Local Air Quality Management:

Detailed Assessment


April 2007
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Executive Summary

This Detailed Assessment (DA) Report is the second report of the third round of Local Authority Air Quality Review and Assessments as required under Part IV of the Environment Act 1995. This report follows on from the recommendations made in the Updating and Screening Assessment (USA) issued in 2006.

This DA Report has looked at locations where the annual mean and the one-hour air quality objectives for nitrogen dioxide may be exceeded, and where there may be relevant public exposure. This has involved an assessment of the Cowley Local shopping centre, eight junctions, and a review of the Central Oxford, and Green Road Roundabout Air Quality Management Areas.

The main conclusions of this detailed assessment are:

1. Further assessment is required at the Cowley Shopping Centre, at the junction of Between Towns Road and Oxford Road, and at the junction of Abingdon Road and Weirs Lane to confirm whether or not AQMA’s should be determined for exceedences of the annual mean air quality objective for Nitrogen Dioxide.

2. Further assessment is required to for both the Central Oxford, and Green Road Roundabout Air Quality Management Areas to confirm whether or not the boundaries of the AQMA’s need to be re-defined and / or extended on the basis of likely exceedences of the annual mean air quality objective for Nitrogen Dioxide.
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1 Introduction

1.1 Detailed Assessment
This Detailed Assessment (DA) is the second report of the third round of Local Authority Air Quality Review and Assessments as required under Part IV of the Environment Act 1995. This report follows the Updating and Screening Assessment (USA) issued in 2006. The purpose of the USA report was to identify those aspects of air quality that have changed since the second round of Air Quality Review and Assessment. This is based upon the identification of a risk that an air quality objective will be exceeded at a location with relevant public exposure. This DA concludes by identifying if there should be any additions or amendments to the existing Air Quality Management Areas (AQMA’s).

1.2 2006 USA Report Conclusions
The UK Air Quality Regulations have defined seven pollutants that require assessment for compliance with statutory air quality objectives. The 2006 USA report concluded that a detailed assessment was required for only one pollutant, Nitrogen Dioxide. The detailed assessment was required for both the annual mean and the one-hour air quality objectives.

1.3 Annual Mean Objective for Nitrogen Dioxide
A Detailed Assessment is required for the annual mean Nitrogen Dioxide objective at the following locations: -

Eight streets adjacent to the Central Oxford AQMA: -
Cornmarket Street
York Place
Keble Road / Banbury Road
Parks Road (N)
Gloucester Street
Iffley Road (Magdalen College School)
Butterwyke Place
Blue Boar Street
Residential properties located close to local shopping centres at: -
Summertown local shopping centre on the Banbury Road
Cowley local shopping centre on Between Towns Road
Headington local shopping centre on London Road

One location with narrow congested streets with residential properties close to the kerb: -
Hollow Way
Fourteen Junctions identified in the 2004 DA Report: -
Abingdon Road / Weirs Lane
Cherwell Drive / Marsh Lane / Headley Way / Marston Road
Windmill Road / London Road
Windmill Road / Old Road / The Slade
The Slade / Horspath Driftway / Hollow Way
Hollow Way / Garsington Road
Oxford Road / Between Towns Road
Between Towns Road / Barns Road
Church Cowley Road / Henley Avenue
Botley Road / Ferry Hinksey Road
Banbury Road / Parks Road
Parks Road / South Parks Road
Watlington Road (vicinity of the new Bus Garage)
Abingdon Road / Old Abingdon Road

1.4 Hourly Mean Objective for Nitrogen Dioxide
A Detailed Assessment is required for the hourly mean Nitrogen Dioxide objective at the following locations:

Three busy areas where people may spend 1-hour or more close to traffic:
- Summertown local shopping centre on the Banbury Road
- Cowley local shopping centre on Between Towns Road
- Headington local shopping centre on London Road
2 Detailed Assessment - April 2007

2.1 Relevant Public Exposure
We are required to consider relevant exposure and this is defined in Technical Guidance Document TG(03) as:

- Dwellings within 10m of kerbside at busy junctions
- Dwellings within 5m of kerbside in narrow congested streets
- Areas within 5m of the kerbside, where members of the public may be exposed for 1 hour or more.

Oxford has a population of 134,000 with approximately 6,000 dwellings, out of a total of 57,000, located within 10 metres from the kerbside of a main road, see figure 1.

