RHONDDA CYNON TAF

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

Penderfyniad Allweddol | Key Decision ✓

PWNC | SUBJECT: Publication of the 2019 Air Quality Progress Report

DIBEN YR ADRODDIAD | PURPOSE OF THE REPORT:

The purpose of this report is to approve the publication of the "2019 Air Quality Progress Report" for public consultation and to confirm the Director of Public Health, Protection & Community Services, in consultation with the Cabinet Member for Stronger Communities, Well-being & Cultural Services will consider the outcome of the public consultation, and should it be deemed appropriate, accept the 2019 Air Quality Progress Report, as well as direct the issuance of an Order, pursuant to Section 83(2)(a) of the Act, to amend the geographical extent of the Broadway Air Quality Management Area.

PENDERFYNIAD WEDI'I DDIRPRWYO | DELEGATED DECISION:

The Council publishes the "2019 Air Quality Progress Report" for public consultation; and

The Director of Public Health, Protection & Community Services, in consultation with the Cabinet Member for Stronger Communities, Well-being & Cultural Services considers the outcome of the public consultation and if appropriate:-

a) accepts the '2019 Air Quality Progress Report'; and
b) makes the 'Broadway Air Quality Management Area Amendment Order (NO_2) 2019'.

P J Lee	PAUL LEE	17/7/19
Llofnod y Prif Swyddog Chief Officer Signature	**Enw (priflythrennau)** Name (Print Name)	**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.

RHONDDA CYNON TAF

YMGYNGHORI | CONSULTATION

16/07/2019

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

DYDDIAD | DATE

LLOFNOD SWYDDOG YMGYNGHOROL
CONSULTEE OFFICER SIGNATURE

DYDDIAD | DATE

RHONDDA CYNON TAF

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

A YW'R PENDERFYNIAD YN UN BRYS 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:

YDY | YES **NAC YDY | NO√**

Rheswm dros fod yn fater brys | Reason for Urgency:

.....

***Os yw'n cael ei ystyried yn fater brys* - Ilofnod y Llywydd, y Dirprwy Lywydd neu Bennaeth y Gwasanaeth Cyflogedig yn cadarnhau cytundeb fod y penderfyniad arfaethedig yn rhesymol yn yr holl amgylchiadau iddo gael ei drin fel mater brys, yn unol â rheol gweithdrefn trosolwg a chraffu 17.2:**
If deemed urgent - signature of Presiding Member or Deputy Presiding Member 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:

..... N/A .....
(Llywydd |Presiding Member) ***(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.

RHONDDA CYNON TAF

AT DDEFNYDD Y SWYDDFA YN UNIG | FOR OFFICE USE ONLY

DYDDIADAU CYHOEDDI A GWEITHREDU | PUBLICATION & IMPLEMENTATION DATES

CYHOEDDI | PUBLICATION
Cyhoeddi ar Wefan y Cyngor | Publication on the Councils Website:- 17/07/19

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

23/07/19
DYDDIAD / DATE

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

RHONDDA CYNON TAF

Rhagor o wybodaeth | Further Information:

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

RHONDDA CYNON TAF

RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

KEY DELEGATED DECISION

REPORT TO ACCOMPANY A DECISION OF THE DIRECTOR OF PUBLIC HEALTH, PROTECTION AND COMMUNITY SERVICES IN DISCUSSIONS WITH COUNCILLOR RHYS LEWIS, CABINET MEMBER FOR STRONGER COMMUNITIES, WELL-BEING AND CULTURAL SERVICES

8TH JULY 2019

PUBLICATION OF THE 2019 AIR QUALITY PROGRESS REPORT

Authors: **Neil Pilliner, Environmental Protection & Housing Standards Manager;**
Sarah Illsley, Senior Environmental Control Officer;
Gareth Purnell, Pollution Control Officer.

1. PURPOSE OF THE REPORT

1.1 The purpose of this report is to seek approval to publish the "2019 Air Quality Progress Report" for public consultation.

1.2 Dependent upon the outcome of the public consultation: -

a) to amend, by Order pursuant to Section 83(2) of the Environment Act 1995, the extent of the Broadway Air Quality Management Area so as to remove from its geographical designation the area of Park Street and Broadway Gyratory;

b) 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

It is recommended that:

2.1 The Council publishes the "2019 Air Quality Progress Report" for public consultation;

2.3 The Director of Public Health, Protection & Community Services, in consultation with the Cabinet Member for Stronger Communities, Well-being & Cultural Services, considers the outcome of the public consultation and if appropriate:-

- accepts the '2019 Air Quality Progress Report'; and
- makes the 'Broadway Air Quality Management Area Amendment Order (NO_2) 2019'.

RHONDDA CYNON TAF

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 2019 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 there are still some localised areas, which continue to be vulnerable to poor air quality.

3.2 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. The 2019 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 However, there has been progress in improving local air quality within some of the Air Quality Management Areas. A number of years of monitoring data, as well as understanding of the local situation, support consideration that part of the Broadway Air Quality Management Area is reliably compliant with the annual mean Air Quality Objectives for Nitrogen Dioxide. Therefore, following the required consultation, the Council will amend the Broadway Air Quality Management Area designation to remove Park Street and the Broadway Gyratory (the area that observes long-term compliance). The Broadway itself remains at risk of non-compliance to the annual mean Air Quality Objectives for Nitrogen Dioxide and will remain within the Air Quality Management Area. The corresponding Broadway Air Quality Action Plan will remain relevant and not require immediate review.

3.4 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 the Well-being of Future Generations (Wales) Act 2015, 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 cooperative working arrangements with various stakeholders, including Cwm Taf Local Health Board.

3.5 The 2019 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 is taking that could influence local air quality. The 2019 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 made towards achieving compliance. In addition, it provides an update on the implementation of actions relevant to the adopted Air Quality Action Plans for each Air Quality Management Area.

3.6 To ensure effective prioritisation of resources, continued accountability, developing coordination with stakeholders and public participation it is necessary to publish for consultation, the 2019 Air Quality Progress Report.

RHONDDA CYNON TAF

4. BACKGROUND

4.1 The Local Authority annually reports on local air quality within its area. The '2019 Air Quality Progress Report' provides the latest examination of all relevant local air quality information. It confirmed that the sixteen 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 progressed.

4.2 Nitrogen Dioxide is a harmful 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 In recognition of its importance to public health and pursuant to the Well-being of Generations (Wales) Act 2015, the "level of Nitrogen Dioxide in ambient air" has also been set as National Indicator No. 4. In contrast to the upper limit driven approach of Local Air Quality Management, 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. In working with its partners, the Local Authority has drawn upon expertise and analysis to help identify those communities, which may benefit the most from an active approach to improve local air quality, whilst also seeking to fulfil the Local Authority's statutory obligation on local air quality management.

4.4 The 2019 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. Although these reasons can be very location specific, they often 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 Air Quality Management Area. Often strategic arterial roads, for instance the A470 and the A4119 may have a demonstrable effect at certain vulnerable locations.

4.5 The latest monitoring data suggest a recent improving trend within some Air Quality Management Areas, although it is too early to determine if this trend will persist. 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.

4.6 For the Broadway Air Quality Management A, a number of years of monitoring data as well as understanding of the local situation suggests that some areas within its geographical extent are likely to remain compliant with the annual mean Air Quality Objective for Nitrogen Dioxide. Albeit there will still remain a risk of likely non-compliance within remaining areas of the Air Quality Management Area. To acknowledge the improvements made and ensure the targeting of resources it is proposed to consult upon amending the geographical area of the Broadway Air

Quality Management Area. This amendment would remove Park Street and the Broadway Gyratory, the areas that observe long-term compliance, from the Broadway Air Quality Management Area, which will remain focused on the Broadway.

4.7 It is acknowledged that when working towards achieving compliance to an Air Quality Objective within an Air Quality Management Area, it may be necessary to draw upon a range of both national and local actions. Currently the Local Authority has adopted corresponding Air Quality Action Plans that identify and facilitates bespoke locally targeted measures that could be utilised, to work towards achieving compliance within the associated Air Quality Management Area.

4.8 A number of actions to improve air quality have recently been facilitated. This has included Welsh Government directed speed reductions along a part of the A470, incidentally associated with the Nightingales Bush and Treforest Air Quality Management Areas to reduce vehicle emissions as well as potential incidences of congestion. The Local Authority also continued to progress further actions to improve usability and awareness of active travel routes. In addition, local sustainable transport and various local highway options are being considered, which could improve local air quality within several Air Quality Management Areas.

4.9 It is expected that the Local Authority will annually report upon local air quality management including analysis of locally gathered monitoring data and any progress in implementing its adopted Air Quality Action Plans. It is also acknowledged that it will be desirable, by 2020, to review the current Air Quality Action Plans for their effectiveness and if there is a need to modify them to ensure pertinence in an ever changing environment.

5. EQUALITY AND DIVERSITY IMPLICATIONS

5.1 The 2019 Air Quality Progress Report does not stipulate any actions or a course of conduct that would have equality and diversity implications. An Equality Impact Assessment is not necessary at this time.

6. CONSULTATION

6.1 To discharge its statutory responsibilities, the Local Authority will consult upon the 2019 Air Quality Progress Report with the public and other statutory consultees as stipulated in Schedule 11 of the Environmental Act 1995; including the Welsh Government who will peer review its findings.

7. FINANCIAL IMPLICATION(S)

7.1 The 2019 Air Quality Progress Report does not inherently allocate resources for the progression of actions associated with 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 rearrangements to these external funding opportunities, future accessibility may become limited.

7.2 The 2019 Air Quality Progress Report recommends continuing the current level of provision with regards local air quality monitoring and analysis. 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 end of life. The Council will quantify the capital requirements associated with replacing this equipment.

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. Furthermore, if such a review determines the need to amend an existing Air Quality Management Area, the Local Authority may, pursuant to Section 83(2)(a) of the Act, make such amendment by Order.

8.2 In recognition of evidence identifying likely long-term compliance to the annual mean Air Quality Objective for Nitrogen Dioxide, it is recommended that by the issuance of an Order under Section 83(2)(a) of the Act, the Broadway Air Quality Management Area is amended to exclude from the current designation the area of Park Street and Broadway Gyratory. The amended Broadway Air Quality Management Area will retain the remainder of Broadway within its designation.

8.3 To maintain consistency with statutory guidance[1] and the principles and working practices necessary to facilitate the goals of the Future Generations (Wales) Act 2015, the 2019 Air Quality Progress Report has been compiled in accordance with the Welsh Government issued reporting template for local air quality management.

8.4 The Local Authority is not under a legal obligation to achieve compliance to an Air Quality Objective or fully implement an Air Quality Action Plan immediately. However, the Council is required to demonstrate annually its progress towards compliance to an Air Quality Objective.

8.5 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 a Council.

8.6 Current advice from Welsh Government is until such time as the United Kingdom withdraws from the EU, all air quality management duties transposed from EU legislation shall be adhered to. Local Air Quality Management duties are also an obligation derived from United Kingdom primary legislation in its own right.

---

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

RHONDDA CYNON TAF

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 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 will be achieved by improving the quality of air these communities may regularly experience, as well as addressing the perceptions of poor air quality and its effect 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 sixteen Air Quality Action Plans 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 2019 Air Quality Progress Report furthers the Local Authority delivery of WFG.

10. CONCLUSION

10.1 Rhondda Cynon Taf County Borough Council has produced the "2019 Air Quality Progress Report" and will now 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. In addition, the Local Authority should also amend, by Order pursuant under Section 83(2)(a) of the Act, the geographical extent of the Broadway Air Quality Management Area so as to remove from its designation the area of Park Street and Broadway Gyratory.

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 inform any final decision and if necessary, this matter will be re-examined.

Other Information:-
Relevant Scrutiny Committee
Health and Wellbeing Scrutiny

RHONDDA CYNON TAF

LOCAL GOVERNMENT ACT 1972

AS AMENDED BY

THE LOCAL GOVERNMENT (ACCESS TO INFORMATION) ACT 1985

RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

DELEGATED OFFICER DECISION

8TH JULY 2019

REPORT OF DIRECTOR OF PUBLIC HEALTH, PROTECTION & COMMUNITY SERVICES IN DISCUSSIONS WITH COUNCILLOR RHYS LEWIS, CABINET MEMBER FOR STRONGER COMMUNITIES, WELL-BEING AND CULTURAL SERVICES

Item: Publication of the 2019 Air Quality Progress Report.

Officer to contact: Neil Pilliner, Environmental Protection & Housing Standards Manager - Tel: 01443 425519

CYNGOR BWRDEISTREF SIROL RHONDDA CYNON TAF

RHONDDA CYNON TAFF COUNTY BOROUGH COUNCIL

2019 Adroddiad Cynnydd o Ansawdd Aer

2019 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

RHONDDA CYNON TAF

Mehefin 2019

June 2019

Mae'r Adroddiad ar Gynnydd 2019 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 2019.

Yn unol â Chynllun y Gymraeg 2019, 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 2019 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 2019 Progress Report are that of Rhondda Cynon Taff County Borough Council only.

In accordance with Rhondda Cynon Taff's Welsh Language Scheme, the 2019 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 Environmental Protection & Housing Standards 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	2019PR
Date	29th June 2019

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 [NO_2] a deunydd gronynnol mân [PM_{10}] – mae angen eu harchwilio'n fwy manwl. Mae'r Adroddiad yn cynnwys asesiad o ddata monitro diweddar ar gyfer NO_2 a PM_{10}, yn ogystal ag adolygiad o ddatblygiadau wedi eu caniatáu yn ddiweddar, mannau o ddiddordeb 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 NO_2 – 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 NO_2. Mae'r data monitro diweddaraf sydd ar gael yn cadarnhau bod y 16 ARhAA yn parhau'n berthnasol, ond yn sgil gwelliannau parhaus mewn rhan o ARhAA Broadway, byddai'n ddelfrydol i leihau maint ARhAA Broadway i'r ardal o Broadway sy'n peri risg o dorri cymedr blynyddol amcanion ansawdd aer NO_2 yn unig.

Mae'n bosib y gallai effaith Chwarel Craig yr Hesg ar lefelau PM_{10} lleol barhau i gael ei orchfygu yn ystod 2018. Gallai'r newid yma, sydd wedi dod i sylw ers 2015, fod o ganlyniad i welliannau parhaus i leihau allyriadau PM_{10} 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 cydymffurfiad yn parhau yn y dyfodol. Bydd yr Awdurdod Lleol, felly, yn parhau i fonitro lefelau PM_{10} 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 bosib gweithredu'r holl gamau cynlluniau gweithredu ar unwaith. Serch hynny, mae'r Awdurdod Lleol yn parhau, pan fo'n bosib, i weithredu neu i ddylanwadu ar weithredu camau o fewn ei ARhAAau. Mae hyn wedi cynnwys cyfyngiadau cyflymder ar yr A470 dan gyfarwyddyd Llywodraeth Cymru er mwyn lleihau allyriadau cerbydau yn ogystal â lleihau tagfeydd ar heol sy'n teithio trwy ARhAA Llwyn yr Eos a Threfforest. Yn ychwanegol, mae'r Awdurdod Lleol yn mynd rhagddo â chamau pellach i wella a chodi ymwybyddiaeth o lwybrau teithio llesol a dewisiadau trafnidiaeth leol cynaliadwy.

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

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 moniotro 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 area against Air Quality Objectives [AQO]. In doing so, the Local Authority has identified two air pollutants, Nitrogen Dioxide [NO_2] and Fine Particulate Matter [PM_{10}], as requiring closer examination. This Report contains an assessment of recent monitoring data for NO_2 and PM_{10} 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 NO_2, 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 NO_2, 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 but due to sustained improvement in part of the Broadway AQMA, it is desirable to shrink the size of the Broadway AQMA to only the area of Broadway that remains at risk of breaching the annual mean AQO for NO_2.

It is possible that during 2018 the impact of Craig Yr Hesg Quarry on local PM_{10} 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 PM_{10} 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 PM_{10} 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 bespoke Air Quality Action Plans [AQAPs] 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, the Local Authority continues, where possible, to implement or influence the implementation of actions within its AQAPs. This has included Welsh Government directed speed reductions along a part of the A470, incidentally associated with the Nightingales Bush and Treforest AQMAs, so as to directly reduce

vehicle emissions as well as potential incidences of congestion. 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 when determining the likelihood of obtaining 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/

Table of Contents

List of Tables

List of Figures

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 historic reports is provided below :-

- **Stage 1 (1998)**
  Commencement of modern day Local Air Quality Management regime, the Council undertakes 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 provisional findings.

- **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 NO_2 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 NO_2 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 NO_2 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 NO_2. 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 NO_2. In addition a need for further investigation of PM_{10} 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 and 1-hour mean AQO for NO_2 breached in the existing A473 AQMA. In addition so as to incorporate new areas in breach of the annual mean AQO for NO_2, 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 NO_2. 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 PM_{10} at Glyncoch identified a risk of breaching the 24-hour daily mean AQO for PM_{10} 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 NO_2 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 NO_2.

- **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 possibe breaches of the annual mean AQO for NO_2.

- **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 NO_2 within the 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 NO_2 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 NO_2 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 PM_{10} at Glyncoch identified elevated levels of PM_{10} but further monitoring was required to clarify the situation.

- **Updating and Screening Assessment + Detailed & Further Assessments (2015)**
  New AQMA for a breach of the annual mean AQO for NO_2 and the existing AQMA, previously declared for a breach of the annual mean AQO for NO_2 modified to include a breach of the 1-hour mean AQO for NO_2. 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 NO_2 modified to include a breach of the 1-hour mean AQO for NO_2.

- **Progress Report + Air Quality Action Plan (2017)**
  Two new AQMAs declared, each for a breach of the annual mean AQO for NO_2. In addition, Llantwit Fardre AQMA revoked due to demonstrable sustained compliance to annual mean AQO for NO_2. AQAPs adopted for all remaining AQMAs, including most recently declared AQMAs.

- **Air Quality Progress Report (2018)**
  Extant sixteen AQMAs and associated AQAPs considered pertinent and no additional declarations, revocation or changes recommended.

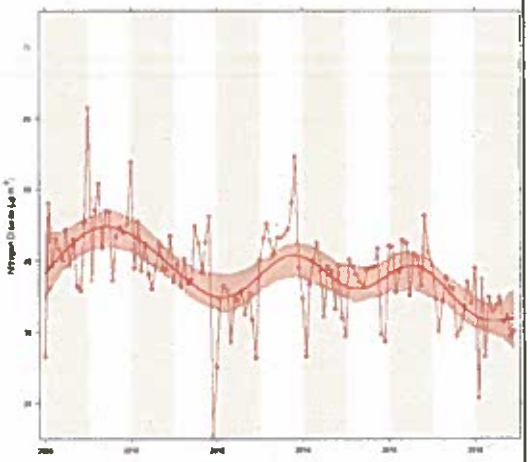
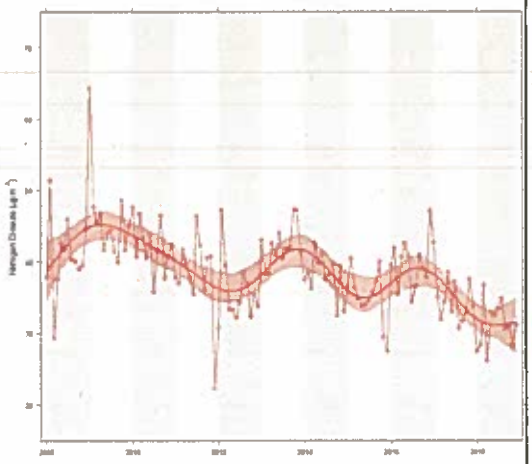
1.2 Air Quality Management Areas

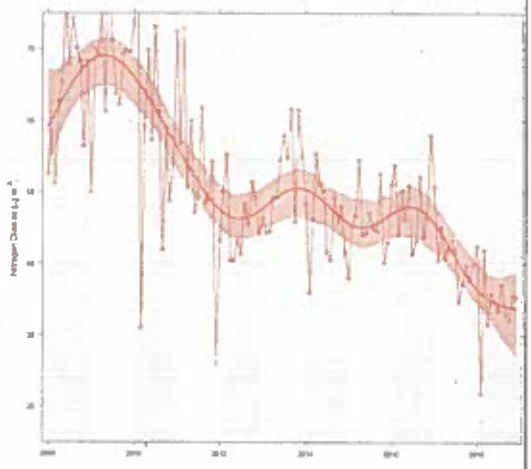
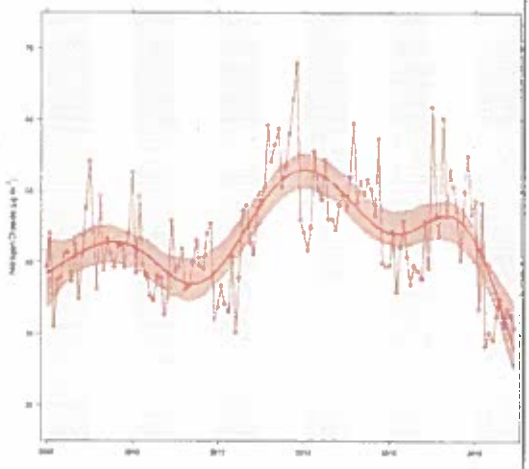
Air Quality Management Areas [AQMAs] are declared when air quality is close to or above an acceptable level of pollution (known as the air quality objective (please see Appendix A)). After declaring an AQMA the authority must prepare an Air Quality Action Plan [AQAP] within 18 months setting out measures 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 NO_2 measurements within the AQMA from 2008 to 2018 as well as a quantification of the most recent five year trend (which may show a difference to the longer-term trend as indicated by the time trend graph). Also included is the Health and Air Prioritisation Risk Assessment Area Prioritisation tool [HAP-RAP][1] prioritisation for each community associated with the AQMA. The HAP-RAP tool has been designed (see Section 4.5) to identify communities where improvement actions may have the most overall benefit to public health, with regards to the potential disproportionate impacts of air quality and the burden reduction approach. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at the relevant Defra webpage[2].

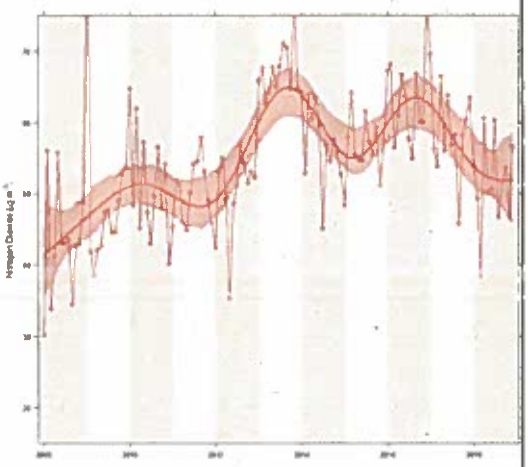
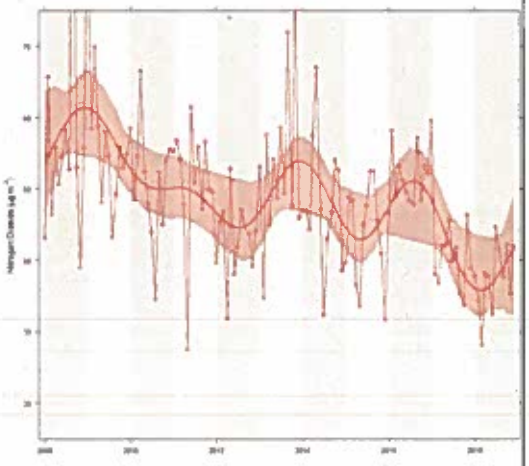
[1] Huw Brunt, Sarah J Jones on behalf of Public Health Wales; *Public health-driven air pollution risk assessment: A pragmatic approach to complement Local Air Quality Management implementation in Wales*, 2019
[2] https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=408

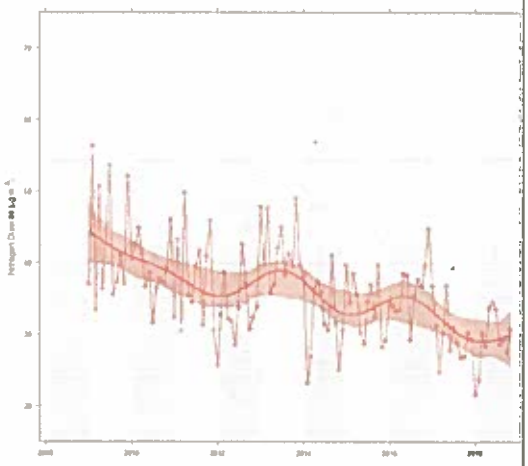
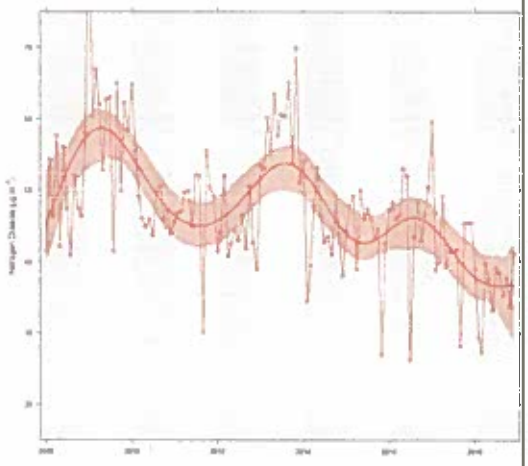
Table 1.1 – Declared Air Quality Management Areas

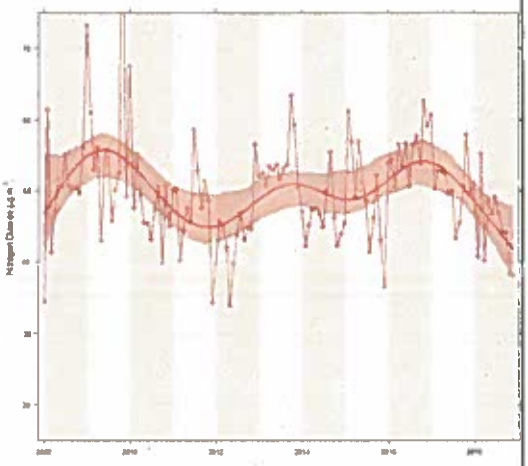
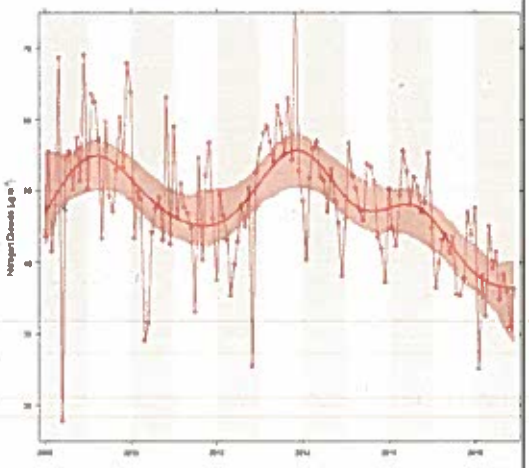
AQMA	Relevant Air Quality Objective(s)	HAP-RAP Prioritised	Comments on Air Quality Trend[1]	Description[2]
Aberdare Town Centre	NO_2 annual mean	×	-2.81% NO2 yr-1 five-year trend [-4.24%,-0.63%]  Consistent long-term improving trend with projected date for compliance in three plus years	All properties from High Street via Canon Street and Victoria Square to Cardiff St.
Broadway	NO_2 annual mean	×	-3.53% NO_2 yr^{-1} five-year trend [-5.01%,-2.12%]  Consistent long-term improving trend with projected date for compliance in three plus years.	All properties from Broadway via Fothergill St to Park St.

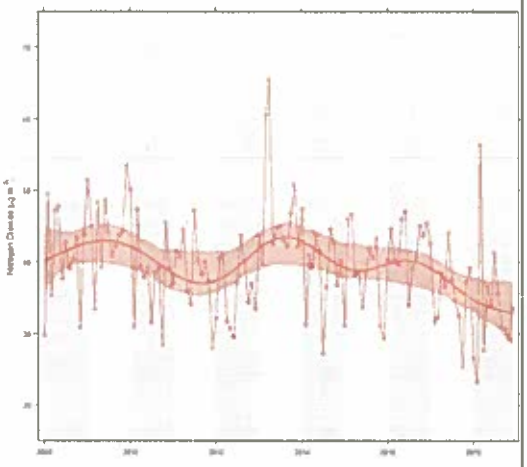
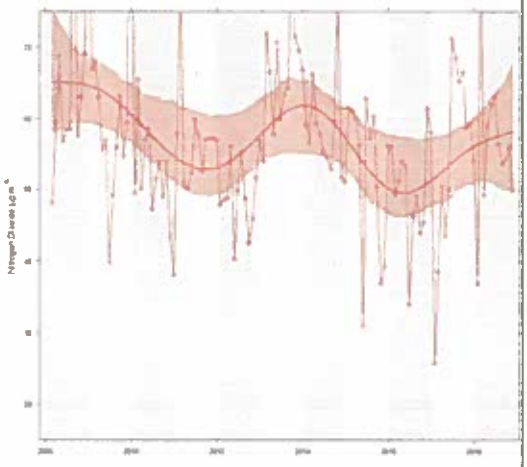
Church Village[3]	NO_2 annual mean	×	-5.35% NO_2 yr^{-1} five-year trend [-6.83%,-3.58%]  Fluctuating short-term improving trend with projected near-term compliance date	Certain properties from Dyffryn Ter. to Main Rd.
Cilfynydd	NO_2 1-hour & annual mean	×	-5.08% NO_2 yr^{-1} five-year trend [-7.38%,-1.98%]  Fluctuating short-term improving trend, unattributed recent trend change indicates significant uncertainty, with projected date for compliance in seven plus years	Certain properties from Pontshonnorton Rd to Merthyr Rd and the land west of these points to the eastern boundary of the A470.

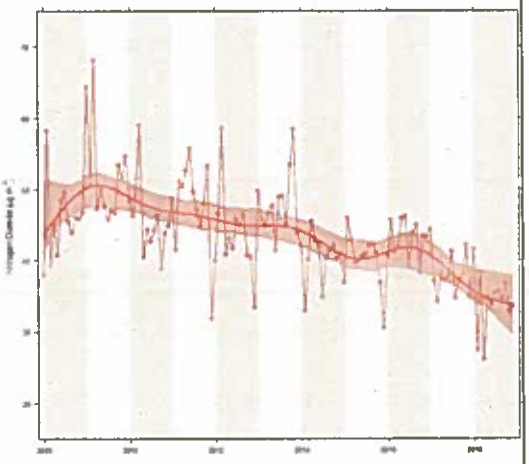
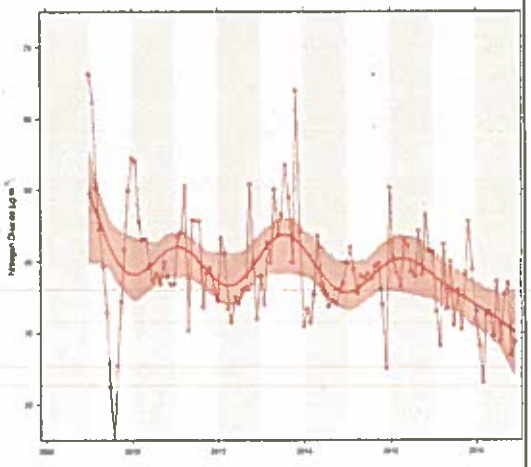
[3] A successor to the Tonteg – Church Village – Llantwit Fardre A473 Corridor AQMA

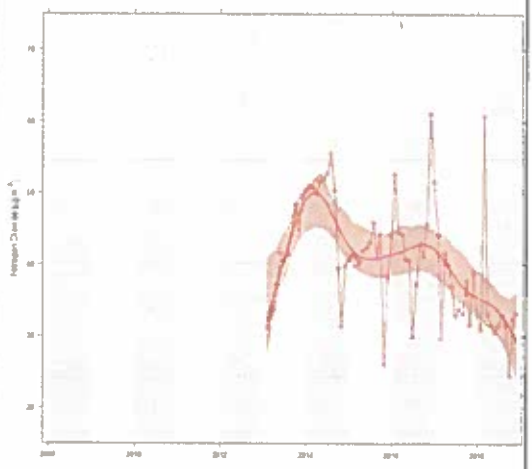
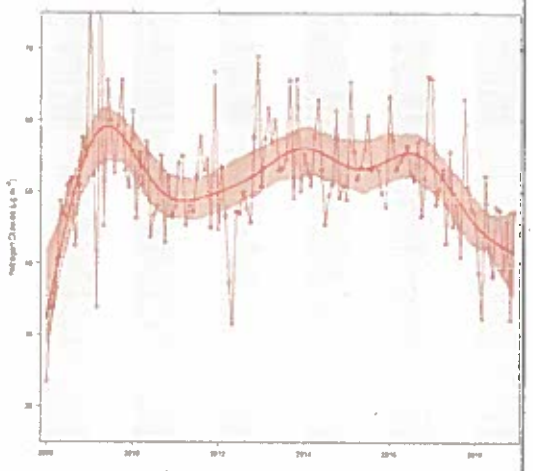
Cymmer	NO_2 1-hour & annual mean	✓	-1.72% NO_2 yr^{-1} five-year trend [-3.38%,0.29%]  No clearly established improving trend with no projected foreseeable date for compliance	All properties from High St to Trebanog Rd.
Ferndale	NO_2 annual mean	✓	-4.72% NO_2 yr^{-1} five-year trend [-6.72%,-2.35%]  Fluctuating short-term improving trend with projected date for compliance in six plus years	Certain properties from The Strand via High St to Dyffryn St.

