbarthol neu ffynonellau lleol penodol sy'n debygol o gael ansawdd aer gwael. Mae llawer o'r ardaloedd sydd mewn perygl – sy'n gysylltiedig â lefelau uwch o NO₂ – eisoes wedi cael eu henwi'n Ardaloedd Rheoli Ansawdd Aer ac, yn wahanol i'r rhan fwyaf o'r lleoliadau, mae'n bosibl fydd ansawdd aer yn yr ardaloedd hyn ddim yn gwella mor gyflym ag eraill.

Ar hyn o bryd, mae 16 o Ardaloedd Rheoli Ansawdd Aer yn Rhondda Cynon Taf ar gyfer torri Amcanion Ansawdd Aer o ran NO₂. Serch hynny, mae'r Ardaloedd Rheoli Ansawdd Aer o faint cyfyngedig ac maen nhw wedi'u dosbarthu ledled y Fwrdeistref. Mae'r data monitro diweddaraf yn cadarnhau bod yr 16 Ardal Rheoli Ansawdd Aer yn parhau i fod yn berthnasol.

Mae'n bosibl y gallai effaith Chwarel Craig yr Hesg ar lefelau PM₁₀ lleol barhau i gael ei orchfygu yn ystod 2017. Gallai'r newid yma, sydd wedi dod i sylw ers 2015, fod o ganlyniad i welliannau parhaus i leihau allyriadau PM₁₀ o Chwarel Craig Yr Hesg. Mae newidiadau naturiol i dywydd lleol, a newidiadau yn Chwarel Craig-yr-hesg yn y dyfodol, yn golygu ei bod hi'n anodd gwybod a fydd cydymffurfiaid yn parhau yn y dyfodol. Bydd yr Awdurdod Lleol, felly, yn parhau i fonitro lefelau PM₁₀ yng Nglyn-coch yn gadarn iawn.

Camau i Wella Ansawdd Aer

Os nad oes ymyrraeth, mae'n amlwg nad yw ansawdd aer lleol o fewn ardaloedd sy'n cael eu heffeithio fwyaf yn Rhondda Cynon Taf yn debygol o wella cyn gynted ag y dymunir. Mae'r Awdurdod Lleol wedi mabwysiadu Cynllun Gweithredu Ansawdd Aer ar gyfer pob Ardal Rheoli Ansawdd Aer. Gan fod amgylchiadau'n gallu newid, bydd yr Awdurdod Lleol yn cynnal adolygiadau rheolaidd o'r Cynlluniau Gweithredu Ansawdd Aer. Y dysgwyl yw y bydd adolygiad nesaf pob un o'r cynlluniau wedi'i gwblhau erbyn diwedd 2020.

Oherwydd adnoddau cyfyngedig, ni fu'n bosibl gweithredu'r holl gamau cynlluniau gweithredu ar unwaith. Serch hynny, mae wedi bod yn bosibl i gwblhau newidiadau i

gyffordd gogleddol Broadway er mwyn gwella capasiti ac effeithlonrwydd. Yn ogystal â hynny, mae'r Awdurdod Lleol yn mynd rhagddo â champau pellach i wella defnyddioldeb ac ymwybyddiaeth o lwybrau teithio llesol a dewisiadau trafndiaeth leol gynaliadwy .

Yr hyn sy'n hanfodol o ran dilyniant yr Cynlluniau Gweithredu yw'r gallu i gael digon o adnoddau. Mae'r Awdurdod Lleol yn cydnabod y bydd angen ystyried natur newidiol grantiau amrywiol Llywodraeth Cymru i gael digon o adnoddau er mwyn galluogi rhoi'r Cynlluniau Gweithredu ar waith yn y dyfodol.

Blaenoriaethau a Heriau Lleol

Mae'r Awdurdod Lleol yn cydnabod bod ansawdd aer da yn bwysig iawn wrth gyflwyno ei agenda gynhwysfawr. Ac felly, bydd yr Awdurdod Lleol yn parhau i geisio datblygu ei Gynlluniau Gweithredu Ansawdd Aer a fabwysiadwyd, yn ogystal â bodloni'r gofynion monitro ac adrodd disgwylidig.

Mae'r Awdurdod Lleol hefyd yn cydnabod nifer o heriau er mwyn darparu ansawdd aer lleol da. Y rhai mwyaf amlwg yw: -

- Dyfalbarhad tebygol yr amgylchedd lle mae'r adnoddau sydd wedi'u dyrannu ar hyn o bryd o dan bwysau sylweddol, ac yn wynebu cystadleuaeth barhaus o agendâu eraill â blaenoriaeth.
- Addasu i newidiadau sylweddol diweddar i fframweithiau cyllido grantiau sydd bellach yn gofyn bod yr Awdurdod Lleol yn canolbwyntio ar yr agenda amgylcheddol ehangach a'r posibilrwydd o gynyddu cystadleuaeth am adnoddau o brosiectau amgylcheddol pwysig eraill.
- Trefoli parhaus, a'r rhwystrau cenedlaethol a lleol posibl sy'n wynebu'r mgweithrediad cyflym o ddatrysiadau cludiant glanach newydd

Sut i Gymryd Rhan

Mae rhagor o wybodaeth ar ansawdd aer lleol yn Rhondda Cynon Taf, gan gynnwys y canlyniadau monitro diweddaraf, ar gael ar wefan "Ansawdd Aer Cymru": -

<https://airquality.gov.wales/cy>

Executive Summary: Air Quality in Our Area

Air Quality in Rhondda Cynon Taf

Rhondda Cynon Taff County Borough Council [the Local Authority] recognises poor air quality can affect people's health and that good air quality can be important in improving the length and quality of people's lives. The law requires the Local Authority to regularly check air quality in its areas against Air Quality Objectives [AQO]. In doing so, the Local Authority has identified two air pollutants, Nitrogen Dioxide [NO₂] and Fine Particulate Matter [PM₁₀], as requiring closer examination. This Report contains an assessment of recent monitoring data for NO₂ and PM₁₀ as well as a review of newly consented developments, new and ongoing areas of interest and relevant Local Authority policies.

The vast majority of Rhondda Cynon Taf experiences good air quality which is likely to remain so into the future, and potentially even improve. Only some small areas associated with busy urban road junctions, the regional road network or specific local sources are likely to be vulnerable to poor air quality. Many of these vulnerable areas, linked to high levels of NO₂, have already been declared Air Quality Management Areas [AQMAs] and in contrast to most locations, the air quality in these vulnerable areas may not improve as quickly as elsewhere.

Currently Rhondda Cynon Taf has sixteen AQMAs for breaches of AQOs for NO₂, however, the majority of the AQMAs are of limited size and are distributed throughout the Borough. The most recently available monitoring data confirms that the sixteen AQMAs remain relevant.

It is possible that during 2017 the impact of Craig Yr Hesg Quarry on local PM₁₀ levels may have continued to have been subdued. This change, which has been observed since 2015, may be as a result of ongoing improvements to reduce PM₁₀ emissions from Craig Yr Hesg Quarry. Natural changes to locally prevailing weather and future changes at Craig Yr Hesg Quarry, means it is difficult to know if future compliance will continue. As such the Local Authority will continue to robustly monitor PM₁₀ levels at Glyncoch.

Actions to Improve Air Quality

It is clear that, without intervention, local air quality within the most vulnerable areas of Rhondda Cynon Taf is unlikely to improve as quickly as desired. The Local Authority has adopted a bespoke AQAP for each of its sixteen AQMAs. As circumstances can change the Local Authority will regularly undertake reviews of these AQAPs, with the next review of all sixteen AQAPs expected to be completed by the end of 2020.

Due to limited resources, it has not been possible to immediately implement all AQAP actions. However, it has been possible to complete changes to the northern junction of Broadway so as to improve capacity and efficiency. In addition, the Local Authority is progressing further actions to improve usability and awareness of active travel routes and local sustainable transport options.

Fundamental to the progression of the AQAPs is the ability to obtain adequate resources, it is recognised that the changing nature of various Welsh Government's

grants will need to be considered to obtain sufficient resourcing to enable future AQAP implementation.

Local Priorities and Challenges

The Local Authority recognises that good air quality has significant importance in the delivery of its comprehensive agenda. As such the Local Authority will continue to seek to progress its adopted Air Quality Action Plans as well as fulfil expected monitoring and reporting requirements.

The Local Authority also recognises a number of challenges to the delivery of good local air quality, most notably: -

- The likely persistence of an environment where currently allocated resources are significantly under pressure and will face continued competition from other priority agendas.
- Adaption to recent significant changes to grant funding frameworks which now require a focus on the wider environmental agenda and the potential for increased competition for resources from other important environmental projects.
- Continued urbanisation and the potential national and local obstacles faced with the rapid adoption of emergent cleaner transport solutions

How to Get Involved

Further information on local air quality within Rhondda Cynon Taf, including up-to-date monitoring results, can be obtained from the "Air Quality In Wales" website, found at: -

<https://airquality.gov.wales/>

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1. Actions to Improve Air Quality

1.1 Previous Work in Relation to Air Quality

The Local Authority periodically produces reports on local air quality. In response to the statutory reporting regime, over the years a considerable amount of reporting has taken place, for completeness a summary of these reports is provided below :-

- **Stage 1 (1998)**
Commencement of modern day Local Air quality Management initiated the Local Authority to undertake a desktop review of local air quality. This examination determined it was unlikely that any AQOs were being or would be breached but that monitoring of some pollutants was necessary to confirm.
- **Stage 2 (1999)**
Monitoring data confirmed that, at the time, it was unlikely that any AQOs were being or would be breached.
- **Updating and Screening Assessment (2003)**
Combined review of available monitoring data and desktop assessment of likely significant air pollution sources determined that it was unlikely, at that time, that any AQOs were being or would be breached.
- **Progress Report (2004)**
New monitoring data identified a risk of breaching the annual mean AQO for NO₂ at seven locations, however, a review of the relevance of existing monitoring locations identified the need for additional monitoring before conclusive findings can be made.
- **Progress Report (2005)**
New relevant monitoring data at reviewed locations confirmed a risk of breaching the annual mean AQO for NO₂ at five locations and acknowledged need for a Detailed Assessment to provide confirmation.
- **Updating and Screening Assessment (2006)**
Monitoring data confirmed a continued risk of breaching the annual mean AQO for NO₂ at eight locations
- **Updating and Screening Assessment + Detailed Assessment (2007)**
Based upon conclusive monitoring data and officer assessment of each area, eight AQMAs were declared for breaches of the annual mean AQO for NO₂. Analysis at the time also confirmed no other AQOs were expected to be breached.
- **Progress Report (2008)**
Due to the evolving nature of air quality and relevant monitoring data it was identified that there was a need for a Detailed Assessment of six additional new

areas at risk of breaching the annual mean AQO for NO₂. In addition a need for further investigation of PM₁₀ at Glyncoch was also highlighted.

- **Updating and Screening Assessment + Detailed & Further Assessments (2009)**
Based upon additional monitoring data it was determined that four existing AQMAs required expanding to capture adjacent areas breaching the AQO, five new locations in breach of the annual mean AQO for NO₂ and 1-hour mean AQO for NO₂ breached in the existing A473 AQMA. In addition so as to incorporate new areas in breach of the annual mean AQO for NO₂, five additional AQMAs were determined as necessary. Source apportionment analysis was also undertaken of all the AQMAs to identify the likely causes of elevated levels of NO₂. This identified local road traffic, urban design and topography as key factors resulting in the necessity for all the AQMAs. It was also determined that indicative monitoring of PM₁₀ at Glyncoch identified a risk of breaching the 24-hour daily mean AQO for PM₁₀ and further in-depth monitoring was necessary to enable conclusive consideration of the situation.
- **Progress Report (2010)**
New monitoring data identified three further locations outside of existing AQMAs where potential breaches of the annual mean AQO for NO₂ were possible.
- **Progress Report + Detailed & Further Assessments (2011)**
Based upon available monitoring data, four existing AQMAs were expanded to cover additional areas breaching the annual mean AQO for NO₂.
- **Updating and Screening Assessment (2012)**
Based upon a review of available evidence, three locations outside of existing AQMAs were identified as requiring Detailed Assessment for possibly breaches of the annual mean AQO for NO₂.
- **Progress Report + Detailed Assessment + Air Quality Action Plan (2013)**
Completion of an AQAP action and resultant possible sustained improvement to local air quality results in the need to review the A473 AQMA to take account of significant changes to sources of NO₂ within AQMA. In regards to thirteen existing AQMAs, corresponding AQAPs produced advocating a range of bespoke and more general measures to improve air quality.
- **Progress Report + Further Assessment + Detailed Assessment (2014)**
As a result of new monitoring data it was identified that a breach of 1-hour mean AQO for NO₂ at two existing AQMAs was likely. Additional assessment of six further locations outside of existing AQMAs was considered necessary, to establish if the annual mean AQO for NO₂ was at risk of being breached. As a result of the Church Village Bypass and demonstrable sustained improvement in local air quality, the A473 AQMA was revoked and replaced by two significantly smaller AQMAs. Detailed Assessment for PM₁₀ at Glyncoch identified elevated levels of PM₁₀ but further monitoring was required to clarify the situation. Craig Yr Hesg Quarry identified as a likely significant local source of PM₁₀ within Glyncoch.
- **Updating and Screening Assessment + Detailed & Further Assessments (2015)**

New AQMA for a breach of the annual mean AQO for NO₂ and the existing AQMA, previously declared for a breach of the annual mean AQO for NO₂ modified to include a breach of the 1-hour mean NO₂. Three AQAP actions completed likely producing slight improvement to air quality within two AQMAs.

- Progress Report (2016)
Existing AQMA, previously declared for a breach of the annual mean AQO for NO₂ modified to include a breach of the 1-hour mean NO₂.
- Progress Report + Air Quality Action Plan (2017)
Two new AQMAs declared, each for a breach of the annual mean AQO for NO₂. In addition, Llantwit Fardre AQMA revoked due to demonstrable sustained compliance to annual mean AQO for NO₂. AQAPs adopted for all remaining AQMAs, including most recently declared AQMAs.

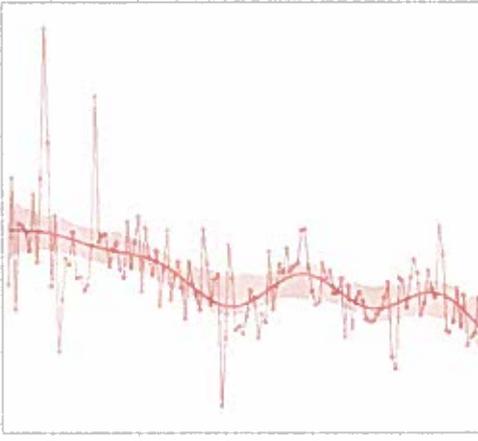
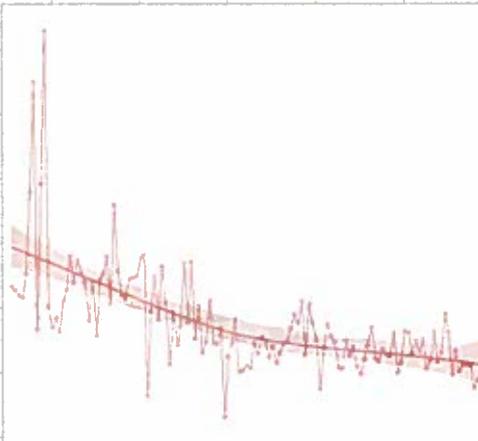
1.2 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when air quality is close to or above an acceptable level of pollution (known as the air quality objective (Please see Appendix A)). After declaring an AQMA the authority must prepare an Air Quality Action Plan (AQAP) within 18 months setting out measures it intends to put in place to improve air quality to at least the air quality objectives, if not even better. AQMA(s) are seen by local authorities as the focal points to channel resources into the most pressing areas of pollution as a priority.

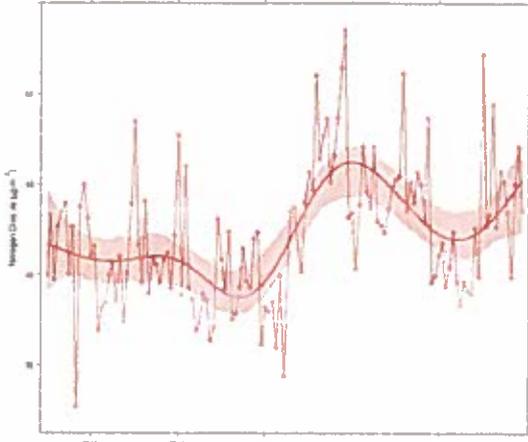
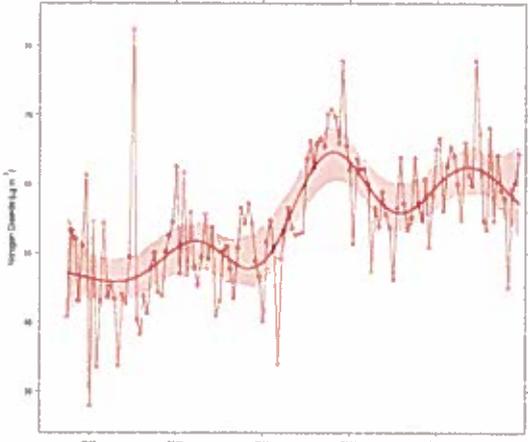
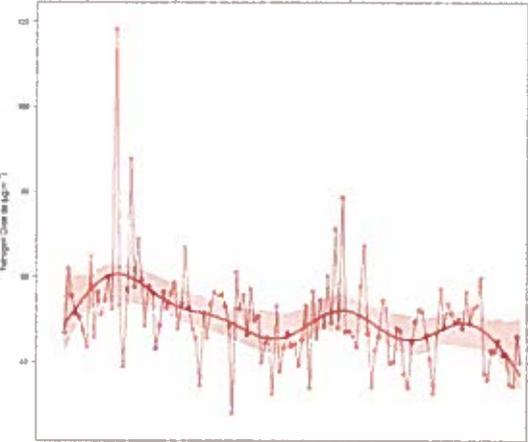
A summary of AQMAs declared by Rhondda Cynon Taf CBC can be found in Table 1.1 below; the table includes descriptive information on each AQMA and a time trend graph of the monitored average NO₂ measurements within the AQM from 2006 to 2017 as well as a quantification of the most recent five year trend (which may show a difference to the longer-term trend observed within the associated time trend graph). Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at the relevant Defra [webpage](https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=408)¹.

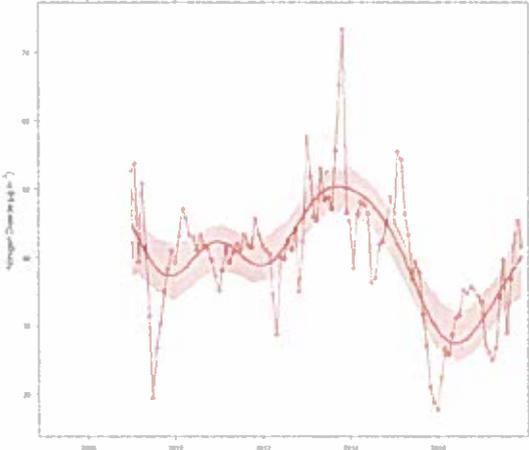
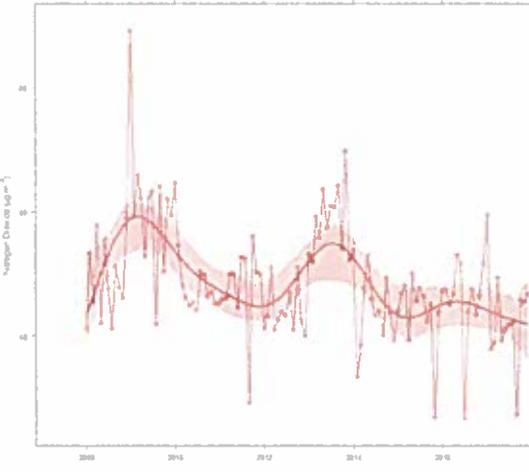
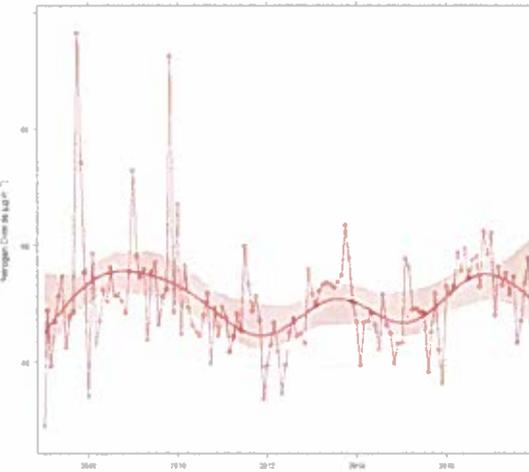
Table 1.1 – Declared Air Quality Management Areas

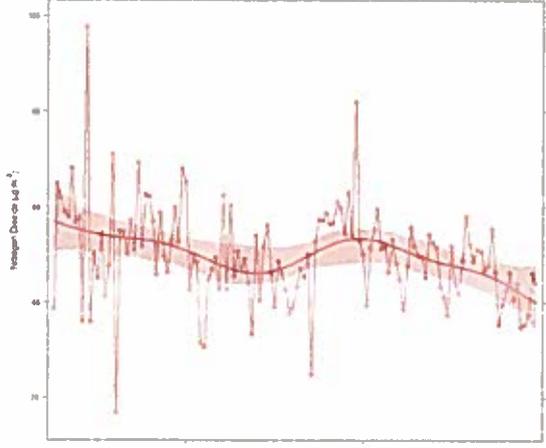
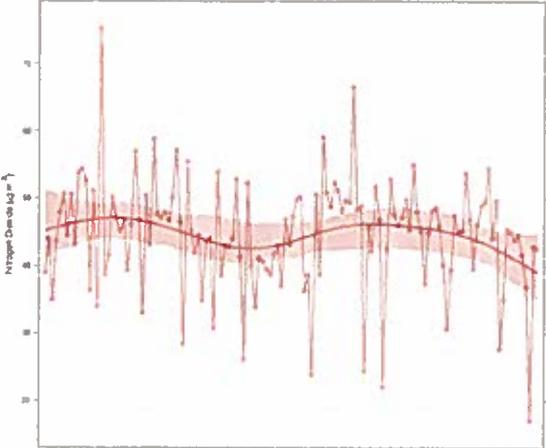
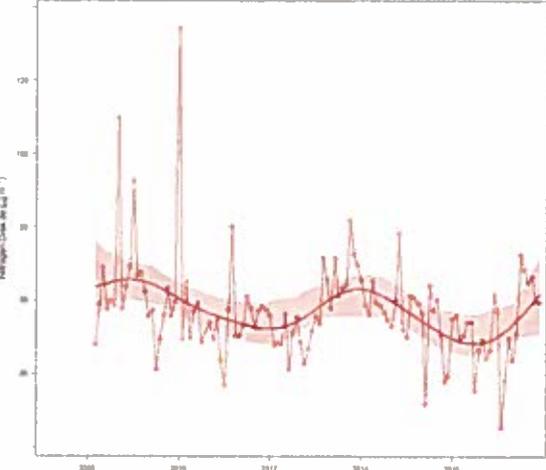
¹ https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=408

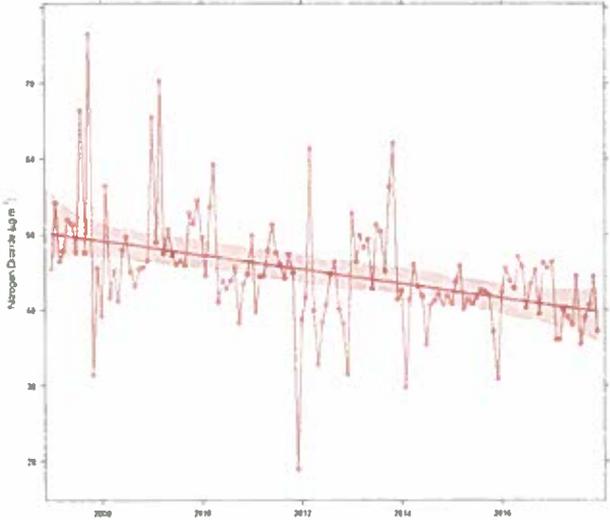
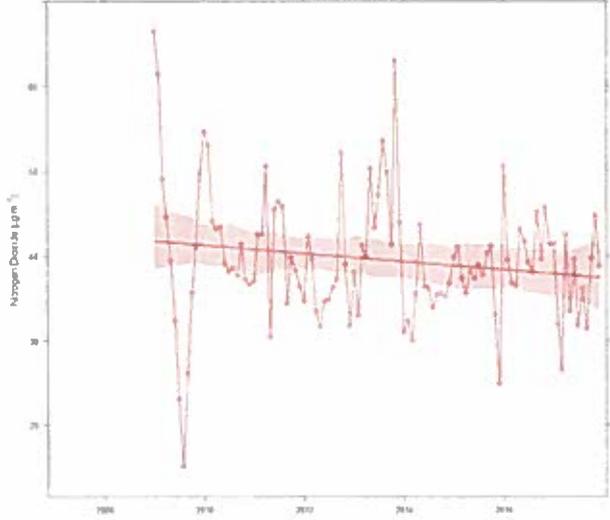
AQMA	Relevant Air Quality Objective(s)	Comments on Air Quality Trend ⁽¹⁾	Description ⁽²⁾
Aberdare Town Centre	NO ₂ annual mean	<p>-1.28% NO₂ yr⁻¹ five-year trend</p> 	All properties from High Street via Canon Street and Victoria Square to Cardiff St.
Broadway	NO ₂ annual mean	<p>-1.36% NO₂ yr⁻¹ five-year trend</p> 	All properties from Broadway via Fothergill St to Park St.
Church Village ²	NO ₂ annual mean	<p>-2.68% NO₂ yr⁻¹ five-year trend</p> 	Certain properties from Dyffryn Ter. to Main Rd.

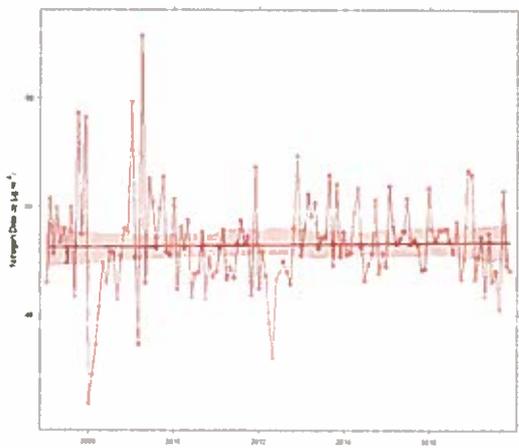
² A successor to the Tonteg – Church Village – Llantwit Fardre A473 Corridor AQMA

<p>Cilfynydd</p>	<p>NO₂ 1-hour & annual mean</p>	<p>-0.39% NO₂ yr⁻¹ five-year trend</p> 	<p>Certain properties from Pontshonnorton Rd to Merthyr Rd and the land west of these points to the eastern boundary of the A470.</p>
<p>Cymmer</p>	<p>NO₂ 1-hour & annual mean</p>	<p>2.18% NO₂ yr⁻¹ five-year trend</p> 	<p>All properties from High St to Trebanog Rd.</p>
<p>Ferndale</p>	<p>NO₂ annual mean</p>	<p>-3.83% NO₂ yr⁻¹ five-year trend</p> 	<p>Certain properties from The Strand via High St to Dyffryn St.</p>

<p>Llanharan</p>	<p>NO₂ annual mean</p>	<p>-8.49% NO₂ yr⁻¹ five-year trend</p> 	<p>Certain properties from The Sq to Chapel Rd.</p>
<p>Llwynypia</p>	<p>NO₂ annual mean</p>	<p>-0.52% NO₂ yr⁻¹ five-year trend</p> 	<p>All properties along Partridge Rd</p>
<p>Mountain Ash Town Centre</p>	<p>NO₂ annual mean</p>	<p>6.38% NO₂ yr⁻¹ five-year trend</p> 	<p>Certain properties from Oxford St to Ffrwyd St Cres and Seymour St.</p>

<p>Mwyndy</p>	<p>NO₂ annual mean</p>	<p>-4.53% NO₂ yr⁻¹ five-year trend</p> 	<p>One property at Mwyndy.</p>
<p>Nantgarw</p>	<p>NO₂ annual mean</p>	<p>-1.63% NO₂ yr⁻¹ five-year trend</p> 	<p>All properties at Graig View</p>
<p>Nightingales Bush</p>	<p>NO₂ annual mean</p>	<p>-3.2% NO₂ yr⁻¹ five-year trend</p> 	<p>All properties at Nightingales Bush to Pentrebach Rd</p>

<p>Pontypridd Town Centre</p>	<p>NO₂ annual mean</p>	<p>-1.18% NO₂ yr⁻¹ five-year trend</p> 	<p>All properties from Broadway via Gelliwastad Rd, Morgan St and High St to Taff St.</p>
<p>Tonyrefail</p>	<p>NO₂ annual mean</p>	<p>2.8% NO₂ yr⁻¹ five-year trend</p> 	<p>Certain properties at Mill St</p>
<p>Treforest</p>	<p>NO₂ annual mean</p>	<p>N/A</p>	<p>Certain properties at Cardiff St</p>

<p>Tylorstown</p>	<p>NO₂ annual mean</p>	<p>0.32% NO₂ yr⁻¹ five-year trend</p> 	<p>Certain properties at East Rd.</p>
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(1) Trend analysis is indicative for comparison only and as an average may not be reflective of all areas within the respective AQMA.

(2) AQMA boundary maps and corresponding AQAPs within Rhondda Cynon Taf CBC can be viewed on the relevant Defra [webpage](https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=408)³.

³ https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=408

1.3 Implementation of Action Plans

Rhondda Cynon Taf CBC has taken forward a number of measures in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 1.2. More detail on these measures can be found in the Air Quality Action Plan relating to any designated AQMA.

Air Quality Action Plans are continuously reviewed and updated whenever deemed necessary, but no less frequently than once every five years. Such updates are completed in close consultation with local communities.

Key completed measures completed in 2017 are:

- In regards to the Broadway AQMA, works have been successfully completed to increase the number of carriageways (and hence the capacity of the road) turning right from Broadway onto the A4058 and the reprogramming of the traffic light controlled junction to capitalise on the increased efficiency of the junction. It is likely this completed measure has resulted in a slight reduction in the level of NO₂ within the northern part of the Broadway AQMA.

