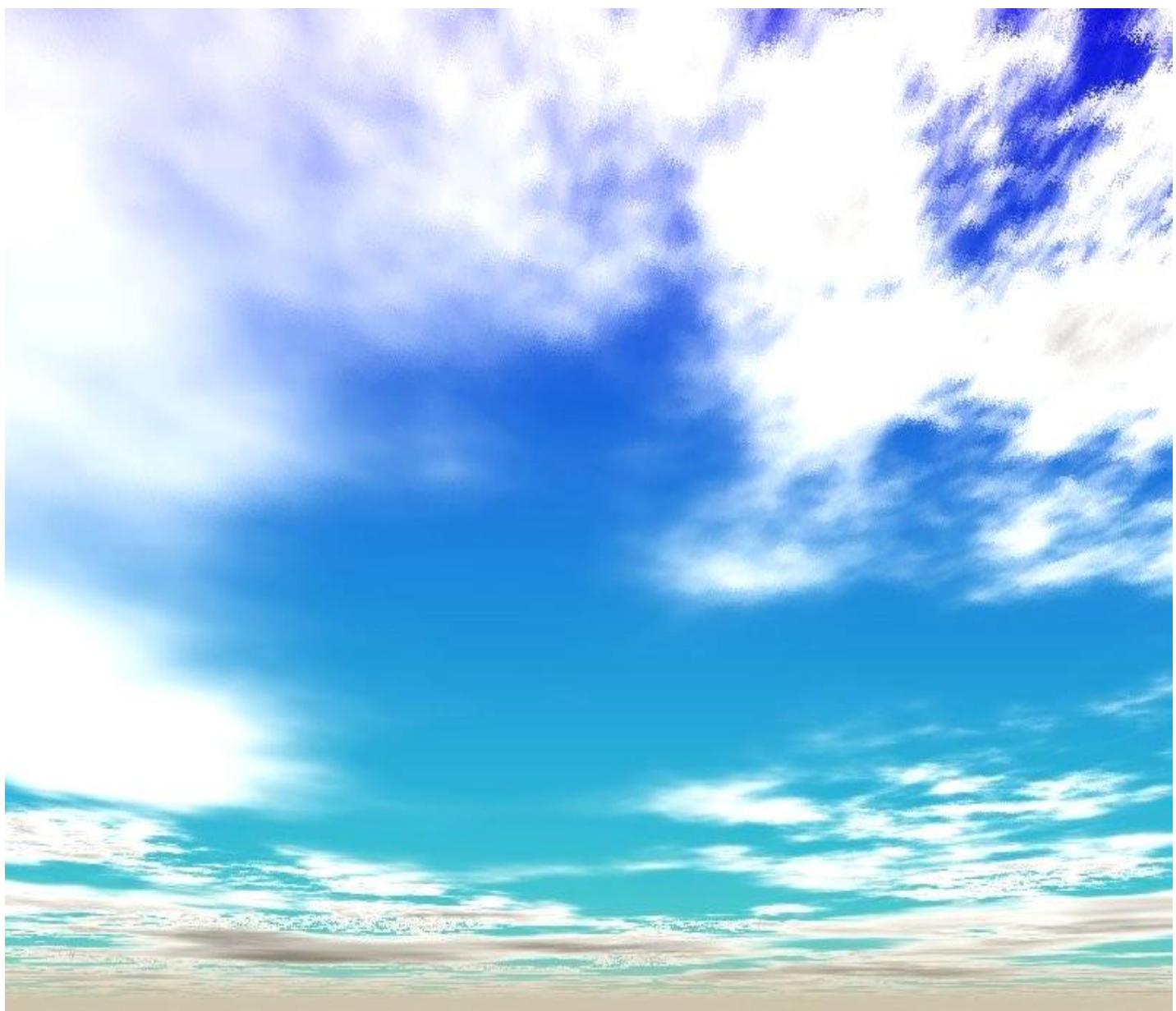




# Air Quality Action Plan 2015



**In fulfillment of Part IV of the Environment Act 1995**

**Local Air Quality Management**

# Index

<b>INTRODUCTION</b>	<hr/> 3
<b>AIR POLLUTION AND HEALTH</b>	<hr/> 5
<b>AIR QUALITY MANAGEMENT IN VALE OF WHITE HORSE</b>	<hr/> 6
Abingdon	<hr/> 6
Botley	<hr/> 7
Marcham	<hr/> 8
<b>WHATS BEEN DONE SO FAR</b>	<hr/> 8
<b>MOVING FORWARD</b>	<hr/> 9
<b>THE ACTION PLAN APPROACH</b>	<hr/> 10
<b>THE DISTRICT WIDE ACTIONS</b>	<hr/> 11
<b>AREA SPECIFIC MEASURES</b>	<hr/> 22
Abingdon	<hr/> 22
Botley area specific measures	<hr/> 23
Marcham area specific measures	<hr/> 25
<b>IMPLEMENTATION</b>	<hr/> 30
<b>EVALUATION AND MONITORING</b>	<hr/> 31
<b>APPENDICES</b>	<hr/> 32
1 - Air pollution and health tables	<hr/> 32
2 - Options considered but not viable at this time	<hr/> 35
3 - Legislation	<hr/> 36

# Introduction

A big part of our job at Vale of White Horse District Council (VWHDC) is making sure the district is a place where people want to come to live, work and enjoy. For some issues, like air quality, we're unable to tackle them on our own and have to work with local communities and other organisations before we can make a difference. Action plans like this one help us do this.

Generally, air quality in the district is very good, but we have areas where, usually due to traffic issues, air pollution exceeds the levels set by European and UK regulations (see appendix one for the air quality standards).

When that happens, and we've established there's a risk of the public being significantly exposed to the pollution, we have to create what's known as an Air Quality Management Area (AQMA). We then have to come up with an action plan that sets out how we will work with others to tackle the air quality problems in these areas. Appendix three sets out the legislation on air quality.

Our three Air Quality Management Areas are in Abingdon, Botley and Marcham. The action plan covers these areas.



## Air pollution and health

The health effects of air pollution have been widely publicised and it is now recognised by the government as the country's second-biggest health threat, after smoking. Appendix one (table two) lists the sources of pollutants and their health effects.

Vale of White Horse District Council has declared two air quality management areas due to elevated levels of a pollutant called nitrogen dioxide ( $\text{NO}_2$ ). The main cause of this in the Vale of White Horse is road traffic emissions. For the most part, road traffic actually emits nitric oxide (NO), but this becomes  $\text{NO}_2$  over time. Together NO and  $\text{NO}_2$  are referred to as  $\text{NO}_x$ .

So the best way of reducing  $\text{NO}_2$  is to try and reduce total nitrogen oxide ( $\text{NO}_x$ ) emissions in the first place.

The health risks of  $\text{NO}_2$  because it's an irritant gas are that it can cause inflammation of the eyes, nose, throat and respiratory tract especially amongst those with existing respiratory problems. It can have both short-term 'acute' effects and long-term 'chronic' effects.

The acute effects are caused by exposure to high levels of  $\text{NO}_2$  in a short timeframe, but this is not a problem in the Vale of White Horse<sup>1</sup>. Chronic effects are caused by exposure to lower levels of  $\text{NO}_2$  over a long period of time. In the two areas we have declared as AQMAs  $\text{NO}_2$  exceeds the standard of 40 micrograms per cubic metre of air ( $\mu\text{g}/\text{m}^3$ ) and over a long period of time could lead to chronic health effects, hence the need for this plan.