Llanharan	NO_2 annual mean	×	-2.40% NO_2 yr^{-1} five-year trend [-4.46%,-0.38%]  Consistent long-term improving trend with projected near-term compliance date	Certain properties from The Sq to Chapel Rd.
Llwynypia	NO_2 annual mean	✓	-4.32% NO_2 yr^{-1} five-year trend [-5.49%,-2.46%]  Fluctuating short-term improving trend with projected date for compliance in three plus years	All properties along Partridge Rd

Mountain Ash Town Centre	NO_2 annual mean	✓	-0.04% NO_2 yr^{-1} five-year trend [-2.55%,3.01%]  No clearly established improving trend with no projected foreseeable date for compliance	Certain properties from Oxford St to Ffrwyd St Cres and Seymour St.
Mwyndy	NO_2 annual mean	×	-6.16% NO_2 yr^{-1} five-year trend [-7.71%,-4.87%]  Fluctuating short-term improving trend with projected date for compliance in three plus years	One property at Mwyndy.

Nantgarw	NO_2 annual mean	×	-3.68% NO_2 yr^{-1} five-year trend [-5.89%,-0.81%]  Fluctuating short-term improving trend with projected date for compliance in three plus years	All properties at Graig View
Nightingales Bush	NO_2 annual mean	×	-1.58% NO_2 yr^{-1} five-year trend [-4.04%,1.46%]  No clearly established improving trend with no projected foreseeable date for compliance	All properties at Nightingales Bush to Pentrebach Rd

Pontypridd Town Centre	NO_2 annual mean	×	-3.36% NO_2 yr^{-1} five-year trend [-4.44%,-1.9%]  Consistent long-term improving trend with projected date for compliance in nine plus years	All properties from Broadway via Gelliwastad Rd, Morgan St and High St to Taff St.
Tonyrefail	NO_2 annual mean	×	-2.45% NO_2 yr^{-1} five-year trend [-4.52%,0.89%]  No clearly established improving trend with no projected foreseeable date for compliance	Certain properties at Mill St

Treforest	NO_2 annual mean	×	-8.07% NO_2 yr^{-1} five-year trend [-11.84%,-4.92%]  Fluctuating short-term improving trend with projected near-term compliance date	Certain properties nearest the A470 at Cardiff St
Tylorstown	NO_2 annual mean	✓	-4.15% NO_2 yr^{-1} five-year trend [-5.81%,-1.99%]  Fluctuating short-term improving trend with projected date for compliance in seven plus years	Certain properties at East Rd.

(1) Trend analysis is indicative for comparison only and as an average may not be reflective of all areas within the respective AQMA. Projected compliance periods are also indicative only and do not necessarily take account of inherent uncertainties and future variables which may result in longer real compliance periods.
(2) AQMA boundary maps and corresponding AQAPs within Rhondda Cynon Taf CBC can be viewed on the relevant Defra webpage[4].

[4] 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 AQAP relating to any designated AQMA.

AQAPs are reviewed and updated whenever deemed necessary, but no less frequently than once every five years; the next scheduled review of all the Local Authority's AQAPs has been set for 2020. Such updates are completed in close consultation with local communities.

AQAP measures completed in 2018 are:

- In regards to the Broadway, Cilfynydd, Ferndale, Nightingales Bush, Pontypridd and Porth AQMAs, combined public transport and active travel advice leaflets relevant to the Ferndale, Pontypridd and Porth Areas produced and 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.
- In regards to Cilfynydd AQMA, 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.
- In regards to Cilfynydd, Ferndale and Tylorstown AQMAs, engagement with Pontypridd High School, Cilfynydd and Ferndale High School, Ferndale to improve student awareness of environmental matters including local air quality.
- In regards to Broadway, Nightingales Bush, Pontypridd Town Centre and Treforest AQMAs, Welsh Government trial involving temporary 50mph speed restrictions to the A470 between Upper Boat and Pontypridd so as to directly reduce levels of NO_2 in accordance with the adopted "Tackling roadside nitrogen dioxide concentrations in Wales[5]" plan and subsequent WelTAG Stage 3 A470 review[6].
- In regards to Broadway, Church Village, Cilfynydd, Mt Ash Town Centre, Nantgarw, Nightingales Bush, Pontypridd Town Centre and Treforest AQMAs, continued progress in delivery of the South Wales Metro including the development of a fleet depot at Taff's Well and the granting of permissions for the extension of the Abercynon Park and Ride by 310 places to improve provisions of sustainable mass transit.

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

- The construction and operation of the Abercynon Park and Ride to relieve traffic congestion from the existing local road infrastructure.
- The final phase construction and operation of the Mountain Ash Cross Valley Link (south) to relieve traffic from the existing local roads

[5] https://gov.wales/tackling-roadside-nitrogen-dioxide-concentrations-wales
[6] https://gov.wales/sites/default/files/consultations/2018-09/a470-pontypridd-weltag-stage-three-report_1.pdf

- The permanent instalment of 50mph speed restrictions to the A470 between Upper Boat and Pontypridd so as to directly reduce levels of NO_2 from the relevant section of the A470 in accordance with the WelTAG Stage 3 A470 review.
- Removal of less efficient diesel 'Pacer' trains from the South Wales Valleys Railway potentially resulting in directly reduced railway emissions as well possible improvement in the attractiveness of the transport option.
- Simplification of South Wales Valleys Railway fare structure with the potential to reduce certain fares for 33 outer stations possibly improving the desirability of mass-transit.
- Introducing an additional four trains per hour, Monday to Saturday, between Cardiff to Bridgend with the potential to improve capacity and desirability of the railway route via Llanharan and Pontyclun.

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
1a	Congestion Management Aberdare Town Centre	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	

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
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
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.

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
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	-
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. **Land engineering works and sympathetic major improvement of existing A4059 Jct. completed to enable future bypass works.** Future bridge construction planned along with completion estimated in 2019/2020.	2020	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
6	Public Information Broadway Cilfynydd Ferndale Nightingales Bush Pontypridd Town Centre	Public and active travel advice leaflets relevant to the Pontypridd area.	RCTCBC (ESD Grant)	2015	2018	Behavioural project not feasible for direct attribution		Funding bid produced and successful, established relevant stakeholders. Engagement with stakeholders, including Strategic Transport and private sector public transport providers. **Relevant information collated, presentation and design approved. Hard and electronic copies reproduced and distributed to service user gateways and other relevant stakeholders.**	Complete	Leaflets uptake by partners and service user gateways has been strong with positive feedback
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		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)	2019	TBC	TBC (expectation of major improvement to NO_2 within the entirety of Llanharan AQMA)		**Stage 1 WelTAG complete, Stage 2 WelTAG commissioned as well as preliminary design and investigation of preferred route and partnership mechanism (public/S.106) to enable delivery.**	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
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 NO_2 within the entirety of Tonyrefail AQMA)		Stage 1 + 2 WelTAG complete with **Stage 3 WelTAG commissioned with land appropriation discussions commencing**. Design phase expected to be completed by 2019	TBC	-
10	Mass Transit (Metro) South Wales	The construction and operation of the South Wales Metro to relieve traffic congestion from the existing local road infrastructure	WG	Ongoing	Ongoing	TBC (expectation of significant improvement to NO_2 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.**	Phased Delivery 2019 onwards	-
11	Park and Ride Abercynon	The construction and operation of the Abercynon Park and Ride to relieve traffic congestion from the existing local road infrastructure	RCTCBC (RCT+WG)	2018	TBC	TBC (expectation of minor improvement to NO_2 within Taff Valley)		**Construction of additional 310 vehicle parking spaces associated with railway station**	Complete	-

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 potential transport improvements to relieve traffic from the existing local road infrastructure and improve connectivity	RCTCBC	2019	TBC	TBC (expectation of possible improvement to NO_2 within Treorchy and further afield)		**Allocation of resources to enable preliminary investigation of feasibility and potential options. WelTag Stage 1 assessment scheduled for 2019.**	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	-

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
14.	Highway Improvement A470 (Upper Boat to Pontypridd)	Preservation of existing green barriers and reduction in speed limit to 50mph along designated length of the A470	WG	2018	2018	2.8µgm^{-3} NO_2	Action not designed to specifically affect an AQMA but potential to reduce NO_x within Nightingales Bush and Treforest AQMAs by approx. 7%	**Trial introduced in summer 2018 with traffic order being made and temporary signage indicating new reduced 50mph speed limit. Subsequent WelTAG Stage 3 A470 review recommends permanent speed reduction 'in combination with other 'soft measures' to encourage sustainable transport options.**	Ongoing	Due to temporary nature compliance may be sporadic. Permanent infrastructure with fixed enforcement may further improve impact
15.	Highway Improvement Aberdare/Hirwaun	The construction and operation of potential transport improvements to relieve traffic from the existing local road infrastructure and improve connectivity	RCTCBC	2019	TBC	TBC (expectation of possible improvement to NO_2 within Aberdare Town Centre AQMA)		**Allocation of resources to enable preliminary investigation of feasibility and potential options. WelTag Stage 1 assessment scheduled for 2019.**	TBC	-

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

2.1 Summary of Monitoring Undertaken in 2018

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 2018 with 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 also available at the website: Air Quality in Wales[7]

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 NO_2 at fifty-one sites (utilising fifty-four passive diffusion tubes) during 2018. 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.

[7] 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 of Automatic Monitoring Sites

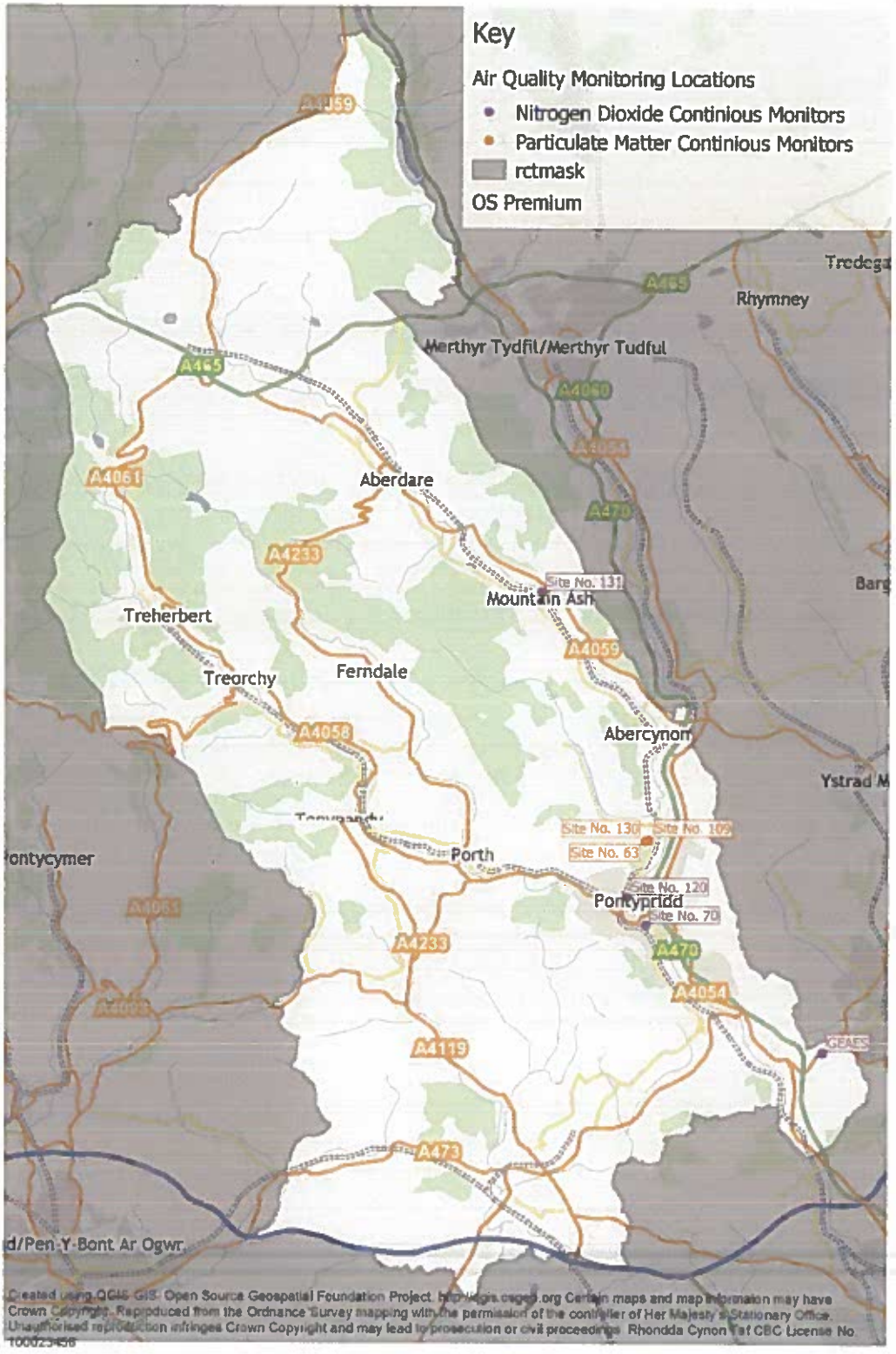


Table 2.2 – Details of Non-Automatic Monitoring Sites

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, Maesycoed	Suburban	N/A	306587	189833	3.5	No	1	3.0
8	Parc y Nant, Nantgarw	Roadside	Nantgarw	312629	185611	3.5	No	25	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

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				
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 (Llantrisant side)	Roadside	Church Village	308579	185863	3.5	No	0.5	2.5
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 Rd, 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

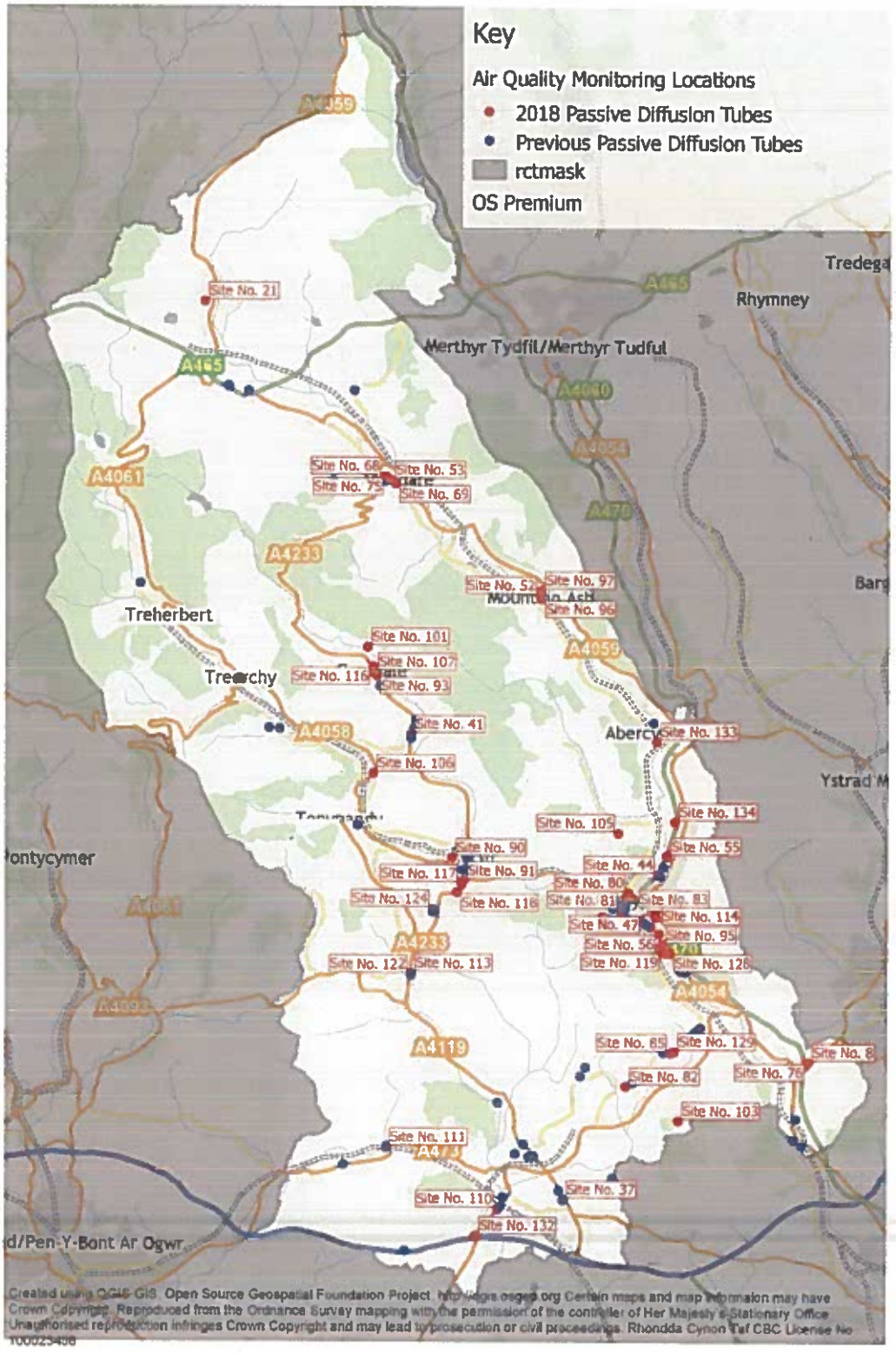
Site ID	Site Name	Site Type	Associated with Named AMQA?	OS Grid Reference		Site Height (m)	Collocated with a Continuous Analyser?	Distance from Kerb to Nearest Relevant Exposure (m) [1]	Distance from Kerb to Monitor (m) [2]
				X	Y				
116	North Rd, Ferndale	Roadside	Ferndale	299841	197107	3.5	No	0.5	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
133	Walter St, Abercynon	Roadside	N/A	308148	194948	3.5	No	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 2.2 – Map of Non-Automatic Monitoring Sites



2.2 2018 Air Quality Monitoring Results

Table 2.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2018 (%) [2]	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3]				
						2014	2015	2016	2017	2018
4	Lanelay Terrace, Maesycoed	Suburban	Diffusion Tube	100.0	100.0	17.8	15.7	19.0	15.5	15.2
8	Parc y Nant, Nantgarw	Roadside	Diffusion Tube	91.7	91.7	**43.1**	**43.9**	**46.7**	39.3	37.1
21	Woodland Park, Penderyn	Urban Background	Diffusion Tube	100.0	100.0	8.0	8.1	8.6	7.1	6.6
GEAES	GEAES	Roadside	Continuous	53.77	53.77	34.7	31.8	-	28.35	15.37
37	Lakeside Court, A4119	Roadside	Diffusion Tube	100.0	100.0	**49.1**	**48.4**	**49.6**	**41.0**	37.1
41	**East Rd, Tylorstown**	Roadside	Diffusion Tube	100.0	100.0	**53.4**	**54.0**	**55.4**	**50.9**	**42.5**
44	Coronation Tr, Pontypridd	Roadside	Diffusion Tube	100.0	100.0	32.8	37.5	**40.5**	37.8	33.2
47	Broadway Co-Sampling	Roadside	Diffusion Tube	100.0	100.0	30.7	28.6	32.8	28.2	25.8
48	Broadway Co-Sampling	Roadside	Diffusion Tube	100.0	100.0	31.6	28.6	31.2	28.7	25.4
50	Broadway Co-Sampling	Roadside	Diffusion Tube	100.0	100.0	29.6	29.7	31.0	29.3	25.4
51	Broadway, Treforest	Roadside	Diffusion Tube	100.0	100.0	**47.6**	**41.5‡**	**44.9**	**41.9**	34.4
52	**Oxford St, Mountain Ash**	Roadside	Diffusion Tube	100.0	100.0	**46.2**	**46.0**	**58.3**	**49.1**	**48.1**
53	Cardiff St, Aberdare	Roadside	Diffusion Tube	100.0	100.0	**43.4**	**42.0**	**46.6**	39.2	36.0
55	Cilfynydd Rd, Cilfynydd	Roadside	Diffusion Tube	75.0	75.0	**58.8**	**61.4**	-	**62.3**	36.04‡
56	Broadway, Treforest	Roadside	Diffusion Tube	100.0	100.0	**43.9‡**	**43.7**	**47.7**	39.7	35.9
66	Broadway, Treforest	Roadside	Diffusion Tube	100.0	100.0	36.4	36.8	**40.6**	34.9	32.1

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2018 (%) [2]	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3]				
						2014	2015	2016	2017	2018
68	Canon Street, Aberdare	Roadside	Diffusion Tube	91.7	91.7	35.6	38.8	40.7	35.5	33.1
69	Cardiff St, Aberdare	Roadside	Diffusion Tube	100.0	100.0	32.8	33.1	40.7	31.6	30.6
70	Broadway	Roadside	Continuous	99.8	99.8	30.8	29.1	32.0	27.84	25.30
75	Canon St, Aberdare	Roadside	Diffusion Tube	100.0	100.0	30.8‡	32.6	34.1	31.8	28.1
76	Heol-y-Gors, Nantgarw	Roadside	Diffusion Tube	83.3	83.3	34.4‡	32.9	37.2	32.0	28.0
79	High St, Pontypridd	Roadside	Diffusion Tube	100.0	100.0	38.4	36.3	39.1	35.7	32.3
80	Morgan St, Pontypridd	Roadside	Diffusion Tube	100.0	100.0	36.8	37.0	41.3	35.5	30.7
81	Sardis Bridge Pontypridd	Roadside	Diffusion Tube	100.0	100.0	38.9	37.0	39.6	39.0	31.1
82	Main Rd, Llantwit Fardre	Roadside	Diffusion Tube	100.0	100.0	33.1	33.5	36.7	30.8	28.4
83	Ceridwen Terrace	Roadside	Diffusion Tube	100.0	100.0	29.3	36.0	39.4	34.8	32.6
84	**Gelliwastad Rd**	Roadside	Diffusion Tube	100.0	100.0	**49.8**	**52.2**	**56.1**	**50.0**	**45.0**
85	Efail Isaf Junction (Llantrisant side)	Roadside	Diffusion Tube	100.0	100.0	**46.1**	**45.4**	**48.4**	**41.1**	34.5
88	Victoria Sq, Aberdare	Roadside	Diffusion Tube	100.0	100.0	37.0	35.5	38.4	34.1	32.0
90	Cymmer Rd, Dinas	Roadside	Diffusion Tube	91.7	91.7	35.5	37.0	39.5	36.9	32.7
91	**High St, Cymmer**	Roadside	Diffusion Tube	91.7	91.7	**49.6‡**	**48.2**	**57.4**	**51.5**	**48.4**
93	**High Street, Ferndale**	Roadside	Diffusion Tube	100.0	100.0	**52.8‡**	**54.0‡**	**56.4**	**49.3**	**43.8**
95	Park St, Treforest	Roadside	Diffusion Tube	100.0	100.0	34.9	32.4	38.6‡	33.4	30.3
96	Oxford St, Mt Ash	Roadside	Diffusion Tube	91.7	91.7	**40.1**	**44.8**	**49.4**	**52.1**	39.2
97	**New Rd, Mt Ash**	Roadside	Diffusion Tube	75.0	75.0	**49.1**	**51.0**	**61.4**	**56.7**	**47.87‡**
101	Long Row, Blaenllechau	Urban Background	Diffusion Tube	100.0	100.0	7.4	7.6	9.4	7.3	6.9
103	Ty Mawr Farm, Efail Isaf	Urban Background	Diffusion Tube	83.3	83.3	8.4‡	8.9‡	11.7‡	7.3	8.9
105	Greenfield Ave, Glyncoch	Urban Background	Diffusion Tube	100.0	100.0	9.5	9.0	11.2	8.8	9.1
106	Partridge Road, Llwynypia	Roadside	Diffusion Tube	100.0	100.0	**44.4**	**43.9**	**45.9**	**43.5**	36.0
107	High St, Ferndale	Roadside	Diffusion Tube	100.0	100.0	35.7‡	34.5‡	41.1‡	35.3	31.5

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2018 (%) [2]	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3]				
						2014	2015	2016	2017	2018
108	**Nightingales Bush, Pontypridd**	Roadside	Diffusion Tube	100.0	100.0	**59.8**	**51.0**	**50.0**	**54.3‡**	**56.6**
110	Cowbridge Rd	Roadside	Diffusion Tube	83.3	83.3	32.3	33.9	36.2	30.0	29.0
111	Bridgend Rd, Llanharan	Roadside	Diffusion Tube	100.0	100.0	**43.7**	**40.3**	-	34.2	36.5
113	Mill St, Tonyrefail	Roadside	Diffusion Tube	75.0	75.0	36.3‡	37.2	**43.5**	**40.4‡**	33.93‡
114	Pentrebach Rd	Roadside	Diffusion Tube	100.0	100.0	33.6	33.2	37.8	32.2‡	28.3
116	North Rd, Ferndale	Roadside	Diffusion Tube	91.7	91.7	31.9‡	34.0‡	31.1‡	26.2	24.4
117	**High St, Cymmer**	Roadside	Diffusion Tube	100.0	100.0	**55.3**	**57.4**	**64.6**	**58.8**	**50.2**
118	**High St, Cymmer**	Roadside	Diffusion Tube	100.0	100.0	**63.4**	**63.9**	**67.9**	**65.9**	**56.7**
119	Park St, Treforest	Roadside	Diffusion Tube	100.0	100.0	35.8	30.7	35.2	31.0	28.6
120	Pontypridd	Roadside	Continuous	88.97	88.97	39.8	35.9	38.6	31.36	31.67
122	Mill St, Tonyrefail	Roadside	Diffusion Tube	100.0	100.0	33.4‡	36.9	38.4	33.8	29.2
124	Trebanog Rd, Trebanog	Roadside	Diffusion Tube	100.0	100.0	26.7	31.1	33.4	29.3	26.7
128	Cardiff Rd, Treforest	Roadside	Diffusion Tube	100.0	100.0	-	**41.1‡**	**43.7**	37.6	33.7
129	Main Rd, Church Village	Roadside	Diffusion Tube	91.7	91.7	29.2	30.9	36.9	28.2	23.9
131	Mt Ash	Roadside	Continuous	94.82	94.82	**55.2**	**54.6**	**53.2**	**47.66**	**45.03**
132	Cowbridge Rd, Talygarn	Roadside	Diffusion Tube	83.3	83.3	-	-	**43.4**	35.8	29.5
133ϕ	Walter St, Abercynon	Roadside	Diffusion Tube	100.0	66.7	-	-	-	-	21.80‡

Notes:

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

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

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

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

(3) Means for diffusion tubes have been corrected for bias. All means 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.

ϕ Monitoring of Site ID 133 commenced in May 2018

Table 2.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2018 (%) [2]	NO_2 1-Hour Means > 200µg/m³ [3]				
						2014	2015	2016	2017	2018
GEAES	GEAES	Roadside	Continuous	53.77	53.77	(146.4)	0 (146.1)	0 (81.65)	1 (142.14)	(61.9)
70	Broadway	Roadside	Continuous	99.8	99.8	0 (96.0)	0 (90.0)	0 (134.0)	0 (101.2)	0 (81.5)
120	Pontypridd	Roadside	Continuous	88.97	88.97	0 (148.6)	0 (126.0)	0 (128.0)	0 (113.31)	0 (109.4)
131	Mt Ash	Roadside	Continuous	94.82	94.82	(198.3)	**82 (291.0)**	7 (182.0)	0 (148.91)	0 (131)

Notes:

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

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

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

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

Table 2.5 – Annual Mean PM_{10} Monitoring Results

Site ID	Site Name	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2018 (%) [2]	PM_{10} Annual Mean Concentration ($\mu g/m^3$) [3]				
					2014	2015	2016	2017	2018
63	Upper Garth Ave. Osiris	Industrial	-	-	38.73[δ]	23.16[δ]	17.41[δ]	17.0[δ]	-
109	Lower Garth Ave. Osiris	Industrial	-	-	19.33[δ]	22.52[δ]	22.37[δ]	22.3[δ]	-
130	Garth Ave. TEOM FDMS	Industrial	51.7	51.7	28.57	17.86	13.45	18.2	25.10

Notes:

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

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

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

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

[δ] Measurement corrected using local TEOM FDMS derived factor

Table 2.6 – 24-Hour Mean PM_{10} 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/m³ [3]				
					2014	2015	2016	2017	2018
63	Upper Garth Ave. Osiris	Industrial	-	-	**76$^{\delta}$ (80.2$^{\delta}$)**	15$^{\delta\ddagger}$ (42.8$^{\delta}$)	9$^{\delta}$ (32.0$^{\delta}$)	3$^{\delta}$ (31.3$^{\delta}$)	-
109	Lower Garth Ave. Osiris	Industrial	-	-	13$^{\delta\ddagger}$ (34.0$^{\delta}$)	22$^{\delta\ddagger}$ (41.5$^{\delta}$)	18$^{\delta\ddagger}$ (41.5$^{\delta}$)	14$^{\delta}$ (44.1$^{\delta}$)	-
130	Garth Ave. TEOM FDMS	Industrial	51.7	51.7	16 (46.3)	13 (34.3)	4 (25.0)	10 (33.8)	13 (48.15)

Notes:

Exceedances of the PM_{10} 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.

$^{\delta}$ Measurement corrected using local TEOM FDMS derived factor

2.3 Comparison of 2018 Monitoring Results

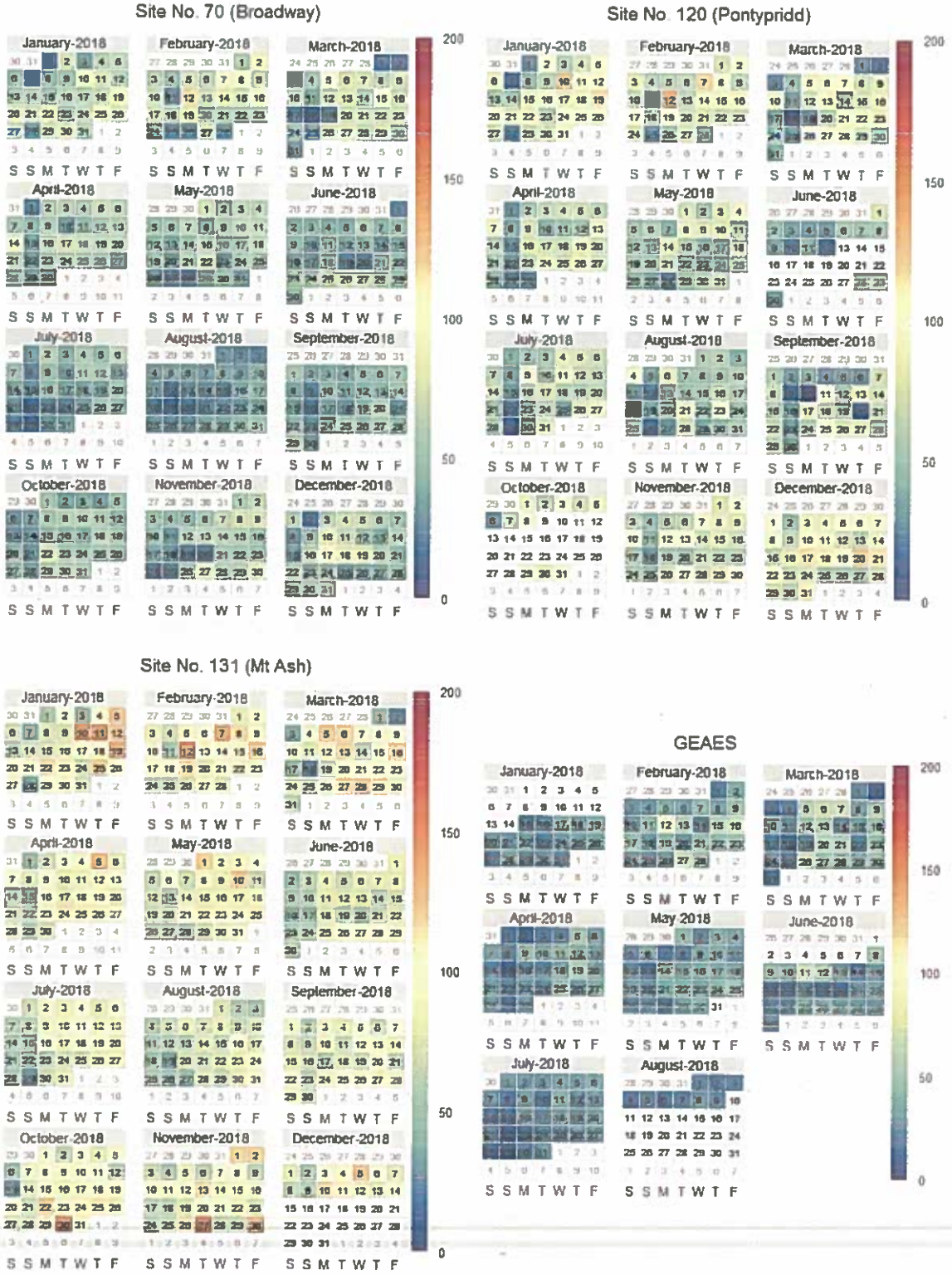
2.3.1 Nitrogen Dioxide (NO_2)

It has been reported[8] 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 NO_2 and the annual mean EU Limit Value for NO_2 and is likely to remain in breach beyond 2015. It has also been reported[9] that Rhondda Cynon Taf has been ranked (lower the better) 9 out of 17 for NO_2.

