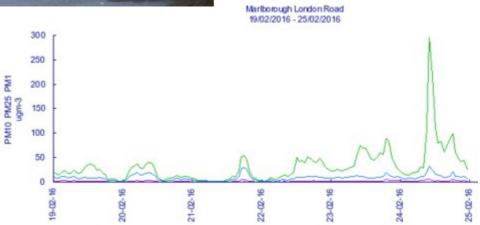


# **Improving Air Quality in Marlborough**

This report was written by Dr Sam Page on behalf of Transition Marlborough's Sustainable Transport Group, at the request of Marlborough Area Board, following a Public Meeting held on 10<sup>th</sup> February, 2016, which was hosted by Transition Marlborough

# Formally presented to the Area Board Meeting of 22<sup>nd</sup> March 2016





www.transitionmarlborough.org

# **Executive Summary**

- 1. Wiltshire Council (WC) designated Marlborough an Air Quality Management Area in 2010. This obliges local authorities to: 1) Monitor air quality (levels of nitrous oxides and ultra-fine particulates) in the town; 2) Prepare regular Action Plans to inform the Highways Agency of the nature and extent of the problem and define the role that the Highways Agency needs to take in relation to air quality improvements<sup>1</sup>; 3) Refuse development within or adjacent to an AQMA unless measures are taken to mitigate air pollution<sup>2</sup>.
- 2. Current Nitrogen dioxide levels, as measured along the A346 (Salisbury Road, London Road, Barn Street, Herd Street) appear to be illegal, as they continuously exceed the mean annual legal limit of 40μg/m³. PM<sub>10</sub> levels on London Road (opposite St Peter's School) have exceeded 100μg/m³ ten times since the beginning of 2016.
- 3. Between 2008 and 2013, several Wiltshire councillors, with constituents living alongside the A346/A338, worked to get the route de-primed in order to encourage through traffic, including HGVs, to use the A34 to travel between the A303 and the M4³. Once the route is de-primed weight/width/night-time restrictions or a 'low emissions zone' can be introduced. This could significantly reduce the volume of unnecessary through traffic, including HGVs and associated toxic emissions.
- 4. WC appears to have blocked all attempts to de-prime this route. This is because transport planners estimate that only 50% of through traffic, between 7am and 5pm, i.e. 33 HGVs, would transfer to the A34. This does not take into account the impact of vehicle restrictions and the ability of local 'Lorry Watch' teams<sup>4</sup> to police them. Recent correspondence suggests that there continues to be misunderstandings between WC and members of the A338/A346 Working Group regarding this issue: the Senior Transport Planner recently stated that "the Working Group believed that de-priming would not deliver the desired outcomes along the corridor", while the view of the Working Group "remains that de-priming would be helpful in reducing some of the noise and emissions pollution, but it became clear that Wiltshire Council had and still has no intention to take this forward due to the lack of funding and the likely low cost-effectiveness of de-priming."
- 5. While the cost of de-priming is high (at least £250,000) it is much less than the cost of constructing a by-pass. De-priming would also reduce emissions and provide relief to several thousand families living alongside the A346/A338.
- 6. WC has recently given the go-ahead for a new housing development on the Salisbury Road. The statutory measures for the mitigation of air pollution suggested by the developer and accepted by WC, will neither improve air quality, nor address increased pollution from the expected 200 extra cars. Part or all of the cost of de-priming the A346/A338 could be requested from the developer.
- 7. It is therefore in the public interest that the following questions are addressed by WC:
  - i. What evidence is there that WC has worked with the Highways Agency to improve air

<sup>1</sup> http://lagm.defra.gov.uk/lagm-fags/fag9.html

<sup>2</sup> http://www.wiltshireairquality.org.uk/air-quality/air-quality-and-planning

<sup>3</sup> http://www.collingbourne-ducis.com/A338-346WG/

<sup>4 &</sup>lt;a href="http://www.wiltshiretimes.co.uk/news/11661681.First\_heavyweight\_victory\_for\_lorry\_watch\_volunteers/">http://www.wiltshiretimes.co.uk/news/11661681.First\_heavyweight\_victory\_for\_lorry\_watch\_volunteers/</a>