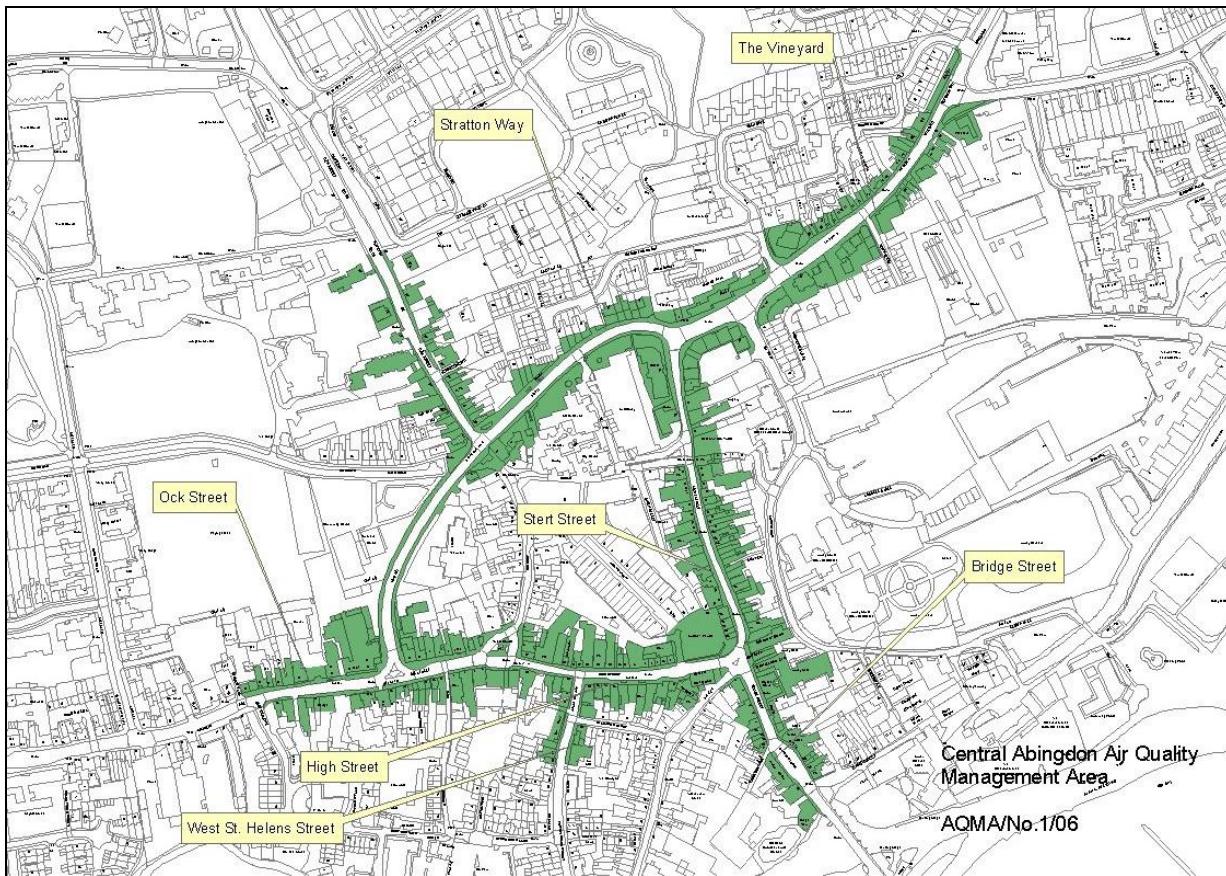
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<sup>1</sup> The short-term air quality standard for nitrogen dioxide is  $200\mu\text{g}/\text{m}^3$  as an hourly average. This short term objective is not currently being exceeded within any of the AQMAs within the district.

## Our AQMAs

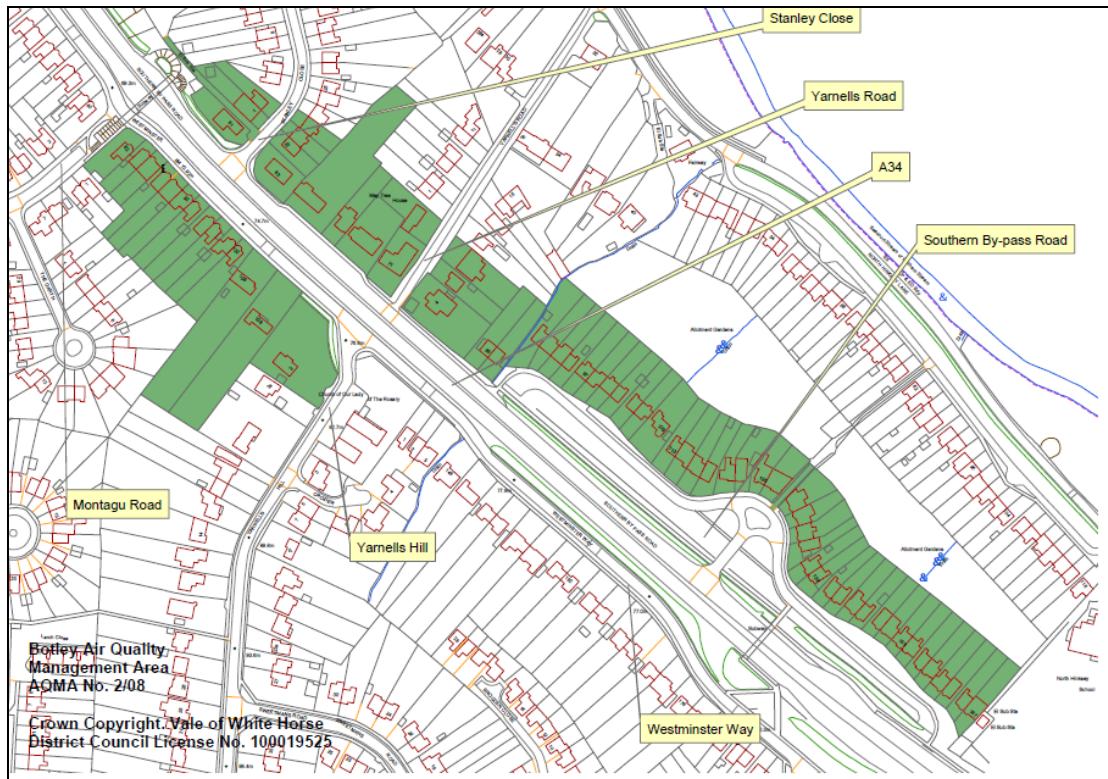
### ABINGDON

The Abingdon AQMA (illustrated below) was declared in 2006 covering the central ring of roads around the centre of Abingdon. These roads include Stratton Way, Stert St, High St, Vineyard, Bridge St, and parts of Ock St and Bath St which feed into the central ring.