Rhondda Cynon Taf CBC expects the following measures to be completed over the course of the next reporting year:

- Production of combined public transport and active travel advice leaflets relevant to the Pontypridd Area, which can be distributed to the relevant communities via service gateways and partner organisations. It is believed this measure will help enable relevant local communities to make informed travel decisions and encourage the uptake of active travel as well as improve the sustainability of local public transport. It is possible this measure may have an impact on the Broadway, Cilfynydd, Nightingales Bush, Pontypridd Town Centre and Treforest AQMAs.
- Repair of existing and where necessary the installation of new street lighting connected with the active travel route to Pontypridd High School, Cilfynydd so as to improve the desirability of the route and encourage its use. It is possible this measure may have an impact on the Cilfynydd AQMA.
- Engagement with Pontypridd High School, Cilfynydd and Ferndale High School, Ferndale to improve student awareness of environmental matters including local air quality. It is possible this measure may have an impact on the Cilfynydd and Ferndale AQMAs.

Table 1.2 – Progress on Measures to Improve Air Quality

No.	Measure	Focus	Lead Authority (Primary Funding Source(s))	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress (Progress in last 12 Months in Bold)	Est. Completion Date	Comments Relating to Emission Reductions
1	Congestion Management Aberdare Town Centre	Phase 1 Modification of existing traffic light controlled junction within the AQMA	RCTCBC (WG Environment Grant Fund)	2013	2014	4% inc. in mean speed 25% reduction in vehicles waiting for longer than 5 minutes	7% NO ₂ at Cardiff St (North)	Analysis of existing traffic light controlled junction at Cardiff Rd/Cross St, Aberdare and resultant reprogramming to favour traffic flow within the Aberdare AQMA above traffic queuing to enter or cross the AQMA.	Complete	Reduction at Cardiff St (North) of 1.4% NO ₂ but increase at Cardiff St (South) of 0.2% NO ₂
		Phase 2 Further upgrading of traffic light controlled junction within the AQMA	RCTCBC (WG Environment Grant Fund)	2015	2016			Works to improve existing traffic light controlled junction at Cardiff Rd/Cross St, Aberdare to enable wait detection and pedestrian use to improve traffic light sequence efficiency.	Complete	
2	Congestion Management Mt Ash Town Centre	Modification of existing traffic light controlled junction within the AQMA	RCTCBC (WG Environment Grant Fund)	2013	2014	2-6% inc. in mean speed. 10% reduction in vehicles waiting for longer than 5 minutes	7% NO ₂ at Oxford St 4% NO ₂ at New Rd	Analysis of existing traffic light controlled junctions at Oxford St and New Rd, Mt Ash and resultant reprogramming to favour traffic flow within the Mt Ash AQMA above traffic queuing to enter or cross the AQMA.	Complete	Insignificant change at New Rd and Oxford St

No.	Measure	Focus	Lead Authority (Primary Funding Source(s))	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress (Progress in last 12 Months in Bold)	Est. Completion Date	Comments Relating to Emission Reductions
3	Highway Improvement A473/B4595 Corridor	Church Village Bypass to relieve traffic from existing local roads	RCTCBC (RCT+WG)	2008	2010	-	23% reduction in NO ₂ at Tonteg 51% reduction in NO ₂ at Church Village 23% reduction in NO ₂ at Llantwit Fardre	Construction and operation of new 7km A473, providing relief to B4595. Changes to traffic flow from relief road fully manifested	Complete	36% reduction in NO ₂ at Tonteg 35% reduction in NO ₂ at Church Village 20% reduction in NO ₂ at Llantwit Fardre
4	Highway Improvement Broadway	Increasing the number of carriageways turning right from Broadway onto the A4058	RCTCBC	2016	2017	25% reduction in vehicles traversing Broadway (North) waiting for longer than 5 minutes	3% NO _x at Broadway (North)	Planning stage to determine design and engineering approach to works. Funding allocated and works undertaken, with resultant re-programming of traffic light controlled junction to accommodate the greater vehicle capacity likely reducing waiting time of vehicles within the Broadway AQMA	Complete	TBC

No.	Measure	Focus	Lead Authority (Primary Funding Source(s))	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress (Progress in last 12 Months in Bold)	Est. Completion Date	Comments Relating to Emission Reductions
5	Highway Improvement Mt Ash	Mountain Ash Cross Valley Link (south) to relieve traffic from the existing local roads	RCTCBC (RCT+WG)	Pre 2018	2018-2020	-	Effect on AQMA not predicted but max 10.4% reduction in NO ₂ south of AQMA but potential for 4.8% increase in NO ₂ along New Rd (south of AQMA)	Planning and design stages and land appropriation completed, with sympathetic major improvement of existing A4059 Jct. to enable future bypass works. Future construction phase commenced July 2018 with completion estimated in 2020	2020	TBC
6	Public Information Broadway Cifynydd Nightingales Bush Pontypridd Town Centre	Public and active travel advice leaflets relevant to the Pontypridd area.	RCTCBC (ESD Grant)	2015	2017	Behavioural feasible attribution		Funding bid produced and successful, preliminary discussion to establish relevant stakeholders. Engagement with Strategic Transport and private sector public information collated, presentation and design approved. Hard and electronic copies reproduced and distributed to service user gateways and other relevant stakeholders (including Pontypridd Town Council).	2018	Leaflet uptake by partners and service user gateways has been strong with positive feedback

No.	Measure	Focus	Lead Authority (Primary Funding Source(s))	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress (Progress in last 12 Months in Bold)	Est. Completion Date	Comments Relating to Emission Reductions
7	Promotion of Cycling RCT Wide	Government approved salary sacrifice scheme to offer bicycles to RCTCBC employees via "Cycle 2 Work" scheme	RCTCBC (indirect)	2015	Ongoing	Behavioural project not feasible for direct attribution	Behavioural project not feasible for direct attribution	Cycle 2 Work scheme active with employee uptake facilitated via payroll. Advertisement of the scheme via pay slips and RCTCBC intranet. Scheme delivered as part of ongoing staff welfare package	Ongoing	Behavioural project not feasible for direct attribution
8	Highway Improvement Llanharan	Llanharan Bypass to relieve traffic from the existing local roads	RCTCBC (RCT+WG)	2018 - 2019	TBC	TBC (expectation of major improvement to NO2 within the entirety of Llanharan AQMA)	Expectation of major improvement to NO2 within the entirety of Llanharan AQMA	Stage 1 WeITAG complete, Stage 2 WeITAG commissioned as well as preliminary design and investigation of preferred route and partnership mechanism (public/S1.106) to enable delivery.	TBC	-
9	Highway Improvement Tonyrefail	The construction and operation of the Ely Valley Road Dualing to relieve traffic congestion from the existing local road infrastructure	RCTCBC (RCT+WG)	2019	TBC	TBC (expectation of minor to moderate improvement to NO2 within the entirety of Tonyrefail AQMA)	Expectation of minor to moderate improvement to NO2 within the entirety of Tonyrefail AQMA	Stage 1 + 2 WeITAG complete with Stage 3 WeITAG commissioned with land appropriation discussions commencing. Design phase expected to be completed by end January 2019.	TBC	-

No.	Measure	Focus	Lead Authority (Primary Funding Source(s))	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress (Progress in last 12 Months in Bold)	Est. Completion Date	Comments Relating to Emission Reductions
10	Mass Transit (Metro) South Wales	The construction and operation of the South Wales Metro to relieve traffic congestion from existing local road infrastructure	WG	Ongoing	Ongoing	TBC (expectation of significant improvement to NO2 within Taff Valley and Taff Vale)		Phase 1 Implementation including bus lane and park & ride improvements associated with existing south wales valley railway lines effectively completed. Core Valley Lines enhancements expected to commence 2019, resulting in frequency enhancements (4tph) with the aim to attract higher patronage and a reduction in car commuting.	2019 onwards	
11	Park and Ride Abercynon	The construction and operation of the Abercynon Park and Ride to relieve traffic congestion from existing local road infrastructure	RCTCBC (RCT+WG)	2018	TBC	TBC (expectation of minor improvement to NO2 within Taff Valley)		Preliminary design and planning permission completed for three hundred new parking spaces. Discussions commenced about future operation and maintenance of facilities.	Spring 2019	

No.	Measure	Focus	Lead Authority (Primary Funding Source(s))	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress (Progress in last 12 Months in Bold)	Est. Completion Date	Comments Relating to Emission Reductions
12.	Highway Improvement Gelli/Treorchy	The construction and operation of the Gelli/Treorchy Relief Road to relieve traffic from the existing local road infrastructure	RCTCBC	2019	TBC	TBC (expectation of substantial improvement to NO2 within Llwynypia AQMA)		Allocation of resources to enable preliminary investigation of feasibility and potential options.	TBC	-
13.	Electric Vehicle Charging Strategy	To advance local electric charging infrastructure so as to reduce the practical barriers to the adoption of ELVs	RCTCBC	2019	TBC	TBC		Formation of a working group to explore the local practicalities, implications and barriers to the adoption of various forms of charging infrastructure that can support early adoption of cleaner transport solutions and how the Local Authority may be able to facilitate sustainable implementation.	TBC	-

2. Air Quality Monitoring Data and Comparison with Air Quality Objectives

2.1 Summary of Monitoring Undertaken in 2017

2.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how results compare with the objectives.

Rhondda Cynon Taf CBC undertook automatic (continuous) monitoring at seven sites during 2017 (four continuous monitoring locations examining Nitrogen Dioxide and three continuous monitoring locations examining Fine Particulate Matter). Table 2.1 presents the details of the sites. National monitoring results are available at the website: [Air Quality in Wales⁴](https://airquality.gov.wales/)

Maps showing the location of the monitoring sites are provided in Figure 2.1. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

2.1.2 Non-Automatic Monitoring Sites

Rhondda Cynon Taf CBC undertook non-automatic (passive) monitoring of NO₂ at fifty sites (utilising fifty-three passive diffusion tubes) during 2017. Table 2.2 presents the details of these sites.

Maps showing the location of the monitoring sites are provided in Figure 2.2. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

⁴ <https://airquality.gov.wales/>

Table 2.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	Associated with (Named) AQMA?	OS Grid Reference		Pollutants Monitored	Monitoring Technique	Inlet Height (m)	Distance from Kerb to Nearest Relevant Exposure (m) ⁽¹⁾	Distance from Kerb to Monitor (m) ⁽²⁾
				X	Y					
GEAES	GEAES	Roadside	N/A	313031	185931	NO _x	Chemi	4.0	420	5
63	Upper Garth Ave. Osiris	Industrial	N/A	307831	192072	PM ₁₀	Optical	4.0	5	0.5
70	Broadway	Roadside	Broadway	307585	189604	NO _x	Chemi	2.5	19	9
109	Lower Garth Ave. Osiris	Industrial	N/A	307927	192096	PM ₁₀	Optical	5.0	7	4.5
120	Pontypridd	Roadside	Pontypridd Town Centre	307286	190433	NO _x	Chemi	1.5	0.5	4
130	Garth Ave. TEOM FDMS	Industrial	N/A	307831	192072	PM ₁₀	TEOM FDMS	2.5	5	0.5
131	Mt Ash	Roadside	Mt Ash Town Centre	304772	199306	NO _x	Chemi	1.5	0.5	1.5

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.

Figure 2.1 – Map(s) of Automatic Monitoring Sites

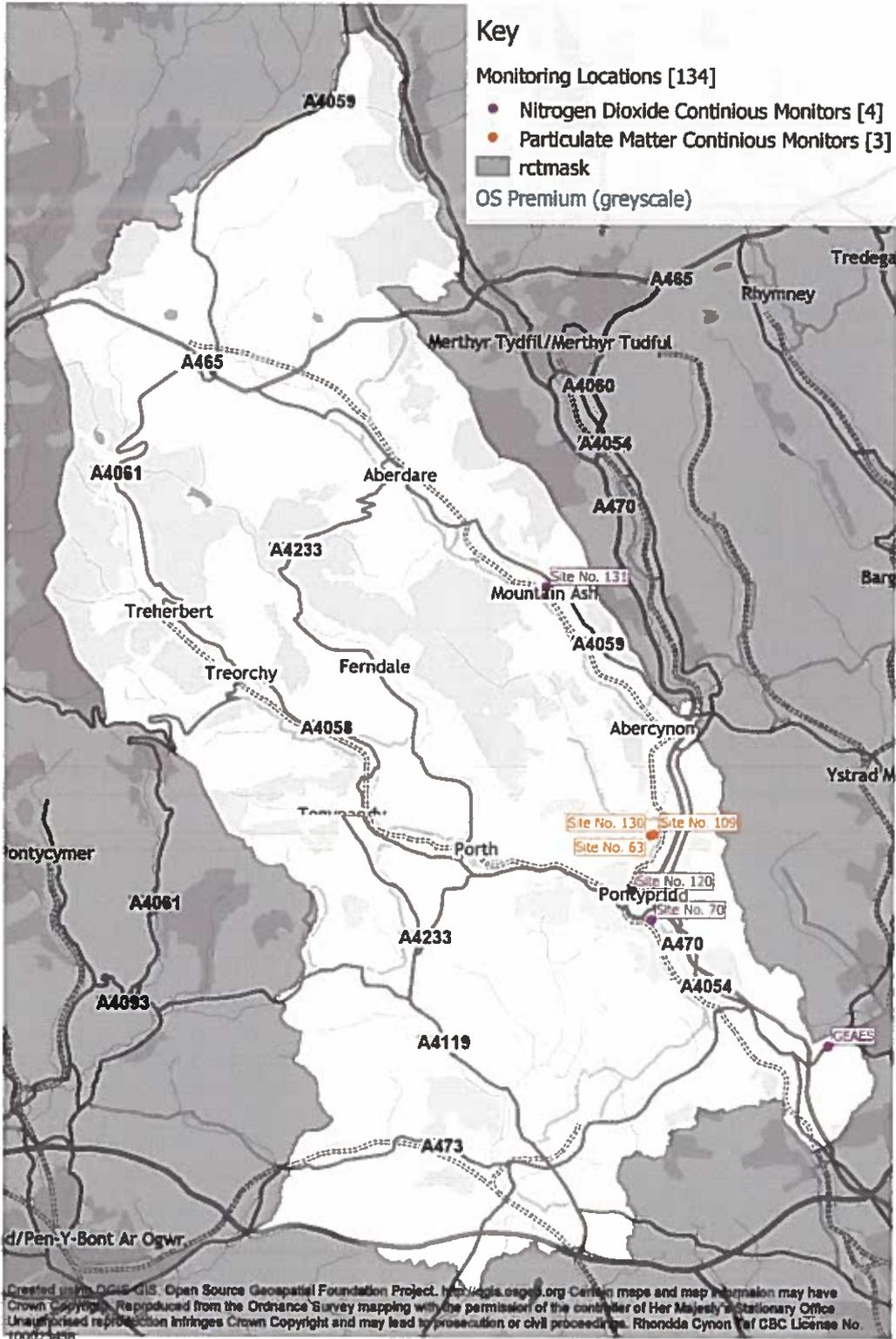


Table 2.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from Kerb to Nearest Relevant Exposure (m) ⁽¹⁾	Distance from Kerb to Monitor (m) ⁽²⁾
				X	Y				
4	Lanelay Terrace, Maesycloed	Suburban	N/A	306587	189833	3.5	No	1	3.0
8	Parc y Nant, Nantgarw	Roadside	Nantgarw	312629	185611	3.5	No	2.5	5.5
21	Woodland Park, Penderyn	Urban Background	N/A	294792	207681	3.5	No	10	4.0
37	Lakeside Court, A4119	Roadside	Mwyndy	305442	181579	3.5	No	7	2.5
41	East Rd, Tylorstown	Roadside	Tylorstown	300954	195137	3.5	No	0.5	2.5
44	Coronation Terrace, Pontypridd	Roadside	Cilfynydd	308204	191053	3.5	No	3	2.5
47	Broadway Co-Sampling	Roadside	Broadway	307858	189604	3.5	Yes	19	9.0
48	Broadway Co-Sampling	Roadside	Broadway	307858	189604	3.5	Yes	19	9.0
50	Broadway Co-Sampling	Roadside	Broadway	307858	189604	3.5	Yes	19	9.0
51	Broadway, Treforest	Roadside	Broadway	307762	189680	3.5	No	3	2.5
52	Oxford St, Mountain Ash	Roadside	Mt Ash	304756	199089	3.5	No	1.5	2.5
53	Cardiff St, Aberdare	Roadside	Aberdare	300364	202515	3.5	No	1	2.5
55	Cilfynydd Rd, Cilfynydd	Roadside	Cilfynydd	308445	191566	3.5	No	3	2.5
56	Broadway, Treforest	Roadside	Broadway	308236	189344	3.5	No	1.5	2.5
66	Broadway, Treforest	Roadside	Broadway	307973	189560	3.5	No	3	2.5
68	Canon Street, Aberdare	Roadside	Aberdare	300111	202645	3.5	No	1	2.5
69	Cardiff St, Aberdare	Roadside	Aberdare	300467	202461	3.5	No	1.5	2.5
75	Canon/Whitcombe St, Aberdare	Roadside	Aberdare	300211	202644	3.5	No	1	2.5
76	Heol-y-Gors, Nantgarw	Roadside	Nantgarw	312620	185620	3.5	No	3	2.5
79	High St, Pontypridd	Roadside	Pontypridd	307199	189876	3.5	No	0.5	2.5
80	Morgan St, Pontypridd	Roadside	Pontypridd	307345	190531	3.5	No	4	2.5
81	Sardis Bridge Pontypridd	Roadside	Pontypridd	307123	190022	3.5	No	3	2.5
82	Main Rd, Llantwit Fardre	Roadside	N/A	307291	184890	3.5	No	2	2.5
83	Ceridwen Terrace	Roadside	Pontypridd	307481	190369	3.5	No	1.5	2.5
84	Gelliwastad Rd	Roadside	Pontypridd	307264	190403	3.5	No	3	2.5
85	Efail Isaf Junction (Llantinsant side)	Roadside	Church Village	308579	185863	3.5	No	0.5	2.5

Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from Kerb to Nearest Relevant Exposure (m) ⁽¹⁾	Distance from Kerb to Monitor (m) ⁽²⁾
				X	Y				
88	Victoria Square, Aberdare	Roadside	Aberdare	300319	202567	3.5	No	1.5	2.5
90	Cymmer Rd, Dinas	Roadside	N/A	302168	191534	3.5	No	0.5	2.5
91	High St, Cymmer	Roadside	Cymmer	302494	190868	3.5	No	1	2.5
93	High Street, Ferndale	Roadside	Ferndale	299895	196907	3.5	No	0.5	1.5
95	Park St, Treforest	Roadside	Broadway	308332	189017	3.5	No	0.5	2.5
96	Oxford St, Mountain Ash	Roadside	Mt Ash	304757	199091	3.5	No	1	2.5
97	New Rd, Mountain Ash	Roadside	Mt Ash	304772	199306	3.5	No	1	2.5
101	Long Row, Blaenllechau	Urban Background	N/A	299674	197673	3.5	No	14	1.5
103	Ty Mawr Farm, Efail Isaf	Urban Background	N/A	308817	183891	3.5	No	200	1.5
105	Greenfield Ave, Glyncoch	Urban Background	N/A	307038	192263	3.5	No	8	1.5
106	Partridge Road, Llwynypia	Roadside	Llwynypia	299851	193991	3.5	No	1	2.5
107	High Street, Ferndale	Roadside	Ferndale	299880	196937	3.5	No	1.5	2.5
108	Nightingales Bush, Pontypridd	Roadside	Pontypridd	308101	189853	3.5	No	17	4.5
110	Cowbridge Rd	Roadside	Pontyclun	303533	181287	3.5	No	0.5	2.5
111	Bridgend Rd, Llanharan	Roadside	Llanharan	300259	183082	3.5	No	0.5	1.5
113	Mill St, Tonyrefail	Roadside	Tonyrefail	300986	188176	3.5	No	1.5	2.5
114	Pentrebach Rd	Roadside	Nightingales Bush	308146	189882	3.5	No	3	2.5
116	North Rd, Ferndale	Roadside	Ferndale	299841	197107	3.5	No	0.5	2.5
117	High St, Cymmer	Roadside	Cymmer	302452	190778	3.5	No	0.5	2.5
118	High St, Cymmer	Roadside	Cymmer	302312	190531	3.5	No	4	2.5
119	Park St, Treforest	Roadside	Broadway	308348	188812	3.5	No	3	2.5
122	Mill St, Tonyrefail	Roadside	Tonyrefail	300966	188131	3.5	No	0.5	2.5
124	Trebanog Rd, Trebanog	Roadside	Cymmer	308687	185905	3.5	No	0.5	2.5
128	Cardiff Rd, Treforest	Roadside	Treforest	308561	188796	3.5	No	0.5	2.5
129	Main Rd, Church Village	Roadside	Church Village	308687	185905	3.5	No	1	2.5
132	Cowbridge Rd, Talygarn	Roadside	N/A	302880	180517	3.5	No	17.5	2.5

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.

2.2 2017 Air Quality Monitoring Results

Table 2.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
						2013	2014	2015	2016	2017
4	Lanelay Terrace, Maesycloed	Suburban	Diffusion Tube	92	92	19.3	17.8	15.7	19.0	15.5
8	Parc y Nant, Nantgarw	Roadside	Diffusion Tube	100	100	51.1	43.1	43.9	46.7	39.3
21	Woodland Park, Penderyn	Urban Background	Diffusion Tube	100	100	10.2	8.0	8.1	8.6	7.1
GEAES	GEAES	Roadside	Continuous	93.0	93.0	37.9	34.7	31.8	-	28.35
37	Lakeside Court, A4119	Roadside	Diffusion Tube	100	100	59.7	49.1	48.4	49.6	41.0
41	East Rd, Tylorstown	Roadside	Diffusion Tube	100	100	56.5	53.4	54.0	55.4	50.9
44	Coronation Tr, Pontypridd	Roadside	Diffusion Tube	100	100	41.8	32.8	37.5	40.5	37.8
47	Broadway Co-Sampling	Roadside	Diffusion Tube	100	100	35.3	30.7	28.6	32.8	28.2
48	Broadway Co-Sampling	Roadside	Diffusion Tube	100	100	36.7	31.6	28.6	31.2	28.7
50	Broadway Co-Sampling	Roadside	Diffusion Tube	100	100	35.1	29.6	29.7	31.0	29.3
51	Broadway, Treforest	Roadside	Diffusion Tube	100	100	43.9	47.6	41.5 [†]	44.9	41.9
52	Oxford St, Mountain Ash	Roadside	Diffusion Tube	92	92	56.5	46.2	46.0	58.3	49.1
53	Cardiff St, Aberdare	Roadside	Diffusion Tube	92	92	52.5	43.4	42.0	46.6	39.2
55	Cilfynydd Rd, Cilfynydd	Roadside	Diffusion Tube	100	100	69.2	58.8	61.4	-	62.3
56	Broadway, Treforest	Roadside	Diffusion Tube	100	100	47.9	43.9 [†]	43.7	47.7	39.7
66	Broadway, Treforest	Roadside	Diffusion Tube	100	100	43.5	36.4	36.8	40.6	34.9

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
						2013	2014	2015	2016	2017
68	Canon Street, Aberdare	Roadside	Diffusion Tube	100	100	41.5	35.6	38.8	40.7	35.5
69	Cardiff St, Aberdare	Roadside	Diffusion Tube	100	100	38.9	32.8	33.1	40.7	31.6
70	Broadway	Roadside	Continuous	99.6	99.6	34.7	30.8	29.1	32.0	27.84
75	Canon St, Aberdare	Roadside	Diffusion Tube	92	92	41.7	30.8†	32.6	34.1	31.8
76	Heol-y-Gors, Nantgarw	Roadside	Diffusion Tube	92	92	41.5	34.4†	32.9	37.2	32.0
79	High St, Pontypridd	Roadside	Diffusion Tube	100	100	44.5	38.4	36.3	39.1	35.7
80	Morgan St, Pontypridd	Roadside	Diffusion Tube	100	100	46.0	36.8	37.0	41.3	35.5
81	Sardis Bridge Pontypridd	Roadside	Diffusion Tube	100	100	46.7	38.9	37.0	39.6	39.0
82	Main Rd, Llantwit Fardre	Roadside	Diffusion Tube	100	100	40.8	33.1	33.5	36.7	30.8
83	Ceridwen Terrace	Roadside	Diffusion Tube	83	83	42.1	29.3	36.0	39.4	34.8
84	Gelliwastad Rd	Roadside	Diffusion Tube	92	92	65.3	49.8	52.2	56.1	50.0
85	Efail Isaf Junction (Llantisant side)	Roadside	Diffusion Tube	100	100	52.7	46.1	45.4	48.4	41.1
88	Victoria Sq, Aberdare	Roadside	Diffusion Tube	100	100	42.3	37.0	35.5	38.4	34.1
90	Cymmer Rd, Dinas	Roadside	Diffusion Tube	92	92	42.6	35.5	37.0	39.5	36.9
91	High St, Cymmer	Roadside	Diffusion Tube	83	83	63.9†	49.6†	48.2	57.4	51.5
93	High Street, Ferndale	Roadside	Diffusion Tube	92	92	61.1	52.8†	54.0†	56.4	49.3
95	Park St, Treforest	Roadside	Diffusion Tube	100	100	42.3	34.9	32.4	38.6†	33.4
96	Oxford St, Mt Ash	Roadside	Diffusion Tube	100	100	49.0	40.1	44.8	49.4	52.1
97	New Rd, Mt Ash	Roadside	Diffusion Tube	83	83	55.8	49.1	51.0	61.4	56.7
101	Long Row, Blaenllechau	Urban Background	Diffusion Tube	100	100	10.6	7.4	7.6	9.4	7.3
103	Ty Mawr Farm, Efail Isaf	Urban Background	Diffusion Tube	83	83	11.5	8.4†	8.9†	11.7†	7.3
105	Greenfield Ave, Glyncoch	Urban Background	Diffusion Tube	92	92	11.5	9.5	9.0	11.2	8.8
106	Partridge Road, Llwynypia	Roadside	Diffusion Tube	92	92	58.6	44.4	43.9	45.9	43.5
107	High St, Ferndale	Roadside	Diffusion Tube	100	100	42.2	35.7†	34.5†	41.1†	35.3

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
						2013	2014	2015	2016	2017
108	Nightingales Bush, Pontypridd	Roadside	Diffusion Tube	75	75	64.6	59.8	51.0	50.0	54.3†
110	Cowbridge Rd	Roadside	Diffusion Tube	100	100	41.9	32.3	33.9	36.2	30.0
111	Bridgend Rd, Llanharan	Roadside	Diffusion Tube	92	92	52.2	43.7	40.3	-	34.2
113	Mill St, Tonyrefail	Roadside	Diffusion Tube	75	75	44.8	36.3†	37.2	43.5	40.4†
114	Pentrebach Rd	Roadside	Diffusion Tube	75	75	34.8	33.6	33.2	37.8	32.2†
116	North Rd, Ferndale	Roadside	Diffusion Tube	92	92	42.3	31.9†	34.0†	31.1†	26.2
117	High St, Cymmer	Roadside	Diffusion Tube	92	92	61.6	55.3	57.4	64.6	58.8
118	High St, Cymmer	Roadside	Diffusion Tube	100	100	73.3	63.4	63.9	67.9	65.9
119	Park St, Treforest	Roadside	Diffusion Tube	100	100	40.6	35.8	30.7	35.2	31.0
120	Pontypridd	Roadside	Continuous	95.3	95.3	40.5	39.8	35.9	38.6	31.36
122	Mill St, Tonyrefail	Roadside	Diffusion Tube	100	100	47.1	33.4†	36.9	38.4	33.8
124	Trebanog Rd, Trebanog	Roadside	Diffusion Tube	100	100	37.5	26.7	31.1	33.4	29.3
128	Cardiff Rd, Treforest	Roadside	Diffusion Tube	92	92	42.7	-	41.1†	43.7	37.6
129	Main Rd, Church Village	Roadside	Diffusion Tube	100	100	-	29.2	30.9	36.9	28.2
131	Mt Ash	Roadside	Continuous	97.5	97.5	-	55.2	54.6	53.2	47.66
132	Cowbridge Rd, Talygarn	Roadside	Diffusion Tube	100	100	-	-	-	43.4	35.8

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 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 marked with † have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 as valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table 2.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
						2013	2014	2015	2016	2017
GEAES	GEAES	Roadside	Continuous	93.0	93.0	(148.8)	(146.4)	0 (146.1)	0 (81.65)	1 (142.14)
70	Broadway	Roadside	Continuous	99.6	99.6	3 (128.2)	0 (96.0)	0 (90.0)	0 (134.0)	0 (101.2)
120	Pontypridd	Roadside	Continuous	95.3	95.3	3 (163.7)	0 (148.6)	0 (126.0)	0 (128.0)	0 (113.31)
131	Mt Ash	Roadside	Continuous	97.5	97.5	-	82 (198.3)	82 (291.0)	7 (182.0)	0 (148.91)

Notes:

Exceedances of the NO₂ 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 2.5 – Annual Mean PM₁₀ Monitoring Results

Site ID	Site Name	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
63	Upper Garth Ave. Osiris	Industrial	37	37	18.62 ⁶	38.73 ⁶	23.16 ⁶	17.41 ⁶	17.0 ⁶
109	Lower Garth Ave. Osiris	Industrial	66	66	26.42 ⁶	19.33 ⁶	22.52 ⁶	22.37 ⁶	22.3 ⁶
130	Garth Ave. TEOM FDMS	Industrial	96	96	-	28.57	17.86	13.45	18.2

Notes:

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ 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.

⁶ Measurement corrected using local TEOM FDMS derived factor

Table 2.6 -- 24-Hour Mean PM₁₀ Monitoring Results

Site ID	Site Name	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽³⁾				
					2013	2014	2015	2016	2017
63	Upper Garth Ave. Osiris	Industrial	37	37	7 ⁶ (34.1)	76 ⁶ (80.2 ⁶)	15 ^{6†} (42.8 ⁶)	9 ⁶ (32.0 ⁶)	3 ⁶ (31.3 ⁶)
109	Lower Garth Ave. Osiris	Industrial	66	66	35 ⁶ (52.0 ⁶)	13 ^{6†} (34.0 ⁶)	22 ^{6†} (41.5 ⁶)	18 ^{6†} (41.5 ⁶)	14 ⁶ (44.1 ⁶)
130	Garth Ave. TEOM FDMS	Industrial	96	96	-	16 (46.3)	13 (34.3)	4 (25.0)	10 (33.8)

Notes:

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ 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.