Figure 1 Dwellings (marked in red) within 10m of Kerbside

2.2 Trends in traffic on major routes in Oxford
The trends in traffic flows on the major traffic routes in Oxford have been assessed by comparing the annual average daily traffic flow data (AADT) for the periods 2000-2003 and 2004-2006. The percentage changes between the two periods are shown in figure 2.
The data shows that for roads with AADT’s greater than 10,000 vehicles per day, there is no overall trend. For example the highest percentage increase (15%) is on the A4158 Rose Hill with the next highest (7%) on the A4165 Banbury Road (outer). Whereas reductions of 9% and 7% respectively are seen on the B480 Cowley Road and A4144 Abingdon Road (inner).

2.3 Sites Assessed
The following sites have been assessed in this DA report:

Cowley Local shopping centre

Eight road junctions at:
- Church Cowley Road / Henley Avenue
- Hollow Way / Garsington Road
- Oxford Road / Between Towns Road
- Between Towns Road / Barns Road
- Watlington Road (vicinity of the new Bus Garage)
- Abingdon Road / Weirs Lane
- Donnington Bridge Road / Iffley Road
- Eastern By-Pass Oxford Road

The junctions at Donnington Bridge Road / Iffley Road, and the Eastern By-Pass Oxford Road were not identified in the 2006 USA report but have been assessed because previous monitoring and traffic levels suggest further investigation was required.
Central Oxford AQMA

Monitoring has taken place at the following eight locations that are close to but outside of the area defined within the Central Oxford AQMA.

- Cornmarket Street
- York Place
- Keble Road / Banbury Road
- Parks Road (N)
- Gloucester Street
- Iffley Road (Magdalen College School)
- Butterwyke Place
- Blue Boar Street

In addition the following five streets outside, but adjoining the Central Oxford AQMA have also been assessed: -

- Botley Road
- Broad Street
- Folly Bridge
- Pike Terrace
- Thames Street

Green Road Roundabout AQMA

Further monitoring and computer modelling has also taken place close to relevant receptors within the defined AQMA.
3 Monitoring Results

Monitoring has taken place to demonstrate whether there are exceedences of the hourly mean or annual mean objectives for nitrogen dioxide.

3.1 Air Quality Objectives For Nitrogen Dioxide

*Hourly Mean Objective*

The hourly mean objective for nitrogen dioxide is 200µg/m\(^3\) not to be exceeded more than 18 times a year.

A report\(^1\) was carried out on behalf of DEFRA in 2003, on the relationship between hourly and annual mean nitrogen dioxide levels at UK roadside and kerbside sites. The report concluded that local authorities could reliably base decisions on likely exceedences of the hourly objective for nitrogen dioxide alongside busy streets, if the annual mean was 60µg/m\(^3\) and above. This report has been accepted by DEFRA for guidance in the detailed assessment process.

*Annual Mean Objective*

The annual mean objective for nitrogen dioxide is 40 µg/m\(^3\).

The DA report identifies receptors, the facades of residential properties where the annual mean objective may be exceeded.

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\(^1\) Analysis of the relationship between 1-hour and annual mean Nitrogen Dioxide at UK Roadside and Kerbside Monitoring Sites. D.Laxen Air Quality Consultants July 2003.
3.2 Cowley Centre and Associated Junctions

Diffusion tube monitoring has taken place over a period of six months in the vicinity of the Cowley shopping centre, and the following road junctions:

- Hollow Way / Garsington Road
- Oxford Road / Between Towns Road
- Between Towns Road / Barns Road

Figure 3 Monitoring in the vicinity of Cowley Centre

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Diffusion tube monitoring ug/m³</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average for 6 months</td>
<td>Bias corrected</td>
</tr>
<tr>
<td>C1</td>
<td>Barns Road Flats</td>
<td>34.7</td>
<td>40.2</td>
</tr>
<tr>
<td>C2</td>
<td>Barns Road Post Office</td>
<td>42</td>
<td>48.7</td>
</tr>
<tr>
<td>C3</td>
<td>Between Towns Road Bus Stop</td>
<td>42.6</td>
<td>49.4</td>
</tr>
<tr>
<td>C4</td>
<td>Between Towns Road Apartments</td>
<td>48.8</td>
<td>56.6</td>
</tr>
<tr>
<td>C5</td>
<td>Oxford Road Bus Stop (Apartments)</td>
<td>52.3</td>
<td>60.7</td>
</tr>
<tr>
<td>C6</td>
<td>Oxford Road / Hollow Way Bus Stop</td>
<td>46.3</td>
<td>53.7</td>
</tr>
</tbody>
</table>
Hourly Mean Objective for Nitrogen Dioxide
Using a value of 60ug/m$^3$ for the annual mean as a measure of compliance with the hourly mean objective no exceedences of this objective are likely within this area.