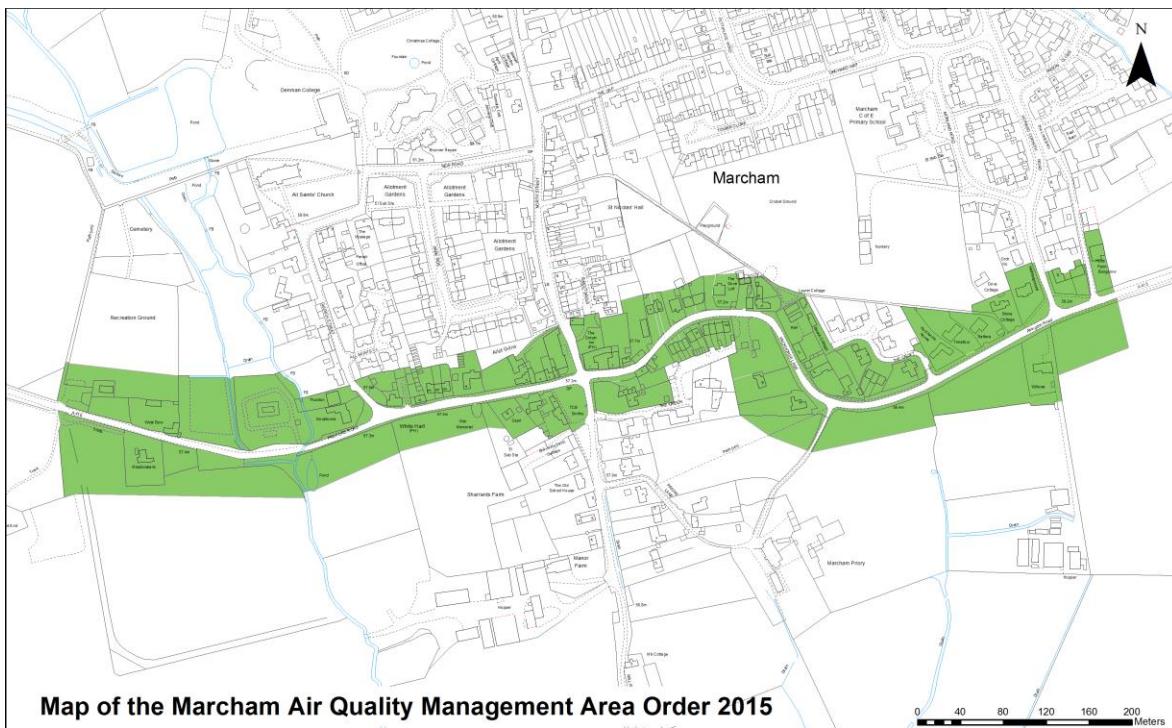
## BOTLEY

The Botley AQMA (illustrated below) was declared in 2008 and covers properties in close proximity to the A34 trunk road on Southern Bypass Road, Stanley Close and Westminster Way.



## Marcham

The Marcham AQMA was declared in early 2015 and covers the whole of the area adjacent to the A415 as it passes through the built up area.



## What's been done so far

### ABINGDON

An action plan was produced for Abingdon in 2009.

One of the major actions was the introduction of a traffic management system. This was an Oxfordshire County Council (OCC) initiative called Abingdon Integrated Transport Strategy (AbiTS), designed to smooth the traffic flow within Abingdon and reduce queuing times. We also worked with OCC to promote school and work place travel plans to reduce road traffic within the town centre. The good news is that levels of NO<sub>2</sub> have fallen since the introduction of AbiTS. In 2012 the majority of NO<sub>2</sub> levels were below the air quality standard and we will monitor the situation to see whether this continues. The general actions within this plan will have a positive effect on the air quality in Abingdon and if the situation improves or remains the same we will reduce or remove the AQMA.

## BOTLEY

We've included an action for Botley in this action plan because it has not had one previously.

Specific actions to reduce NO<sub>2</sub> in Botley are very difficult because the pollution is created by a busy trunk road controlled by the Highways Agency. The Highways Agency has introduced a 50 mile per hour speed limit to reduce air pollution however levels remain above the air quality standard. We will continue to work with the Highways Agency to explore potential measures to reduce road traffic, improve air pollution and its impacts.

## MARCHAM

We've included some specific actions for Marcham in this action plan. Marcham has only recently been declared as an AQMA and we consulted on proposed actions during a public consultation on the AQMA. In Marcham the air quality issues are exacerbated by the narrow constriction of the A415 as it passes through the village and the proximity of housing to this road and the high impact of HGVs which frequently hold up other traffic. We will work with the county council to try to seek alternative routes and improve air quality.

## Moving forward

The main aims of this action plan are to:

- improve air quality levels throughout the district and specifically within the AQMAs, to meet current air quality standards
- encourage a move towards more sustainable development within the district through the planning process
- encourage and enable low emission transport throughout the district
- reduce air pollution and contribute to the development of more sustainable communities in order to help improve the health and well being of our residents.

To inform appropriate actions to meet these aims and to measure success in the future we needed to establish baseline data particularly for the three AQMAs. We established this through measuring and monitoring pollution and traffic and the results can be found in the area specific sections of this plan.

## The action plan approach

As we have three AQMAs in different locations within the Vale of White Horse we've decided to take a district wide approach to producing an air quality action plan, so that the whole of the district benefits from the improvements in air quality. This is particularly important given that air pollutants cannot be contained and can spread as a result of changing weather patterns.

Therefore we've produced one over-arching plan which includes district wide actions as well as actions specifically for the Botley and Marcham AQMAs.

Whilst targeted at emissions of NOx, the actions in this plan are focused on moving towards more sustainable communities, which will lead to reductions in other pollutants such as carbon dioxide (CO<sub>2</sub>) and particulate matter (PM) as well. PM is a mixture of solid particles and liquid droplets found in the air.

We aim to achieve this through a collaborative approach between ourselves, OCC, Highways Agency and the Oxfordshire Clinical Commissioning Group, Thames Valley Police alongside other key stakeholders and the public.

Some individual actions may have relatively little impact in isolation, but cumulatively could be significant in improving air quality.

## COST BENEFIT

We've categorised the effects and predicted costs for individual air quality actions as follows:

	LOW	MEDIUM	HIGH
<b>Air quality effects</b>	0-1 µg/m <sup>3</sup>	1-2 µg/m <sup>3</sup>	>2 µg/m <sup>3</sup>
<b>Cost (£)</b>	<100K	100-500K	>500K

# District wide actions

## GENERAL ACTIONS

### 1) Creation of a ‘low emission strategy’ and ‘low emission zone’ feasibility study

Action	Consider the recommendations identified in the low emission feasibility study that South Oxfordshire District Council (SODC) has commissioned to see if any of the actions would benefit the Vale in terms of improving air quality. The study includes looking at the possibility of introducing low emission zones (LEZ) where vehicles can only enter if they meet the required standards.		
Justification	We are not aware of LEZ studies for rural areas that could apply to the Vale of White Horse. However SODC has commissioned one which is underway that the Vale may benefit from. We will also review any similar studies we become aware of.		
Benefits & air quality impacts	<ul style="list-style-type: none"> <li>the study could identify further actions to reduce NOx, CO<sub>2</sub> and PM emissions</li> </ul>		
Costs/ barriers	<ul style="list-style-type: none"> <li>the study may recommend actions that are not supported by businesses or that adversely affect the local economy</li> <li>the actions will have cost implications which the council and others will need to consider.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
2017	LOW Use of existing studies currently being carried out	VWHDC OCC	Potential AQ impact: HIGH  Study identifies further cost effective actions that the council and others can take to address air quality.

