

Breathing Better

a partnership approach to improving
air quality in West Sussex

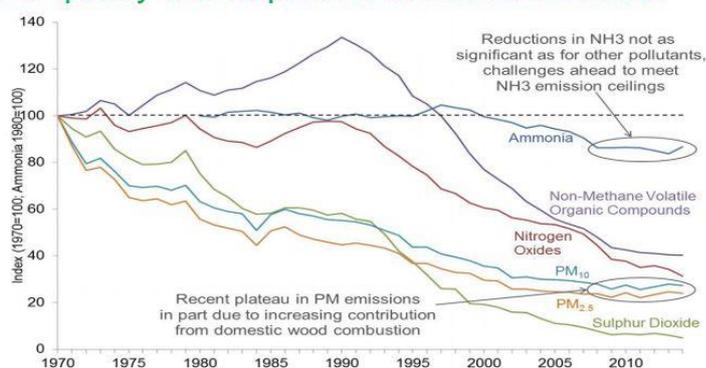


INTRODUCTION

All of the local authorities in West Sussex are committed to working together to improve the quality of the air that we breathe.

Recent studies have shown that some forms of air pollution nationally have been declining, although, as has been seen recently in the media, there are still areas with significant problems. West Sussex, as a predominantly rural county, does not suffer the difficulties of large metropolitan areas but we have our own challenges.

Air quality has improved in recent decades



- There has been a long-term decline in the emissions of key air pollutants since 1970.
- Between 1970 and 2015, emissions of sulphur dioxide fell by 96%, nitrogen oxides by 69%, NMVOCs by 66%, PM₁₀ by 73% and PM_{2.5} by 76%. Ammonia emissions from agriculture decreased by 19% between 1990 and 2015.
- With the exception of ammonia and PM_{2.5}, emissions of all pollutants continued to decrease in 2015.

Source: Department for Environment Food and Rural Affairs

be able to work together more effectively, increasing efficiency and improving outcomes.

This Plan provides information about air quality across the County, and outlines some of the work taking place to reduce levels of pollution. It is a working document and will be updated when necessary and will be reviewed annually.

In this first section, we look at the responsibilities of the local authorities and discuss what the problem actually is in West Sussex; the health and environmental impacts and the pollutants of concern. We also cover the strategic context within which we are working.

The second section looks at some of the activity that is currently being undertaken and highlights the approach that will be taken going forward.

Air pollution does not respect district or county boundaries, and is a shared problem. It is therefore essential to work in partnership to achieve the shared aim of reducing air pollution, as well as continuously doing all we can and challenging others to do more to address this issue.

The County Council and District and Borough Councils have agreed that the best way to meet the challenges facing us is to develop a joint approach to delivering actions and interventions to tackle air pollution. By doing so, we will

SECTION ONE

RESPONSIBILITIES

Statutory responsibility for monitoring and assessing air quality lies with the local authorities responsible for environmental health, and in West Sussex this is the District and Borough Councils. Areas where pollutants exceed, or are likely to exceed, Government health based air quality objectives are declared as Air Quality Management Areas (AQMAs)¹ and each authority is required to produce an Air Quality Action Plan (AQAP) to demonstrate how it will improve air quality in the AQMA(s). Each local authority responsible for environmental health has a statutory duty to produce an Annual Status Report (ASR) reporting on air quality monitoring, whether it has any AQMAs or an AQAP or not, and progress with actions to improve air quality is reported to Defra². For more information on the requirement for monitoring and assessing air quality and links to the AQMAs and ASRs in West Sussex, see Appendix 1.

Where air quality problems resulting in AQMAs are related to traffic, which is the case for all AQMAs in West Sussex, as local highway authority³ West Sussex County Council, has a statutory responsibility to work with the relevant District or Borough Council to develop and deliver the action plans for these AQMAs. Highways England has an equivalent responsibility to work with the relevant District and Borough Council in relation to the Strategic Road Network where there are AQMAs (i.e. the A27, the M23 and the A23 to the south of Pease Pottage).

Gatwick Airport also monitors its air quality and its performance reports are due to be audited in 2018.

West Sussex County Council as public health authority has a duty to take steps to improve public health and this means planning for, and responding to issues, such as poor air quality, that present a risk to public health.

Improving air quality can play a critical role in supporting other local priorities; encouraging active travel such as walking and cycling is good for physical and mental health and will improve health. These co-benefits will bring benefits to the individual and the community as a whole.