⁶ Measurement corrected using local TEOM FDMS derived factor

2.3 Comparison of 2017 Monitoring Results

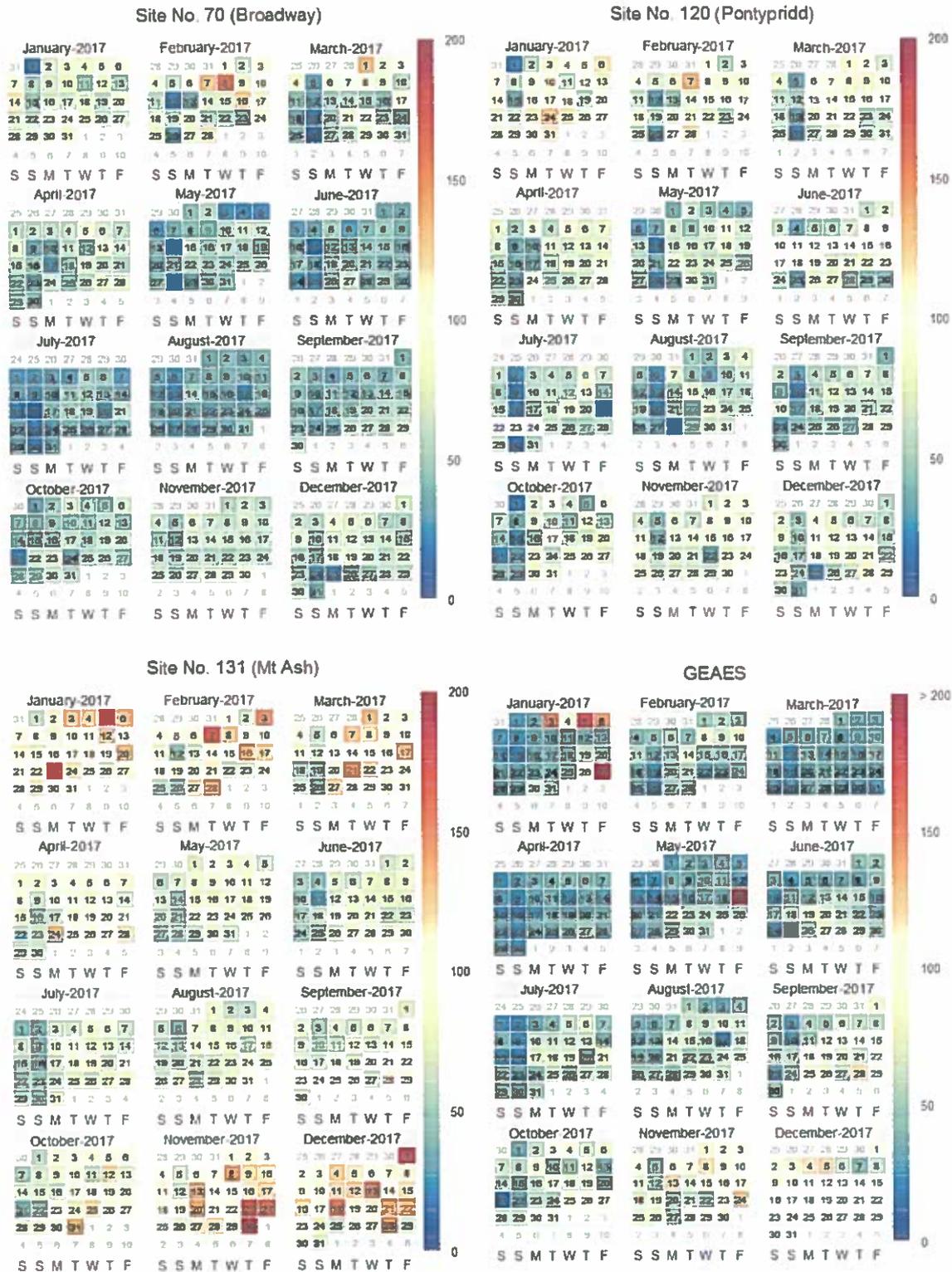
2.3.1 Nitrogen Dioxide (NO₂)

It has been reported⁵ that, based on a measured assessment, the South Wales Non-agglomeration Zone, which includes Rhondda Cynon Taf, is in breach of the 1-hour EU Limit Value for NO₂ and the annual mean EU Limit Value for NO₂ and is likely to remain in breach beyond 2015.

To consider the relevance and context of the 2017 NO₂ continuous monitoring data it is possible to examine it in a number of ways. Table 2.7 below illustrates, side by side, calendar plots that identify the days in 2017 where the 1-hour mean NO₂ concentrations were at their highest. The calendar plots suggest that all the locations were much more likely to experience short term elevated levels of hourly mean NO₂ during the colder months of 2017.

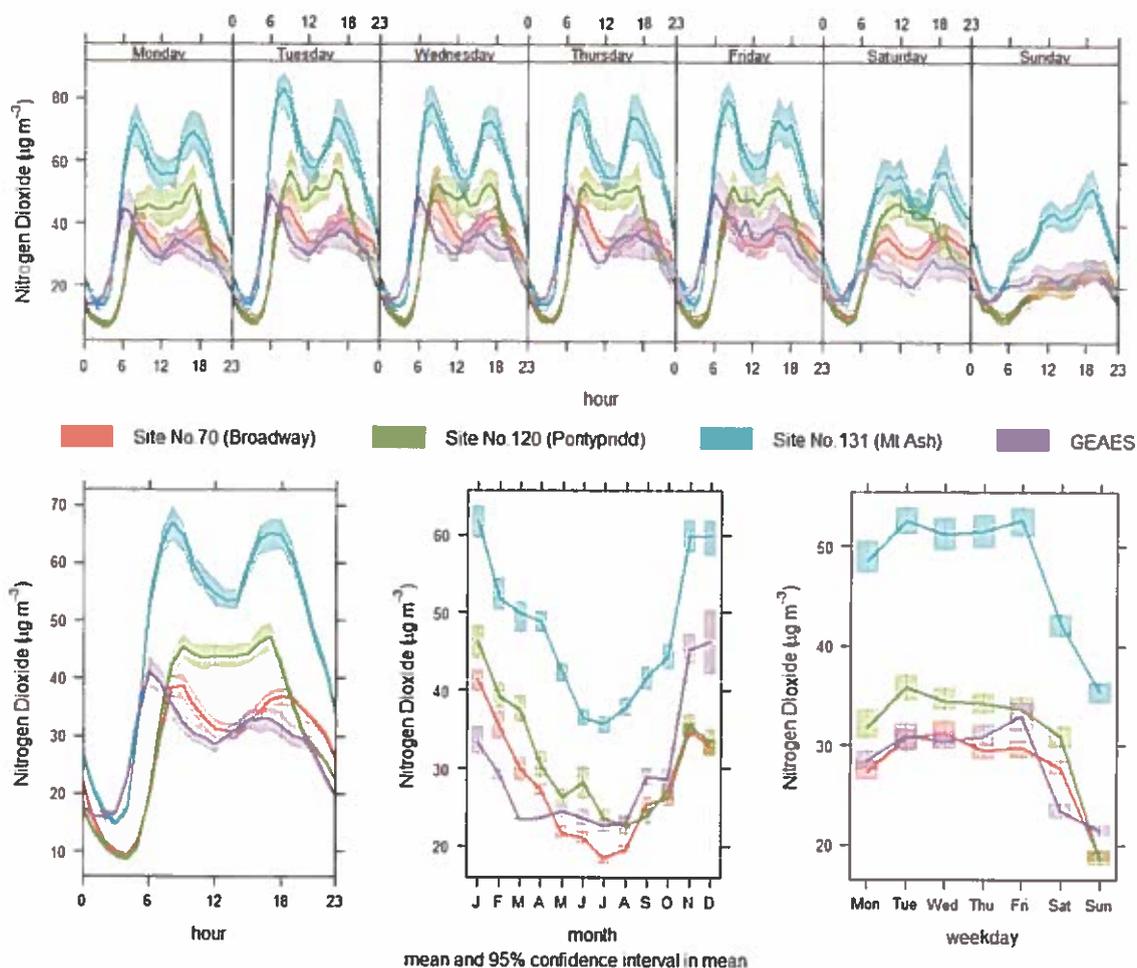
⁵ Defra, and the Devolved Administrations, *Air Pollution in the UK 2016*, September 2017

Table 2.7 – Calendar Plot of NO₂ Continuous Monitoring Data in 2017



The continuous monitoring data enables consideration of the temporal relationship of the data sets, which can be important when considering mechanism to manage local air quality. Table 2.8 below contains time variation plots of the 2017 absolute hourly mean NO₂ measurements collected and assessed against time of the day, day of the week and month of the year for each NO₂ continuous monitoring location.

Table 2.8 – Time Variation Plot of NO₂ Continuous Monitoring Data in 2017



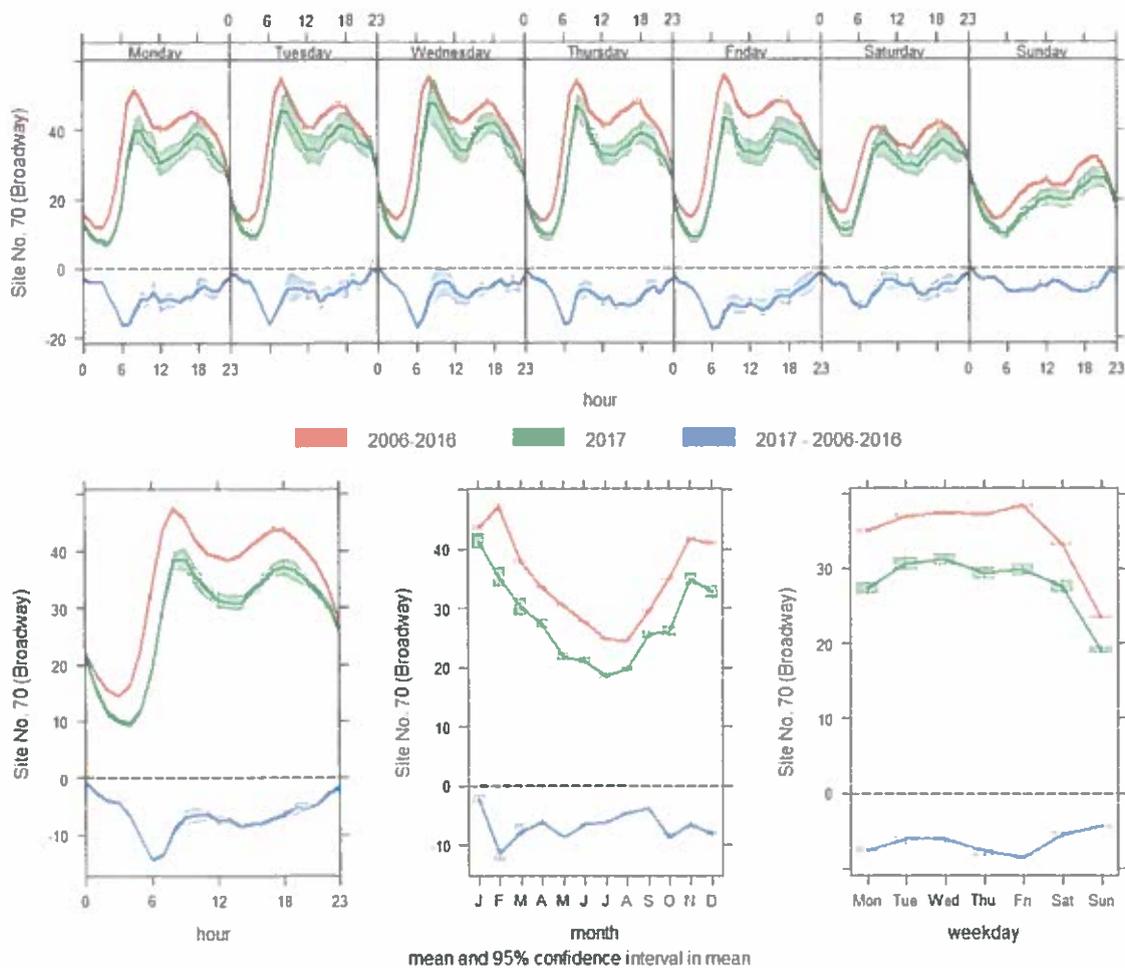
The time variation plots demonstrate several widely recognised air quality patterns, with all the locations observing similar time variation relationships. As in previous years, the 2017 data set demonstrates elevated levels of NO₂ are more prevalent in the winter, during Monday to Friday and at 8am and 5pm. The plots clearly illustrate the diurnal relationship (concentrations are greater in the day than the night), hebdomadal relationship (concentrations are greater during the normal working week than the weekend) and the biannual relationship (concentrations are greater during the winter than the summer). These patterns are widely observed with air quality, often underlining the anthropogenic nature of the pollutant and its synergy with naturally occurring cyclical events.

The demonstrable anthropogenic nature of the pollutant is best observed with the marked reduction in the prevalence, at all locations, of NO₂ on Sundays, when human industrial and transport activity is expected to be at its least. In contrast the observed daily maxima at all the locations, an 8am and 5pm peak, is consistent with local NO₂ levels being heavily influenced by commuting road traffic, as opposed to industrial or domestic sources. For instance, an example of a natural influence upon NO₂ is the prevalence of sunlight influenced photochemical agents, like O₃, influencing the

apparent seasonal cycle with lower emissions during longer summer days when sunlight is most prevalent.

The above analysis is in line with expectation and does not indicate the occurrence of significant unusual event in 2017 that could have unduly influenced local air quality. At Site No. 70 (Broadway) where a number of years of monitoring data has been consistently collected it is also possible to compare the monitoring data from 2017 with the historic average. Table 2.9 provides time variation plots of this comparison and the calculated difference between the current and historic measurements.

Table 2.9 – Time Variation Plot of NO₂ Data at Site No. 70 (Broadway)

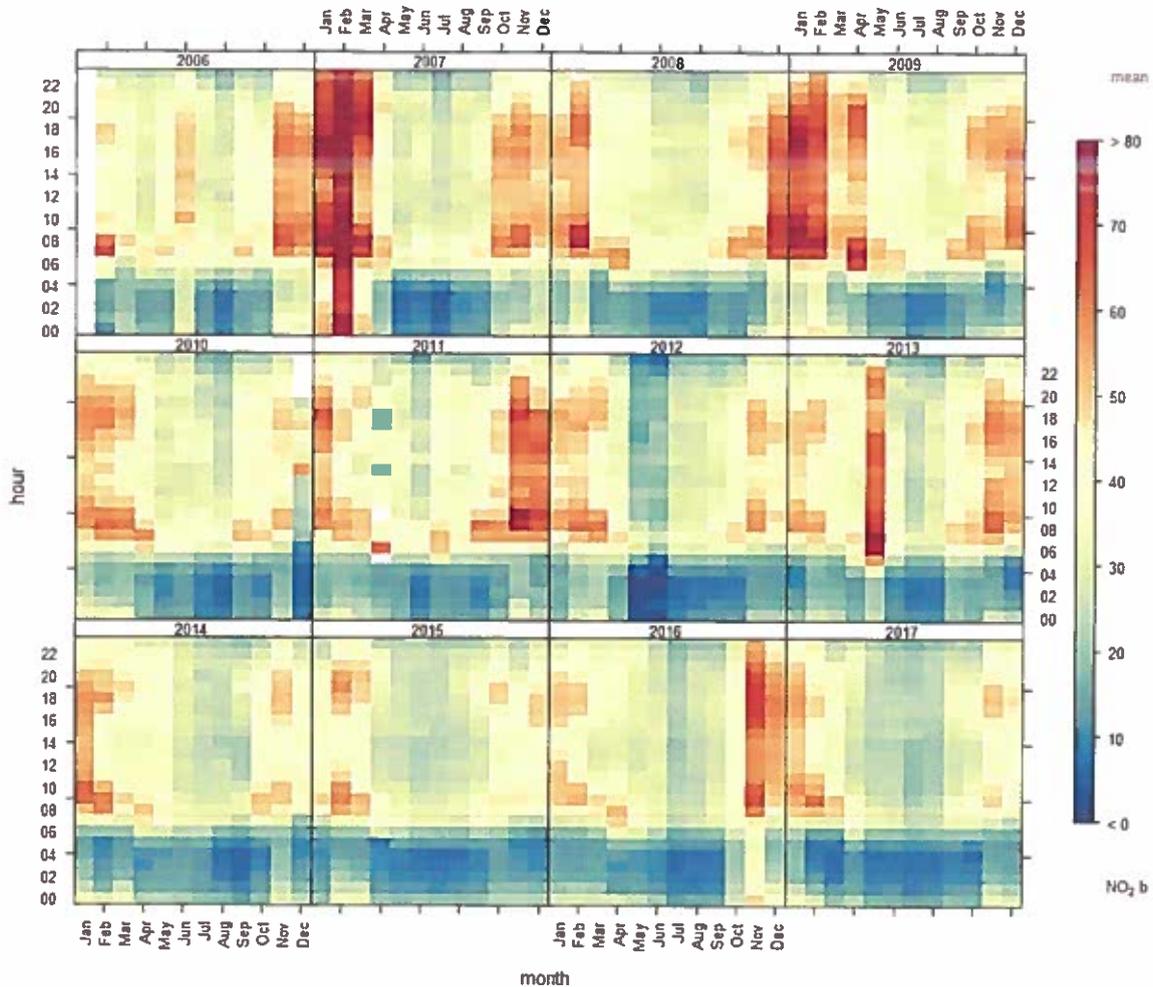


The time variation plot shows that the pattern associated with the occurrence of NO₂ at Broadway is very consistent (the narrowness of the plotted line). In addition it shows the close similarity (the same pattern is observed) between the present and historic monitoring data. Also of note is the consistent reduction in levels of NO₂, in 2017 when compared to the historic data, in all temporal assessments, with the largest reductions observed during peak concentrations (weekday morning rush hour). The above analysis indicates that the 2017 monitoring data does not depart from what would be expected, but rather a continuation of a trend of reducing NO₂ levels.

The trend level plot for NO₂ at Site No. 70 (Broadway) produced in Table 2.10 below, is another useful way of examining the temporal relationship of the trend in NO₂ over each year between 2006 and 2017. The trend level plot demonstrates that most years

have comparable distributions in the occurrence of NO₂, although certain years (2007, 2009, 2011 & 2013) potentially show emphasised winter periods of elevated levels of NO₂, albeit within the same consistent pattern.

Table 2.10 – Trend Level Plot for NO₂ at Site No. 70 (Broadway)



Occasional 'poor' air quality years showing particularly elevated levels of NO₂ may be the result of the regular cyclic variation in weather (with some summers hotter and winters colder than the average), albeit climatic change may make these changes more or less common. The observed cyclic pattern in air quality can also be influenced by repeatable transient transboundary effects (where, due to specific atmospheric effects, air pollution can be transported great distances from its source) as well as occasional ad hoc events, for instance the Eyafjallajökull⁶, Grímsvötn⁷ and Bárðarbunga⁸ volcanic eruptions.

It has been possible to collate monitoring data from locations where monitoring has been maintained for some time and influences from new developments or abnormal events are expected to have been minimal. These locations have been categorised

⁶ Netcen on behalf of Defra and the Devolved Administrations, *Air Pollution in the UK 2010*, September 2011

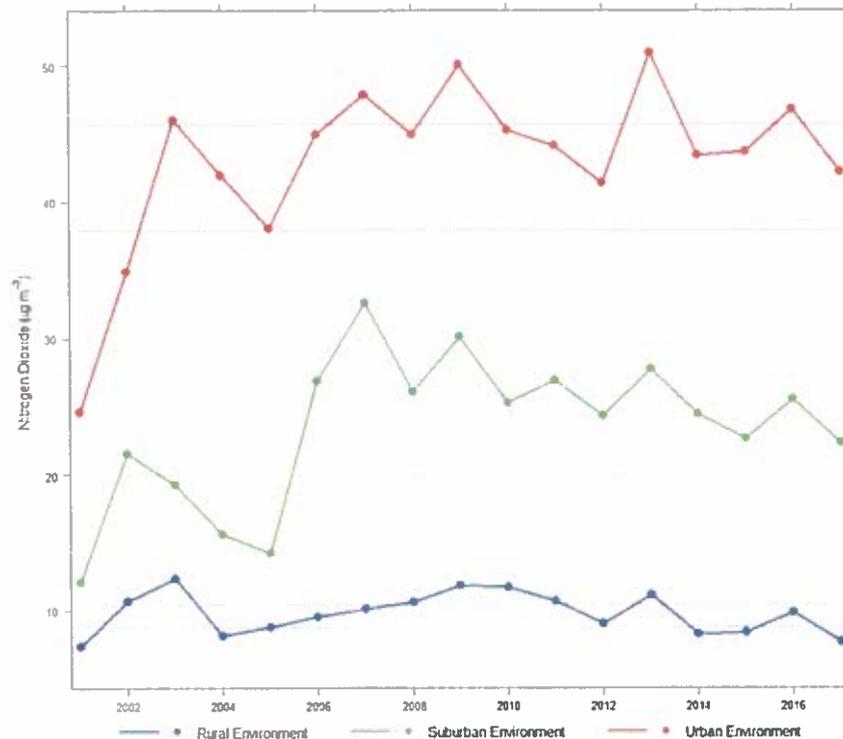
⁷ AEA for Defra and the Devolved Administrations, *Air Pollution in the UK 2011*, September 2012

⁸ Ricardo Energy & Environment for Defra and the Devolved Administrations, *Air Pollution in the UK 2014*, September 2015

with regards to their representation of the rural⁹, suburban¹⁰ and urban¹¹ environments within Rhondda Cynon Taf.

Table 2.11 produces a time plot of the rural, suburban and urban annual means as well as matched coloured dash lines of their respective 95% Confidence Interval's based on the preceding ten years. The absolute figures, displayed in Table 2.11, demonstrate the longer term undulating nature of air quality and indicates a 'peak and trough' between 'poor' and 'normal' air quality years.

Table 2.11 – Time Plot of the annual mean for NO₂ at the rural, suburban and urban environments



It is again apparent by examining the variation at all three environments, that 2007, 2009 and 2013 may represent high 'peaks' and hence particularly 'poor' air quality years in relation to NO₂. Whereas levels of NO₂ in 2017 are observed within the relevant 95% Confidence Interval's for the urban and suburban environments and slightly below for the rural environment, as such 2017 may represent a 'normal' air quality year in line with the recent past.

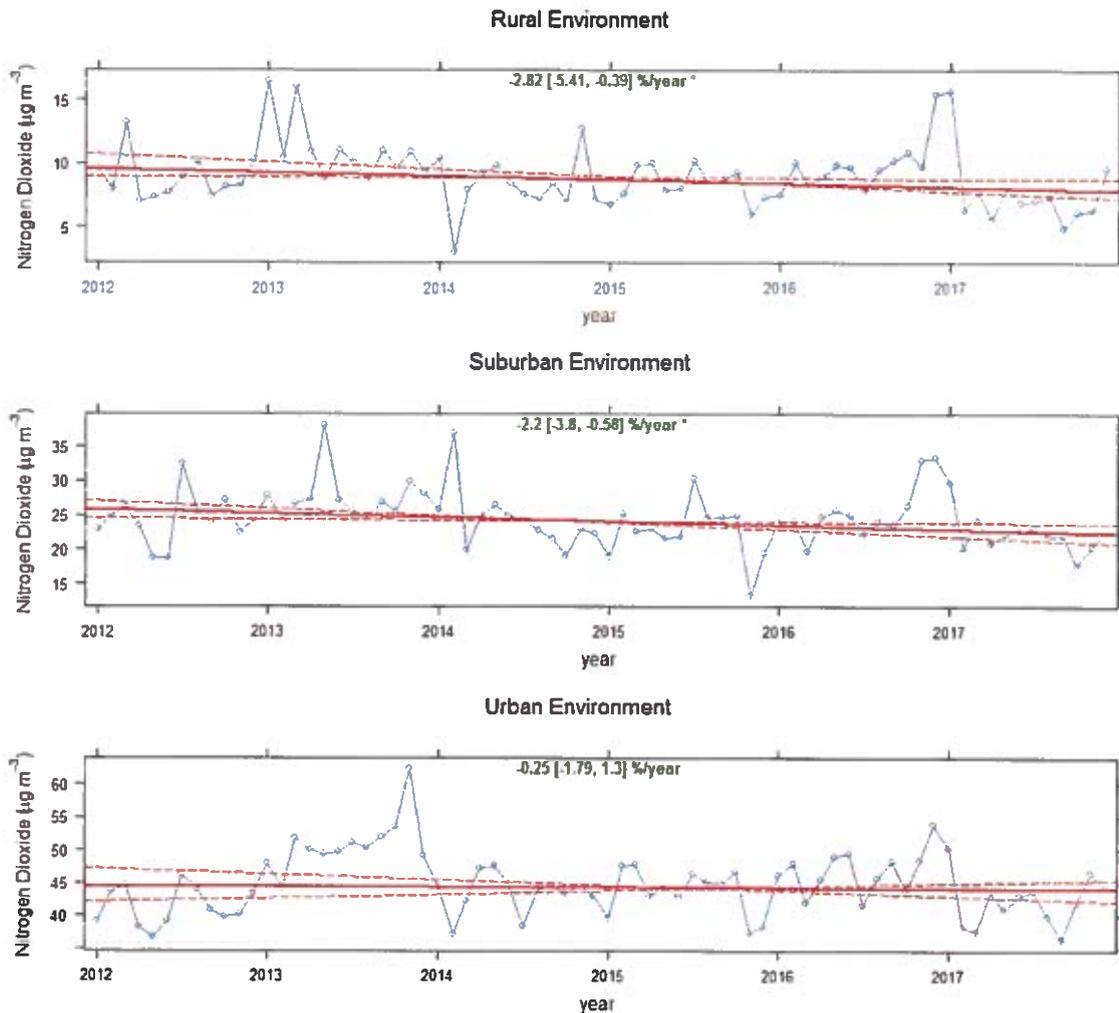
To try to quantify the recent trend, examination can be made of the five year trend, which is considered¹² the minimum time period to examine a trend in NO₂. However, it is acknowledged that the five year trend can be influenced by data outliers that can distort its interpretation if considered in isolation. TheilSen plots, for the rural, suburban and urban environments, of the five year trend, between 2012 to 2017, has been produced in Table 2.12.

⁹ rural or sub-urban locations where there is an absence of local busy roads or industry and it most closely reflects the regional background.

¹⁰ urbanised residential areas at a distance from the kerb of major roads and an absence of local industry.

¹¹ roadside urban locations within Air Quality Management Areas, often associated with commercial centres or strategic roads, where it is believed that the sources of NO₂ have not markedly changed.

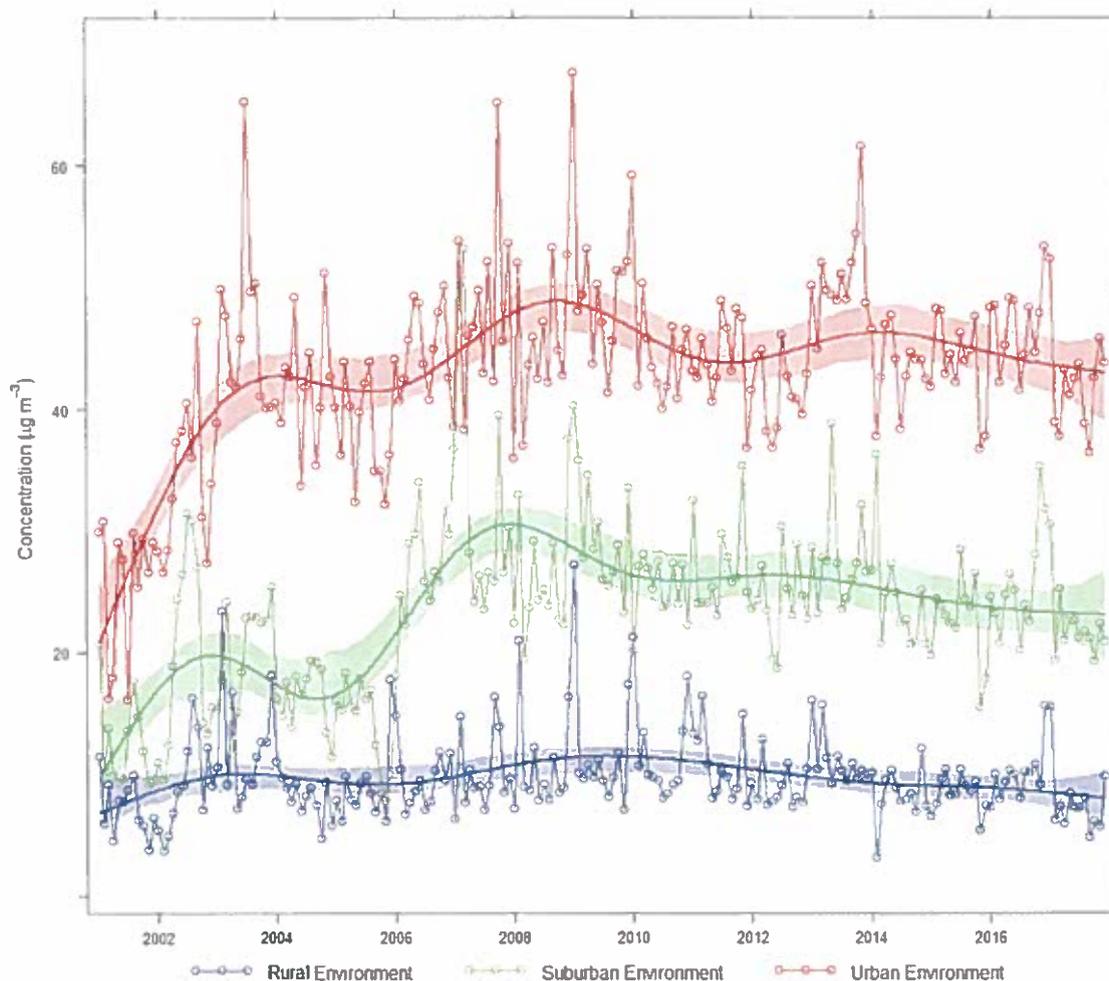
¹² Paragraph 4.14 of LAQM.TG(16)

Table 2.12 – TheilSen Plots of the 5-year trend in NO₂ at the rural, suburban and urban environments

From examination of the above five year trend and having regard to consideration of the NO₂ and NO_x data, it is possible that Rhondda Cynon Taf is experiencing recent gradual reductions in the prevalence of NO₂ within most of its area. However, it is apparent that different environments are changing substantively differently, with improvements in the five year trend of the rural environment of -2.82% (-5.41 to -0.39) and the suburban environment of -2.2% (-3.8 to -0.58) not being observed to the same degree in the urban environment, which only shows a slight improvement of -0.25% (-1.79 to +1.3).