## 2) Installation of electric vehicle recharging points

Action	<p>Provide electric vehicle recharging points in council car parks.</p> <p>Require electric vehicle recharging points in new developments and private car parks through planning conditions.</p>		
Justification	<p>Electric vehicles create no exhaust emissions and therefore help to improve air quality. However there are limited electric vehicle recharging points in the district and studies have shown this to be a barrier to their use.</p> <p>If predictions are right the next few years will see a revolution in the motoring industry as tens of thousands of electric vehicles hit the road.</p> <p>Increased provision of electric charging points along with their promotion should increase electric vehicle uptake.</p>		
Benefits & air quality impacts	<ul style="list-style-type: none"> <li>• reduced NOx and PM emissions</li> <li>• increased uptake of low emission vehicles</li> <li>• reduced CO<sub>2</sub> emissions (according to the Department for Transport electric vehicles could reduce CO<sub>2</sub> emissions by up to 40 per cent compared to the average car).</li> </ul>		
Costs / barriers	<ul style="list-style-type: none"> <li>• charging points not currently considered a selling point for developers</li> <li>• loss of annual revenue from council car parking of approximately £200 per space used to install a charging point</li> <li>• quicker charging points are more costly and more suited for short stays.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
Dependant on funding & planning policies	LOW <£100 for domestic £6,000 for public £20,000 for quicker charging points	VWHDC (planning) developers	Potential AQ impact: LOW-HIGH (dependant on uptake)  Number of charging points installed

### 3) Parking permit & pricing incentives for green vehicles

Action	<p>Offer free parking permits for electric vehicles.</p> <p>Offer cut price parking permits for low emission vehicles.</p> <p>Allow free parking for visitors in council car parks for electric vehicles.</p>		
Justification	<p>Electric vehicles create no exhaust emissions and therefore help to improve air quality.</p> <p>Offering incentives for using electric vehicles could increase their use.</p>		
Benefits & air quality impacts	<ul style="list-style-type: none"> <li>• an increase in uptake of low emission vehicles</li> <li>• reduction in NOx, PM and CO<sub>2</sub> emissions.</li> </ul>		
Costs / barriers	<ul style="list-style-type: none"> <li>• the actions will have cost implications which the council will need to consider</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
2016	LOW	VWHDC (facilities)	<p>Potential AQ impact: LOW</p> <p>Number of permits issued</p>

## 4) Feasibility study for freight transport consolidation centre (FCC) / freight quality partnership

<b>Action</b>	<p>In partnership with Oxfordshire authorities, commission a study to investigate the potential for an out of town freight consolidation centre. This would be a centre, close to the strategic road network, where goods can be consolidated for onwards dispatch in smaller, low emission vehicles.</p> <p>Part of this study will look into creating partnerships with freight companies to agree actions to improve air quality like using low emission fleets and setting up route agreements.</p>		
<b>Justification</b>	<p>HGVs contribute between 14 and 45 per cent of road NOx within our AQMAs and FCCs and freight partnerships have proven to reduce pollution and congestion.</p>		
<b>Benefits &amp; air quality impacts</b>	<ul style="list-style-type: none"> <li>• study could identify actions freight companies could take to reduce NOx, CO<sub>2</sub>, PM emissions, congestion and road noise</li> </ul>		
<b>Costs / barriers</b>	<ul style="list-style-type: none"> <li>• the other councils do not agree to a joint study</li> <li>• the study may recommend actions that are not supported by businesses or that adversely affect the local economy</li> <li>• the study may suggest actions that are not cost effective or affordable</li> <li>• we might not secure funding for this project.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
2015 apply for funding  Study completed 2016	LOW for study but HIGH for implementation	OCC and Oxfordshire authorities	<p>Potential AQ impact: HIGH (if pursued)</p> <p>Study identifies further cost effective actions to improve air quality</p>

## 5) Taxi licensing incentives for green vehicles

Action	<p>Consider introducing a sliding scale where licence fees are linked to emissions.</p> <p>Consider introducing a limit on the age of vehicles when our licensing policy is next reviewed.</p>		
Justification	<p>There are over 300 taxis operating in the Vale of White Horse and by encouraging taxi companies to use low emission vehicles we can reduce their impact on air quality.</p> <p>Older vehicles create more pollution and therefore by limiting the age of a vehicle we can reduce emissions further.</p>		
Benefits & air quality impacts	<ul style="list-style-type: none"> <li>• reduced NOx emissions</li> <li>• reduced CO<sub>2</sub> and PM emissions</li> <li>• taxi drivers may choose to purchase lower emissions vehicles if this policy is implemented.</li> </ul>		
Costs / barriers	<ul style="list-style-type: none"> <li>• taxi companies may not support the change in policy to limit the age in vehicles due to the cost implications of buying new ones</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
2016	Officer time	VWHDC	Potential AQ impact: LOW Changes to our licensing policy

## 6) Improved use and enforcement of traffic regulation orders

<b>Action</b>	<p>Work with OCC to ensure current traffic orders, such as weight limits are being adhered to.</p> <p>Research the feasibility of issuing fixed penalty notices for engine idling or ignoring traffic orders.</p> <p>Research the potential effects of changing the existing weight restriction zone boundaries, or the impact of introducing further weight restriction zones.</p> <p>Enter into voluntary agreements with bus operators to prevent unnecessary idling.</p>		
<b>Justification</b>	<p>An idling engine releases twice as many fumes as a vehicle in motion and councils have the power to reduce this through issuing fixed penalties to those drivers who refuse to turn their engines off.</p> <p>Reducing the number of engines running unnecessarily will also reduce congestion and associated pollution.</p>		
<b>Benefits &amp; air quality impacts</b>	<ul style="list-style-type: none"> <li>• reduced NOx emissions</li> <li>• reduced CO<sub>2</sub> and PM emissions</li> <li>• economic benefits to car owners in fuel savings.</li> </ul>		
<b>Costs / barriers</b>	<ul style="list-style-type: none"> <li>• police and OCC have limited budgets so enforcement costs may fall to this council</li> <li>• likely to prove very unpopular with motorists.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
2016	LOW	OCC Police VWHDC	<p>Potential AQ impact: LOW</p> <p>Number of fixed penalty notices issued</p>

## 7) Review of the council and contractors fleet

<b>Action</b>	<p>Explore the potential for bio diesel and low emission refuse collection vehicles.</p> <p>Consider updating our procurement policy to put greater emphasis on using low emission vehicles for council contracts.</p>		
<b>Justification</b>	<p>HGVs contribute up to 45 per cent of road NOx emissions within our AQMAs. Each refuse vehicle does approximately 25,000 miles through the district each year.</p> <p>If we introduce low emission vehicles not only would we make a modest contribution to reducing these emissions we would also lead by example.</p>		
<b>Benefits &amp; air quality impacts</b>	<ul style="list-style-type: none"> <li>• reduced NOx emissions</li> <li>• reduced CO<sub>2</sub> and PM emissions</li> <li>• economic benefits to fleet operators.</li> </ul>		
<b>Costs / barriers</b>	<ul style="list-style-type: none"> <li>• if we insist on low emission vehicles in contracts we could face higher costs</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
Research completed 2016  Actions are funding dependant	MEDIUM (subject to outcome of procurement of vehicles)	VWHDC OCC contractor	<p>Potential AQ impact: LOW-MEDIUM</p> <p>Change in policy to promote uptake of low emission vehicles</p> <p>Low emission vehicles in operation</p>

