



**Statement of Common Ground: Air Quality monitoring and mitigation**  
**28<sup>th</sup> September 2015**

1. At the hearing the following aspects of modelling were discussed:
  - a. Use of verification factors;
  - b. The approach used for selection of future emission factors/background concentrations
  - c. Whether results should have been presented as contour plots; and
  - d. Uncertainty in the traffic data used for the assessment.

The councils and Highways England agree that they are not looking for any changes to be made to the air quality modelling approach used in the assessment. However, the councils believe that, the uncertainty in the traffic results should be considered and that monitoring is required to verify the modelling outcomes. Apart from the uncertainty in the modelling results, the councils are not challenging the results of the assessment.

2. The only matter now not agreed between Highways England and the councils is that Highways England should fund further air quality monitoring and make provision for funding of mitigation measures if subsequently required.
3. The councils' preferred approach is that Highways England commission, (and also where appropriate as an alternative, contribute financial support for already existing monitoring), air quality monitoring at agreed locations to an agreed specification for 12 months prior to construction and then for a period until the monitoring at each site shows three years of compliance with air quality limit values. With the exception of the Northern Bypass of Cambridge (Bar Hill to Fen Ditton), where PM10, PM2.5 and Nitrogen Oxides monitoring is required, the monitoring will be for nitrogen dioxide only.

4. The councils' position if the monitoring results showed that the A14 scheme had resulted in non-compliance with air quality limit values would be that Highways England would make financial contributions towards furthering the respective councils' Air Quality Action Plans as mitigation of the observed effects.
5. The position of the Cambridge City Council is that the A14 Cambridge to Huntingdon Local Funding agreement would require amendment to allow for funding of monitoring and mitigation measures if agreement cannot be reached through the DCO. SCDC agrees with City position if this is the only way to secure funding in the event that agreement cannot be reached through the DCO.
6. Highways England's current position is that further monitoring is not required as the scheme is not predicted to result in an exceedance of limit values or significant negative impacts.

# **Proposed Specification for Air Quality Monitoring and Mitigation for verification of the modelled pollutant forecasts relating to the proposed Highways England A14 Cambridge to Huntingdon Improvement Scheme.**

## **1. Purpose of the Document**

The purpose of this document is to specify the necessary air quality monitoring provision required by Huntingdonshire District Council, South Cambridgeshire District Council and Cambridge City Council to verify forecast concentrations for air pollutants of concern detailed in Highways England A14 Cambridge to Huntingdon Improvement Scheme - Environmental Statement of December 2014. The document will cover monitoring type, equipment, location, monitoring period, triggers for action, outline costs, servicing, quality assurance and control and data provision.

Its secondary function is to propose a financial mechanism to support any necessary mitigation identified should results of monitoring show any non-compliance with National Air Quality Objectives or EU limit values for specified pollutants.

## **2. Monitoring Type**

Monitoring for Nitrogen Dioxide will be either continuous monitoring using a suitable analyser or by monthly diffusion tube as specified within the district by district requirements presented below. Particulate monitoring will be continuous monitoring using approved equipment.

## **3. Monitoring Equipment**

Where specified, continuous monitoring for oxides of nitrogen or fine particles at PM10 or PM 2.5 fractions will be carried out using MCerts, certified and approved equipment of a type suitable for inclusion in the DEFRA UK National air quality network.

An example suitable monitor for Oxides of Nitrogen would be a *Casella Monitor ML2041 chemiluminescence analyser*. For Particulate matter an example monitor would be a *BAM1020 Continuous Beta-attenuation Particulate Monitor*.

## **4. Monitoring Period**

Monitoring will be carried out for a minimum continuous period beginning no less than 1 year prior to commencement of construction of the road improvement scheme and ceasing following a minimum continuous period of 3 years post full operation of the completed scheme and where there has been at least 3 continuous years where no ratified monitoring results that are non-compliant with National Air Quality Objectives or EU limit

values set in regulations for the specified pollutant species have been observed.

## 5. Servicing and Quality Assurance and Control

Continuous monitoring for oxides of nitrogen and particulate matter will require service support from a reputable and suitably qualified contractor. Where it is specified that monitoring be contracted by Highways England the service provider must be approved by the relevant local authority. Monitors will require local calibration using reference gases at a minimum of fortnightly intervals. Data capture at all sites must meet a minimum of 90% for hourly average data.

