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Llywodraeth Cymru
Welsh Government

Welsh Government
Consultation Document

Tackling Roadside Nitrogen Dioxide Concentrations in Wales

Achieving Compliance with Nitrogen Dioxide Limit Levels on the
Motorway and Trunk Road Network

Date of issue: 21 September 2018
Action required: Responses by 2 November 2018

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.
This document is also available in Welsh.

Overview An Interim Welsh Government supplemental plan to the UK plan for tackling roadside nitrogen dioxide concentrations 2017 - Tackling Roadside Nitrogen Dioxide Concentrations in Wales was published on the 31 July. This plan contained potential measures to achieve compliance with limit values for nitrogen dioxide (NO₂) laid down by the Ambient Air Quality Directive (2008/50/EC) and the Air Quality Standards (Wales) Regulations 2010 at 5 locations on the motorway and trunk road network in Wales.

This consultation seeks views on the final measures proposed at each of the 5 locations following the completion of detailed investigations and modelling at the end of August.

How to respond Please use the consultation response form at Annex 1 of this document

Further information and related documents Consultation on the Welsh Government supplemental plan to the UK plan for tackling roadside nitrogen dioxide concentrations 2017 - Tackling Roadside Nitrogen Dioxide Concentrations in Wales

<https://beta.gov.wales/tackling-roadside-nitrogen-dioxide-concentrations-wales>

Summary of Response for the Consultation on the Welsh Government supplemental plan to the UK plan for tackling roadside nitrogen dioxide concentrations 2017 - Tackling Roadside Nitrogen Dioxide Concentrations in Wales

<https://beta.gov.wales/tackling-roadside-nitrogen-dioxide-concentrations-wales>

Interim Welsh Government supplemental plan to the UK plan for tackling roadside nitrogen dioxide concentrations 2017 - Tackling Roadside Nitrogen Dioxide Concentrations in Wales

<https://gov.wales/topics/environmentcountryside/epq/airqualitypollution/airquality/?lang=en>

A494 Deeside – Welsh Transport Appraisal Guidance (WelTAG) Stage 3 Report

A483 Wrexham – Welsh Transport Appraisal Guidance (WelTAG) Stage 3 Report

A470 Pontypridd – Welsh Transport Appraisal Guidance (WelTAG) Stage 3 Report

M4 Port Talbot J41-J42 - Welsh Transport Appraisal Guidance
(WelTAG) Stage 3 Report

M4 Newport J25-J26 - Welsh Transport Appraisal Guidance
(WelTAG) Stage 3 Report

IMPACT ASSESSMENT REPORT - Consideration of
interventions on the Welsh Government Trunk Road and
Motorway Network for Nitrogen Dioxide reduction

**Contact
details**

For further information:

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General Data Protection Regulation (GDPR)

The Welsh Government will be data controller for any personal data you provide as part of your response to the consultation. Welsh Ministers have statutory powers they will rely on to process this personal data which will enable them to make informed decisions about how they exercise their public functions. Any response you send us will be seen in full by Welsh Government staff dealing with the issues which this consultation is about or planning future consultations. Where the Welsh Government undertakes further analysis of consultation responses then this work may be commissioned to be carried out by an accredited third party (e.g. a research organisation or a consultancy company). Any such work will only be undertaken under contract. Welsh Government's standard terms and conditions for such contracts set out strict requirements for the processing and safekeeping of personal data.

In order to show that the consultation was carried out properly, the Welsh Government intends to publish a summary of the responses to this document. We may also publish responses in full. Normally, the name and address (or part of the address) of the person or organisation who sent the response are published with the response. If you do not want your name or address published, please tell us this in writing when you send your response. We will then redact them before publishing.

You should also be aware of our responsibilities under Freedom of Information legislation

If your details are published as part of the consultation response then these published reports will be retained indefinitely. Any of your data held otherwise by Welsh Government will be kept for no more than three years.

Your rights

Under the data protection legislation, you have the right:

- to be informed of the personal data holds about you and to access it
- to require us to rectify inaccuracies in that data
- to (in certain circumstances) object to or restrict processing
- for (in certain circumstances) your data to be 'erased'
- to (in certain circumstances) data portability
- to lodge a complaint with the Information Commissioner's Office (ICO) who is our independent regulator for data protection.