To consider the relevance and context of the 2018 NO_2 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 2018 where the 1-hour mean NO_2 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 NO_2 during the colder months of 2018.

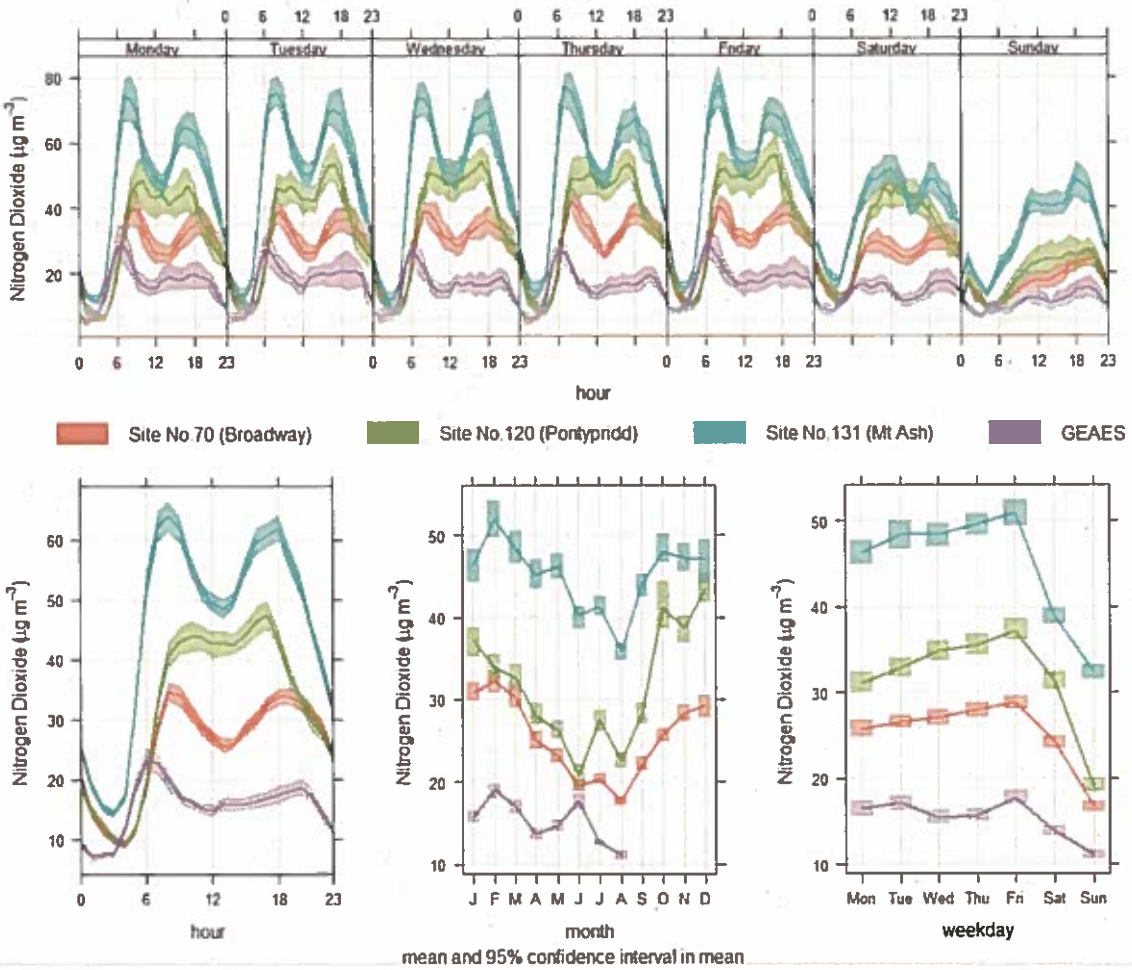
[8] Defra, and the Devolved Administrations, Air *Pollution in the UK 2017*, September 2018
[9] https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Air-Quality/airqualityindicators-by-localauthority

Table 2.7 – Calendar Plot of NO_2 Continuous Monitoring Data in 2018



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 2018 absolute hourly mean NO_2 measurements collected and assessed against time of the day, day of the week and month of the year for each NO_2 continuous monitoring location.

Table 2.8 – Time Variation Plot of NO_2 Continuous Monitoring Data in 2018

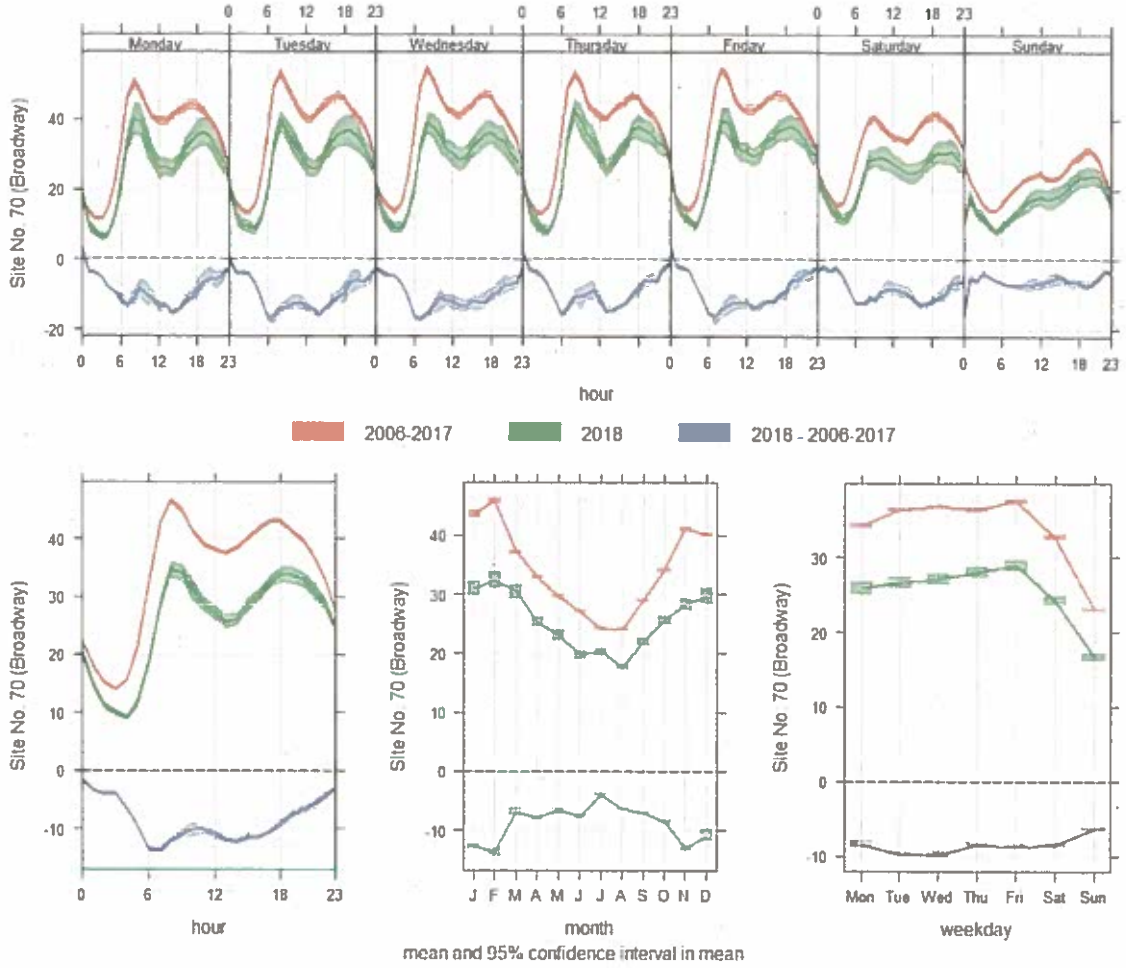


The time variation plots demonstrate several widely recognised air quality patterns, with all the locations observing similar time variation relationships. As in previous years, the 2018 data set demonstrates elevated levels of NO_2 are more prevalent in the winter, during Monday to Friday and at 8am 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 NO_2 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 NO_2 levels being heavily influenced by commuting road traffic, as opposed to industrial or domestic sources. In contrast, an example of a natural influence upon NO_2 is the prevalence of sunlight influenced photochemical agents, like O_3, influencing the apparent seasonal cycle with lower emissions during longer summer days when sunlight is often most prevalent.

The above analysis is in line with expectation and does not indicate the occurrence of significant unusual event in 2018 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 2018 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 NO_2 Data at Site No. 70 (Broadway)

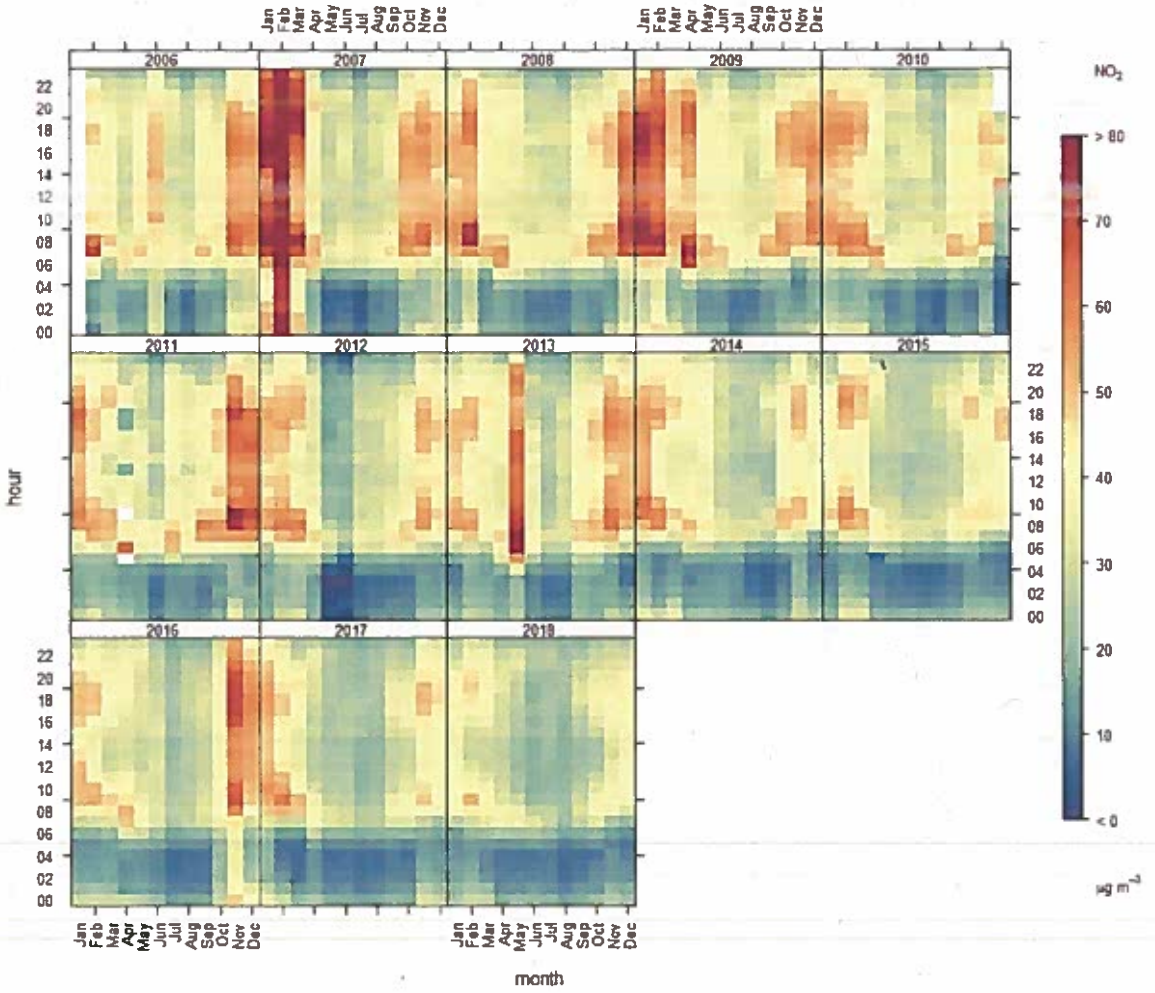


The time variation plot shows that the pattern associated with the occurrence of NO_2 at Broadway is very consistent (the narrowness of the plotted line). In addition it shows the close similarity (the same pattern is observed) between the present and historic monitoring data. Also of note is the consistent reduction in levels of NO_2, in 2018 when compared to the historic data, in all temporal assessments, with the largest reductions observed during peak concentrations (weekday morning rush hour) and during the winter months. The above analysis indicates that the 2018 monitoring data does not depart from what would be expected, but rather a possible continuation of a trend of reducing NO_2 levels at this location.

The trend level plot for NO_2 at Site No. 70 (Broadway) produced in Table 2.10 below, is another useful way of examining the temporal relationship of the trend in NO_2 over each year between 2006 and 2018. The trend level plot demonstrates that most years have comparable distributions in the occurrence of NO_2, although certain years (2007, 2009, 2011 & 2013) potentially show emphasised winter periods of elevated levels of

NO_2, albeit within the same consistent pattern, whilst 2018 appears more muted than the historic record.

Table 2.10 – Trend Level Plot for NO_2 at Site No. 70 (Broadway)



Occasional 'poor' air quality years showing particularly elevated levels of NO_2 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, for instance Saharan sand winds, 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 Eyafjallajökull[10], Grímsvötn[11] and Bárðarbunga[12] volcanic eruptions.

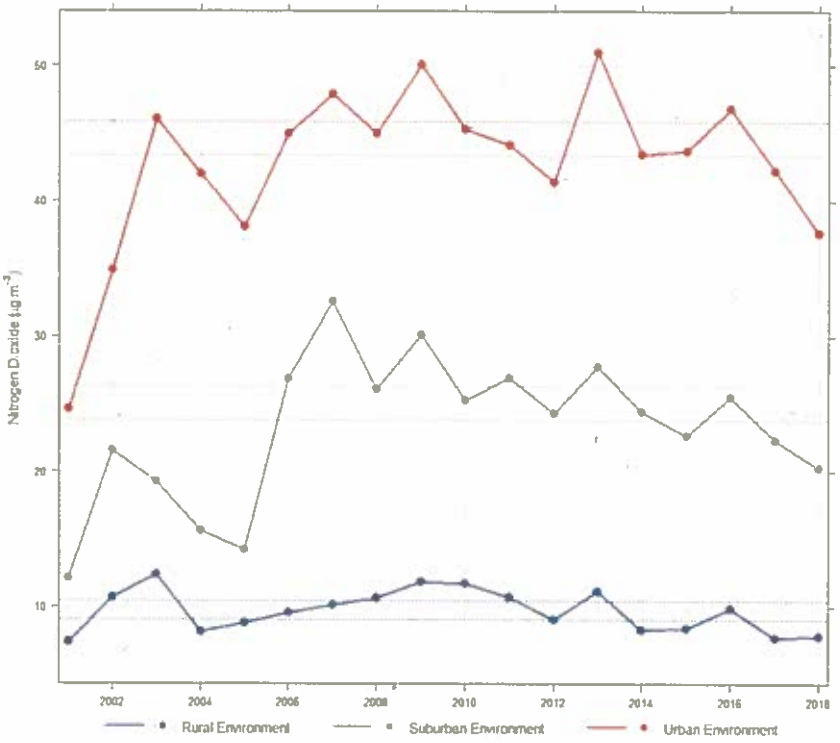
It has been possible to collate monitoring data from locations where monitoring has been maintained for some time and influences from new developments or abnormal events are expected to have been minimal. These locations have been categorised

[10] Netcen on behalf of Defra and the Devolved Administrations, *Air Pollution in the UK 2010*, September 2011
[11] AEA for Defra and the Devolved Administrations, *Air Pollution in the UK 2011*, September 2012
[12] Ricardo Energy & Environment for Defra and the Devolved Administrations, *Air Pollution in the UK 2014*, September 2015

with regards to their representation of the rural[13], suburban[14] and urban[15] environments within Rhondda Cynon Taf.

Table 2.11 produces a time plot of the rural, suburban and urban annual means as well colour matched dash lines of their respective 95% Confidence Interval's based on the proceeding 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 NO_2 at the rural (blue), suburban (green) and urban (red) environments



As expected, both the rural and suburban environments consistently demonstrate NO_2 levels well below the annual mean AQO for NO_2 and comparable to published background levels. This understanding is in keeping with Rhondda Cynon Taff's layout of linear settlements, generally suburban character and separating green spaces, which would be conducive to reducing general exposure to elevated levels of NO_2. Although the fluctuation in NO_2 within the urban environment shows some similarity to the more general suburban environment, it is also clear that where certain circumstances manifest, which are often limited to relatively small specific areas, a risk of elevated levels of NO_2 may become apparent.

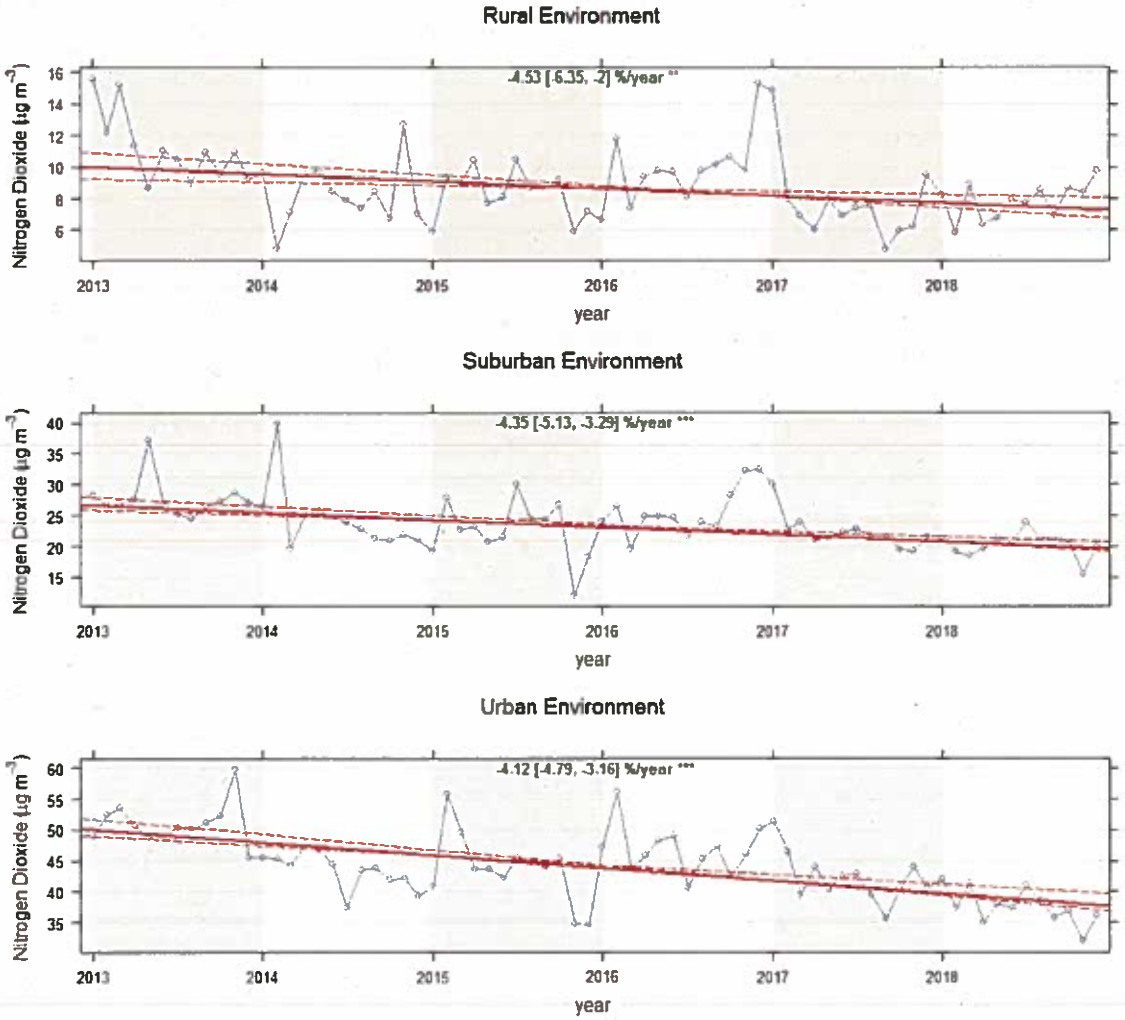
It is also apparent that the levels of NO_2 fluctuates in all three environments, most notably within the urban environment where levels of NO_2 are higher. It is the case that air quality will generally fluctuate over time as the significance of various sources

[13] rural or sub-urban locations where there is an absence of local busy roads or industry and it most closely reflects the regional background.
[14] urbanised residential areas at a distance from the kerb of major roads and an absence of local industry.
[15] roadside urban locations within Air Quality Management Areas, often associated with commercial centres or strategic roads, where it is believed that the sources of NO_2 have not markedly changed.

and interactions on NO_2 change, by examining the variation at all three environments it is possible that 2007, 2009 and 2013 may represent high 'peaks' and hence particularly 'poor' air quality years in relation to NO_2. Whereas levels of NO_2 in 2018 are observed significantly below the relevant 95% Confidence Interval's for the urban, suburban and rural environments, as such 2018 may represent a 'good' air quality year with a marked reduction in the levels of NO_2 when compared to the recent past.

To try to quantify the recent trend, examination can be made of the five year trend, which is considered[16] the minimum time period to examine a trend in NO_2. 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 2013 to 2018, has been produced in Table 2.12.

Table 2.12 – TheilSen Plots of the 5-year trend in NO_2 at the rural, suburban and urban environments



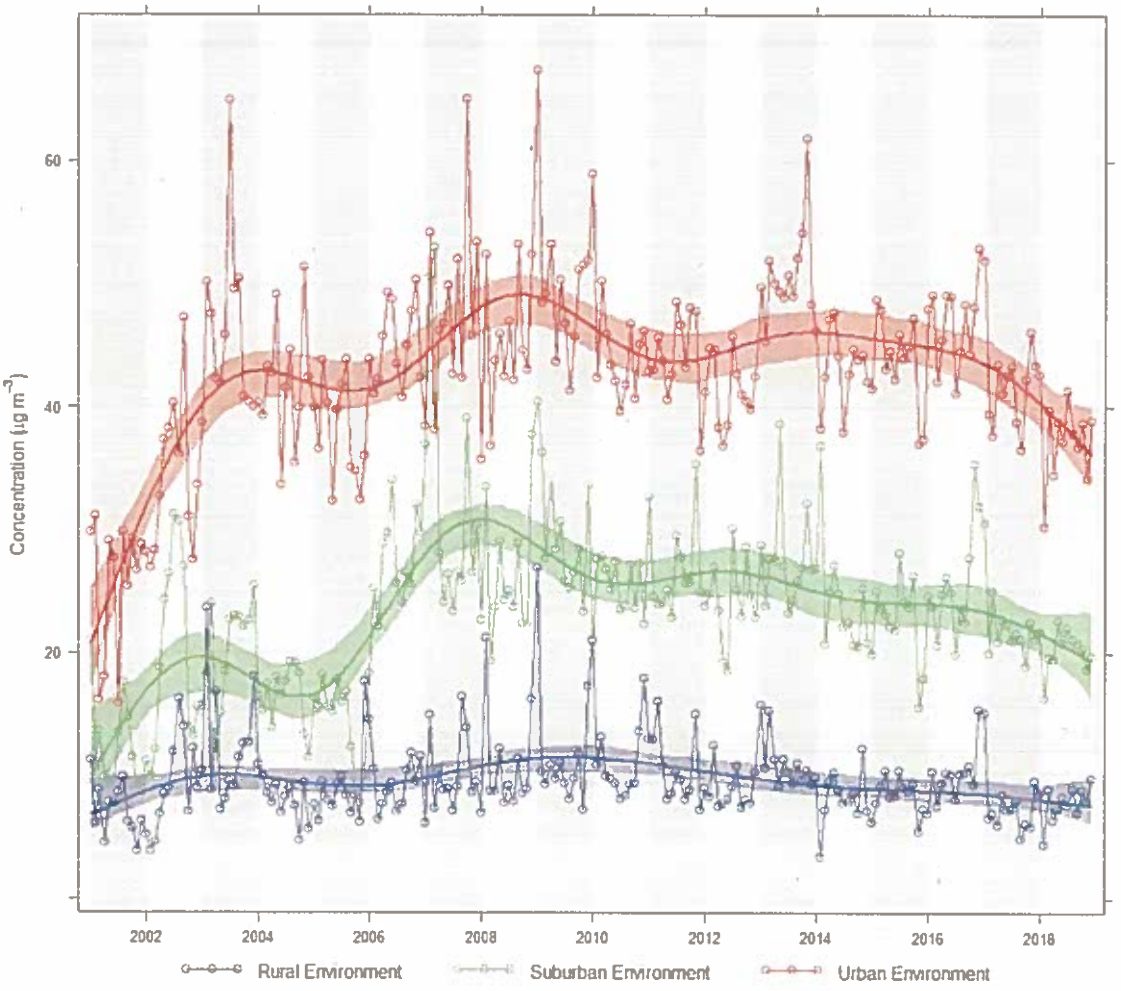
From examination of the above five year trend and having regard to consideration of the NO_2 and NO_x data, it is possible that Rhondda Cynon Taf is experiencing recent reductions in the prevalence of NO_2 within most of its area. For the first time, it is apparent that all three environments are improving to a similar significant degree, with

[16] Paragraph 4.14 of LAQM.TG(16)

the rural environment expressing the greatest degree of uncertainty potentially due to the already low levels of NO_2 observed.

It is acknowledged that the trend in NO_2 at each of the environments may change over time as national and local changes to the sources of NO_2 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 2018 is displayed in Table 2.13.

Table 2.13 – Smooth Trend Plot of the trend in NO_2 at the rural (blue), suburban (green) and urban (red) 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, with 2018 seemingly demonstrating that this improvement is becoming more established. However, due its apparent recent changing nature, significant uncertainty still remains with the interpretation of the current urban environment trend and the likelihood that it will be sustained. Therefore,

it is still considered the case that, without further targeted intervention, any overall improvement may be slow to manifest and incremental, with a risk of the continued likelihood of occasions of 'poor air quality years' challenging compliance to the annual mean AQO for NO_2 at vulnerable locations.

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. These national measures would also be expected to have an impact upon the urban environment but due to local circumstances this may have been more muted in the past. Nonetheless, it may be the case that a combination of national measures in association with recent locally targeted intervention at several AQMAs may have helped to support improvement within the urban environment, albeit this will likely remain uncertain in the near term.

Taking into account the above analysis of the 2018 monitoring data and its context within previous monitoring, it does not appear that 2018 represents an unusually poor year in relation to elevated levels of NO_2 or its general distribution within Rhondda Cynon Taf. It is possible that 2018 may represent a year where levels of NO_2 were, at least in some parts, significantly depressed either as a result of active measures or possibly due to general longer-term cyclic rhythms. Although continued monitoring may determine the sustainability of the recent trend, at present it is still considered the case that, without local intervention, elevated levels of NO_2 may well persist for some time at many of the most vulnerable locations in RCT.

2.3.1.1 Comparison with the 1-hour Air Quality Objective for NO_2

The continuous monitoring data from 2018 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 NO_2. 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 NO_2.

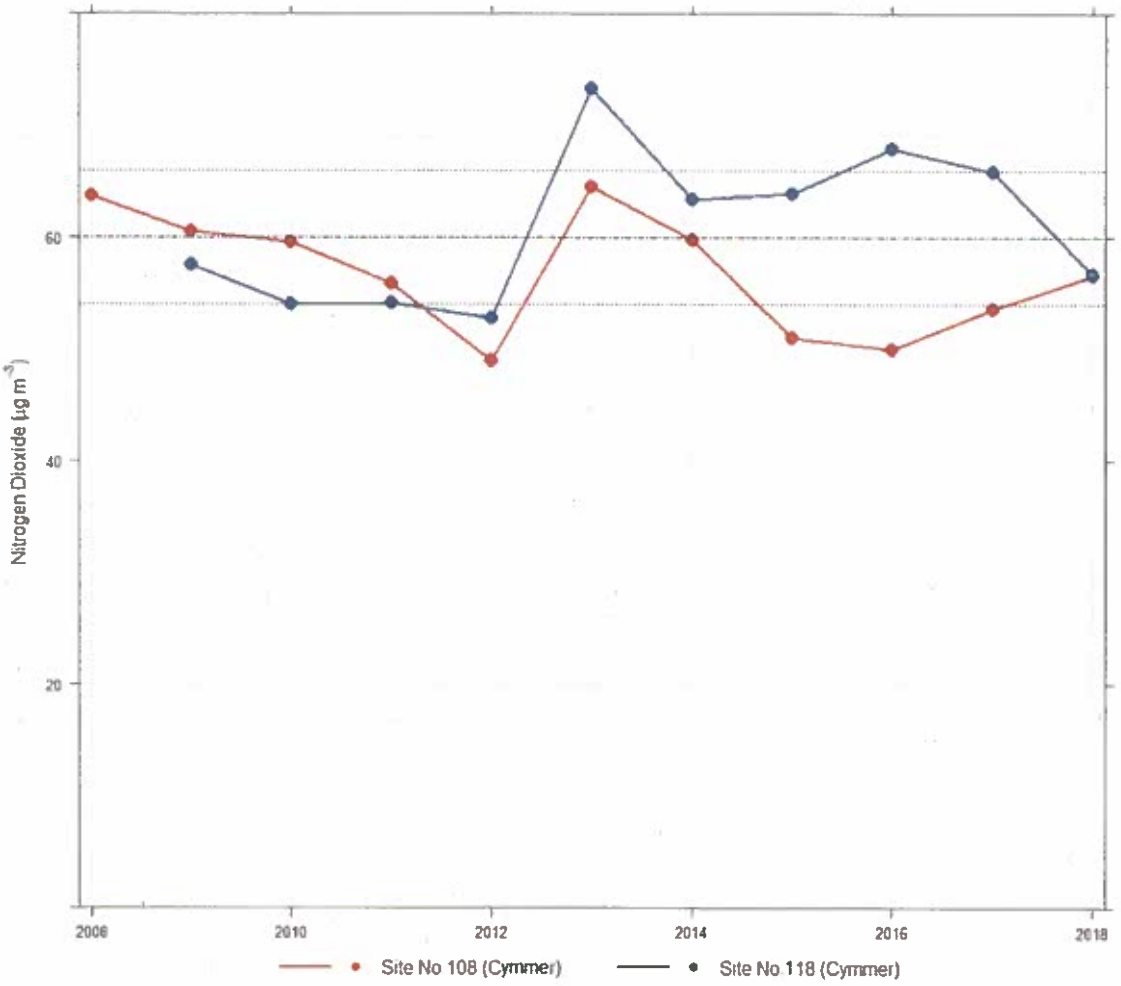
Table 2.14 below identifies the locations of relevant population where the annual mean for NO_2 was above 54μgm^{-3} in 2018; there were no locations having an annual mean above 60μgm^{-3} in 2018.

Table 2.14 – Locations with an annual mean for NO_2 greater than 54μgm^{-3} in 2018

Site No	Area	AQMA	2018 Annual Mean
108	High St, Cymmer	Cymmer	56.7
118	High St, Cymmer	Cymmer	56.6

To consider the context of the identified monitoring sites, 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. Both locations, displayed as solid lines, are within an AQMA already declared for a breach of the annual mean and 1-hour mean AQOs for NO_2.

Table 2.15 – Time Plot, with reference lines, of the annual mean for NO_2 at identified locations, from 2008 to 2018



It is apparent that all the identified locations have consistently experienced elevated levels of NO_2. Site No. 117 & Site No. 118 are located within the Cymmer AQMA which has already been declared for a breach of the annual mean and 1-hour mean AQOs for NO_2. Given the consistent elevated levels of NO_2 at two monitoring locations within the AQMA, it is clear that this designation remains relevant.