## 8) Eco driver training

Action	To trial an eco driver scheme with council staff and if successful promote this to other transport operators.		
Justification	Trials of eco driver training have proved to reduce fuel use (up to 15 per cent) and emissions and we could achieve similar success if we piloted a scheme.		
Benefits & air quality impacts	<ul style="list-style-type: none"> <li>• reduced NOx emissions</li> <li>• reduced CO<sub>2</sub> and PM emissions</li> <li>• economic benefits to transport operators if they adopt the scheme</li> <li>• increased safety on roads.</li> </ul>		
Costs / barriers	<ul style="list-style-type: none"> <li>• it could be difficult to get people to buy into the scheme unless it is compulsory</li> <li>• benefits could be short term and refresher courses may be needed.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
2016 trial complete  Further schemes are funding dependant	LOW (£20 each = £8,000 for current staffing levels)	VWHDC OCC contractors fleet operators	Potential AQ impact: LOW-MEDIUM  Reduction in fuel use  Number of drivers trained

## 9) Air quality planning guidance

Action	Include air quality requirements in development policies.		
Justification	<p>This council currently only gives advice on large developments or planning applications that relate to an AQMA and therefore we miss opportunities to control emissions from other developments outside of these areas.</p> <p>Planning applications are often delayed because air quality information isn't provided when they are first submitted.</p>		
Benefits & air quality impacts	<ul style="list-style-type: none"> <li>• reduced emissions of NOx, CO<sub>2</sub> and PM from buildings</li> <li>• quicker processing of planning applications</li> <li>• create more sustainable homes and communities.</li> </ul>		
Costs / barriers	<ul style="list-style-type: none"> <li>• agents and developers building outside of the AQMAs may incur additional costs through carrying out air quality assessments and therefore they may not support this proposal</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
2015	Officer time	VWHDC	<p>Potential AQ impact: LOW-HIGH  Number of planning applications with air quality assessments</p> <p>Increase in Community Infrastructure Levy funding received, to offset air pollution caused by developments</p> <p>Reduction in time taken to process planning applications for developments in AQMAs</p>

## 10) Community involvement projects

<b>Action</b>	<p>Work with and support local groups on air quality projects.</p> <p>Raise awareness of air quality issues to promote behavioural change.</p> <p>Work with other Oxfordshire authorities and public health bodies on future county wide initiatives to improve air quality.</p>		
<b>Justification</b>	<p>We cannot improve air quality on our own because it involves people changing their behaviours and some of the causes are outside of our control. Therefore we need to encourage others to take action with us to improve air quality.</p>		
<b>Benefits &amp; air quality impacts</b>	<ul style="list-style-type: none"> <li>• working collaboratively with communities and partners is more likely to attract additional funding into the district and deliver more projects to improve air quality</li> <li>• increased awareness of air quality to drive behavioural change</li> <li>• reduced emissions of NOx, CO<sub>2</sub> and PM.</li> </ul>		
<b>Costs / barriers</b>	<ul style="list-style-type: none"> <li>• it can be difficult to get people to buy in to partnership working.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
ongoing	Unknown based on grant funding	VWHDC Oxfordshire Clinical Commissioning Group health bodies community groups town and parish councils	<p>Potential AQ impact: LOW-MEDIUM</p> <p>Number of air quality improvement projects</p> <p>Public awareness of air quality issues</p>

## 11) Introduce south facing slip roads to Lodge Hill interchange

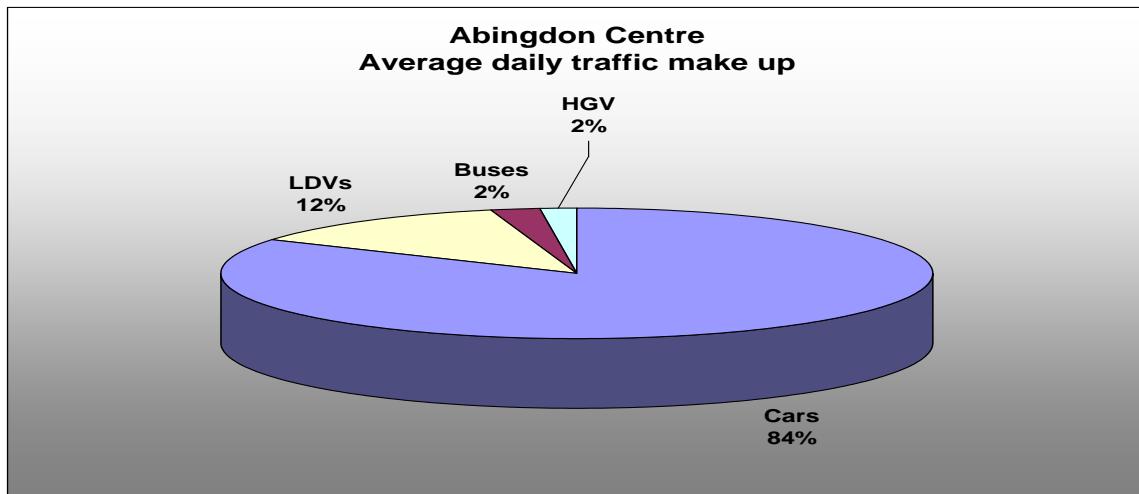
Action	Seek to make the A34 Lodge Hill interchange a four way interchange by providing south facing slip roads.		
Justification	Increasing the two way interchange into a four way one will remove the need for much of the traffic from northern Abingdon to have to pass through the town and the AQMA to access the A34.		
Benefits & air quality impacts	<ul style="list-style-type: none"> <li>• Reduction in NOx, CO<sub>2</sub> and PM emissions in the town centre and principle routes to the town centre</li> </ul>		
Costs / barriers	<ul style="list-style-type: none"> <li>• The estimated cost, based on the knowledge of similar projects, would be in the region of £8 million</li> <li>• Funding would be dependent on S106 contributions however there are currently no proposals in our draft local plan for developments of the scale needed to generate this level of funding</li> <li>• Possible increased use of A34 by local traffic may not be welcomed by Highways Agency.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
Long term objective	£8 million	OCC Highways Agency	Reduced through traffic in Abingdon.

# Abingdon

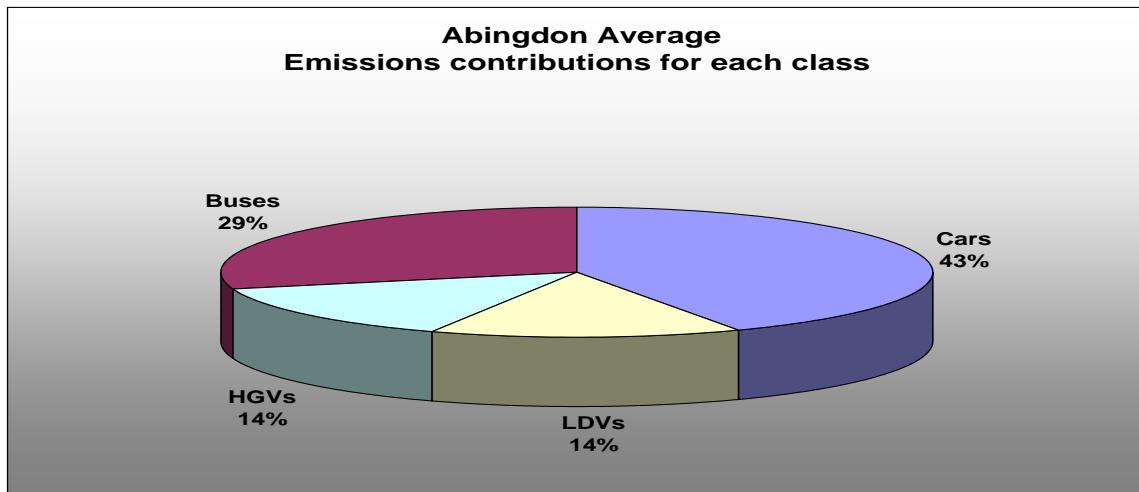
## BREAKDOWN OF EMISSIONS AND TARGETS FOR REDUCTION

IN 2013 air quality levels were within the air quality standards by 2 per cent (reaching  $39\mu\text{g}/\text{m}^3$  against the standard of  $40\mu\text{g}/\text{m}^3$ ).