For further details about the information the Welsh Government holds and its use, or if you want to exercise your rights under the GDPR, please see contact details below:

Data Protection Officer:

Welsh Government

Cathays Park

CARDIFF

CF10 3NQ

e-mail:

Data.ProtectionOfficer@gov.wales

The contact details for the Information Commissioner's Office are:

Wycliffe House

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Wilmslow

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SK9 5AF

Tel: 01625 545 745 or

0303 123 1113

Website: <https://ico.org.uk/>

Foreword

Tackling poor air quality is a priority for the Welsh Government and this is reflected in our national strategy – ‘Prosperity for All’. The Welsh Government is committed to building healthier communities and better environments. The contribution made by the environment to good health cannot be overstated. The actions we take to improve air quality in Wales have a key role in supporting the right conditions for better health, well-being and greater physical activity. We will reduce emissions and deliver vital improvements in air quality through planning, infrastructure, regulation, and health communication measures.

The Welsh Government is working actively, alongside the other devolved administrations, to meet our joint objective with the UK Government to transform the UK’s most polluted towns and cities into clean and healthy urban spaces, supporting those most directly affected and ensuring that vehicle manufacturers play their part to improve the nation’s air quality.

Where sections of the motorway and trunk road network currently exceed Ambient Air Quality Directive and Welsh Regulation limit values for nitrogen dioxide (NO₂) concentrations we have already acted decisively to safeguard public health by the immediate implementation of temporary 50 mph speed limits as soon as our investigations indicated that such action would bring immediate improvements to air quality.

We would now welcome your views on the proposed final measures to achieve compliance with the limit values laid down by the Directive and Regulations at each of these 5 locations.

Ken Skates
Cabinet Secretary for Economy and Transport.

Main Issue

1. This consultation seeks your views on the proposed final measures to achieve compliance with limit values for nitrogen dioxide (NO₂) laid down by the Ambient Air Quality Directive (2008/50/EC) and the Air Quality Standards (Wales) Regulations 2010 at locations on the motorway and trunk road network in Wales where the latest air quality modelling indicates these levels are currently being exceeded.
2. The proposed final measures have been identified from the Welsh Transport Appraisal Guidance (WelTAG) studies published alongside this consultation and referenced above. The overarching objective of these studies was to identify for each location the measure or package of measures that:
 - (a) will achieve compliance with the NO₂ limit values as soon as possible;
 - (b) will do so in a way that reduces exposure to NO₂ as quickly as possible; and
 - (c) will mean that achieving compliance is not just possible but likely.

Background

3. The Welsh Government has a statutory duty to achieve compliance with limit values for nitrogen dioxide (NO₂) laid down by the Ambient Air Quality Directive (2008/50/EC) and the Air Quality Standards (Wales) Regulations 2010 EC Air Quality and Welsh Regulation limit levels for NO₂. The annual assessment of compliance with the limit levels is based on information from the UK national monitoring networks and assessment modelling using national models known as the Pollution Climate Mapping (PCM) models. The air quality assessment for each pollutant is derived from a combination of measured and modelled concentrations.
4. Current baseline PCM predicted NO₂ concentrations indicate annual limit levels of 40µg/m³ are exceeded on the following 5 discrete stretches of motorway and trunk road network:
 - (i) A494 at Deeside (5.9km);
 - (ii) A483 near Wrexham (2.6km);
 - (iii) M4 between junctions 41 and 42 (Port Talbot) (5.0km);
 - (iv) M4 between junctions 25 and 26 (Newport) (1.4km); and
 - (v) A470 between Upper Boat and Pontypridd (4.2km).

The location and length of each exceedance is provided in Annex 2.

Baseline PCM predicted NO₂ concentrations are provided in the table below. (Details of the methods used for the baseline emissions and projections modelling are provided in the UK technical report <https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017>)

Table 1: Baseline PCM Predicted NO₂ Concentrations (projections from 2017 Plan, July 2017) (Figures in bold represent an exceedance of the limit value)

Stretch of Road	Site Location	NO ₂ Predicted Baseline Concentrations (µg/m ³)						
		2015	2017	2018	2019	2020	2021	2022
A494 Deeside	Aston Hill	-	50	48	46	43	40	38
	Jnc A550 – Jnc A548	-	48	46	44	42	39	37
	Jnc A458 Shotwick Rd	-	42	40	38	36	34	32
A483 Wrexham	Wrexham	-	41	39	38	36	33	31
M4 Jnc 41-42	Jnc 41-42	47	45	43	41	39	37	-
M4 Jnc 25-26	West of River Usk	51	48	46	44	42	39	-
	East of River Usk	43	41	39	37	35	33	-
A470	Pontypridd	50	48	46	44	42	39	-
	Upper Boat	44	42	40	39	37	34	-