2.3.1.2 Comparison with the annual mean Air Quality Objective for NO_2

Table 2.16 displays a map of Rhondda Cynon Taf and the annual mean NO_2 at each active monitoring location in 2018; the greater size and redness in hue of each circle indicates a higher annual mean for NO_2. As expected, the map clearly shows that the varying communities within Rhondda Cynon Taf have experienced differing levels of NO_2 in 2018. 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 2.16 – Map of RCTCBC and the annual mean for NO_2 in 2018 at each monitoring location

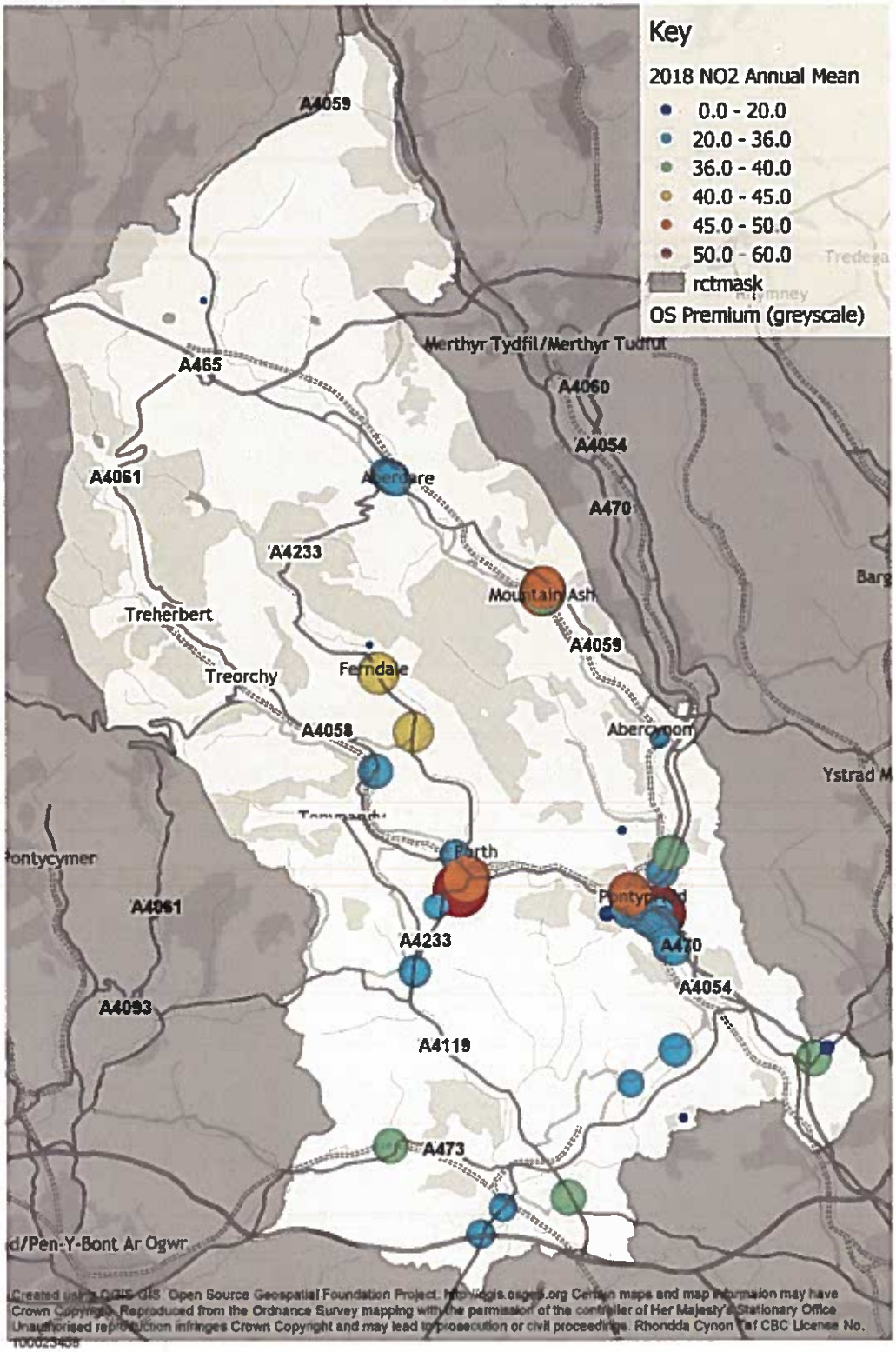


Table 2.17 collates each monitoring site to the relevant community; where the community is in bold it is associated with an AQMA that has been declared for a breach

of the annual mean AQO for NO_2 and where underlined the AQMA has also been declared for a breach of the 1-hour AQO for NO_2.

Table 2.17 – Annual mean NO_2, in 2018, Collated to Local Community

Community	Site No.	2018 Annual Mean
Background	4	15.2
	21	6.6
	101	6.9
	103	8.9
	105	9.1
Abercynon	133	21.80‡
Aberdare	53	36
	68	33.1
	69	30.6
	75	28.1
	88	32
Broadway	51	34.4
	56	35.9
	66	32.1
	70λ	25.30
	95	30.3
	119	28.6
Church Village	85	34.5
	129	23.9
Cilfynydd	44	33.2
	55	36.04‡
	133	21.8
Cymmer	**91**	**48.4**
	117	**50.2**
	118	**56.7**
Dinas	90	32.7
Ferndale	**93**	**43.8**
	107	31.5
	116	24.4
Llanharan	111	36.5
Llantwit Fardre	82	28.4
Llwynypia	106	36
Mountain Ash	**52**	**48.1**
	96	39.2
	97	**47.87‡**
	131λ	**45.03**
Mwyndy	37	37.1
Nantgarw	8	37.1
	76	28
Nightingales Bush	**108**	**56.6**
	114	28.3
Pontyclun	110	29
Pontypridd	79	32.3
	80	30.7
	81	31.1
	83	32.6
	84	**45**
	120λ	31.67
Talygarn	132	29.5
Tonyrefail	113	33.94‡
	122	29.2
Trebanog	124	26.7

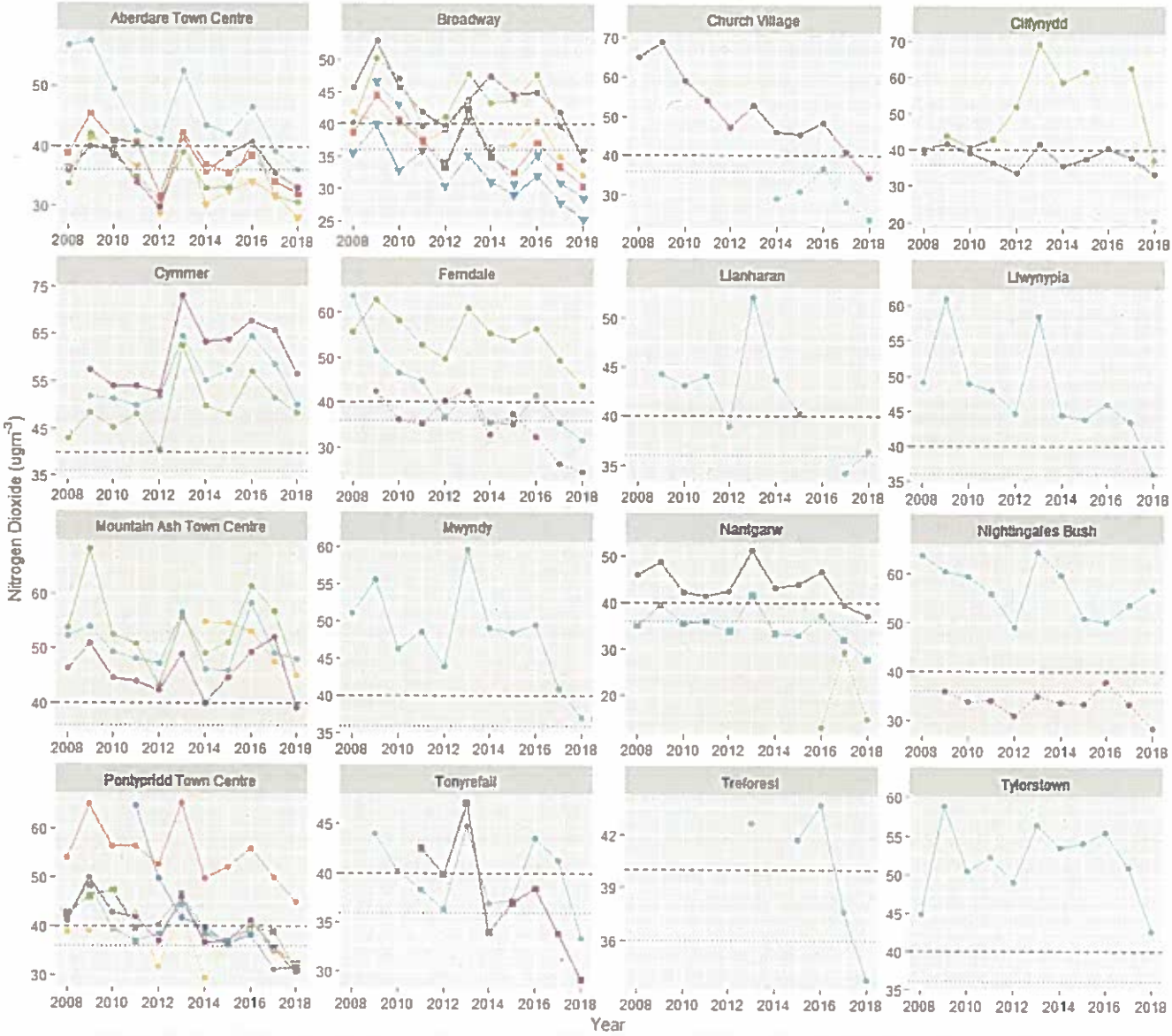
Treforest	128	33.7
Tylorstown	41	42.5

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.

Monitoring has taken place in a number of communities currently not associated with an AQMA. The 2018 results, reinforce the consideration that the monitored areas of Abercynon, Dinas, Llantwit Fardre, Pontyclun, Talygarn and Trebanog are likely to experience low to moderate levels of NO_2 and will be expected, unless circumstances were to change, to remain compliant with the annual mean AQO for NO_2.

It is apparent that, in 2018, most monitoring sites did not show a breach of the annual mean AQO for NO_2. It is acknowledged that due to the often cyclic nature of air quality, some monitoring sites may not always show a breach of the annual mean AQO for NO_2 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 NO_2 in any particular year, it does not mean that this would always be sufficient justification to review the AQMAs designation. Instead consideration must first be made to the likely future sustainability of the compliance. To enable this, it can be helpful to consider the previous year's results to examine the past consistency of any current improvement, Table 2.18 below produces time plots of the most recent annual mean NO_2 monitoring results for each AQMA.

Table 2.18 – Time plots of the annual mean NO_2, collated to each AQMA



The above time plots indicate that over time most AQMAs, at least in part, have observed improvements in the level of NO_2. However, it is still the case that most monitoring sites within the AQMAs are either non-compliant, have been non-compliant or have shown a risk of non-compliance with the annual mean AQO for NO_2 within the past five years. Table 2.19 provides a brief summary of each AQMAs status as well as if the AQMA is in an area that has been prioritised by the HAP-RAP[17] tool (see Section 4.5).

Table 2.19 – Status of extant AQMAs

[17] Huw Brunt, Sarah J Jones on behalf of Public Health Wales, *Public health-driven air pollution risk assessment: A pragmatic approach to complement Local Air Quality Management implementation in Wales*, 2019

AQMA	HAP-RAP Prioritised	Status
Aberdare Town Centre	✗	Consistent long-term improving trend throughout AQMA, with parts of the AQMA likely having achieved reliable compliance (see Section 2.3.1.2.1 below). Projected date for compliance in three plus years. Greater urbanisation of the area may pose a risk to future air quality improvement should sustainable transport options not be capitalised on.
Broadway	✗	Consistent long-term improving trend throughout most parts of the AQMA, with parts of the AQMA likely having achieved reliable compliance (see Section 2.3.1.2.2 below). Parts of the AQMA, associated with local traffic calming measures, have shown resistance to improving trend and may be less likely to observe compliance. Projected date for compliance in three plus years with the trend expected to be stable.
Church Village	✗	Fluctuating short-term improving trend throughout AQMA, with the AQMA potentially showing compliance, albeit more time is necessary to determine stability of trend. Further urbanisation of the area may pose a risk to future air quality improvement. Projected near-term compliance date albeit uncertainty if trend will persist.
Cilfynydd	✗	Fluctuating short-term improving trend, possibility very recent improvement could be attributed to speed reductions along stretch of A470 to the south which may have resulted in consequential reduction in occurrence in congestion along A470 abutting AQMA. However, this possible recent trend change has not been observed at all monitoring locations (which would be expected if the influence of the A470 had changed), therefore, unable to fully determine possible causes until more time has elapsed to support further understanding. Changes to speed controls along A470 may have an indirect affect due to reduction in risk of consequential congestion along A470 north of control area. Unattributed recent trend change indicates significant uncertainty, with projected date for compliance in seven plus years.
Cymmer	✓	No clearly established improving trend with elevated levels of NO_2 likely throughout the AQMA Future change is likely to be limited, no projected foreseeable date for compliance
Ferndale	✓	Fluctuating short-term improving trend throughout AQMA, with parts of the AQMA indicating possible near-term compliance, albeit more time is necessary to determine stability of trend. Future change is likely to be limited, projected date for compliance in six plus years
Llanharan	✗	Consistent long-term improving trend throughout AQMA with indication of possible near-term compliance. Further urbanisation of the area may pose a risk to future air quality improvement, however, plans are being explored for a Llanharan bypass that would substantively relive the sources of NO_x within the AQMA. Projected near-term compliance date albeit uncertainty as if trend will persist
Llwynypia	✓	Fluctuating short-term improving trend throughout AQMA, albeit more time is necessary to determine stability of trend. Future change is likely to be limited, projected date for compliance in three plus years

Mountain Ash Town Centre	✓	No clearly established improving trend with elevated levels of NO_2 likely throughout the AQMA Future change is likely to be limited, no projected foreseeable date for compliance
Mwyndy	×	Fluctuating short-term improving trend throughout AQMA, with the AQMA potentially showing compliance, albeit more time is necessary to determine stability of trend. Further urbanisation of the area may pose a risk to future air quality improvement. Projected date for compliance in three plus years albeit uncertainty if trend will persist
Nantgarw	×	Fluctuating short-term improving trend throughout AQMA, with the AQMA potentially showing compliance, albeit more time is necessary to determine stability of trend. Further urbanisation of the area may pose a risk to future air quality improvement, however, future mass transit improvements may have a positive effect. Projected date for compliance in three plus years albeit uncertainty if trend will persist
Nightingales Bush	×	No clearly established improving trend with elevated levels of NO_2 likely throughout the AQMA Changes to speed controls along A470 are expected to have a direct effect on emissions although effect may be limited at Nightingales Bush due to inherent slower moving traffic at interchange, however, further time is necessary to observe impact. Further urbanisation of the area may pose a risk to future air quality improvement, however, A470 speed reduction and future mass transit improvements may have a positive effect, no projected foreseeable date for compliance
Pontypridd Town Centre	×	Consistent long-term improving trend throughout most parts of AQMA, with parts of the AQMA potentially showing compliance, albeit more time is necessary to determine stability of trend. Further urbanisation of the area may pose a risk to future air quality improvement, however, future mass transit improvements may have a positive effect. Projected date for compliance in nine plus years
Tonyrefail	×	No clearly established improving trend, however, part of AQMA may indicate potential compliance, albeit more time is necessary to determine stability of trend. Future change is likely to be limited, no projected foreseeable date for compliance
Treforest	×	Fluctuating short-term improving trend albeit currently limited time period of monitoring reduces certainty Changes to speed controls along A470 are expected to have a direct effect on emissions, however, further time is necessary to observe impact. Further urbanisation of the area may pose a risk to future air quality improvement, however, A470 speed reduction and future mass transit improvements may have a positive effect, projected near-term compliance date albeit uncertainty if trend will persist
Tylorstown	✓	Fluctuating short-term improving trend Future change is likely to be limited , projected date for compliance in seven plus years

The three monitoring sites listed in Table 2.20 below are currently within AQMAs but have potentially shown long-term (5 or more years) consistent compliance with the annual mean AQO for NO_2.

Table 2.20 – Table of monitoring sites potentially showing long-term consistent compliance within an AQMA

Monitoring Site No.	Associated AQMA
75	Aberdare Town Centre
70‡	Broadway
119	Broadway

‡ Site No. 70 represents a location which is not sited at the worse case location, in and of itself it is not fully relevant to the designation of the Broadway AQMA but rather shows an indication of the local roadside trend in NO_2.

2.3.1.2.1 Review of Aberdare Town Centre AQMA

A map of the Aberdare Town Centre AQMA and relevant monitoring locations has been reproduced in Table 2.21 below, both Site Nos. 75 & 88 as well as Site No. 68 are roadside locations along an interconnected network that comprises a one way system flowing from Cannon St to Victoria Sq. South of Victoria Sq, Sites Nos. 53 & 69 are associated with Cardiff St, a two-way road system taking traffic to and from Victoria Sq, as well as traffic from the road network that serves Aberdare Bus Station.

Table 2.21 – Map of the Aberdare Town Centre AQMA with relevant monitoring locations

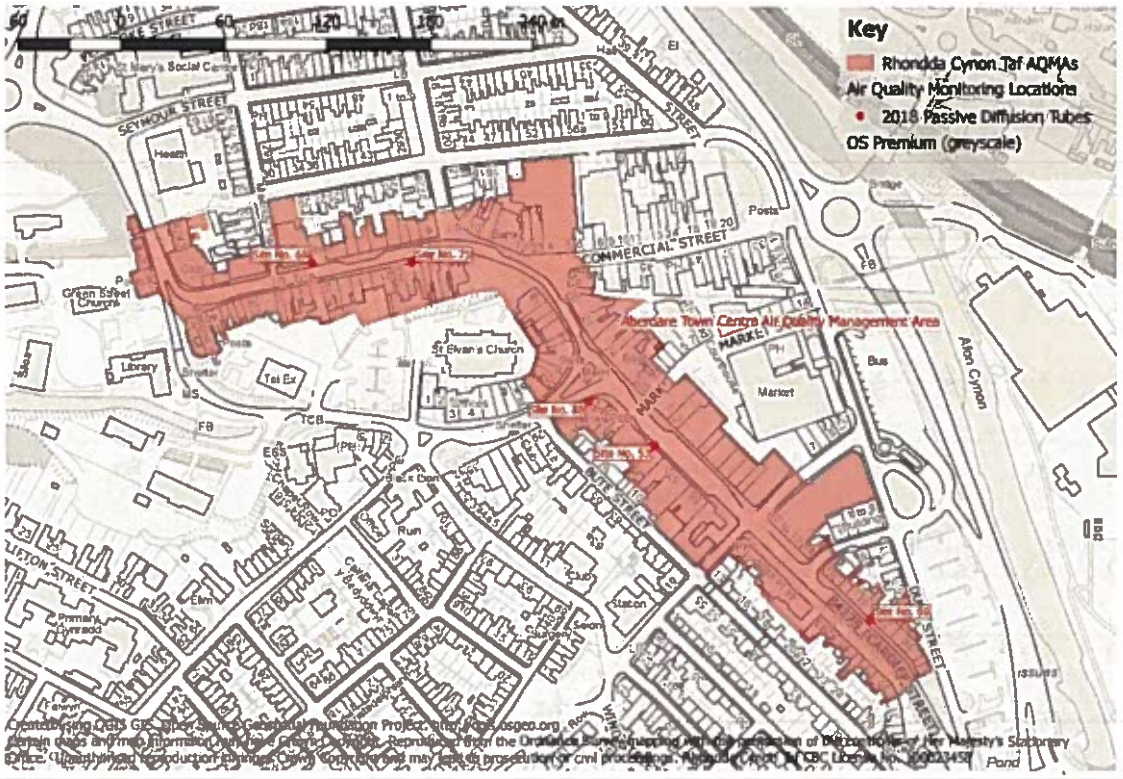
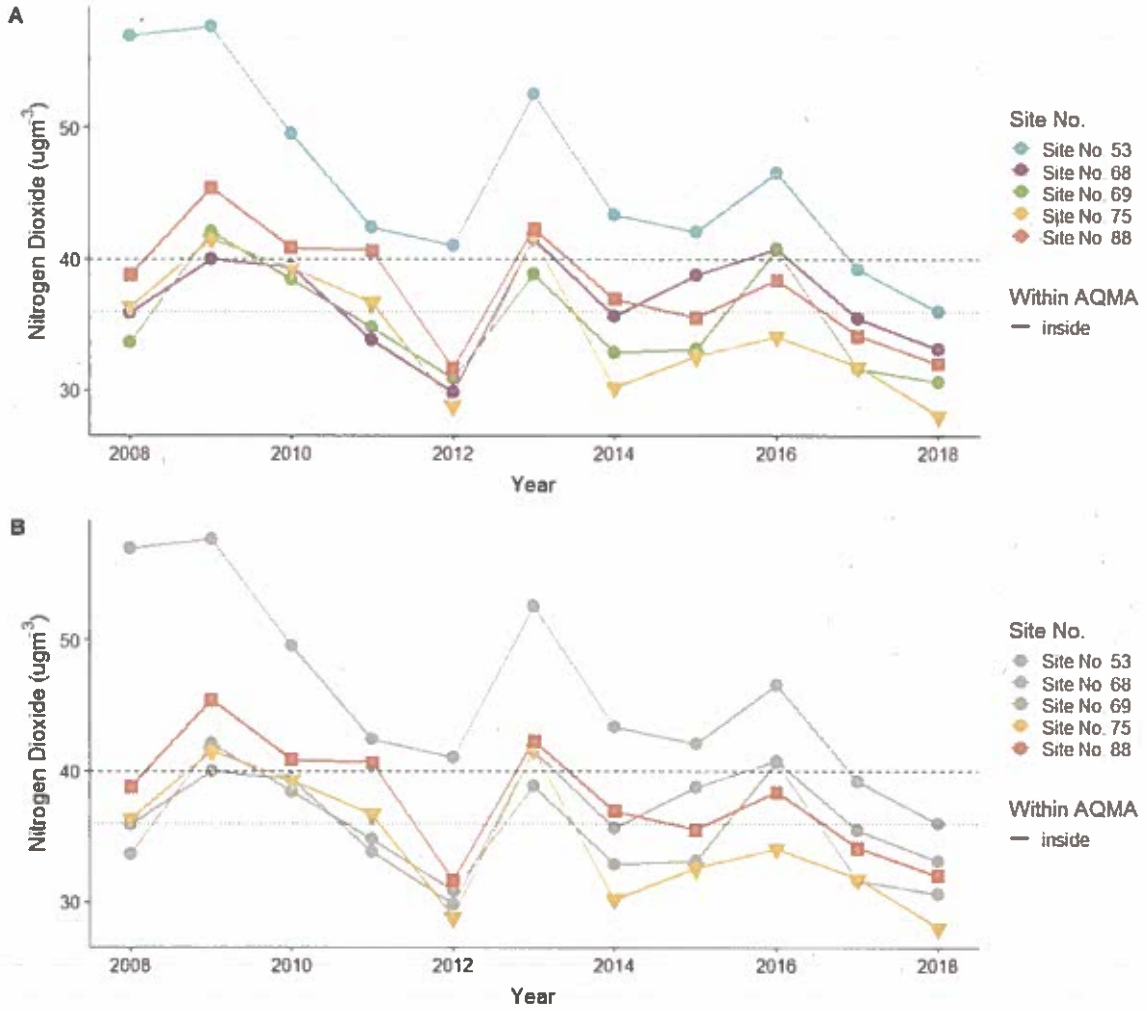


Table 2.22 below produces time plots of the monitoring sites relevant to the Aberdare Town Centre AQMA, with Plot A illustrating all monitoring sites and Plot B emphasising

Site No.75, which has shown consistent compliance, as well as Site No. 88, which has shown a reduced risk of non-compliance to the annual mean AQO for NO_2.

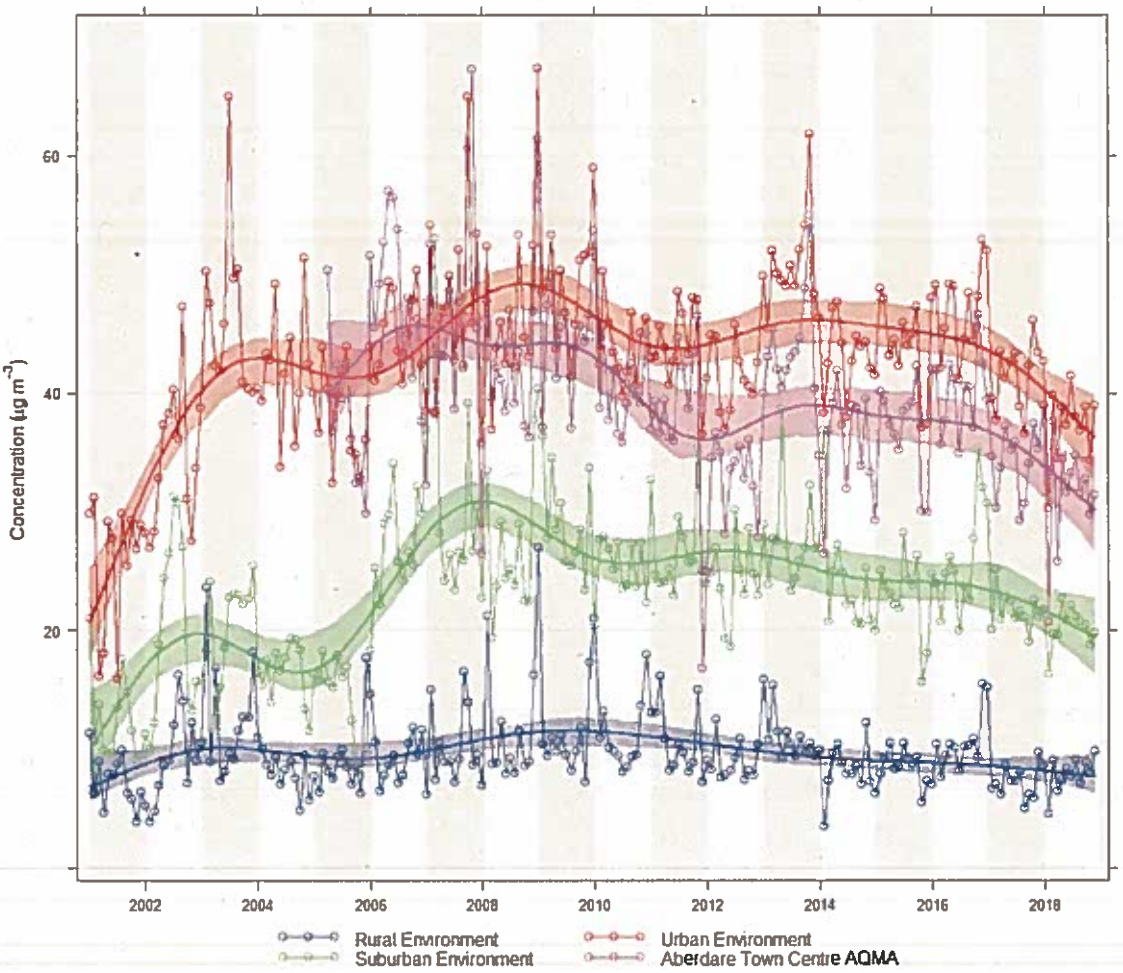
Table 2.22 – Time Plot of the annual mean NO_2 at each monitoring location within the Aberdare Town Centre AQMA



Both Site Nos. 75 and 88 appear to show an improving situation with noticeable decreases in the levels of NO_2 experienced at both since 2009 and continuous improvement since the most recent peak level in 2016. In addition, neither site has likely exceeded the annual mean AQO for NO_2 since 2013. This improving pattern is consistent, to some extent, with the other monitoring locations associated with the Aberdare Town Centre AQMA.

The general improving pattern is also demonstrated by the smooth trend plot of aggregated monitoring locations associated with the Aberdare Town Centre AQMA, as reproduced in Table 2.23 below. The smooth trend plot shows a generally consistent improving trend within the Aberdare Town Centre AQMA, equated to a -2.81% [-4.24%,-0.63%] NO_2 yr^{-1} five-year trend. It is also apparent that this improvement is broadly consistent with the wider improving trend observed within Rhondda Cynon Taf (rural, suburban and urban environments).

Table 2.23 – Smooth Trend Plot of the aggregated monthly mean monitoring results within the Aberdare Town Centre AQMA (magenta) and the rural (blue), suburban (green) and urban (red) environments for comparison.



It is not believed that Aberdare Town Centre will be subjected to near-term future changes that would likely significantly result in a deleterious effect on local air quality, therefore, current improvements in the observed levels of NO_2 are expected to be sustainable in the near-term. However, regional development and possible associated traffic growth may have a negative insidious longer-term effect, if there is a corresponding limited uptake of sustainable transport options.

In accordance with the Aberdare Town Centre AQAP, the Council has progressed AQAP action Nos. 1 & 1a (see Table 1.2) with the aim of improving the efficiency of traffic management along Cardiff St. The implementation of these AQAP actions enabled the in situ reactive control of the traffic light controlled junction of Cardiff St & Cross St as well as pedestrian crossing detection. The outcome of these actions may have cumulatively reduced south bound traffic que times along Cardiff St north of Cardiff St & Cross St Junction. Although it is believed these actions have had the greatest effect in reducing queue times along Cardiff St, it may be the case that by reducing persistent congestion along Cardiff St this would potentially significantly reduce the frequency of consequential congestion within Victoria Sq and Canon St,

with vehicles no longer waiting significant times to enter Cardiff St from the adjoining interconnected road network.

Given the historic local trend and expected future stability of the observed improvement in NO_2, it is likely that Site Nos. 75 & 88 will remain compliant with the annual mean AQO for NO_2. However, for the time being it is still the case that a continuing risk of non-compliance remains within the adjoining areas (Site Nos. 53, 68 & 69) of the Aberdare Town Centre AQMA, which are fully integrated with Site Nos. 75 & 88. It is acknowledged that there is a benefit from maintaining a contiguous AQMA, even though this may contain an area which is now likely to be in compliance with the annual mean AQO for NO_2. This approach can maintain a focus on improving the whole area, ensuring protection of that part which has achieved compliance well also enabling the linking of integrated areas that will benefit from a well-coordinated approach.

Given the current circumstances, discussed above, although it is probable that areas within the Aberdare Town Centre AQMA are likely to be compliant with the annual mean AQO for NO_2, it is considered appropriate to maintain its current geographical extent at this time. However, it is recognised that regular future review will likely be necessary so that expected sustained improvements throughout the Aberdare Town Centre AQMA can be recognised and its designation kept pertinent.

2.3.1.2 Review of Broadway AQMA

A map of the Broadway AQMA and relevant monitoring locations has been reproduced in Table 2.24 below, both Site Nos. 95 & 119 are roadside locations along an associated road network that comprises a one way system flowing from Park St to the Broadway Gyratory. North of the Broadway Gyratory, Site Nos. 51, 56 & 66 are associated with a two-way road system taking traffic along Broadway to Pontypridd or the A470 in the north or Treforest to the south. In addition to these monitoring sites which are located at the worse case locations, Site No. 70, a NO_2 continuous monitoring location, is also located along Broadway. However, due to logistics, Site No. 70 has been set at a roadside location set back from the kerb and does not represent a worse case location, rather it provides an understanding of the more general urban environment and trend.

