



Swindon Borough Council Air Quality Action Plan

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

March 2019

Local Authority Officer	Damon Green
Department	Public Protection
Address	Wat Tyler House West 5 th Floor, Beckhampton Street, Swindon, SN1 2JG
Telephone	01793 466102
E-mail	dgreen@swindon.gov.uk
Report Reference number	SBC/AQAP01
Date	March 2019

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Executive Summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in Swindon between 2019 and 2024, and in particular, how we will reduce the Level of Nitrogen Dioxide within the Kingshill Air Quality Management Area to at least compliant levels.

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Poor air quality particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the least affluent areas^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³. Swindon Borough Council is committed to reducing the exposure of people in Swindon to poor air quality in order to improve health.

This is Swindon's first Air Quality Action Plan, and stems from the declaration of an Air Quality Management Area covering a portion of Kingshill Road. The Management Area was declared as a result of Nitrogen Dioxide (NO₂) levels above the annual average limit of 40mcg/m³. NO₂ levels on parts of Kingshill Road have been measured at 56mcg/m³.

In order to meet the Annual Average limit of 40mcg/m³, Nitrogen Dioxide produced via use of the road must be reduced by 30%.

Put simply; in order to achieve this; the number of vehicles using the road must be reduced by at least 30%, or the emissions of NO₂ from vehicles must be reduced by at least 30%, or a combination of both. These are simple and easy to understand aims, but in practice this will be an extremely difficult and complex challenge.

Swindon is a large growth town. The size of the town, and so the number of people travelling within it, is forecast to grow by in excess of 15% between 2010 and 2022.

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

We must reduce emissions generated on Kingshill Road by 30% from today's base, and maintain that reduction as the number of miles travelled in Swindon grows in line with the town's growth.

Our priorities are:

- 1. To investigate sustainable options for reducing emissions from road vehicles on Kingshill Road; particularly in the uphill, South-East direction.**
- 2. To facilitate a shift to more sustainable modes of travel, more active travel, better planned journeys, and more sustainable fuels.**

Against those priorities we have developed actions that can be considered under 9 broad topics:

- Traffic management
- Policy Guidance and Development Control
- Transport planning and infrastructure
- Alternatives to private vehicle use
- Policy guidance and development control
- Promoting low emission transport
- Promoting travel alternatives
- Public information
- Vehicle fleet efficiency

We will keep this plan under review, and will continue to identify and investigate further measures as they become visible to us.

In this AQAP we outline how we plan to tackle air quality drivers within our control. However, we recognise that this is a huge challenge, and that there are a large number of air quality policy areas that are outside of our influence (such as vehicle emissions standards agreed in Europe), but for which we may have useful evidence. We will contribute to the work of national and regional partners on issues beyond our direct influence.

Responsibilities and Commitment

This Action Plan was prepared by the Air Quality Steering Group of Swindon Borough Council with the support and agreement of the following officers and departments:

Cabinet Member for the Housing and Public Safety (inc. Environment)

Director of Public Health, SBC

Consultant in Public Health Medicine, SBC

Head of Highways and Transport, SBC

Service Manager Healthy Neighborhoods, SBC

Head of Planning, Regulatory Services and Heritage, SBC

Head of Communications, SBC

Localities Representative

This AQAP will be subject to an annual review and appraisal of progress, and reporting to the Chief Executive and Core Management Team (CMT) of the Council. Progress will be publicly reported each year in the Annual Status Reports (ASRs) produced by Swindon Borough Council, as part of our statutory Local Air Quality Management duties.

If you have any comments on this AQAP please send them to Service Manager Public Protection, Healthy Neighbourhoods at: Public Protection, Swindon Borough Council, Wat Tyler House West 5th Floor, Beckhampton Street, Swindon, SN1 2JG

airquality@swindon.gov.uk

Introduction

This report outlines the actions that Swindon Borough Council will deliver between 2019 and 2024 in order to reduce concentrations of, and exposure to, Nitrogen Dioxide air pollution within the AQMA on Kingshill Road. This will positively impact on the health and quality of life of residents and visitors to the Borough.

It has been developed in recognition of the legal requirement on the local authority to work towards Air Quality Strategy (AQS) objectives under Part IV of the Environment Act 1995, relevant regulations made under that part, and to meet the requirements of the Local Air Quality Management (LAQM) statutory process.

This Plan will be reviewed every five years at the latest, and progress on measures set out within this Plan will be reported on annually within our Air Quality Status Reports (ASR).

In this Plan we set our measures to reduce emissions within the Air Quality Management Area directly, and most importantly; how we will contribute to the modal shift required to bring air quality more generally under control.

Summary of Current Air Quality in Swindon

Air Quality within Swindon Borough is generally very good.

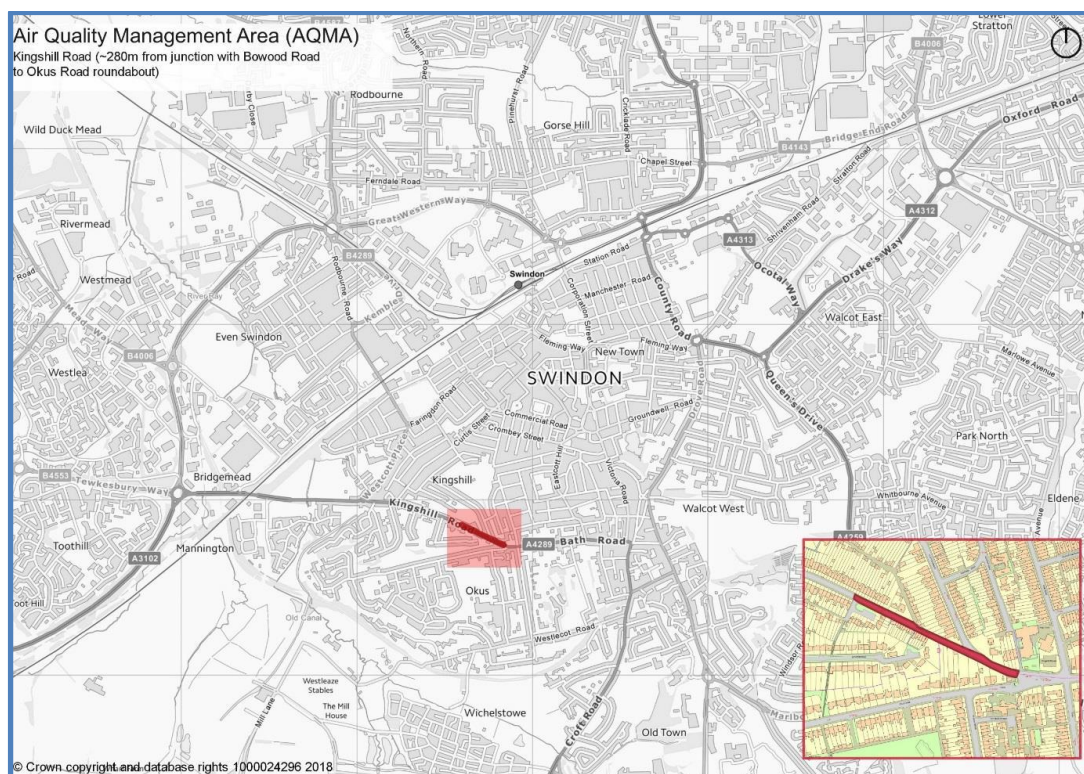
In common with many towns and cities however, there are some discrete parts of the town where air quality is less good. These areas are generally associated with busy traffic routes, and where dwellings lie close to the kerb; so called 'street canyons'.