Annual Mean Objective for Nitrogen Dioxide
The results (C4 and C5) in the table above suggest this objective may be exceeded at the apartments on the corner of Oxford Road and Between Towns Road. The objective may also be exceeded Barns Road Post Office (C2) where there may be relevant exposure.
3.3 Church Cowley Road / Henley Avenue
Diffusion tube monitoring has taken place over a period of six months in the vicinity of Church Cowley Road and Henley Avenue. The monitoring locations are shown in figure 4 below.

![Monitoring in the vicinity of Church Cowley Road / Henley Avenue](image)

Figure 4 Monitoring in the vicinity of Church Cowley Road / Henley Avenue

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Diffusion tube monitoring ug/m³</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average for 6 months</td>
<td>Bias corrected</td>
</tr>
<tr>
<td>M1</td>
<td>Church Cowley Road</td>
<td>35.2</td>
<td>40.1</td>
</tr>
<tr>
<td>M2</td>
<td>Rose Hill</td>
<td>37.2</td>
<td>42.4</td>
</tr>
<tr>
<td>M3</td>
<td>Rose Hill</td>
<td>34.1</td>
<td>38.9</td>
</tr>
</tbody>
</table>

Annual Mean Objective for Nitrogen Dioxide
The monitoring results suggest that there are no locations in this area, with relevant exposure in exceedence of the objective.
3.4 Abingdon Road / Weirs Lane

Diffusion tube monitoring has taken place over a period of six months in the vicinity of Abingdon Road / Weirs Lane. The monitoring locations are shown in figure 5 below.

**Figure 5 Monitoring in the vicinity of Abingdon Road / Weirs Lane Junction**

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Diffusion tube monitoring ug/m³</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average for 6 months</td>
<td>Bias corrected</td>
</tr>
<tr>
<td>AW1</td>
<td>Abingdon Road (Inner)</td>
<td>43.5 49.6 43.4</td>
<td></td>
</tr>
<tr>
<td>AW2</td>
<td>Abingdon Road / Weirs Lane Junction</td>
<td>43 49 42.9</td>
<td></td>
</tr>
<tr>
<td>AW3</td>
<td>Abingdon Road / Weirs Lane Junction</td>
<td>47.8 54.5 47.7</td>
<td></td>
</tr>
<tr>
<td>AW4</td>
<td>Abingdon Road (Outer)</td>
<td>42.3 48.3 42.2</td>
<td></td>
</tr>
<tr>
<td>AW5</td>
<td>Abingdon</td>
<td>39 44.5 38.9</td>
<td></td>
</tr>
</tbody>
</table>
Annual Mean Objective for Nitrogen Dioxide
The monitoring results detailed above suggest that there may be one location (AW3) in this area where there is relevant exposure in exceedence of the 40ug/m$^3$ annual mean.

3.5 Donnington Bridge Road / Iffley Road Junction
Diffusion tube monitoring has taken place over a period of six months in the vicinity of the Donnington Bridge Road / Iffley Road junction. The monitoring locations are shown in figure 6 below.

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Diffusion tube monitoring ug/m$^3$</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average for 6 months</td>
<td>Bias corrected</td>
</tr>
<tr>
<td>DB1</td>
<td>Abingdon Road (Inner)</td>
<td>40.8</td>
<td>46.5</td>
</tr>
<tr>
<td>DB2</td>
<td>Abingdon Road / Weirs Lane Junction</td>
<td>42.8</td>
<td>48.8</td>
</tr>
</tbody>
</table>
Annual Mean Objective for Nitrogen Dioxide

The monitoring results detailed above suggest that there are no locations in this area where there is relevant exposure, in exceedence of the 40ug/m3 annual mean.
3.6 Watlington Road
Diffusion tube monitoring has taken place over a period of six months at one location on the Watlington Road. The monitoring location is shown in figure 7 below.