5. Welsh Transport Appraisal Guidance (WelTAG) studies commenced in October 2017 to establish the measures required at each of the 5 locations to achieve compliance with NO₂ limit levels in accordance with the criteria set out in paragraph 2. With the large number of potential measures to appraise (over 400) and associated detailed traffic and air quality monitoring, WelTAG Stages 1 and 2, the reduction of the initial long list to a short list at each location, was completed as early as possible by the end of January 2018.
6. Measures identified in WelTAG Stages 1 and 2 with the potential to achieve compliance at each of the 5 locations were included in a draft Welsh Government Supplementary Plan (WGSP) that was subject to consultation between 25 April and 19 June. The original consultation documents, including the WelTAG Stage 1 and 2 Reports, Effectiveness Review, Impact Assessment and Consultation - Summary of Responses may be accessed via the following link:

<https://beta.gov.wales/tackling-roadside-nitrogen-dioxide-concentrations-wales>
7. Because WelTAG Stages 1 and 2 studies indicated that speed limits had the potential to deliver an immediate improvement to air quality at each of the 5 locations temporary 50 mph speed limits to safeguard public health were implemented in the week commencing 18th June.
8. An Interim WGSP was published on 31 July pending the completion of WelTAG Stage 3 investigations, the identification of final measures to achieve compliance with NO₂ limit levels in accordance with the criteria set out in paragraph 2. The Interim WGSP may be accessed via the following link:

<https://gov.wales/topics/environmentcountryside/epq/airqualitypollution/airquality/?lang=en>

9. WelTAG Stage 3 was completed to programme at the end of August. The final measures identified to achieve compliance with NO₂ limit levels at each location are the subject of this consultation.

A494 Deeside

The report entitled A494 Deeside – Welsh Transport Appraisal Guidance (WelTAG) Stage 3 Report published alongside this consultation provides the full details of investigations to identify measures or packages of measures likely to achieve compliance with the NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible.

Summary of Measures Appraised

Measure	Outcome	Reason for Outcome
Enforce/ Reduce Speed Limit (50mph)	Likely Measure	Speed of implementation and size of NO ₂ reduction (up to 2.8µg/m ³)
Air Quality Barriers with 50mph Speed Limit	Precautionary Retained Measure	Measure kept under review pending results of monitoring
Ramp Metering (Controlling the Flow) from Southbound On-Slip at Drome Corner with 50mph Speed Limit	Unlikely Measure	Modelling suggests that the measure is unlikely to be effective in reducing NO ₂ concentrations beyond that achieved by reducing speed limits and may even offset some of the benefits of reduced speed limits alone.
Variable Diversions with 50mph Speed Limit	Unlikely Measure	Modelling suggests that the measure is unlikely to be effective in reducing NO ₂ concentrations beyond that achieved by reducing speed limits and may even offset some of the benefits of reduced speed limits alone. In addition, there are a limited number of routes in the area that could be considered suitable for traffic diverting away from the A494.

Proposed measure(s) likely to achieve compliance with NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible:

- (i) Temporary 50 mph Speed Limit – B5125 St David’s Interchange (Holywell Road) to the A458 Deeside Park Interchange (Shotwick Road) at the Welsh/ English Border (approx.. 5.9km)

It is also proposed to implement a complementary package of “softer measures” with the aim of communicating the need for measures to improve air quality and positively influence driver behaviour.

Proposed Implementation Date: Already Implemented (June 2018)

Earliest Compliance Date with Measure: 2021 (brought forward from 2022)

A483 Wrexham

The report entitled A483 Wrexham – Welsh Transport Appraisal Guidance (WelTAG) Stage 3 Report published alongside this consultation provides the full details of investigations to identify measures or packages of measures likely to achieve compliance with the NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible.

Summary of Measures Appraised

Measure	Outcome	Reason for Outcome
Enforce/ Reduce Speed Limit (50mph)	Likely Measure	Speed of implementation and size of NO ₂ reduction (up to 4.3µg/m ³)
Air Quality Barriers with 50mph Speed Limit	Precautionary Retained Measure	Measure kept under review pending results of monitoring
Variable Diversions with 50mph Speed Limit	Unlikely Measure	Modelling suggests that the measure is unlikely to be effective in reducing NO ₂ concentrations beyond that achieved by reducing speed limits and may offset some of the benefits of reduced speed limits alone
Junction Closures with 50mph Speed Limit	Unlikely Measure	Traffic modelling of junction closures shows insufficient network capacity. Closure of the J6 southbound on-slip and J5 northbound on-slip causes considerable queues which block back onto the mainline. This is considered an unacceptable safety risk and therefore the measure has not been progressed. No Air Quality modelling has been undertaken on this basis

Proposed measure(s) likely to achieve compliance with NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible:

- (i) Temporary 50 mph Speed Limit – Junction 5 (Mold Road Interchange) to Junction 6 (Gresford Interchange) (approx. 2.6km)

It is also proposed to implement a complementary package of “softer measures” with the aim of communicating the need for measures to improve air quality and positively influence driver behaviour.

