

Swindon Joint Strategic Needs Assessment Bulletin

Swindon Air Quality Bulletin 2017



Key Points:

- 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 (NO_x) and particulate matter (PM).
- Road vehicles are the main pollution source in towns and cities.
- Air quality in Swindon is relatively good.
- Swindon is 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.
- The JSNA makes five recommendations and these are on page 8.

What is a Joint Strategic Needs Assessment (JSNA)?

A JSNA helps us to understand:

- the current health and wellbeing needs of local people;
- how their needs are being met;
- what we think their future needs are likely to be; and
- how their needs can be best met.

We want to understand Swindon's changing population, what is going on in Swindon and what makes a difference to people's health and wellbeing so that we can plan for the best care in future. Many different people from a range of organisations help to write a JSNA. The Swindon's Health and Wellbeing Board is a group that leads the development of JSNAs.

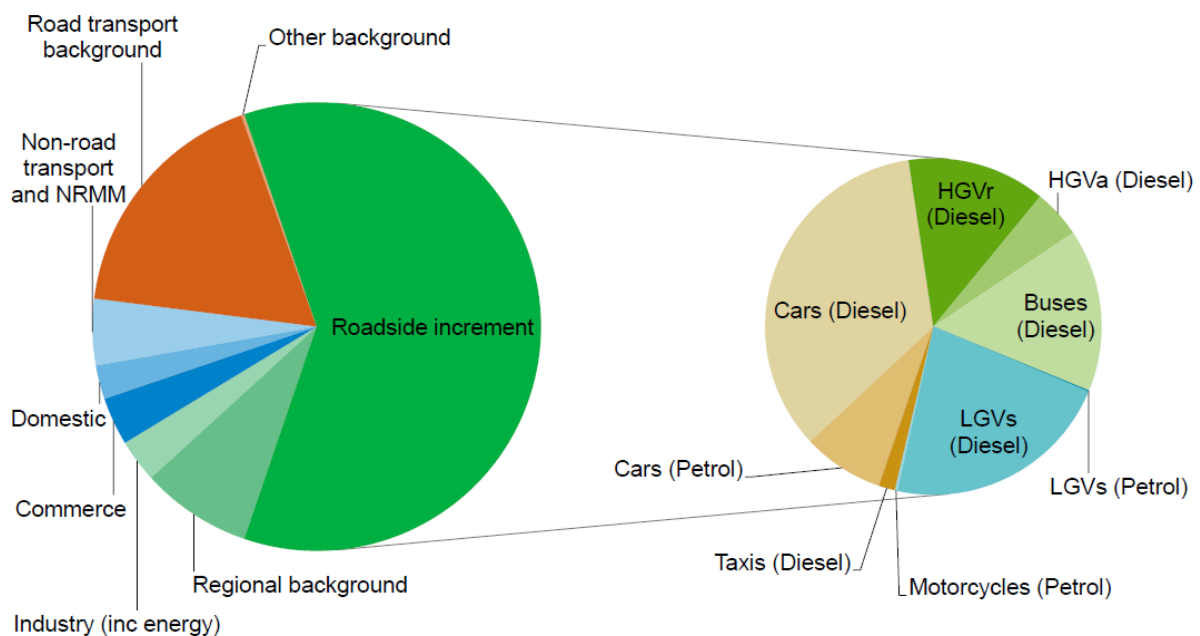
What is air pollution?

Air pollution is a mix of particles and gases that can cause health problems. The most important pollutants are oxides of nitrogen (NO_x) and particulate matter (PM). Other important pollutants are; sulphur dioxide, ammonia, non-methane volatile organic compounds (NMVOCs) and ozone (O₃). The amount of these is different in different locations.

Road vehicles are the main pollution source that people are exposed to in towns and cities. Heating, farming and some industry can also cause air pollution. Small changes in distance from the source (e.g. car), street layouts and physical barriers can make a big difference to air quality.

