

**Dungannon & South Tyrone Borough**  
**Council**

**Local Air Quality Management**

**Stage 2 Review & Assessment**

**June 2005**

**Supplementary Report on NO<sub>2</sub> Concentrations in  
Church Street, Dungannon.**

## **Executive Summary**

The report on the second stage review and assessment of local air quality for the Borough of Dungannon and South Tyrone was submitted for review and approval in August 2004. This concluded that except for NO<sub>2</sub>, there was no need for further detailed assessment of prescribed pollutants or declaration of Air Quality Management Areas (AQMAs) at this time. The August 2004 report concluded that additional diffusion tube monitoring should be undertaken for a minimum of 6 months to develop a more accurate picture NO<sub>2</sub> levels, since results of diffusion tube monitoring data available at the time conflicted significantly with predictions of NO<sub>2</sub> concentrations using the Design Manual for Roads and Bridges (DMRB) model. The stage 2 report was accepted, with the proviso that a supplementary report be submitted in due course, detailing the findings of the additional monitoring.

2 additional collocated diffusion tubes were placed at a position close to an existing tube at a point of relevant exposure in Church Street, between August 2004 and January 2005. The results of this additional monitoring confirm that whilst the NO<sub>2</sub> concentrations are significantly higher than that predicted using the DMRB model, they are below the prescribed objective limit of 40 µg/m<sup>-3</sup>

This report concludes that there is no requirement for declaration of an AQMA in respect of road traffic NO<sub>2</sub> pollution in Church Street at this time. Therefore the overall conclusion from the stage 2 review and assessment process is that no exceedance is predicted for any of the pollutants prescribed under the local air quality management regime, and there is no requirement for any AQMAs in the Borough at this time.

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## 1.0 Introduction

Following the completion of the Stage 1 review and assessment of local air quality in the Dungannon & South Tyrone Borough Council area, Nitrogen Dioxide (NO<sub>2</sub>), was identified as a pollutant requiring further assessment.

Dungannon's second stage review and assessment of local air quality, completed in August 2005, highlighted the need for additional monitoring at Church Street Dungannon. In that report, the annual average kerbside concentration of NO<sub>2</sub> for 2005, estimated using the Design Manual for Roads and Bridges (DMRB) model, was predicted to be 22.8µg/m<sup>3</sup>; well within the prescribed objective of 40µg/m<sup>3</sup>. However monitoring data from a single diffusion tube located at a point of relevant in Church Street was indicating a predicted annual mean concentration of 41.7µg/m<sup>3</sup> for 2005; above the prescribed NO<sub>2</sub> objective limit. Therefore, in order to provide more reliable NO<sub>2</sub> monitoring data upon which to base future local air quality management decisions, 2 additional collocated diffusion tubes were placed close to the location of an existing diffusion monitoring tube at a point of relevant exposure in Church Street, Dungannon. (see location map at appendix 1)

This report is a supplementary document incorporating additional information on further assessment of NO<sub>2</sub> concentrations arising from road traffic emissions in Church Street, Dungannon. It is envisaged that this document will conclude the stage 2 Review and Assessment on local air quality for Dungannon & South Tyrone Borough Council.

## 2.0 Diffusion Tube Monitoring Results

The original diffusion tube located in Church Street is supplied and analysed by Lambeth Scientific Services. The additional tubes were supplied and analysed by Harwell Scientifics.

Table 1 and Table 2 show NO<sub>2</sub> monitoring results for Church Street, Dungannon.

Table 1: Lambeth Scientific Services – original diffusion tube site

			Annual Average	Corrected for lab bias	Projected for 2005
2004	Site 5	Church St	31	34	33.15

Table 2: Harwell Scientifics – additional 2 collocated tubes

Date	Church Street 1 - Dungannon			Church Street 2 - Dungannon		
	$\mu\text{g m}^3$	ppb	$\mu\text{g m}^3$ corrected for bias	$\mu\text{g m}^3$	ppb	$\mu\text{g m}^3$ corrected for bias
Aug-04	-	-	0	31.3	16.3	22.8
Sep-04	44.1	21.4	30	36.2	18.8	26.4
Oct-04	49.9	26	37.4	50.7	26.4	38
Nov-04	63.2	32.9	47.4	66.2	34.4	49.7
Dec-04	52.7	27.4	39.5	57.1	29.7	42.8
Jan-05	44.9	23.3	33.2	48.6	25.3	36
Mean			38			36.0
Projected for 2005			37.04			35.1

### **3.0 Quality Assurance/Quality Control**

The NO<sub>2</sub> diffusion tube monitoring undertaken by the Council is carried out in accordance with the QA/QC standards set out in the NO<sub>2</sub> Diffusion Tube Network Instruction Manual, and the results of such monitoring are supplied to Netcen for inclusion in the annual report of NO<sub>2</sub> monitoring data. The tubes are analysed by laboratories that participate in the UK NO<sub>2</sub> diffusion tube network inter-comparison, and for which a bias ‘correction factor’ is published. As specified in tables 1 and 2, the bias factor was applied to results obtained.