The chosen equipment supplier will provide a 48 hour callout service to ensure any technical faults are resolved as soon as possible.

The performance of the monitoring station will be audited to ensure quality assured/quality checking twice a year by a UKAS accredited independent company. The audit will be conducted in accordance with ISO17025.

Monitoring data will be downloaded remotely and checked on a daily (weekday) basis to ensure the equipment is functioning properly.

Full data quality assurance and ratification as well as 6 Monthly equipment audits will need to be carried out at all monitoring sites by a suitably qualified service provider. Where it is specified that monitoring be contracted by Highways England the service provider must be approved by the relevant local authority.

## 6. Data provision

Reports will be submitted to the relevant local authority officer via e-mail on a monthly basis and will include the following information:

- Validated, ratified hourly and raw NO<sub>x</sub>, NO<sub>2</sub> and PM<sub>10</sub> data for the preceding calendar month;
- Summary data for comparison with the air quality objectives:
  - Monthly mean NO<sub>2</sub> and PM<sub>10</sub> concentrations;
  - Mean NO<sub>2</sub> and PM<sub>10</sub> concentrations for the preceding 12 months (or for the entire monitoring period to date if less than 12 months are available).
  - The number of days when daily mean PM<sub>10</sub> concentrations were above 50 µg.m<sup>-3</sup>
  - The number of hours when hourly mean NO<sub>2</sub> concentrations were above 200 µg.m<sup>-3</sup>.

## 7. Air Quality Standards

Monitoring will need to show compliance with the following national air quality objectives and current EU limit values:

<b>Nitrogen</b>	200 µg/m <sup>3</sup> not to	1-hour mean
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<b>dioxide</b>	be exceeded more than 18 times a year	
	40 µg/m <sup>3</sup>	Annual mean
<b>Particles (PM<sub>10</sub>) (gravimetric)</b>	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m <sup>3</sup>	Annual mean

## 8. District specific monitoring requirements.

Each of the districts affected by the proposed scheme have agreed reasoned and proportionate monitoring requirements based on the current observed air quality conditions in their respective areas. Where current pollutant levels are reasonably low and the risk of non-compliance is less likely, but reassurance is nonetheless required that areas will remain compliant post operation of the scheme diffusion tube surveys for the monitoring period specified above are considered the most cost effective. Where the risk of non-compliance is higher because current pollutant levels are above or close to objective levels and where Air Quality Management Areas (AQMA) have been declared Continuous monitors as specified above are considered the most appropriate.

### a. Cambridge City Council Area

Cambridge City council has an AQMA for Nitrogen Dioxide covering the central area of the City including the inner ring road and junctions with feeder in to the City. Approximately one third of the City area is included. The A14 scheme has the greatest potential to have an adverse impact on the road network in the northern half of the City and in particular at junctions of affected feeder roads and the inner ring road. Therefore Cambridge City Council, having considered past air quality assessments and the submissions in the HE Environmental Statement, would require the provision by HE of a continuous monitor at or close to the junction of Histon Road and Huntingdon Road sited to take account of relevant residential receptors close to that location. This location would be within or very close to the current AQMA boundary.

This site would require monitoring for oxides of nitrogen as specified above. Approximate annual rental and support costs for the site as specified would be £10000-£15000

### b. South Cambridgeshire District Council area

The route of the proposed scheme within South Cambridgeshire District has the highest potential risk of non-compliance. Much of the existing and proposed route to the North and West of Cambridge is currently an AQMA

and the Environmental statement indicates some likelihood of non-compliance at Hackers Fruit Farm near to Bar Hill for Nitrogen Dioxide.

South Cambridgeshire District Council would therefore seek financial support from HE to continue existing relevant monitoring for NO<sub>2</sub> and PM<sub>10</sub> at their Impington site and propose that HE provide both PM<sub>10</sub> and Nitrogen Dioxide continuous monitoring at a historic SCDC monitoring location close to Bar Hill where a suitable Cabinet and power supply remain.

Monitoring would be as specified above at the supported sites.

Approximate annual costs for the reinstated site at Bar Hill as specified would be £15000-£20000 whilst the financial support for SCDC to continue to run the existing Impington site would be in the order of £7000-£9000 per annum.

### c. Huntingdonshire District Council Area

There are forecast to be benefits to residents in terms of air quality in Huntingdonshire but also areas where air quality is forecast to worsen albeit from a low background. Compliance monitoring for the scheme here can therefore rely in some locations upon diffusion tube survey.