On average around 80% of NO_x emissions in areas where the UK is exceeding nitrogen dioxide (NO₂) limit values is due to transport, although urban and regional background non-transport sources are still considerable. The largest source is emissions from diesel light duty vehicles (cars and vans) and there has been significant growth in these vehicle numbers over the last ten years in the UK.

Figure 1: Breakdown of UK national average roadside concentration of nitrogen oxides into sources, 2015.



Source: Defra, Department for Transport

Why is air pollution important?

Air pollution is a serious public health challenge. Many years of life are lost each year in the UK as a result of air pollution.

The Department of Health's Committee on the Medical Effects of Air Pollutants estimated the burden of particulate air pollution in the UK in 2008 to be equivalent to nearly 29,000 deaths.

Poor air quality can have long term impacts on everyone and immediate effects on vulnerable people (usually people with certain health conditions).

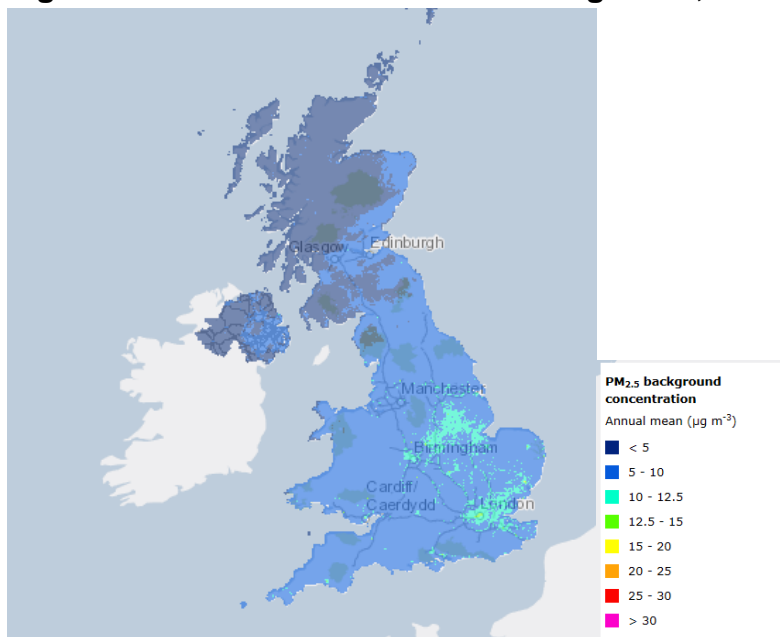
Any reduction in levels of particulate matter or NO_x will lead to improvements in health. Any improvement in air quality will have positive health consequences. Air pollutants are known to contribute to heart disease, lung cancer and respiratory disease.

Air pollution can have a larger effect on individuals who are more vulnerable to harm including those with heart and lung disease, children, the elderly. Deprived communities are more likely to be situated near polluted busy roads, and are more likely to get adverse health impacts.

Air Quality in the UK

“Over recent decades, UK air quality has improved significantly thanks to concerted action at all levels but there is more to do. Poor air quality is the largest environmental risk to public health in the UK and investing in cleaner air and doing even more to tackle air pollution are priorities for the UK Government..... The most immediate air quality challenge is tackling the problem of nitrogen dioxide (NO₂) concentrations around roads - the only statutory air quality obligation that the UK is currently failing to meet.”
(DEFRA, 2017)

Figure 2: Modelled PM_{2.5} annual background, 2015



Source: DEFRA

Air Quality in Swindon

Air quality in Swindon is relatively good. In Swindon, in common with other urban authorities, our chief concern is that of Oxides of Nitrogen (NO_x).

In Swindon transport is the main contributor to air pollution. Industrial (including energy generation and manufacturing), commercial and domestic sources in Swindon are not thought to contribute significantly to air quality issues.