- quality in Marlborough, in accordance with DEFRA's regulations?
- ii. The Wiltshire and Swindon Freight Quality Partnership<sup>5</sup>, which is responsible for planning HGV routes, claims 'to encourage freight best practice and to develop the environmentally sensitive, economic and efficient delivery of goods throughout Wiltshire'. Why is 'improving air quality' not mentioned in the Terms of Reference for this partnership?
- iii. Now that WC has the responsibility for re-classifying roads in the county, why hasn't it taken forward the plan to de-prime the A346/A338, including removing Marlborough from the list of primary destinations?
- iv. Considering the responsibility on the developer of the new Salisbury Road housing estate to mitigate air pollution, why wasn't this company asked to cover the costs of de-priming the A346/A338?
- v. Considering that levels of Nitrogen dioxide appear to be illegally high along the stretch of the A346, between 13 Salisbury Road and 27 Herd Street, with many residents, including children at St Peter's School (situated alongside the A346) suffering from asthma or other respiratory diseases<sup>6</sup>, how can WC fulfil its legal responsibility to improve air-quality in Marlborough by 2020, without de-priming the A346/A338?
- 8. Traffic is likely to increase on the A346 and the A4 as a result of cuts to subsidised bus services.
- 9. Other remedial measures such as improving the cycling infrastructure and obliging bus drivers to switch off idling engines, while waiting at bus stops were popular with residents.
- 10. Transition Marlborough has undertaken this research and completed this report, to assist the Area Board in fulfilling its obligation to prepare an Action Plan which will reduce air pollution to safe levels by 2020. We hope that the evidence contained in this report will enable the Marlborough Area Board Councillors to work with other Councillors representing constituents along the A346/A338 corridor, WC's Public Health and Sustainable Transport Teams and Highways England, to de-prime this route. We believe that this is the only action that can reduce air pollution significantly, within the terms of the Supreme Court ruling.

<sup>5 &</sup>lt;a href="http://www.wiltshire.gov.uk/parkingtransportandstreets/roadshighwaysstreetcare/transportfreight/freightqualityprtne-rshipwiltshire.htm">http://www.wiltshire.gov.uk/parkingtransportandstreets/roadshighwaysstreetcare/transportfreight/freightqualityprtne-rshipwiltshire.htm</a>

<sup>6 &</sup>lt;a href="http://www.marlboroughnewsonline.co.uk/news/all-the-news/5193-air-quality-a-new-monitor-in-london-road-but-one-marlborough-resident-already-knows-all-about-the-town-s-air-quality-problem">http://www.marlboroughnewsonline.co.uk/news/all-the-news/5193-air-quality-a-new-monitor-in-london-road-but-one-marlborough-resident-already-knows-all-about-the-town-s-air-quality-problem</a>



# **Improving Air Quality in Marlborough**

# **Background**

In April 2015, the UK Supreme Court ruled that the Government must take immediate action to cut air pollution levels throughout the country<sup>7</sup>. This means that the Environment Minister, is legally bound to produce plans that will reduce harmful emissions, such as nitrogen dioxide and particulates, down to levels that will not affect the health of vulnerable people, by 2020.

Marlborough has poor air quality and has been designated an 'Air Quality Management Area' (AQMA) since 2010<sup>8</sup>. This conflicts with its status as an 'Area of Outstanding Natural Beauty' within the North Wessex Downs. According to information on the Department for Food, Environment and Rural Affairs (DEFRA) LAQM Support website, designation as an AQMA obliges local authorities to: 1) Monitor air quality (levels of nitrous oxides and ultra-fine particulates) in the town; 2) Prepare regular Action Plans to inform the Highways Agency of the nature and extent of the problem and define the role that the Highways Agency needs to take in relation to air quality improvements<sup>9</sup>. Furthermore, no development should take place within or adjacent to an AQMA without measures to mitigate air pollution<sup>10</sup>.

Levels of Nitrogen dioxide regularly exceed the safe limit along the A346 and levels of ultra-fine particulates ( $PM_{10}$ ) were 5 times over the safe limit in London Road on  $24^{th}$  February and  $11^{th}$  March, 2016. The impacts of these pollutants are discussed in Appendix 2, on page 11.