THE ISSUE

In this plan we focus on sources of local outdoor air pollution. Most of this is transport related, although recent years have seen an increase in pollution resulting from domestic burning of wood and coal.

We are not just looking at statutory levels of pollution but how we can improve on background emissions of pollutants, as many pollutants cause health effects below the UK air quality objectives.⁴

¹ A full list of AQMAs in West Sussex can be found on the [West Sussex County Council website](#).

² Department for Environment, Food and Rural Affairs

³ The County Council is responsible for all public or adopted roads in West Sussex except the A27 and M23/A23, which are maintained by Highways England. Private roads are not adopted or maintained by the County Council and may not be repaired, maintained or cleaned.

⁴ http://www.euro.who.int/_data/assets/pdf_file/0005/112199/E79097.pdf

There are a variety of different pollutants, but the main ones of concern are nitrogen oxides (NO_x), particularly nitrogen dioxide (NO₂) and particulate matter (PM). Particulate matter is often referred to by size, so you may see references to PM₁₀, PM_{2.5} or PM_{0.1}.⁵ For information on these and other pollutants please see the Defra website⁶.

Particulate matter is categorised on the basis of the size of the particles e.g PM_{2.5} has a diameter of less than 2.5 micrometres (µm), PM₁₀ has a diameter of 10 µm or less (one micrometre is one thousandth of a millimetre).

Particles	Diameter
Nanoparticles/ultrafine particles	<0.1 µm
Fine particles PM _{2.5}	2.5 µm or less
PM ₁₀	10 µm or less
Coarse particles	2.5-10 µm
Dust	75 µm or less

National and European objectives define levels based on the known effect these pollutants have on human health. Objectives are set in law and, where an AQMA has been designated, local authorities have a statutory obligation to work towards meeting them.

However, no threshold below which particulate matter would not pose a risk has been identified, so the approach for this is generally accepted to be a reduction in background concentrations to ensure the best health outcomes for the widest geographic range of people.⁷

Health impacts

There is consistent evidence demonstrating clear adverse effects of exposure to air pollutants on health outcomes across all population groups. Poor air quality is linked with an increased risk of developing chronic conditions (eg chronic obstructive pulmonary disease), poor birth outcomes, lung cancer, respiratory disease and others.⁸

The Public Health Outcomes Framework (PHOF) includes an indicator which quantifies the contribution of exposure to particulate matter on mortality.⁹ In 2015 the fraction of mortality attributable to anthropogenic PM_{2.5} was 4.2% for West Sussex. This compares to an estimated fraction of 4.7% for England, and ranges from 4.1% for Arun, Chichester, Horsham and Mid Sussex District Councils, and 4.8% for Worthing Borough Council.

⁵ 10, 2.5 and 0.1 relates to the size of the particle in micrometres (µm). Examples of particulate matter include dust, dirt, soot, smoke and drops of liquid.

⁶ Department for Environment, Food and Rural Affairs: <https://uk-air.defra.gov.uk/air-pollution/causes>

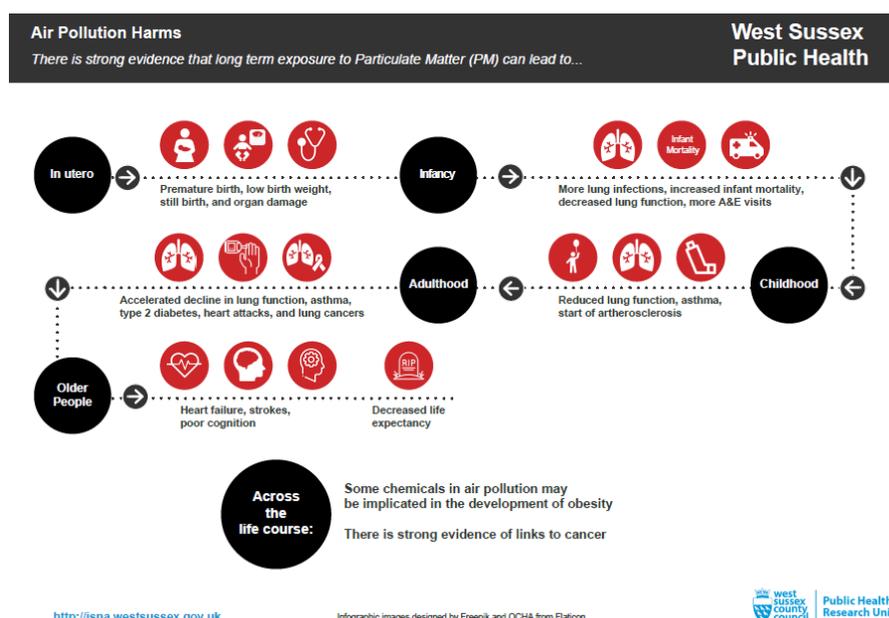
⁷ *Ambient Air Quality Directive 2008/50/EC*