![Map of Watlington Road](image)

**Figure 7 Monitoring in the vicinity of Watlington Road**

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Diffusion tube monitoring ug/m³</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average for 6 months Bias corrected Seasonal adjustment</td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td>Watlington Road</td>
<td>32.6 37.1 32.5</td>
<td>No</td>
</tr>
</tbody>
</table>

Annual Mean Objective for Nitrogen Dioxide
The monitoring results detailed above suggest that there are no locations in this area where there is relevant exposure, in exceedence of the 40ug/m³ annual mean.
3.7 Eastern By-Pass / Oxford Road Junction

Diffusion tube monitoring has taken place over a period of six months at one location in the vicinity of the Eastern By-Pass / Oxford Road junction. The monitoring location is shown in figure 8 below.

![Figure 8 Monitoring in the vicinity of Eastern By-Pass / Oxford Road](image)

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Diffusion tube monitoring ug/m$^3$</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average for 6 months</td>
<td>Bias corrected</td>
</tr>
<tr>
<td>M1</td>
<td>Oxford Road</td>
<td>27</td>
<td>30.8</td>
</tr>
</tbody>
</table>

Annual Mean Objective for Nitrogen Dioxide

The monitoring results detailed above suggest that there are no locations in this area where there is relevant exposure, in exceedence of the 40ug/m$^3$ annual mean.
4 Summary of monitoring

4.1 Locations Where There May Be Relevant Exposure
The assessment has identified three locations where there may be relevant exposure above the 40ug/m³ annual mean nitrogen dioxide objective: -

Cowley Shopping Centre, in the vicinity of the Post Office

Corner of the junction of Between Towns Road and Oxford Road

Corner of the junction of Abingdon Road and Weirs Lane

4.2 Locations where there is no evidence for relevant exposure
Measurements at the following locations showed no evidence of relevant public exposure above the 40ug/m³ annual mean nitrogen dioxide objective: -

Church Cowley Road / Henley Avenue

Donnington Bridge Road / Iffley Road

Watlington Road

Eastern By Pass / Oxford Road
5 Air Quality Management Areas

5.1 Central Oxford AQMA

Locations Adjacent to and Outside the Central Oxford AQMA

The following map shows the location of properties within 10 metres of kerbside, adjacent to the central AQMA (excluding University college accommodation).

Figure 9 Dwellings within 10m of kerbside in central Oxford

There are over 400 dwellings, excluding university accommodation, close to the central Oxford AQMA. With current planned and future developments in central Oxford, it is likely that this number will increase.

Diffusion tube monitoring has taken place over a period of more than ten years at locations adjacent to and outside the Central Oxford AQMA. Roadside levels of nitrogen dioxide within the AQMA vary between 40-103 ug/m$^3$, with monitoring in 12 streets showing levels over 60 ug/m$^3$ (average 2004-2006).

The monitoring locations adjacent to and outside the AQMA are shown in figure 10 below.
Figure 10 Monitoring at locations adjacent to and outside the Central Oxford AQMA (highlighted in Blue)

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Average for 2004 – 2006 Bias corrected ug/m³</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Cornmarket Street</td>
<td>47</td>
<td>Unlikely, no nearby dwelling</td>
</tr>
<tr>
<td>C2</td>
<td>York Place</td>
<td>45</td>
<td>Yes, adjacent flats for the elderly</td>
</tr>
<tr>
<td>C3</td>
<td>Keble Road / Banbury Road</td>
<td>46</td>
<td>Unlikely, no nearby dwelling</td>
</tr>
<tr>
<td>C4</td>
<td>Parks Road (North)</td>
<td>44</td>
<td>Unlikely, no nearby dwelling</td>
</tr>
<tr>
<td>C5</td>
<td>Iffley Road (Magdalen College School)</td>
<td>43</td>
<td>Unlikely, no nearby dwelling</td>
</tr>
<tr>
<td>C6</td>
<td>Butterwyke Place</td>
<td>42</td>
<td>Possible, dwellings nearby</td>
</tr>
<tr>
<td>C7</td>
<td>Blue Boar Street</td>
<td>45</td>
<td>Unlikely, no nearby dwelling</td>
</tr>
<tr>
<td>C9</td>
<td>Gloucester Street</td>
<td>42</td>
<td>Unlikely, no nearby dwelling</td>
</tr>
</tbody>
</table>

Results for Locations Outside but Adjoining the Central Oxford AQMA

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Average for 2004 – 2006 Bias corrected ug/m³</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td>C8</td>
<td>Beckett Street</td>
<td>40</td>
<td>Possible, dwellings nearby</td>
</tr>
</tbody>
</table>
Hourly Mean Objective for Nitrogen Dioxide
Using a value of 60ug/m$^3$ for the annual mean as a measure of compliance with the hourly mean objective, no exceedences of this objective are likely within these areas.