To understand the contribution of different sources to the overall concentrations of NOx we carried out a source apportionment exercise illustrated in the charts below. These show that the majority of the traffic in the centre of Abingdon are cars but they only contribute 43 per cent of the road NOx levels. Conversely HGVs and buses make up just four per cent of the traffic but contribute 43 per cent of the total road NOx emissions. We need to continue to focus on all vehicle types to in order to maintain the improvements.



Recent monitoring indicates that we are currently meeting the air quality standards in the majority of areas in the centre of Abingdon and if further monitoring shows similar results we will reduce or remove the AQMA in the future.



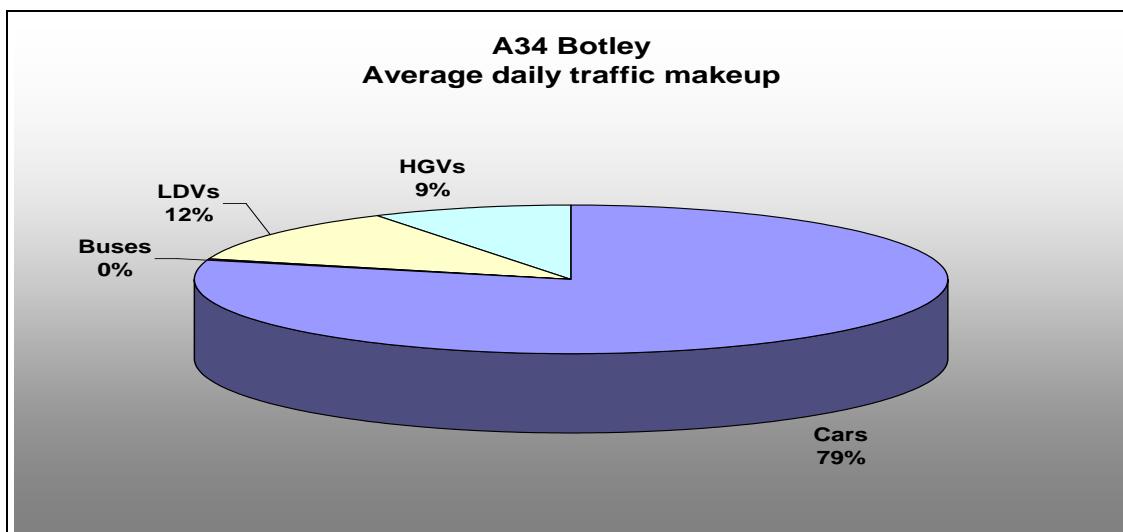
## Botley A34

### BREAKDOWN OF EMISSIONS AND TARGETS FOR REDUCTION

IN 2013 air quality levels were exceeding the air quality standards by 15 per cent (reaching 46 $\mu\text{g}/\text{m}^3$  against the standard of 40 $\mu\text{g}/\text{m}^3$ ).

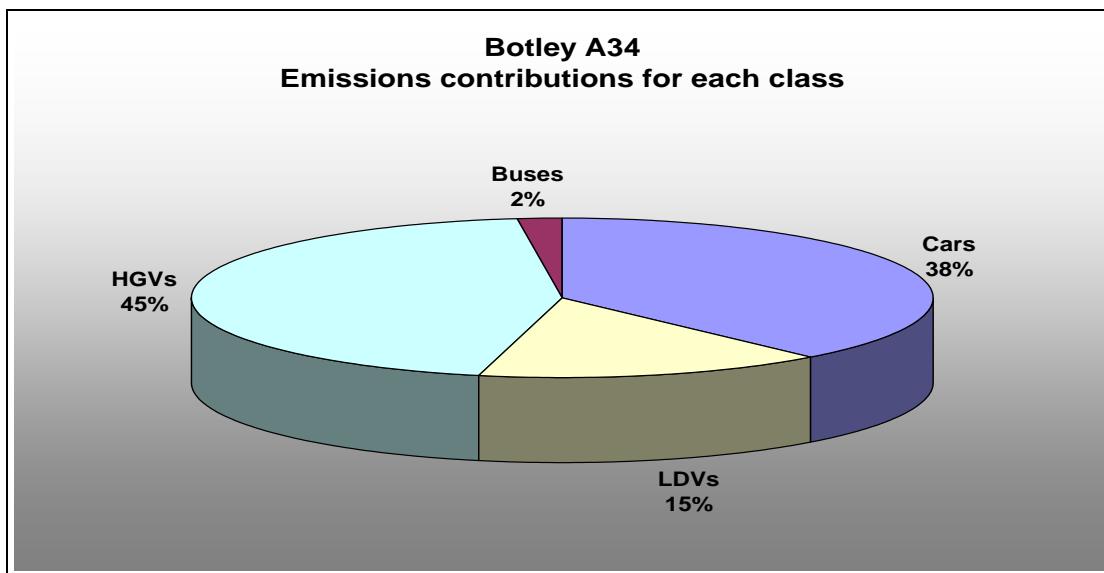
The charts below show that the majority of the traffic on the A34 in Botley are cars but they only contribute 38% of the road NOx levels. Conversely HGVs and buses make up just nine per cent of the traffic but contribute 47% of the total road NOx emissions.

Therefore we need to focus on HGVs, LDV's and cars in order to make improvements.



Recent monitoring indicates that in order to meet the air quality standards for Botley A34 we need to reduce NO<sub>2</sub> by 7 $\mu\text{g}/\text{m}^3$

In order to achieve this we need to reduce road NOx emissions by 23 per cent or total NOx emissions by 15 per cent.