Huntingdonshire therefore require financial support for the monitoring period specified above for the following diffusion tube locations:

Table 1 shows the locations that HDC would request that HE contribute to our current network. Please note that some of these areas only have limited funding which expires on 31<sup>st</sup> March 2016.

Table 1: Locations for monitoring:

No	Location	Monitoring	Reason
Current AQMA monitoring			
1	Huntingdon - near Blethan Drive	Diffusion tube	This is on the northern end of the current Huntingdon AQMA and will be used to prove that the re-routing of the A14 does support the modelling conclusion that AQ will not be an issue here.
2	Huntingdon - Ring road	Automatic monitoring station	This is on the southern end of the current Huntingdon AQMA and will be used to prove that the re-routing of the A14 does support the modelling conclusion that AQ will not be an issue here.
3	Huntingdon - Brampton Road *	Diffusion tube	This is on the eastern end of the current Huntingdon AQMA and will be used to prove that the re-routing of the A14 does support the modelling conclusion that AQ will not be an issue here.
4	Brampton - Laws	Diffusion tube	This is in the current Brampton AQMA and will be used to prove that the re-routing of

	Crescent		the A14 does support the modelling conclusion that AQ will not be an issue here.
5	Fenstanton - Hilton Road	Diffusion tube	This is by the current Fenstanton AQMA and will be used to prove that the re-routing of the A14 does support the modelling conclusion that AQ will not be an issue here.
Areas proposed to be closer to re-routed A14			
6	Alconbury - Lords Way*	Diffusion tube	These properties are downwind of the A1 and redirected A1 south traffic wanting to join the A14. Already HDC receives complaints from residents about air quality levels from the A1. Monitoring will be able to prove the modelling predictions that air quality will not breach any exceedance levels.
7	Brampton - Hansell Road	Diffusion tube	These properties will be 200m from the A1 and A14. Residents of Brampton have expressed concerns over the air quality from both roads combined and monitoring will be able to prove the modelling predictions that air quality will not breach any exceedance levels.
8	Offord Cluny - High Street*	Diffusion tube	This village is going to have the A14 2 miles closer to where it is currently, leaving it 0.6 miles from the proposed A14. Residents of Offord Cluny have expressed some concerns over air quality from the road and monitoring will be able to prove the modelling predictions that air quality will not breach any exceedance levels.
9	Hilton - The Paddocks*	Diffusion tube	This village is going to have the A14 0.8 miles closer, leaving it 0.6 miles away from the proposed A14. Residents have expressed some concerns over air quality from the scheme and monitoring will be able to prove the modelling predictions that air quality will not breach any exceedance levels.
* Currently funding for these sites is set to end on 31 <sup>st</sup> March 2016.			

Huntingdonshire District is prepared to incorporate the management of the extra diffusion tubes in to their existing programme at cost. Approximate estimates would be as follows tube cost £7.50 per location per month additional hours 2hrs/ month @ £45/hr therefore annual costs of approximately £1800-2000

In addition to these relevant sites HDC operate a continuous monitor at Pathfinder House close to what will be the de-trunked A14 following completion of the scheme.

As the scheme proposes to de-trunk the current A14 this means that there will still be an important and busy road very near residents that will need to continue to be monitored until proven that air quality will not be exceeding any statutory levels. Therefore, HDC does not consider that the burden for monitoring both roads should be met by HDC alone, especially as they have no operational control on either road.

They would therefore seek financial support from HE for their existing continuous monitoring location in Huntingdon.

## **9. Mitigation for Non-compliance**

All districts with AQMAs have produced action plans identifying measures which will improve air quality in pursuit of the national air quality objectives. Implementation of identified measures is dependent on a number of financial support streams from council funds, national schemes developer contributions and public / private partnerships.

In order to mitigate any adverse air quality impacts of the A14 scheme identified by the proposed monitoring, further financial support for proposed actions will be needed. Therefore we propose the following mechanism to support the Districts Air Quality Action Plans:

For each year or part year of non-compliance with Air Quality Objectives or EU air quality limit values identified through the proposed monitoring scheme following the opening of the new scheme, HE should provide a contribution of £50000 to each of the districts in which non-compliance is monitored. This funding to be used in pursuance of that district councils air quality action plan in force at the time of the exceedance.