⁸ *Spatial Planning for Health: an evidence resource for planning and designing healthier places*. Public Health England. 2017

⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/545605/PHOF_Part_2.pdf

Area	Fraction of mortality attributable to particulate air pollution (%) 2015
Adur	4.6
Arun	4.1
Chichester	4.1
Crawley	4.2
Horsham	4.1
Mid Sussex	4.1
Worthing	4.8
West Sussex	4.2
England	4.7

The figures for mortality due to air pollution are estimates of mortality attributable to a risk factor. Outdoor air pollution is a major public Health issue costing the UK economy £20bn a year and contributing to over 25,000 deaths a year.¹⁰ It is important to understand that long-term exposure to air pollution is not thought to be the sole cause of deaths. Rather, it is considered to be a contributory factor.¹¹



Air pollution is harmful to everyone. However some people suffer more than others because they:

- Live in deprived areas, which often have higher levels of air pollution
- Live, learn, or work near busy roads.
- Are vulnerable because of their age or existing medical conditions for example asthma or cardiovascular disease.¹²

¹⁰ <http://www.adph.org.uk/wp-content/uploads/2017/11/ADPH-Policy-Position-Outdoor-Air-Quality.pdf>

¹¹ *Air Quality: A Briefing for Directors of Public Health*. Department for Environment, Food and Rural Affairs, Public Health England, Local Government Association. March 2017

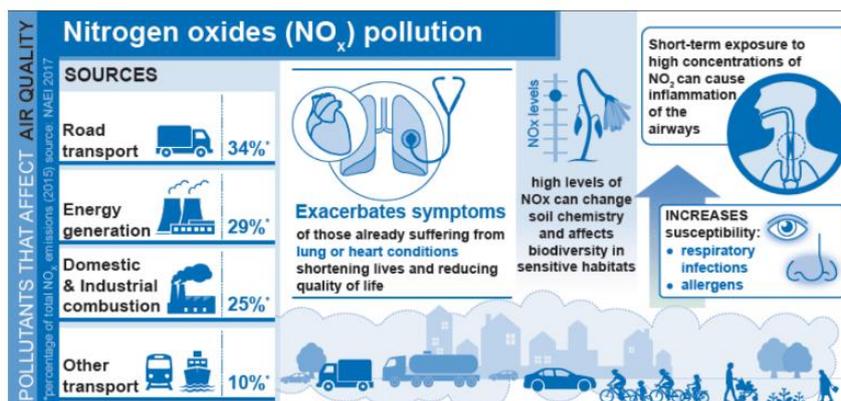
¹² *Every breath we take: the lifelong impact of air pollution*. Royal College of Physicians, Royal College of Paediatrics and Child Health. February 2016.

The health problems resulting from exposure to air pollution have a high cost to society and business, our health services and people who suffer from illness and premature death. These vulnerabilities are heightened among those living in the most deprived communities.

Nitrogen dioxide (NO₂)

Road transport is responsible for some 80% of NO₂ concentrations at the roadside, with diesel vehicles of greatest concern at a local level. This is due in part to improvements in real world emissions testing showing that laboratory test-based emission standards have not delivered expected reductions under real world driving conditions.¹³

There is also evidence to suggest that occupants are subject to higher levels of air pollution inside the car than those outside. In some studies the personal exposure inside the car was 30% higher than the concentrations in the fixed monitoring station.¹⁴



Source: Department for Environment Food and Rural Affairs

There are further implications of poor air quality on health and wellbeing as the perception of air pollution appears to be a barrier to participating in outdoor physical activity and active transport¹⁵ which in turn would appear to result in more car trips.

Particulate matter

Of the different sizes of particulate matter reported on, PM_{2.5} has the strongest epidemiological link to health outcomes and is used for the Public Health Outcomes Framework indicator 3.01¹⁶. At this size the particles can be inhaled deep into the lungs. The very smallest particles, ultra-fine PM_{0.1} once inhaled, are able to pass directly into the bloodstream.

Unlike NO₂ where concentrations are high immediately adjacent to the source, particulate matter has a wider geographical extent and guidance suggests we can use monitoring from up to 50 miles away as a reference.