## Area Specific Measure: Botley

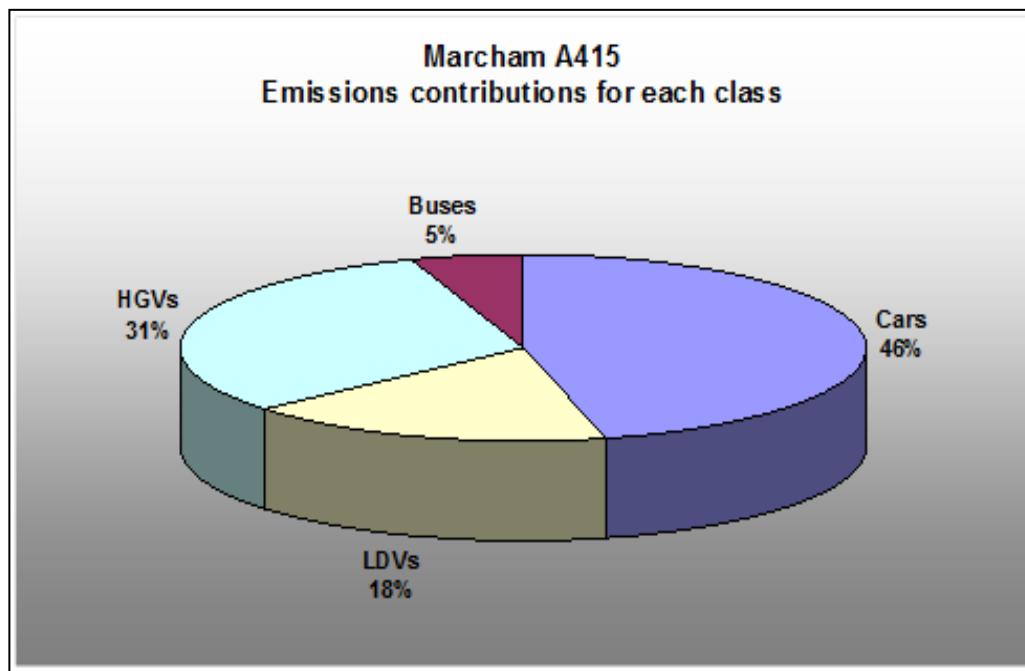
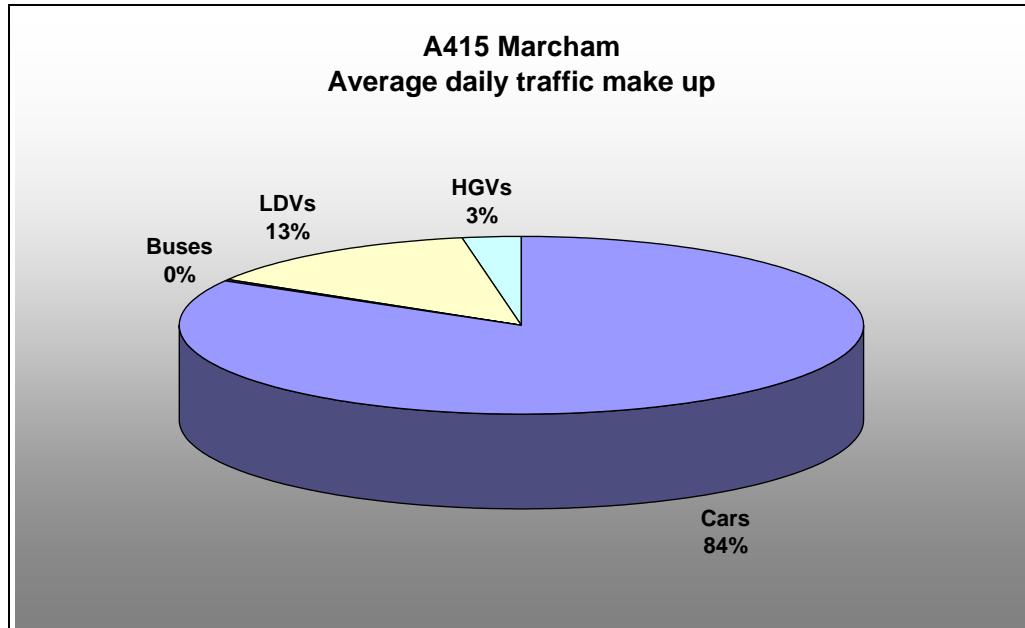
### B1) Assess Feasibility of Barriers

Action	Commission a feasibility study to identify potential air quality impacts of installing barriers near the southbound carriageway.		
Justification	Barriers have been used successfully to reduce air pollution levels elsewhere.		
Benefits & Air Quality Impacts	<ul style="list-style-type: none"> <li>• reduced NOx emissions</li> <li>• reduced CO<sub>2</sub> and PM emissions.</li> </ul>		
Cost/ barriers	<ul style="list-style-type: none"> <li>• Dependant on funding</li> </ul>		
Target Completion date	Cost	Responsible Agency	Measurable Impact
Dependant upon funding	LOW	VWHDC	Potential AQ impact: HIGH Study complete

## Marcham A415 specific actions

### BREAKDOWN OF EMISSIONS AND TARGETS FOR REDUCTION

The predominant road users in Marcham are car drivers which make up 84% of the traffic and 46% of emissions, whilst HGVs make up 3% of traffic and 31% of emissions, buses make up less than 1% of traffic and 5% of emissions. LDVs make up 13% of the traffic and contribute 18% to emissions. This demonstrates the need to target emissions from more than one vehicle class.





A detailed assessment was undertaken in 2014 following recorded exceedences of the objective. The modelling in the detailed assessment indicated that the objective would continue to be exceeded and that an AQMA should be declared. The maximum predicted exceedence is in Packhorse Lane where NO<sub>2</sub> levels of 50µ/m<sup>3</sup> are predicted. This is 20% above the objective and a 26% reduction in emissions would be required for the objective to be met.

## Area Specific Measures: Marcham

### M1) Low emission zone feasibility study

Action	Commission a low emission zone feasibility study to identify further actions to improve air quality in Marcham with a particular focus on HGVs and buses. Part of this study will look at the potential for a low emission zone that would mean vehicles could only enter the area if they meet the required standards.		
Justification	Within the AQMA 36 % of road emissions are attributable to HGVs and buses. The feasibility study would recommend actions to address this.		
Benefits and air quality impacts	The study should identify further actions to reduce NOx, CO <sub>2</sub> and PM emissions.		
Costs / barriers	<ul style="list-style-type: none"> <li>• the study may recommend actions not supported by businesses or that adversely affect the local economy</li> <li>• the actions will have cost implications which the council and others will need to consider.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
2017 funding dependant	LOW: Defra grant funding will be sought	VWHDC	<p>Potential AQ impact: HIGH (if pursued)</p> <p>Study identifies further cost effective actions that the council and others can take to address air quality</p>

## M2) Weight restriction limit

<b>Action</b>	Consider with OCC the feasibility of imposing a weight restriction limit on the A415 through Marcham to discourage HGVs and larger vehicles.		
<b>Justification</b>	To reduce emissions from larger vehicles and congestion in Marcham.		
<b>Benefits and air quality impacts</b>	<ul style="list-style-type: none"> <li>• reduced NOx emissions in the sensitive area</li> <li>• reduced CO<sub>2</sub> &amp; PM emissions in the sensitive area</li> <li>• environmental benefits</li> <li>• reduced congestion.</li> </ul>		
<b>Costs / barriers</b>	<ul style="list-style-type: none"> <li>• need to identify a suitable alternative route</li> <li>• may not be acceptable to residents on any proposed new route.</li> </ul>		
<b>Target completion date</b>	<b>Cost</b>	<b>Responsible agency</b>	<b>Measurable impact</b>
2017	LOW	VWHDC/OCC	Potential AQ impact: HIGH Completion of feasibility study

### M3) Marcham by-pass

Action	Consider with OCC and local planners the potential for the building of the by-pass proposed for Marcham.		
Justification	To provide an alternative route for the A415 traffic which would improve air quality in Marcham.		
Benefits and air quality impacts	<ul style="list-style-type: none"> <li>• reduced NOx emissions in the sensitive area</li> <li>• reduced CO<sub>2</sub> &amp; PM emissions in the sensitive area</li> <li>• environmental benefits</li> <li>• reduced congestion in Marcham.</li> </ul>		
Costs / barriers	<ul style="list-style-type: none"> <li>• a by-pass has been proposed on road safety grounds but funding has never been found to implement it. Not likely to be funded without significant development in the area.</li> <li>• OCC have defined a preferred route but it is not included in the Vale local plan.</li> </ul>		
Target completion date	Cost	Responsible agency	Measurable impact
Long term objective	High	OCC	Potential AQ impact: HIGH

## Implementation

In order to deliver some of the more expensive actions in this plan, the council will need to secure external funding to supplement money that we allocate from our general funds. We will apply to grant giving organisations and seek contributions from developers through section 106 agreements, where appropriate. We will consider using funding gained through the Community Infrastructure Levy once this is in place. We will support OCC in applications for funding towards its transport actions.