Table 2.24 – Map of the Broadway AQMA with relevant monitoring locations

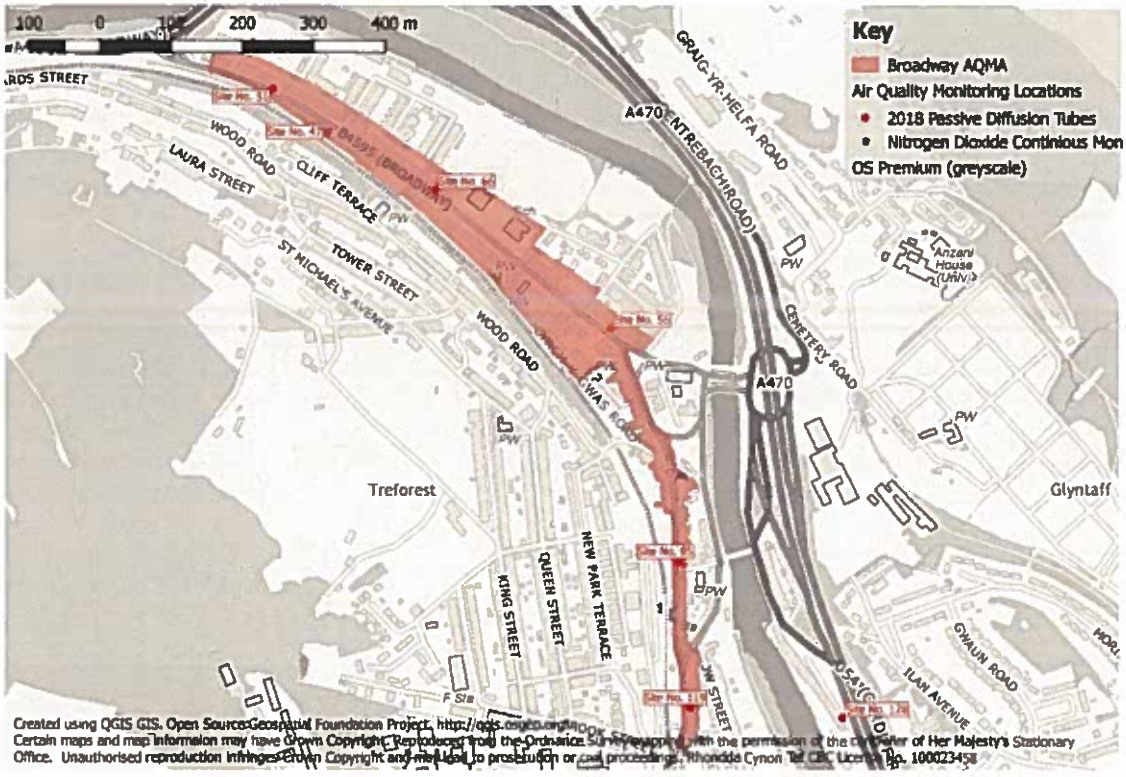
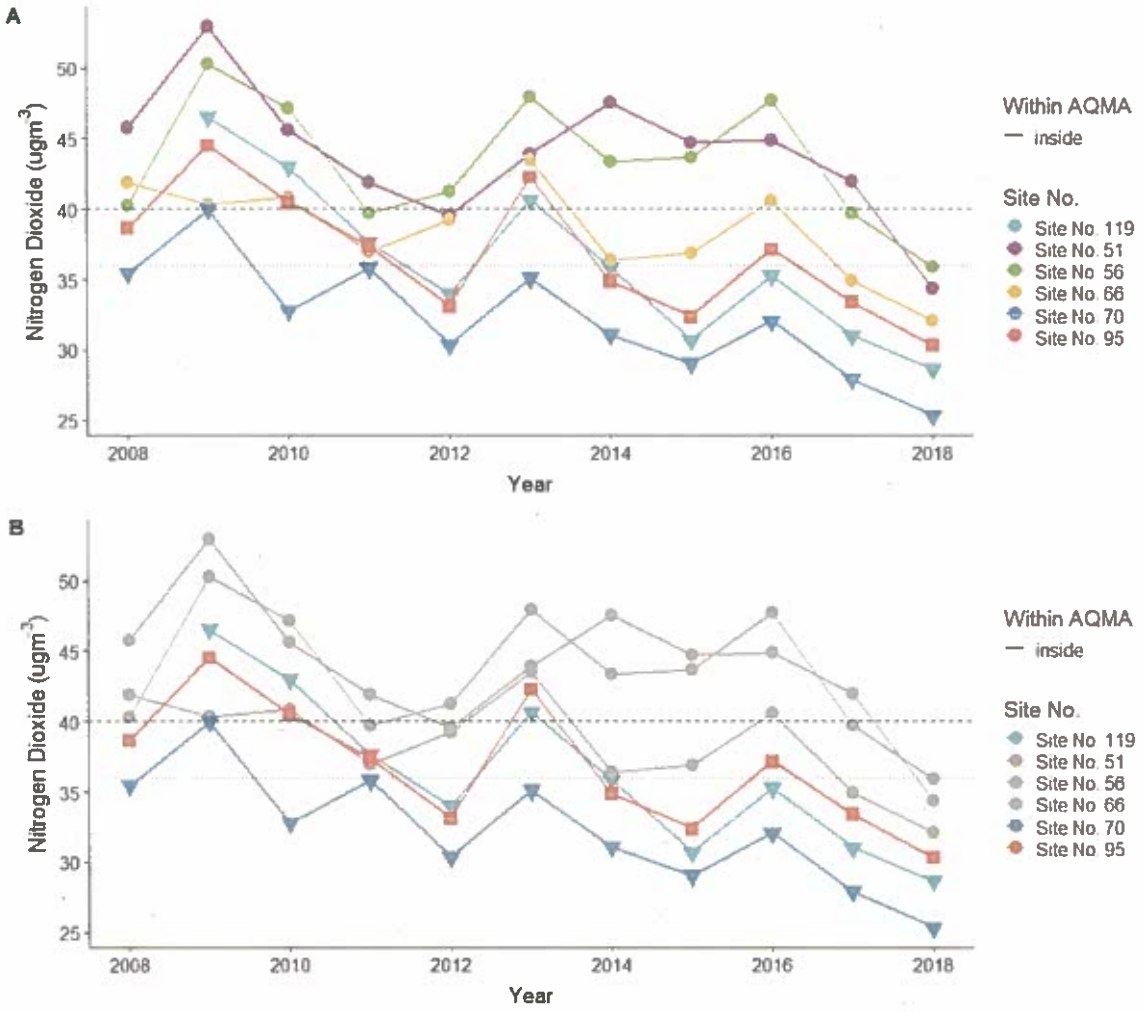


Table 2.25 below produces time plots of the monitoring sites relevant to the Broadway AQMA, with Plot A illustrating all monitoring sites and Plot B emphasising Site Nos. 70 & 90, which have shown consistent compliance, as well as Site No. 119, which has shown a reduced risk of non-compliance to the annual mean AQO for NO_2.

Table 2.25 – Time Plot of the annual mean AQO for NO_2 at each monitoring location within the Broadway AQMA

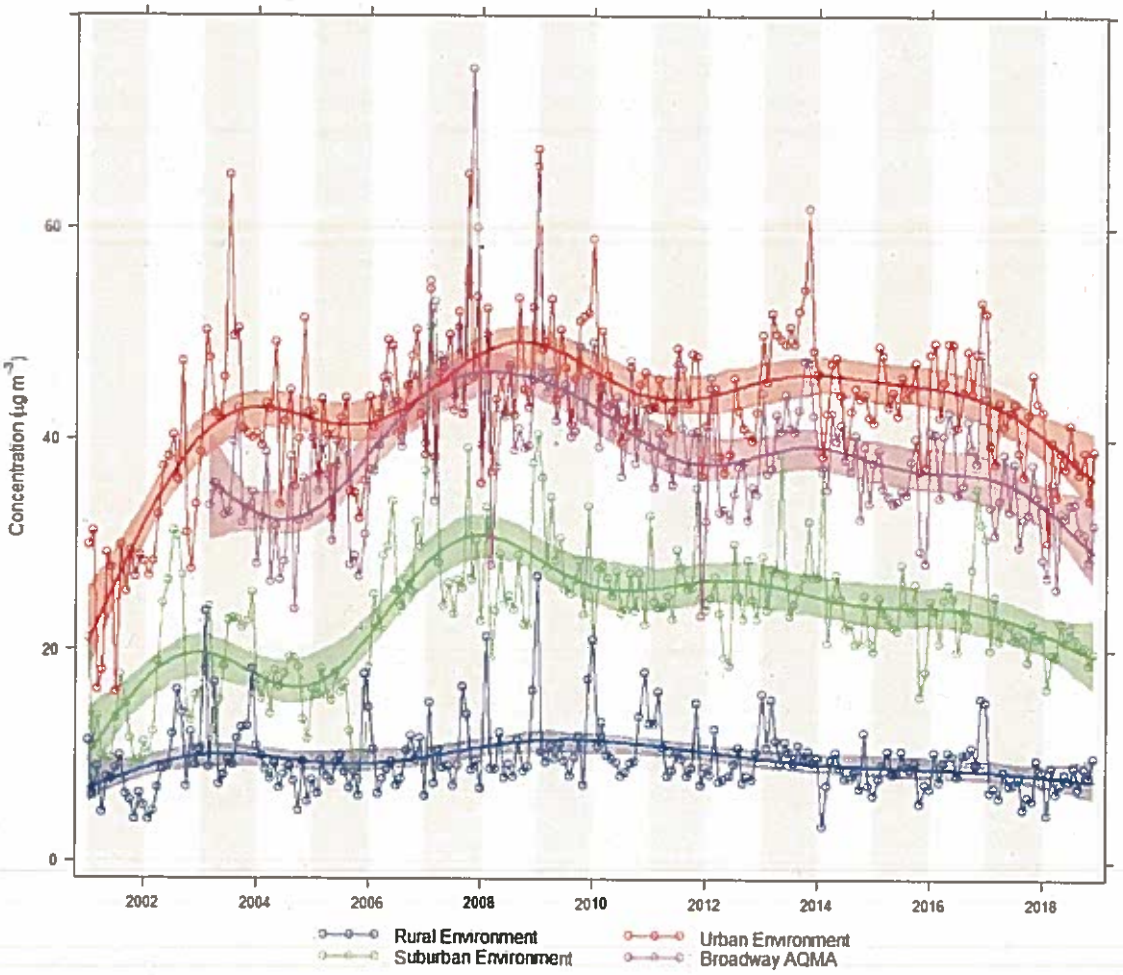


Although long-term compliance has been identified at Site No. 70, a continuous monitoring location which is not sited at the worse case location, this is not fully relevant to the designation of the Broadway AQMA but rather shows an indication of the local roadside trend in NO_2.

Both Site Nos. 95 and 119 appear to show a sustained improving situation with noticeable improvements in the levels of NO_2 experienced since 2009 and continuous improvement since the last peak NO_2 level in 2016. In addition, neither site has likely exceeded the annual mean AQO for NO_2 since 2013. This improving pattern is most notably associated with Park St. Although certain parts of Broadway also identify a similar pattern, it may be the case that some areas of Broadway are more resistant to improvement, possibly due to the presence of traffic calming measures.

The improving pattern is also demonstrated by the smooth trend plot of aggregated monitoring locations associated with the Broadway AQMA, as reproduced in Table 2.26 below. The smooth trend plot shows a generally consistent improving trend within the Broadway AQMA, equated to a -3.53% [-5.01%,-2.12%] NO_2 yr^{-1} five-year trend. It is also apparent that this improvement is broadly consistent with the wider improving trend observed within Rhondda Cynon Taf (rural, suburban and urban environments).

Table 2.26 – Smooth Trend Plot of the aggregated monthly mean monitoring results within the Broadway AQMA (magenta) and the rural (blue), suburban (green) and urban (red) environments for comparison

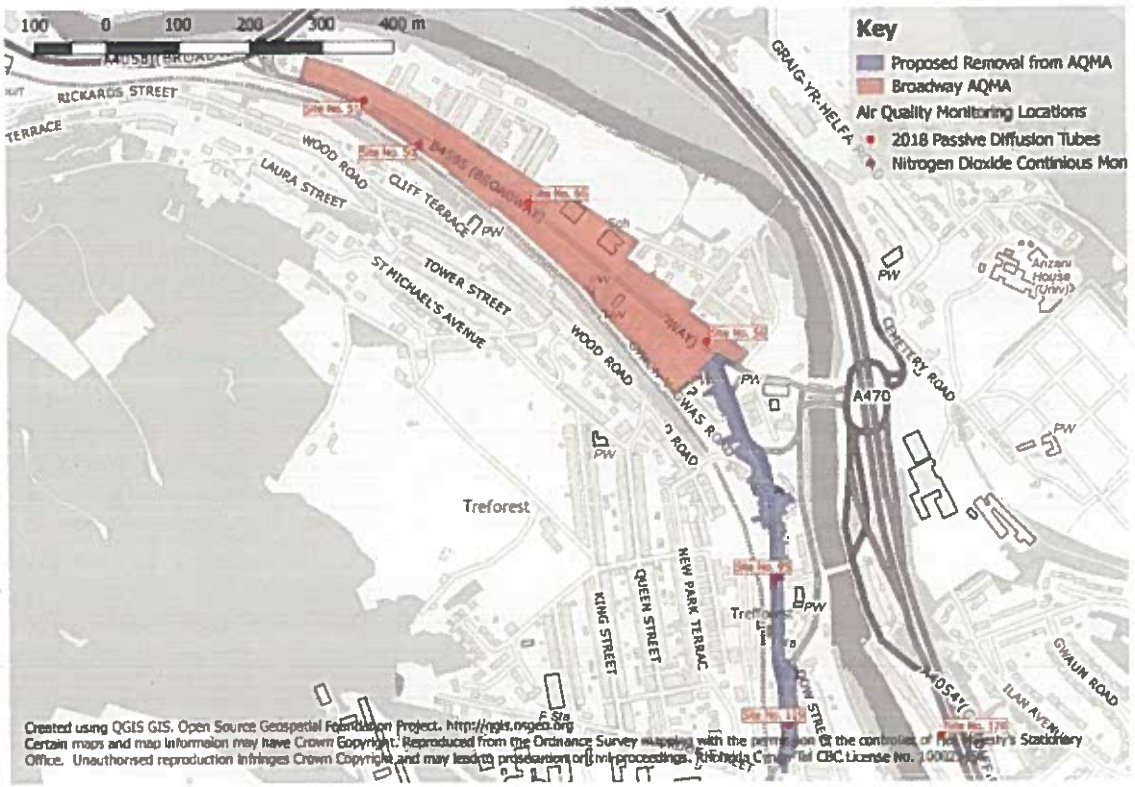


It is not believed that Park St will be subjected to near-term future changes that would likely significantly result in a deleterious effect on local air quality, therefore, current improvements in the observed levels of NO_2 are likely to be sustainable in the near-term. It is not known if any specific local measures may have helped to affect improvements in the levels of NO_2 along Park St. It is also the case that the Broadway Gyratory acts as a separation between Park St and Broadway with different traffic flow patterns, journey types and urban topography affecting the differing parts of the AQMA.

Given the historic trend and expected future stability of the observed improvement in NO_2, it is likely that Site Nos. 95 & 119 will remain compliant with the annual mean AQO for NO_2. In addition given current understanding of the locality it is considered that the area of the Broadway Gyratory itself, due to its open aspect, lack of chronic congestion and one way traffic flow would be very unlikely to breach the annual mean AQO for NO_2. However, for the time being it is still the case that a continuing risk of non-compliance remains associated with the remaining area of the Broadway AQMA north of the Broadway Gyratory to its traffic light controlled junction with the A4058.

Although Park St is in proximity with and interacts with Broadway, it can be considered a separate road system. Removal of Park St from the Broadway AQMA would acknowledge the sustained improvement in local air quality. It would also be unlikely to detrimentally effect the implementation of targeted intervention to improve air quality along Broadway. In addition, it will still be possible to maintain a contiguous area of designation that facilitates future focused action to achieve compliance to the annual mean AQO for NO_2 throughout the remaining Broadway AQMA. As such, dependent upon the outcome of prior consultation, it is believed appropriate for the Local Authority to take steps to amend the Broadway AQMA (so that the amended AQMA covers that area marked in red) by reducing its current extent (by removal of that area marked in blue) as displayed on the map in Table 2.26b below: -

Table 2.26b – Map of proposed amended Broadway AQMA



The proposed amended Broadway AQMA has been estimated to contain one-hundred-seventy-six premises, with an estimated eighty-one premises previously within the original Broadway AQMA no longer being included. The actions within the current Broadway AQAP are likely to be unaffected by the proposed amendment and therefore the scheduled review date of the Broadway AQAP will remain as 2020.

2.3.2 Particulate Matter (PM_{10})

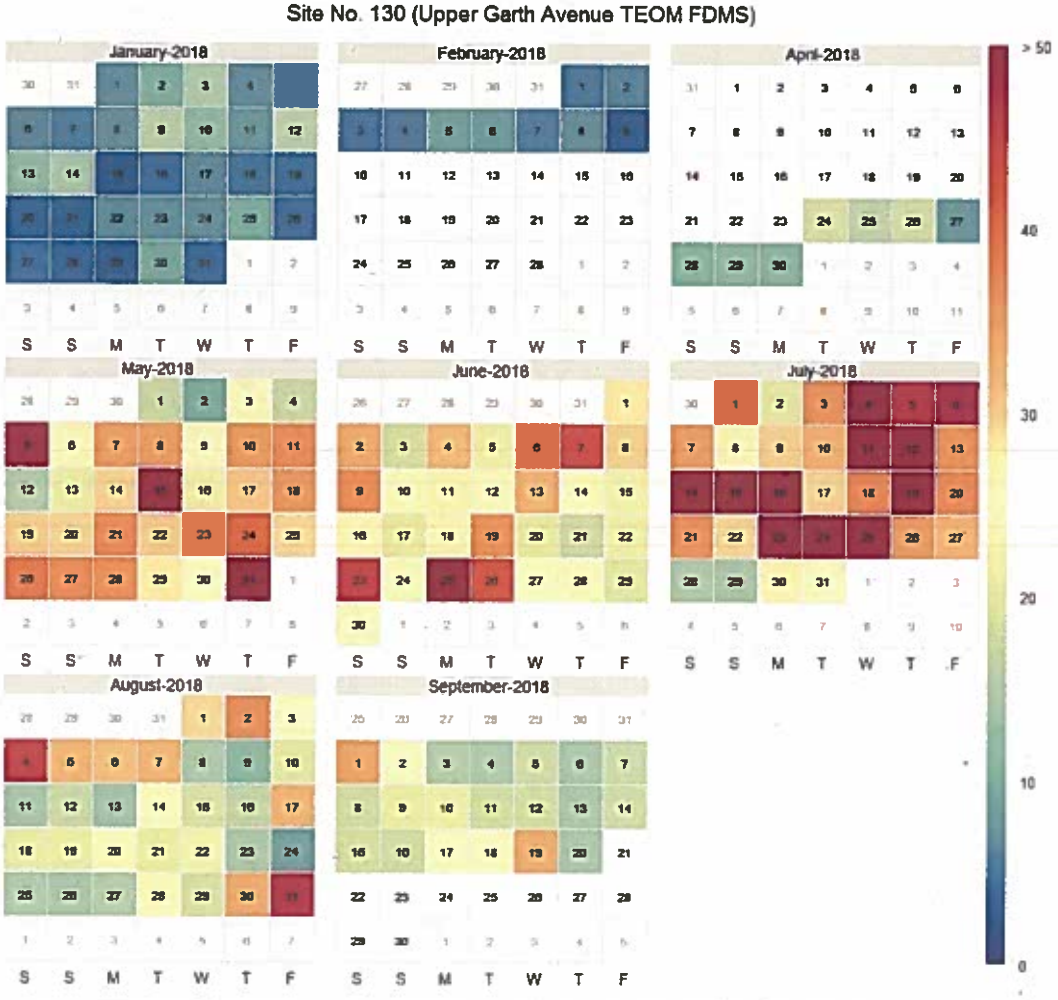
It has been reported[18] that, based upon modelled assessment, the South Wales Non-agglomeration Zone, which includes Rhondda Cynon Taf, is compliant with both the annual mean EU Limit Value for PM_{10} and the 24-hour daily mean EU Limit Value for PM_{10}.

[18] Defra, and the Devolved Administrations. Air *Pollution in the UK 2016*. September 2017

Having previously discontinued monitoring at Site No. 31 (GEAES TEOM), the Local Authority did not monitor PM_{10} within the Rhondda Cynon Taf general urban environment in 2018. 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. Due to technical issues, a reduced amount of monitoring results are available for 2018 at Upper Garth Avenue TEOM FDMS, as a result, only limited consideration of the 2018 data set can be made.

To consider the relevance and context of the 2018 PM_{10} monitoring data, it is possible to examine it in a number of ways. Table 2.27 illustrates a calendar plot that identifies when the 24-hour daily means of PM_{10} in 2018 was at its highest at Site No. 130 (Upper Garth Avenue TEOM FDMS).

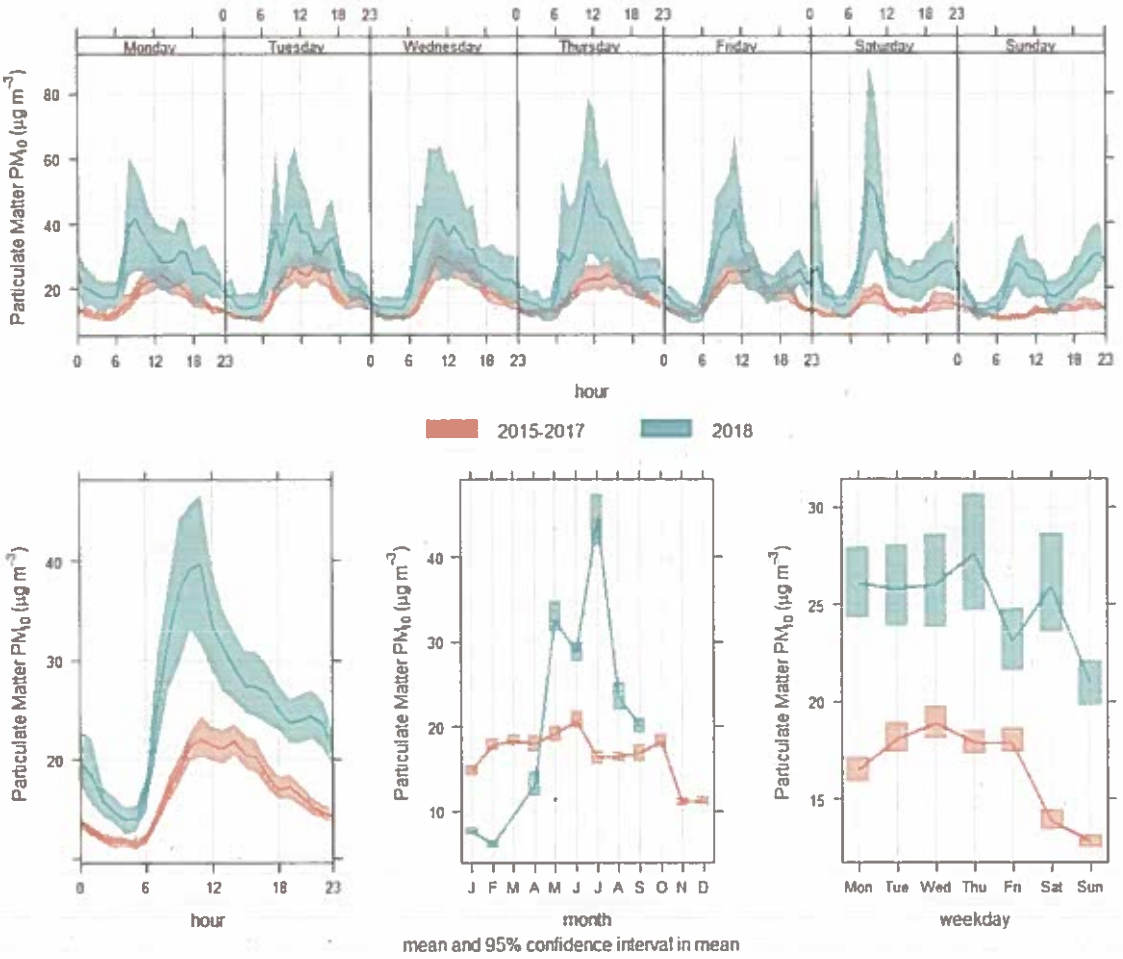
Table 2.27 – Calendar Plot of the 24-hour daily means of PM_{10} at Site No. 130 (Upper Garth Avenue TEOM FDMS) in 2018



The calendar plot illustrates that, in general, elevated PM_{10} levels at Glyncoch are mostly observed during the summer months, May to July 2018 but it also suggests that high levels of PM_{10} can be experienced at any time of year. The calendar plot doesn't indicate wildly varying results but rather that the highest levels of PM_{10} often appear to be clustered to several consecutive days at a time, for instance there are several consecutive elevated days in July 2018. To further understand the context of the 2018

PM_{10} monitoring data, it is possible to compare this data with the historic average at Site No. 130 (Upper Garth Avenue TEOM FDMS). Table 2.28 provides time variation plots of the 2018 monitoring and its comparison with historic measurements.

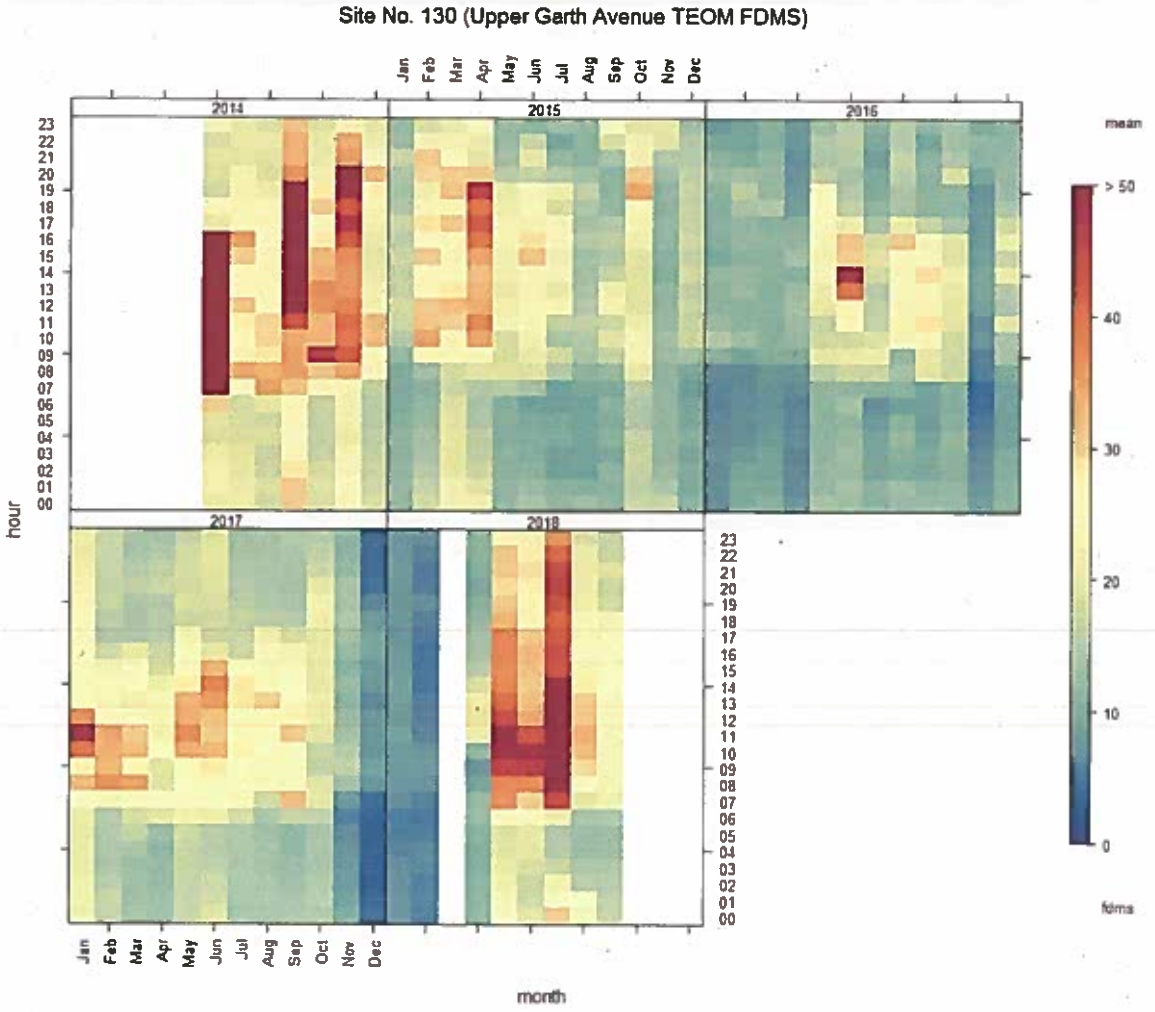
Table 2.28 – Time Variation Plot of PM_{10} measured at Site No. 130 (Upper Garth Avenue TEOM FDMS) in 2018 and 2015 to 2017



Site No. 130 (Upper Garth Avenue TEOM FDMS) demonstrates consistently elevated levels of PM_{10} during Monday to Friday with significant reductions in the levels of PM_{10} at the weekend. In addition, PM_{10} 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 there is a possible less distinct biannual relationship in the historic data, although the 2018 data set may be inconclusive due a lack of data for the 2018/2019 winter period. Also of note is the amount of variation in the data set (thickness of the line) indicating significant variability during 2018, albeit this may also be in part as a result of a limited data set. Nonetheless, the general pattern observed in 2018 has some similarity with the historic data but the levels of PM_{10} may have been elevated in 2018 compared to previous years. However, the possible elevation in levels of PM_{10} in 2018 do not appear to be as a result of a significant change in the day-to-day pattern of PM_{10} emissions at Glyncoch.

The trend level plot for PM_{10} at Site No. 130 (Upper Garth Avenue TEOM FDMS) produced in Table 2.29 below, is a useful way of examining the temporal relationship of the trend in PM_{10} over each year between 2014 and 2018. The trend level plot indicates that the summer of 2018 may have observed higher levels of PM_{10} than witnessed in the historic data, although it is not possible to determine if this persisted during the remainder of 2018. This could be as a result of cyclical climatic affects, for instance a sustained dry summer occurred in 2018, which can result in some years being more prone to elevated levels of PM_{10} when compared to the average.

Table 2.29 – Trend Level Plot of PM_{10} measured at Site No. 130 (Upper Garth Avenue TEOM FDMS) from 2015 to 2018



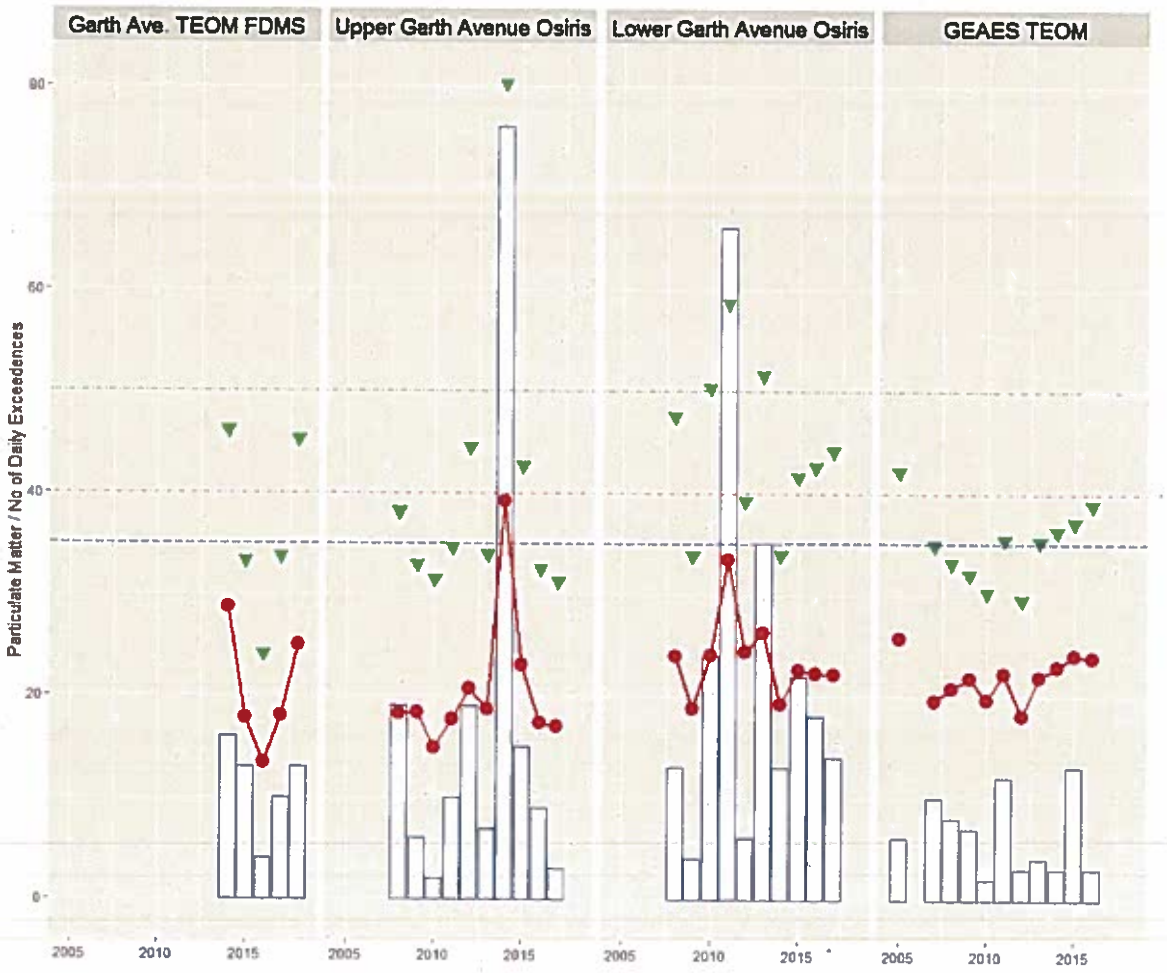
Recognising only limited consideration can be made, it is believed Glyncoch was not subject to an unexpected influence, derived from a significant change in circumstances or transient event. As such, it may be the case that 2018 experienced conditions, possibly due to a cyclical climate resulting in a protracted summer period, which could have inherently increased the risk of elevated of PM_{10}. Having regard to the above understanding and associated limitations, it is considered appropriate to draw limited conclusions from the 2018 monitoring data sets.

It is likely that PM_{10} levels at Glyncoch are affected by a combination of PM_{10} sources, both very local, intermediate and at distance from the monitoring locations. In addition, environmental influences may affect the transport of PM_{10} to and its dispersion from

the monitoring locations, influencing the locally experienced levels of PM_{10}. It is known that the sources of PM_{10} 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 PM_{10} 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 cyclical 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 PM_{10}.

It is possible to examine the relationship between the annual mean, the number of occasions the 24-hour daily mean for PM_{10} has exceeded $50\mu gm^{-3}$ and the 90.4^{th} percentile. Table 2.30, provides integrated time and bar plots illustrating the annual mean (the red line), the number of occasions the daily mean was greater than $50\ \mu gm^{-3}$ (the blue bars) and the 90.4^{th} Percentile of 24-hour daily means (green triangles), with the correspondingly coloured dotted reference lines for each AQO for PM_{10}.

Table 2.30 – 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 2018



Although the available monitoring data in 2018 was indicative, it was consistent with the understanding that, at least since 2014, Glyncoch experiences a broadly stable situation, albeit with some inherent fluctuation, and likely to be compliant to both the annual mean and the 24-hour daily mean AQOs for PM_{10}; often 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 worse-case locations.

With monitoring at Site No. 31 (GEAES TEOM) discontinued, there is no continuing long term PM_{10} data set for the Rhondda Cynon Taf urban environment. However, local and national understanding does not suggest a likelihood of a significant change in the occurrence of PM_{10} within Rhondda Cynon Taf. On the basis of the above analysis, it is considered that most areas of Rhondda Cynon Taf are likely to continue to observe low PM_{10} annual means and limited incidences of exceedences of the 24-hour daily mean AQO for PM_{10}. This is likely to be moderately affected by yearly changes in climate and meteorology but as the annual mean for PM_{10} is consistently significantly below the annual mean AQO for PM_{10}, it is very unlikely such fluctuations will pose a

risk to compliance. Therefore, the risk of breaching the annual mean AQOs for PM_{10} 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 PM_{10}. Furthermore, the available evidence may suggest that the levels of PM_{10} have improve din recent years potentially corresponding to known improvements to the control of Particulate Matter emissions from Craig Yr Hesg Quarry. Nonetheless, sustained climatic events, for instance a protracted dry summer period, may threaten continued improvement, as indicated by the 2018 data set. Therefore, continued monitoring is necessary to ensure any future changes which have the potential to impact on the local prevalence of PM_{10}, 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 2018

Rhondda Cynon Taf County Borough Council has examined the results from monitoring within its area. Concentrations of NO_2 within all sixteen AQMAs still exceed, or in the near-term are still at risk of exceeding, the relevant AQOs for NO_2. As such, all sixteen AQMAs should remain.