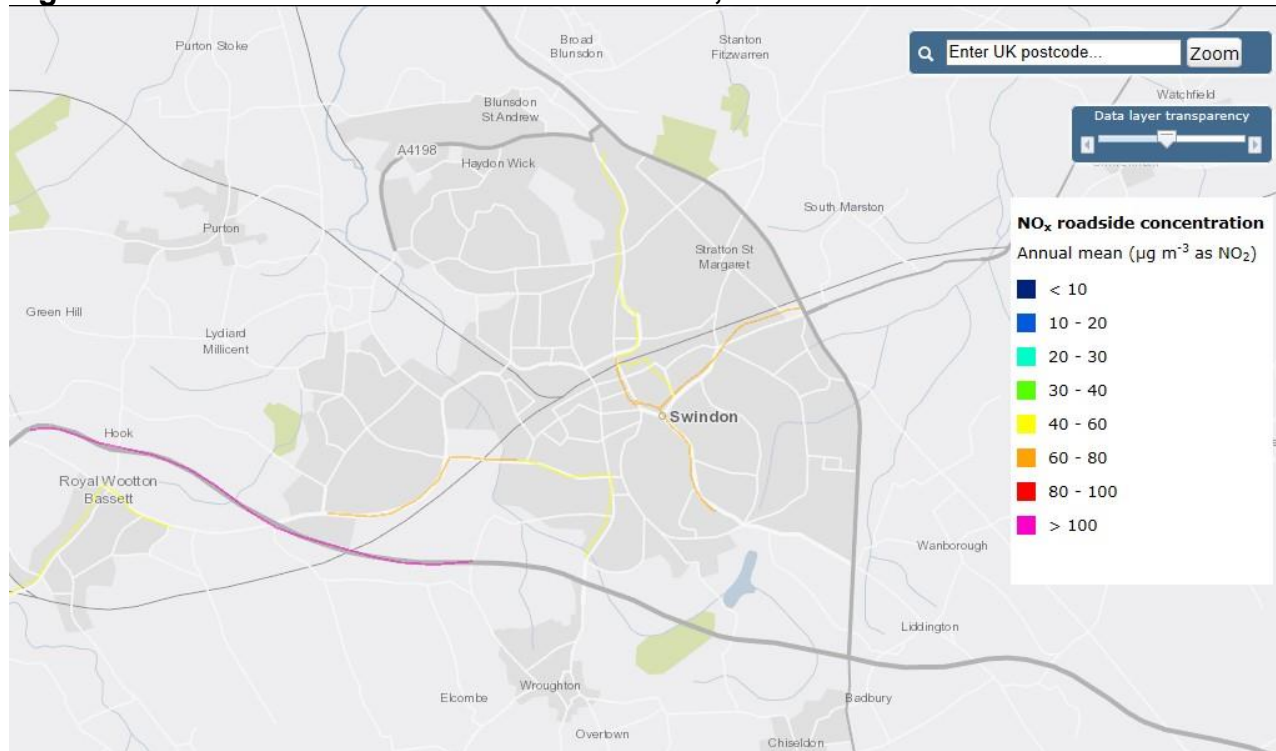
Figures 3 and 4 show Defra modelled roadside NO_x and background PM. Modelled data is used as local measurement only gives data for a very specific area. These show that modelled levels are highest around main roads, but relatively the modelled background levels are not as high as some other urban

The Swindon Air Quality Annual Statement Report 2016 showed four areas where measured levels of nitrogen dioxide were close to screening levels. Only one area exceeded the limit for Nitrogen Dioxide sent by DEFRA. In these areas close monitoring of air quality and traffic flow has been done. This means the situation is now understood and appropriate plans can be made.

There are specific solutions in pockets of higher nitrogen oxide emissions when they occur. In addition consideration will be given for the need to declare an Air Quality Management Area (AQMA). AQMA can open up funding opportunities for improving air quality in these areas.