Following the publication of a preliminary report, that included recommendations for improving air-quality, Transition Marlborough (TM) was asked, by Marlborough Area Board, to facilitate a public meeting, in order to come up with ideas for an Action Plan that could satisfy the obligations to reduce air pollution by 2020, as laid down by DEFRA.

In order to encourage maximum attendance at this meeting, an A5 leaflet was prepared. This leaflet was designed to raise awareness of the local air quality problem and invited residents to come to the meeting to have their say. Two hundred leaflets were delivered to all dwellings in the air pollution hot-spots along the A346, i.e. Salisbury



Public meeting in the Town Hall

Road, London Road, Barn Street and Herd Street. Additional leaflets were left in the Library and

<sup>7</sup> https://www.supremecourt.uk/cases/docs/uksc-2012-0179-press-summary.pdf

<sup>8</sup> http://www.wiltshireairquality.org.uk/assets/documents/air-quality-wc-herd-st-da.pdf

<sup>9</sup> http://lagm.defra.gov.uk/lagm-fags/fag9.html

<sup>10</sup> http://www.wiltshireairquality.org.uk/air-quality/air-quality-and-planning

Leisure Centre. Information about the meeting was also put in the TM Newsletter, up-loaded onto the Town Council, Marlborough News online and TM websites and disseminated via Twitter.

The public meeting was held during the evening of Wednesday February 10<sup>th</sup> in the Town Hall. Thirty-five residents attended the meeting, which was chaired by Rich Pitts. Participants were first shown a short PowerPoint presentation which had been prepared by Sam Page and highlighted the major issues concerning the causes of poor air-quality in Marlborough, followed by eight suggested recommendations for mitigating the problem. Participants were then asked to comment on these recommendations and add their own ideas, by writing their views on 'post-it' notes or by communicating them to the Chair verbally. These comments can be seen in Table 1, in Appendix 1, on page 8 and are summarised below:

# **De-priming the A346/A338**

Several residents suggested that the root cause of Marlborough's air pollution was the heavy flow of traffic, including HGVs, on the A346. They said that they had already taken part in previous air quality consultations and traffic surveys and wanted to know what had happened to the recommendation for de-priming the A346. As a result of these concerns TM has now conducted research into the 'de-priming' issue and has unearthed the following information:

- Between 2008 and 2013, Cllr Charles Howard (The Collingbournes and Netheravon) and now retired, Cllr Joan Davies (Savernake) were key members of the Working Group that attempted to 'de-prime' the A336 and A346<sup>11</sup>. They decided to take this action as a result of residents' complaints about the high number of HGVs on this route. Cllr Guy Loosmore represented Marlborough Town Council (MTC) in the Working Group.
- As a result of number plate surveys in 2006, it was discovered that 125 HGVs were travelling in each direction along the A338/A346, between the A303 and the M4, for 10 hours each day, between 7am and 5pm (i.e. approximately 1 HGV every 2 minutes). Thirty-three of these vehicles (26%) were through traffic and could travel on the purpose-built A34, without significantly increasing journey time. Therefore, de-priming the A338/A346 could reduce 2-way traffic by more than 65 HGVs over a 24-hour period, by allowing the introduction of weight/width/night-time restrictions or a low emissions zone<sup>12</sup>. According to WC's transport planners, if only 50% of through traffic use the A34 as a result of de-priming, it would not be cost-effective. However, it is likely that this figure could be increased to almost 100%, if the impact of vehicle restrictions and the ability of local 'Lorry Watch' teams<sup>13</sup> to police them, was taken into account.
- As a first step to de-priming, Marlborough would have to be removed from the list of primary destinations. MTC unanimously agreed to this action and a letter was sent to Marlborough Area Board in April 2010<sup>14</sup>, requesting that they ask the Department for Transport (DfT) to remove Marlborough from the list of primary destinations. When this request was considered by the DfT it was blocked by WC:
  - "DfT Results of Consultation: Retain Marlborough in the network. One residents' group requested the removal of Marlborough from the network. <u>Local authority has requested that Marlborough be retained.</u> Approximately ten miles from nearest primary destination."
- WC's Sustainable Transport team have since stated that they have not gone ahead with depriming the A346/A338 because:

<sup>11</sup> http://www.collingbourne-ducis.com/A338-346WG/

<sup>12</sup> http://urbanaccessregulations.eu/low-emission-zones-main

<sup>13</sup> http://www.wiltshiretimes.co.uk/news/11661681.First heavyweight victory for lorry watch volunteers/

<sup>14</sup> http://www.collingbourne-ducis.com/A338-346WG/Jan2011/MarlboroughTownCouncil.pdf

"Permission to de-prime would have to be obtained from the Department for Transport. This is a very long process involving consultation with all the many parties concerned, and would also have to include the removal of Marlborough as a Primary Destination."

- The DfT devolved responsibility for road classification to Local Authorities, such as WC, in 2012<sup>15</sup>. This means that if WC decided to de-prime the A346/A338, the Sustainable Transport Manager could simply fill in a form (down-loaded from the DfT website) informing the Highways Agency of their decision. The cost of changing the signage for the de-primed road, on the M4, M3, A303, A419 and several other major roads is said to be at least £250,000. While this cost is high, it is much less than the cost of building a two kilometre a by-pass, at £3m per km<sup>16</sup>. De-priming would also bring relief to several thousand families that live alongside the route.
- A recent request to WC's Sustainable Transport Department for the report on why they had blocked the application to have Marlborough removed from the primary destinations list, resulted in the following response<sup>17</sup>: "The report was not completed. This is because the overriding reason to remove Marlborough as a primary destination was associated with being able to de-prime the A338 with a view to help ease the negative impact of HGV issues along the A338/A346 corridor. However, after the FQP meeting the HGV Working Group concluded that de-priming would not deliver the desired outcomes along the corridor. Consequently, the reason for looking into removing Marlborough as a primary destination fell away and so did the necessity to review Marlborough's status on the primary route network."
- The leader of the Working Group<sup>18</sup> subsequently stated: "That is a form of words that I do not recognise as having been used by me or any other member of the Working Group. My view remains that de-priming would be helpful in reducing some of the noise and emissions pollution, but it became clear that Wiltshire Council had and still has no intention to take this forward due to the lack of funding and the likely low cost effectiveness of de-priming."
- In February 2016, WC granted a planning application from Crown Estate to develop the land adjacent to Salisbury Road (A346). Their 'so-called', statutory, air quality mitigation measures are to provide 'green' travel vouchers, build a public right of way, construct a school drop-off zone and to plant two x 20m wide belts of trees. While the developers have agreed to pay WC's Environmental Health Department £2,490 'towards air quality work in Wiltshire', neither WC nor MTC has requested all or part of the £250,000 needed for de-priming the A346/A338. This is highly regrettable, as it is likely that the Salisbury Road Development will add 200 cars to the traffic on Salisbury Road, while the additional air pollution that they will cause will not be mitigated by the measures that have been proposed by the developers.
- It is therefore in the public interest that the following questions are addressed by WC:
  - i. What evidence is there that WC has worked with the Highways Agency to improve air quality in Marlborough, in accordance with DEFRA's regulations?
  - ii. The Wiltshire and Swindon Freight Quality Partnership, which is responsible for planning HGV routes, claims 'to encourage freight best practice and to develop the environmentally sensitive, economic and efficient delivery of goods throughout Wiltshire'. Why is 'improving air quality' not mentioned in the TORs for this partnership?

<sup>15 &</sup>lt;a href="https://www.gov.uk/government/publications/guidance-on-road-classification-and-the-primary-route-network">https://www.gov.uk/government/publications/guidance-on-road-classification-and-the-primary-route-network</a>

<sup>16</sup> http://www.rudi.net/files/iir main.pdf

<sup>17</sup> Email from Senior Transport Planner, dated 7 March 2016.

<sup>18</sup> Email from Cllr Charles Howard, dated 8 March 2016.