¹³ UK plan for tackling roadside nitrogen dioxide concentrations. Department for Environment Food & Rural Affairs, Department for Transport. July 2017

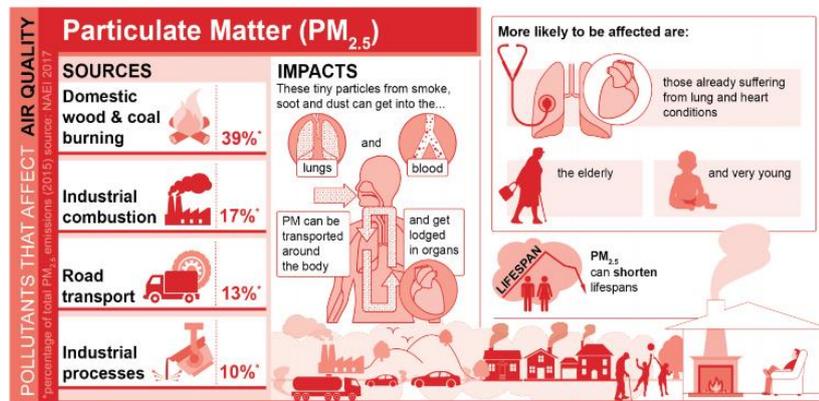
¹⁴ Assessment of personal exposure to particulate air pollution during commuting in European cities—Recommendations and policy implications. Science of the Total Environment 490 (2014) 785–797

¹⁵ Spatial Planning for Health: an evidence resource for planning and designing healthier places. Public Health England. 2017

¹⁶ Public Health Outcomes Framework. Department of Health. 2016

One of the highest sources of particulate matter is domestic coal and wood burning. There has been an increase in recent years in the number of wood burning stoves; a 2015 survey by the Department for

Energy and Climate Change found that wood burning had been underestimated by a factor of three.¹⁷ Proactive education on the best practice to limit the impacts of domestic burning is needed.



Source: Department for Environment Food and Rural Affairs

The major mobile source of particular matter is road transport, which produces particles when fuels are burned or lubricants are used up in the engine, when tyres and brakes wear down and from road

dust.¹⁸ PM_{2.5} is also produced from reactions between other gaseous pollutants forming secondary particles.

Other pollutants

Ozone

Low level ozone is not emitted directly by car engines or by industrial operations, but is formed on warm summer days by the reaction of sunlight on air containing a mixture of airborne pollutants, including nitrogen oxides. Traffic is the main source of these pollutants. Ozone travels long distances and can reach high concentrations a long way from the original sources of pollution. It is particularly important for our rural communities as the conditions that break ozone down in urban areas are less prevalent in rural areas.¹⁹ Ozone also has impacts on incidence of respiratory symptoms.

Environmental impacts

Air pollution also results in damage to the natural environment. For example, NO₂ contributes to acidification of soils which can lead to loss of plant diversity. NO₂ adds excessive nutrients to water courses that can cause algal blooms, which in turn can cause fish mortality and loss of plant and animal diversity. Any proposed plans or projects that may affect a protected European nature conservation site are assessed under the Habitats Regulations to consider their potential impacts, including air quality, and if those impacts will adversely affect the ecological integrity of the protected site.²⁰

The importance of vegetation in improving air quality is important also. Trees and vegetation absorb carbon dioxide (the main greenhouse gas) and filter, absorb and reduce pollutant gasses including ozone, sulphur dioxide, carbon monoxide and nitrogen dioxide as well as producing oxygen.

¹⁷ Summary results of the domestic wood use survey. Department for Energy and Climate Change. 2015

¹⁸ <https://uk-air.defra.gov.uk/assets/documents/reports/aqeg/pm-summary.pdf>

¹⁹ <http://www.irceline.be/en/documentation/fag/why-are-ozone-concentrations-higher-in-rural-areas-than-in-cities>

²⁰ https://www.legislation.gov.uk/uksi/2017/1012/pdfs/uksi_20171012_en.pdf

The benefits of green infrastructure are well established and in addition to improving air quality they are also shown to improve water quality, reduce flooding, improve health and wellbeing, increase property values, increase biodiversity and create a resilient environment. Studies show that investment in green infrastructure is a cost effective way of delivering multiple benefits. However, it does require space and resources.