Where a street 'canyon' exists, exhaust gases do not disperse well.

One such area in Swindon is at Kingshill Road, and here it has been necessary to declare an Air Quality Management Area (AQMA) which covers a circa 280m stretch of the road South East of the junction with Bowood Road to the roundabout with Okus Road. The pollutant of concern here is Nitrogen Dioxide (NO_2), and the limit value which has been exceeded is the Annual Average limit of 40mcg/m^3 .

Monitoring of air quality, principally by Diffusion Tube, indicates that the level of NO_2 at the façade of some dwellings on Kingshill reaches 56mcg/m^3 . NO_2 exists in the air everywhere as a background pollutant, but here heavy traffic flows emit more, and this has led to the exceedance. The road is oriented away from prevailing winds, and is uphill & closely bounded by trees and houses, so the gas cannot disperse well.

Figure 1 Map showing the Air Quality Management Area declared in Swindon



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Other areas with measured levels of Nitrogen Dioxide approaching the limit levels include Rodbourne Road/Iffley Road and the west end of Manchester Road near to the bus station. The latter location, Manchester Road, is subject to proposed infrastructure changes which are expected to have a positive effect on pollution levels, and we maintain a watch on levels on Rodbourne Road/Iffley Road as we gather more data.

Overall, no clear overall trend in Nitrogen Dioxide levels could be observed in Swindon. A few sites experienced a slight worsening in pollution levels (Queens Drive, Kingshill Road), and a number of sites experienced a slight improvement (Cricklade Road, GWR Museum, Rodbourne Road). Although vehicles have become more efficient, and their emissions less harmful over time; vehicle use increases year on year also; offsetting much of the improvement.

A number of major road and rail works in Swindon in recent months and years have also affected traffic flows over relatively long periods. It is likely that this has affected average pollution measurements at some sites. At Kingshill Road though; it is clear that there is an air quality issue, and this plan seeks to improve that.

Levels of Nitrogen Dioxide around major roads continue to respond to rising levels of traffic, the improvement of vehicle emissions over time, and/or the constant evolution of the town's road network. Swindon has much major development either planned or in train, and levels of pollution will respond to these changes on a continuing basis. New development is designed to account for what is now known of the effects of heavy road traffic, and so we do not expect any new areas of concern to be identified. There will though be a continuing and growing pressure in areas already highlighted, as new development across Swindon inevitably leads to increased traffic in all areas, including those already identified as potential air pollution hotspots. The continuing improvements in vehicle emissions, and the move to alternative fuel vehicles is expected to somewhat offset the rise in the number of vehicles. We do not yet know to what extent however.

We continue to monitor air quality with regard to Nitrogen Dioxide in Swindon using a network of 29 diffusion tubes at 25 locations, a reference standard real time monitor, and also with some shorter term and real-time indicative monitors, coupled with traffic flow monitoring hardware. Please refer to our latest Air Quality Annual Status Report.

Swindon's Air Quality Priorities

The factors which drive the Nitrogen Dioxide levels within the Kingshill Road Air Quality Management Area are clear. A number of these factors are outside of our control however. The factors that drive the reported Nitrogen Dioxide levels are:

1. Topography.

The stretch of road comprising the AQMA is uphill heading South East, and the land to both the South and North is higher than the road surface. It is sheltered by buildings close to the road, and by large trees. As a result, the road and the residential receptors which line it, are mostly sheltered from the prevailing South Westerly and North Easterly winds. Nitrogen Dioxide produced by the vehicles using the road does not disperse well. Vehicles moving uphill emit more Nitrogen Dioxide, as they burn more fuel in doing so, whereas those moving downhill on over-run emit very little.

The topography of the AQMA is not under local control.

2. The proximity of receptors to the road.

On this stretch of road; a number of residential receptors lie very close to the road. A rank of 14 terraces in particular; from 101 to 114 Kingshill Road, lie extremely close to the kerb; with their front doors less than 2m from the road edge. It is these residences which experience the high (56mcg/m³) exposure to Nitrogen Dioxide at their façade.

We are unable to influence the proximity of these receptors to the roadside.

3. Traffic Flow

Kingshill Road carries around 18,000 vehicles a day. The road functions as a key route into and out of Old Town, and as a primary route to the South of Old Town, including to Wroughton, and other towns and villages in this direction. Long term traffic monitoring in the AQMA shows that Kingshill Road does not suffer significant congestion, and it functions well as a road. Only less than 2% of vehicles are heavy vehicles, and few buses, but they do contribute more than 10% of the NO₂.

Average vehicle speeds are high, and there is no evidence of queuing traffic in the AQMA, even during peak periods.

The scale of the reduction in Nitrogen Dioxide needed means it is not thought possible to meet the air quality criteria simply by reducing traffic flow on the road. Severely limiting access to the road, through closure or severe restriction would simply move the problem elsewhere, to other areas which are already close to the limit themselves, and may create new hotspots through severe congestion.

4. Vehicle Emissions

The design of engines with regard to their emissions, has been controlled by European legislation for some time. These Euro classes (new vehicles are currently 'Euro 6' or 'Euro VI') have imposed increasingly stringent emission limits, particularly with regard to Nitrogen Oxides. As a result; the national and local fleet is becoming cleaner over time, as older cars are removed from the roads and a higher proportion of vehicles on the road meet the most recent emission class. Government has also announced its intention that all new vehicles will be alternative fuel from 2040, some 21 years hence, and this will clearly ultimately have the biggest impact on the fleet mix. This is not a factor which is under significant local control.

Drivers can though influence how much pollution is emitted from their vehicle through the way that they drive it. Heavy braking and acceleration is wasteful of fuel, and contributes to local pollution. Similarly; using the gearbox to keep the engine in its most efficient rev range both saves fuel and minimizes pollution.

5. Travel Habits

For those working in Swindon; 60% of work journeys are made by car. For people who live in Swindon but work outside the Swindon area though; the proportion of trips made by car rises to over 80%. The majority of car journeys are made by a single driver with no passengers.

Public Transport accounts for 9% of all work trips; 8% by bus. 7% of work trips are made on foot and 3% by bicycle. These statistics are similar to all England.

57% of children walk to school, and 5% cycle (2017 survey).

Peoples travel options and habits clearly have a large impact on the environment, and especially on air quality. They can also negatively impact on health in general. For those that must drive; car sharing can be an effective way of reducing both congestion and pollution. Shorter journeys may be made on foot, by bicycle, or by public transport and these active forms of travel can contribute to overall health too. We clearly have potential to influence these statistics; by acting on the factors which inform people's travel choices.

The proportion of physically active adults in Swindon is about two thirds which is similar to the proportions across England, but there is clearly scope to improve this dramatically.

The factors over which we have some control drive our key priorities:

1. To investigate sustainable options for reducing emissions from road vehicles on Kingshill Road; particularly in the uphill, South-East direction.
2. To facilitate a shift to more sustainable modes of travel, more active travel, better planned journeys, and more sustainable fuels.