It has been identified that improvements to the levels of NO_2 within part of the Broadway AQMA has continued to the extent that Rhondda Cynon Taf County Borough Council intends, dependent upon consultation, to amend (by way of the Fast Track declaration process) the Broadway AQMA. The proposed amendment will reduce the designated geographical area, due to proven compliance to the annual mean AQO for NO_2 along Park St.

The level of NO_2 outside of the current sixteen AQMAs and levels of PM_{10} 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 Highway Authority for all of its area other than for those roads which are the responsibility of Welsh Government, as managed by its South Wales Trunk Road Agent.

The Local Authority is the Local Planning Authority for all of its area other than that which forms part of the Brecon Beacons National Park Authority.

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. Notwithstanding, certain parts of Rhondda Cynon Taf's strategic road network (M4 and A470) is managed by the South Wales Trunk Road Agent [SWTRA] on behalf of Welsh Government, so as to facilitate national interconnectivity.

During 2018, in response to ongoing assessment work[19] undertaken on behalf of Welsh Government, it was determined that a reduction in the speed limit applicable to the A470, between Upper Boat Jct and a short distance north of the Pontypridd Jct, from 70mph to 50mph would be the most cost effective option to improve local air quality. The intervention was primarily pursued by Welsh Government with the stated aim of working towards achieving compliance to EU Limit Values for NO_2 within the South Wales Non-Agglomeration Zone. However, both the Nightingales Bush and Treforest AQAPs have also identified this measure as likely to have a significant benefit in reducing the levels of NO_2 within each AQMA. It has been estimated that this benefit may equate to a reduction of 2.8µgm^{-3} NO_2 along the intervention area of the A470, and a potential 7% reduction in NO_x within the Nightingales Bush and Treforest AQMAs, with the greatest impact likely to be experienced where the original maximum speed limit was being achieved or where chronic congestion manifests. However, at Nightingales Bush the impact of the measure may be less due to slower speeds and inherent congestion often encountered with strategic junctions.

A trial scheme was commenced mid 2018 with a relevant traffic order put in place to reduce the speed limit to 50mph and temporary signage erected. Further details of the area affected and actions taken to implement the trial are available on the Welsh Government website. Subsequently a review[20] on behalf of Welsh Government has taken place. This review recommended action to permanently adopt the speed reduction changes, in combination with the adoption of fixed signage and enforcement infrastructure, as well as the potential support of 'soft measures' to locally encourage a shift to sustainable transport.

In acknowledgement of the likely benefit to locally observed NO_2 associated with the speed reduction along the A470, the Local Authority has conveyed its opinion to Welsh Government that an extension of the speed reduction, approximately 750m further north, so that it also encompasses that area of the A470 abutting the Cilfynydd AQMA may be desirable. It would be expected that such an extension would likely have

[19] Welsh Government, *Tackling roadside nitrogen dioxide concentrations in Wales*, 19th June 2018
[20] Welsh Government, *A470 PONTYPRIDD – WELTAG STAGE THREE REPORT Consideration of Measures on the Welsh Government Motorway and Trunk Road Network for Nitrogen Dioxide Reduction*, September 2018

significant benefit to improving levels of NO_2 within the Cilfynydd AQMA without imposing appreciable additional disturbance to road users. Nonetheless, it is possible that the currently designed scheme may have some indirect benefit to the Cilfynydd AQMA. In the possible reduction in frequency of acute congestion along connecting areas of the A470, consequentially relieving congestion along the A470 abutting the AQMA.

The Highways Authority has published[21] 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 that each scheme will, if fully progressed, be subject to assessment as part of the planning process, with future reporting looking to provide further information when available. In addition, the Council has recently stated[22] the prioritization of certain proposed road schemes and the confirmation of allocated resources to enable progression.

Table 3.1 – Proposed road schemes 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, which will relieve traffic from the existing A473 as it runs through Llanharan centre.	Llanharan	Potential major improvement within AQMA
Ely Valley Road Duelling	Providing additional carriageways along A4119 north of Royal Glamorgan Hospital, 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 Stagg Jct, Treorchy and associated road netwrok within the Rhondda Fawr	Llwynypia	Uncertain impact dependent upon desired scheme
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 and potential other local road network modifications combined with possible mass transit improvements	Aberdare Town Centre	Potential moderate improvement within AQMA and surrounding suburban area.

[21] https://www.rctcbc.gov.uk/EN/Newsroom/PressReleases/2018/October/UpdateonmajorHighwaysandTransportationprojects.aspx
[22] https://www.rctcbc.gov.uk/EN/Council/TheLeadersBlog/2019/April/FurtherFundingApprovedfor1920.aspx

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[23]. 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 present 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, further details about this regime is available on the Local Authority's website[24]. Table 3.2 identifies those stationary Regulated Facilities, within Rhondda Cynon Taf, which have been granted environmental permits in 2018. Further details of the Regulated Facilities within Rhondda Cynon Taf are available on the Environmental Permitting Public Register held by the Local Authority, the index of which is available on its webpage[25].

Table 3.2 – Environmental Permits granted by the Local Authority in 2018

Permit Ref.	Operator	Activity	Relevant Pollutants	Area	Affecting LAQM
124	Hirwaun Energy Ltd	Ch.13 Small Waste Incineration Plant to indirectly produce electricity	PM_{10} NO_x	Hirwaun	×

None of the new 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, size, adopted control measures 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 2018

[23] https://tfw.gov.wales/whats-happening-south-east-wales
[24] https://www.rctcbc.gov.uk/EN/Business/LicencesandPermits/Pollutionrelatedlicences/EnvironmentalPermitting.aspx
[25] https://www.rctcbc.gov.uk/EN/Business/LicencesandPermits/Pollutionrelatedlicences/EnvironmentalPermitting.aspx

no existing stationary Regulated Facilities regulated by the Local Authority experienced a substantial change.

The Clean Air Act 1993 requires that the occupiers of premises utilising certain 'furnaces', to notify the Local Authority of their installation or modification, further details about this regime is available on the Local Authority's website[26]. Table 3.3 identifies those 'furnaces', within Rhondda Cynon Taf, where notification of installation or modification was provided in 2018: -

Table 3.3 – Clean Air Act notifications received by the Local Authority in 2018

Occupier	Furnace	Relevant Pollutants	Area	Type of Notification	Chimney Height Approval	Affecting LAQM
Llantrisant Recycling Centre Ltd	Virgin Wood Combustion to produce heat	PM_{10} NO_x	Llantrisant	New Furnace	✓	×

None of the 'furnaces', listed in Table 3.3, 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

3.3 Planning Applications

In accordance with Planning Policy Wales[27] and the Local Development Plan[28], 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.

The Local Authority has produced informal guidance criteria[29] 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 seek to 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 2017-2018 the Local Planning Authority approved 1,153 new dwellings across a range of consented developments[30]. Table 3.4 details the planning applications received or pending in 2018 considered as having the potential to impact local air quality management and, where appropriate, an Air Quality Assessment was desired.

[26] https://www.rctcbc.gov.uk/EN/Business/LicencesandPermits/Pollutionrelatedlicences/Cleanairactapproval.aspx
[27] Welsh Government, *Planning Policy Wales Edition 10*, December 2018
[28] Rhondda Cynon Taf CBC, *Rhondda Cynon Taf Local Development Plan up to 2021*, March 2011
[29] Rhondda Cynon Taf CBC, *Planning Assessment Criteria V1 02*, January 2013
[30] Rhondda Cynon Taf CBC, *Rhondda Cynon Taf Local Development Plan Annual Monitoring Report 2017-2018*, 31st March 2018

Table 3.4 – Planning Applications under consideration or approved in 2018 where an AQA was desired

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
18/0408/10	Tal Y Fedw, Llantrisant Business Park	Development consisting of a Business/Industrial Park extension on a green field site	No
18/0516/10	Unit G13 & G6.9B, Treforest Industrial Estate	Construction of office block and associated parking	No
18/0872/13	Ystrad Barwig Isaf	Proposed residential development and provision of a school	No
18/5087/41	Pontshonnorton Rd, Pontypridd	Demolition of existing dwelling and the construction of 14no 1 bedroom 2 person flats	May increase relevant population within Cilfynydd AQMA

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, over a number of years, 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 PM_{10} 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.

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 affecting large areas of the Rhondda and Cynon valleys. They are usually associated with open mountainside locations and can 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 as causing anxiety and concern within the communities affected.

Although, the Local Authority has not got the resources to directly quantify 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. The Local Authoirty does not maintain sufficient information to evaluate the likely prevalence or combined impact of these activities, however, it is believed that at present 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 a single significant 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 their 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 Plan[31].

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"

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: - 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 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.

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.

[31] 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 Report[32].

4.3 Local Transport Plans and Strategies

As a result of a Regulatory Order[33] 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 Plan[34] [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 to key services and facilities and improve accessibility within and between communities.	All

[32] Rhondda Cynon Taf CBC, *Rhondda Cynon Taf Local Development Plan Annual Monitoring Report 2017-2018*, 2018
[33] In accordance with The Transport Wales Act 2006
[34] The Five South East Wales Local Authorities, *South East Wales Valleys Local Transport Plan*, January 2015

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
5.	South Wales Metro (hybrid rail/tram/road)	Cilfynydd 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 obtained final approval from Welsh Government for a number of maps[35] showing the Active Travel routes within a number of communities 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 Report[36] and Active Travel Monitoring Report[37], 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[38].

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

[35] Rhondda Cynon Taf CBC, *Active Travel Existing Route Maps*, February 2018
[36] Rhondda Cynon Taf CBC, *Active Travel Annual Report 2017-2018*, 2018
[37] Rhondda Cynon Taf CBC, *Active Travel Monitoring Report*, 2018
[38] https://www.rctcbc.gov.uk/EN/Resident/ParkingRoadsandTravel/Travel/ActiveTravelandCycling.aspx

provision of information about active and sustainable travel routes associated with Ferndale[39], Pontypridd[40] and Porth[41].

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 Taff Well-Being Plan which is available on the "Our Cwm Taf" webpage[42]. 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;

[39] https://www.rctcbc.gov.uk/EN/Resident/ParkingRoadsandTravel/Travel/Relateddocuments/sustainabletravel/FerndaleSustainableTransportGuide.pdf
[40] https://www.rctcbc.gov.uk/EN/Resident/ParkingRoadsandTravel/Travel/Relateddocuments/sustainabletravel/PontypriddSustainableTransportGuideJan2019.pdf
[41] https://www.rctcbc.gov.uk/EN/Resident/ParkingRoadsandTravel/Travel/Relateddocuments/sustainabletravel/PorthSustainableTransportGuideJan2019.pdf
[42] http://www.ourcwmtaf.wales/SharedFiles/Download.aspx?pageid=286&mid=613&fileid=210

- Further explore the opportunities for sustainable housing and renewable energy developments with associated community funds.

As part of the delivery of these well-being objectives, National Indicators and Milestones have been produced, including one for air quality[43]. It is expected that this will also require consideration of air quality in the form of a broader 'pollution burden reduction approach'. This currently differs to that of the compliance approach enacted by the current local air quality management regime, which targets levels of air pollution which has exceeded a defined level regardless of the number of people likely to be affected. Instead the burden pollution reduction approach considers that it can be beneficial to reduce pollution, regardless of its absolute level, that effects a large number of people, even if the reduction is a small amount the overall benefit can be great if a large number of people are effected. Nonetheless, it is anticipated that both routes to air quality improvement will act in collaboration where possible.

To enable the evaluation of a burden reduction approach, the Welsh Government has made available rankings[44] of each Local Authority based upon the modelled background concentration for NO_2, PM_{10} and $PM_{2.5}$ for each $1km^2$, referenced to the number of dwelling associated within each km^2. The most recently published data ranks (the lower the ranking the better) Rhondda Cynon Taf as 9 out of 17 for NO_2, 11 out of 13 for PM_{10} and 7 out of 9 for $PM_{2.5}$.

It is acknowledged, that in a resource limited system it can beneficial to focus actions to maximise the public health benefits of intervention. In considering the pollution burden reduction approach, it is often the case that disadvantaged communities are more likely to observe adverse health inequalities which could benefit from improvements in local air quality. Therefore, given similar population sizes, targeting action at communities which experience elevated levels of air pollution as well as deprivation would likely deliver greater public health benefit if compared to targeting action only at a more affluent community.

Recent collaborative work with Public Health Wales and Cwm Taf Health Board has enabled the consideration of various statistics which best highlight the communities which are most likely to be detrimentally affected by air quality in combination with known air quality data. This has resulted in the HAP-RAP tool, which can help to identify locations where actions to improve air quality may have the greatest benefit to local communities. Provisional use of the HAP-RAP tool has potentially identified two clusters, one based around Mt Ash/Penrhiwceiber and the other based around Cymmer/Ferndale/Llwynypia/Tylorstown, where air quality improvements may well have the greatest benefit to the community. Each current AQMA has been assessed against HAP-RAP prioritisation and where the AQMA and the MSOA (the zones used by HAP-RAP) match this has been highlighted (see Table 1.1).

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.

[43] Welsh Government, *National Indicators for Wales - National Indicator 4*, 16th March 2016
[44] https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Air-Quality/airqualityindicators-by-localauthority

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 or protecting communities from elevated levels of air pollutants. 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 Strategy[45] 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;
- 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. In addition the Local Authority has progressed a number of actions[46] to reduce global warming emissions and continues to consider way to work towards a zero global warming emission future.

[45] Rhondda Cynon Taf CBC. *'Our Living Space' Environmental Improvement Strategy*. 28th April 2005
[46] https://www.rctcbc.gov.uk/EN/Resident/EnvironmentalHealthandPollution/EnergyManagement/EnergyManagement.aspx

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 polices 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 2018 continues to reaffirm that the vast majority of Rhondda Cynon Taf exhibits good air quality, well below the relevant AQOs. It also suggested that 2018 generally showed lower levels of NO_2 than what has historically been expected as normal, however, it was still the case 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 NO_2 and a stable, for more than a decade, improving trend reflective of the national 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 NO_2 compliant with the relevant AQOs for NO_2, 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 either experience or are at risk of experiencing significantly elevated levels of NO_2. Monitoring data, from 2018, supports the belief that all areas in breach of an AQO for NO_2 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 NO_2. The data also suggest a recent improving trend within many of the AQMAs, although for most it is too early to demine if this trend will persist. However, for the Aberdare Town Centre and Broadway AQMAs a number of years of monitoring data as well as understanding of the local situation support the consideration that constituent parts of both AQMAs are likely to remain compliant with the annual mean AQO for NO_2, albeit there will still remain a risk of likely non-compliance within remaining areas of both AQMAs. For technical reasons, including the fact that the remaining closely related areas of the AQMA would not be contiguous, it is proposed to maintain the existing designated area of the Aberdare Town Centre AQMA. However, with regard to the Broadway AQMA, it is proposed to consult upon amending its area so as to remove the geographical part associated with long-term compliance to the annual mean AQO for NO_2. It is expected the corresponding Broadway Air Quality Action Plan will remain pertinent and not require immediate review.

Other pollutants of concern such as SO_2 and PM_{10}, 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 PM_{10} 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. 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 PM_{10}. Furthermore, the available evidence may suggest that although the

levels of PM_{10} have improved in recent years potentially corresponding to known improvements to the control of Particulate Matter emissions from Craig Yr Hesg Quarry. Cyclic climatic events, such as protracted dry summers, may threaten continued improvement in local levels of PM_{10}. As such it is recognised that maintaining vigilance is necessary to enable continued understanding and to enable assessment of any potential future changes.

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 can be 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 2017-2018 the Local Planning Authority approved 1,153 new dwellings across a range of consented developments and that only a very limited number may have been within an AQMA. Records also indicate that, in 2018, no new local development applications were received or granted that would likely unduly impact upon local air quality in a significant way. 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 may have a direct or indirect effect 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, Environmental Noise and Biodiversity 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, having regard 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. In doing so it is recognised that an important element in progressing an effective 'pollution burden reduction' approach is the multi-discipline support provided by partners in analysing existing information in new and informative ways so as to enable better policy and action planning, for instance the HAP-RAP Tool.

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 or influence the implementation of actions within its AQAPs. This has included Welsh Government directed speed reductions along a part of the A470, incidentally associated with the Nightingales Bush and Treforest AQMAs, so as to directly reduce vehicle emissions as well as potential incidences of congestion. In addition, the Local Authority is progressing further actions to improve usability and awareness of active travel routes and local sustainable transport options.

Often fundamental to the progression of AQAP actions is the availability of demarcated extremal project funding, it is recognised that the changing nature of relevant Welsh Government's grant frameworks 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 2019 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 2020.

5.4 Proposed Actions

- The Local Authority, having regard to sustained compliance within part of the Broadway Air Quality Management will, dependent upon the outcome of consultation, amend the Broadway Air Quality Management Area so as to remove from its geographical designation the areas of Park St and Broadway Gyratory. It is expected the corresponding Broadway Air Quality Action Plan will remain pertinent and not require the advancement of its scheduled review.

- 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 or encourage the progression of 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 descried 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 June 2020, 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

References

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

Air Quality Archive Website hosted by AEA on behalf of Defra and the Devolved Administrations

Air Quality Consultants Ltd on behalf of Defra, *Analysis of the relationship between 1-hour and annual mean Nitrogen Dioxide at UK Roadside and Kerbside Monitoring Stations*, July 2003.

Air Quality Consultants Ltd on behalf of Defra, *NO_2 Concentrations and Distances from Roads*, July 2008

Air Quality Expert Group, *Trends in Primary Nitrogen Dioxide in the UK*, 2007

Air Quality Review & Assessment webpages hosted by Defra and the Devolved Administrations.
Air Quality Review & Assessment webpages hosted by Defra and the Devolved Administrations, *FAQ - Roadside & NO_2*

Air quality Review & Assessment webpages hosted by Defra, *National Diffusion Tube Bias Adjustment Factor Spreadsheet Version 03/16*, April 2016

Air Quality Review & Assessment webpages hosted by Defra and the Devolved Administrations, *Nitrogen Dioxide Diffusion Tube Monitoring Calendar of Suggested Exposure Periods 2015*

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

Bureau Veritas, as found on air quality webpages hosted Defra and the Devolved Administrations, *Emissions Factor Toolkit v.4.2.2*, released November 2010

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

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

Centre for Transport Studies Imperial College London, *An evaluation of the estimated impacts on vehicle emissions of a 20mph speed restriction in central London*, April 2013

Committee on the Medical Effects of Air Pollutants on behalf of Department of Health, *Cardiovascular Disease and Air Pollution*, February 2006

Committee on the Medical Effects of Air Pollutants, *Statement on the evidence for the effects of NO_2 on health*, March15

Court of Justice of the European Union, *Member States obligations as regards respecting the limit values for Nitrogen Dioxide*, November 14

Cwm Taf Public Services Board, *Cwm Taf Well-Being Plan 2018-2023*, March 2018

Defra and the Devolved Administrations, *Air Pollution: Action in a Changing Climate*, March 2010

Defra and the Devolved Administrations, *The Air Quality Strategy for England, Scotland, Wales, and Northern Ireland*, July 2007

Defra and the Devolved Administrations, *Local Air Quality Management Technical Guidance LAQM.TG(16)*, February 2009 as displayed by webpage on 23rd September 2015

Defra, and the Devolved Administrations, Air *Pollution in the UK 2013*, September 2014

Defra, and the Devolved Administrations, Air *Pollution in the UK 2014*, September 2015

Defra, *Valuing impacts on air quality: Updates in valuing changes in emissions of Oxides of Nitrogen and concentrations of Nitrogen Dioxide*, September 2015

Defra, *Statistical Release*, 23rd April 2015

Department for Transport, *The Future of Urban Transport*, 2009

D. Kahle and H. Wickham, *ggmap: Spatial Visualization with ggplot2*, The R Journal, 5(1), 144-161.

E. Salisbury G. Thistlethwaite Y. Pang R. Bailey, "*Air Quality Pollutant Inventories, for England, Scotland, Wales and Northern Ireland*", October 2014

ERG, Kings College London on behalf of Defra and the Devolved Administrations, *The Volatile Correction Model, April 2010*

European Commission, Directive 2002/49/EC of the European Parliament and of the Council, 25th June 2002

European Commission, *Directive 2008/50/EC of the European Parliament and of the Council*, May 2008

Her Majesty's Inspectorate of Pollution, *Technical Guidance Note D1 - Guidance on Discharge Stack Heights for Polluting Emissions*, June 1993

Grice S. Kent A. & I. Tsagatakis , "*Trends in NO_x and NO_2 emissions and ambient measurements in the UK*", 18th July 2011

House of Commons Committee on Power Station Construction, '*Beaver Report*', 1952

House of Commons Environmental Audit Committee, *Air Quality Fifth Report of Session*, 16th March 2010

House of Commons Environmental Audit Committee, *Air Quality Sixth Report of Session*, 26th November 2014

HSL for BV/NPL on behalf of Defra and the Devolved Administrations, *Summary of Laboratory Performance in AIR/WASP NO_2 Proficiency Testing Scheme (April 2013 – February 2015)*, January 2016

Institute of Occupational Medicine, *Comparing estimated risks for air pollution with risks for other health effects*, 2006

John Abbott & Sally Cooke, AEA Energy & Environment, *NO_x to NO_2 conversion calculator Version 4.1 as found on the air quality webpages hosted by Defra and the Devolved Administrations*, 18th June 2013

Met Office, *UK Climate webpage, 2016*

Met Office, *UK Regional Climate Wales webpage*, 2016

National Atmospheric Emissions Inventory, *COPERT 4 v10.0 NO_x Emission Factors used in latest 2012 UK National Atmospheric Emissions Inventory*, June 2014

Natural Capital Committee, *The State of Natural Capital: Restoring our Natural Assets*, March 14

Netcen on behalf of Defra and the Devolved Administrations, *Air Pollution in the UK:2005*, 2006

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

Office for National Statistics, *the 2011 Census*, May 2014

Open Source Geospatial Foundation Project QGIS Development Team, *QGIS Geographical Information System v2.18.25*

Peter Rogers on behalf of the Better Regulation Executive, *National enforcement priorities for local authority regulatory services*, Cabinet Office, March 2007

Public Health England, *Estimating Local Mortality Burdens Associated With Particulate Air Pollution*, April 2014

QGIS Project, *QGIS User Guide 2.18*, 22nd November 2018

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

Rhondda Cynon Taf CBC, *2007 Stage 3 Detailed Assessment for Nitrogen Dioxide*, April 2007

Rhondda Cynon Taf CBC, *2008 Progress Report*, July 2008

Rhondda Cynon Taf CBC, *2009 Updating and Screening Assessment*, July 2009

Rhondda Cynon Taf CBC, *2009 Stage 4 Further Assessment of Nitrogen Dioxide*, March 2009

Rhondda Cynon Taf CBC, *2010 Progress Report*, April 2010

Rhondda Cynon Taf CBC, *2011 Progress Report & Combined Detailed and Further Assessment of Nitrogen Dioxide*, August 2010

Rhondda Cynon Taf CBC, *2012 Updating and Screening Assessment, August 2012*

Rhondda Cynon Taf CBC, *Air Quality Action Plans Document, August 2013*

Rhondda Cynon Taf CBC, *2013 Progress Report & Detailed Assessment for Nitrogen Dioxide*, August 2013

Rhondda Cynon Taf CBC, 2014 *Detailed Assessment of Fine Particulate Matter*, April 2014

Rhondda Cynon Taf CBC, *2014 Progress Report & Further Assessment of Nitrogen Dioxide*, October 2014

Rhondda Cynon Taf CBC, *2015 Updating and Screening Assessment*, October 2015

Rhondda Cynon Taf CBC, *2016 Progress Report*, November 2016

Rhondda Cynon Taf CBC, *2017 Progress Report*, September 2017

Rhondda Cynon Taf CBC, *2018 Air Quality Action Plans Addendum*, January 2018

Rhondda Cynon Taf CBC, *Rhondda Cynon Taf Local Development Plan Annual Monitoring Report 2015-2016*, 15th November 2016

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

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

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

Rhondda Cynon Taf CBC, *Corporate Sustainable Development Action Plan*,

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

Rhondda Cynon Taf Local Service Board, "*Delivering CHANGE a Single Integrated Plan for Rhondda Cynon Taf*", April 2013

R Studio, '*Cheat Sheets' Various*, March 2017

Sir Nicholas Stern on behalf of HM Treasury, *The Economics of Climate Change – The Stern Report*, October 2006

South East Wales Transport Alliance, *South East Wales Transport Alliance Regional Transport Plan*, March 2010

SLR on behalf of Hanson Aggregates Europe Ltd, *Environmental Statement for the Western Extension of Craig Yr Hesg Quarry Volume 1 Chapter 12*, May 2015

StatsWales, *Welsh Index of Multiple Deprivation, WIMD2014 - Health*, 12th August 2015

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

Welsh Air Quality Forum on behalf of Welsh Government, *Air Pollution in Wales 2014*, 29th October 2015

Welsh Assembly Government, *Local Air Quality Management Policy Interim Guidance for Wales*, March 2016

Welsh Government, *Planning Policy Wales Edition 8*, January 2016

Welsh Government, *Welsh Index of Multiple Deprivation (WIMD) 2014 Revised*, August 2015

Welsh Government, *Road Action Plan for Wales*, December 2008

Welsh Government, "*Shared Purpose – Shared Delivery*", June 2012

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

Welsh Local Government Association and Core Partners, *Changing Climate Changing Places*, November 2008

Welsh Local Government Association and Core Partners, *Changing Climate Changing Places Evaluation Report*, September 2011

WHO Regional Office for Europe, *Review of evidence on health aspects of air pollution – REVIHAPP First Results*, 2013

Yvonne Brown, *Version 2*, Dispersion Modelling Helpline, 25th March 2003

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 2018

Site ID	NO_2 Mean Concentrations (µg/m³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (factor) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
4	26.3	15.6	22.3	15.2	14.9	11.1	13.4	11.5	14.6	22.0	23.1	24.3	17.9	15.2	-
8	-	35.6	69.3	34.4	38.3	39.1	45.1	38.6	38.8	44.2	46.5	50.5	43.7	37.1	-
21	11.5	7.7	10.7	6.1	5.3	4.7	4.6	5.7	5.7	9.1	11.1	10.4	7.7	6.6	-
37	63.0	36.6	49.0	37.9	49.4	39.4	42.2	31.5	43.1	46.4	39.7	45.9	43.7	37.1	-
41	61.4	47.6	41.1	60.4	46.5	43.3	54.0	48.6	40.6	54.2	45.1	57.3	50.0	42.5	-
44	46.0	32.0	67.6	32.1	32.3	29.7	33.1	33.8	33.5	42.8	48.5	38.0	39.1	33.2	-
47	34.8	35.1	40.6	24.8	26.7	23.2	26.4	26.8	27.9	28.5	33.7	35.6	30.3	25.8	-
48	34.4	33.8	38.9	25.6	26.6	24.4	25.4	24.7	27.6	29.8	34.2	32.6	29.8	25.4	-
50	35.0	33.4	40.2	23.8	27.7	24.0	25.3	26.2	27.7	30.5	29.7	35.2	29.9	25.4	-
51	44.1	24.0	55.8	37.0	41.3	38.6	44.2	45.7	32.1	36.8	40.1	45.5	40.4	34.4	-
52	79.8	52.3	77.7	49.5	55.4	50.0	52.6	48.8	51.3	55.7	51.3	54.5	56.6	48.1	-
53	64.6	34.3	52.3	34.7	38.7	32.9	36.4	35.1	37.9	46.6	46.8	47.4	42.3	36.0	-
55	78.4	60.0	56.4	-	29.0	27.7	-	34.7	34.1	-	37.5	36.6	43.8	36.04*	-
56	47.4	52.0	58.6	34.4	35.8	34.6	35.7	33.0	38.6	44.4	45.2	47.5	42.3	35.9	-
66	44.9	42.4	44.6	25.0	30.4	28.2	30.6	33.8	34.1	44.4	45.5	48.9	37.7	32.1	-
68	56.7	31.8	48.2	29.4	37.9	36.6	-	32.9	34.1	44.4	34.0	42.5	39.0	33.1	-
69	49.7	28.1	49.1	28.1	36.8	28.8	29.4	31.6	28.3	43.3	34.7	43.8	36.0	30.6	-
75	42.6	26.6	44.3	28.7	30.8	26.9	29.0	27.7	28.1	32.2	38.6	40.5	33.0	28.1	-
76	40.2	29.6	-	-	31.4	28.4	35.3	26.9	30.9	32.0	34.7	39.5	32.9	28.0	-
79	53.6	33.7	51.7	25.8	34.5	30.7	32.5	32.3	33.0	44.3	39.7	44.5	38.0	32.3	-
80	48.1	32.5	46.0	27.8	30.3	27.7	31.3	31.8	33.6	38.4	42.5	43.7	36.1	30.7	-
81	58.4	33.1	45.5	22.6	31.7	29.7	31.0	32.3	31.7	41.0	38.5	44.1	36.6	31.1	-
82	49.1	29.5	37.9	31.2	31.1	28.7	30.3	26.6	28.5	35.1	34.9	37.8	33.4	28.4	-

Site ID	NO_2 Mean Concentrations (µg/m³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (factor) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
83	46.6	34.1	45.1	31.4	35.7	32.5	35.7	31.0	35.4	40.9	45.9	45.3	38.3	32.6	-
84	76.9	47.2	62.6	36.4	49.1	48.4	50.7	45.7	49.0	57.8	50.5	61.4	53.0	45.0	-
85	56.7	32.1	53.3	32.6	40.0	35.1	36.8	34.2	34.6	39.8	48.9	43.1	40.6	34.5	-
88	50.7	30.7	55.3	32.3	34.3	31.4	32.5	30.9	29.1	37.8	43.9	43.2	37.7	32.0	-
90		40.5	34.1	45.4	33.1	33.8	36.6	31.0	35.7	45.9	41.1	46.4	38.5	32.7	-
91	55.7	54.8	50.8	66.1	57.2	52.2	63.8	-	47.3	59.6	60.1	58.8	56.9	48.4	-
93	54.1	52.1	47.0	57.5	46.9	42.7	56.6	47.8	48.3	58.6	46.5	60.6	51.6	43.8	-
95	31.3	43.5	44.0	25.8	34.3	30.2	30.5	30.8	34.3	40.6	41.6	41.4	35.7	30.3	-
96	-	41.0	70.7	34.1	43.3	41.5	46.0	44.4	45.0	47.3	43.0	51.1	46.1	39.2	-
97	-	-	-	42.7	52.7	53.0	49.1	48.7	49.0	61.4	61.0	58.9	52.9	47.87*	-
101	9.8	8.5	8.2	8.3	5.2	6.6	5.4	5.3	5.7	12.1	11.4	10.9	8.1	6.9	-
103	-	9.7	13.2	-	8.0	8.5	7.9	10.7	7.8	13.1	12.1	13.4	10.4	8.9	-
105	13.7	8.6	20.5	8.3	7.2	8.4	7.0	6.7	7.5	12.0	15.1	13.8	10.7	9.1	-
106	50.6	40.8	34.6	48.3	39.7	34.3	44.0	40.1	42.3	45.2	41.5	46.3	42.3	36.0	-
107	40.5	32.7	32.1	45.5	34.4	32.8	41.9	34.1	33.3	42.1	34.2	40.4	37.0	31.5	-
108	67.3	53.8	105.7	59.7	63.1	65.2	63.9	58.2	62.0	64.9	72.9	62.4	66.6	56.6	-
110	33.8	34.8	41.1	33.9	-	35.6	33.7	22.6	30.7	36.2	38.9	-	34.1	29.0	-
111	48.3	46.5	47.7	38.9	44.6	40.7	39.6	31.9	42.4	41.1	42.2	51.8	43.0	36.5	-
113	-	-	33.1	46.8	38.9	-	42.8	30.0	39.5	44.3	38.1	39.8	39.3	33.94*	-
114	43.4	29.5	52.2	26.3	24.1	25.3	24.4	37.8	28.8	33.0	37.3	36.9	33.3	28.3	-
116	35.7	30.0	24.3	31.4	26.1	-	27.6	24.7	25.4	32.6	26.1	32.3	28.7	24.4	-
117	73.0	58.9	47.6	67.6	54.4	55.6	66.8	39.4	62.3	65.0	54.9	62.9	59.0	50.2	-
118	76.0	60.5	47.8	79.2	60.3	61.3	73.4	56.3	70.4	72.7	69.0	73.7	66.7	56.7	-
119	33.3	40.8	44.8	26.0	32.6	26.8	27.4	26.7	28.4	36.0	42.1	39.2	33.7	28.6	-
122	45.1	34.5	30.8	33.4	29.4	28.3	36.6	28.0	35.9	39.8	30.7	39.5	34.3	29.2	-
124	37.8	28.0	24.9	31.2	25.7	21.9	29.1	24.9	33.4	33.2	45.4	42.1	31.5	26.7	-
128	41.0	36.9	71.4	38.8	34.1	31.5	30.8	28.3	31.7	35.3	53.3	43.3	39.7	33.7	-
129	-	23.3	37.2	21.8	27.0	25.5	25.8	25.3	26.7	24.5	33.9	38.0	28.1	23.9	-
132	45.3	44.0	-	31.5	28.5	26.9	-	28.6	33.3	35.1	32.6	41.5	34.7	29.5	-
133	NC	NC	NC	NC	24.0	18.7	18.1	16.4	22.4	26.8	33.6	33.6	24.2	21.80*	-

Notes:

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

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

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

(2) Distance corrected to nearest relevant public exposure.