STRATEGIC CONTEXT

The legislation relating to limit values of pollutants is set at the EU level in the Air Quality Directive and is transcribed into UK legislation through the Air Quality Standards Regulations. The enforcement proceedings against the UK begun by the EU in 2014 are for failure to meet air quality targets for nitrogen dioxide set out in the Air Quality Directive. Three private judicial reviews have also been brought against the UK Government, which have resulted in a number of different air quality plans.

The European Union (Withdrawal) Bill is designed to provide continuity by copying over all EU law and the Government has stated that there are no plans to change air quality limit values and targets. At present, monitoring and enforcement of the air quality standards in the Air Quality Directive is by the European Commission. The Government has announced plans to consult on a new independent statutory body that would have this role in England.

There are a number of plans and policies in place at a local level, both at the County Council and within the local plans drawn up by each of the District and Borough Councils.

Central Government

UK Clean Air Strategy – forthcoming 2018

The *UK plan for tackling roadside nitrogen dioxide concentrations (2017)* sets out how the UK will be reducing roadside nitrogen dioxide concentrations. It requires specified local authorities to carry out studies to identify how to meet legal limits for nitrogen dioxide in the shortest possible time, and sets deadlines. After three court cases, the Government is required to produce a supplementary plan, setting out requirements for feasibility studies to be undertaken in additional areas. No local authority in West Sussex is specified in this Plan.

Ambient Air Quality Directive (2008/50/EC) sets legally binding limits for concentrations in outdoor air of major pollutants that impact public health such as particulate matter (PM₁₀ and PM_{2.5}) and nitrogen dioxide (NO₂). As well as having direct effects, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems. In the UK the Air Quality Directive is implemented through the Air Quality Standards Regulations 2010.

The Environment Act 1995 requires the UK Government and devolved administrations to produce a national air quality strategy that sets out the UK's air quality objectives. The Act requires local authorities in the UK to review air quality in their area and designate air quality management areas if improvements are necessary. Where an air quality management area is designated, local authorities are also required to work towards the Strategy's objectives prescribed in regulations for that purpose.

The Environmental Permitting Regulations 2010 require regulators to control certain activities which could harm the environment or human health. Local Air Pollution Control is covered by the Regulations and is delivered by local authorities in England and Wales.

County level

There are a number of local strategies, plans and policies at both County and District/Borough level.

West Sussex County Council

The *West Sussex Plan 2017-22* sets out how the County Council plans to shape its services for the next five years. It contains our vision for West Sussex and what we are trying to achieve for our residents and for the county. It includes a headline target for improving air quality in Air Quality Management Areas.

The *West Sussex Transport Plan 2011-26* (LTP3) sets the strategy for guiding future investment in our highways and transport infrastructure. It also sets a framework for considering transport infrastructure requirements associated with future development across the county. Ensuring good air quality has a number of links to the four strategies that sit within the Transport Plan, and has particular relevance to improving public health.

The *West Sussex Walking and Cycling Strategy 2016-26* sets out our aims and objectives for walking and cycling in West Sussex. The strategy contains a prioritised list of over 300 potential walking and cycling improvements suggested by a range of stakeholders and partner organisations. The importance of increasing levels of walking and cycling in helping to tackle poor air quality is a key focus of this strategy.

The *Rights of Way Management Plan 2018-28* sets out West Sussex County Council's approach to managing the Public Rights of Way (PROW) network, as well as signposting how improvements can be achieved over the next ten years. The Plan highlights the importance of green space in improving air quality.

The *Bus Strategy 2018-2026* (forthcoming) will set out West Sussex County Council's aims and objectives for local buses and community bus transport and how the County Council will do more with partners and bus operators to promote bus travel.

Parking Standards Review – The parking standards outline the minimum and maximum requirements for car and cycle parking at new developments within the county. They are currently being reviewed and updated to ensure they comply with current guidance and are fit for purpose.

Electric Vehicles policy – forthcoming autumn 2018

District and Borough Councils

Each District and Borough council has to prepare a local plan which sets planning policies in a local authority area. These are very important when deciding planning applications. A number of policies within local plans specifically reference air quality. See Appendix 2 for a list, full text can be found on District and Borough Council websites.