Public Health Context

Long-term exposure to air pollution reduces life expectancy, and healthy life expectancy, by increasing deaths from cardiovascular, respiratory conditions, and from lung cancer. It is estimated that long-term exposure to air pollution in the UK has an annual effect equivalent to 28,000 to 36,000 deaths. Short-term exposure (over hours or days) to elevated levels of air pollution can also cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in respiratory and cardiovascular hospital admissions, and mortality.

The people who carry the greatest burden of the effects of air pollution are often not the main pollutersⁱ. Air pollution disproportionately impacts those who live in less affluent areas, broadening health inequalities. Air pollution has a significant effect on public health, and poor air quality is the largest environmental risk to public health in the UK. In 2010, the Environment Audit Committeeⁱⁱ considered that the cost of health impacts of air pollution was likely to exceed estimates of £8 to 20 billion.

The Swindon Borough Council Joint Strategic Health Needs Assessment (JSNA) 2017ⁱⁱⁱ showed

- Poor air quality affects everyone. Air pollutants are known to contribute to heart disease, lung cancer and respiratory disease.
- Poor air quality can have long term impacts on everyone and immediate effects on vulnerable people (usually people with certain health conditions).
- Poor air quality has a disproportionate impact on the young and old, the sick and the poor.
- Air pollution is a mix of particles and gases. The most important pollutants are oxides of nitrogen (NOx) and particulate matter (PM).
- Road vehicles are the main pollution source in Swindon Borough Council
- Air quality in Swindon is relatively good but there are pockets where the air pollution exceeds permitted levels.
- Swindon is already doing a lot to improve air quality, including: promoting active and sustainable travel; designing the built environment to encourage healthy lifestyles and travel choices; and promoting cleaner energy.

In 2015, the fraction of mortality attributed to air pollution in Swindon was 5.1 (compared to 4.7 in England). This means, using modelled Particulate Matter data, and Swindon Borough Council Air Quality Action Plan - 2019

Swindon mortality data; it is estimated that 5.1% of mortality is attributed to air pollution. There is no Swindon specific estimate for the impact of air pollution on disease prevalence and health care utilisation. This is because air pollution is not the direct cause of many disease or health care utilisation, but it is a contributory factor in many conditions.

Road vehicles are the main source of pollution in Swindon. If we are to tackle air pollution; then we need to act on transport. Swindon broadly matches the rest of England for the proportion of journeys made other than by car, but there is clearly scope to improve on that, and switching to more active modes of travel would have other important public health benefits.

Planning and Policy Context

The Council Plan 2016-2020, sets out the vision for Swindon and the priorities we are trying to achieve for our residents and the borough of Swindon.

The Plan contains four priorities. Priority one is; to improve infrastructure and housing to support a growing, low-carbon economy.

Other plans support this, and are designed to ensure that environmental considerations are prominent in development decisions across the Borough.

Local Plan Policy

Applications for development are judged against the policies of the development plan unless material considerations dictate otherwise. The principal development plan Document covering Swindon Borough is the Adopted Swindon Borough Local Plan, 2026 (2015). **Policy EN7** covering Pollution states:

“(a). Development that is likely to lead to emissions of pollutants such as noise, light, vibration, smell, fumes, smoke, soot, ash, dust, grit or toxic substances that may adversely affect existing development and vulnerable wildlife habitats, shall only be permitted where such emissions are controlled to a point where there is no significant loss of amenity for existing land uses, or habitats.

(b). Similarly, where development would be adversely affected by the emission of pollutants from an existing use, the proposal will only be permitted where the users of

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the future development are protected from loss of amenity from those emissions in accord with Policy DE1 (High Quality Design)”

Policy EN7 requires air quality to be properly assessed in the determination of all applications that are likely to impact upon it. The Council's Environmental Health Officers are consulted where schemes are likely to be significant contributors to a reduction in air quality. This may arise from increases in vehicular traffic, or direct emissions from the development, for example as part of a manufacturing, or waste management process.

Local Development Order

The Council has adopted a Local Development Order covering renewable energy and hydrogen fueling points. Simplifying the planning procedures for the latter has the potential to encourage more sustainable transport modes, with attendant reductions in polluting particulates. Once the Local Plan Review is adopted it is anticipated that additional Local Development Orders will be introduced to further encourage more sustainable fuels.

Local Plan Review

The Council is currently embarking on a review of the Local Plan. It is anticipated that improving air quality will be a key strand of the Plan's strategy, and a bespoke policy would be beneficial to ensure that measures to improve, or not further derogate air quality are demonstrated in all planning applications which are likely to generate particulate emissions.

Planning Applications

Planning Applications are judged against the policies of the Adopted Local Plan. The Council anticipates significant greenfield development on urban extension sites at the New Eastern Villages (8,500 homes), Kingsdown (1,650 homes) and Wichelstowe (up to 4,500 homes). Additional redevelopment of brownfield land in Swindon's urban area for a range of leisure, commercial and residential uses at Kimmerfields, North Star, Aspen House, The Locarno, and Oakfield are all anticipated to come forward in the next five years. The Council is also dealing with an appeal for a significant waste to energy facility at Keypoint in East Swindon. It is important that the processes associated with this facility do not give rise to an unacceptable reduction in air quality.

Source Apportionment

The AQAP measures presented in this report are intended to be targeted towards the predominant sources of emissions within Swindon Borough Council's area. To inform this we have carried out a source apportionment exercise.

Automatic traffic monitoring hardware has been installed, and used to provide detailed information on traffic flow and make up on Kingshill. This data has been used to determine which vehicles are contributing most to the Nitrogen Dioxide pollution on Kingshill Road.

The following tables give summary data for traffic flow on Kingshill which was obtained from permanent in-carriageway monitoring.

Table 3.2 Summary Traffic Data

	2017	2016
AADT	16798	15690
Average Speed of vehicle (mph)	32.0	31.7
%HGV	1.4	1.3

(AADT=annual average daily traffic)

This analysis shows the heavy predominance of light vehicle types; with very few HGVs or Buses.

The Emissions Factors Toolkit (EFT) (v 8.0.1) has then been used to model the relative contributions to NO₂ emissions on Kingshill of the different vehicle types.

Table 3.4 Modelled contribution of road vehicles, by type, to road NOx Emissions

	Total all vehicles	LDV	HDV	Petrol Cars & Vans	Diesel Cars & Vans	Rigid HGVs	Artic HGVs
NOx Emissions rate LDVs g/km	5005	4382	623				
% Contribution	100	87.6	12.4	15.4	72.0	10.0	2.5

Required Reduction in Emissions

The full source apportionment calculation may be found at **Appendix A**.

It is estimated that **NO₂ emissions must be reduced by 30%** in order to achieve compliance with the annual mean objective for Nitrogen Dioxide (40ug/m³).

Light vehicles powered by diesel fuel contribute an estimated 72% of all NO₂ at this site using this simple model, but we do not yet know what proportion of vehicles using this road are diesel powered. Work carried out by Ricardo

(<https://ee.ricardo.com/news/measuring-real-world-driving-emissions-the-first>) suggests that emissions between petrol and diesel powered vehicles may differ according to the temperature of the engine at the time; especially with regard to NO₂. Early results suggest that petrol engines emit most NO₂ when cold, and that diesel engines do so when hot, and we do not yet know how many journeys which include Kingshill Road are undertaken with hot or cold engines.