- iii. Now that WC has the responsibility for re-classifying roads in the county, why hasn't it taken forward the plan to de-prime the A346/A338, including removing Marlborough from the list of primary destinations?
- iv. Considering the responsibility on the developer to mitigate air pollution, why wasn't the company asked to cover the costs of de-priming the A346/A338?
- v. Considering that levels of Nitrogen dioxide appear to be illegally high along the stretch of the A346, between 13 Salisbury Road and 27 Herd Street, with many residents, including children at St Peter's School (situated alongside the A346) suffering from asthma or other respiratory diseases<sup>19</sup>, how can WC fulfil its legal responsibility to improve air-quality in Marlborough by 2020, without de-priming the A346/A338?

# Residents' comments on other mitigation measures

Consider the impacts on air quality before installing pedestrian crossings
 Most participants agreed with this recommendation, while recognising the difficulty of putting it into practise. It was suggested that this recommendation be specified in the 'supplementary planning guidance' of Marlborough's Neighbourhood Plan.

# Improve public transport to reduce reliance on cars

Many participants called for a shuttle bus to carry people to the town centre from the out-lying housing estates. The issue of WC's proposed cuts to the bus services was raised.

#### Improve cycling infrastructure

This was a popular recommendation with several people, however the difficulties of getting WC/MTC to install cycle racks and signage for the cycle network was highlighted. A separate cycle lane through the High Street was requested.

#### Discourage cars from parking in the High Street

This was a controversial suggestion as participants did not want to reduce the vibrancy of the town centre. Some people wanted additional parking spaces (including a split-level car park) to be created away from the town centre so that pavements could be widened, cycle paths created and trees planted.

• Oblige bus drivers to turn off idling engines at the bus stops in the High Street
This was accepted as a simple and effective idea. It was suggested that the Community Area
Transport Group could help fund or produce the 'No Idling' signs, while Parking Wardens could
be encouraged to enforce the regulation.

# • Do random checks on diesel vehicles

There were no objections to this suggestion.

# • Fit air purifiers in affected dwellings

Residents who are living alongside the A346 said that this was a good idea.

• Constrain future developments that adversely impact on air quality
This was said to be critically important.

<sup>19 &</sup>lt;a href="http://www.marlboroughnewsonline.co.uk/news/all-the-news/5193-air-quality-a-new-monitor-in-london-road-but-one-marlborough-resident-already-knows-all-about-the-town-s-air-quality-problem">http://www.marlboroughnewsonline.co.uk/news/all-the-news/5193-air-quality-a-new-monitor-in-london-road-but-one-marlborough-resident-already-knows-all-about-the-town-s-air-quality-problem</a>

# Appendix 1. Remediating Air Pollution in Marlborough: Residents' comments

Remedy	Responsible authority	Comments		
Consider the impacts on air quality before installing pedestrian crossings	Wiltshire Council, Town Council	Have a robust Neighbourhood Plan that will specify this and have it included as 'supplementary planning guidance'.		
		New St Mary's School may need another crossing on George Lane.		
		Marlborough College is the biggest offender and many of their pupils must be suffering.		
		Good idea – but increasing congestion needs to be assessed.		
		Pedestrian crossings are necessary on busy roads.		
		There needs to be a much lower speed limit so that we can cross the road without them.		
		I agree, considering the impacts on air quality.		
		I agree.		
		I agree.		
		Safe crossing must be a priority.		
2. Improve public transport to reduce reliance on cars	Wiltshire Council, National Government	'Dolmus' minibus taxis that operate in Turkey could be used locally.		
		Shuttle bus needed for over 55s, between town centre and estates and residential homes.		
		Great idea but people need to be persuaded to change habits of a life-time.		
		Shuttle bus needed for people without cars. Bedwyn bus is vital.		
		Shuttle bus from set-aside parking to reduce pollution in the High Street.		
		Shuttle bus is needed to link all the estates around town.		
		Public transport is essential but Wilts. Council is cutting bus subsidies.		
		We need a linked-up public transport system with buses going around town.		
		Public transport is now so rare and expensive, it would have to be improved a lot.		
		This needs to be balanced against local government cuts to buses.		
		Not viable, buses are needed to bring in commuters.		
3. Improve cycling infrastructure	Wiltshire Council, Town Council	Wilts. Council is encouraging communities to hold walking and cycling festivals or events to get people into the habit of leaving their cars at home.		
		Excellent idea. Cycle lanes needed.		
		Yes as a cyclist, but it must go with a culture shift, so that cycling is seen as transport – not a leisure activity		