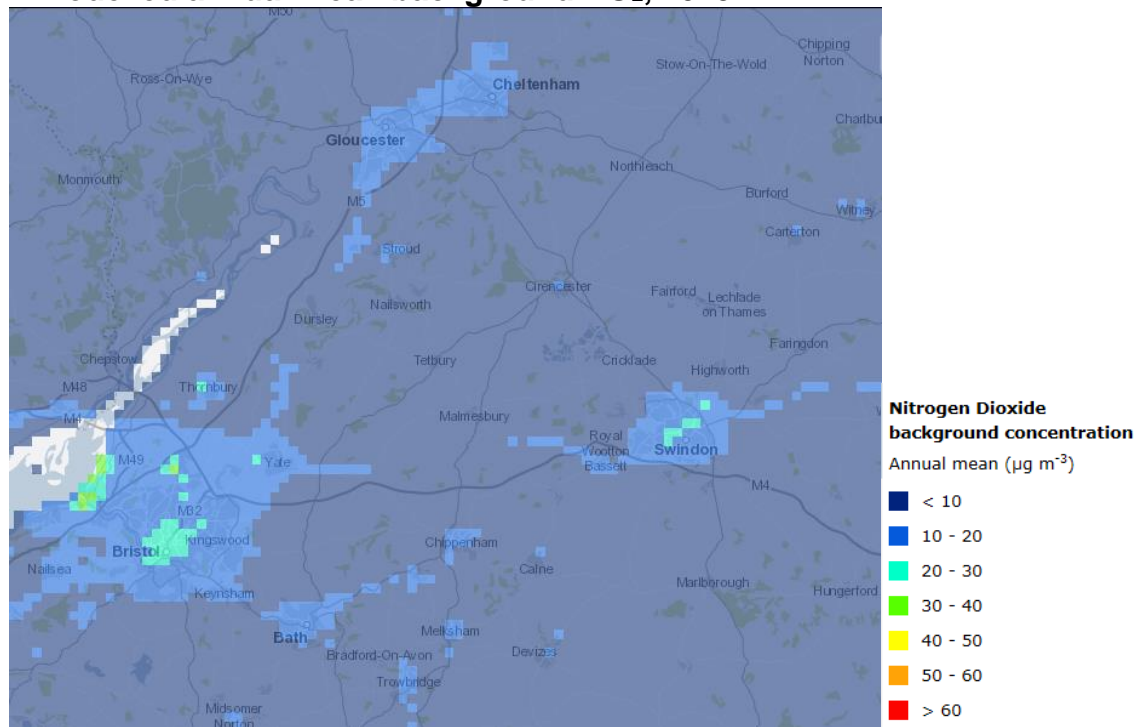
The season and weather also affect air quality. Met Office supplies an air quality forecast based on five key pollutants.

Figure 3: Modelled roadside NO_x annual mean, 2015*



*not all roads included in modelling, only includes A roads, motorways and some urban link roads (approximately 9,000 roads across UK).

Figure 4: Modelled annual mean background NO₂, 2015.



Source: DEFRA

Health

At present, 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.

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 PM data and Swindon mortality data it is estimated that 5.1% of mortality is attributed to air pollution.

Journey patterns

Less than 60% of all work journeys are regularly made by car. For people who live in Swindon and work outside the Swindon area, the proportion of trips made by car rises to over 80%. Public Transport accounts for 9% of all work trips, which is split between 1% train and 8% bus. 7% of work trips were on foot and 3% were on bike. These levels were similar to England.

The 2017 survey of modes of travel to school showed 5% of children travelled by bike and 57% walked. There is no national comparison data.

What are we doing in Swindon to improve air quality?

Reducing car journeys

Swindon Travel Choices work is mostly to reduce unnecessary short journeys by car (which are the most polluting) and encouraging people to make these trips on foot or by bike. There is the Travel Choices website, producing maps and publications, working with employers to promote sustainable commuting and holding events.

The Get Swindon Active Strategy highlights a number of other programmes in Swindon to increase active travel and reduce car journeys.

These include:

- Preparing for cycle training.
- Healthy schools – active travel to school.

Local Plan

The Council also uses its planning and transport powers to help reduce the need to travel, and support and encourage the sustainable movement within and through the Borough. The Local Plan 2026 highlights the importance of minimising emissions from transport by:

- Reducing the need to travel;
- Promoting more sustainable travel choices;
- Personal, workplace and school travel planning; and
- Designing the built environment to encourage healthy lifestyles and travel choices.