This will be a strand for our further study as we move through our action plan, and we plan to undertake real time emissions monitoring of traffic on Kingshill Road.

Key Priorities

The work so far undertaken shows clearly that in order to remedy the air quality problem within the AQMA; we must reduce traffic flow by at least 30%, or reduce emissions from vehicles using the road by the same amount, or a combination of both.

This leads us to 2 key priorities:

Priority 1 – To investigate sustainable options for reducing emissions from road traffic on Kingshill Road; particularly in the uphill, South East direction.

Priority 2 – To facilitate a shift to more sustainable modes of travel, and more sustainable fuels.

Both of the above broad priorities seek to either reduce traffic flow in the AQMA (without prejudicing other marginal areas), and/or to reduce emissions within the AQMA, either directly or indirectly.

The gradual improvement in emissions from the national fleet will help to improve the situation over time, but it will not be enough, or quick enough, and our action plan seeks to ensure that we resolve the situation across the 5 year expected life of this action plan.

Development and Implementation of Swindon AQAP

Consultation and Stakeholder Engagement

To inform the development of the draft Air Quality Action Plan, an Engagement event was held on 19th September 2018, where local residents who are most directly affected could find out more and share their ideas on possible solutions to tackle the levels of pollutant. The Engagement event was very well attended, with members of the public responding to a presentation highlighting the current issues, with a lively discussion and brainstorming on possible solutions which are included in this report. A review of these and other options has been undertaken, and a further public consultation highlighting worked up options and progress so far was undertaken between 21st December 2018 and 3rd February 2019. Outcomes of that consultation may be found at APPENDIX B.

Members of the public understood the problem very well, and contributed a number of ideas which we had already identified in our scoping work, along with some which we had not.

Table 4.1 – Consultation Undertaken

Yes/No	Consultee
NO	the Secretary of State
NO	the Environment Agency
YES	the highways authority
NO	all neighbouring local authorities
YES	other public authorities as appropriate, such as Public Health officials
YES	bodies representing local business interests and other organisations as appropriate

Steering Group

The Air Quality Steering Group was formed on the 28th February 2018. This group is made up of the following members

1. Cabinet Member for the Housing and Public Safety (inc. Environment)
2. Director of Public Health, SBC
3. Consultant in Public Health, SBC
4. Head of Highways and Transport, SBC
5. Service Manager Healthy Neighbourhoods, SBC
6. Head of Planning, Regulatory Services and Heritage, SBC
7. Head of Communications, SBC
8. Localities representative

The purpose of this group is to develop, direct, oversee, monitor and implement an effective Air Quality Plan for Swindon Borough Council, and to evaluate measures to improve air quality. This group meets monthly. The full Terms of Reference for this group may be found at **Appendix C**.

AQAP Measures

Table 5.1 shows the Swindon Borough Council AQAP measures so far developed. It contains:

- A list of the actions that form part of the plan.
- The responsible individual and departments/organisations who will deliver this action.
- The estimated cost of implementing each action (overall cost and cost to the local authority) where known.
- The estimated expected benefit in terms of pollutant concentration reduction within the AQMA.
- The timescale for implementation.
- How progress will be monitored.

Progress on all of the measures here will be reported on in Swindon Borough Council's Annual Status Report (ASR).

Our 2 priorities are:

1. To investigate sustainable options for reducing emissions from road vehicles on Kingshill Road; particularly in the uphill, South-East direction.
2. To facilitate a shift to more sustainable modes of travel, more active travel, better planned journeys, and more sustainable fuels.

These priorities are inter-related, and much that we do on one may have positive, or indeed negative, impacts on the other. In order to be successful, in practice; we must act on both all of the time.

Reducing Emissions on Kingshill Road.

Heavy Vehicles. Source apportionment shows that removing heavy vehicles from the road will remove more than 10% of the NO₂ emissions there. We estimate that around 250 heavy vehicles will be displaced in this way, but that these can be accommodated on alternative and better suited routes.

We will seek to put in place a Traffic Regulation Order to restrict heavy vehicles on the road as quickly as possible.

Private Hire and Hackney Carriages. There are 1000 taxis and 104 Hackney Carriages licensed by Swindon Borough Council. It is not known what proportion of the traffic on this road is a taxi or hackney carriage, but it is clear that the road is an important route into and out of Old Town, and so private hire and hackney cab vehicles will make up a meaningful part.

Private Hire Vehicles may be no older than 5 years at the time of first Licence, and cannot be licensed older than 10 years under current arrangements. Hackney Carriages may be 15 years old before replacement, but make up only a small proportion of the fleet as a whole.

Under current Licence conditions; the great majority of licensed private hire vehicles will be Euro 6b by 2024; as they were first registered after August 2015. A Hackney Carriage could be as old as Euro 5b however, and have done many miles by that age. We will put forward proposals to the Licensing Committee to improve the emissions of the taxi and hackney carriage fleet through licence conditions; beyond that already mandated.

Bus Fleets. There are currently few buses that use Kingshill Road, but a modern, clean and efficient bus service will help us to accomplish the modal shift that we need to reduce travel in cars more generally. We will support our local bus companies to identify and obtain funding to improve the emissions profile and quality of their fleets.

Strategies and Policies. There are a number of Council Strategies and Policies which have the potential to influence the amount of traffic on Kingshill Road, and the emissions produced there:

- The Local Plan 2026
- The Local Transport Plan
- The Town Centre Movement Strategy
- The Park & Ride Strategy
- The Local Authority Fleet Vehicle Purchasing Policy

We will refresh and update these documents to give a higher priority to air quality, particularly where they have potential to positively impact on air quality on Kingshill Road.

Modal shift and a switch to more sustainable fuels

In order to be successful in remedying the non-compliance with air quality criteria within the AQMA, and cope with the inevitable increase in travel as Swindon grows rapidly; we must achieve a modal shift in travelling behavior.

More journeys must be made by public transport, walking, or cycling; all modes which also convey public health benefits through a more active lifestyle. There are important Public Health improvements, beyond an improvement in air quality, which might be obtained here.

Where motorized transport is unavoidable; we must do what we can to foster the use of low or zero emission vehicles where possible. Much of this aim is outside our local control. Scrappage schemes and subsidy for ultra-low emission vehicles are most successful if done at national scale. However, there are things which we can influence in this area. We can prioritise electric charging facilities and parking spaces for ultra-low emission vehicles in the town and promote provision of charging facilities in new homes and businesses.

Council Vehicle Purchasing. The light vehicle fleet mostly operated by the Council's housing service will be renewed on a 1/3rd per year basis in the future. There is potential then to remove emissions from Swindon quickly through a change in the Council's procurement policy. A review of that procurement policy is currently under way.

We will refresh the light vehicles procurement policy to prioritise zero or low emission vehicles where it is viable.

For larger and heavier vehicles, such as refuse lorries and gritters; zero emissions is more difficult to achieve. We are though currently reviewing our procurement policy for large vehicles with a view to prioritizing zero emission or low emission vehicles where viable too.

Council Fueling Infrastructure. In order to support a shift in the Council fleet; charging infrastructure must be provided at the depot.