It is acknowledged that the trend in NO₂ at each of the environments may change over time as national and local changes to the sources of NO₂ manifest. To examine how the overall trends may be changing in relation to time, a smooth trend plot, which has been adjusted to remove seasonal influences, for the rural, suburban and urban environments between 2000 and 2017 is displayed in Table 2.13.

Table 2.13 – Smooth Trend Plot of the trend in NO₂ at the rural, suburban and urban environments



The observed consistent improving trend in the rural and suburban environments over a number of years since 2009 and 2008 respectively, as well as less observed kurtosis (i.e. the extent to which the unimodal distribution is peaked), would provide greater confidence to the interpretation of these improving trends and the likelihood of their continuation. The urban environment trend has previously showed tentative signs of stabilisation and possible improvement, however, the above analysis suggests that, without intervention, this may only result in a very slow gradual improvement and the continued likelihood of occasions of 'poor air quality years'.

It is believed that improvements to the rural and suburban environments are likely being sustained by various national policies and actions which are having a broad geographical effect. However, it does not appear that these interventions are yet having the same degree of impact at the urban environment, likely because the dominance of local sources and circumstances outweighing the scale of these interventions, in the short term at least.

Taking into account the above analysis of the 2017 data sets and its context within previous monitoring, it does not appear that 2017 represents an unusual year in

relation to elevated levels of NO₂ or its general distribution within Rhondda Cynon Taf. In addition, it is likely that without local intervention elevated levels of NO₂ will persist within the urban environment.

2.3.1.1 Comparison with the 1-hour Air Quality Objective for NO₂

The continuous monitoring data demonstrates that Broadway (Site No. 70), Pontypridd (Site No. 120), Mt Ash (Site No. 131) and GEAES did not exceed the 1-hour mean AQO for NO₂. It has not been possible to locate continuous monitoring at all relevant locations, however, inference can be drawn from the annual mean, with locations showing an annual mean greater than 60µgm⁻³ potentially likely to be in breach of the 1-hour AQO for NO₂.

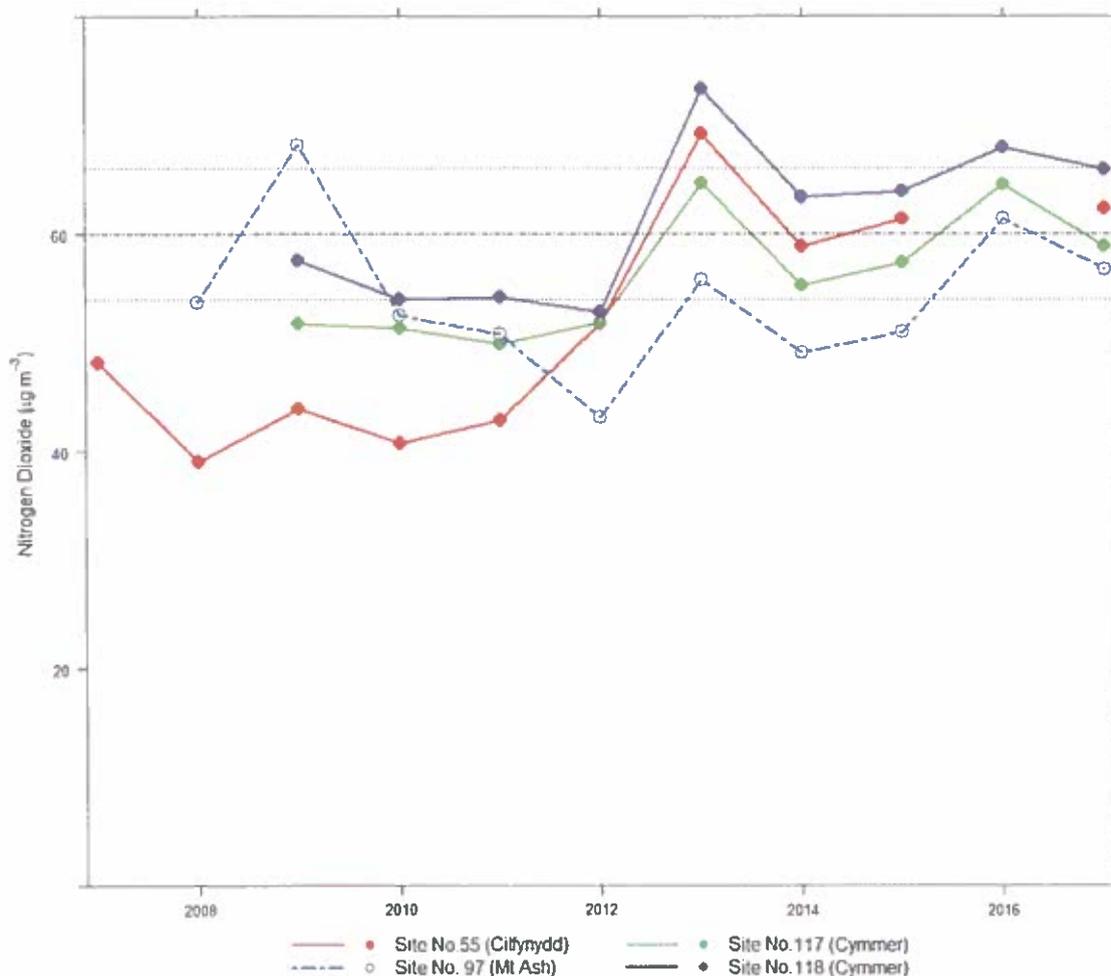
Table 2.14 below identifies the locations of relevant population where the annual mean for NO₂ was above 54µgm⁻³ in 2017; with those locations underlined having an annual mean above 60µgm⁻³.

Table 2.14 – Locations with an annual mean for NO₂ greater than 54µgm⁻³ in 2017

Site No	Area	AQMA	2017 Annual Mean
<u>55</u>	<u>Cilfynydd Rd, Cilfynydd</u>	<u>Cilfynydd</u>	<u>62.3</u>
97	New Rd, Mt Ash	Mt Ash Town Centre	56.7
117	High St, Cymmer	Cymmer	58.8
<u>118</u>	<u>High St, Cymmer</u>	<u>Cymmer</u>	<u>65.9</u>

Table 2.15 below displays a time plot of the historic annual means at these locations, as well as dotted reference lines at 54µgm⁻³ and 66µgm⁻³ and a dot-dash reference line at 60µgm⁻³. All the identified locations are within current AQMAs. Those locations displayed as a solid line are within an AQMA already declared for a breach of the annual mean and 1-hour mean AQOs for NO₂; those locations displayed as dot-dash lines are within an AQMA declared for a breach of the annual mean AQO for NO₂ only.

Table 2.15 – Time Plot, with reference lines, of the annual mean for NO₂ at identified locations, from 2007 to 2017



It is apparent that all the identified locations have consistently experienced elevated levels of NO₂. Site No. 55 is located within the Cilfynydd AQMA and Site No. 117 & Site No. 118 are located within the Cymmer AQMA. Both these AQMAs have already been declared for a breach of the annual mean and 1-hour mean AQOs for NO₂. It is clear that this designation remains relevant.

Site No. 97 is located within the Mt Ash Town Centre AQMA and has shown elevated levels of NO₂ in 2009, 2013, 2016 and 2017. It has previously been identified that 2009 may have represented a particularly poor air quality year, therefore, an elevated annual mean in 2009 alone is not considered conclusive, in itself, of a risk in breaching the 1-hour mean AQO for NO₂. It is apparent that since 2010, Site No. 97 has shown an annual mean routinely slightly below 54 µg m⁻³ with only 2016 showing an annual mean above 60 µg m⁻³. In addition, monitoring in 2017 at the continuous monitoring site at Site No. 131 (Mt Ash), which is approximately 25 metres along the same road but further away from a main traffic light controlled junction, demonstrated an NO₂ annual mean of 47.66 µg m⁻³ and no occasions of the 1-hour concentrations exceeding 200 µg m⁻³.

Although it is possible that Site No. 97 may be at risk of breaching the 1-hour mean AQO for NO₂, the monitoring data is not currently conclusive at this time. Furthermore, it is recognised that the future Mountain Ash Southern Cross-Valley Bypass may materially affect the general area by potentially alleviating some local traffic congestion, consequently reducing local emissions of NO_x. As such it is appropriate to continue monitoring the situation and should future results indicate a sustained annual mean for NO₂ proximal to or above 60µgm⁻³, the situation will be reviewed. It is also noted that all the identified location is within existing AQMAs, previously declared for a breach of the annual mean AQO for NO₂, and will be subject to an AQAP in any event.

2.3.1.2 Comparison with the annual mean Air Quality Objective for NO₂

Table 2.16 displays a map of Rhondda Cynon Taf and the annual mean NO₂ at each active monitoring location in 2017; the greater size and redness in hue of each circle indicates a higher annual mean for NO₂. As expected, the map clearly shows that the varying communities within Rhondda Cynon Taf have experienced differing levels of NO₂ in 2017. This will be for a wide range of reasons both local and regional. For instance, Table 2.16 highlights the importance of the local and regional arterial road network, the pattern of local urbanisation and local valley topography.

Table 2.17 collates each monitoring site to the relevant community; where the community is in bold that monitoring location is within an AQMA that has been declared for a breach of the annual mean AQO for NO₂ and where underlined the AQMA has also been declared for a breach of the 1-hour AQO for NO₂ as well.

Table 2.17 – Annual mean NO₂ in 2017, Collated to Local Community

Community	Site No.	2017 Annual Mean
Background	4	15.5
	21	7.1
	101	7.3
	103	7.3 [‡]
	105	8.8
Aberdare	53	39.2
	68	35.5
	69	31.6
	75	31.8
	88	34.1
Broadway	51	41.9
	56	39.7
	66	34.9
	70 ^λ	27.84
	95	33.4 [‡]
Church Village	119	31.0
	85	41.1
Cilfynydd	129	28.2
	44	37.8
Cymmer	55	62.3
	91	51.5
	117	58.8
Dinas	118	65.9
Ferndale	90	36.9
	93	49.3
	107	35.3 [‡]
Llanharan	116	26.2 [‡]
	111	34.2
Llantwit Fardre	82	30.8
Llwynypia	106	43.5
Mountain Ash	52	49.1
	96	52.1
	97	56.7
	131 ^λ	47.66
Mwyndy	37	41.0
Nantgarw	8	39.3
	76	32.0
Nightingales Bush	108	54.3
	114	32.2
Pontyclun	110	30.0
Pontypridd	79	35.7
	80	35.5
	81	39.0
	83	34.8
	84	50.0
	120 ^λ	31.36
Talgarn	132	35.8
Tonyrefail	113	40.4
	122	33.8
Trebanog	124	29.3

Treforest	128	37.6
Tylorstown	41	50.9

^λ Continuous Monitoring Site

[‡] For those sites with nine months or less of data, the Extrapolated Annual Mean has been derived by interpolation in accordance with the method detailed within Box 7.10 of LAQM.TG(16); where undertaken this data manipulation has been recorded in Appendix 5.

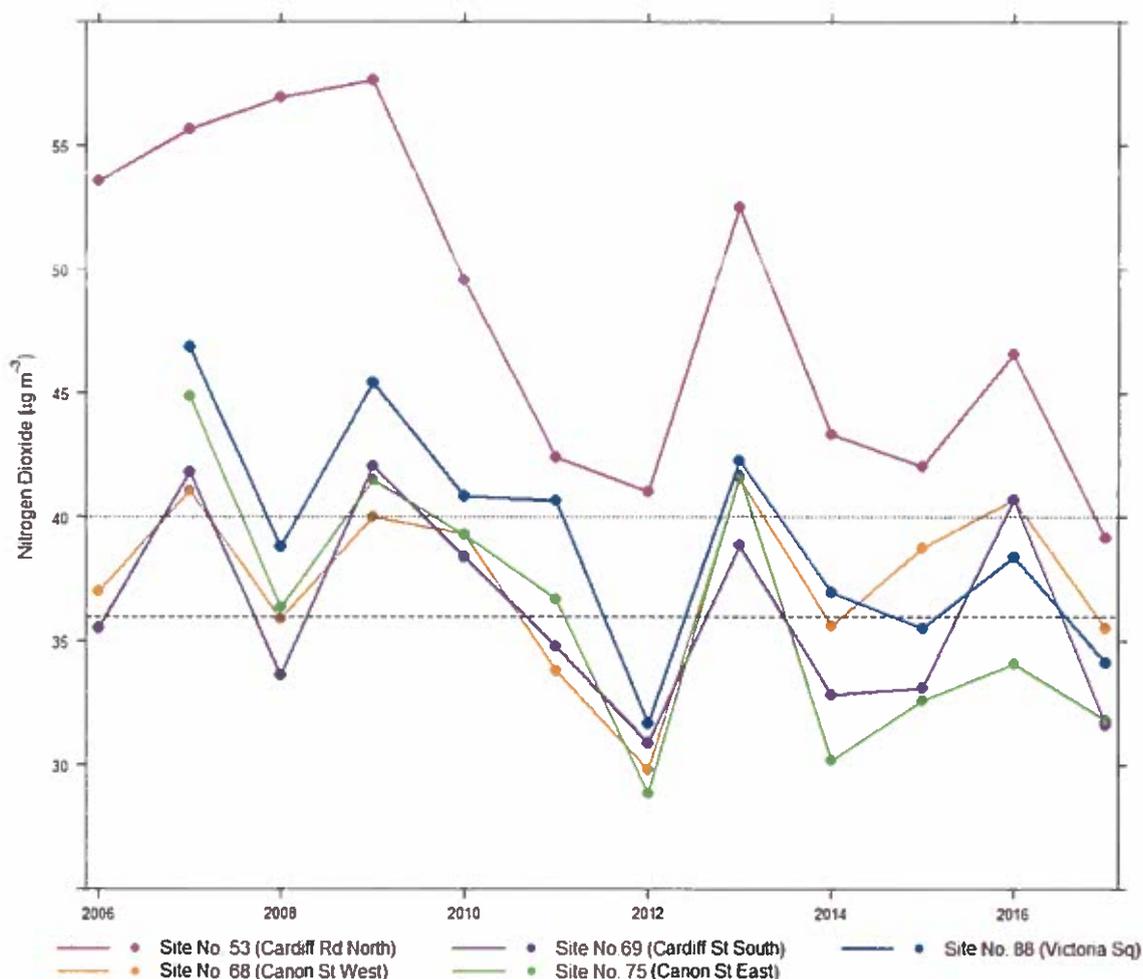
It is apparent that, in 2017, the majority of AQMAs continue to show a breach of the annual mean AQO for NO₂ in at least part of their area, other than the Aberdare Town Centre, Llanharan and Treforest AQMAs.

It is acknowledged that due to the often cyclic nature of air quality, some locations may not always show a breach of the annual mean AQO for NO₂ but may still remain at reasonable risk of a breach in the future. Therefore, where an AQMA, or part thereof, shows compliance to the annual mean AQO for NO₂ in any particular year, it does not mean that this would always be sufficient justification to review the designation. Instead consideration must first be made to the likely future sustainability of the compliance.

In considering whether to review the continued designation of the Aberdare Town Centre, Llanharan and Treforest AQMAs, a number of initial factors have been considered. It is acknowledged that monitoring within the Treforest AQMA is not at the worst case scenario and that levels at the worst case location within the AQMA are likely to be higher. In addition, both the Llanharan and Treforest AQMAs have only recently been declared and the analysis of sustained trends, to determine if sustainable improvement has been achieved, would currently be limited.

In regards the Aberdare Town Centre AQMA, historic monitoring data is available and Table 2.17 produces a time plot of the annual means of NO₂ recorded within the Aberdare Town Centre from 2006 to 2017.

Table 2.17 – Time Plot of the annual mean AQO for NO₂ at each monitoring location within the Aberdare Town Centre AQMA



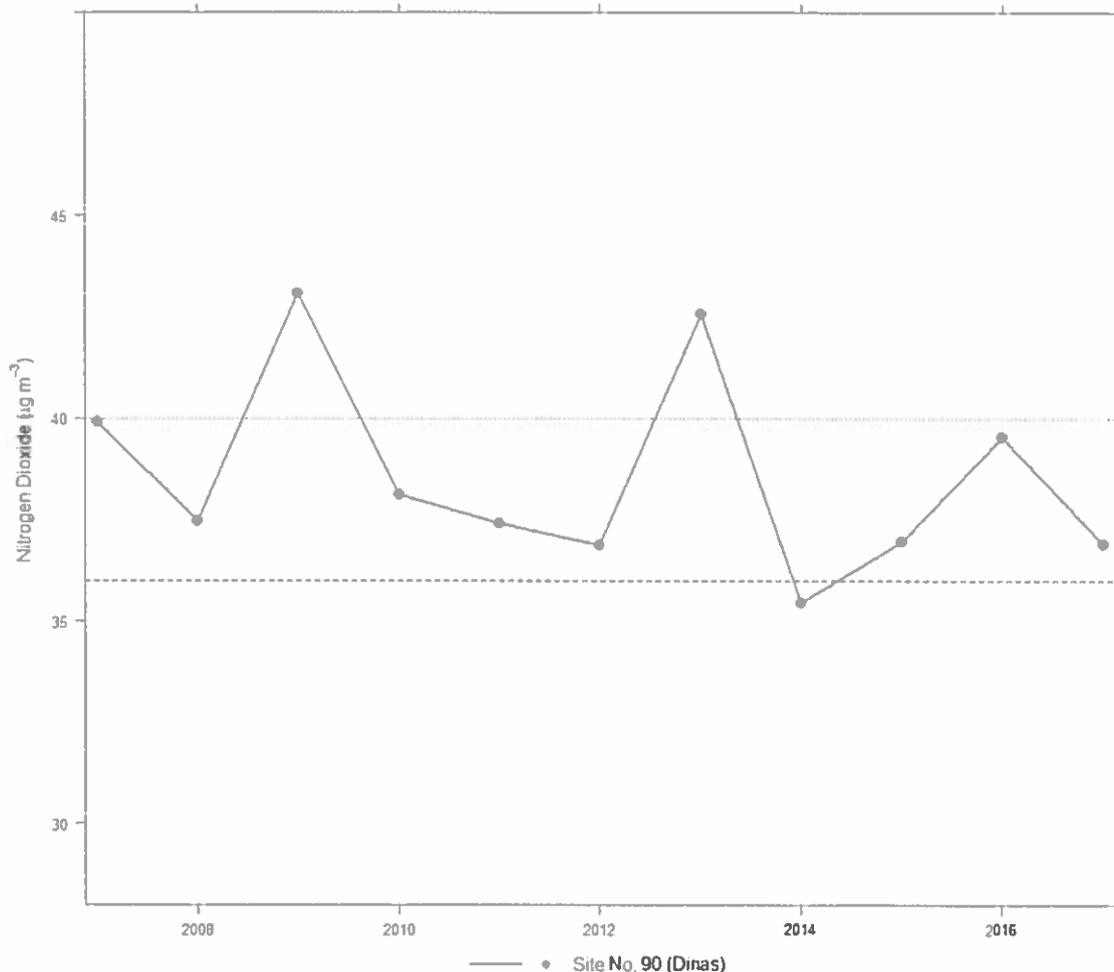
Although the above time plot emphasises a potentially improving situation, especially in regards to the most adverse location, Site No. 53. It is also clear that there have been recent consistent levels of NO₂ above 40µg_m⁻³ at multiple locations and, in 2017, at least one monitoring location still experienced levels of NO₂ above 36µg_m⁻³.

Due to the often cyclic nature of air quality and the inherently limited availability of monitoring data from the Llanharan and Treforest AQMAs as well as the recent historical data available from the Aberdare Town Centre AQMA, it is not considered appropriate to review these three AQMAs at this time but to continue to monitor the overall trend at each AQMA to identify if sustained improvement has been achieved.

In addition to the areas of elevated NO₂ already within an existing AQMA, due to the evolving nature of air quality it is possible that areas previously not in breach of annual mean AQO for NO₂ may become in breach at some point. A location that has an annual mean greater than 36µg_m⁻³ can be considered proximal to the annual mean AQO for NO₂ and may require further examination to consider future compliance. Vigilance should be maintained for such locations so as to enable rapid reaction to potential local changes which could increase the annual mean for NO₂ above 40µg_m⁻³. In 2017 only Site No. 90 located at Dinas showed an annual mean above 36µg_m⁻³.

and which is not currently within an AQMA. Table 2.17 provides a time plot of the annual means at Site No. 90 from 2007 to 2017.

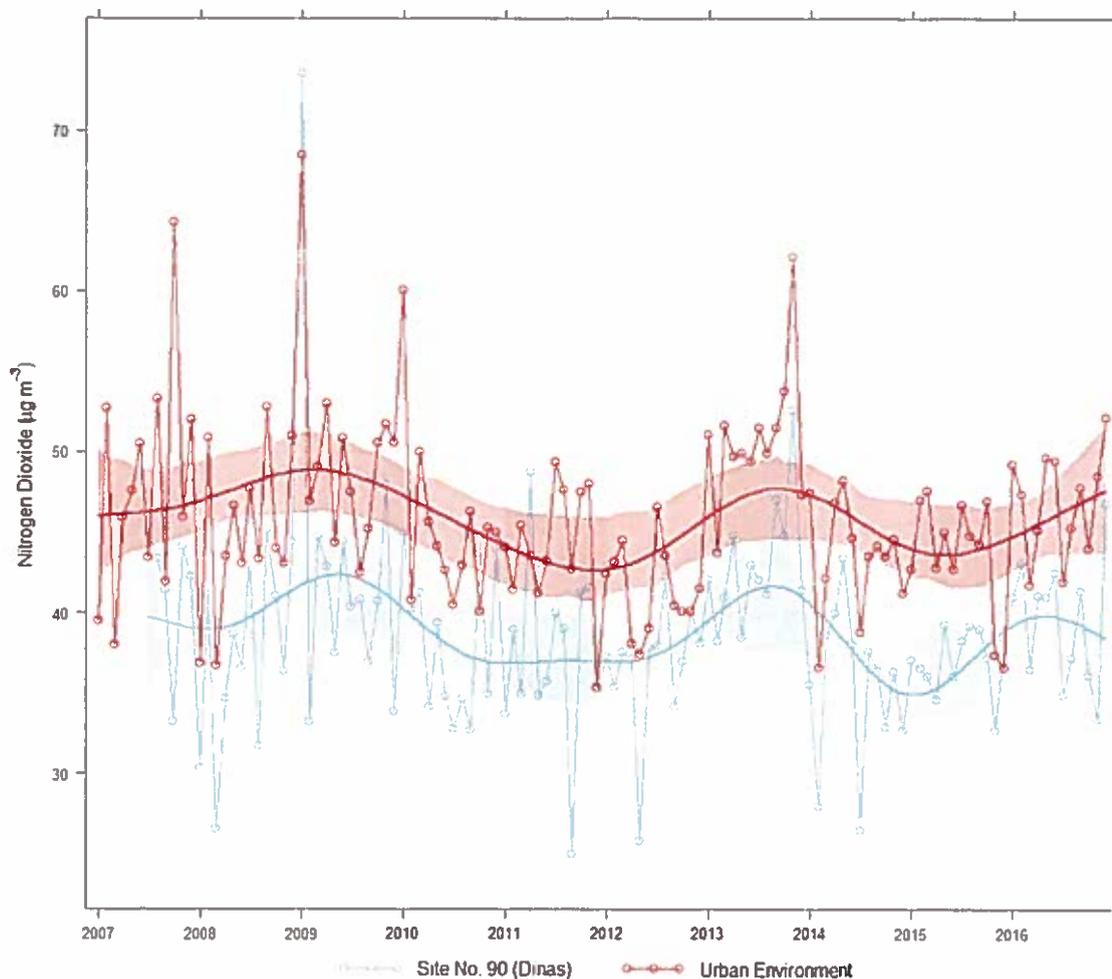
Table 2.17 – Time Plot of annual mean NO₂ monitoring results at site No. 90 from 2007 to 2017



Although historically at Dinas most years demonstrate compliance with the annual mean AQO for NO₂ there have been occasions, in 2009 and 2013, where the annual mean did exceed 40µg m⁻³. However, these occasions are known¹³ to be associated with particularly poor air quality years and may not be indicative of a future trend.

At present it is not believed that Dinas is in breach of the annual mean AQO for NO₂. When considering future compliance to the annual mean AQO for NO₂ at Dinas, it is believed current future local development proposals are unlikely to influence the longer term trend in NO₂ at Dinas. Therefore, it is possible to consider the current trend in NO₂ at Dinas as having relevance to its likely future prevalence. Table 2.18 displays a smooth trend plot of the monthly means between 2007 to 2017 at Site No. 90 (Dinas) as well as the urban environment for comparison.

¹³ Rhondda Cynon Taff CBC, 2014 Progress Report, October 2014

Table 2.17 – Smooth Trend Plot of NO₂ monitoring results at site No. 90 and the urban environment from 2007 to 2017

The smooth trend plot confirms a stable undulating trend in NO₂ at Dinas and shows a reasonable similarity to the overall urban environment trend. This may suggest that changes to NO₂ at Dinas may have been as a result of regional change, for instance traffic growth and regional vehicle fleet change, rather than a specific local factor, for instance a new development or traffic management rearrangement. It is also clear that the overlying trend is of gradual reduction in NO₂ (estimated at -0.3% per annum) with a reducing risk of sporadic elevated levels of NO₂, likely associated with wider regional poor air quality years.

On the basis of recent monitoring data and understanding of the local trends in NO₂, at this time it does not appear that the annual mean AQO for NO₂ has been breached at Dinas. It is apparent that the NO₂ trend appears relatively stable and possible future NO₂ levels are unlikely to significantly deteriorate. As such it is not considered appropriate, at this time, to consider the need for the declaration of an AQMA. However, it is necessary to continue to closely monitor the situation so as to identify if levels of NO₂ deteriorate and enable rapid reaction should circumstances change.

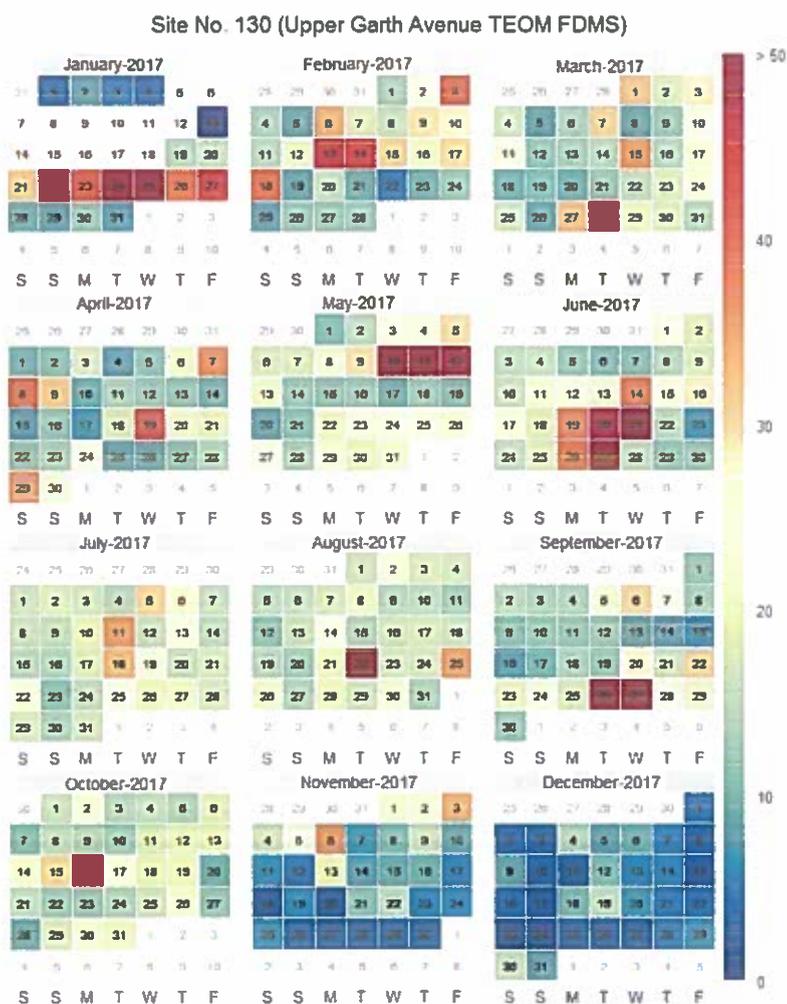
2.3.2 Particulate Matter (PM₁₀)

It has been reported¹⁴ that, based upon modelled assessment, the South Wales Non-agglomeration Zone, which includes Rhondda Cynon Taf, is compliant with both the annual mean EU Limit Value for PM₁₀ and the 24-hour daily mean EU Limit Value for PM₁₀.

Having discontinued monitoring at Site No. 31 (GEAES TEOM), the Local Authority did not monitor PM₁₀ within the Rhondda Cynon Taf general urban environment in 2017. However the Local Authority has undertaken monitoring at Glyncoch, a suburban area within the Taff Valley and in close proximity to the active Craig Yr Hesg Quarry.

To consider the relevance and context of the 2017 PM₁₀ monitoring data it is possible to examine it in a number of ways. Table 2.18 illustrates a calendar plot that identifies when the 24-hour daily means of PM₁₀ in 2017 was at its highest at Site No. 130 (Upper Garth Avenue TEOM FDMS).