Appendix 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 exceedences 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'[47], in combination with other packages, within RStudio[48], version 1.1.1453, as operated within the open-source R-Programme[49] computational language for environmental statistical computing and graphics, version 3.5.1. This utility, with the aid of published literature[50], 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 NO_2 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 2018 has been described by the AEA_DifTPAB_v04.xls spreadsheet[51] 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 2018 has been reproduced in Table C.1 below.

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

[48] RStudio Inc, *windows NT 6.1 version 1.0.136*, 2016

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

[50] 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

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

Table C.1 – Spreadsheet checking precisions and accuracy of colocation study

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	06/12/2017	03/01/2018	36.0	36.7	35.1	36	0.8	2	2.0
2	03/01/2018	31/01/2018	34.8	34.4	35.0	35	0.3	1	0.8
3	31/01/2018	28/02/2018	35.1	33.8	33.4	34	0.9	3	2.2
4	28/02/2018	28/03/2018	40.6	38.9	40.2	40	0.9	2	2.2
5	28/03/2018	02/05/2018	24.8	25.6	23.8	25	0.9	4	2.2
6	02/05/2018	06/06/2018	26.7	26.6	27.7	27	0.6	2	1.5
7	06/06/2018	04/07/2018	23.2	24.4	24.0	24	0.6	3	1.5
8	04/07/2018	01/08/2018	26.4	25.4	25.3	26	0.6	2	1.5
9	01/08/2018	05/09/2018	26.8	24.7	26.2	26	1.1	4	2.7
10	05/09/2018	03/10/2018	27.9	27.6	27.7	28	0.2	1	0.4
11	03/10/2018	31/10/2018	28.5	29.8	30.5	30	1.0	3	2.5
12	31/10/2018	05/12/2018	33.7	34.2	29.7	33	2.5	8	6.1
13	05/12/2018	09/01/2019	35.6	32.6	35.2	34	1.6	5	4.0

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
30.25	99.4	Good	Good
31.68	99.5	Good	Good
32.64	99.9	Good	Good
29.87	100	Good	Good
25.73	99.8	Good	Good
22.13	99.2	Good	Good
19.65	99.9	Good	Good
20.62	100	Good	Good
18.35	99.9	Good	Good
21.02	99.9	Good	Good
25.21	99.9	Good	Good
28.4	99.8	Good	Good
29.66	100	Good	Good
Overall survey -->		Good precision	Good Overall DC

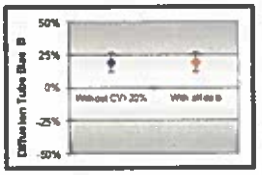
Site Name/ ID: Tubes 47, 48, 50

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%
Bias calculated using 13 periods of data
Bias factor A 0.85 (0.8 - 0.9)
Bias B 18% (11% - 25%)
Diffusion Tubes Mean: 30 µgm^{-3}
Mean CV (Precision) 3
Automatic Mean: 26 µgm^{-3}
Data Capture for periods used 100%
Adjusted Tubes Mean: 26 (24 - 27) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 13 periods of data
Bias factor A 0.85 (0.8 - 0.9)
Bias B 18% (11% - 25%)
Diffusion Tubes Mean: 30 µgm^{-3}
Mean CV (Precision) 3
Automatic Mean: 26 µgm^{-3}
Data Capture for periods used 100%
Adjusted Tubes Mean: 26 (24 - 27) µgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

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 comparison[52]. 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. NO_2 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 NO_2 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)

[52] 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)
2018	0.95	18	✓	0.74[λ]	(0.59 – 0.91)

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

PM_{10} 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 considered[53] as an EU equivalent method without correction.

The Local Authority has made 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 PM_{10} 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.

[53] 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 (µg/m^3)	Period Mean (µg/m^3)	Ratio
55	NO_2 Passive Diffusion Tube	43.82	16.8	0.967
97	NO_2 Passive Diffusion Tube	52.94	15.3	1.06
113	NO_2 Passive Diffusion Tube	39.26	16.0	1.02
133	NO_2 Passive Diffusion Tube	24.20	15.3	1.06
Average				1.03

QA/QC of Automatic Monitoring

During 2018 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/NOx). 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 2018 the Local Authority made use of three continuous monitoring analysers for PM_{10}. The Local Authority operated 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 operated 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. Where available 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 2018 the Local Authority made use of 54 Nitrogen Dioxide 'Palmes type' passive diffusion tubes. They were exposed over a period of one month, in accordance with the 2018 Diffusion Tube Monitoring Calendar, and analysed by SOCOTEC Ltd's Didcot Laboratory using in-house laboratory method HS/WI/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 Scheme[54]; achieving the highest rank of "satisfactory"[55].

[54] Formerly the Workplace Analysis Scheme for Proficiency [WASP]
[55] HSL for BV/NPL on behalf of Defra and the Devolved Administrations, *Summary of Laboratory Performance in AIR NO_2 Proficiency Testing Scheme (April 2017 – February 2019)*, March 2019