We will install sufficient charging points at the depot to support a shift to zero emission vehicles where viable.

Increasing Public Transport Use. Buses and trains carry people to their destinations while producing significantly lower emissions per passenger mile.

We will work to increase the use of Public Transport, and will review the Park & Ride Strategy to provide alternative means of reaching the town centre.

Walking and cycling infrastructure. New developments in Swindon are designed with non-car travel in mind, and a network of interconnecting path and cycle ways is under constant development in Swindon.

We will work to improve the cycle and footpath network where opportunities exist and funding can be secured. One of Swindon's largest expansion areas is Wichelstowe; between the M4 motorway and the South of Old Town. An opportunity exists to better link Wichelstowe with Old Town for cyclists and walkers via the Old Town Railway Cycle Path. This existing way is in relatively poor repair, not well-surfaced and unlit at night.

We will work to identify funding to improve the Old Town Railway Cycle Path to provide an attractive active route into Old Town for current and future residents.

Fostering a modal shift through engagement. Some work is already undertaken to foster a move to green, public, and/or active travel. Swindon Travel Choices promotes active journey planning and active travel across Swindon. The Travel Plan Officer actively engages schools, communities and workplaces to promote greener and active travel. If we are to succeed in shifting sufficient travel miles away from cars and other motorized transport, we must do much more.

We will redouble our work with companies especially in Swindon to promote greener staff and company transport.

We will work with local bus companies to improve the quality of their fleet. Increase frequency of travel, consider new routes and encourage more people to travel by bus

We will investigate the potential for signage on the approaches to the Air Quality Management Area to foster better driving behavior, to consider alternative means of travel, or identify alternative routes to relieve pressure within the AQMA.

Table 5.1, below outlines all of the actions that we have developed to bring the air quality with the AQMA to within permitted criteria as quickly as possible.

Table 0.1 – Air Quality Action Plan Measures

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1	Seek to Implement Restrictions (Traffic Regulation Order) on Kingshill Road for certain vehicle classes.	Traffic Management	Strategic Highway improvements	Highways	2019 - 2020	2020 - 2021	12% reduction in road NO ₂	12%	Consultation with Highway Authority. Modelling of impacts of further restrictions.	2021	Source apportionment shows that Heavy Vehicles make up less than 1.5% of the road users on this road, yet produce over 12% of the emissions. Removing this category of vehicles can be achieved through a weight restriction on the road Cost: circa £5k + signage costs.
2	Upgrade the Old Town Railway cycle path and connect it to existing paths.	Transport Planning & Infrastructure	Cycle Network	Highways	2019 – 2021	2021 - 2022	A surfaced and useable route from Wichelstowe to Old Town	<2%	Pursuing funding opportunities	2023	The Old Town Railway cycle path could provide an attractive alternative route into and out of Old Town, especially for Wichelstowe residents, and those in West Swindon. Cost: to be confirmed
3	Improve emissions from Private Hire and Hackney Carriages through the licensing regime.	Promoting Low Emission Transport	Taxi Licensing Conditions	Licensing	2020	2022	All Private Hire at least Euro 6 by 2024. All Hackney Carriages EV or alternative fuel by 2024.	5%	Considering a Strategy and Policy	Discussions begun	1000 Licensed Private Hire, and 104 licensed Hackney Carriages in Swindon. Private Hire may be first licensed at no more than 5 years old, and may not be licensed after 10 years of age. Hackney Carriages may be licensed up to 15 years old. There are no current conditions around cleaner propulsion Cost: Normal Business

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
4	Investigate options for the installation of 'nudge' signage on approaches to the AQMA; to divert traffic and encourage good driver behavior.	Public Information	Via other mechanisms	Highways Public Health	2019	2021 – 2024	Reduction in road vehicles using Kingshill Road, and reduced emissions.	<5%	NA	2024	Seeking to encourage drivers to use alternative routes where practicable, and to drive appropriately in the AQMA.
5	Promote active travel (walking, cycling and public transport) through travel plans and the Swindon Travel Choices campaign.	Promoting Travel alternatives	Encourage / Facilitate home-working Intensive active travel campaign & infrastructure Personalised Travel Planning Promotion of Active Travel (walking, cycling, public transport) Implementation of School, Residential and Workplace Travel Plans	Highways	2019 - 2024	2019 - 2024	Reduction in road NO ₂	10%	ongoing	2024	<p>Active modes of transport are part of the Town Centre plan and the Swindon Transport Strategy</p> <p>Travel Plan Officer actively engages schools, communities and workplaces, particularly for new developments.</p> <p>Promote Swindon Travel Choices for active journey planning http://www.swindontravelchoices.co.uk/</p> <p>Cost: Normal Business</p>

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
6	Support and collaborate with local bus companies to minimise emissions and maximise usability of the bus network in Swindon, including their vehicle fleet renewal plans.	Alternatives to private vehicle use	Bus based Park & Ride, Other	Bus companies Planning Public Health	2019	2019 - 2024	Substantial increase in efficiency and reduction in emissions from buses. Increasing bus use.	<1%	ongoing	2024	Bus companies operating in Swindon are Thamesdown Transport and Stagecoach. Across that fleet; 53% of vehicles are EuroIII or EuroIV, and only 47% EuroV or EuroVI. Swindon's bus routes are radial; in and out from the centre, and there are comparatively few connections between the spokes. Improving routes offers the potential to displace car journeys. Park and Ride schemes have not taken off in Swindon. Cost: To be determined
7	Raise awareness of Air Quality Issues with local residents, schools and businesses to encourage behaviour change	Public Information	Via leaflets Via other mechanisms Via radio Via television Via the Internet Other	Public Health Localities LEP	2019	2019 - 2024	Substantial increase in public transport use and active travel.	10%	ongoing	2024	Influencing behaviour change through health education and promotion Cost: Normal Business
8	Engage and work with employers to promote greener fleets and staff transport arrangements.	Promoting Travel Alternatives Vehicle Fleet Efficiency	Encourage/Facilitate home-working Workplace Travel Planning Driver Training & ECO aids Fleet Efficiency and Recognition Schemes	Highways Public Health	2019	2019 – 2024	Greening of company vehicle fleets Reduction in business miles	<2%	ongoing	2024	Active modes of transport are part of the Town Centre plan and the Swindon Transport Strategy Travel Plan Officer actively engages schools, communities and workplaces, particularly for new developments. Promote Swindon Travel Choices for active journey planning http://www.swindontravelchoices.co.uk/

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
9	Review and, if necessary, update Local Development Orders relating to electric vehicle charging requirements and alternative fueled vehicle fueling stations across the borough. Review Parking Standards for new developments to mandate vehicle charging provision.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Planning	2019	2020	Reviewed LDOs in place.	<2%	Review in progress	2020	Local development Order is already in place, but to be reviewed to ensure that it provides appropriate planning guidance Cost: To be determined
10	Pursue the Transport Vision 2026 for Swindon & Wiltshire LEP with regard to sustainable transport outcomes.	Transport Planning and Infrastructure	Bus route improvements Cycle network Public cycle hire scheme Public transport improvements-interchanges stations and services Other	Planning Highways	2019	2020 - 2024	NA	<5%	ongoing	2024	Wiltshire and Swindon LEP Local Energy Strategy – draft https://swlep.co.uk/docs/default-source/board-meetings/2018/28-nov-2018/agenda-for-board-meeting-28th-nov-2018.pdf?sfvrsn=15645c74_2 Cost: Normal Business