Proposed Implementation Date: Already Implemented (June 2018)

Earliest Compliance Date with Measure: 2018 (no change)

A470 Pontypridd

The report entitled A470 Pontypridd – Welsh Transport Appraisal Guidance (WelTAG) Stage 3 Report published alongside this consultation provides the full details of investigations to identify measures or packages of measures likely to achieve compliance with the NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible.

Summary of Measures Appraised

Measure	Outcome	Reason for Outcome
Enforce/ Reduce Speed Limit (50mph)	Likely Measure	Speed of implementation and size of NO ₂ reduction (up to 2.8µg/m ³)
Air Quality Barriers with 50mph Speed Limit	Precautionary Retained Measure	Measure kept under review pending results of monitoring
Clean Air Zone with 50mph Speed Limit	Precautionary Retained Measure	Measure kept under review pending results of monitoring
Parking Improvements with 50mph Speed Limits	Precautionary Retained Measure	Measure kept under review pending results of monitoring
Distance Chevrons (To Smooth Flow) with 50mph Speed Limits	Unlikely Measure	Modelling suggests that the measure is unlikely to be effective in reducing NO ₂ concentrations beyond that achieved by reducing speed limits and may offset some of the benefits of reduced speed limits alone
Junction Closures with 50mph Speed Limit	Unlikely Measure	All junction closure measures will result in an overall increase in exposure to air pollution including at properties where concentrations exceed the air quality standards
Ramp Metering (Controlling the Flow) from Southbound On-Slips at Bridge Street and Glyntaff Interchanges with 50mph Speed Limit	Unlikely Measure	Modelling suggests that the measure is unlikely to be effective in reducing NO ₂ concentrations beyond that achieved by reducing speed limits and may offset some of the benefits of reduced speed limits alone
Variable Diversions with 50mph Speed Limit	Unlikely Measure	The screening of the air quality impacts of the diversion of traffic from the mainline A470 indicates that variable diversions are likely to result in an overall increase in exposure to air pollution

M4 Port Talbot

The report entitled M4 Port Talbot J41–J42 – Welsh Transport Appraisal Guidance (WelTAG) Stage 3 Report published alongside this consultation provides the full details of investigations to identify measures or packages of measures likely to achieve compliance with the NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible.

Summary of Measures Appraised

Measure	Outcome	Reason for Outcome
Enforce/ Reduce Speed Limit (50mph)	Likely Measure	Speed of implementation and size of NO ₂ reduction (up to 2.5µg/m ³)
Distance Chevrons (To Smooth Flow) with 50mph Speed Limits	Unlikely Measure	Modelling suggests that the measure is unlikely to be effective in reducing NO ₂ concentrations beyond that achieved by reducing speed limits and may even offset some of the benefits of reduced speed limits alone
Junction Closures (apart from J41 westbound On-Slip) with 50mph Speed Limit	Unlikely Measure	Modelling suggests that the measure is unlikely to be effective in reducing NO ₂ concentrations beyond that achieved by reducing speed limits and may even offset some of the benefits of reduced speed limits alone
Junction Closures (J41 westbound On-Slip) with 50mph Speed Limit	Precautionary Retained Measure	Measure kept under review pending results of monitoring
Ramp Metering (Controlling the Flow) from Slip Roads with 50mph Speed Limit	Unlikely Measure	Modelling suggests that the measure is unlikely to be effective in reducing NO ₂ concentrations beyond that achieved by reducing speed limits and may even offset some of the benefits of reduced speed limits alone
Variable Diversions with 50mph Speed Limit	Precautionary Retained Measure	Measure kept under review pending results of monitoring

Proposed measure(s) likely to achieve compliance with NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible:

- (i) Temporary 50 mph Speed Limit – From the end of the current 50mph speed limit near Junction 41 (Baglan) to Junction 42 (approx. 5.0km)

It is also proposed to implement a complementary package of “softer measures” with the aim of communicating the need for measures to improve air quality and positively influence driver behaviour.

Proposed Implementation Date:

Already Implemented (June 2018)

Earliest Compliance Date with Measure:

2019 (brought forward from 2020)

M4 Newport

The report entitled M4 Newport J25–J26 – Welsh Transport Appraisal Guidance (WelTAG) Stage 3 Report published alongside this consultation provides the full details of investigations to identify measures or packages of measures likely to achieve compliance with the NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible.