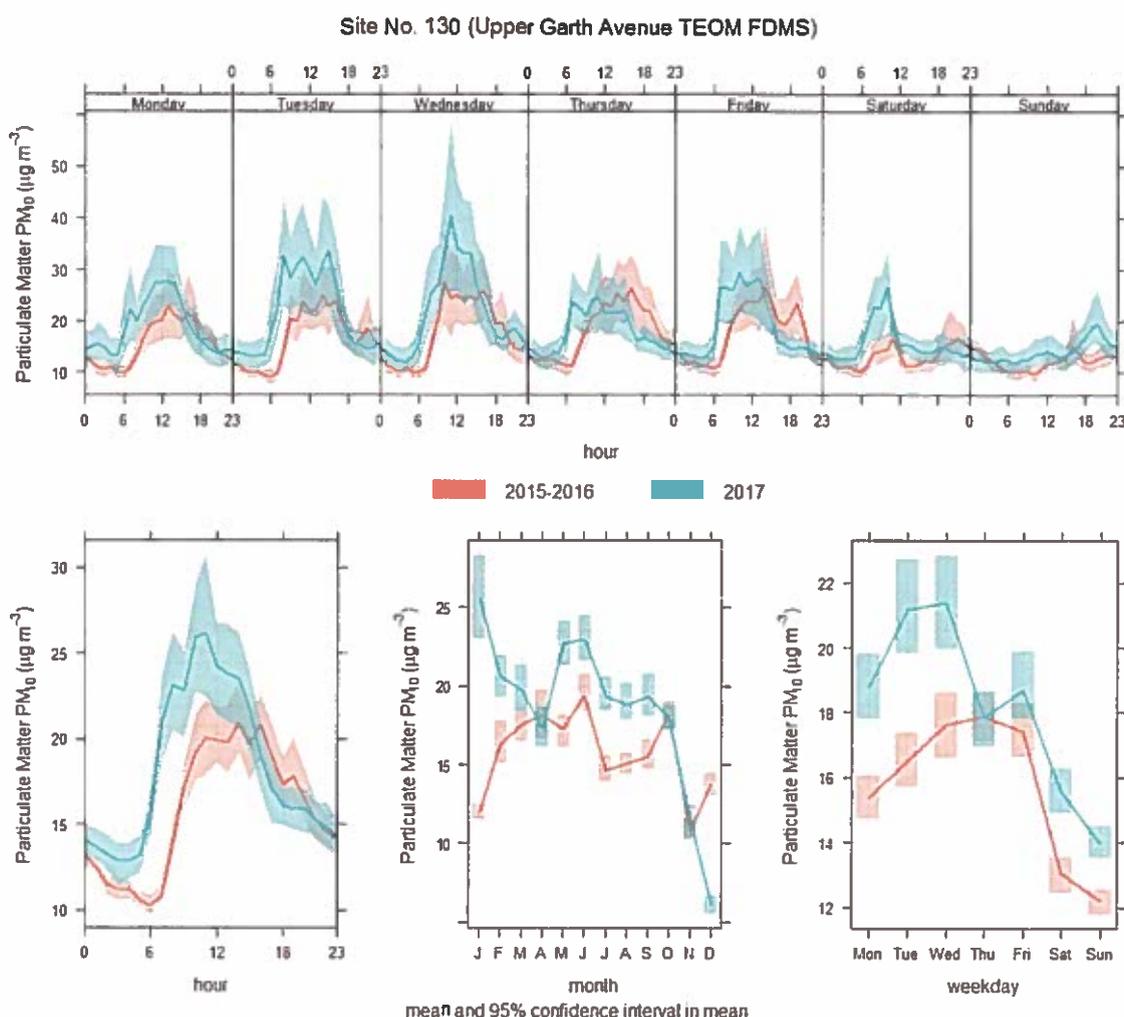
Table 2.18 – Calendar Plot of the 24-hour daily means of PM₁₀ at Site No. 130 (Upper Garth Avenue TEOM FDMS) in 2017



¹⁴ Defra, and the Devolved Administrations, *Air Pollution in the UK 2016*, September 2017

The calendar plot illustrates that, in general, elevated PM₁₀ levels are mostly observed during the summer months but that the highest levels can be experienced at any time of year. The calendar plot doesn't indicate wildly varying results but rather that the highest levels of PM₁₀ often appear to be clustered to several consecutive days at a time. To further understand the context of the 2017 PM₁₀ monitoring data, it is possible to compare this data with the historic average at Site No. 130 (Upper Garth Avenue TEOM FDMS). Table 2.19 provides time variation plots of the 2017 monitoring and its comparison with historic measurements.

Table 2.19 – Time Variation Plot of PM₁₀ measured at Site No. 130 (Upper Garth Avenue TEOM FDMS) in 2017 and 2015 to 2016

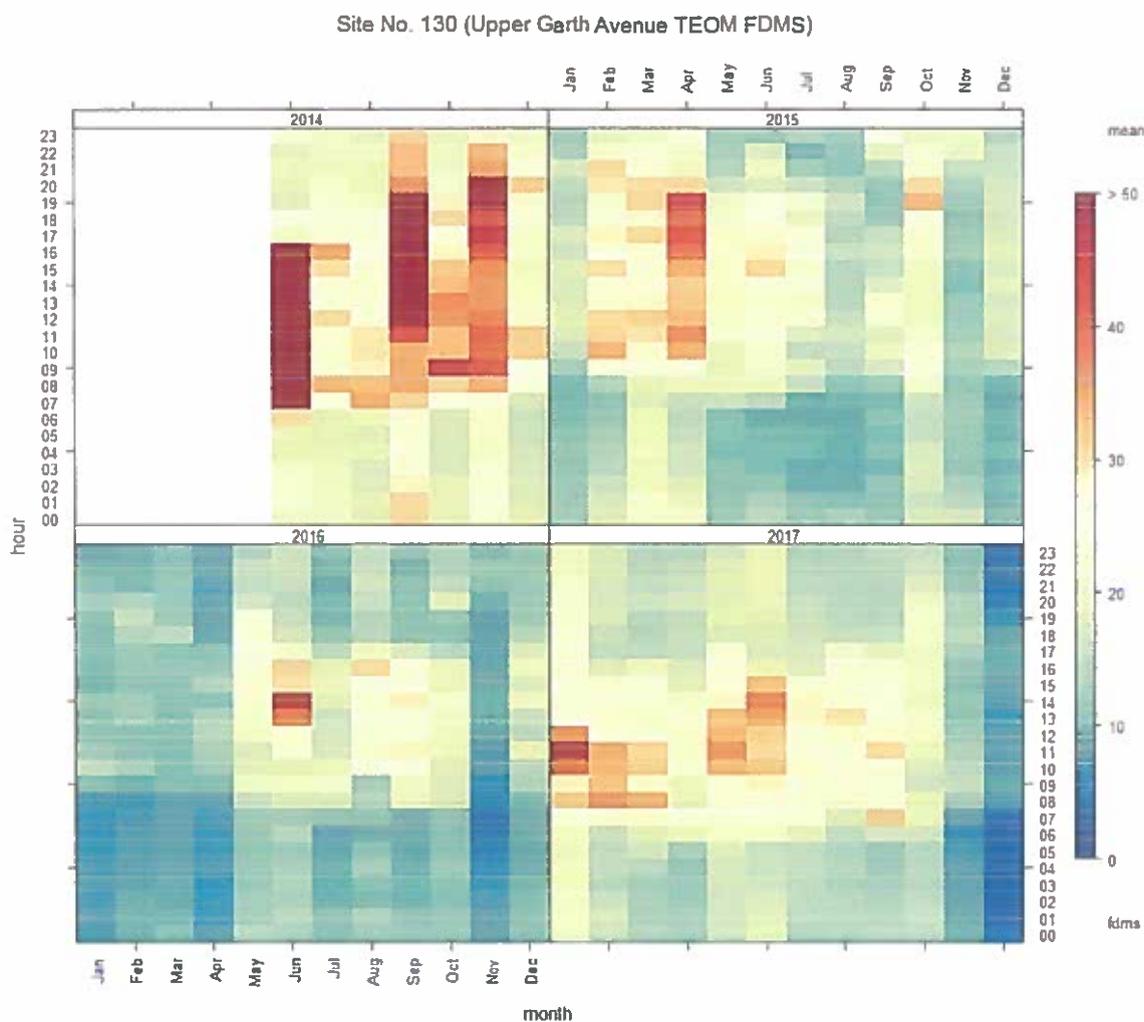


Site No. 130 (Upper Garth Avenue TEOM FDMS) demonstrates consistently elevated levels of PM₁₀ during Monday to Friday with significant reductions in the levels of PM₁₀ at the weekend. In addition, PM₁₀ levels at Site No. 130 (Upper Garth Avenue TEOM FDMS) are most elevated between 7am to 5pm. Although a consistently strong diurnal and hebdomadal relationship is observed, it appears that in both the current and historic data there is a lack of an apparent biannual relationship. This lack of a diurnal relationship is in contrast to that which has been observed historically at discontinued Site No. 31 (GEAES TEOM), a site heavily influenced by general road traffic emissions, where elevated levels of PM₁₀ were associated with the winter months. Also of note is the amount of variation in the data set (thickness of the line) indicating significant

variability during 2017, which is nonetheless based around a reasonably consistent pattern and which is also comparable with the variability and pattern observed by the historic data.

The trend level plot for PM₁₀ at Site No. 130 (Upper Garth Avenue TEOM FDMS) produced in Table 2.20 below, is a useful way of examining the temporal relationship of the trend in PM₁₀ over each year between 2014 and 2017. The trend level plot demonstrates that most years have comparable distributions in the occurrence of PM₁₀ and, combined with the above analysis, does not appear to indicate that the PM₁₀ monitoring at Glyncoch was subject to an unexpected influence, derived from a significant change in circumstances or transient event. As such it is considered appropriate to draw conclusions from the 2017 monitoring data sets, albeit due to the low data capture rates in 2017 and their indicative nature, any consideration of the data obtained from Site Nos. 63 and 109 will be limited.

Table 2.20 – Trend Level Plot of PM₁₀ measured at Site No. 130 (Upper Garth Avenue TEOM FDMS) from 2015 to 2017

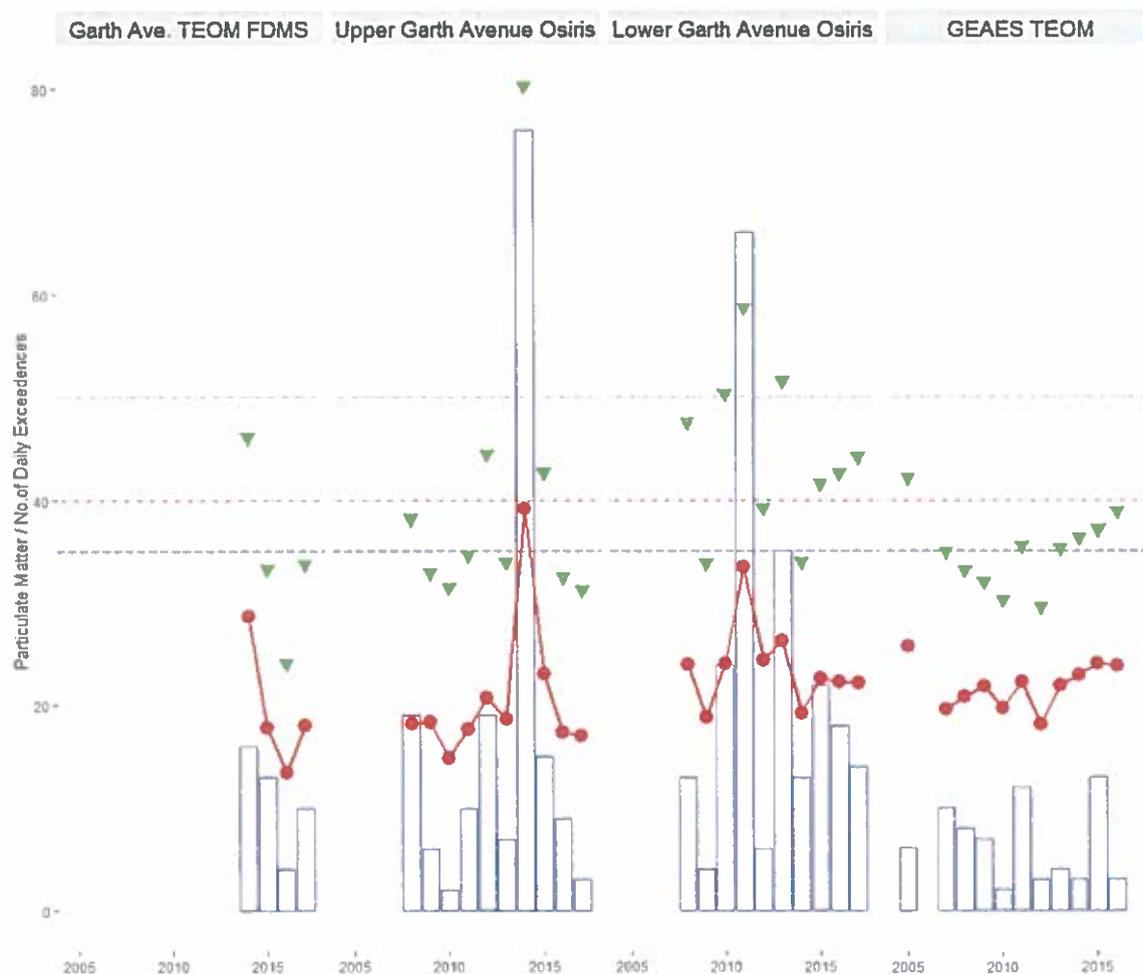


It is likely that PM₁₀ levels at Glyncoch are affected by a combination of PM₁₀ sources, both very local, intermediate and at distance from the monitoring locations. In addition, environmental influences may affect the transport of PM₁₀ to and its dispersion from the monitoring locations, influencing the locally experienced levels of PM₁₀. It is known

that the sources of PM₁₀ can be extremely variable, however, the patterns identified at Site No. 130 (Upper Garth Avenue TEOM FDMS) would likely be associated, in the main, to anthropogenic sources. The above analysis, supported by understanding reported in previous reviews, would suggest that the sources of PM₁₀ experienced at the Garth Avenue monitoring locations are likely to be specific to the locality, repetitive, predominated by an activity largely undertaken during 'working hours' and that the influence of the activity's emissions is variable, possibly in part due to changing climatic conditions affecting its emission and subsequent transportation. This analysis supports the conclusion that Craig Yr Hesg Quarry remains a significant source of locally observed PM₁₀.

It is possible to examine the relationship between the annual mean, the number of occasions the 24-hour daily mean for PM₁₀ has exceeded 50µgm⁻³ and the 90.4th percentile. Table 2.21, provides integrated time and bar plots illustrating the annual mean (the red line), the number of occasions the daily mean was greater than 50 µgm⁻³ (the blue bars) and the 90.4th Percentile of 24-hour daily means (green triangles), with the correspondingly coloured dotted reference lines for each AQO for PM₁₀.

Table 2.21 – Time plots and bar plot of the annual mean PM₁₀ (line), occasions the 24-hour daily mean has exceeded 50µgm⁻³ (bar) and the 90.4th percentile (green triangles) at Upper Garth Ave TEOM FDMS, Lower Garth Ave. Osiris, Upper Garth Ave. Osiris and GEAES TEOM, from 2007 to 2017



It must be stressed that the overall results from both Site No. 63 (Upper Garth Avenue Osiris) and Site No. 109 (Lower Garth Avenue Osiris) are indicative and, due to low data capture in 2017, it is difficult to draw firm conclusions. Nonetheless, since 2014 monitoring data at Site No. 130 (Upper Garth Avenue TEOM FDMS) and from both Osiris's demonstrate significant improvement in the situation. All three Glyncoch monitoring locations demonstrate or indicate current compliance to both the annual mean and the 24-hour daily mean AQOs for PM₁₀, with a clear margin between the measured results and the associated AQOs. This clear margin is of importance, as it is recognised the monitoring locations may not be at the worst case locations.

With monitoring at Site No. 31 (GEAES TEOM) discontinued, there is no continuing long term PM₁₀ data set for the Rhondda Cynon Taf urban environment. However, it is apparent that the available local and national monitoring data in 2017 does not suggest a significant change in the occurrence of PM₁₀ within Rhondda Cynon Taf or a change in the likelihood of continued compliance to the annual mean AQO for PM₁₀ or the 24-hour daily mean AQOs for PM₁₀.

On the basis of the above analysis, it is considered that most areas of Rhondda Cynon Taf are likely to continue to observe low PM₁₀ annual means and limited incidences of exceedences of the 24-hour daily mean AQO for PM₁₀. This is likely to be moderately affected by yearly changes in climate and meteorology but as the annual mean for PM₁₀ is consistently significantly below the annual mean AQO for PM₁₀, it is very unlikely such fluctuations will pose a risk to compliance. Therefore, the risk of breaching the annual mean AQOs for PM₁₀ within the general urban environment of Rhondda Cynon Taf is very low.

Although it remains difficult to predict a future trend at Glyncoch it appears that, at present the location remains compliant to the annual mean and the 24-hour daily mean AQOs for PM₁₀. Furthermore, the available evidence in 2017 may suggest that the levels of PM₁₀ have continued to improve in recent years potentially corresponding to known improvements to the control of Particulate Matter emissions from Craig Yr Hesg Quarry. Nonetheless, continued monitoring is necessary to ensure any future changes which have the potential to impact on the local prevalence of PM₁₀, most notably the possible implementation of the proposed extension of Craig Yr Hesg Quarry, can be fully considered.

2.4 Summary of Compliance with Air Quality Objectives as of 2017

Rhondda Cynon Taf County Borough Council has examined the results from monitoring within its area. Concentrations of NO₂ within all sixteen AQMAs still exceed, or in the near-term are still likely to exceed, the relevant AQOs for NO₂. Therefore these AQMAs should remain and further assessment is not required at this time.

Concentrations of NO₂ outside of these AQMAs and concentrations of PM₁₀ throughout Rhondda Cynon Taf are likely to be below their relevant AQOs, therefore no further action is required at this time.

3. New Local Developments

The Local Authority is the Local Planning Authority for part of its area that is not within the jurisdiction of the Beacon Beacons National Park Authority. The Local Authority is also the Highway Authority for all of its area other than for those roads which are the responsibility of Welsh Government and its South Wales Trunk Road Agent.

3.1 Road Traffic Sources (& other transport)

The Local Authority as the Highway Authority maintains significant road infrastructure throughout its area. Part of this role involves the improvement of existing infrastructure to take account of changing needs and current practices.

During 2017 the Highway Authority commissioned works to the traffic light controlled northern junction of Broadway, which is within the Broadway AQMA. These works increased the number of carriageways turning right from Broadway onto the A4058, so as to improve the efficiency of the traffic light controlled junction by increasing its capacity and hence potentially reduce protracted waiting times of vehicles within the Broadway AQMA. Due to the limited size and nature of the project, it was not subject to an Air Quality Assessment prior to implementation, however, it has been estimated that the works may achieve a maximum 3% reduction in NO_x within part of the Broadway AQMA without causing detriment elsewhere. Although it is unlikely that, in itself, these works would cause part of the Broadway AQMA to achieve compliance, it is likely that they would accelerate the timeframe for such achievement. As local NO₂ monitoring data becomes available, the situation may be reviewed to determine if any changes to the existing Broadway AQMA is necessary.

In addition to works undertaken, the Highways Authority has [published](#)¹⁵ updates on a number of major highways projects which may have an effect on local air quality. Table 3.1 provides some brief details on these schemes and a provisional qualitative assessment of their impact. It is likely each scheme will in due course be subject to further assessment as part of the planning process and future reports will look to provide further information when available.

Table 3.1 – Road schemes proposed in 2017 which have the potential to impact local air quality.

Project	Description	Affected AQMA	Qualitative Impact
Mt Ash Southern Cross-Valley Bypass	New southern bridge crossing the Afon Cynon to the south of Mt Ash Town Centre. Enabling the partial bypass of some traffic from the B4275 to the A4059.	Mt Ash	Effect on AQMA not predicted but max 10.4% reduction in NO ₂ south of AQMA but potential for 4.8% increase in NO ₂ along New Rd south of AQMA (associated with new junction)
Llanharan Bypass	New through road network associated with proposed multi-phase housing development, that will relieve traffic from the existing	Llanharan	Potential major improvement within AQMA

¹⁵ <https://www.rctcbc.gov.uk/EN/Newsroom/PressReleases/2018/October/UpdateonmajorHighwaysandTransportationprojects.aspx>

	A473 prior to the centre of Llanharan		
Ely Valley Road Duelling	Providing additional carriageways along A4119 to improve capacity and reduce the likelihood of peak traffic congestion	Tonyrefail	Potential minor to moderate improvement within AQMA
Gelli/Treorchy Relief Rd	New road network to relieve traffic from the existing local road infrastructure within the Rhondda Fawr	Llwynypia	Potential substantial improvement within AQMA
Abercynon Park and Ride	Additional capacity at existing railway station to enable modal change	Nightingales Bush Treforest Cilfynydd	Potential minor improvement within AQMAs and the wider Taf Valley
A4419 South Corridor Improvement	Improvements to bus infrastructure, junction capacity and traffic management to reduce existing congestion points	Mwyndy	Effects on AQMA unclear but potential moderate improvement within area from Talbot Green to Mwyndy
A465 Cynon Valley Gateway	Extension of Aberdare bypass to the duelled A465 Heads of the Valley road	-	Potential moderate improvement within Aberdare suburban area.
Porth Town Centre Transport Hub	Providing a transportation hub for local bus and train transport with additional park & ride facilities, potentially including electric vehicle charging points and possible infrastructure to encourage electric bus and taxi uptake.	-	Potential moderate improvement within Porth and minor improvement within wider Rhondda Valleys area.

In addition to the above projects, the Local Authority continues to work closely with The Welsh Government Transport Company and other partner organisations in the development and delivery of the South Wales Metro. Further details of the South Wales Metro and its multi-phased timetable of implementation can be obtained from the Transport for Wales “What’s Happening in South East Wales” [webpage](#)¹⁶. It is likely that the gradual operation of the South Wales Metro will have a significant impact upon air quality through a large area of Rhondda Cynon Taf and specifically those communities in the Taf Valley associated with the A470.

3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

Although the degree of industrialisation of Rhondda Cynon Taf has significantly reduced compared to historic levels, there are still a number of industrial premises which could impact upon local air quality.

Under Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2016, the Local Authority can grant environmental permits to operate various permitted activities. Table 3.2 identifies those stationary Regulated Facilities, within Rhondda Cynon Taf, which have been granted environmental permits in 2017. Further details of the Regulated Facilities are available on the Environmental Permitting Public Register held by the Local Authority, the index of which is available on its “Environmental Permitting” [webpage](#)¹⁷.

¹⁶ <https://tfw.gov.wales/whats-happening-south-east-wales>

¹⁷ <https://www.rctcbc.gov.uk/EN/Business/LicencesandPermits/Pollutionrelatedlicences/EnvironmentalPermitting.aspx>

Table 3.2 – Environmental Permits granted by the Local Authority in 2017

Permit Ref.	Operator	Activity	Relevant Pollutants	Area	Affecting LAQM
121	Celtic Community Wood Fuel Ltd	Part B Timber Activities (curing)	PM ₁₀ NO _x	Hirwaun	×
122	Llantrisant Recycling Centre Ltd	Part B Small Waste Wood Combustion	PM ₁₀ NO _x	Llantrisant	×

None of the stationary Regulated Facilities, listed in Table 3.2, are expected to have a significant impact upon local air quality, in relation to its effects on public health, due to their type and size and distance from existing AQMAs or other vulnerable areas.

The Local Authority will also consider substantial changes to existing Regulated Facilities where that change could increase the potential risk of pollution. During 2017 no stationary Regulated Facilities regulated by the Local Authority experienced a substantial change.

The Clean Air Act 1993 requires that the Operators of certain 'furnaces' to notify the Local Authority of their installation or modification. No such notifications were received by the Local Authority in 2017.

As discussed in Section 2.3.2 above, it is possible that during 2017 the impact on local PM₁₀ levels attributed to Craig Yr Hesg Quarry may have been subdued. This change may be as a result of ongoing broad improvements to reduce PM₁₀ emissions from Craig Yr Hesg Quarry. The Local Authority continues to engage with the operators of Craig Yr Hesg Quarry to attempt to mitigate any potential impact of the site activities on the surrounding community. It is also acknowledged that the Operator has undertaken improvement works to on-site particulate matter abatement. In addition the Local Authority, in its position as the Local Mineral Planning Authority, has undertaken a Review of Old Mineral Permissions [ROMP] for the Craig Yr Hesg Quarry. The ROMP, accompanied by an Environmental Impact Assessment, has allowed the Local Authority to ensure the most appropriate conditions, at that time, are in place to prevent and mitigate emissions of PM₁₀ from the site.

Subsequently in May 2015 the Local Authority, in its position as the Local Mineral Planning Authority, received an application (planning application number 15/0666/10) for mineral development consent, in regards to the proposed phased extension to the existing quarry. The application, which has been accompanied by an Environmental Impact Assessment, concerns a proposal to extend, in a western direction, the current quarrying area and as a consequence to extend the lifetime of the mineral extraction activities. It is possible that the proposal could significantly reduce the distance of certain quarrying activities from parts of the local community of Glyncoch. At the time of writing, the Local Authority is considering this application. Subsequent to its decision, the Local Authority will consider the outcome of the development control process in relation to its local air quality management duties.

3.3 Planning Applications

In accordance with Planning Policy Wales¹⁸ and the Local Development Plan¹⁹, the Local Authority considers air quality a material planning consideration. The Local

¹⁸ Welsh Government, *Planning Policy Wales Edition 9*, November 2016 (likely to be superseded by Edition 10)

¹⁹ Rhondda Cynon Taf CBC, *Rhondda Cynon Taf Local Development Plan up to 2021*, March 2011

Authority will, when necessary, take account of the implications of any development upon local air quality during the planning consent decision making process. The Local Authority will attempt to ensure that, if necessary, future developments will negate or mitigate any impacts on local air quality whilst continuing to treat each application for planning consent on its individual merits.

The Local Authority has produced informal guidance criteria²⁰ used by it to identify, in a consistent and proportional way, applications for proposed developments which could either have the potential to adversely impact upon local air quality or introduce a relevant population to an existing area of potentially poor local air quality. Should a development meet the criteria and it is proportionate to do so, the Local Authority will require an Air Quality Assessment [AQA]. An AQA will objectively examine the air quality implications of the proposed development and provide sufficient information to allow the Local Planning Authority to evaluate the material planning consideration.

During 2016-2017 the Local Planning Authority approved 569 new dwellings across a range of consented developments but it is believed that no new dwellings were within an AQMA²¹. Table 3.3 details the planning applications received or pending in 2017 considered by the Local Planning Authority as having the potential to impact local air quality management and it was determined appropriate for an Air Quality Assessment to be provided.

Table 3.3 – Planning Applications under consideration or approved in 2017 where an AQA was provided

Application Number	Location	Description	Affecting LAQM or AQMA
15/0666/10	Craig Yr Hesg Quarry, Glyncoch	Western extension to existing quarry to enable the phased extraction of 10 million tonnes of sandstone	Pending Consideration

In relation to planning application 'Craig Yr Hesg Quarry (15/0666/10)', this application has been discussed above in Section 3.2.

No other relevant proposed developments have been identified which would be expected to materially affect or be affected by air quality.

3.4 Other Sources

The Local Authority appreciates that certain pollution incidents as well as wide scale bonfire activity, large firework displays and domestic wood burning can have the potential to impact upon local air quality.

Rhondda Cynon Taff routinely experiences a large number of intentional wildfires; 1,247 wildfires were recorded between January 2012 and May 2014. In the past, the incidence of intentional wildfires has varied, being dependent upon dry weather aligning with school summer term breaks, with occasions of wide-scale wildfires

²⁰ Rhondda Cynon Taf CBC, *Planning Assessment Criteria V1.02*, January 2013

²¹ Rhondda Cynon Taf CBC, *Rhondda Cynon Taf Local Development Plan Annual Monitoring Report 2015-2016*, 31st March 2016

affecting large areas of the Rhondda and Cynon valleys. They are usually associated with open mountainside locations and frequently arise in close proximity to residential areas. They can result in large areas of bracken and other vegetation being burnt, in an uncontrolled manner, with significant amounts of black smoke being produced, occasionally for extended periods of time

Although these wildfires are unlikely, in themselves, to pose a risk of compliance to a relevant AQO, the Local Authority considers that the prevalence of intentional wildfires during the summer can, dependent upon circumstances, have a significant short-term effect on local air quality by potentially dramatically elevating local levels of Particulate Matter and Black Carbon. Anecdotal reports suggest these incidents could have a direct effect on public health as well causing anxiety and concern within the communities affected.

Although, the Local Authority has not directly quantified the air quality impact of wildfires within or in proximity to its area, in recognising the potential impact of such wildfires the Local Authority will continue to work with its partners to deter their occurrence. In addition, it will also continue to monitor emerging understanding upon the public health impact of wildfires and, where necessary, will react accordingly.

The Local Authority is not aware of any other pollution incidence that could have significantly affected air quality within its area.

The Local Authority recognises the impact of bonfires, firework displays and domestic wood burning within its area could have on local air quality and continues to enforce a range of statutory provisions, including building regulations and the statutory nuisance regime, to deter or otherwise minimise their impact. At present Rhondda Cynon Taf does not maintain sufficient information to evaluate the likely prevalence or combined impact of these activities, however, at present it is believed that it is unlikely that they would significantly threaten compliance to a relevant Air Quality Objective within Rhondda Cynon Taf.

Rhondda Cynon Taf County Borough Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

Rhondda Cynon Taff County Borough Council confirms that all the following have been considered:

- Road traffic sources
- Other transport sources
- Industrial sources
- Commercial and domestic sources
- New developments with fugitive or uncontrolled sources.

4. Polices and Strategies Affecting Airborne Pollution

4.1 Local / Regional Air Quality Strategy

At present the Local Authority has not determined to produce a local air quality strategy and is not a member of any local government produced regional air quality strategy. However, it is expected that the sixteen AQAPs adopted by the Local Authority, and which are expected to be reviewed in 2020 as part of a regular schedule to ensure pertinence, will have a co-ordinating role with regards to the delivery of air quality improvement.