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
11	Review and enhance the Swindon Borough Local Plan (2026) to prioritise sustainable transport and ensure that policies relating to, and impacting upon air quality, are fit for purpose and serve to reduce emissions where possible.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance Other policy	Planning Highways Public Health	2019 - 2020	2021	Local Plan review adopted	N/A. Target is to avoid significant deterioration as a result of new development	Ongoing. Local Growth Fund schemes delivered.	Target plan adoption Q1 2021	Swindon Borough Local Plan 2026 available at: https://www.swindon.gov.uk/info/20113/local_plan_and_planning_policy/635/swindon_borough_local_plan_2026 Cost: Normal Business
12	Review and enhance the developing Town Centre Movement Strategy with air quality improvements a central theme.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance Other policy	Planning Localities Public Health Highways	2019	Subject to funding	New Town Centre Movement Strategy targeting air quality improvements as a central theme	5%	Currently being reviewed	TBC	TCM strategy under review Cost: Normal Business
13	Review and enhance the Swindon Local Transport Plan 2011-2026	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance Other policy	Planning Localities Public Health Highways	2019	2019 - 2024	Revised Swindon Local Transport Plan	5%	Currently being reviewed	2020	

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
14	Review the Park and Ride Strategy for Swindon to minimise the need for vehicular journeys into the town centre.	Alternatives to private vehicle use	Bus based Park & Ride	Highways Planning Localities Highways	2019	2020	New Park and Ride Strategy in place	1%	Under review	2020	Cost: Normal Business
15	Amend purchasing policy for Council owned vehicles to prioritise greener fuels and efficiency where viable.	Promoting Low Emission Transport	Public Vehicle Procurement – Prioritising uptake of low emission vehicles	Highways Waste Housing	2019 - 2020	2020 - 2023	All Council vehicles to be low emission where viable.	<5%	Policies being refreshed.	2023	Housing fleet renewed on a 1/3 replacement every year. Policy currently being refreshed to prioritise environmental considerations where viable. Large vehicle fleet for streetworks, waste, etc due for renewal in 2 years. Policy being refreshed to give greater weight to environmental considerations. Cost: Normal Business
16	Installation of vehicle charging points at Council depot	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Highways Waste Housing	2019	2020 – 2021	Alternative fuel points installed and in use at depot	<2%	Planning and Procurement in train	2021	Prior to procuring alternative fueled public vehicles; charging and fueling infrastructure must be in place. Cost: Normal Business

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
17	Change the schedule for recycling and waste collection to out of peak times on Kingshill Road(7am - 9am)	Traffic Management	UTC, Congestion management, traffic reduction	Waste management	2019	2019	No peak time collections of Kingshill Road	<1%	Schedule planning in train	2019	Potential to move slots to middle of the day. Reduce queuing on Kingshill Road and create smoother traffic flow. Cost: Normal Business
18	Engage with local bus companies to increase the number and frequency of services to foster	Alternatives to private vehicle use	Other	Public Health	2019	2019 - 2020	N/A	<2%	NA	2020	Potential to assist modal shift

Appendix A: Calculation of Required Reduction in Road NO_x Emissions

Step 1: Use the NO_x to NO₂ calculator to obtain the NO_x concentration that equates to the 56µg/m³ NO₂.

Concentration measured at receptor (ie 102 Kingshill Road) = 56 ug/m³ NO₂

Using version 6.1 of the DEFRA calculator NO_x=97.42 ug/m³

Step 2: Obtain the local background concentrations of NO_x and NO₂ for the year of interest, from the background maps

LB NO₂ =13.16 ug/m³

LB NO_x =17.86 ug/m³

Step 3: Calculate the current “road NO_x” concentration (road NO_x-current), i.e. the difference between total NO_x (calculated or measured) and local background NO_x.

Current road NO_x =97.42-17.86 = 79.56 ug/m³

Step 4: Calculate the road NO_x concentration required to give a total NO₂ concentration of 40µg/m³, i.e. the annual mean objective (road NO_x-required). This can be done using the NO₂ from NO_x calculator by entering a total NO₂ concentration of 40µg/m³ along with the local background NO₂ concentrations. The calculator gives the road NO_x-required concentration.

Road NO_x concentration required to give a total NO₂ concentration of 40µg/m³

Road NO_x concentration required RNO_x= 56.26ug/m³

Step 5: Calculate the road NO_x reduction to go from the road NO_x-current to the road NO_x-required.

Road NO_x reduction = 79.56-56.26 = 23.3 ug/m³

% required reduction in road NO_x =23.3/79.56 = 30%

Source Apportionment for NO₂

A calculation has been made to understand the contribution of all sources of emissions to the exceedance of air quality objectives within the AQMA. This is important to identify priorities whilst preparing an AQAP.

The source apportionment is to identify the main contributors to pollution and the circumstances that may be controlled, such as the spilt of vehicle type (cars, lorries etc), whether the traffic is stationary or moving and the relative contribution of background source.

From the national maps of background annual mean concentrations obtain the total background NO₂ for the grid square within which the hot-spot is located [TB-NO₂]

TB(NO₂) for 17.3 as NO_x=30.3 ug/m³

Local background NO₂ (from DEFRA 2015) = 24.49 ug/m³

Regional NO₂ (from DEFRA NO₂ background maps 2015) = 7.27 ug/m³

Regional NO_x (from DEFRA NO_x background maps 2015) = 13.95 ug/m³

LB NO_x=TBNO_x-RBNO_x =30.3-13.95 = 16.35ug/m³

Step 2: Apportion the total background NO₂ into regional and local using the regional and local NO_x proportions:

$$\begin{aligned} [\text{RB-NO}_2] &= [\text{TB-NO}_2] \times ([\text{RB-NO}_x] / [\text{TB-NO}_x]) \\ &= 17.3 \times (13.95/30.3) = 7.96 \text{ug/m}^3 \end{aligned}$$

$$\begin{aligned} [\text{LB-NO}_2] &= [\text{TB-NO}_2] \times ([\text{LB-NO}_x] / [\text{TB-NO}_x]) \\ &= 17.3 \times (16.35/30.3) = 9.34 \end{aligned}$$

Step 3: Calculate the local NO₂ contribution at the worst-case location [L-NO₂] from the total measured minus background: [L-NO₂] = [T-NO₂] – [TB-NO₂]

$$L\text{-NO}_2 = 55.9 - 17.3 = 38.6 \text{ ug/m}^3$$

Step 4: Apportion the local contributions to total NO₂ concentration using the model concentrations or emission results for NO_x.

Calculation

In this case the Emissions Factors Toolkit (EFT) has been used (V 8.0.1). The EFT is published by Defra and the Devolved Administrations to assist local authorities in carrying out Review and Assessment of local air quality as part of their duties under the Environmental Act 1995. The EFT allows calculation of road vehicle pollutant emission rates for NO_x for a specified year, road type, vehicle speed and vehicle fleet composition.