Promoting more sustainable travel choices includes active travel as well as zero- and low-emission buses.

Energy generation

Much progress has been made on developing alternative energy generation via solar arrays and solar farms. These benefit the borough and reduce the impact of its power needs on the environment. The large solar farm at the former Wroughton Airfield commissioned during March 2016, provides 41MW of renewable electricity to 12,000 residents of Swindon and is estimated to cut carbon emissions to atmosphere of around 20,000 tonnes per annum.

Local Transport Plan

The three key objectives for the Transport Strategy are

- Deliver a vibrant local economy,
- Improve the sense of place,
- Reduce the need to travel.

A number of principles were also agreed to guide the development of the Transport Strategy:

- Encourage short distance trips by walking or cycling,
- Encourage journeys into the town centre, other than by personal car.
- Encourage journeys around but within Swindon,
- Provide good access to the strategic transport network.

Green Infrastructure

Green infrastructure is a network of multifunctional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities. Swindon has a green infrastructure strategy. Green infrastructure has the possibility of improving air quality in a number of ways including encouraging active travel, a positive food environment using local produce and benefits from certain vegetation as an urban pollutant.

What should we be doing to improve air quality?

The National Institute for Health and Care Excellence (NICE) guidance published in June 2017 and the Directors of Public Health report from March 2017 suggests there are many opportunities for improving air quality. These include:

- Planning, including:
 - Providing electric charging points,
 - Design of new layouts to reduce the need for personal motorised transport.
 - Making sure street and building layout does not cause pollution to build up where people spend time, or pursue leisure activities.
 - Making sure buildings are energy efficient.
- Development management through reducing road-traffic-related air pollution.
 - Taking action to reduce the number of motorised trips including by:
 - Encouraging pedestrianisation
 - Having air quality outcomes in travel plans,
 - Developing local parking plans,
 - Supporting car clubs,
 - Supporting active travel.
 - Supporting the use of zero- and low-emission vehicles (for example electric buses).

- Clean air zones:
 - An area where targeted action is taken to improve air quality and resources are prioritised and coordinated in order to shape the urban environment in a way that delivers improved health benefits and supports economic growth.
- Reducing emissions from public sector transport services and vehicle fleet:
 - Procuring low or zero emission vehicles,
 - Public and school transport policies,
 - Encouraging local bus companies to procure low or zero emission buses for their fleets.
- Supporting walking and cycling:
 - Support active travel,
 - Choice of cycle routes.
- Smooth driving and speed reduction:
 - Driver training,
 - Traffic management,
 - Tackling congestion.
- Raising awareness.

The King's Fund (2013) found "*The cost-benefit evidence for investing in air quality is substantial. The overall benefit-to-cost return was £620 in benefits for every £100 spent.*"

Recommendations

1. Prioritise active and sustainable methods of transport to reduce air pollution from a variety of pollutants. This will lead to improvements in health and wellbeing through increased physical activity and improved air quality. Key elements are to:
 - a. Make sure that walking and cycling are prioritised across the Borough.
 - b. Continue to promote Swindon Travel Choices.
 - c. Apply for funding or grants for active transport when available.
2. Make sure that the vehicles that are travelling through and around Swindon are as clean as possible. To do this there needs to be a move towards zero- and low-emission vehicles. One way to assist with this transition is through applying for available funding and grants to:
 - a. Encourage the switch to ultra-low emission passenger and fleet vehicles.
 - b. Ensure development of electric vehicle infrastructure.
3. Make sure any specific local solutions in areas of higher nitrogen dioxide as identified within the Air Quality Annual Statement report take place.
4. Ensure air quality, including zero- and low-emission travel, is included within key policies such as; Local Plan, Swindon Local Transport Plan, parking standards, Green Infrastructure strategy and Site Masterplans for major developments.
5. Form a multi-agency working group to ensure a focus on priorities in Swindon and a consistent approach which maximises opportunities to improve air quality across the Borough.