Annual Mean Objective for Nitrogen Dioxide
The monitoring results detailed above suggest that there are two locations, York Place (C2) and Butterwyke Place (C6), adjacent to the Central Oxford AQMA, and five locations, Beckett Street (C8), Botley Road (C10) Folly Bridge (C12), Pike Terrace (C13) and Thames Street (C14), outside but adjoining the Central Oxford AQMA where there is relevant exposure in exceedence of the 40ug/m$^3$ annual mean objective.

5.1.1 Summary Central Oxford AQMA
The further detailed monitoring and assessment suggests that there are some locations adjacent to the central AQMA, with relevant exposure above the annual mean objective for nitrogen dioxide. This assessment suggests that these locations should be included within a re-defined area for the central AQMA, and further detailed assessments should take place at positions of relevant exposure when new traffic emissions inventory data becomes available.

One of these locations on Botley Road is at some distance from the boundary of the existing AQMA, suggesting that it would be appropriate for further assessment to take place along the Botley Road.

The continued designation of the central AQMA is closely related to future traffic management within this area. The central AQMA represents an area in the heart of the city that is subject to changes that result from developments to the traffic infrastructure, included planned developments.

As a result of the Air Quality Action Plan, air quality targets have been established within the current Local Transport Plan 2006-2011. The City Council, together with the County Council are currently investigating cost effective options for improving air quality in Oxford centre, including investigating the feasibility of a Low Emission Zone (LEZ) for central Oxford, taking account of planned developments.
Further detailed assessment will be taking place with regard to the alternative options proposed for an LEZ in Oxford. This will involve the use of a new traffic emissions model for central Oxford, along with monitoring and modelling, to determine the combined impacts of future options on local air quality.
5.2 Green Road Roundabout AQMA

It has not been previously possible to review the status of the Green Road Roundabout AQMA due to the operation of a new traffic scheme at the roundabout. The AQMA is shown in figure 11.

![Figure 11 Boundary of Green Road Roundabout AQMA](image)

The new traffic scheme was completed during 2006. The A40 now runs through the centre of the roundabout and traffic flows have changed since completion.

Figure 12 shows the dwellings located within 50m of road centres that approach Green Road Roundabout. There are approximately 500 dwellings identified within 20 metres of the kerbside of roads approaching the roundabout.
The assessment has taken place on the basis of six months of additional diffusion tube monitoring. In addition, air quality modelling was used with updated traffic data, and validated against the monitored data, to assess whether there are still relevant locations within the AQMA that exceed the 40ug/m³ annual mean nitrogen dioxide objective. The locations assessed are shown in figure 13, a prefix ‘G’ indicates locations of diffusion tube monitoring and a prefix ‘M’ locations modelled.
<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>Diffusion tube monitoring ug/m³</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average for 6 months</td>
<td>Bias corrected</td>
<td>Seasonal adjustment</td>
</tr>
<tr>
<td>G1</td>
<td>Cress Hill Place</td>
<td>45.2</td>
<td>51.5</td>
</tr>
<tr>
<td>G2</td>
<td>Lydia Close (North)</td>
<td>39.2</td>
<td>44.7</td>
</tr>
<tr>
<td>G3</td>
<td>Lydia Close (South)</td>
<td>40.3</td>
<td>45.9</td>
</tr>
<tr>
<td>G4</td>
<td>Roundway</td>
<td>45.8</td>
<td>52.3</td>
</tr>
<tr>
<td>G5</td>
<td>25 Green Road</td>
<td>32.6</td>
<td>37.1</td>
</tr>
<tr>
<td>G6</td>
<td>Roundabout L/P</td>
<td>52</td>
<td>(12months result)</td>
</tr>
<tr>
<td>G7</td>
<td>Footpath</td>
<td>40</td>
<td>(12months result)</td>
</tr>
<tr>
<td>G8</td>
<td>Corner House</td>
<td>31.2</td>
<td>(12months result)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tube Ref</th>
<th>Site</th>
<th>ADMS model result (ug/ m³)</th>
<th>Corrected model result (ug/ m³)</th>
<th>Is there evidence for relevant exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>Green Road</td>
<td>44.6</td>
<td>46.5</td>
<td>Yes dwellings nearby</td>
</tr>
<tr>
<td>M2</td>
<td>Green Road</td>
<td>42.1</td>
<td>42.5</td>
<td>Yes dwellings nearby</td>
</tr>
<tr>
<td>M3</td>
<td>Green Road</td>
<td>41.3</td>
<td>41.1</td>
<td>Yes dwellings nearby</td>
</tr>
</tbody>
</table>