The success of the action plan depends on all of the partners delivering their specific actions and contributing to joint ones.

## Evaluation and monitoring

The government accepts that it is not always possible to achieve air quality standards but expects councils to demonstrate that they are working towards them. By delivering the actions in this plan we are showing our commitment to achieving them and improving air quality.

We will continue to monitor air quality across the district to assess the impact of the actions contained in this plan and will publish the results annually on our website.

Every three years we will review our plan to assess improvements in air quality and progress on delivering the actions. We will consult on any changes to actions in the plan as a result of the findings of the reviews.

# Appendix 1

## AIR POLLUTION OBJECTIVES TABLE

We have to do an annual review of all of the objectives set out in the Air Quality Regulations 2003. This review is sent to DEFRA for approval. The latest review has shown NO<sub>2</sub> is the only pollutant that is above the objective in the vale of white horse district. The other pollutants are well within the objectives and so no action is required. These are listed below:

- Benzene
- 1,3 Butadiene
- Carbon monoxide
- Lead
- Particles (PM<sub>10</sub>)
- Sulphur dioxide.

The objective for NO<sub>2</sub> is as follows

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
<b>Nitrogen dioxide</b>	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1 hour mean	31.12.2005 - achieved
	40 µg/m <sup>3</sup>	annual mean	31.12.2005 – not achieved

## HEALTH EFFECTS OF AIR QUALITY: TABLE TWO

Sources of pollutants and health effects		
Pollutant	Sources	Health Effects
<b>Nitrogen Dioxide</b>	Nitric oxide (NO) is mainly derived from road transport emissions and other combustion processes such as the electricity supply industry. Nitric oxide is not considered to be harmful to health. However, once released to the atmosphere, NO is mostly very rapidly oxidized, mainly by ozone ( $O_3$ ), to nitrogen dioxide ( $NO_2$ ), which can be harmful to health. $NO_2$ and NO together are referred to as nitrogen oxides ( $NO_x$ ).	Nitrogen dioxide can irritate the lungs and lower resistance to respiratory infections such as influenza. Continued or frequent exposure to concentrations that are typically much higher than those normally found in the ambient air may cause increased incidence of acute respiratory illness in children.
<b>Fine Particles (PM<sub>10</sub>, PM<sub>2.5</sub> and PM<sub>3</sub>)</b>	Fine particles are a complex mixture of extremely small particles and liquid droplets made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles.	Particles are measured according to their mean aerodynamic diameter. Most monitoring is currently focused on PM <sub>10</sub> , but monitoring of the finer fractions PM <sub>2.5</sub> and PM <sub>3</sub> is increasing due to their effects on health. Fine particles can be carried deep into the lungs where they can cause inflammation and aggravate existing heart and lung diseases. They may also carry surface-absorbed carcinogenic compounds into the lungs.
<b>Sulphur Dioxide</b>	Sulphur dioxide (SO <sub>2</sub> ) is produced when a material, or fuel, containing sulphur is burned. In the UK the predominant source is power stations burning fossil fuels, principally coal and heavy oils. Widespread domestic use of coal can also lead to high local concentrations of SO <sub>2</sub> .	Even moderate concentrations may result in reduced lung function in asthmatics. High levels can cause people to experience tightness in the chest and coughing, and in asthmatics reduce lung function to the extent they may require medical attention. Sulphur dioxide pollution is more harmful when particulate and other pollution concentrations are high.

<b>Benzene</b>	Benzene is a volatile organic compound which is found in small quantities in petrol. Motor vehicle exhaust is the single biggest source of this pollutant.	Possible chronic health effects include cancer, central nervous system disorder, liver and kidney damage, reproductive disorders, and birth defects.
<b>1,3-Butadiene</b>	1,3-butadiene, like benzene, is a volatile organic compound emitted into the atmosphere principally from fuel combustion of petrol and diesel vehicles.	Possible chronic health effects include cancer, central nervous system disorder, liver and kidney damage, reproductive disorders, and birth defects.
<b>Carbon Monoxide</b>	Carbon monoxide is a colourless, odourless, tasteless, poisonous gas produced by incomplete, or inefficient, combustion of fuel. It is predominantly produced by road transport, in particular petrol-engine vehicles.	This gas prevents the normal transport of oxygen by the blood. This can lead to a significant reduction in the supply of oxygen to the heart, particularly in people suffering from heart disease.
<b>Lead</b>	Since the introduction of unleaded petrol in the UK there has been a significant reduction in lead levels. Recently industries recycling metals without iron in them, have become the most significant contributors to emissions of lead.	Lead poisoning builds up slowly over time from repeated exposure to small amounts of lead. Over time, even low levels of lead exposure can harm a child's mental development. The health problems get worse as the level of lead in the blood gets higher.  Lead is more harmful to children than adults because it can affect children's developing nerves and brains. The younger the child, the more harmful lead can be. Unborn children are the most vulnerable.

## Appendix 2

### OPTIONS CONSIDERED BUT NOT VIABLE AT THIS TIME:

#### ABINGDON BYPASS AND NEW OCK/THAMES RIVER CROSSING

##### **Desired outcome**

To encourage traffic to use the bypass/river crossing instead of entering the town centre.

##### **Reason for rejecting this option**

This is an aspiration in OCC's local transport plan as it is dependant on section 106 funding from major developments in the town. However there are currently no proposals in our draft local plan for any developments of the scale needed to generate this level of funding. For these reasons we've rejected this option as not being viable at the present time.

#### RESTRICT DELIVERY VEHICLES DURING THE DAY IN ABINGDON

##### **Desired outcome**

To reduce congestion particularly at peak times where parked delivery vehicles are holding up traffic.

##### **Reason for rejecting this option**

Following the introduction of more delivery parking bays as part of the AbITS we've not identified any significant problems with peak time deliveries that would merit further restrictions.

#### CLOSE ST HELENS WHARF

##### **Desired outcome**

To reduce traffic in the town centre.

##### **Reason for rejecting this option**

According to OCC this proposal would create more congestion and air pollution within the AQMA.

# Appendix 3

## LEGISLATION

Concern over the effects of modern day pollution, mainly from industrial and road transport sources, led to the introduction of the EU Directive on air quality.

The UK adopted this in the form of the Environment Act 1995. Part IV of this act sets out the requirements on local authorities to review and assess the air quality within their boundaries against national measures of air quality known as air quality objectives. These objectives are set out in the Air Quality (England) Regulations 2000.

When a local authority establishes, through its annual review and monitoring that an objective is not likely to be met it must declare an Air Quality Management Area (AQMA). It must then prepare and implement a remedial action plan to work towards achieving the air quality.

County councils must put forward transport related actions that could contribute to meeting the objectives.