4.2 Air Quality Planning Policies

The Local Authority is the Local Planning Authority for that part of its area not within the Brecon Beacons National Park. In accordance with guidance the Local Authority has adopted a Local Development Plan²².

The Local Development Plan references several policies which are designed to protect the environment and human health. A key policy is "Policy AW10 – Environmental Protection and Public Health", reproduced in Table 4.5.(1), which provides a clear indication on how proposed developments which adversely affect air quality will be catered for.

Table 4.1 – "Policy AW 10 Environmental Protection and Public Health"

<p>Development proposals will not be permitted where they would cause or result in an unacceptable risk of harm to health and/or local amenity because of: -</p> <ol style="list-style-type: none"> 1. Air Pollution 2. Noise Pollution 3. Light Pollution 4. Contamination 5. Landfill Gas 6. Land Instability 7. Water Pollution 8. Flooding 9. Or any other identified risk to public health <p>Unless it can be demonstrated that measures can be taken to overcome any significant adverse risk to public health and / or impact upon local amenity.</p>
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The Local Authority has not yet proposed to adopt any Special Planning Guidance with specific regards to air quality but will continue to strive to harmonise treatment of planning applications and ensure transparency where air quality is a material consideration.

²² Rhondda Cynon Taf CBC, *Rhondda Cynon Taf Local Development Plan up to 2021*, 2nd March 2011

As part of the sustainability monitoring framework put in place to assess the application of the Local Development Plan, a number of air quality indicators have been adopted and are reported upon within the Local Development Plan Annual Monitoring Report²³.

4.3 Local Transport Plans and Strategies

As a result of a Regulatory Order²⁴ the Local Authority is no longer required to maintain a Local Transport Plan. In March 2014 the Local Authority adopted a regionally collaborative Local Transport Plan²⁵ [rc-LTP]. The rc-LTP is based upon a number of objectives, several of which are relevant to local air quality management; as shown in Table 4.2.

Table 4.2 – Objectives relevant to local air quality management within the rc-LTP

No.	Objectives of the rc-LTP
1.	To improve connectivity by sustainable transport between the SE Wales Valleys and the rest of Wales, the UK and Europe.
2.	To improve interchange within and between modes of transport
3.	To improve the quality, efficiency and reliability of the transport system.
4.	To reduce traffic growth, traffic congestion and to make better use of the existing road system
5.	To achieve a modal shift towards more sustainable forms of transport for moving people and freight.
6.	To reduce significantly carbon emissions from transport.
7.	To reduce the impact of the transport system on the local street scene and the natural, built and historic environment.
8.	To promote sustainable travel and to make the public more aware of the consequences of their travel choices on climate, the environment and health.

The rc-LTP, which covers the period 2015 to 2020, acknowledges the need for sustainable transport solutions and proposes a number of actions to encourage the use of public transport and modal shift, whilst limiting new major road building. Table 4.3 notes the relevant actions proposed by the rc-LTP which, if delivered within existing funding constraints, could have a potential affect on local air quality management. In line with guidance, the rc-LTP only has regard to schemes which are deliverable within the Local Authorities remit.

Table 4.3 – Proposed actions contained within the rc-LTP

rc-LTP Schemes	Relevant AQMA or area of interest
1. Active Travel Schemes throughout Rhondda Cynon Taf, to improve walking and cycling links	All

²³ Rhondda Cynon Taf CBC, *Rhondda Cynon Taf Local Development Plan Annual Monitoring Report 2016-2017*, 31st October 2017

²⁴ In accordance with The Transport Wales Act 2006

²⁵ The Five South East Wales Local Authorities, *South East Wales Valleys Local Transport Plan*, January 2015

	to key services and facilities and improve accessibility within and between communities.	
2.	Safe Routes in Communities Schemes throughout Rhondda Cynon Taf, to improve accessibility within communities with a specific focus on providing safe, sustainable routes to schools and school travel plans to encourage a greater use of active modes of travel	All
3	A4059 Aberdare Bypass Extension Scheme to develop an existing road, in parallel with the ongoing duelling of the A465, to maintain access between communities	Hirwaun
4	Bus Priority Schemes to include measures to relieve congestion pinch points along strategic bus corridors, raise kerbs, new information displays and, where feasible, new seating and shelters for public bus users within Rhonda Cynon Taf	All
5	Bus Rapid Transit Schemes to develop, where feasible, improved cross-valley links between key settlements outside Cardiff and Newport, by construction of segregated sections of bus priority road space.	Broadway Cilfynydd Nantgarw Pontypridd Town Centre
6.	Treforest Estate Station Park and Ride Provision Scheme, to provide a new Park and Ride Facility which could serve a wide catchment area including Tonteg and Church Village.	Broadway Church Village Llantwit Fardre
7.	Station Park and Ride Improvement Schemes to improve current provision of park and ride facilities at railway stations within Rhondda Cynon Taf	All
8.	Aberdare Bus Station Upgrade Schemes to include new electronic information displays and other changes to improve the desirability of the stations to users	Aberdare Town Centre
9.	Tonypandy Bus Station Upgrade Schemes to include new electronic information displays and other changes to improve the desirability of the stations to users	Ferndale Llwynypia Tylorstown
10.	Strategic Transport Corridor Management System A4119 / A473, to include modifying the junction layout and the installation of a new urban traffic control system.	Mwyndy Church Village Llantwit Fardre
11.	Mountain Ash Southern Cross Valley Link Road, to provide a bridge forming a cross valley link to divert traffic from the southern B4275 to the A4059	Mountain Ash
12.	Mountain Ash Northern Cross Valley Link Road, to provide a cross valley link to divert traffic from the northern B4275 to the A4059	Mountain Ash

In addition to the rc-LTP, the Welsh Government have suggested a number of rail or rail hybrid improvement schemes which could have an effect on local air quality management within Rhondda Cynon Taf; as detailed in Table 4.6.(3).

Table 4.4 – Proposed Welsh Government rail or rail hybrid infrastructure projects

	Rail Schemes	Relevant AQMA or area of interest
1.	Reinstatement of passenger services between Aberdare and Hirwaun	Aberdare Town Centre
2.	Great Western Main Line electrification	Llanharan
3.	Valley Lines electrification	Broadway Pontypridd Town Centre
4.	Additional half hourly passenger services between Cardiff and Merthyr Tydfil [‡]	Aberdare Town Centre Pontypridd Town Centre Cilfynydd
5.	South Wales Metro (hybrid rail/tram/road)	Nightingales Bush Pontypridd Town Centre Treforest

[‡] This scheme has been completed

The Local Authority will monitor the impact of these schemes on local air quality and where necessary react accordingly.

4.4 Active Travel Plans and Strategies

In accordance to statutory requirements the Local Authority has produced and consulted upon a number of maps²⁶ showing the Active Travel routes within its area. In doing so the Local Authority has designated eleven 'Walking Routes' and nineteen 'Shared Routes' as reportable active travel routes.

In addition, the Local Authority has produced an Active Travel Annual Report²⁷ and Active Travel Monitoring Report²⁸, which provides details on identified goals and progress made in promoting the active travel agenda. Further information, on these can be found on the Local Authority "Active Travel and Cycling" [webpage](#)²⁹.

It is expected that the production of the route maps will enable the Local Authority to build upon and improve local infrastructure for walking and cycling. In addition the Local Authority will aim to consider the needs of walkers and cyclists during its decision processes and, where appropriate to do so, make better provision for them. It will also look to promote, where practical, walking and cycling as a mode of transport.

It is envisaged that the potential for collaborative working to further this mutually conducive agenda could deliver local air quality improvement in a "win win" scenario. An example of this approach is the progression of AQAPs actions to improve the

²⁶ Rhondda Cynon Taf CBC, *Active Travel Existing Route Maps*, 19th October 2015

²⁷ Rhondda Cynon Taf CBC, *Active Travel Annual Report*, 2017

²⁸ Rhondda Cynon Taf CBC, *Active Travel Monitoring Report*, 2017

²⁹ <https://www.rctcbc.gov.uk/EN/Resident/ParkingRoadsandTravel/Travel/ActiveTravelandCycling.aspx>

provision of information about active and sustainable travel routes associated with Pontypridd Town Centre.

4.5 Local Authorities Well-being Objectives

In May 2016 the Cwm Taf Public Service Board was launched as a partnership between a number of statutory participants, including Rhondda Cynon Taf CBC as a core member. The Cwm Taf Public Service Board purpose is to facilitate and coordinate the achievement of well-being objectives associated with sustainable development goals introduced by the new statutory framework provided by the Wellbeing of Future Generations (Wales) Act 2015.

To support this agenda, on the 9th March 2017, the Local Authority adopted the following Well-Being Objectives: -

- Building a strong economy
- Promoting independence and positive lives for everyone
- Creating neighbourhoods where people are proud to live and work

Subsequently the Local Authority also agreed that, from May 2018, the Local Authority's priorities will be directed by the Cwm Taf Well-Being Plan which is available on the "Our Cwm Taf" [webpage](#)³⁰. These priorities have been summarised as: -

- Thriving Communities, to promote safe, confident, strong and thriving communities improving the well-being of residents and visitors and building on our community assets
 - Work with our communities to provide consistent messages, links and signposting to community, public sector and business support within and close to communities;
 - Work with and support communities who want to manage and improve their local environment.
- Healthy People, to help people live long and healthy lives and overcome any challenges
 - Collectively promote healthy lifestyles by encouraging "One More Healthy Behaviour" for all staff and citizens;
 - To work together as public services and with our communities to reduce levels of obesity.
- Strong Economy, to grow a strong local economy with sustainable transport that attracts people to live, work and play in Cwm Taf
 - Growth and promotion of tourism using the assets of our beautiful natural environment, heritage and culture for the health, prosperity and benefit of the whole community and alongside the development of the Valleys Landscape Park;
 - To make the most of the investment and return opportunities of the £1.229 billion City Deal locally within Cwm Taf;
 - Further explore the opportunities for sustainable housing and renewable energy developments with associated community funds.

³⁰ <http://www.ourcwmtaf.wales/SharedFiles/Download.aspx?pageid=286&mid=613&fileid=210>

As part of the delivery of these well-being objectives, National Indicators and Milestones have been produced, including one for air quality³¹. It is expected that this will require consideration of air quality in the form of a broader burden reduction approach. This currently differs to that of the compliance approach enacted by the current local air quality management regime. Nonetheless, it is anticipated that both routes to air quality improvement will act in collaboration where possible.

It will likely become incumbent upon the members of Cwm Taf Public Service Board to consider their service delivery and the potential for positive action to be taken to holistically improve overall air quality. It will also be a requirement for partners to provide annual updates and reviews of progress in furthering achievement of the well-being objectives.

It is uncertain as to the practical extent of interaction between this regime and the local air quality management regime. As a result the Local Authority will, for the foreseeable future, continue to produce AQAPs as standalone statutory plans as well as separate local air quality management progress reports. This position will be reviewed should future statutory guidance require a harmonised approach to actions and reporting.

4.6 Green Infrastructure Plans and Strategies

The Local Authority recognises the importance of green infrastructure to public health and the environment, as well as it being an important potential resource in the improvement of local air quality. At present the Local Authority has not adopted a plan or strategy but continues to consider the benefits of such actions which could improve green infrastructure as part of its other activities. In addition the Local Authority will continue to build upon internal mechanisms to enable knowledge sharing and coordination between ecological & countryside management and local air quality management.

4.7 Climate Change Strategies

The Local Authority has regard to climate change both by actions it may undertake to reduce its contribution to climate change and also if actions are required to mitigate the impact of climate change upon service delivery. With this aim the Local Authority had adopted the 'Our Living Space' Environmental Improvement Strategy³² which identifies several priorities for action, identified in Table 4.5, where the Local Authority can lead on Climate Change.

Table 4.5 – Future Priorities for Action

- The implementation of the Rhondda Cynon Taf County Borough Council Energy and water management policy and adoption of best practice locally;
- Ongoing support for the Green Dragon Programme and other methods of helping businesses and organisations improve their environmental management;
- Greater co-ordination of activities locally to reduce energy consumption, increase energy efficiency and investigate new sources of renewable energy;

³¹ Welsh Government, *National Indicators for Wales - National Indicator 4*, 16th March 2016

³² Rhondda Cynon Taf CBC, 'Our Living Space' *Environmental Improvement Strategy*, 28th April 2005

- Encourage all organisations including businesses to adopt a sustainable purchasing policy contributing to waste minimisation;
- Increased research aimed at improving our understanding of the energy big picture locally in terms of how much energy is used locally. Alongside a commitment by all partners on the Environmental Improvement Partnership to change and review their energy usage, to address Climate Change as an issue of local importance.

The Local Authority recognises the importance of the impacts of climate change on service delivery and is a signatory to the Welsh Commitment to Address Climate Change.

The Local Authority recognises the potential significant effects climate change may have on local air quality and the synergistic effects local air quality management can have on climate change and vice versa. As such the Local Authority will work to ensure local policies produced to tackle climate change take account of local air quality management.

5. Conclusions and Proposed Actions

5.1 Conclusions from New Monitoring Data

Monitoring data in 2017 continues to reaffirm that the vast majority of Rhondda Cynon Taf exhibits good air quality, well below the relevant AQOs, but that there are some localised areas which continue to be vulnerable to poor air quality.

Examination of the rural, suburban and urban environments confirms the strong relationships between them, as well as unique characteristics important to future local air quality management. Both the rural and suburban environments indicate relatively low levels of NO₂ and a stable, for more than a decade, improving trend reflective of the general policy to improve air quality as well as possible local socio-economic change. This indicates that the vast majority of Rhondda Cynon Taf will experience consistently low levels of NO₂ compliant with the relevant AQOs for NO₂, but where sustained elevated levels are observed, this is likely to be as a result of specific local influences.

A limited number of urban locations, associated with local roads experiencing high traffic volume and local congestion, often within a street canyon, or otherwise locations in very close proximity to a regionally important road network, continue to experience significantly elevated levels of NO₂. Monitoring data, from 2017, supports the belief that all areas in breach of an AQO for NO₂ are currently within one of sixteen extant AQMAs and does not indicate a need to declare any additional AQMAs, for an exceedance of an AQO for NO₂, or modify any existing AQMAs at this time.

Other pollutants of concern such as SO₂ and PM₁₀, which tend to be associated with emissions from heavy industry or large conurbations, are, in general, not considered to be prominent any longer within Rhondda Cynon Taf. However, long term monitoring has previously identified the area of Glyncoch as experiencing levels of PM₁₀ potentially incongruous to other areas of Rhondda Cynon Taf. Glyncoch appears to observe a fluctuating trend which may indicate the influence of particular local factors. It is possible that during 2017 the impact of Craig Yr Hesg Quarry on local PM₁₀ levels may have continued to have been subdued, this possibly concurs with a relatively low number of occasions when the 24-hour daily mean exceeds 50µgm⁻³. This change, which has been observed since 2015, may be as a result of ongoing improvements to reduce PM₁₀ emissions from Craig Yr Hesg Quarry. As such, given the available monitoring data, from 2017, and continued understanding of historic data, it is not believed necessary to proceed to declare an AQMA at this time.

In its consideration of local air quality, it has been necessary for the 2018 Air Quality Progress Report to rely upon extensive local air quality monitoring and analysis. The Local Authority will aim to continue as far as possible to preserve its monitoring network and comply with the required reporting regime. However, the impact of continued financial uncertainty as well as the changing regulatory landscape will need to be considered and will influence the amount of funding available to carry out future local air quality management duties.

5.2 Conclusions relating to New Local Developments

The Local Authority considers air quality a material planning consideration. The Local Authority will, when necessary, take account of the implications of any development upon local air quality during the planning consent decision making process. The Local Authority will attempt to ensure that, if necessary, future developments will negate or mitigate any impacts on local air quality whilst continuing to treat each application for planning consent on its individual merits.

During 2016-2017 the Local Planning Authority approved 569 new dwellings across a range of consented developments but that it is believed that no new dwellings were within an AQMA. Records also indicate that, in 2017, no new local development applications were received or granted that would likely unduly impact local air quality. In relation to planning application 'Craig Yr Hesg Quarry (15/0666/10)', the application is currently under review and as such no further comment can be made at this time.

5.3 Other Conclusions

The Local Authority acknowledges that many different policies and actions undertaken by it will have a direct and indirect affect on local air quality. The Local Authority will continue to take account, where necessary, of local air quality during any relevant decision making process. It will also aim, wherever possible, to promote policies and actions which will maintain or be conducive to good air quality and any synergistic effects such actions may have on other service deliveries.

Of particular note are that many issues underlining poor air quality, are also significant in the broader Active Travel, Climate Change and Environmental Noise Agendas. Effective solutions to improve air quality can supplement efforts in tackling climate change and environmental noise. Close integration with the Active Travel Agenda, Climate Change Agenda and Noise Action Plan Priority Areas will continue to be aspired to in future local air quality management.

In addition, the developing arrangements with regards to the Cwm Taf Well Being Plan and the need to progress its Well Being Objectives will be of considerable relevance to the role the Local Authority has in implementing Local Air Quality Management. A close working relationship with its Cwm Taf Public Service Board partners will be maintained and promoted as well as holistic working to achieve multi-agenda goals.

It is clear that, without intervention, local air quality within the most vulnerable areas of Rhondda Cynon Taf is unlikely to improve as quickly as desired. The Local Authority has adopted an AQAP for each of its AQMAs and to ensure their pertinence will schedule to review these AQAPs in 2020. Due to the availability of limited resources and competing agendas, it has not been possible to immediately implement all AQAP actions. However, the Local Authority continues, where possible, to implement actions within its AQAPs. This has included the modification of the highway network associated with the Broadway AQMA so as to improve capacity and efficiency. In addition, the Local Authority is progressing further actions to improve usability and awareness of active travel routes and local sustainable transport options. Fundamental to the progression of the AQAPs is the availability of demarcated extremal project funding, it is recognised that the changing nature of the relevant Welsh Government's grant framework may increase the challenges to obtain sufficient resourcing to enable future AQAP implementation.

The Local Authority is fully committed to openness and transparency in regard to its air quality duties. It will widely disseminate and consult upon the 2018 Air Quality Progress Report with both interested parties and the public. In accordance with current statutory guidance the Local Authority will, resources permitting, also aim to ensure continuity of local air quality reporting by producing an Air Quality Progress Report in 2019.

5.4 Proposed Actions

- The Local Authority will conduct an encompassing and transparent consultation into the findings of this report and all other key steps, in the local air quality management process being undertaken; with all relevant parties and to respond where necessary to feedback given
- The Local Authority will continue to progress AQAP actions where available resources allow, in doing so the Local Authority will, where appropriate, explore the potential for external grant funding to enable AQAP action implementation.
- To ensure the pertinence of the sixteen AQAPs adopted by the Local Authority, it will look to undertake a review of all these AQAPs and their associated AQMAs by the end of 2020.
- The Local Authority recognises the enhanced benefits which can be brought about by collaboratively working, both within the Local Authority as well as with other interested parties, to deliver a multi-benefit agenda which can directly improve local air quality. The Local Authority will look to build upon existing and new partnerships to deliver coordinated action in the delivery of local air quality management and that of other related agendas.
- The Local Authority will have regard to any noise action planning priority areas within Rhondda Cynon Taf and continue to work with the Welsh Government and its partners to ensure close integration with the environmental noise agenda and aspire to a “win win” solution. In addition, the Local Authority, having regards to its statutory duty, will continue to integrate local air quality management considerations with the adopted Well Being Objectives described within the Cwm Taf Well-Being Plan.
- The Local Authority will continue to utilise existing resources as effectively and efficiently as possible to provide a greater understanding of the causes of poor air quality and its possible solution. To facilitate this, the Local Authority will periodically review its monitoring programmes in light of available resources and new information and changes in understanding, to aspire to ensure targeted comprehensive assessment of the most at risk locations. Where necessary, and resources permitting, it will consider establishing further monitoring locations to provide enhanced understanding of any potentially affected area.
- Dependent upon the availability of resources and future statutory guidance, the Local Authority will compile and publish, in September 2019, an Air Quality Progress Report which will ensure continuity of air quality review and assessments and ensure that the latest data and developments are assessed

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Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix D: AQMA Boundary Maps

Appendix A: Monthly Diffusion Tube Monitoring Results

Table A.1 – Full Monthly Diffusion Tube Results for 2017

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (factor) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
	4	32.5	19.2	-	14.9	15.5	12.2	12.1	9.5	10.7	16.7	22.7	21.8	17.1	15.5
8	61.5	42.9	42.7	49.7	39.2	42.5	39.6	34.0	38.0	24.8	47.9	55.9	43.2	39.3	-
21	17.0	12.6	7.9	4.8	7.3	6.0	5.1	4.4	3.7	7.6	8.0	9.7	7.8	7.1	-
37	55.8	46.7	47.7	47.1	44.8	39.0	41.7	30.3	36.9	45.4	54.6	51.2	45.1	41.0	-
41	77.9	55.0	58.4	57.4	43.9	59.7	47.4	46.2	39.8	69.3	62.5	53.8	55.9	60.9	-
44	49.1	42.5	40.0	47.4	30.9	38.9	36.5	58.2	32.1	39.9	43.2	39.7	41.5	37.8	-
47	38.3	37.4	34.8	30.5	29.8	24.8	29.6	22.5	26.9	24.5	36.5	36.0	31.0	28.2	-
48	40.2	37.9	33.8	30.4	29.5	25.5	27.0	21.5	24.4	33.0	38.2	36.7	31.5	28.7	-
50	43.1	39.2	34.9	32.5	30.4	23.6	29.7	21.5	25.9	33.4	37.6	35.1	32.2	29.3	-
51	56.5	52.5	45.8	43.5	48.2	41.8	45.1	34.1	41.2	44.3	47.0	52.9	46.1	41.9	-
52	78.9	63.6	63.4	55.0	44.5	45.0	44.5	34.3	44.1	53.5	66.7	-	54.0	49.1	-
53	-	52.0	44.6	43.3	41.7	41.1	40.4	27.9	33.6	49.2	52.4	47.1	43.0	39.2	-
55	95.9	72.0	65.7	82.5	61.8	67.1	65.1	32.7	51.9	76.1	86.3	65.0	68.5	62.3	-
56	66.9	53.1	47.5	40.6	36.2	29.3	39.4	27.1	31.5	43.5	58.3	50.4	43.7	39.7	-
66	52.5	38.8	38.0	36.6	37.2	26.8	35.7	25.8	34.9	39.5	53.7	41.3	38.4	34.9	-
68	52.4	41.8	40.0	43.8	34.8	29.3	35.4	23.7	29.4	38.3	48.8	50.4	39.0	35.5	-
69	41.4	39.3	35.8	37.0	33.5	27.2	27.6	20.7	27.0	35.4	46.2	45.8	34.7	31.6	-
75	49.8	40.4	34.1	28.8	32.6	31.2	27.4	-	24.9	35.4	39.8	39.9	34.9	31.8	-
76	49.1	36.4	33.7	38.4	25.9	-	27.6	25.1	30.5	35.0	45.0	40.7	35.2	32.0	-
79	54.8	43.9	37.5	41.2	38.0	29.6	35.9	25.1	33.8	39.7	45.4	45.8	39.2	35.7	-
80	49.9	43.6	42.2	33.8	32.0	37.0	38.0	25.2	32.0	44.1	48.0	42.4	39.0	35.5	-
81	52.5	45.9	43.1	36.5	33.8	32.2	42.8	37.1	42.0	49.7	50.1	48.7	42.9	39.0	-
82	52.0	38.6	35.9	30.4	32.8	25.4	32.5	21.2	26.5	34.9	40.6	35.9	33.9	30.8	-

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (factor) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
	83	42.4	46.4	47.6	39.1	36.8	30.2	39.1	25.2	33.3	42.5	-	-	38.3	34.8
84	70.1	50.8	-	57.9	44.9	42.1	55.9	39.9	50.4	58.0	71.6	62.9	55.0	50.0	-
85	62.0	50.4	53.3	40.6	44.3	42.1	44.0	29.3	37.0	45.6	48.2	45.3	45.2	41.1	-
88	56.1	44.4	38.2	33.2	39.3	36.7	32.5	21.6	27.5	39.7	39.5	41.3	37.5	34.1	-
90	56.8	44.6	38.2	45.6	34.0	40.1	34.3	34.9	30.3	40.3	-	47.0	40.6	36.9	-
91	81.1	50.6	-	66.9	-	58.3	52.8	45.5	41.3	54.3	59.2	56.2	56.6	51.5	-
93	77.2	49.4	52.2	65.7	48.8	54.8	47.6	44.4	41.6	-	61.3	53.2	54.2	49.3	-
95	49.6	41.9	37.1	34.8	36.7	27.1	32.0	23.4	31.2	36.8	50.7	39.4	36.7	33.4	-
96	64.6	51.4	64.7	56.2	60.4	52.3	56.8	35.3	46.9	62.1	74.8	62.1	57.3	52.1	-
97	81.9	62.6	62.6	58.2	59.1	54.6	-	45.1	53.0	70.4	75.9	-	62.3	56.7	-
101	18.6	11.8	11.8	6.5	6.0	5.9	4.1	5.4	3.2	4.8	8.5	9.8	8.0	7.3	-
103	17.5	3.2	11.8	6.3	8.5	7.1	6.0	6.3	3.9	9.9	-	-	8.1	7.3	-
105	19.6	13.9	8.9	9.0	-	2.8	6.5	6.1	5.0	9.2	11.3	13.9	9.7	8.8	-
106	69.9	48.5	46.2	55.3	38.9	-	43.5	41.0	31.8	50.6	51.6	48.0	47.8	43.5	-
107	59.1	38.1	40.9	39.1	36.8	44.8	34.1	32.7	29.7	37.6	38.5	34.5	38.8	35.3	-
108	67.3	38.0	-	57.2	41.9	47.8	68.6	67.5	-	73.9	-	68.6	59.0	54.3†	-
110	48.3	40.8	32.3	33.6	35.8	25.8	28.5	21.5	25.8	33.3	35.9	33.7	32.9	30.0	-
111	42.3	31.8	27.2	28.3	28.6	-	42.6	28.1	38.8	46.4	50.5	48.7	37.6	34.2	-
113	55.4	43.5	39.7	53.9	34.8	41.3	-	38.4	-	42.7	57.7	-	45.3	40.4†	-
114	48.5	50.9	-	-	-	34.4	22.4	24.6	28.6	36.3	42.1	40.7	36.5	32.2†	-
116	41.3	-	31.2	32.8	25.3	25.0	21.6	21.0	21.5	29.8	35.6	31.9	28.8	26.2	-
117	75.6	69.2	57.7	74.1	54.1	-	55.8	61.0	47.0	65.4	77.9	73.3	64.6	58.8	-
118	85.8	65.6	67.2	77.1	65.8	76.2	70.3	65.9	61.0	79.4	79.5	75.7	72.5	65.9	-
119	54.4	41.0	33.8	31.5	36.3	23.9	27.5	22.7	25.7	31.9	44.4	35.8	34.1	31.0	-
122	49.8	31.7	31.4	42.8	29.9	34.6	30.3	31.2	29.9	38.9	47.5	48.2	37.2	33.8	-
124	38.8	34.5	32.0	37.2	26.2	24.6	25.8	27.4	26.3	34.0	43.1	36.9	32.2	29.3	-
128	58.8	49.0	32.6	45.9	-	36.4	30.3	27.4	31.4	47.6	48.8	46.6	41.3	37.6	-
129	41.6	36.1	36.5	28.3	29.6	24.9	26.8	19.8	22.5	33.0	36.3	36.2	31.0	28.2	-
132	49.2	37.8	40.7	47.7	32.8	32.0	38.6	27.7	32.4	35.9	50.1	47.0	39.3	35.8	-

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 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 B: A Summary of Local Air Quality Management

Purpose of an Annual Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment Act 1995 and associated government guidance. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas and to determine whether or not the air quality objectives are being achieved. Where exceedances occur, or are likely to occur, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) within 18 months of declaration setting out the measures it intends to put in place in pursuit of the objectives. Action plans should then be reviewed and updated where necessary at least every 5 years.

For Local Authorities in Wales, an Annual Progress Report replaces all other formal reporting requirements and have a very clear purpose of updating the general public on air quality, including what ongoing actions are being taken locally to improve it if necessary.

Air Quality Objectives

The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table B.1.

The table shows the objectives in units of microgrammes per cubic metre (μgm^{-3}) and milligrammes per cubic metre (mgm^{-3}) for Carbon Monoxide, with the number of exceedances in each year that are permitted (where applicable).

Table B.1 – Air Quality Objectives Included in Regulations for the Purpose of LAQM in Wales

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen Dioxide (NO ₂)	200µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40µg/m ³	Annual mean	31.12.2005
Particulate Matter (PM ₁₀)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2010
	40µg/m ³	Annual mean	31.12.2010
Particulate Matter (PM _{2.5})	10µg/m ³	Annual mean	31.12.2020
Sulphur Dioxide (SO ₂)	350µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25µg/m ³	Running annual mean	31.12.2010
1,3 Butadiene	2.25µg/m ³	Running annual mean	31.12.2003
Carbon Monoxide	10.0mg/m ³	Running 8-Hour mean	31.12.2003
Lead	0.25µg/m ³	Annual Mean	31.12.2008

Appendix C: Air Quality Monitoring Data QA/QC

Air quality monitoring often produces a large amount of data which, due to its quantity, can be difficult to interpret. Therefore, it is essential to utilise accepted statistical techniques to process and interpret it. In line with current practice the Local Authority has made use of the 'Openair Package'³³, in combination with other packages, within RStudio³⁴, version 1.1.1453, as operated within the open-source R-Programme³⁵ computational language for environmental statistical computing and graphics, version 3.5.1. This utility, with the aid of published literature³⁶, has enabled the Local Authority to undertake verification and validation of the monitoring data as well as various types of descriptive and inferential statistical analysis.

Diffusion Tube Bias Adjustment Factors

It has been shown that passive diffusion tubes require bias correction in accordance with guidance to maximise their accuracy (see Box 2F). The quoted desired accuracy for the measurement of NO₂ is 15%; the use of a bias factor from a suitable co-location study ensures that passive diffusion tube measurements attempt to meet this requirement.