Summary of Measures Appraised

Measure	Outcome	Reason for Outcome
Variable Diversions with 50mph Speed Limit	Likely Measure	Speed of implementation and size of NO ₂ reduction (up to 1.6µg/m ³)
Enforce/ Reduce Speed Limit (50mph) alone	Unlikely Measure	Modelling suggests that the measure is unlikely to be as effective in reducing NO ₂ levels than when combined with Variable Diversions (up to 0.9µg/m ³)
Clean Air Zone with 50mph Speed Limit	Precautionary Retained Measure	Measure kept under review pending results of monitoring
Junction Closures with 50mph Speed Limit	Unlikely Measure	Measure is equally effective as the Variable Diversion package but has greater dis-benefits in relation to, in particular, access to employment and services and journey time changes.

Proposed measure(s) likely to achieve compliance with NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible:

- (i) Off and inter peak temporary 50 mph Speed Limit – To the east of Junction 25 (Caerleon Road) to Junction 26 Malpas (approximately 1.4km)
- (ii) Variable Diversion – encouraging local traffic for Newport to leave the M4 prior to Junctions 25 and 26 when periods of high concentrations of NO₂ are likely.

It is also proposed to implement a complementary package of “softer measures” with the aim of communicating the need for measures to improve air quality and positively influence driver behaviour.

Proposed Implementation Date:

Initial off peak temporary 50 mph speed limit Implemented (June 2018). Full implementation of off and inter peak by December 2018.

Variable diversion by December 2019

Earliest Compliance Date with Measures:

2021 (no change)

Going Forward

10. The effect of measures on NO₂ concentrations at each of the 5 locations is currently being monitored by diffusion tubes and the intention is to supplement these with continuous monitoring using reference method analysers by the New Year.
11. The proposed measures outlined above are likely to achieve compliance with NO₂ limit values as soon as possible in a way that reduces exposure to NO₂ as quickly as possible in relation to the current PCM predicted NO₂ concentrations. However depending on the results of the monitoring further measures (the “Precautionary Retained Measures” contained in the summary tables above) may have to be implemented to achieve ongoing compliance with the Directive and Regulations. These will be subject to ongoing review further consultation if necessary.

**Consultation
Response Form**

Your name:

Organisation (if applicable):

email / telephone number:

Your address:

Before answering the following questions please consider the information provided in both this consultation document and the WelTAG Stage 3 Reports for each of the 5 locations, published alongside this consultation

1. Do you agree that the identified measure(s) will achieve compliance with the NO₂ limit values as soon as possible?
2. Do you agree that the identified measure(s) will achieve compliance in a way that reduces exposure to NO₂ as quickly as possible?
3. Do you agree that the identified measure(s) are likely to achieve compliance in that way?
4. Do you disagree in any respect? If so why?
5. Do you consider that any other measure or packages of measures should be included in the Final Supplemental Welsh Air Quality Plan, what are those measures and why should they be included?
6. Do have any other comments you would like to make?

You are about to submit your response. Please ensure you are satisfied with the answers you have provided before sending.

Name:

Organisation (if applicable):

If you want to receive a receipt of your response, please provide an email address.