Remedy	Responsible authority	Comments				
		With an elderly population, steep hills and narrow streets, cycling is not a very good transport solution for Marlborough				
		Need more cycle racks in the High Street. There are difficulties in getting the cycle route sign-posted.				
		Signage please and general promotion of the benefits of cycling.				
		Narrow streets and on-street parking prohibits further improvements. Neighbourhood Plan should include safe cycle ways through all new developments.				
		Steep hills discourage cycling. Great for tourist and day-trippers though.				
4. Discourage cars from parking in the High Street	Wiltshire Council, Town Council	Yes – but have to consider the impact on businesses and not go for out of town shopping.				
		Marlborough has a chronic shortage of parking places. The only way to reduce High Street parking is to build large c parks elsewhere in the town. Motor car is here to stay in rural areas.				
		Double car parking fees.				
		We have to ensure that we remain a market town and encourage visitors – our retailers rely on it.				
		If we discourage parking in the High Street, the town centre will die and with it the town.				
		Parking needed elsewhere to allow this to happen. It is a very good idea. We should plant trees in the High Street also.				
		Need to liaise with local retailers organisation (MHSRA) and Chamber of Commerce. An anti-car policy my cause animosity not solutions.				
		Increase parking charges, but make provision for those who can't afford it i.e. cheap public transport.				
		Introduce free parking around the town, outside the high pollution area.				
5. Oblige bus drivers to turn off idling engines	Wiltshire Council, CATG, Traffic Wardens	Community Area Transport Group could help fund/produce the 'No Idling' signs. Encourage Parking Wardens to enforce or check this.				
		Yes, but more information needed on comparative emissions compared to turning off and on.				
		Yes. Simple and effective.				
		Good idea and easy to do.				
6. Do random checks on diesel vehicles	Wiltshire Council, Highways Authority	Many HGV drivers bypass filters to save fuel – this is a very good idea.				
		Random checks on vehicles – very in favour.				
		How would this help? Would need to do it outside the town e.g. at weighbridge in Chiseldon.				
7. Fit air purifiers in affected dwellings	Wiltshire Council	It would benefit our house in Salisbury Road.				
		Yes very necessary.				
8. Constrain future developments that	Wiltshire Council	Critically important.				

Remedy	Responsible authority	Comments
adversely impact on air quality		
9. Other suggestions	Highways Agency, Wiltshire Council, Town Council	Town Council could organise a 'cycle to work' day.
		Congestion can only be addressed through Wiltshire Council's Strategic Transport policy, as A346 is currently classed as a 'primary route'.
		Reduce HGVs on A346.
		Build a by-pass for lorries.
		Electric vehicles needed for refuse collection.
		Less emphasis on the car in Marlborough.
		Look at setting up a 'shared ownership' electric car club.
		Set up a car share scheme.
		Weight limit on lorries needed. Lorries should use A34 not A346.
		Need to shift attitudes so that people will cycle or use public transport starting with ourselves.
		What happened to the results from Wiltshire Council's 2007/8 survey on HGV restrictions in Herd Street?
10. Comments from the floor	Wiltshire Council, Town Council	There was a brief discussion about car parking – and making the George Lane Car Park Multi story Concerns about.
		Could Trees be included in containers to help with Air Quality Issues – Conifers seen as the best to do the job – but with there be a Health and safety issue ?
		MOP Fair is a big polluter.
		Need to ensure we don't discourage visitors and consider long term prosperity of the town.
		Could Dolmar Type Taxi's Reduce Local dependency on cars?