Factor from Local Co-location Studies

Bias factors have been produced by co-locating three passive diffusion tubes at the continuous monitoring station located at Broadway, for the length of the study period. Site No. 70 (Broadway) continuous monitoring station reflects conditions commonly encountered across Rhondda Cynon Taf. The station is also maintained to standards observed within the AURN network and annually independently audited by consultants acting on behalf of the WAQF. The data set produced by the local co-location study in 2017 has been described by the AEA_DifTPAB_vo4.xls spreadsheet³⁷ as good; in light of continuity with previous years it has been determined that use of the local bias factor would ensure the greatest accuracy and interpretability. The completed spreadsheet for 2017 has been reproduced in Table C.1 below.

³³ Carslaw, D.C. and K. Ropkins, *Openair — an R package for air quality data analysis*, *Environmental Modelling & Software*, Volume 27-28, 52-61, 2012

³⁴ RStudio Inc, *windows NT 6.1 version 1.0.136*, 2016

³⁵ R Core Team, R Foundation for Statistical Computing, Vienna, Austria, *R: A language and environment for statistical computing*, 2013

³⁶ Carslaw, D.C. King's College London, *The Openair manual — open-source tools for analysing air pollution data*, *Manual for version 1.4-4*, 28th January 2015

³⁷ AEA Energy & Environment, *Checking Precision and Accuracy of Triplicate Tubes Version 4*, February 2011

Table C.2 – Spreadsheet checking precisions and accuracy of colocation study

Checking Precision and Accuracy of Triplicate Tubes										Automatic Method		Data Quality Check	
Diffusion Tubes Measurements										Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 $\mu\text{g}\text{m}^{-3}$	Tube 2 $\mu\text{g}\text{m}^{-3}$	Tube 3 $\mu\text{g}\text{m}^{-3}$	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean				
1	30/11/2016	04/01/2017	37.6	40.6	42.8	40	2.6	6	6.5	43.2664	99.64286	Good	Good
2	04/01/2017	01/02/2017	38.3	40.2	43.1	41	2.4	6	6.0	43.0571	99.25484	Good	Good
3	01/02/2017	01/03/2017	37.4	37.9	39.2	38	0.9	2	2.3	35.394	99.65097	Good	Good
4	01/03/2017	29/03/2017	34.8	33.8	34.9	35	0.6	2	1.5	28.9925	99.40299	Good	Good
5	29/03/2017	26/04/2017	30.5	30.4	32.5	31	1.2	4	2.9	28.20	99.10581	Good	Good
6	26/04/2017	31/05/2017	29.8	29.5	30.4	30	0.5	2	1.1	22.91	99.76162	Good	Good
7	31/05/2017	28/06/2017	24.8	25.5	23.6	25	1.0	4	2.4	20.96	99.10581	Good	Good
8	28/06/2017	02/08/2017	29.6	27.0	29.7	29	1.5	5	3.8	18.91	99.88081	Good	Good
9	02/08/2017	30/08/2017	22.5	21.5	21.5	22	0.6	3	1.4	19.39	100	Good	Good
10	30/08/2017	27/09/2017	26.9	24.4	25.9	26	1.3	5	3.1	24.38	100	Good	Good
11	27/09/2017	01/11/2017	24.5	33.0	33.4	30	5.0	17	12.5	26.9657	99.7619	Good	Good
12	01/11/2017	06/12/2017	36.5	38.2	37.6	37	0.9	2	2.1	36.0181	99.64243	Good	Good
13	06/12/2017	03/01/2018	36.0	36.7	35.1	36	0.8	2	2.0	30.9145	99.35897	Good	Good
It is necessary to have results for at least two tubes in order to calculate the precision of the measurements										Overall survey →		Good precision	Good Overall
Site Name/ID:		Tubes 47, 48, 50								Precision 13 out of 13 periods have a CV smaller than 20%		(Check average CV & DC from Accuracy calculations)	
Accuracy (with 95% confidence interval) without periods with CV larger than 20%				Accuracy (with 95% confidence interval) WITH ALL DATA									
Bias calculated using 13 periods of data				Bias calculated using 13 periods of data									
Bias factor A 0.91 (0.83 - 0.99)				Bias factor A 0.91 (0.83 - 0.99)									
Bias B 10% (1% - 20%)				Bias B 10% (1% - 20%)									
Diffusion Tubes Mean: 32 $\mu\text{g}\text{m}^{-3}$				Diffusion Tubes Mean: 32 $\mu\text{g}\text{m}^{-3}$									
Mean CV (Precision): 5				Mean CV (Precision): 5									
Automatic Mean: 29 $\mu\text{g}\text{m}^{-3}$				Automatic Mean: 29 $\mu\text{g}\text{m}^{-3}$									
Data Capture for periods used: 100%				Data Capture for periods used: 100%									
Adjusted Tubes Mean: 29 (27 - 32) $\mu\text{g}\text{m}^{-3}$				Adjusted Tubes Mean: 29 (27 - 32) $\mu\text{g}\text{m}^{-3}$									

If you have any enquiries about this spreadsheet please contact the LAQM Helpdesk at LAQMHelpdesk@uk.bureauveritas.com

Discussion of Choice of Factor to Use

Table C.2 lists the local bias factors [Bias A + B] derived from the local co-location study since 2004, as well as the nationally aggregated mean bias factors for comparison³⁸. In 2003 and earlier the national bias factor was used.

Unless specifically stated all passive diffusion tube results have been corrected using the local bias factor [Bias A] for the respective year. NO₂ passive diffusion tube results may quote Bias B for the relevant year in brackets after the recorded result. Users of this data should not re-correct the data.

Table C.2 – Bias Correction Factors for NO₂ Passive Diffusion Tubes

Year	Local Bias Factor [Bias A]	Local Precision Bias [Bias B]	"Good" Data Description	National Bias	
				Factor	Range
2004	1.04	-	✓	0.91	(0.68 – 1.18)
2005	0.98	-	✓	0.97	(0.79 – 1.27)
2006	1.08	-	✓	0.98	(0.87 – 1.07)
2007	1.10	-9	✓	0.89	(0.74 – 1.00)
2008	1.00	0	✓	0.91	(0.79 – 1.00)
2009	1.11	-10	✓	0.90	(0.62 – 1.28)
2010	1.00	0	✓	0.92	(0.61 – 1.20)

³⁸ Air quality Review & Assessment webpages hosted by Defra, National Diffusion Tube Bias Adjustment Factor Spreadsheet Version 09/18, September 2018

2011	1.06	-6	✓	0.89	(0.62 – 1.12)
2012	0.96	4	✓	0.97	(0.58 – 1.32)
2013	1.07	-6	✓	0.85 ^λ	(0.75 – 1.07)
2014	0.90	11	✓	0.79 ^λ	(0.77 – 0.90)
2015	0.96	4	✓	0.81 ^λ	(0.73 – 0.96)
2016	1.0	0	✓	0.83 ^λ	(0.74 – 1.00)
2017	0.91	10	✓	0.74 ^λ	(0.65 – 0.91)

^λ it is noted that only three comparative results are available, this very limited number would be expected to increase the uncertainty of the National Bias Factor.

PM₁₀ Monitoring Adjustment

The Local Authority operates a Thermo Scientific 1405-F Tapered Element Oscillating Mass Balance with Filter Dynamics Measurement System [Site No. 130 (Upper Garth Avenue TEOM FDMS)]. The method used involves sampling at ambient conditions, without the need for mathematical adjustment post data collection, and has been formally considered³⁹ as an EU equivalent method without correction.

The Local Authority also makes use of two Osiris Turnkey Laser Nephelometers [Osiris] with heated inlets (Site No. 63 (Upper Garth Avenue Osiris & Site No. 109 (Lower Garth Avenue Osiris)); these monitors are indicative only and are not considered an EU compliant method. Currently both Osiris's and the TEOM FDMS are located in close proximity to each other. Furthermore it is expected that the volatile fraction at this shared location will be relatively specific due to the expected strong influence of local non-volatile PM₁₀ sources. It is possible for the data gathered by the Osiris's to be corrected using a Local TEOM FDMS Derived Factor produced by analysis of the results gathered by the Upper Garth Avenue TEOM FDMS. This Factor will reduce some uncertainty introduced by the potentially over cautious 1.3 Factor, however, the corrected data will remain indicative only. The retrospective application of this approach has shown that the corrected data conforms to expectation and appears to more closely reflect monitoring undertaken separately by Site No. 130 (Upper Garth Avenue TEOM FDMS).

Short-Term to Long-Term Data Adjustment

Data Capture is an important element in the interpretation of results. Guidance recommends that 90% data capture over a calendar year is required to facilitate the greatest accuracy in assessment of the concentration of the pollutant. In some instances it has not been possible to reach this threshold; nonetheless, where data capture is still proximal to 90% accurate inference can still be made. Where data capture is significantly less than 90% interpretation may still be possible with the use of mathematical techniques to extrapolate a more robust result. In circumstances where data capture is less than a specified percentage for the technique, the Extrapolated Annual Mean has been derived by interpolation in accordance with the methods detailed within LAQM.TG(16); where undertaken this data manipulation has been recorded in Table C.3 below.

³⁹ Bureau Veritas on behalf of Defra and the Devolved Administrations, *UK Equivalence Programme for Monitoring of Particulate Matter Ref BV/AD202209/DH/2396*, 5th June 2006

Table C.3 – Short-Term to Long-Term Monitoring Data Adjustment

Site	Site Type	Annual Mean ($\mu\text{g}/\text{m}^3$)	Period Mean ($\mu\text{g}/\text{m}^3$)	Ratio
108	NO ₂ Passive Diffusion Tube	59.0	15.6	1.011
113	NO ₂ Passive Diffusion Tube	45.3	16.1	0.981
114	NO ₂ Passive Diffusion Tube	36.5	16.3	0.968
Average				0.987

QA/QC of Automatic Monitoring

During 2016 the Local Authority made use of four Model 200E Teledyne Chemiluminescence's Nitrogen Oxides Analysers. Three instruments are directly owned and controlled by the Local Authority (Site No. 70 (Broadway), Site No. 120 (Pontypridd) & Site No. 131 (Mt Ash)). The fourth is owned and maintained, as part of a planning obligation, by General Electric Aeronautical Engineering Services Ltd located at Nantgarw (GEAES/NO_x). All the instruments are located in purpose designed and built enclosures at or near the roadside.

The three instruments directly owned by the Local Authority were inspected by a trained officer on a fortnightly basis with the necessary calibration checks conducted. The fortnightly calibrations were conducted using UKAS accredited Nitric Oxide [NO] calibration gas mixtures at a nominal concentration of 500ppb. The calibration method used for the AURN network and validated by external consultants contracted by the Welsh Air Quality Forum [WAQF] was used as far as possible. These fortnightly calibrations were complemented with twice yearly services by the Local Authority's service contract engineers, Enviro Technology. Additionally the station at Site No. 70 (Broadway) was audited on an annual basis by consultants working on behalf of the Welsh Air Quality Forum. All data has been processed, validated and ratified by Officers of the Local Authority in accordance to procedures set out in Guidance.

Also during 2017 the Local Authority made use of three continuous monitoring analysers for PM₁₀. The Local Authority operates a Thermo Scientific 1405-F Tapered Element Oscillating Mass Balance with Filter Dynamics Measurement System [Site No. 130 (Upper Garth Avenue TEOM FDMS)]. It is directly owned and controlled by the Local Authority and is regularly inspected by a trained officer, with filter changes occurring monthly. These monthly inspections were complemented by twice yearly services by the Local Authority's service contract engineers, Air Monitors. All data gathered by Site No. 130 (Upper Garth Avenue TEOM FDMS) has been processed, validated and ratified in accordance to procedures, set out in guidance, by Officers of the Local Authority.

The Local Authority also makes use of two Osiris Turnkey Laser Nephelometers [Osiris] with heated inlets (Site No. 63 (Upper Garth Avenue Osiris) & Site No. 109 (Lower Garth Avenue Osiris)); these monitors are indicative only and are not considered an EU compliant method. They are both serviced and calibrated annually by the

manufacturer, Turnkey Ltd. All data has been processed, validated and ratified by Officers of the Local Authority in accordance to procedures set out in Guidance.

QA/QC of Diffusion Tube Monitoring

In 2017 the Local Authority made use of 53 Nitrogen Dioxide 'Palmer type' passive diffusion tubes. They were exposed over a period of one month, in accordance with the 2017 Diffusion Tube Monitoring Calendar, and analysed by SOCOTEC Ltd's Didcot Laboratory using in-house laboratory method HSW/1015 issue 15, 20% TEA in water method. The analysis was in accordance with their United Kingdom Accreditation Service [UKAS] schedule, with laboratory performance evaluated via the AIR Proficiency Testing Scheme⁴⁰; achieving the highest rank of "satisfactory"⁴¹.

⁴⁰ Formerly the Workplace Analysis Scheme for Proficiency [WASP]

⁴¹ HSL for BV/NPL on behalf of Defra and the Devolved Administrations, *Summary of Laboratory Performance in AIR NO₂ Proficiency Testing Scheme (April 2016 – February 2018)*, March 2018