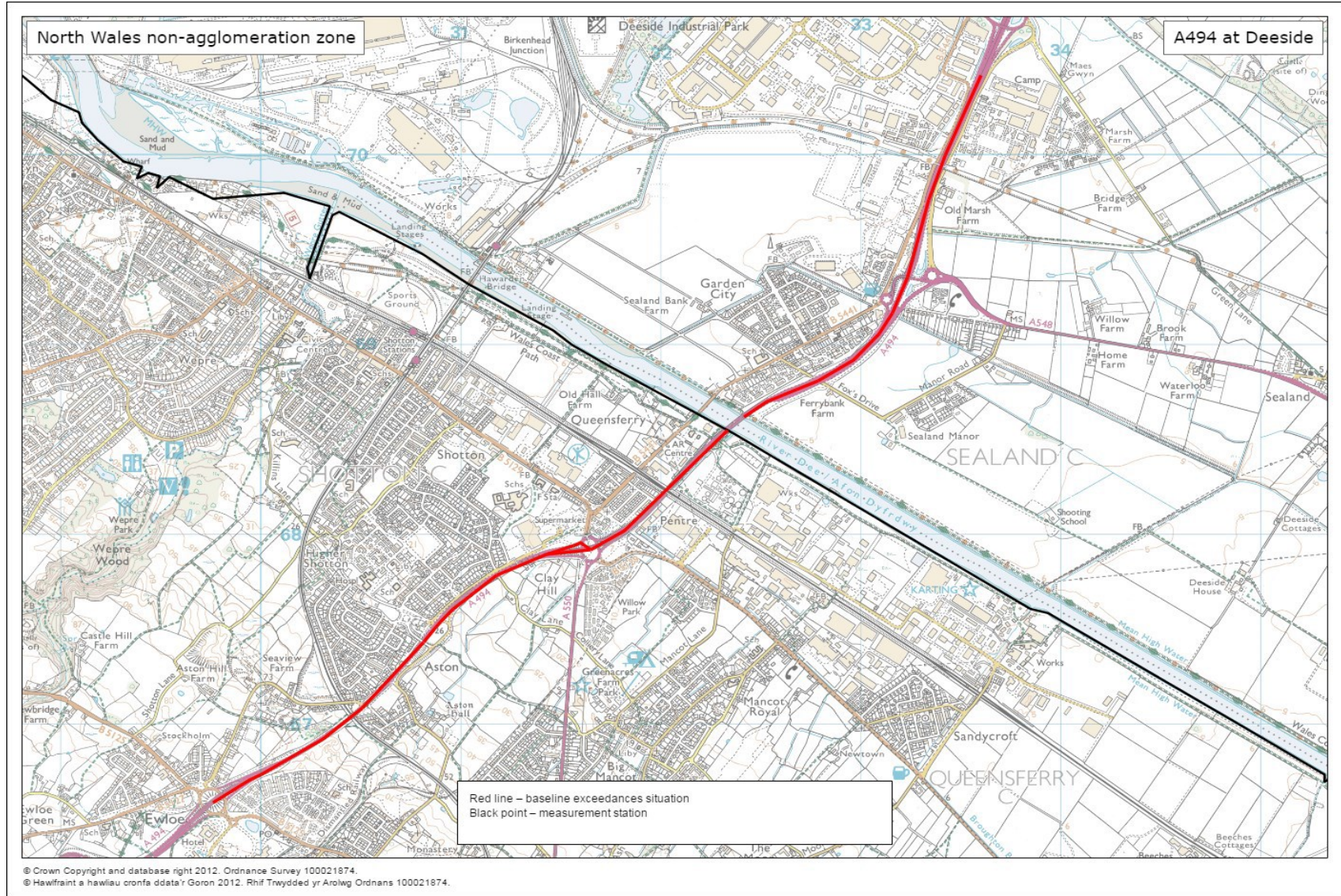
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Responses to consultations may be made public. To keep your response anonymous (including email addresses) tick the box.

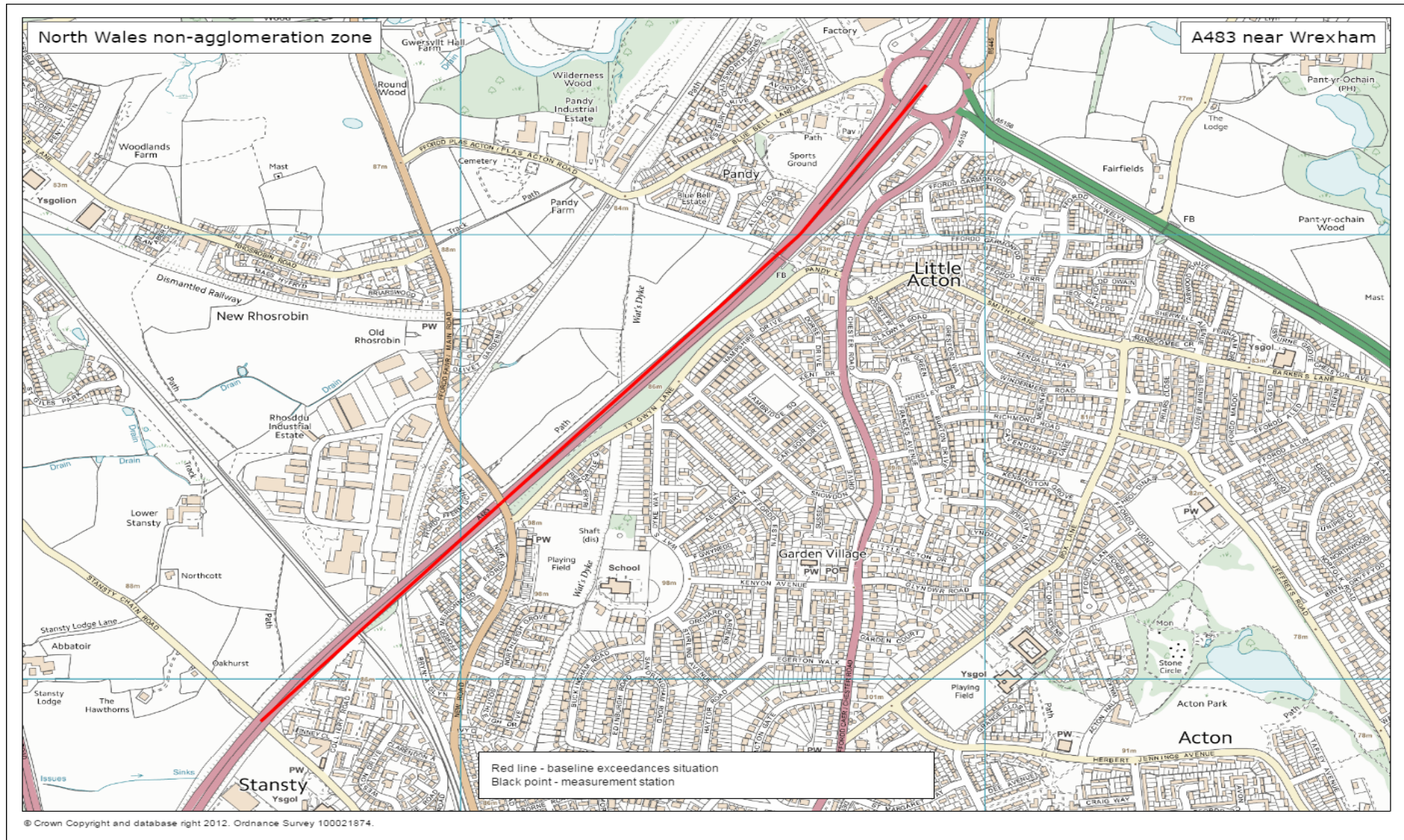
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Locations on the Motorway and Trunk Road Network Which Exceed Annual Limit Levels for NO₂