Appendix D: AQMA Boundary Maps

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

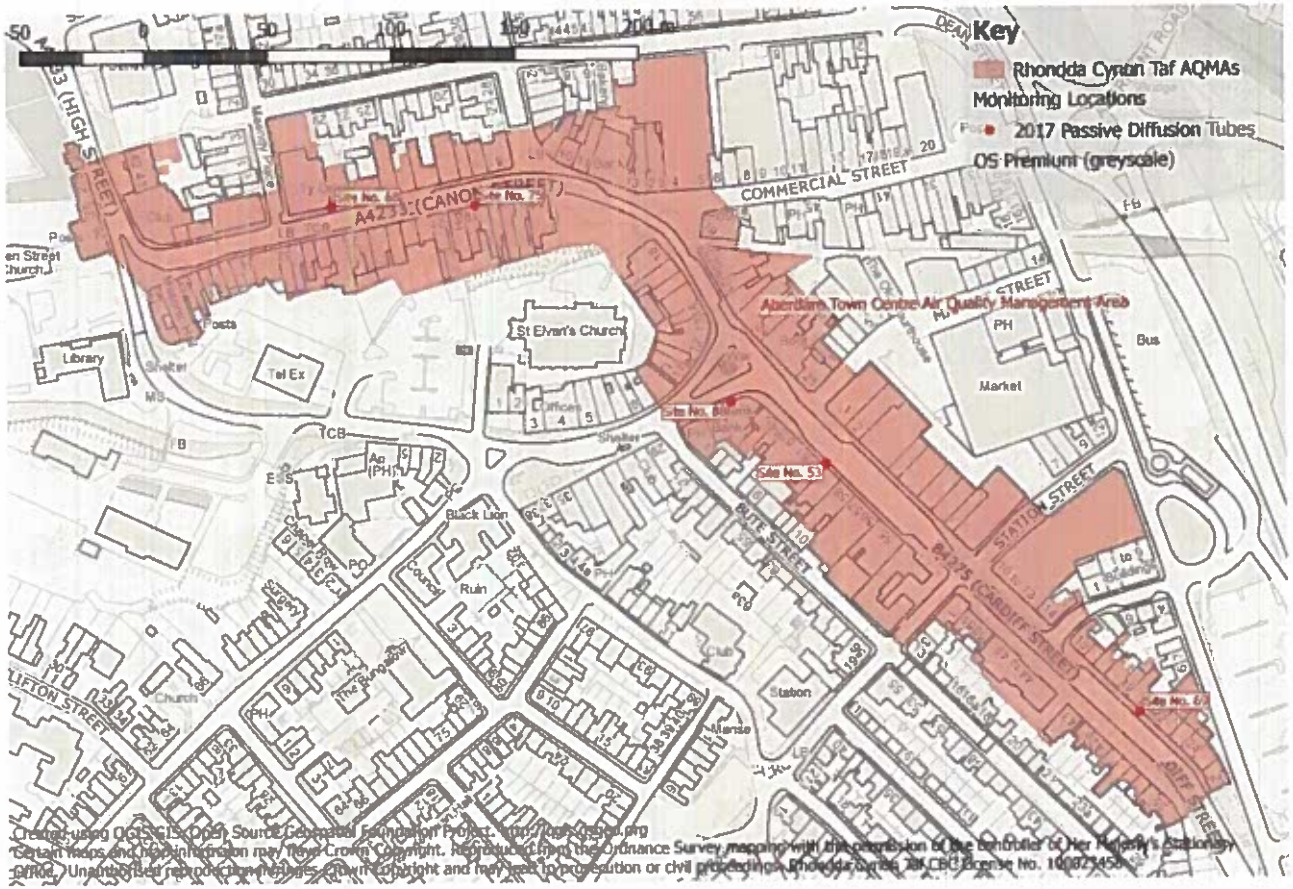


Figure D.2 – Broadway Air Quality Management Area

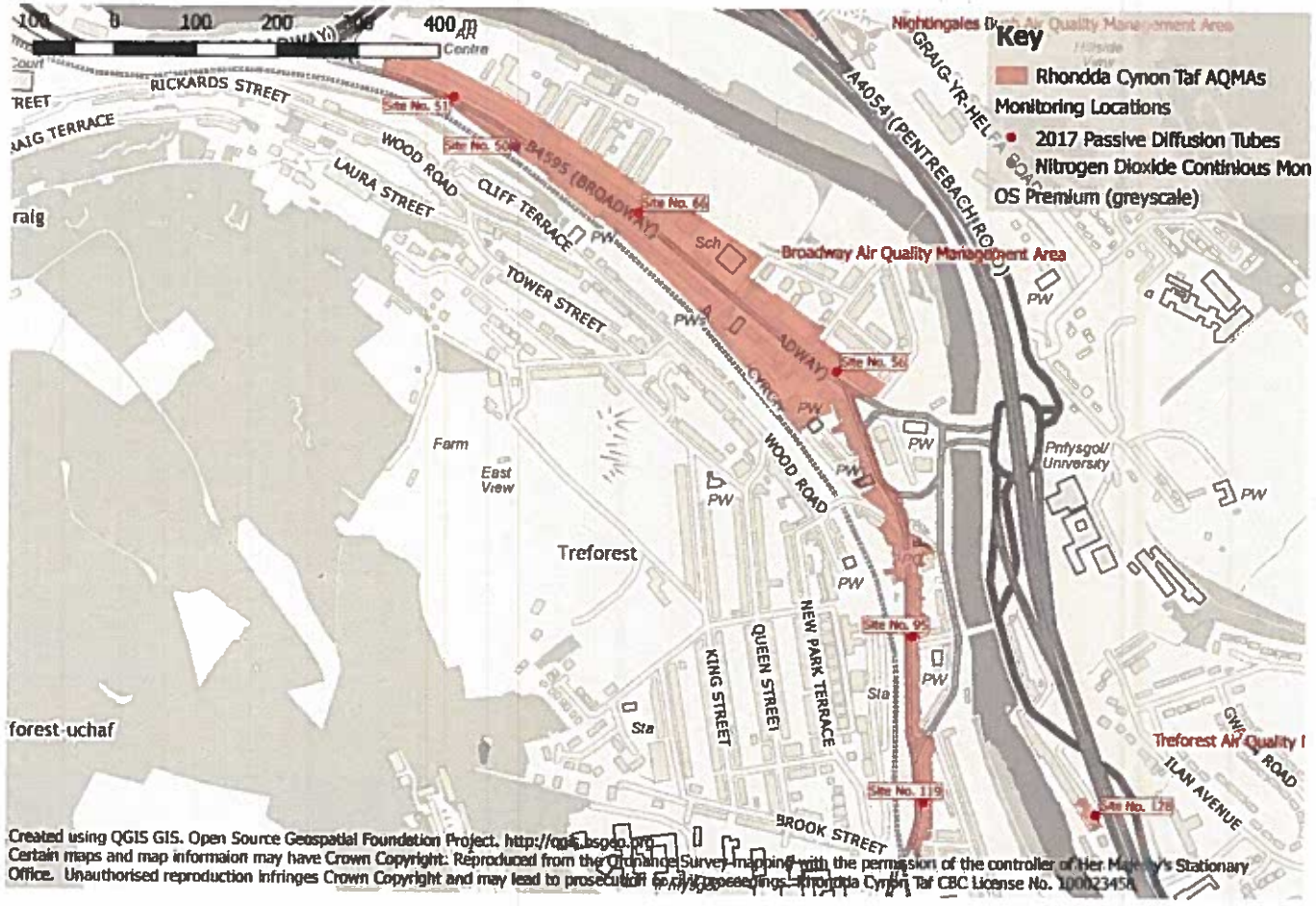


Figure D.3 – Church Village Air Quality Management Area

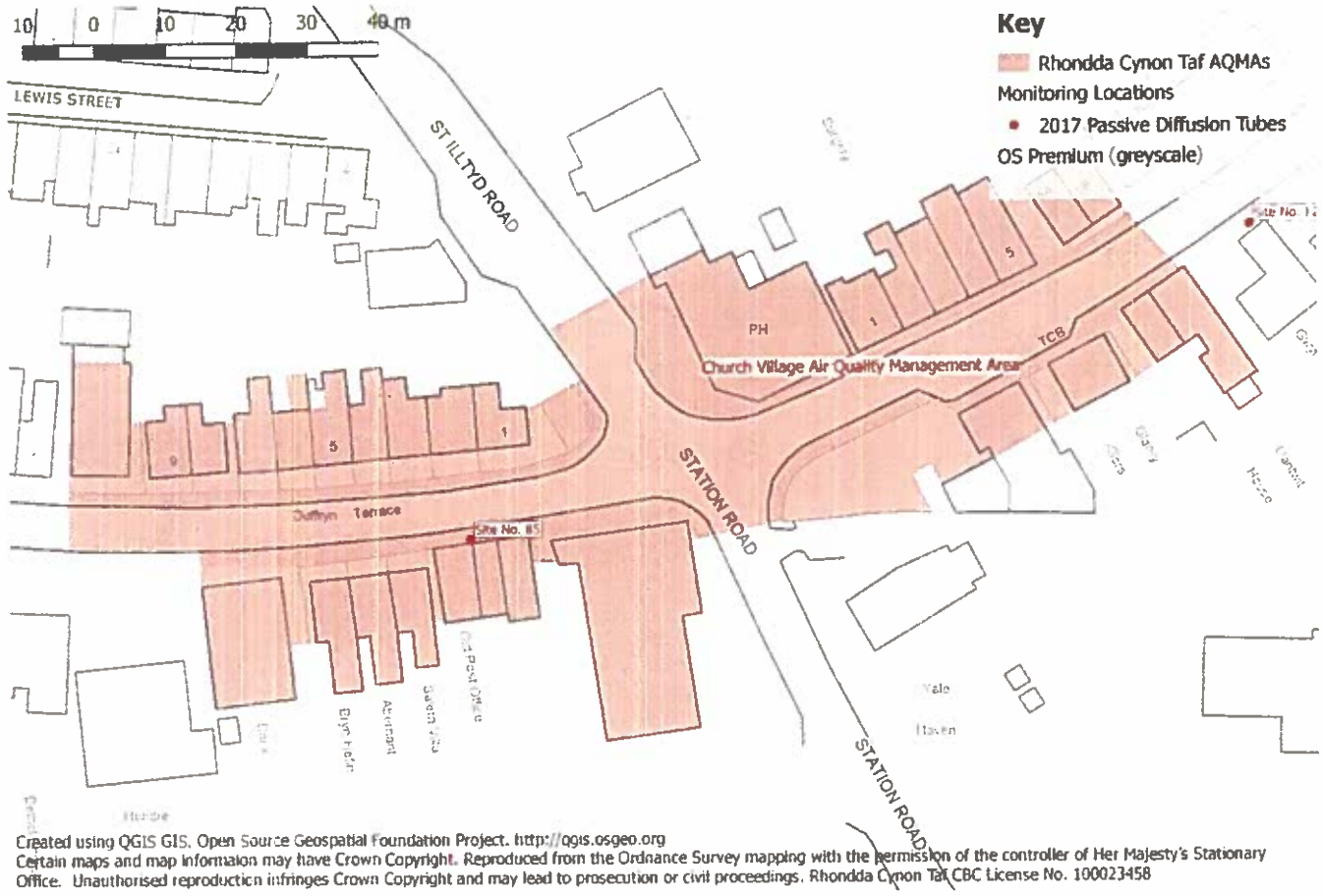


Figure D.4 –Cilfynydd Air Quality Management Area

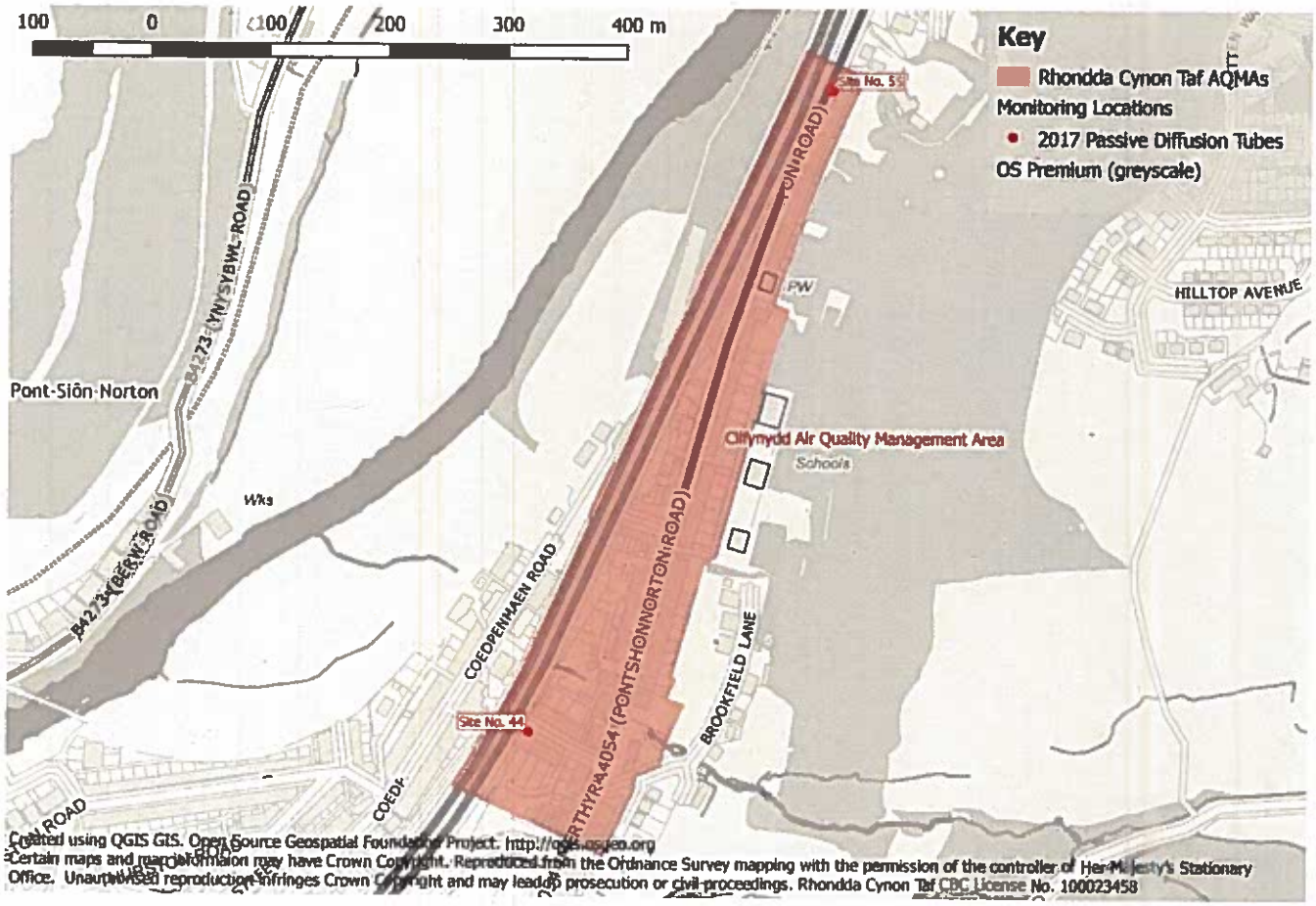


Figure D.5 –Cymmer Air Quality Management Area

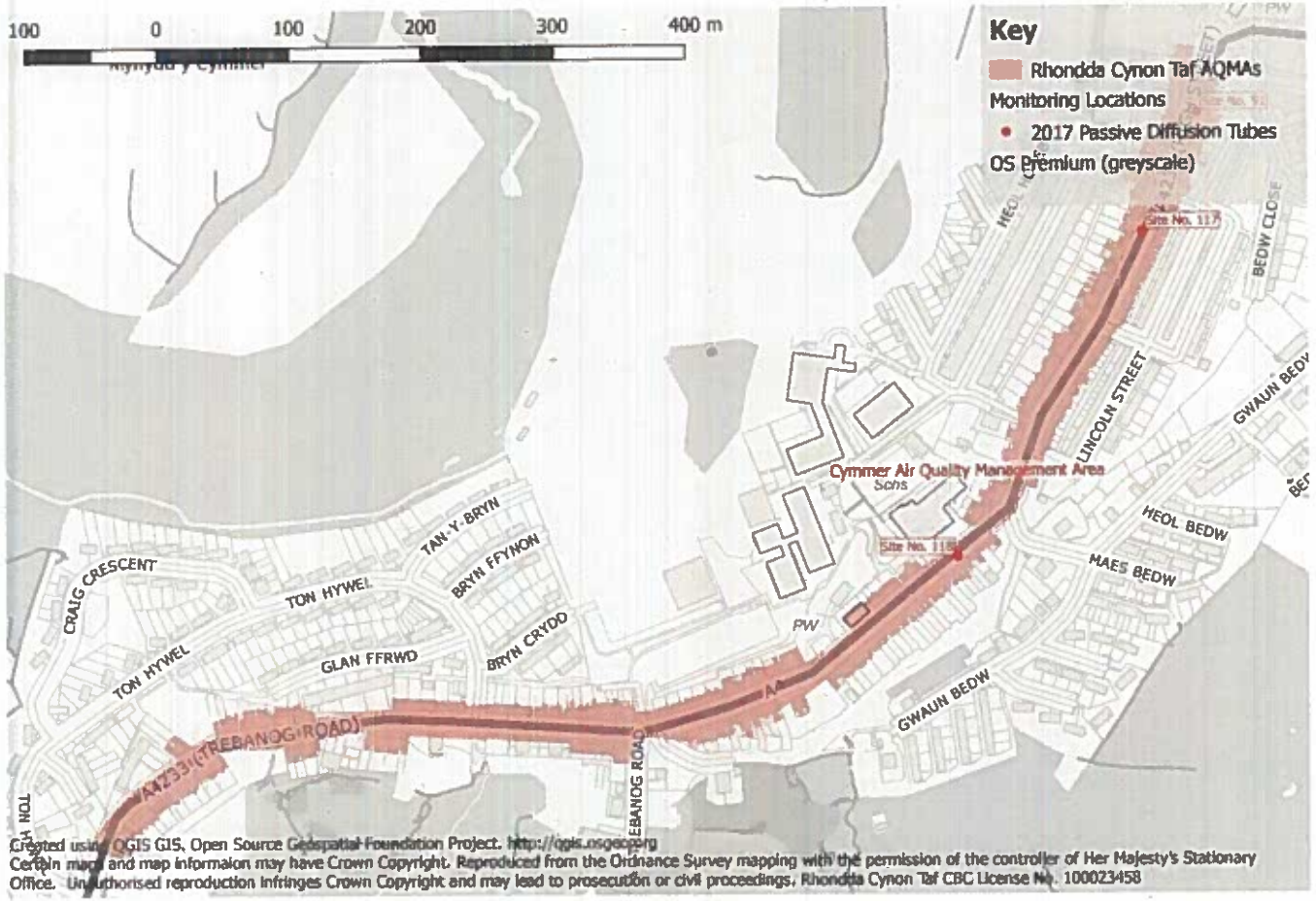


Figure D.6 –Ferndale Air Quality Management Area

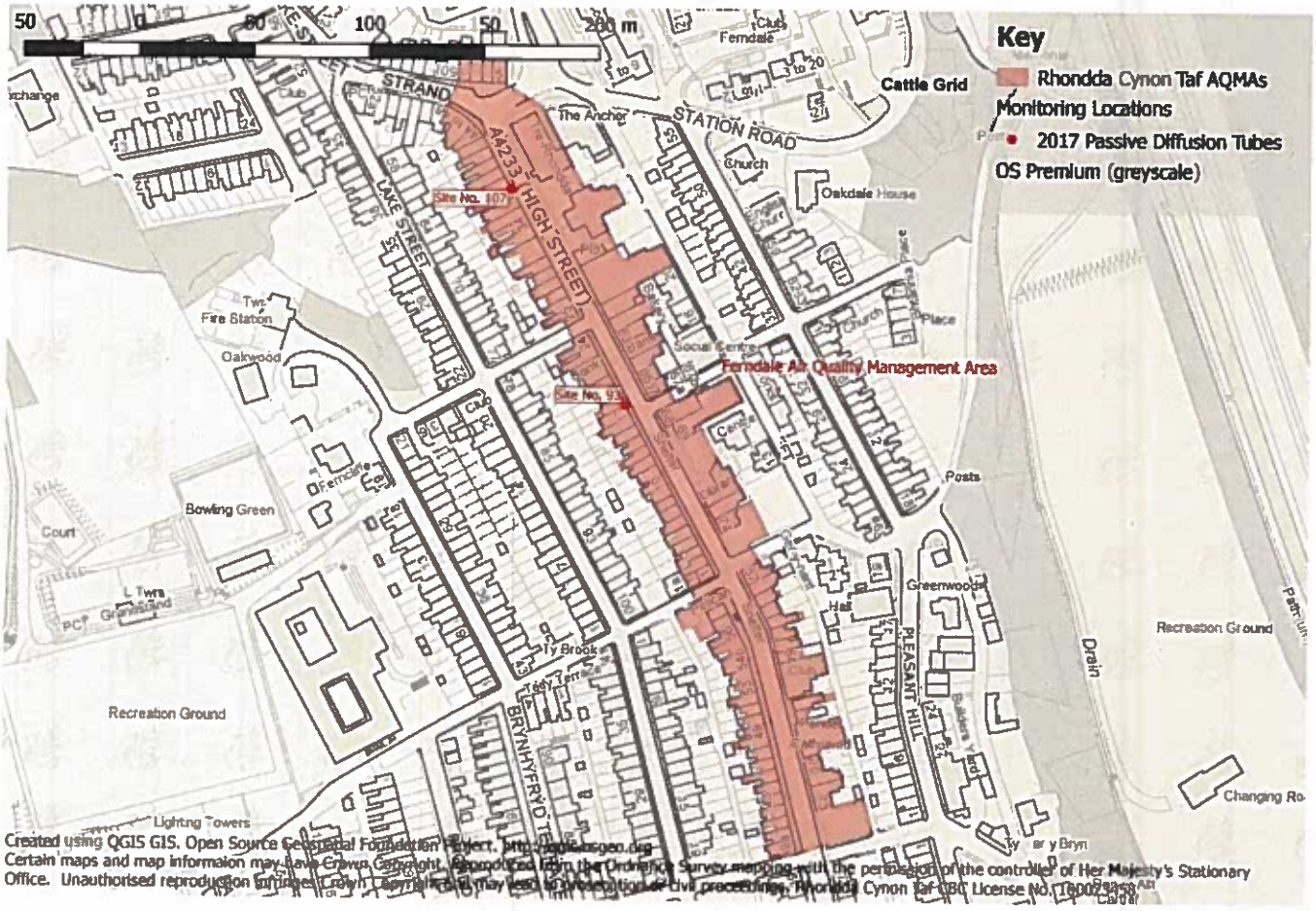


Figure D.7 –Llanharan Air Quality Management Area

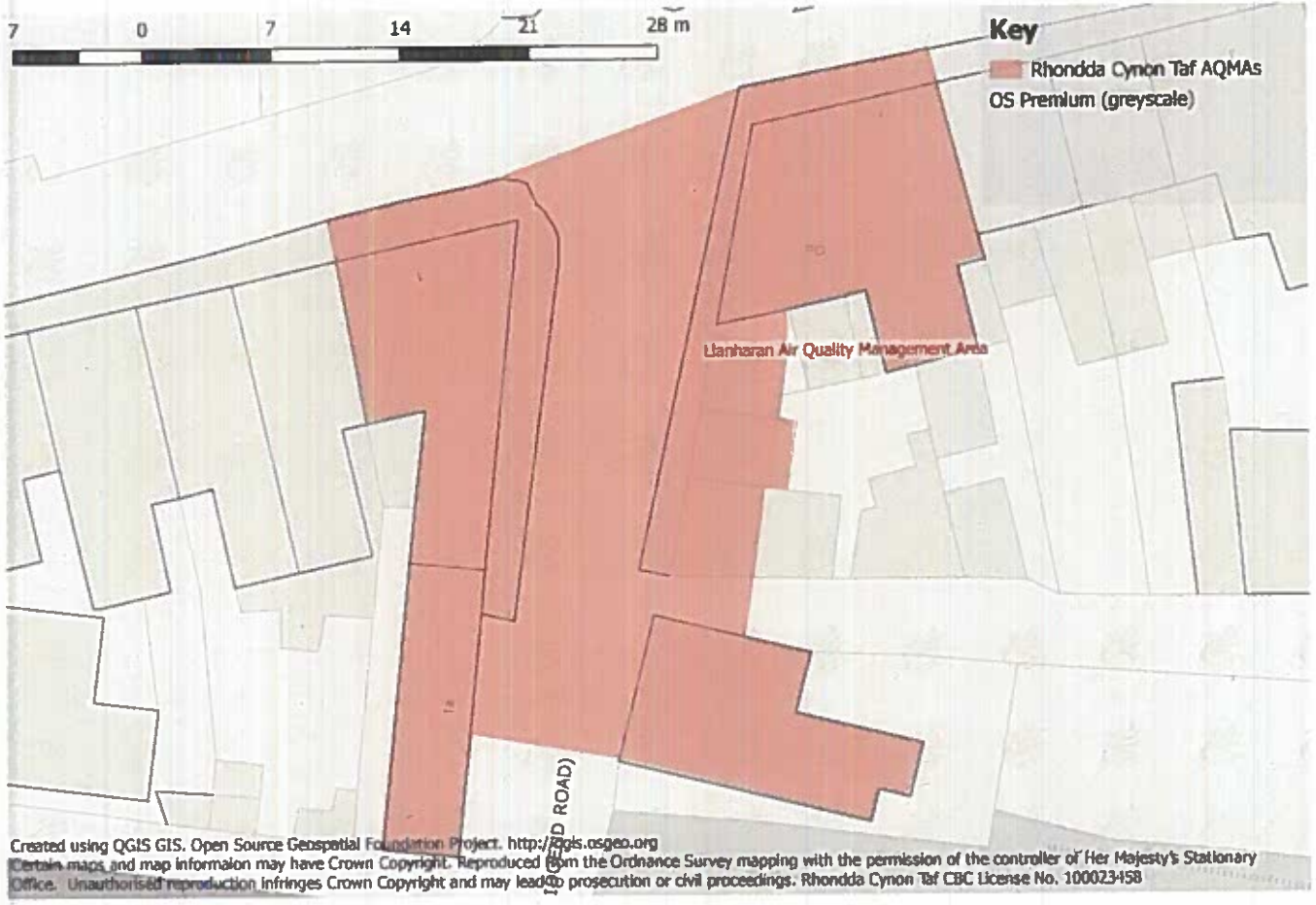


Figure D.8 –Llwynypia Air Quality Management Area

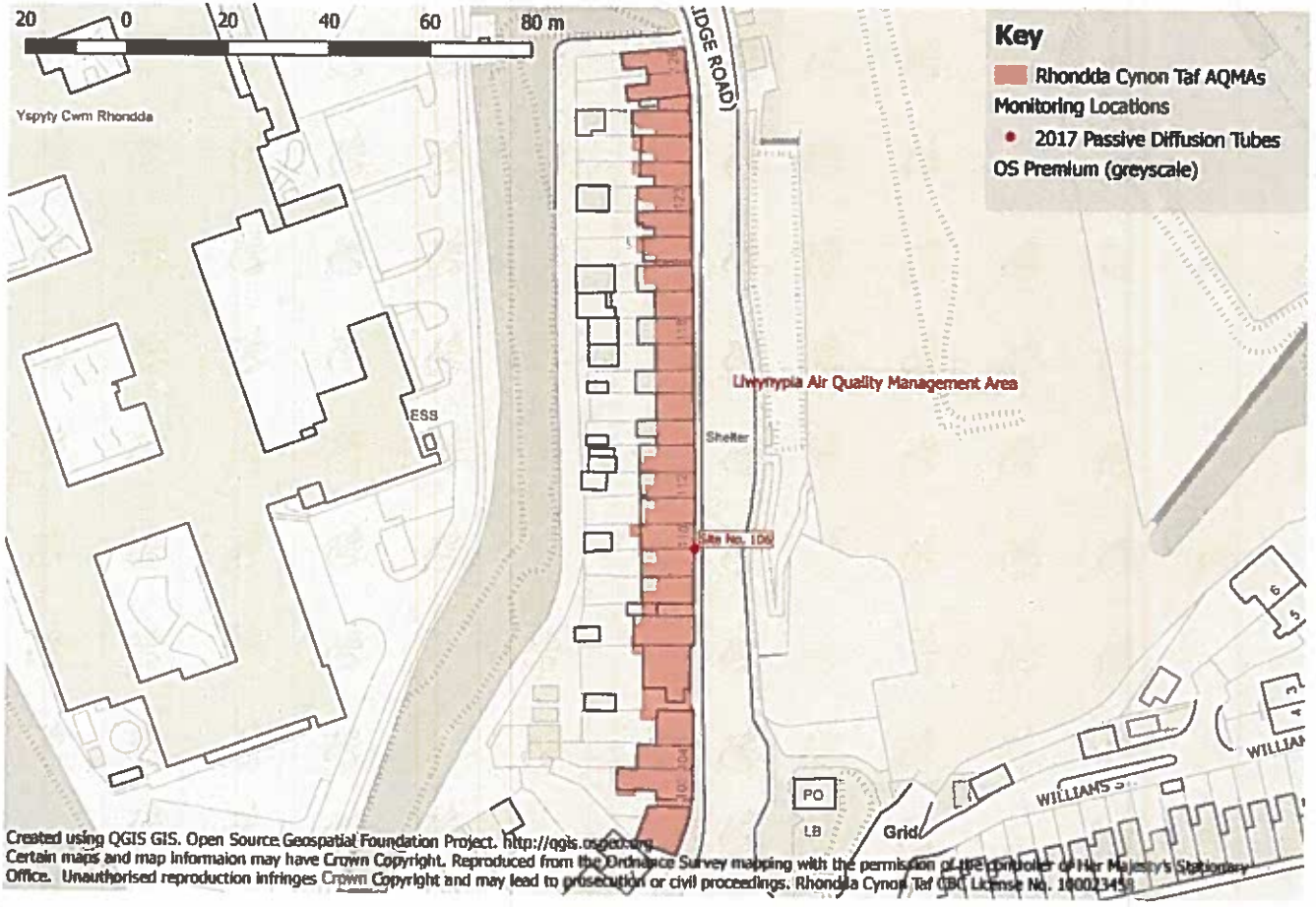


Figure D.9 – Mt Ash Town Centre Air Quality Management Area

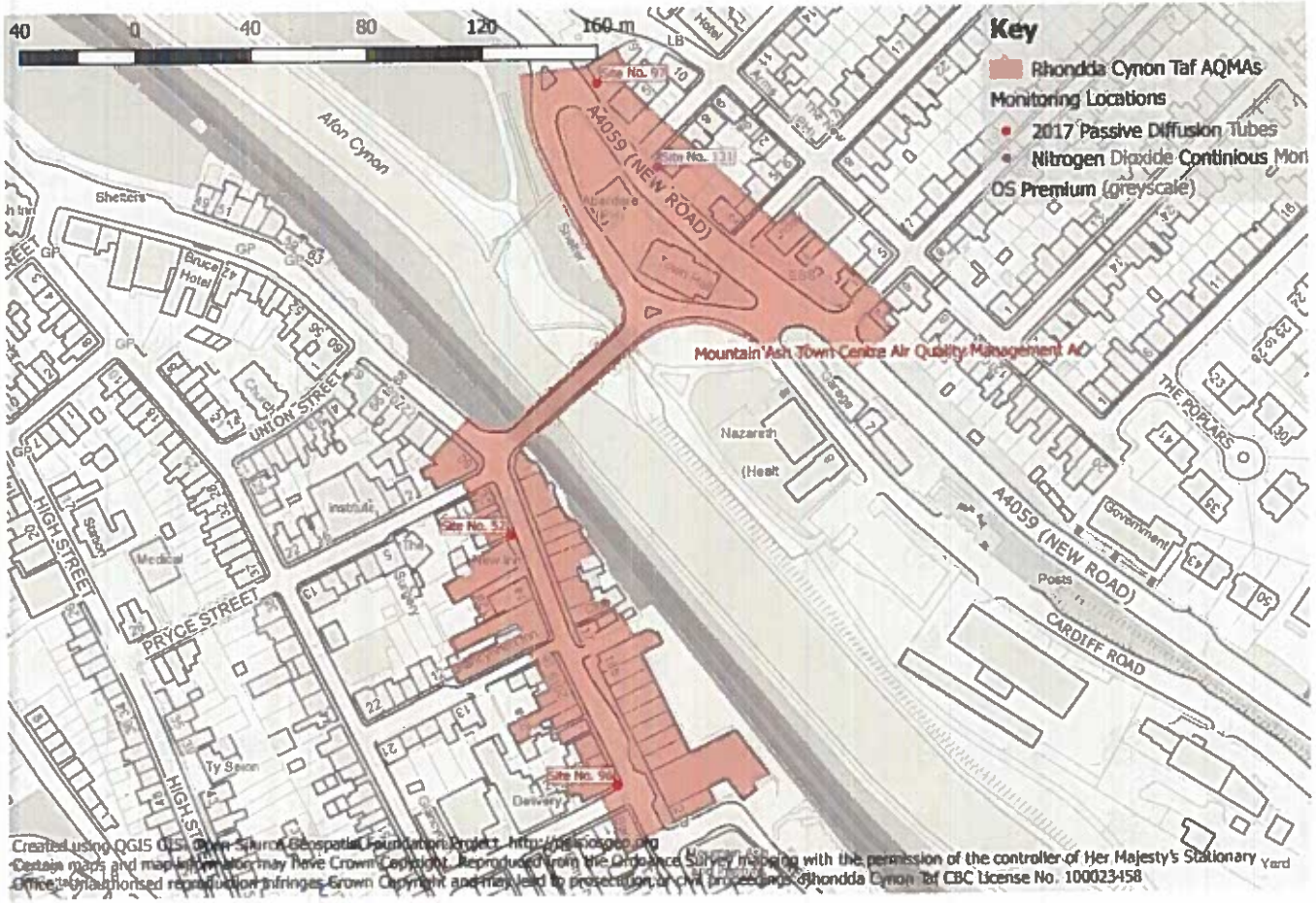


Figure D.10 – Mwyndy Air Quality Management Area

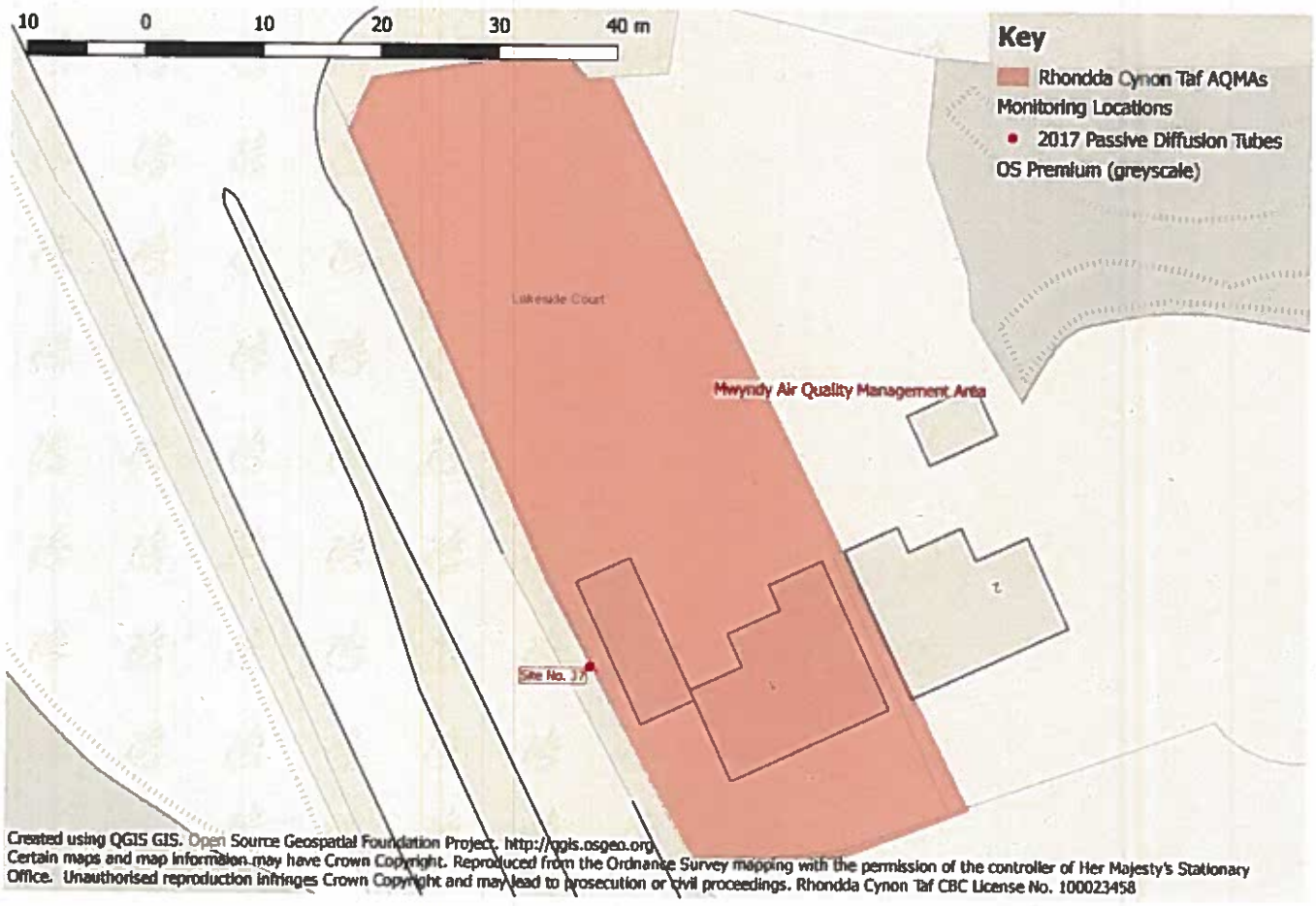


Figure D.11 – Nantgarw Air Quality Management Area

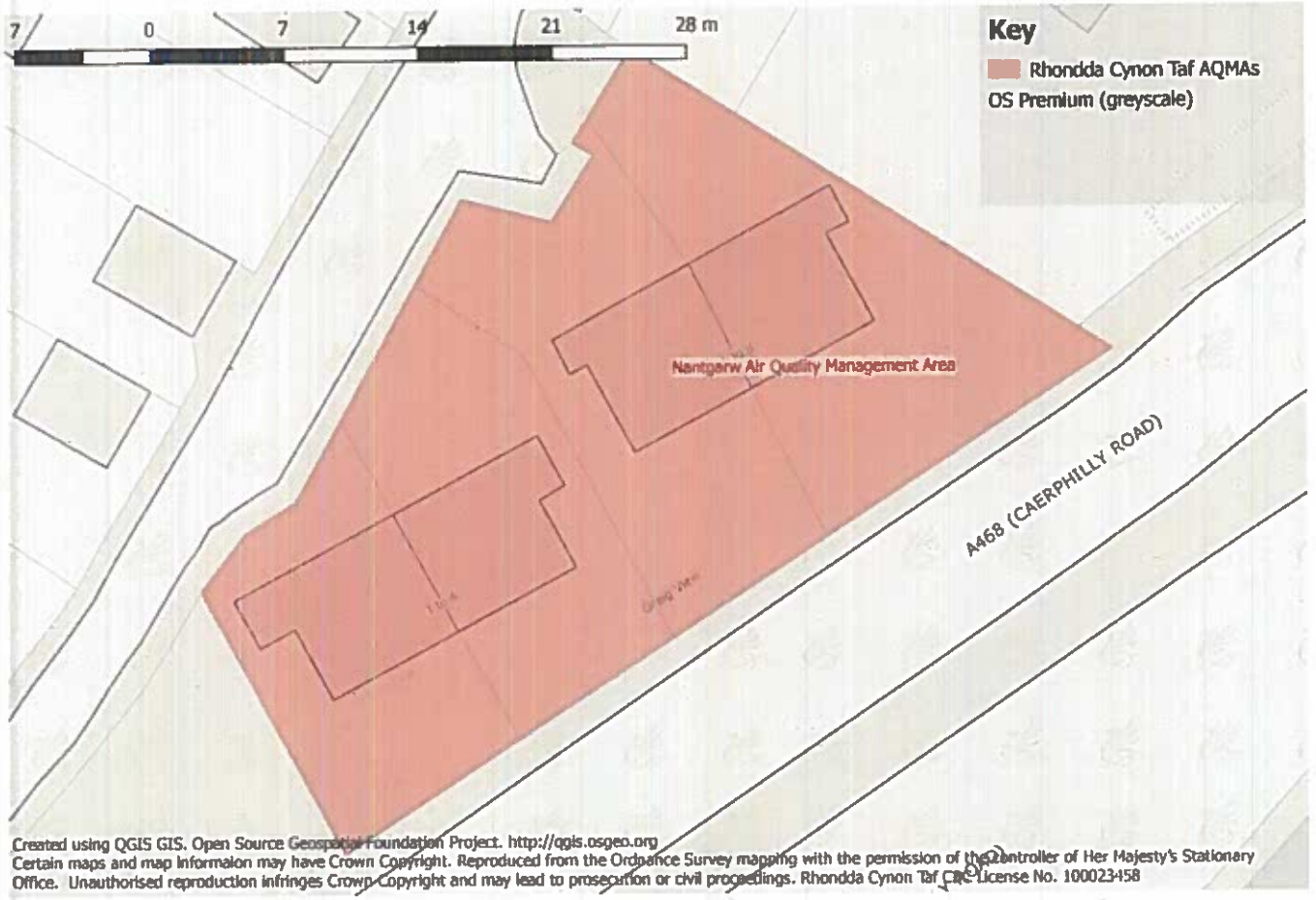


Figure D.12 – Nightingales Bush Air Quality Management Area

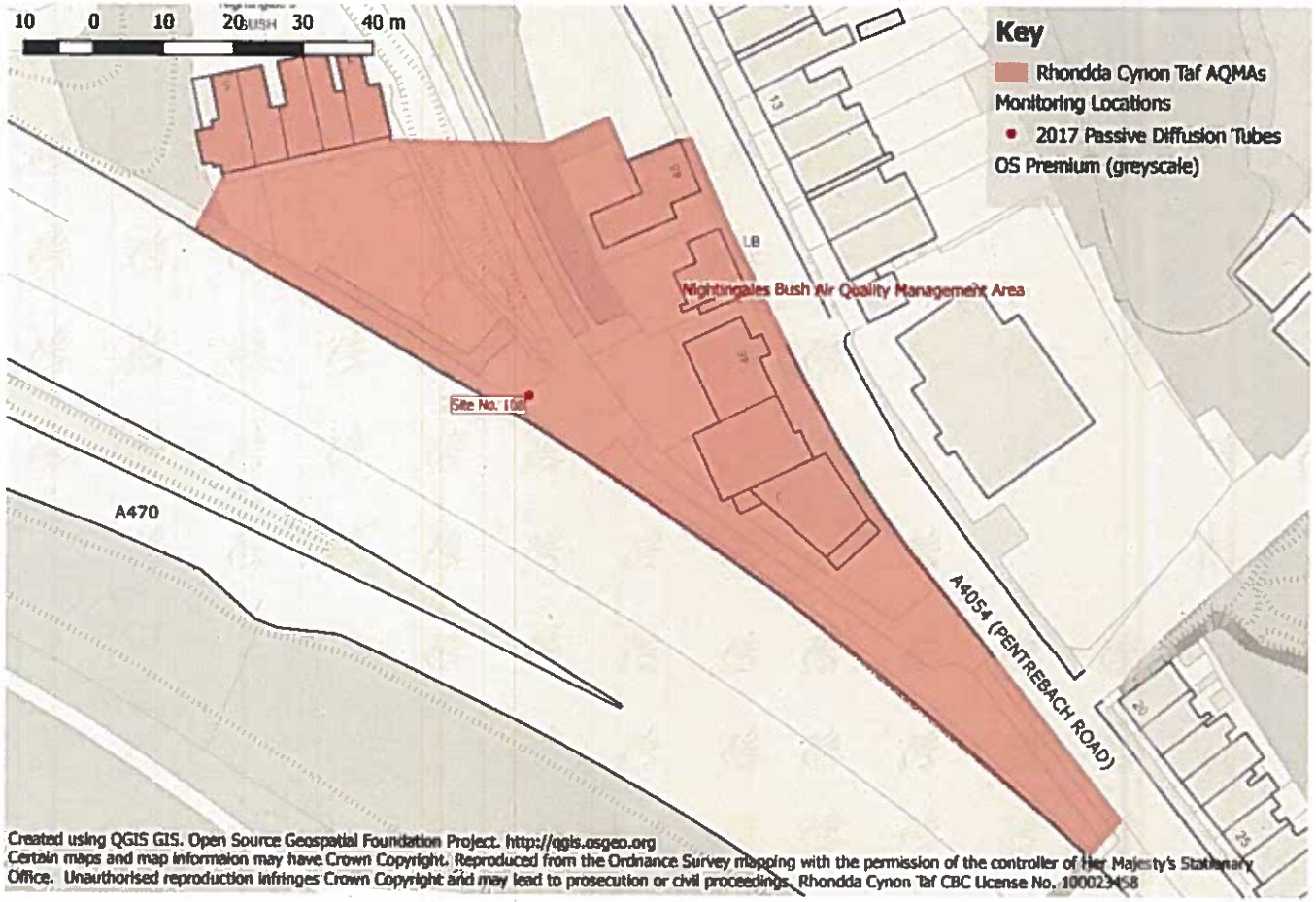


Figure D.13 – Pontypridd Town Centre Air Quality Management Area

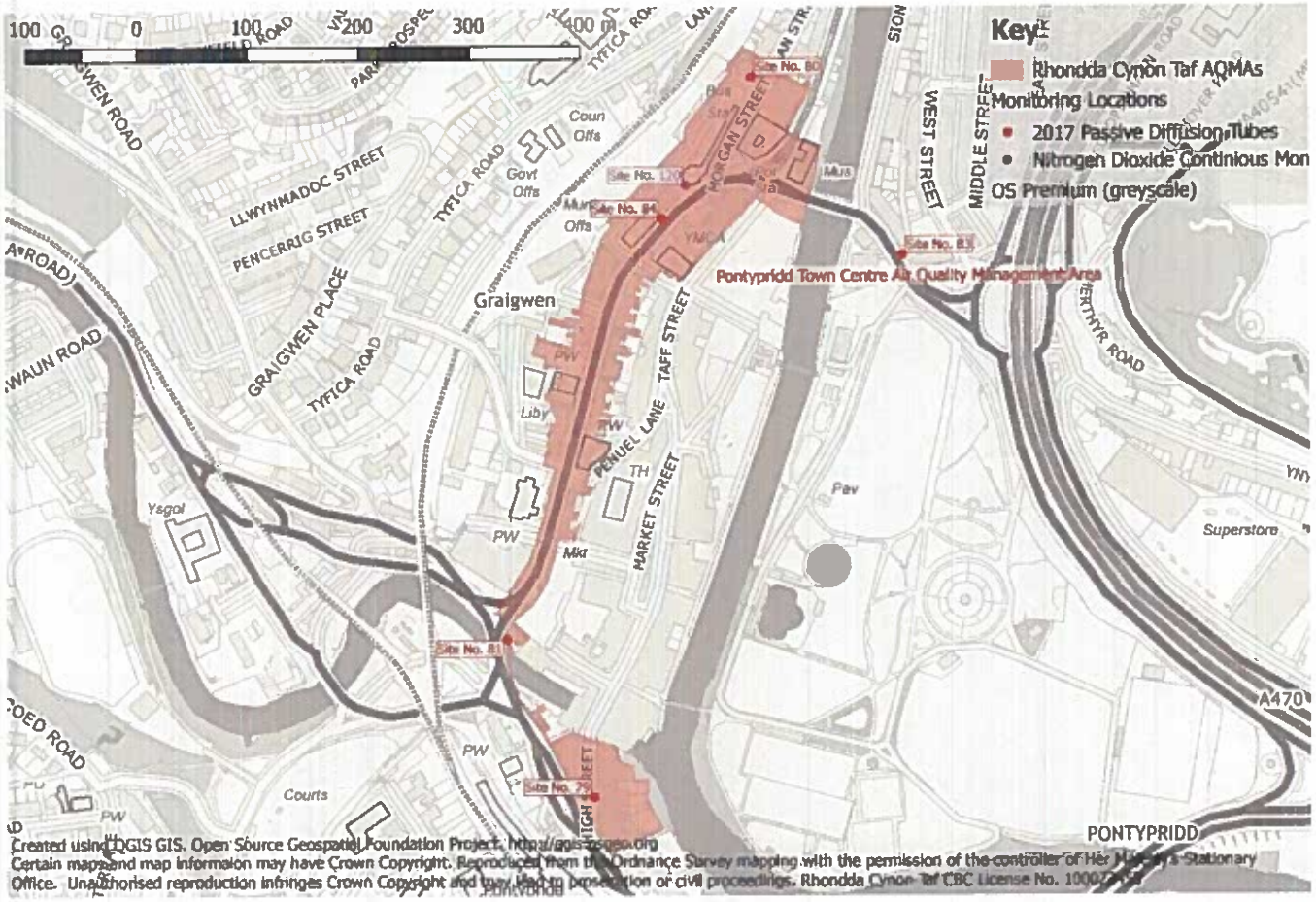


Figure D.14 – Tonyrefail Air Quality Management Area

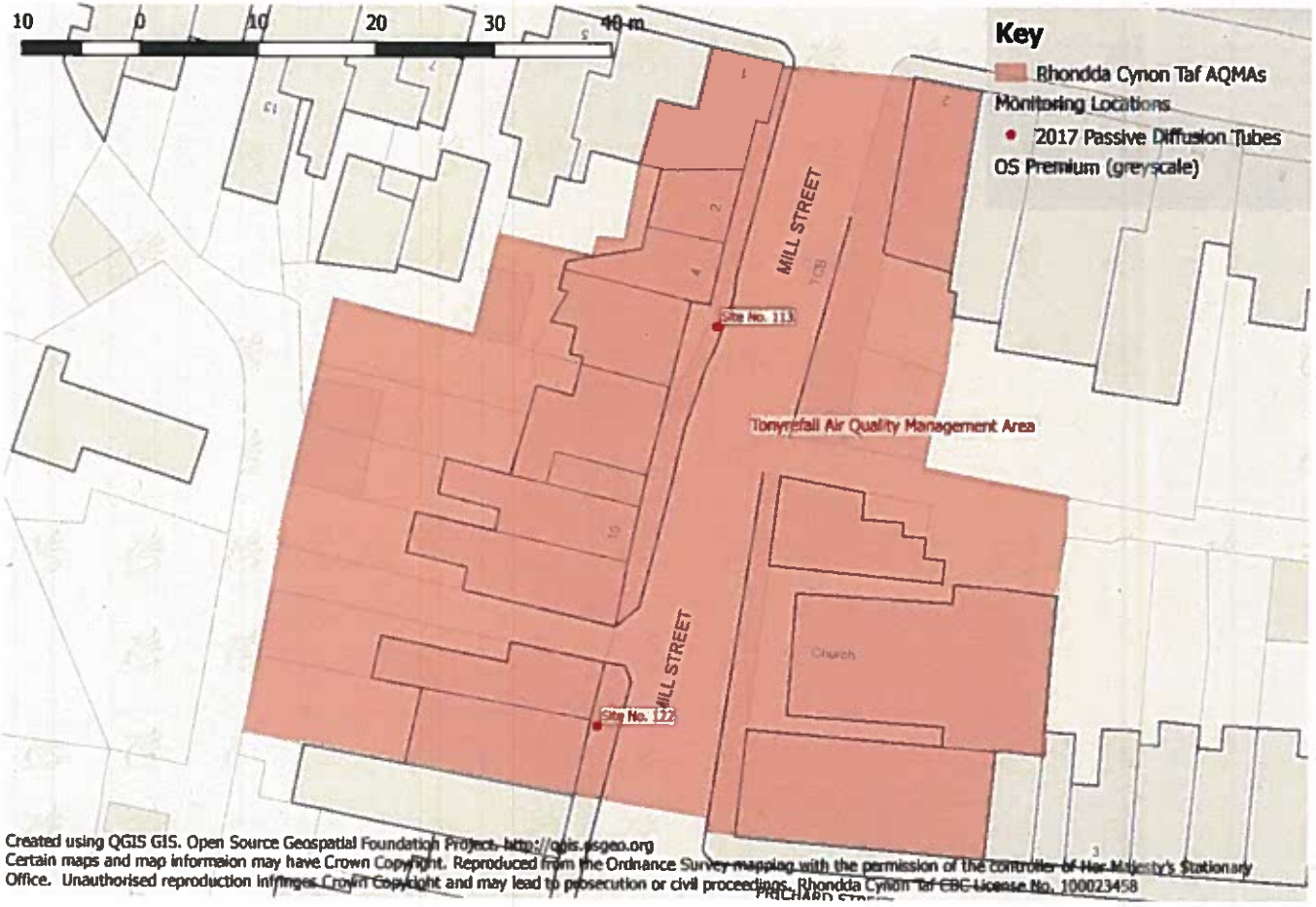


Figure D.15 – Treforest Air Quality Management Area

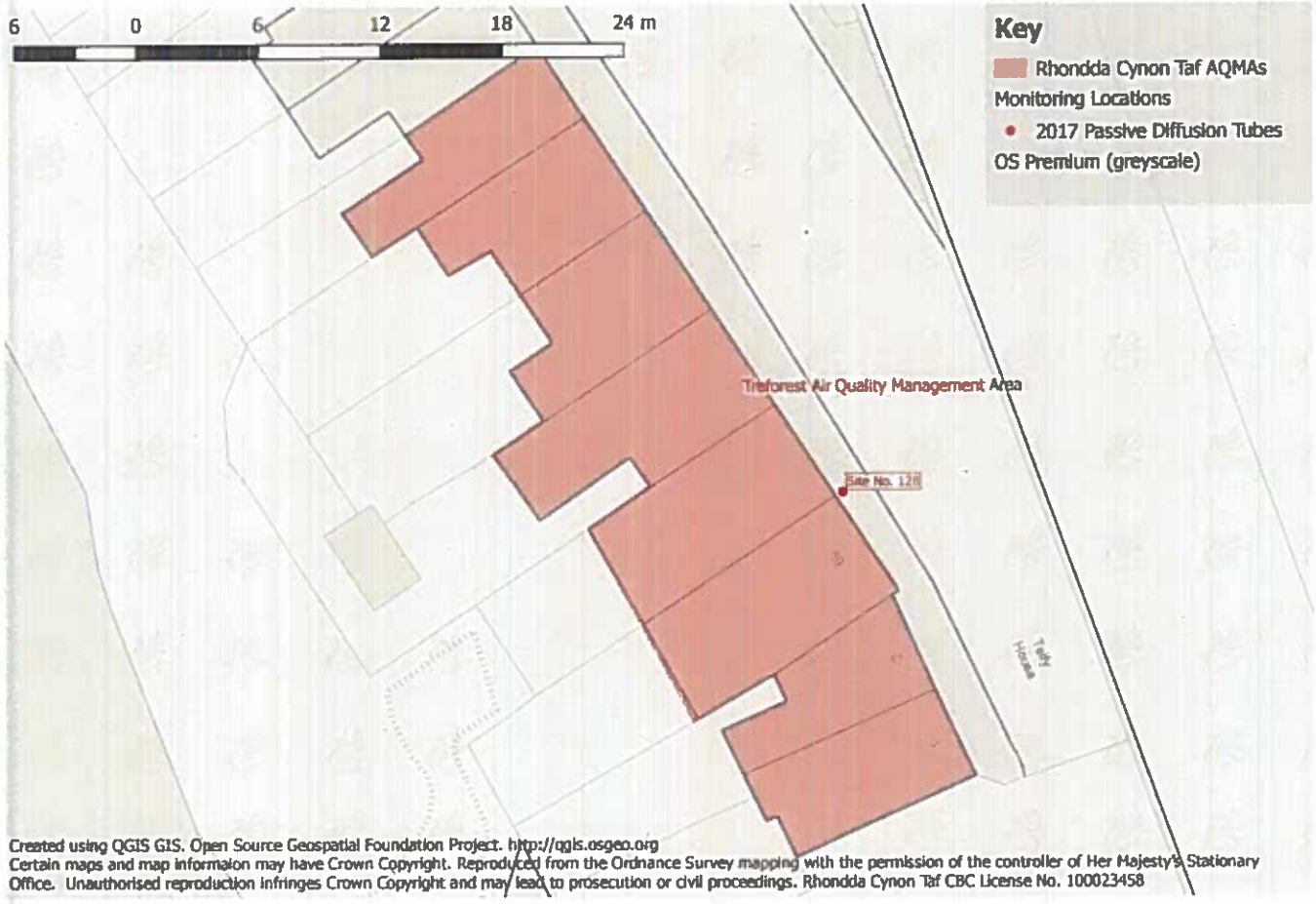
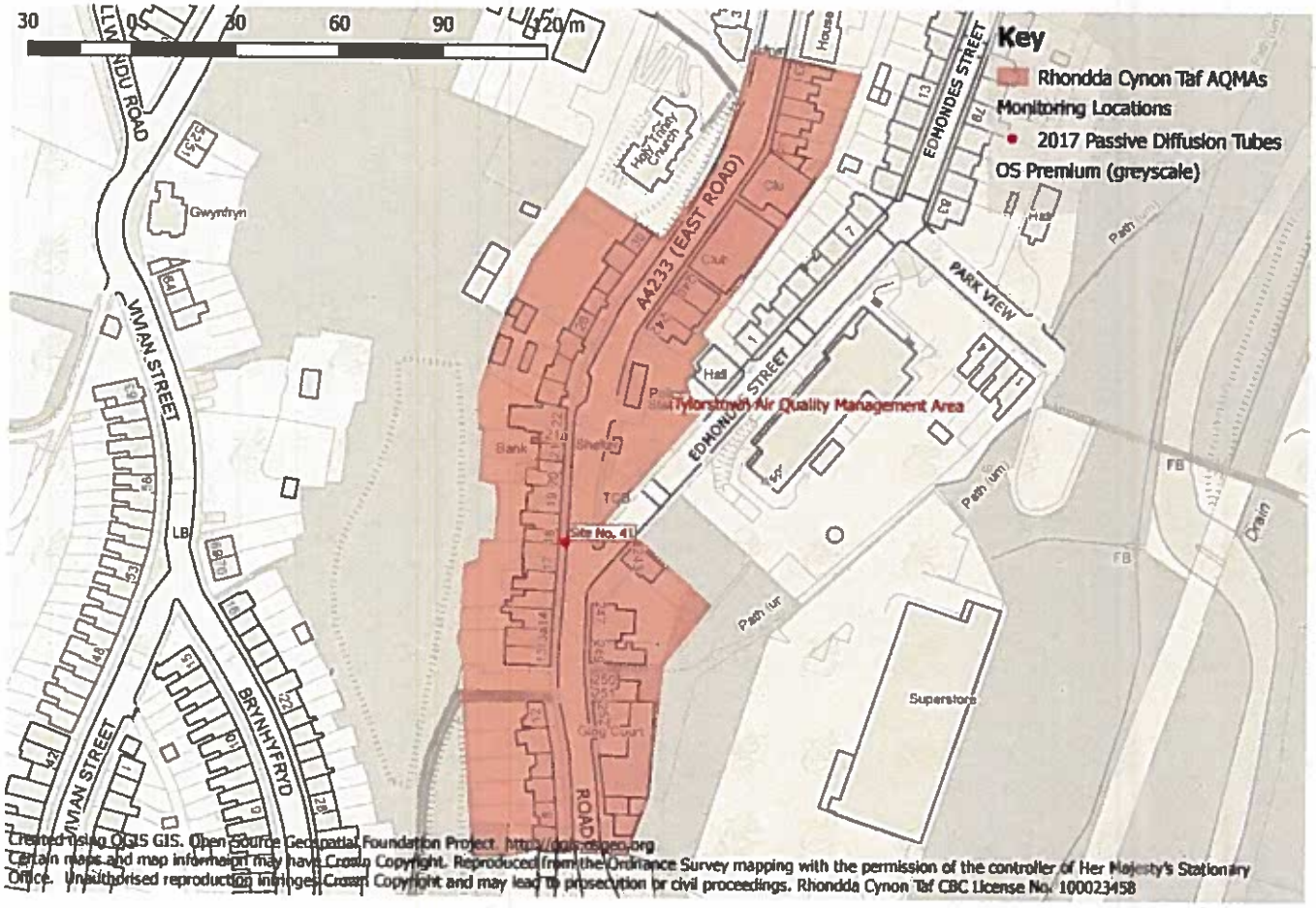


Figure D.16 – Tylorstown Air Quality Management Area



Glossary of Terms

Abbreviation	Description
4th 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_6H_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_4H_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, $\mu g/m^3$) 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 99.8th 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 2nd 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