Using the EFT the following contributions of different vehicle types to NO_x has been determined:

Cars and light vans = 87.6%

Heavy Goods Vehicles – 12.4%

NO₂ from small vans and cars (87.6%) x L NO₂ = 87.6 x 42.74 = 37.4 ug/m³

NO₂ from HGVs (10.7%) x L NO₂ = 12.4 x 42.74 = 5.3 ug/m³

The final source apportionment of the worst-case NO₂ 55.9g/m³ is thus:

Regional background = 3.45µg/m³ = (6.2%)

Local background = 9.71µg/m³ = (17.4%)

Local traffic: Heavy Goods Vehicles= 5.3g/m³ (9.5%)



Local traffic: cars = 37.4µg/m³ (67%)

Appendix B: Responses to Consultation

The survey opened to the public on the 21st December 2018 and closed on the 3rd February 2019. There were a total of 72 responses. Respondents were asked to select answers to two questions before being invited to leave any additional feedback on the Swindon Borough Council Air Quality Action Plan. In addition to the survey responses, Swindon Borough Council received a written response to the Air Quality Plan from the Central Swindon South Parish Council.

Your Views on the Swindon Borough Council Air Quality Action Plan

1. Do you agree with the council's priorities: Priority 1 – To investigate sustainable options for reducing traffic flow of Kingshill Road; particularly in the uphill, South East direction. Priority 2 – To facilitate a shift to more sustainable modes of travel, better planned journeys and more sustainable fuels.

			Response Percent	Response Total
1	Yes		71.01%	49
2	No		28.99%	20
			answered	69

The results show that the majority of respondents (71%) agreed with the council's priorities: Priority 1 – To investigate sustainable options for reducing traffic flow of Kingshill Road; particularly in the uphill, South East direction. Priority 2 – To facilitate a shift to more sustainable modes of travel, better planned journeys and more sustainable fuels.

Respondents who selected 'no' were invited to suggest what they felt should be changed. 19 respondents took the opportunity to leave additional comments. Concerns were raised that the priorities would not be achievable. In total 2 people agreed with priority 1, but felt that priority 2 was unrealistic, 1 of these respondents went further to suggest that priority 2 would require support from central government in order to be successful. In addition, 1 person stated that neither priority would be achievable without levels of funding outside of Council resources.



A total of 4 people felt that the best way in which to achieve priority 1 would be rerouting or restricting the access of cars to Kingshill Road, 2 of these people specifically mentioned that this would have a greater impact than priority 2 on the air

quality of the area. 1 of the respondents suggested that the introduction of a bus gate could be a way in which to achieve this. However, 3 people felt that success of priority 1 would move the issue elsewhere within Swindon and another person asked why this priority was just focused on Kingshill Road.

3 respondents mentioned that the way in which to improve air quality for residents would be to focus specifically on reducing NO₂ levels and 1 of these people questioned why this wasn't mentioned specifically in the Council's strategic plan.

The Central Swindon South Parish Council suggested amending the wording of Priority 1 to read 'To investigate sustainable options for reducing emissions from traffic flow on Kingshill Road, particularly in the uphill, South Eat direction.'

2. Do you agree that the council should be taking the actions listed in Table 3 Swindon Air Quality Action Plan Measures?

			Response Percent	Response Total
1	Yes		75.00%	51
2	No		25.00%	17
			answered	68

75% of respondents agreed with the Council should be taking the actions which are listed in Table 3 Swindon Air Quality Action Plan Measures.

The 17 people who disagreed with the council's proposed actions from the Swindon Air Quality Action Plan Measures were asked why they did not agree with the proposed actions. The prevailing theme of this feedback that the time frame suggested was too generous and that actions needed to take place sooner with 5 of the 17 responses commenting on this, 1 of whom otherwise agreed with the proposed actions. 1 person agreed with the actions but felt unable to support them without further understanding of the potential costs and benefits involved and another was concerned that measure 2 had 'Financial implications to be determined'.

Some of the respondents felt that the actions did not explain how they were to be achieved or did not contain any concrete actions. In total, 4 of the comments mentioned that 1 or more of the actions did not include any actual actions, of these, 3 people stated that this was true of measure 1, 2 people mentioned measure 3 and 1 of the respondents went further to state that actions 3, 4, 10, 11, 12, 13 and 14 were all 'essentially non-actions'.

People were also concerned about the levels of impact assigned to each of the measures in table 3 of the Swindon Air Quality Action Plan Measures. 3 people didn't feel that action 3 should be listed as 'high impact' stating that modelling without action would not have an impact on air quality. 1 of these people suggested that measure 1 should be changed from 'medium' to 'high' impact as implementation would contribute 30% towards the reduction target.

Measures 5 and 8 were mentioned in 2 of the responses, both of which stated that these were already being undertaken by the Council, an additional respondent asked how both of these would be achieved as they felt this wasn't addressed in the plan and another suggested changing the impact of these measures to 'low impact'.

3 people did not think that the actions listed would work citing the costs involved and that the actions didn't go far enough to make a difference.

3. Additional comments on the Draft Air Quality Action Plan

Respondents were asked whether they would like to leave any additional comments on the 'Draft Air Quality Action Plan' and a total of 38 people took the opportunity to do so. Of these comments the main theme to surface was that resources should be given to improving infrastructure for cyclists as a way to encourage alternative forms of sustainable transportation. In total this was mentioned by 12 people, 6 people specifically mentioned that improvement of access to and the quality of the Railway Path (improved surface, better lighting) in Old Town would encourage use by pedestrians and cyclists thereby diverting people from Kingshill Road, a point reiterated by the Central Swindon South Parish Council. 4 of the respondents were concerned that expecting people to cycle up Kingshill Road was unrealistic, reasons given for this were the steep incline and worries that the road would be too narrow to introduce a cycle lane.

Continuing along the same theme, 7 respondents felt that Swindon Borough Council should be doing more to actively encourage people to use more sustainable modes of transport such as public transport, walking, cycling and electric cars. Suggestions included the introduction of electric car charging points. Central Swindon South Parish Council suggested that Swindon Borough Council explore the 'On street Residential Chargepoint Scheme' as a way in which to introduce charging points. There were concerns raised by 2 people that although encouraging these modes of sustainable travel were mentioned in the action plan, there was no mention as to how this would be achieved. In total, 8 people and the Central Swindon South Parish Council commented

specifically on the positive impact that improving current public transport provision would have on air quality given what they perceived as the limited service which currently runs, suggestions included liaising with bus companies to increase the frequency of services and offering free services. 4 people supported the introduction of a park and ride service.

7 people felt that either banning heavy goods vehicles (HGVs) or restricting their access to Kingshill Road would improve air quality with one person suggesting the introduction of a charge as a way in which to achieve this and another suggesting a weight restriction along Kingshill Road. In addition, a further 2 people suggested banning diesel cars from accessing the road.

Respondents suggested means of diverting traffic away from Kingshill Road. One of the themes identified in the comments was the suggestion that the 'Southern Relief Road' should be reconsidered as a means to divert traffic from residential areas, in total this was mentioned by 4 people. 3 people also asked that the introduction of a congestion charge also be reconsidered with 1 stating that other areas have overcome issues with implementing the scheme. This was echoed by the Central Swindon South Parish Council who advocated the reconsideration of a congestion charge scheme, also stating that other authorities have overcome issues around GDPR compliance. 2 people suggested that the introduction of a bus gate would be a means of diverting traffic from Kingshill Road. 2 of the respondents suggested that reclassifying Kingshill Road as a residential or 'B' road would reduce the amount of traffic in the area. This was supported by the Central Swindon South Parish Council who were disappointed that the reclassification of Kingshill as a 'B' road and the upgrading of the divert route around Wichelstowe to an 'A' road was not included in the measures.