Sussex-air

Sussex-air is a partnership of Environmental Health, Public Health and Transport Planning officers from all the Local Authorities in East Sussex, West Sussex and Brighton and Hove. The Partnership aims to promote

improvements in air quality in Sussex. The Partnership was established over 15 years ago to support Sussex local authorities with their Local Air Quality Management duties under the Environment Act 1995 and the implementation of the UK Air Quality Strategy. The partners meet quarterly to discuss air quality related issues and to share knowledge and good practice. The Group is actively engaging with Public Health in West Sussex, East Sussex and Brighton & Hove. It is hoped this will lead to greater partnership working and the delivery of projects aimed at reducing public exposure to poor air quality across Sussex. Sussex-air also provides the public with information on the levels of pollutants from continuous monitoring stations across Sussex, via its website.

SECTION TWO

ACTIVITY

Section 1 above looked at the issues we are facing and the strategic context.

This section looks at some of the activity that is currently being undertaken and highlights the approach that will be taken to deliver improvements through actions and interventions that can be implemented as and when resources allow. We have examined where we can work more effectively together and drawn out actions where one of the District or Borough Councils or the County Council is doing something that might be scalable and replicable. We also explain the governance procedures for this plan.

The appendices give more detail of local air quality management responsibilities, summarise the planning policies the District and Borough Councils use, highlight some of the key challenges we face and list the joint approaches the local authorities in West Sussex will take going forward.

District and Borough Councils and the County Council are already undertaking action (or are planning to take action) to improve our air quality. The tables below show some of the actions that have been identified in the action plans and reports for AQMAs as well as action being taken more generally across each West Sussex District and Borough. The tables cover the following themes:

- Low emission vehicles
- Traffic management
- Sustainable transport infrastructure
- Behaviour change
- Health and wellbeing
- Planning
- Travel planning
- Resourcing

Full information about actions being undertaken in specific AQMAs is available on the relevant District or Borough website (see appendix 1).

Low emission vehicles

The biggest impact on traffic-related air quality will be reductions in emissions from petrol and diesel vehicles as a result of technological improvements. The Government confirmed in July 2017 that it will end the sale of all new conventional petrol and diesel cars and vans by 2040,²¹ and the move towards low emission²² vehicles will further improve air quality. The County needs to prepare for this transition so that

²¹ <https://www.gov.uk/government/news/plan-for-roadside-no2-concentrations-published>

²² The Department for Transport defines low emission vehicles as vehicles with pure electric engines, plug-in hybrid engines or cars with CO₂ emissions below 75 g/km at tailpipe. These include fuel cell electric vehicles which are often powered by hydrogen and Range Extended Electric Vehicles which have a combustion engine that acts as an on-board generator to top up the battery's charge.

its businesses and residents are not disadvantaged. The County Council is currently working with District and Borough partners to consider how best to achieve this.

	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	WSCC
Fleet improvements	✓		✓	✓			✓	✓
Electric Vehicle infrastructure	✓	✓	✓	✓			✓	✓
Energise Network Rapid charge points				✓	✓			
Taxi fleet licensing promoting low emission vehicles	✓		✓	✓		✓	✓	

Partners have an ambition to increase the uptake of electric vehicles in the County. As a first step, The County Council is working with a number of internal teams on introducing electric vehicle charging infrastructure and a small number of electric pool vehicles at County Hall, Chichester as part of a pilot during summer 2018.

In parallel, WSCC is developing a clear strategy and policy setting out its ambitions for ultra-low emission vehicles, including electric vehicles. This includes sharing knowledge, experience and resources with District and Borough partners with the aim of delivering a cohesive network of EV charging points across West Sussex.

Crawley Borough Council has included emissions from hackney carriage and private hire vehicles in its licensing policy to improve air quality in the borough through ensuring less polluting vehicles are licensed from first registration. It also limits the life span of vehicles to ensure they are removed from the taxi fleet in a progressive manner. The Council also discounts all licensed electric vehicles registered to £100 fee to encourage take up and also to improve air quality within the borough.

Chichester District council has a funded Cabinet resolution to deliver electric vehicle charging points across its car parks and has built a whole life costing business case to deliver electric vehicles in its fleet.

Adur and Worthing Councils have a fleet of pool cars incorporating hybrid vehicles and are investigating the use of electric vehicles within the fleet, aiming to reduce work related journeys by staff in their own vehicles. By having some control over the fleet used by staff emissions (and cost savings) should be better controlled. Using hybrid vehicles for local journeys means pure electric mode can be used for much of the time as speeds are low.

Adur and Worthing Councils have also developed an EV strategy to direct the installation of chargepoints across both areas. This has led to chargepoints being installed at three locations and the strategy identifies locations for possible future installation by the Council and/or private businesses.