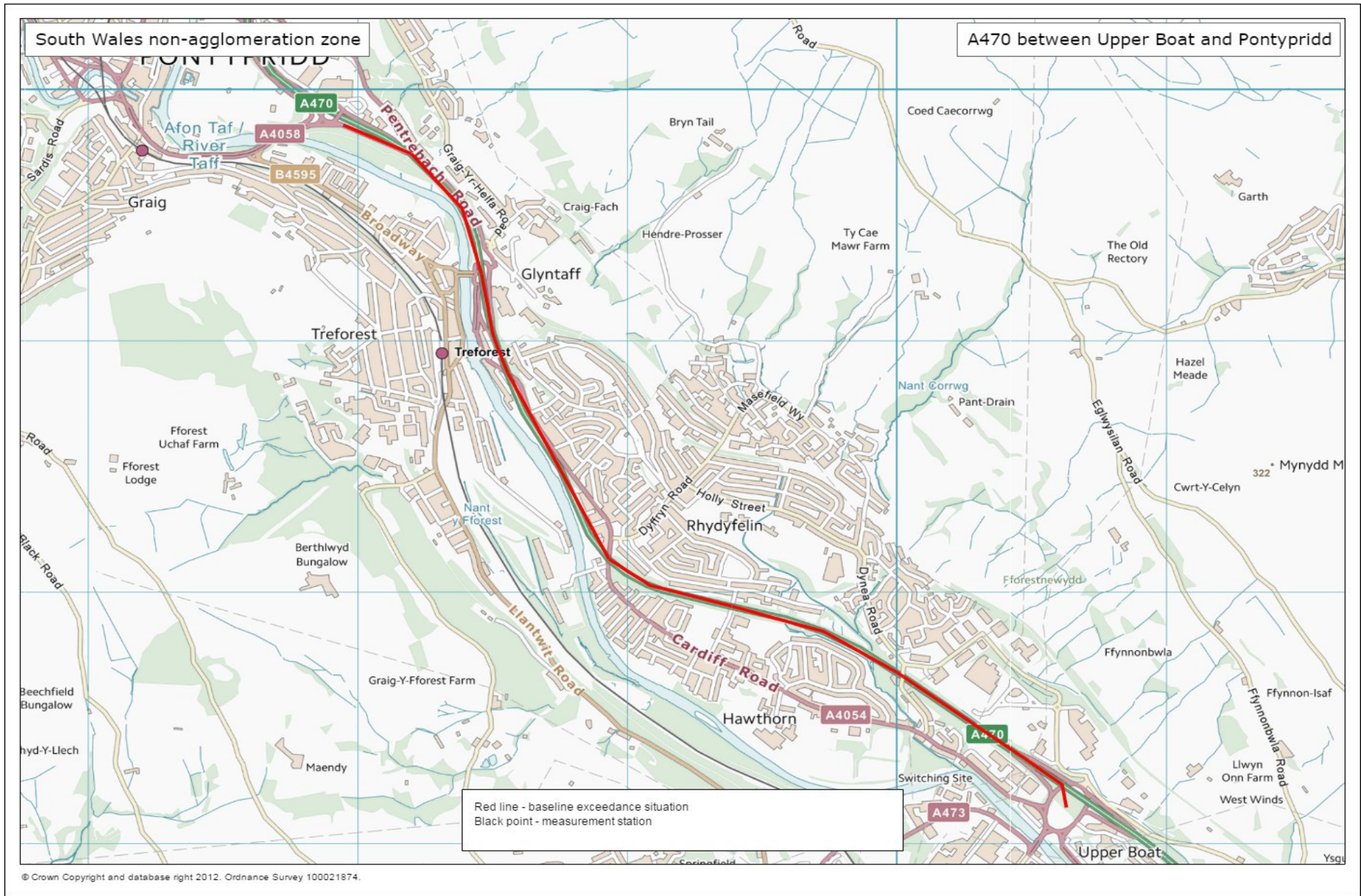
A494 Deeside



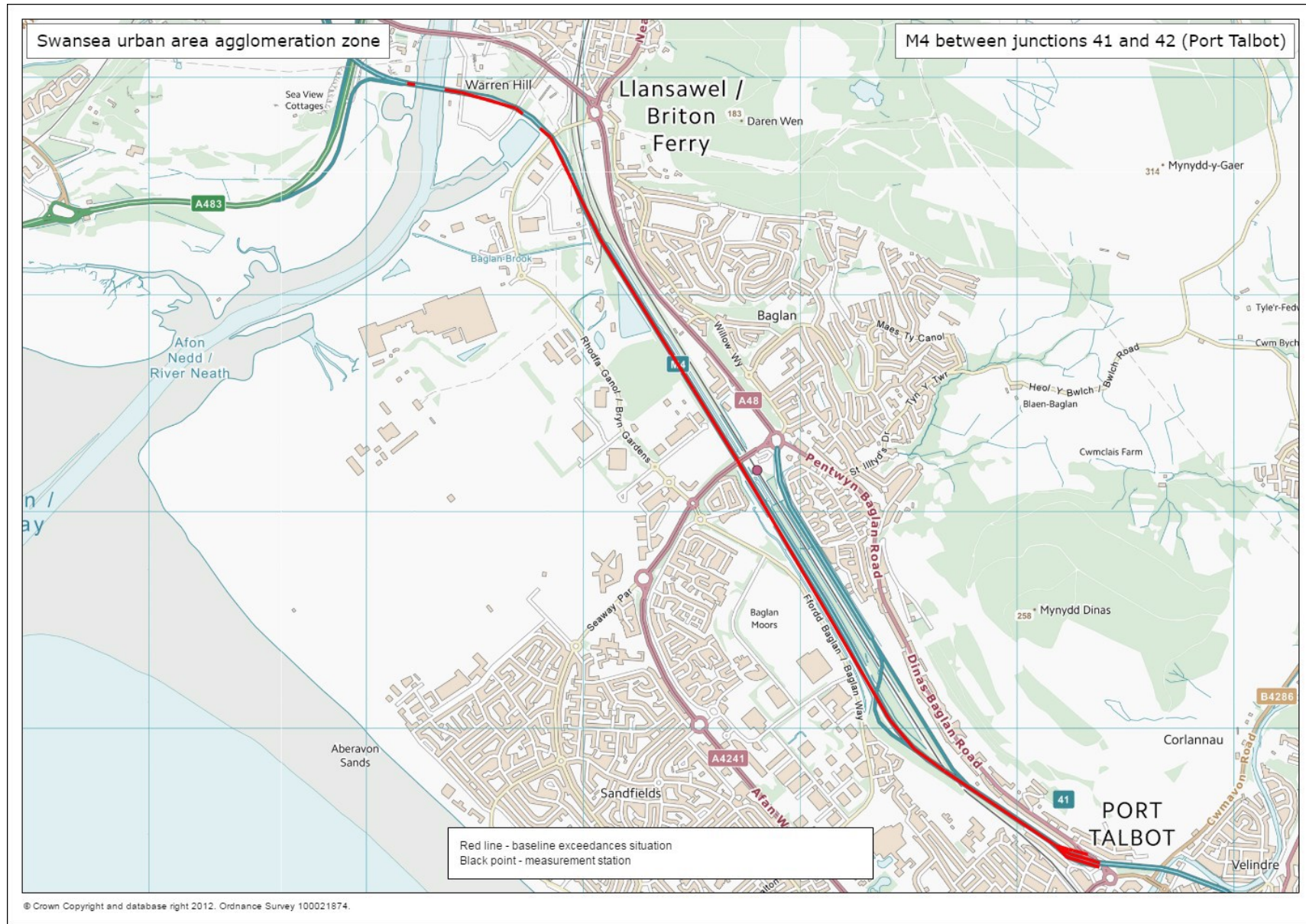
A483 Wrexham



A470 Upper Boat to Pontypridd



M4 Junctions 41 to 42 Port Talbot



M4 Junctions 25 to 26