# Appendix 2.

#### **Pollutants emitted from HGVs and Diesel Vehicles**

#### Nitrogen dioxide (NO<sub>2</sub>)

 $NO_2$  is a gas that is heavier than air; it is also a free radical which can damage human tissue and is therefore highly toxic to humans when inhaled. Although this gas is easily detectable by smell at low concentrations, it soon anaesthetises the nose, thus creating a potential for over-exposure. Short-term (acute) symptoms include cough, sore throat, shortness of breath, dizziness and headache. It also increases the risk of bronchitis in asthmatic children. The US Environmental Protection Agency's (EPA) health-based national air quality standard for  $NO_2$  is just 5 micrograms<sup>20</sup> per cubic metre or 5  $\mu$ g/m³ - as above this level it can irritate the lungs and lower resistance to respiratory infections such as influenza<sup>21</sup>. According to the WHO long-term exposure to  $NO_2$ , at concentrations above 40  $\mu$ g/m³, may decrease lung function and increase the risk of respiratory symptoms<sup>22</sup>. The EU has set the  $NO_2$  safe limit at an average of 40  $\mu$ g/m³ year or up to 200  $\mu$ g/m³ (hourly mean) no more than 18 times per year.

## **Monitoring Air Pollution in Marlborough**

Table 1. Nitrogen dioxide (NO<sub>2</sub>) levels at seven sites in Marlborough, 2008 to 2014<sup>23</sup>

014 - 5 1155 - 1 - 4 1	Annual mean concentration of NO₂ (μg/m³)							
Site of diffusion tube	2008	2009	2010	2011	2012	2013	2014	
6 Herd Street	57	53	52	59	63	64	54	
27 Herd Street	50	41	47	47	44	50	47	
6 Barn street	_	41	_	44	42	47	44	
13 Salisbury Road	_	_	41	43	44	43	41	
War Memorial, London Road	_	_	_	33	34	36	33	
115 London Road	_	_	_	47	42	44	41	
Lloyds Bank bus stop, High Street	_	_	_	_	_	_	_	

NO<sub>2</sub> safe limit = 40μg/m<sup>3</sup> (annual mean)

#### **Ultra-fine particulates (<PM10)**

These invisible, ultra-fine particulates (PM) are released during engine combustion in diesel vehicles and abrasive wear and tear of the brakes and tyres of all vehicles. PM affects more people than any other pollutant. The major components of PM are sulphate, nitrates, ammonia, sodium chloride, black carbon, heavy metal dust and water. It consists of a complex mixture of solid and liquid particles of organic and inorganic substances suspended in the air. The most health-damaging particles are those with a diameter of 10 microns or less, ( $< PM_{10} \text{ or } < PM_{2.5}$ ) as these can penetrate and lodge deep inside the lungs, where they cause inflammation and worsen heart and lung diseases. Regular inhalation of ultra-fine particulates is also associated with asthma, emphysema, stroke and lung cancer. According to the WHO there is no safe level of PM, however the UK government recommends a safe limit for  $PM_{10}$  of no more than 40  $\mu$ g/m³ (annual mean) or 50  $\mu$ g/m³ 24-hour mean, which must not be exceeded more than 35 times a year.

 $<sup>20\ 1.0\ \</sup>text{microgram} = 1,000,000\ \text{milligrams}.$ 

<sup>21 &</sup>lt;a href="http://www3.epa.gov/ttn/naaqs/criteria.html">http://www3.epa.gov/ttn/naaqs/criteria.html</a>

<sup>22</sup> http://www.who.int/mediacentre/factsheets/fs313/en/

<sup>23 &</sup>lt;a href="http://www.wiltshireairquality.org.uk/reports">http://www.wiltshireairquality.org.uk/reports</a>

In January 2016, a particulates monitor was installed on London Road, opposite St Peter's junior school. This monitor measures  $PM_{10}$  and  $PM_{2.5}$  and readings are uploaded to this website: <u>http://www.wiltshireairquality.org.uk/?site\_id=WIL7&view=graphing\_</u> towards the end of each day. So far the mean, maximum, daily measurement of  $PM_{10}$  is  $81\mu g/m^3$ , however the amount of  $PM_{10}$  in London Road peaked at 300, 200 and  $100\mu g/m^3$ , between the 24<sup>th</sup> February and the 1<sup>st</sup> March (see image on the front cover of this report). It is likely, therefore, that  $PM_{10}$  emissions in London Road will also be illegal, as they will have exceeded the safe limit by the end of 2016.

This report was written by Transition Marlborough's Sustainable Transport Group. For more information contact <a href="mailto:transport@transitionmarlborough.org">transport@transitionmarlborough.org</a>