Traffic management

The focus of our traffic management work is to keep traffic moving smoothly thereby reducing the amount of emissions produced through stop-start motion. We will work together with local stakeholders to understand the micro-scale problems that are causing congestion and air quality problems, and consider

whether there are any practical measures that might be taken to reduce impacts. Any traffic management measures identified will need to consider aspects including: likely air quality benefit, feasibility²³, deliverability, value for money, acceptability, ongoing management and likelihood of funding. Schemes will also need to be prioritised against other County Council highway schemes.

West Sussex highway infrastructure measures development processes

Processes for prioritising schemes within County Council work programmes include the Community Highway Scheme for smaller scale community identified schemes, the Local Transport Investment Programme (LTIP) for local infrastructure improvements e.g. schemes identified through local infrastructure studies to serve local policy objectives, and the Strategic Transport Investment Programme which is used to identify and develop strategic (i.e. larger than local) transport projects needed to support sustainable economic growth in the county.

	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	WSCC
Low speed zones (inc 20mph zones)	✓	✓	✓			✓		✓
HGV/LGV assessment	✓						✓	
MOVA traffic signal optimisation	✓	✓	✓	✓	✓	✓	✓	✓

Traffic signals

We use automated MOVA²⁴ technology at all new traffic signal junctions and crossings and within all of our AQMAs. This technology is also introduced when traffic signal junctions and signal controlled crossings are upgraded.

Speed limit changes

Speed management changes should be in accordance with the West Sussex Speed Limit Policy and any initiatives will need the overall support of the local community. We will examine the feasibility of additional speed management initiatives where these are supported by the community, particularly where a speed limit change improves actual and perceived road safety and can encourage increased walking and cycling as opposed to car use.

HGV/LGV routing assessment

An advisory lorry route and services map is available on the West Sussex County Council map. It will require updating and this will be included in the Local Transport Plan review due to begin in 2018/19.

Parking

Road Space Audits (RSAs) are planned for Chichester, Crawley, Burgess Hill and Worthing. These areas have been chosen because RSAs are seen as integral to the development of the significant growth programmes that exist for these areas.

²³ There are some traffic management actions that we are either constrained by regulations from undertaking, there are practical reasons why they may not be suitable, or there are specific challenges that need consideration. Appendix 3 provides further explanation about these challenges.

²⁴ Microprocessor Optimised Vehicle Actuation

In due course, a prioritised growth programme for Horsham, Bognor Regis, Littlehampton, Haywards Heath and Shoreham will be drawn up and RSAs would likely be required for each of these. In addition, RSAs may be considered for towns where there is a train station and attempts to address parking issues at one station may have knock-on effects at nearby stations.

Smaller towns or villages present a different set of issues and it is probable that District, Borough or Parish Councils will take the lead on dealing with these.

Sustainable transport infrastructure

Walking and cycling are low cost modes of travel that have the potential to replace a significant proportion of motorised journeys. The relative lack of specific facilities and concerns about safety are barriers to increasing cycling and walking. The needs for cyclists, walkers, wheelchair users, mobility scooter users, people with pushchairs, equestrians, trike users, and cycles with trailers are different but can be shared. In addition specific needs vary depending on journey purpose and the person making the journey (e.g. children, families, and older people). People wishing to travel to work may have different needs from those who seek to access the countryside for leisure purposes. In addition a confident on or off road cyclist will be attracted to a level of facility that may not suit a child who is travelling to and from school or a family cycling or walking for leisure.

This implies that our approach needs to vary in different parts of the county. In general this means infrastructure improvements need to deliver:

- segregated paths following major high speed (40 mph+) corridors
- leisure facilities that are mainly off-road or less busy lanes
- a safer built-up environment based on area wide safety management and,
- where appropriate, reallocation of road space to create improved facilities

	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	WSCC
Sustainable Transport Package Studies	✓		✓	✓	✓	✓	✓	✓
Walking and cycling infrastructure	✓	✓	✓	✓	✓	✓	✓	✓
Public transport infrastructure	✓		✓	✓			✓	✓

To deliver this West Sussex County Council has worked with local partners to produce the West Sussex Walking and Cycling Strategy. This includes a single, prioritised list of sustainable infrastructure schemes. This list is reviewed annually, with major revisions every five years.

Given on-going funding constraints the Strategy does not contain specific delivery targets, but we will continue to engage with key stakeholders to ensure that a co-ordinated approach is taken to delivering new walking and cycling infrastructure - particularly where routes may cross boundaries. We will also seek stakeholder support for future funding bids.