A total of 4 people suggested improving the roundabout/road/pedestrian provision at the top of Kingshill Road as a means to reduce stationary traffic along the road or encourage people to walk to their destination as oppose to drive there.

1 person stated that they were encouraged by the Draft Air Quality Action Plan and a further 2 were concerned that the timeframe suggested in the plan was too generous. Central Swindon South Parish Council stated that 'more detailed traffic modelling was required as a matter of urgency and this would give a better understanding of traffic journeys and the mix of vehicles in use.'

Appendix C: Swindon Air Quality Steering Group

Title	Air Quality Steering Group (AQSG)
Contacts	Damon Green, Service Manager Healthy neighbourhoods Dr Ayo Oyinloye, Consultant in Public Health
Outcome	To work collaboratively across the borough to improve the air quality and ensure that pollutant levels (nitrogen) are in line with limits set out in the Air Quality (England) Regulations 2000
Purpose	To develop, direct, oversee, monitor and implement an effective Air Quality Plan for Swindon Borough Council and evaluate measures to improve air quality.

Terms of Reference

Objectives	<ol style="list-style-type: none"> 1. To understand the extent, and drivers of air quality issues in Swindon, and how they may develop in the future 2. To establish and maintain links to other key policy areas and strategies to <ol style="list-style-type: none"> a. ensure that air quality objectives are promoted and achieved through linked internal policies and strategies b. ensure that the work of the group contributes to relevant national and regional policies where appropriate 3. To develop and publish the Swindon Air Quality Action Plan <ol style="list-style-type: none"> a. identify success criteria for the Plan b. coordinate appropriate local monitoring c. review monitoring results obtained d. undertake source apportionment e. identify actions required to improve air quality f. undertake measures selection and impact assessment g. produce and publish the Draft Swindon Air Quality Action Plan h. undertake consultation on the Plan i. review the Plan in the light of consultation responses received j. publish the final Swindon Air Quality Action Plan for sign off by the Chief Executive. 4. To identify and secure funding streams for the work of the group and Air Quality Action Plan. 5. To monitor, and evaluate success against the objectives of the Plan 6. To report on performance against the objectives of the plan to Swindon Borough Council and Central Government as part of the Air Quality Annual Status Report submission 7. To keep the Swindon Air Quality Action Plan under review, and to adjust and amend the Plan in response to any changes
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Considerations	<p>The Steering Group should collaborate to identify:</p> <ul style="list-style-type: none">• If there are existing programmes in other areas that will contribute to emissions reductions (or increases) that should be accounted for within the AQAP.• What may influence the local pollution situation in the near future (i.e. 5 to 10 years);• The future trends that are likely to contribute (regional emissions trends as well as local factors);• If there is sufficient information to clearly define effective measures;• If an assessment may be required, before proceeding to developing the AQAP;• If emissions will reduce sufficiently to achieve air quality objectives in the next 5 years, as a result of measures already in place;• Whether it is appropriate to develop a generic set of measures, or whether locally derived measures targeting local hotspots is a preferred emissions management option – or a combination of both; and• If traffic management interventions are required.• Prioritisation options/proposals in relation to their respective cost benefits.
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Membership	<p>Core membership: Cabinet Member for the Housing and Public Safety (inc. Environment) Director of Public Health, SBC Consultant in Public Health, SBC Head of Highways and Transport, SBC Service Manager Healthy Neighbourhoods, SBC Head of Planning, Regulatory Services and Heritage, SBC Head of Comms, Mark walker</p> <p>Co-optees (for example) Representatives from Environment Agency Representatives from local Bus Companies Business Community</p> <p>Sub Groups will be convened where necessary to focus on specific issues with membership of these groups determined by the subject matter. Sub groups will report into the Steering group as directed.</p> <p>Other persons or bodies may be invited to attend and/or report to meetings if appropriate for the purposes of the group.</p>
Accountability	<p>The group will report to the Chief Executive/Corporate Management Team (CMT) of Swindon Borough Council and to the Cabinet Member for Housing and Public Safety. CMT will be asked to endorse any recommendations from the AQSG.</p>
Meeting Format	<p>The group will meet monthly. The Chair and their administrative support team will arrange the meetings, and ensure that agenda and minutes are circulated</p>
Review	<p>The Terms of Reference will be reviewed annually or as appropriate. The need for this steering group will reviewed annually and informed by Swindon's Annual Status Report to DeFRA.</p>
Date	<p>28/02/2018</p>

Appendix D: Reasons for Not Pursuing Action Plan Measures

Action category	Action description	Reason action is not being pursued (including Stakeholder views)
Congestion Charges	Not proceeded with	This does not fit with the council's current aspiration for the centre of town Challenges to obtaining ANPR info due to GDPR raises questions around availability of alternative data sources to accurately assess the effectiveness of implementing this option
Removing Roundabout (Okus road)	Not proceeded with	This will result in traffic congestion on Okus Road will do little to reduce traffic on Kingshill Road. There is no evidence that congestion is the cause of the problem. The road flows well at all times.
Reinstating M4 Diversion (Kingshill)	Not proceeded with	The costs attached to the implementation of this option outweigh the possible expected benefits or return on this investment.
Scrappage Scheme (lower emission vehicles)	Not proceeded with	The costs attached to the implementation of this option outweigh the possible expected benefits or return on this investment.
Trimming Greenery (encourage air flow)	Not proceeded with	This action is not likely to make a significant impact as cutting trees/ shrubbery may open up other periphery houses to risk. In addition to this, it has been determined that the trees are not Council-owned, and this would likely raise challenges.
Road Closure of Kingshill Road	Not proceeded with	Modelled data shows that This action will cause congestion on the roads in the centre of the town and worsen air pollution in marginal areas
Partial Closure of Kingshill Road	Not proceeded with	Modelled data shows that This action will cause congestion on the roads in the centre of the town and worsen air pollution in marginal areas
Introduction of Traffic Lights	Not proceeded with	Feasibility studies concluded that the need for safe braking distances made this option unviable.
Further speed restriction on Kingshill Road	Not proceeded with	Modelling suggests that slowing traffic would worsen air quality not improve it.

Increased foliage and planting	Not proceeded with	Location restrictions prevent any planting. This will have little impact on NO ₂ concentration on this part of Kingshill
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Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
...	...

References

ⁱ Public Health England, Health Matters – Air Pollution, 14th November 2018,
<https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution>

ⁱⁱ Environmental Audit Committee, Air Quality, Fifth Report of Session 2009–10 16th March 2010
<https://publications.parliament.uk/pa/cm200910/cmselect/cmenvaud/229/229i.pdf>

ⁱⁱⁱ Swindon Borough Council Air Quality Joint Strategic Health Needs Assessment

ⁱⁱⁱ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

ⁱⁱⁱ Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

ⁱⁱⁱ Defra. Abatement cost guidance for valuing changes in air quality, May 2013