Annual Mean Objective for Nitrogen Dioxide

The monitoring results detailed above suggest that there are six locations, Cress Hill Place (G1), Lydia Close North (G3), Roundway (G4), Green Road (M1), Green Road (M2) and Green Road (M3) in this area where there is likely to be relevant exposure, in exceedence of the 40ug/m³ annual mean.
5.2.1 Summary Green Road Roundabout AQMA

The further detailed monitoring and assessment has identified six locations, with relevant exposure, above the annual mean objective for nitrogen dioxide. Three of these locations (G3, G4 and M1) are within the existing AQMA, and three of the locations (G1, M2 and M3) are outside the existing AQMA.

The assessment also identified three locations (G6, G7 and G8) within the existing AQMA, with relevant exposure, below the annual mean objective for nitrogen dioxide.

This detailed assessment has confirmed the continued designation of an AQMA in this location. The area designated, as the boundary of the AQMA will however need to be modified to take account of the findings of this latest assessment.

Figure 14 Proposed boundary of new AQMA at Green Road Roundabout
6 Conclusions

6.1 Locations Requiring No Further Assessment
This DA Report has shown that no further assessment is required at the following locations: -

Church Cowley Road / Henley Avenue
Donnington Bridge Road / Iffley Road
Watlington Road
Eastern By-Pass / Oxford Road

6.2 Locations Requiring Further Assessment
6.2.1 Junctions and Shopping Centres
This DA Report has shown that further assessment is required at the following locations, where there may be relevant exposure, to determine whether or not an AQMA should be determined for exceedences of the annual mean air quality objective for Nitrogen Dioxide: -

Cowley Shopping Centre, in the vicinity of the Post Office
Corner of the junction of Between Towns Road and Oxford Road
Corner of the junction of Abingdon Road and Weirs Lane

6.2.2 Central Oxford AQMA
This DA Report has shown that further assessment is required to confirm whether or not the boundaries of the AQMA need to be re-defined and extended on the basis of likely exceedences of the annual mean air quality objective for Nitrogen Dioxide.

A new traffic emissions model for central Oxford is currently under development that will enable more precise assessment of current and future development scenarios. This work is being undertaken following the actions determined in the Air Quality Action Plan, including considering the feasibility for a Low Emission Zone.

It is proposed to further assess relevant exposures at locations along Botley Road, central housing areas and the Plain in more detail when the new model has been developed. This work is expected to provide a basis for a redefined area for the central AQMA that is based upon locations of relevant exposure.

6.2.3 Green Road AQMA
This DA Report has shown that there is evidence to suggest that the boundary of the existing AQMA needs to be modified on the basis of likely exceedences of the annual mean air quality objective for Nitrogen Dioxide. Further monitoring and assessment will take place to clarify the extent of the modifications required to the AQMA boundary before making final recommendations.
6.3 Locations Currently Under Investigation
Additional diffusion tube monitoring for a period of six-months is currently
taking place at the following locations: -

Hollow Way
Headington Shopping Centre / Windmill Road Junction
Summertown Shopping Centre / Ferry Hinksey Road Junction
Sunderland Avenue / Cutteslowe / Wolvercote Roundabouts

6.4 Locations To Be Assessed
The following seven junctions, identified in the 2004 DA Report, have still to
be assessed: -

Cherwell Drive / Marsh Lane / Headley Way / Marston Road
Windmill Road / London Road
Windmill Road / Old Road / The Slade
The Slade / Horspath Driftway / Hollow Way
Botley Road / Ferry Hinksey Road
Banbury Road / Parks Road
Parks Road / South Parks Road