Appendix D: AQMA Boundary Maps

Figure D.1 – Aberdare Town Centre Air Quality Management Area

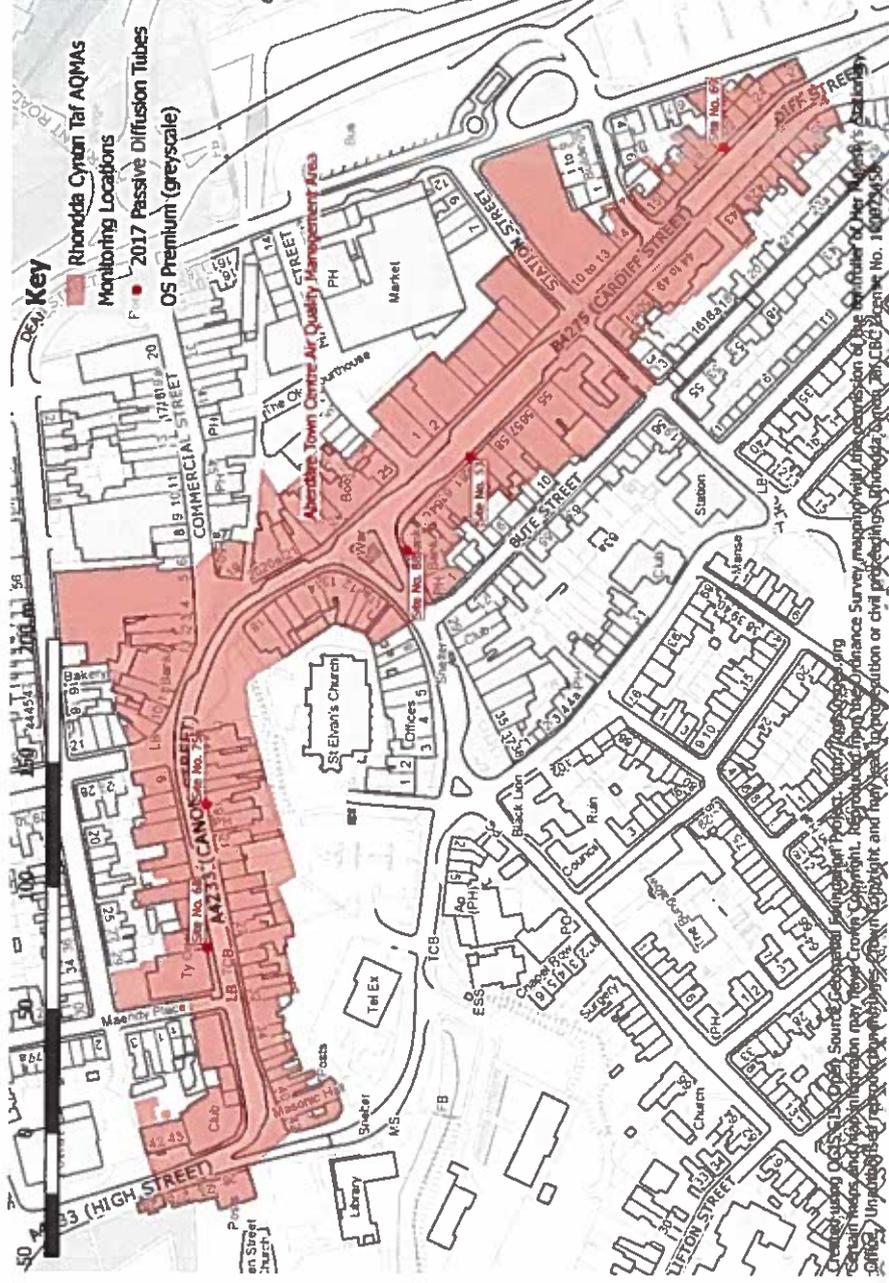


Figure D.2 – Broadway Air Quality Management Area

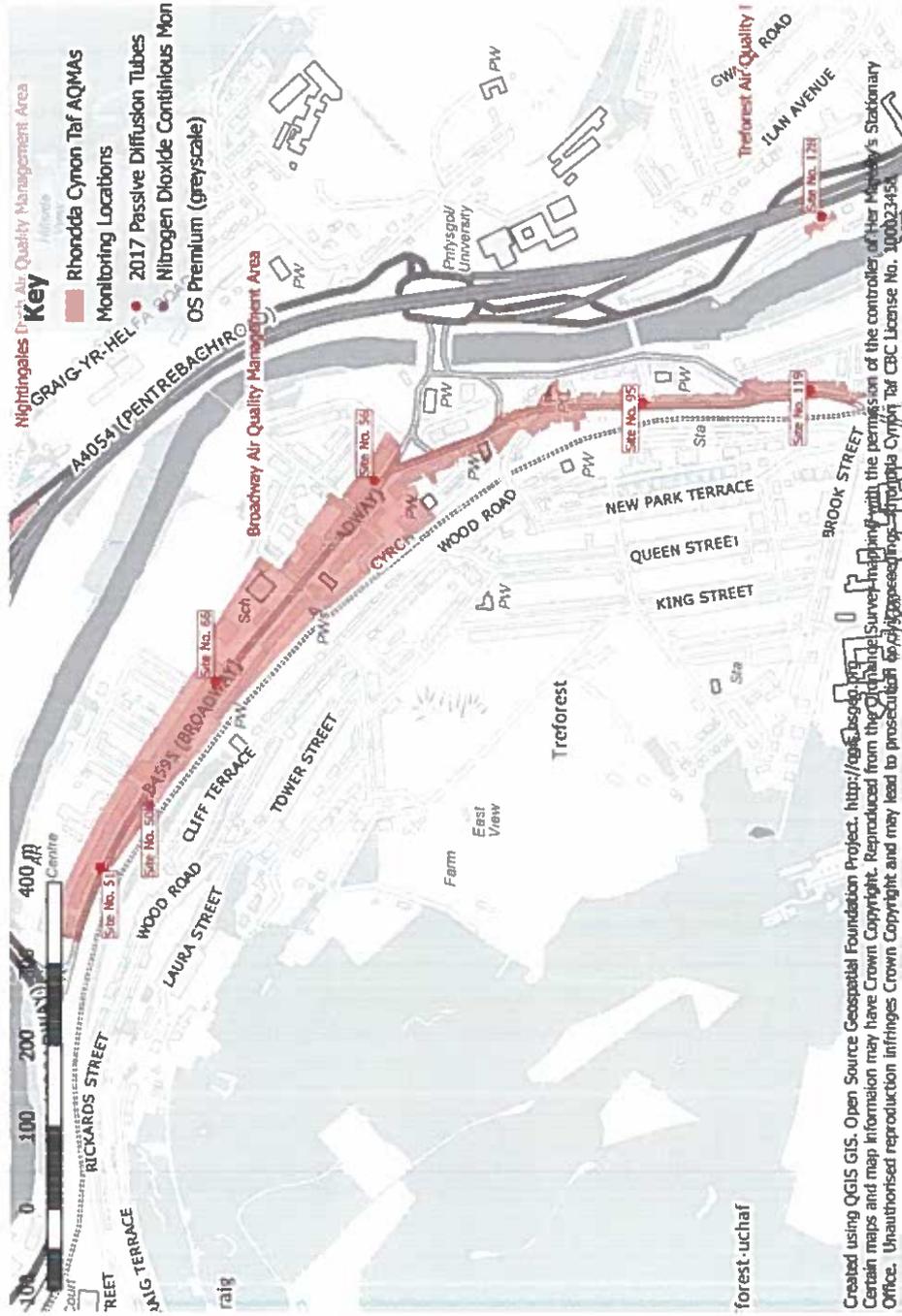


Figure D.4 – Cilfynydd Air Quality Management Area

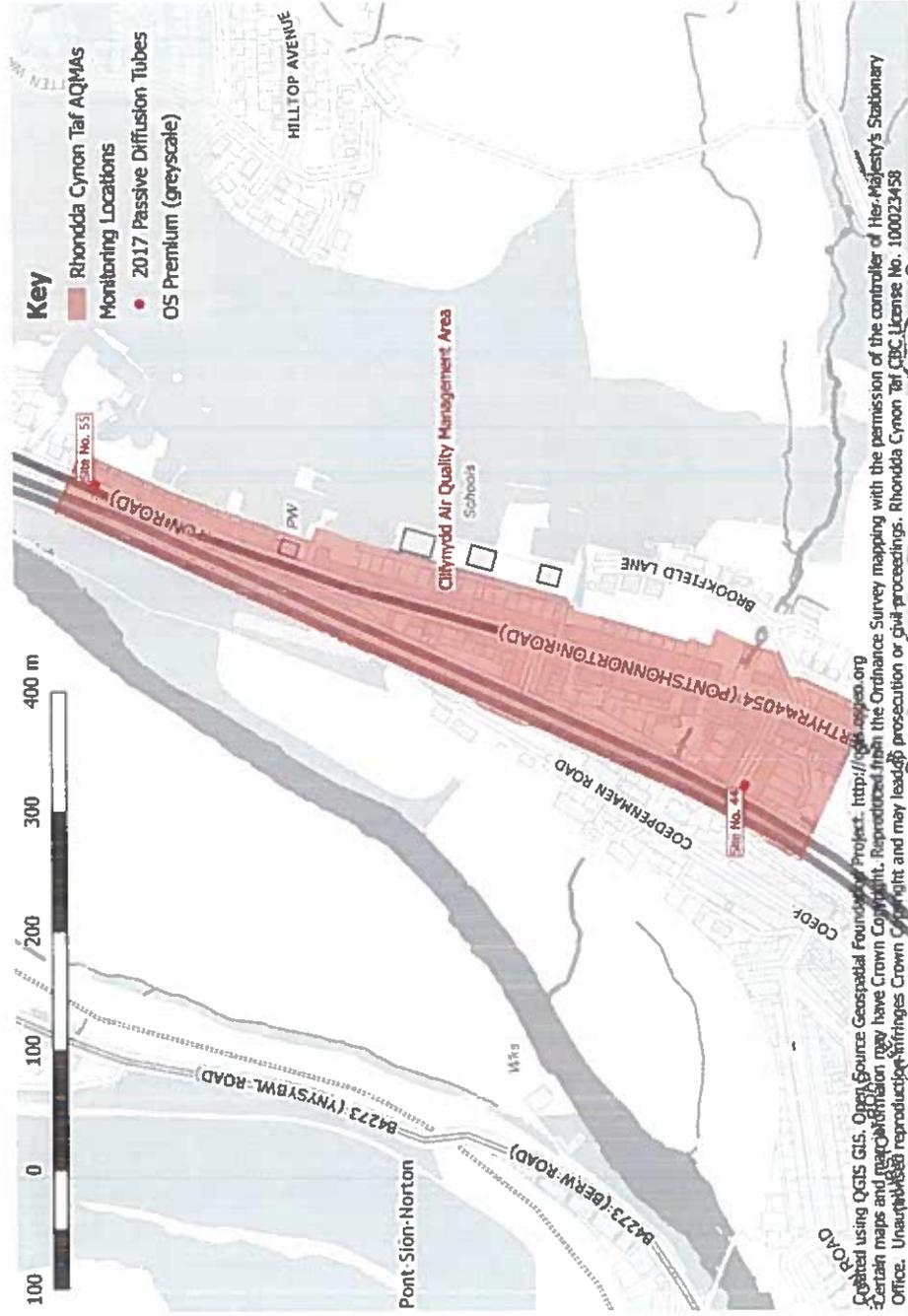


Figure D.5 –Cymmer Air Quality Management Area

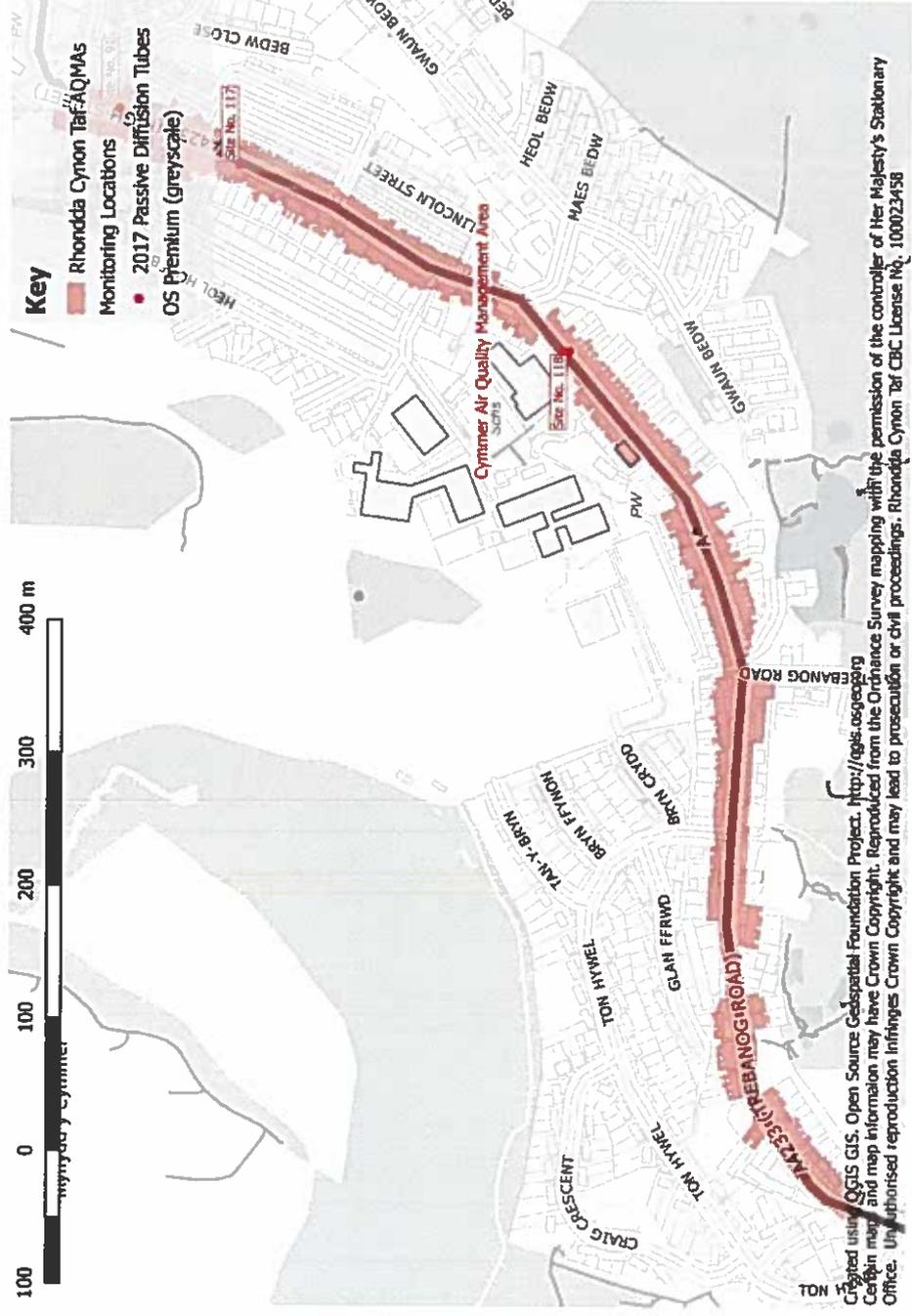


Figure D.6 –Ferndale Air Quality Management Area

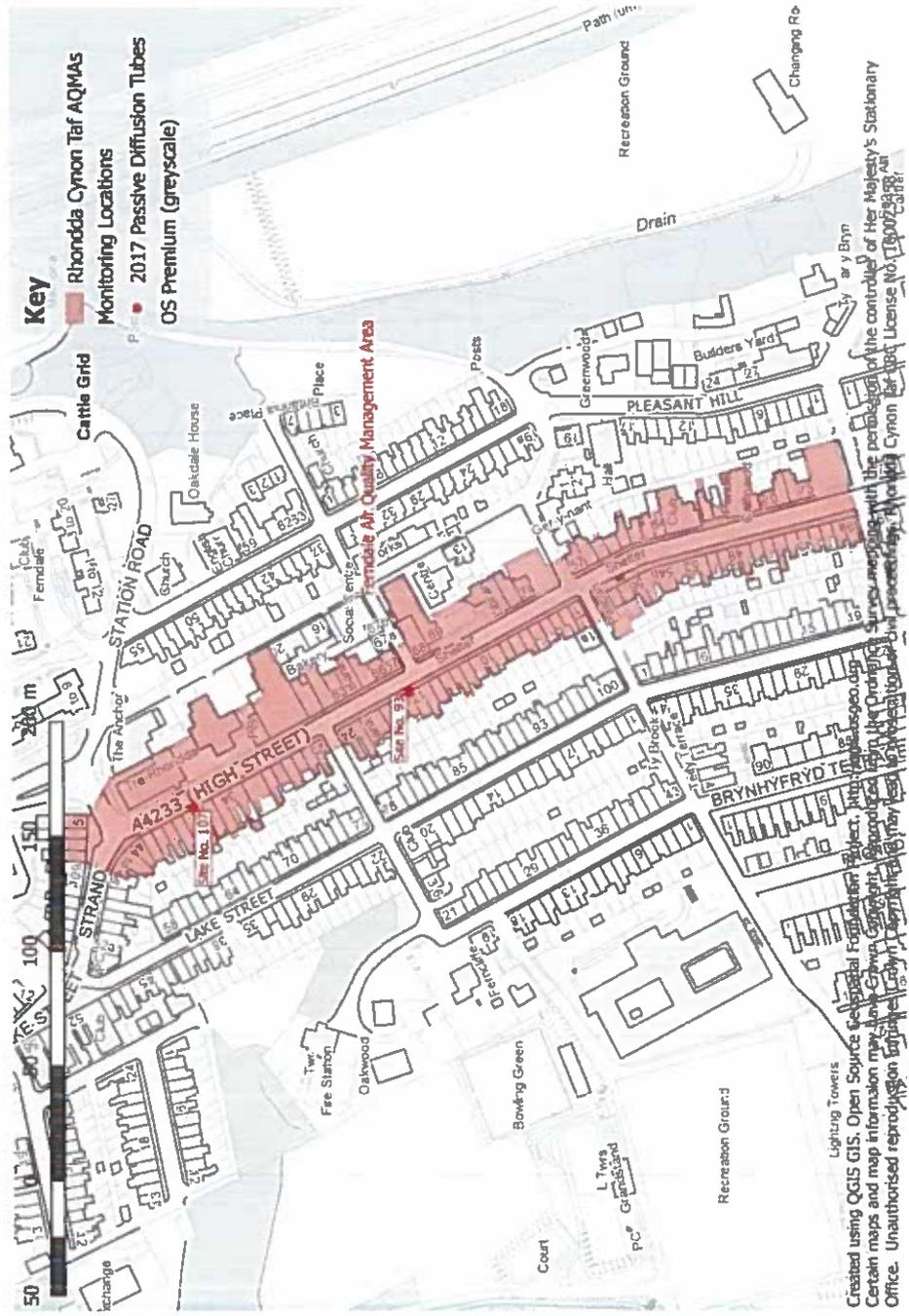


Figure D.7 –Llanharan Air Quality Management Area



Figure D.8 – Llwynypia Air Quality Management Area

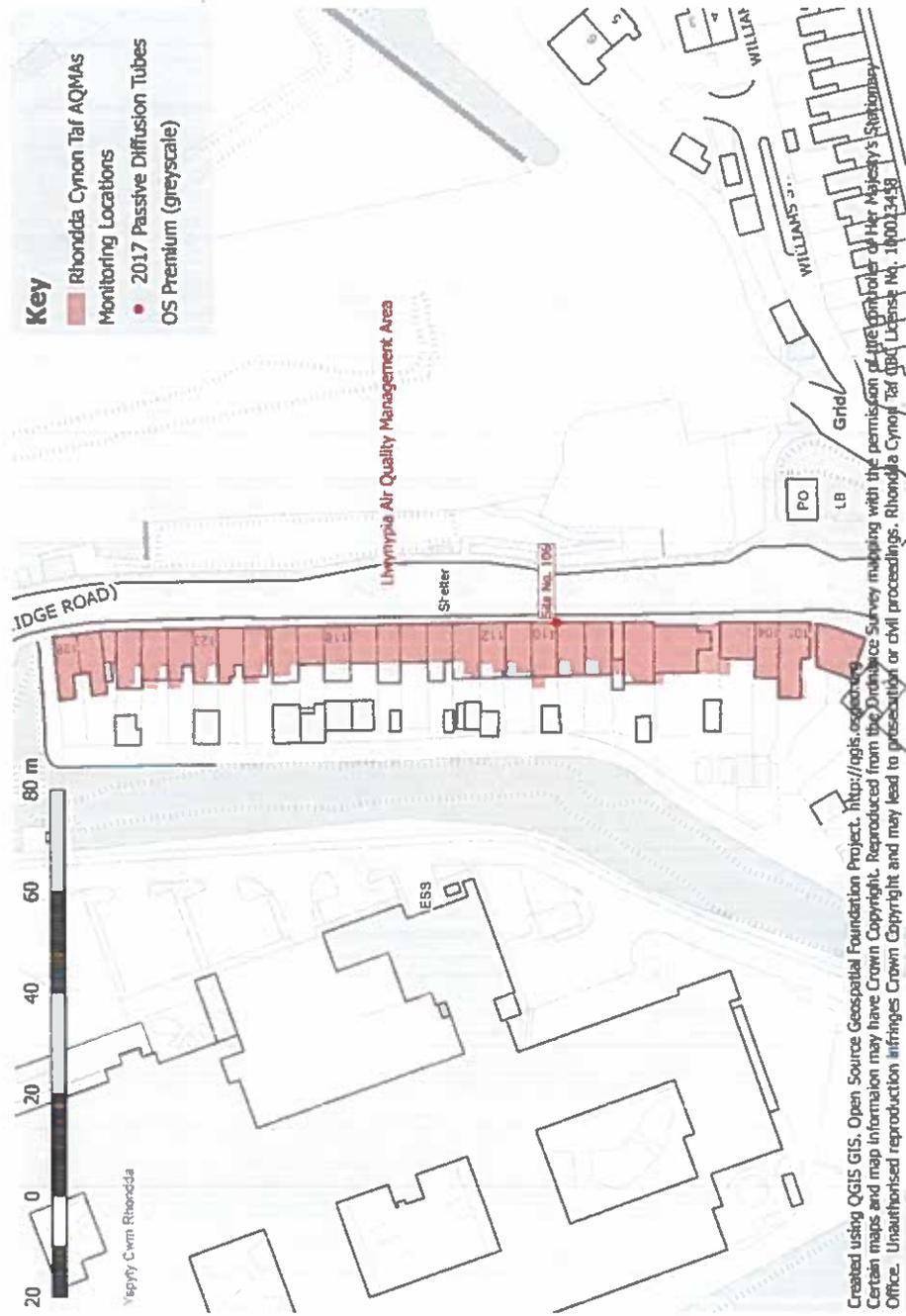


Figure D.10 – Mwyndy Air Quality Management Area

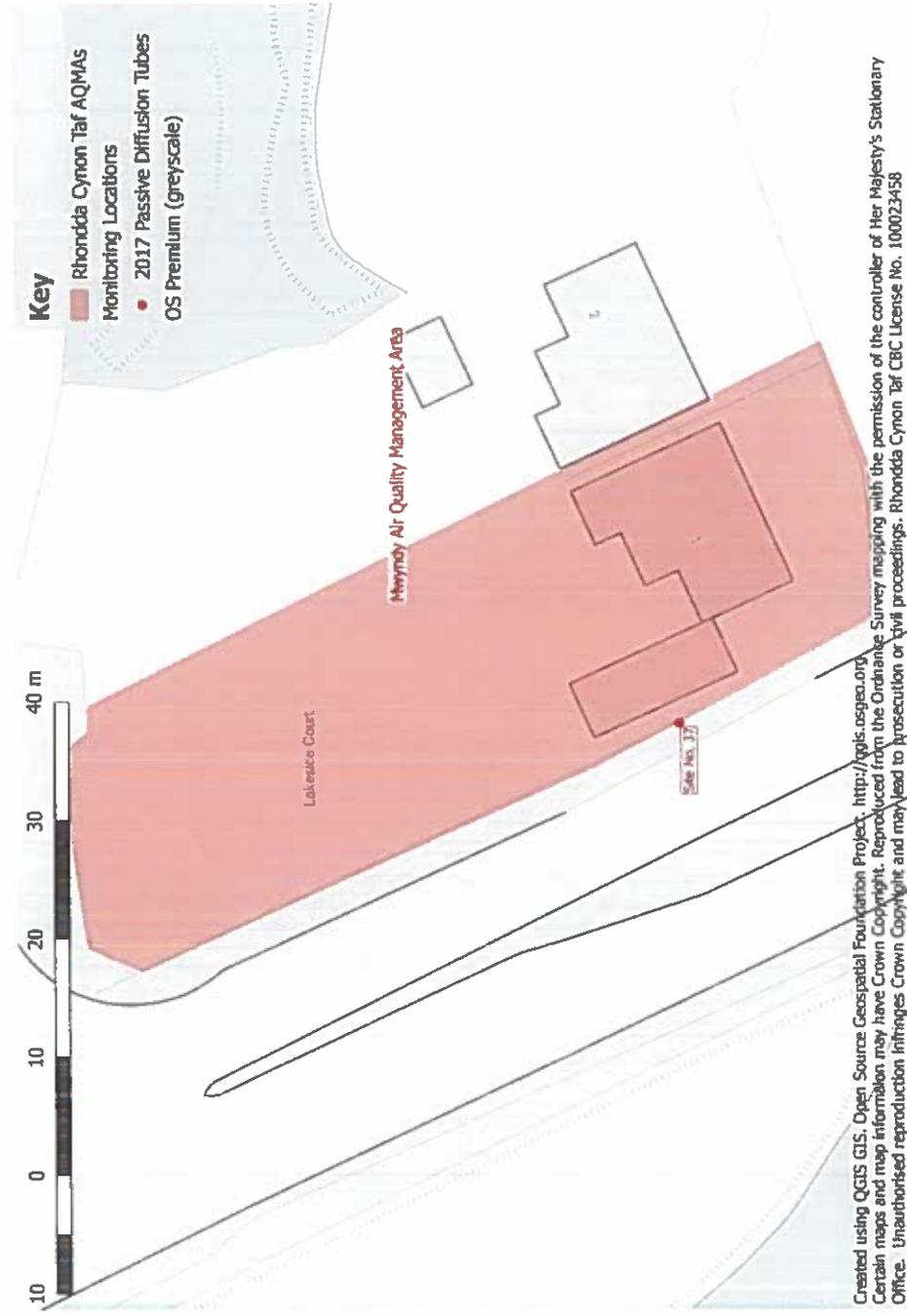


Figure D.11 – Nantgarw Air Quality Management Area

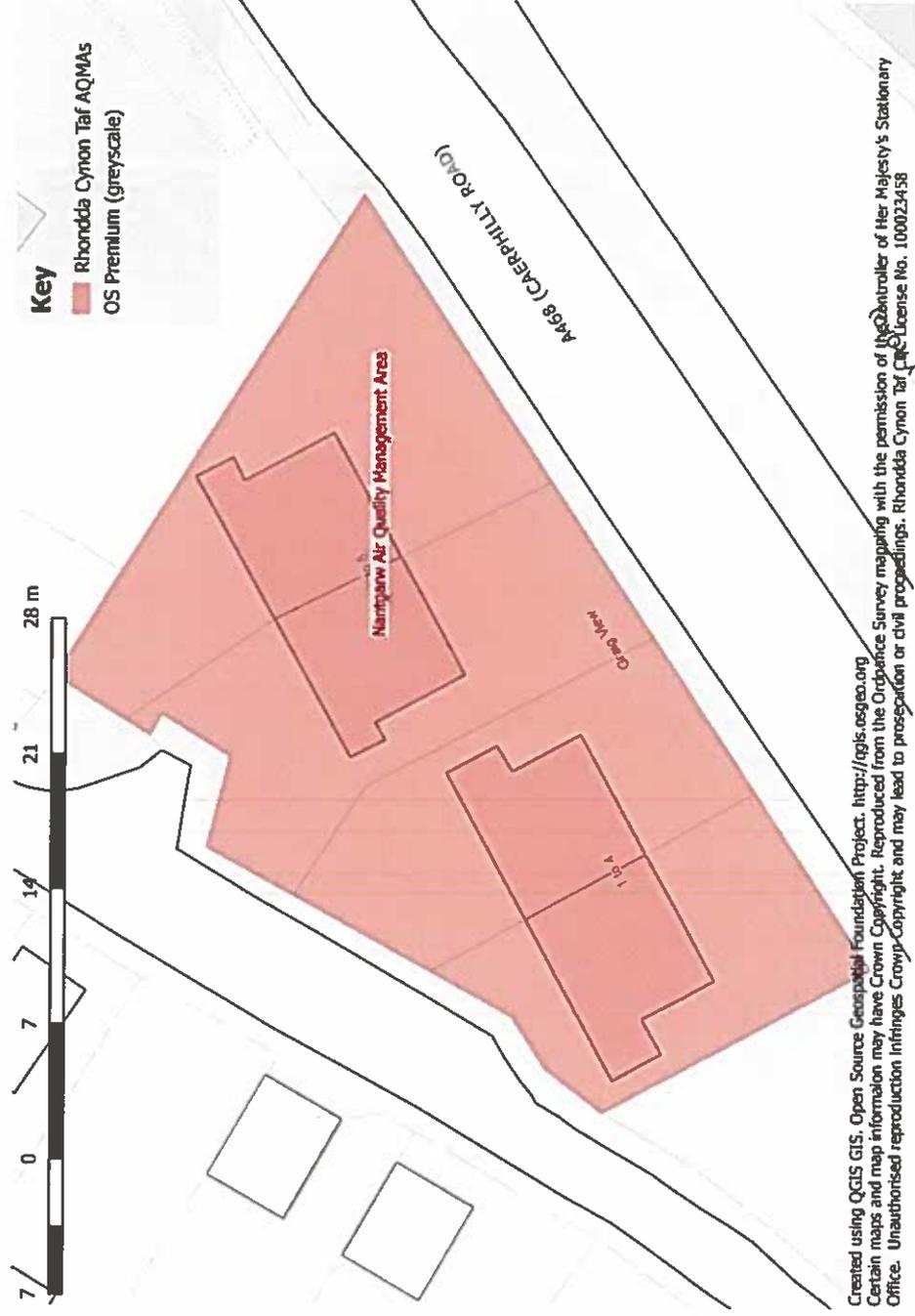


Figure D.12 – Nightingales Bush Air Quality Management Area

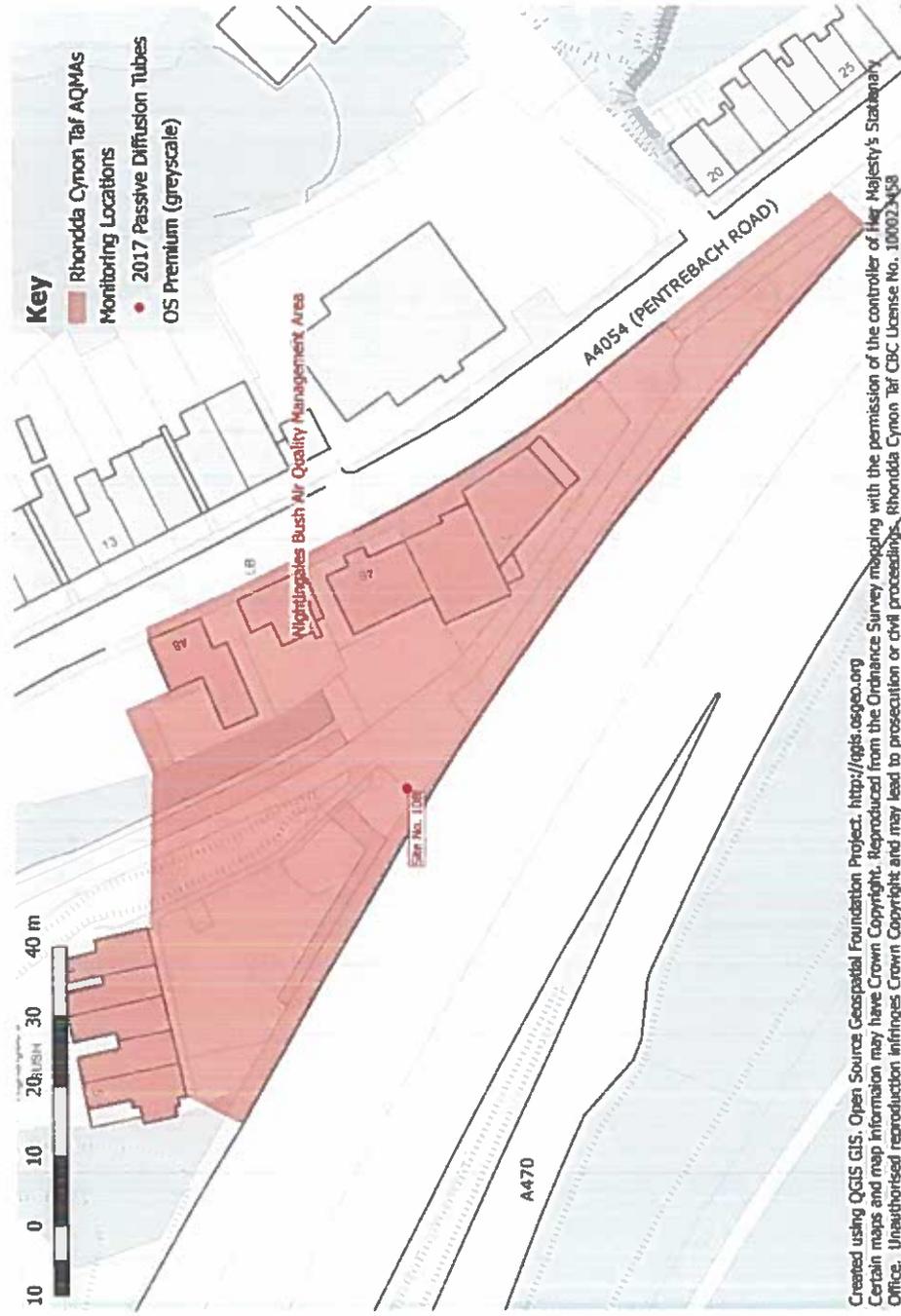
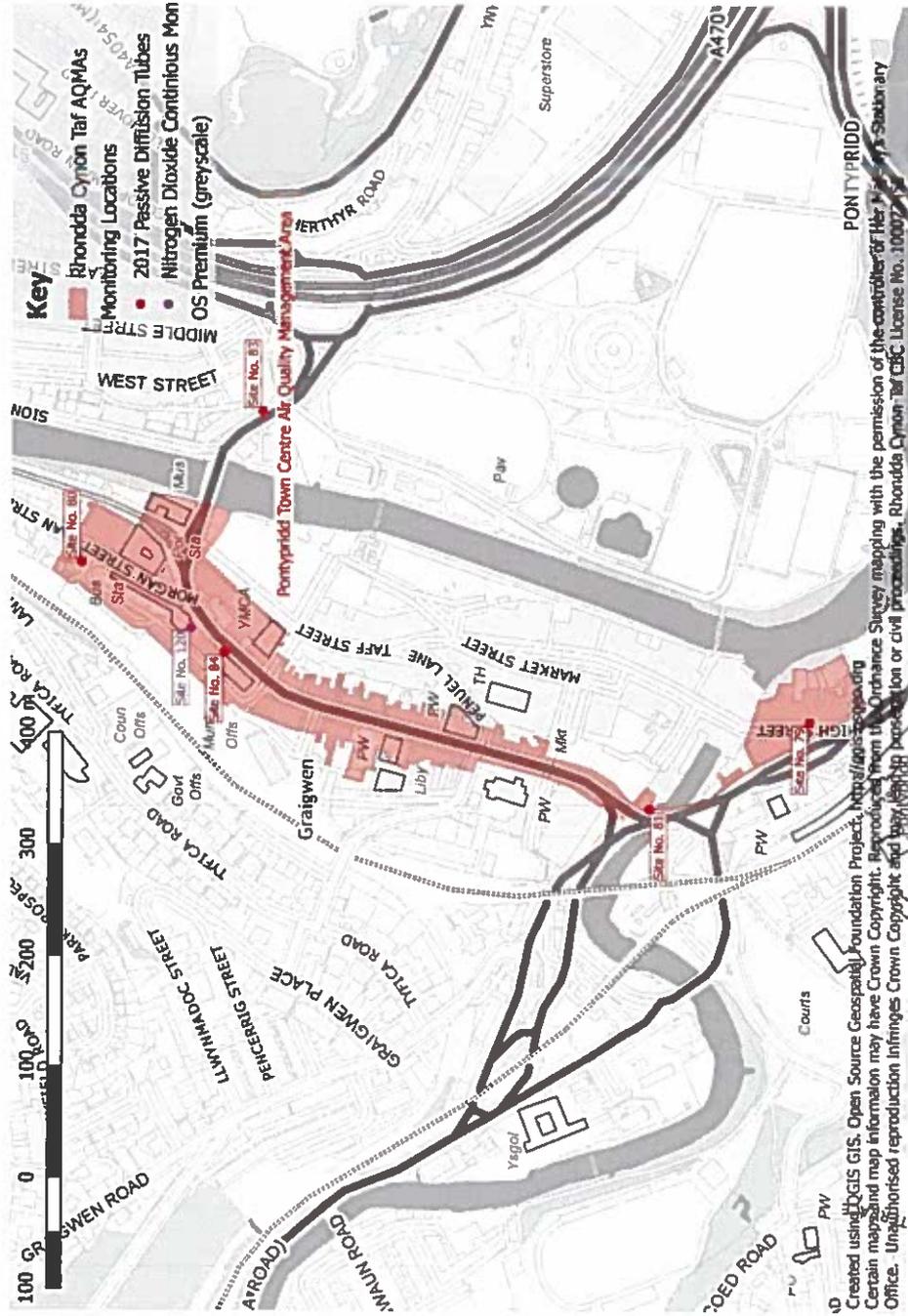


Figure D.13 – Pontypridd Town Centre Air Quality Management Area



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Figure D.14 – Tonyrefail Air Quality Management Area

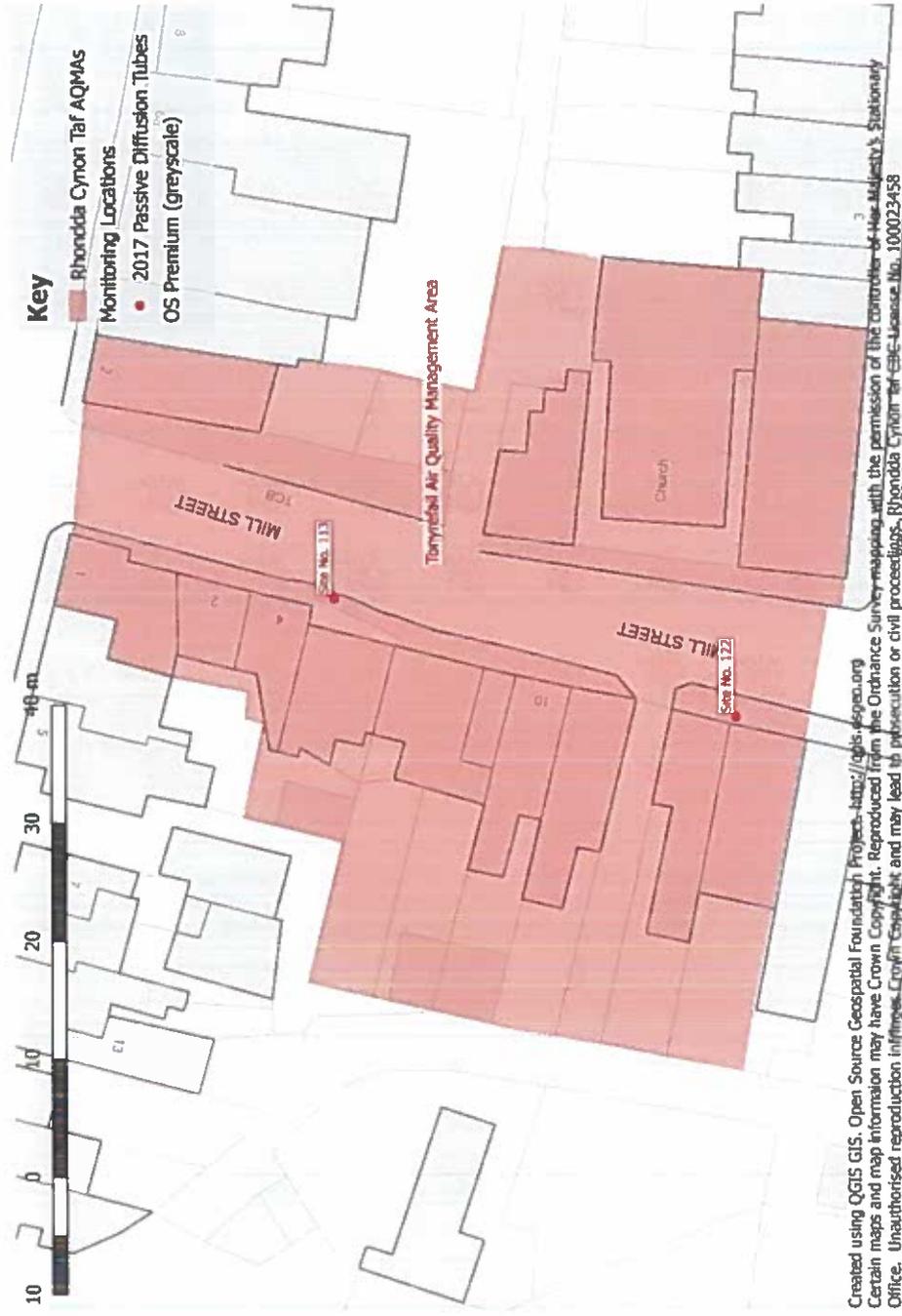


Figure D.15 – Treforest Air Quality Management Area



Glossary of Terms

Abbreviation	Description
4 th Stage Further Assessment	A review of all evidence and reasoning for an AQMA to be completed 12 months after the declaration is made. The assessment also requires identification of the sources of the pollutant which has triggered the AQMA and the reductions required for compliance.
Accuracy	A measure of how well a set of data fits the "true" value.
Air Quality Action Plan [AQAP]	A cost effective plan devised by a Local Authority to improve air quality.
Air Quality Management Areas [AQMA]	An area which a Local Authority has designated for action, based upon predicted or measured breach of an Air Quality Objective.
Air Quality Objective [AQO]	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups.
Annual mean	The average of the concentrations measured for the pollutant in one year. In the case of an AQO this is for a calendar year.
National Background Concentrations	The level of the pollutant predicted to be present using advanced modelling at a national level. Background concentrations added to local contribution (dependent upon unique local factors) is the total concentration
Benzene [C ₆ H ₆]	A liquid compound of Carbon and Hydrogen forming a stable aromatic "ring" structure. Mainly occurs due to the evaporation of petroleum.
1,3-Butadiene [C ₄ H ₆]	A gaseous compound of Carbon and Hydrogen forming a simple conjugated diene. Produced for specific industrial processes and as a by-product in the combustion of petroleum.
Carbon Monoxide [CO]	A gaseous compound of Carbon and Oxygen normally formed by the incomplete combustion of Carbon with Oxygen in an atmosphere with a deficiency of Oxygen.
Climate Change	Is the effect on the statistical distribution of weather over a period of time and caused by the increase in the mean temperature of the Earth's near surface and oceans, triggered by the anthropogenic emission of greenhouse gasses.
Concentration	The amount of a (polluting) substance in a volume (of air), typically expressed as a mass of pollutant per unit volume of air (for example, microgrammes per cubic metre, µg/m ³) or a volume of gaseous pollutant per unit volume of air (parts per billion, ppb).
Confidence level	The degree of certainty at which the true value will be in a predicted range.
Data capture	The percentage of all the possible measurements for a given period that were validly measured.

Defra	Department of the Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
Exceedence	A period of time where the concentration of the pollutant is greater than the appropriate Air Quality Objective.
Fine Particulate Matter [PM ₁₀]	An atmosphere of regular and/or irregular particles with a significant probability of having a diameter of 10µm and less. They are produced from a large variety of natural and anthropogenic sources.
Kurtosis	An index of the sharpness of the peaks in a data set
Lead (Pb)	A solid elemental metal. Lead is second only to Iron among the most widely used metals, having a broad range of manufacturing and construction uses. Historically also used as an anti-knocking agent in petroleum, however, its use has now been phased out in the United Kingdom.
Metrological effects	Effects of seasonal variations on the atmosphere. These effects can include temperature, atmospheric turbulence, prevalence of sunlight, etc and is often referred to as Winter or Summer Smog.
Modeling	The use of advanced stochastic simulations to predict a future variable, for instance the concentration of a pollutant in ambient air.
Monitoring Data	Data gained from monitoring using various scientific apparatus
NAfW	National Assembly for Wales
Nitrogen Dioxide [NO ₂]	A gaseous compound of Nitrogen and Oxygen normally formed by the oxidation of Nitric Oxide with Oxygen in the air.
Nitrogen Oxides [NO _x]	A generic term for all gaseous compounds of Nitrogen and Oxygen and normally comprising of Nitric Oxide and Nitrogen Dioxide
Nitric Oxide [NO]	An unstable gaseous compound of Nitrogen and Oxygen normally formed by the incomplete oxidation of Nitrogen with Oxygen in the air.
n th Percentile	A value that is the rank at a particular point in a collection of data. For example the 99.8 th percentile of values for a year is the value that 99.8% of all the data in the year fall below, or equal.
Precision	A statistical definition of how closely readings within a range are to one another.
Progress Report	An annual report undertaken when no Updating and Screening Assessment is taking place. The Progress Report publishes the latest monitoring data for all pollutants of concern.
µg/m ³	Microgrammes per cubic metre of air. A measure of concentration in terms of mass per unit volume. A concentration of 1 µg/m ³ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.
Updating and Screening Assessment	A 2 nd Stage air quality report produced every three years providing a pollutant and scenario based examination of the quality of air in the County Brought, last produced in 2012.

[USA]	
Ratification (Monitoring)	A critical review of all information relating to a data set, in order to amend or reject the data. When the data have been ratified they represent the final data to be used (see also validation).
Running Mean	A mean composed of overlapping time periods. For instance, an 8-hour running mean is calculated every hour, and averages the values for eight hours. The period of averaging is stepped forward by one hour for each value.
Skewness	The bias to asymmetry of a data set
Sulphur Dioxide [SO ₂]	A gaseous compound of Sulphur and Oxygen normally formed by the oxidation of Sulphur with Oxygen in combustion processes.
Stage 3 Detailed Assessment	A geographical examination, targeted in an area expected to be at risk, of a pollutant and its exceedence of an AQO.
Stage 4 Further Assessment	A review of previous review and assessment findings for an Air Quality Management Area to provide confirmation of the need for the declaration and source apportionment.
TEA	Triethanolamine. Used as an absorbant for NO ₂ in Palmes type passive diffusion tubes.
Transboundary effects	The effects caused by the long distance transportation of air pollutants, typically across national borders. Examples are the Saharan dust episodes and the Central Europe particle episodes.
Validation (Monitoring)	Screening monitoring data by visual examination for spurious and unusual measurements (see also ratification).
Validation (Modeling)	The general comparison of modeled results against monitoring data carried out by the model developer to ensure the model is "fit for purpose".
Verification (Modeling)	A comparison of modeled results versus monitoring results at relevant local locations.
WG	Welsh Government