## **4.0 Conclusion and Recommendations**

The entire 12 month monitoring results for 2004 at the original diffusion tube site (Site 5 – table 1) and the results from the new collocated tubes in Church Street (Church Street 1 and Church Street 2 – table 2) indicate no predicted exceedance of the 2005 objective. The council does not intend to carry out additional modelling at this stage, and there is no intention at this stage to declare an Air Quality Management Area for road traffic NO<sub>2</sub> pollution in Church Street.

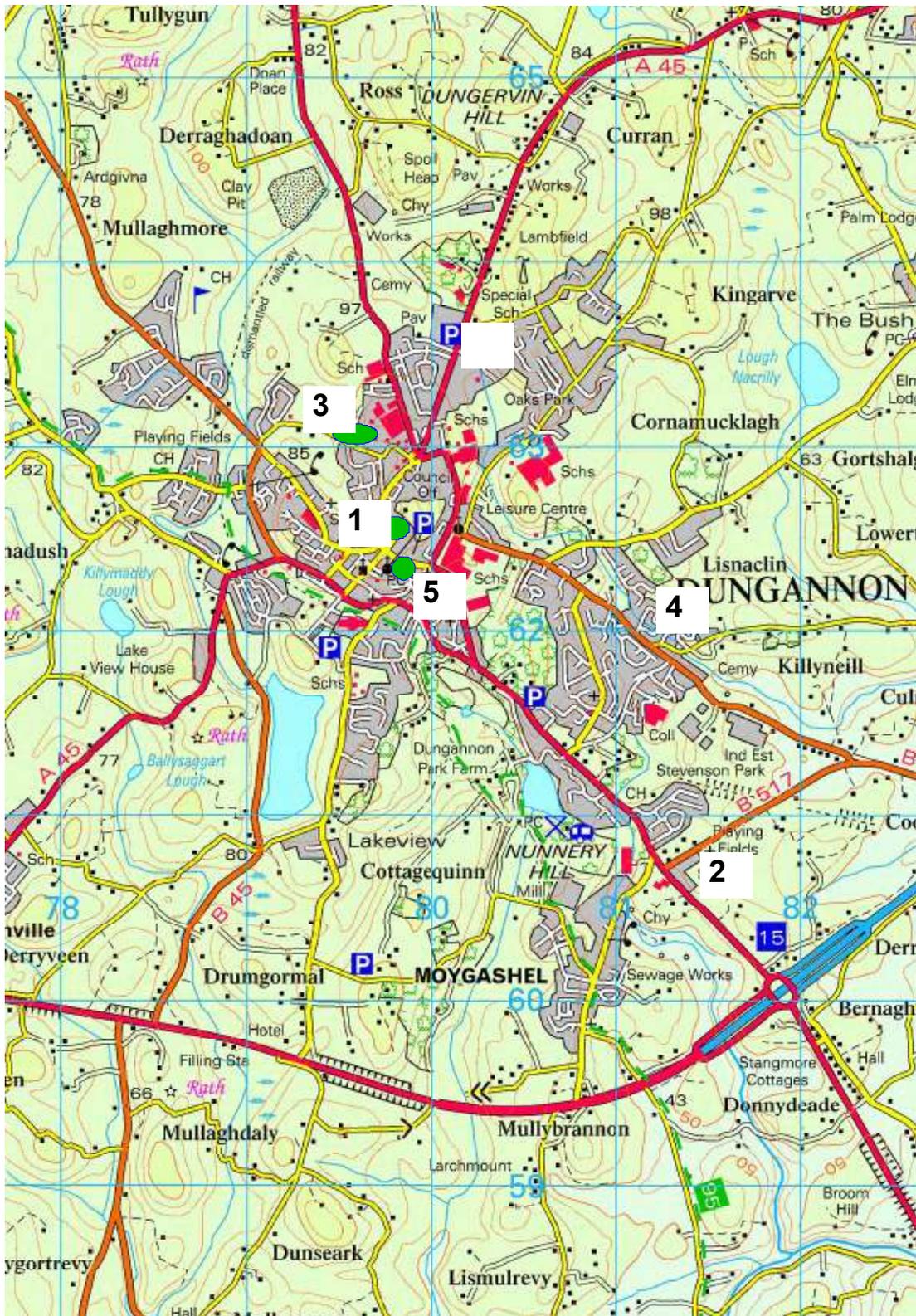
However since April 2005 the council has located 3 diffusion tubes in Church Street and will closely monitor air quality data over coming months.

The first complete round of review & assessment of local air quality in the Borough of Dungannon and South Tyrone therefore concludes that there will be no breach of any of the statutorily prescribed local air quality objectives, and there is no requirement for further detailed assessment or declaration of AQMAs at this time.

It is anticipated that the proactive management of local air quality will be addressed through participation in the ongoing statutory review and assessment process and through the implementation of a Local Air Quality Management Strategy (referred to in the main Progress Report).

## **Appendix 1**

### **NO<sub>2</sub> Diffusion Tube Locations**



1 – NO<sub>2</sub> Diffusion Tube Monitoring Sites – Church Street, Dungannon