West Sussex County Council successfully bid to Coast to Capital Local Enterprise Partnership to jointly fund the £2 million extension of the National Cycle Network Route 2 between Bognor Regis and Littlehampton. Construction is expected to be completed in summer 2018. Feasibility studies on further sections of NCN2 through West Sussex are being planned for 2018/19.

The £14.8m Crawley Growth deal includes upgrades to sustainable transport infrastructure and highway upgrades to boost overall transport capacity and enable a significant shift from car usage to bus, rail, cycling and walking alternatives. In addition, connectivity enhancements at the major railway station of Crawley, Three Bridges and Gatwick will greatly facilitate commuter access to Manor Royal and the town centre via sustainable transport connections.

Behaviour change

There are a lot of activities being undertaken by the local authorities that are having a beneficial impact on air quality in West Sussex. However, there are many ways in which residents and businesses can help. There has been a focus on promoting alternative transport modes and as seen above, infrastructure improvements will go a long way to enabling more active travel.

	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	WSCC
Active travel promotion	✓		✓	✓		✓	✓	✓
Anti-idling campaigns	✓	✓	✓	✓	✓	✓	✓	✓
Better driving techniques				✓		✓		✓
Car club promotion	✓		✓	✓	✓		✓	✓
Car sharing promotion	✓		✓	✓		✓	✓	✓
Encourage alternative transport modes	✓	✓	✓	✓	✓	✓	✓	✓
Living Streets projects eg walk to school	✓	✓	✓	✓	✓	✓	✓	✓
Home working policy encouraging reduced staff travel	✓	✓	✓	✓	✓		✓	✓
Public transport promotion	✓	✓	✓	✓	✓	✓	✓	✓

Crawley Borough Council has an interest free staff loan scheme for bicycles, rail or bus season tickets to encourage a modal shift from private vehicles. Staff are able to save between 25-39% on a new bike package from a choice of independent and online bike shops.

Partners will work together to explore ways at which behaviour change initiatives can be coordinated across District and Boroughs to encourage a bigger impact and to be more resource efficient. This will include sharing of information on the practicalities and success of initiatives between Sussex-air partners, and exploring potential joint funding bids.

The car club in Chichester recently increased its offer from 4 to 6 cards and Horsham car club has 3 cars. Adur and Worthing Councils are exploring opportunities for a car club in their areas.

We will be working with bus operators to promote buses over car travel to reduce emissions and improve life outcomes.

Aside from the wide range of general active travel and travel behaviour promotional activities that the local authorities undertake, specific areas of joint activity that will be explored include:

- Driver training targeted initially at local authority staff. Smoother driving techniques have been shown to have a beneficial effect on emissions as well as reducing costs.
- Anti-idling campaign through Sussex-air - The Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 state that it is an offence to idle your engine unnecessarily when stationary. Possible actions include:
 - Stickers for resident/business vehicles “I’m not an idler”
 - Using public sector vehicles for messaging
 - Examining the feasibility of enforcing legal duty

Health and wellbeing

A free service that provides text or email messages direct to people informing them about air pollution levels in their area is available through the Sussex-air website.²⁵ The Public Health team at West Sussex County Council is working to ensure that health considerations are embedded into all aspects of the Council and is currently undertaking a needs assessment into how air quality is affecting residents across the county.

	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	WSCC
Health & wellbeing promotion	✓	✓	✓	✓		✓	✓	✓
Embedding air quality in Public Health Plan	✓		✓				✓	✓
AirAlert free warning service	✓	✓	✓	✓	✓	✓	✓	✓

Partners will continue to promote the free AirAlert warning service to encourage more people to sign up to receive alerts. It is important that residents have clear and consistent information to enable them to make informed decisions. We will work together to ensure that even with reduced resources, we can reach the widest number of people to obtain the maximum benefit.

Areas of joint activity to be explored include:

- Guidance notes on specific areas of interest to residents and businesses
- Engaging residents and businesses in activities that will benefit local air quality

Planning

Sussex-air has developed planning guidance to assist local authorities and developers in the assessment of air quality and the mitigation of potential impacts from proposed developments. The purpose of this guidance is to:

²⁵ <http://www.Sussex-air.net/>. A similar cold weather alert is also available.

- Provide a Sussex-wide approach for assessing potential air quality impacts from development and transport related emissions and provide a consistent approach to mitigating those impacts.
- Provide technical advice to local planning authorities on how to deal with planning applications that could have an impact on air quality

	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	WSCC
Air Quality Emissions Mitigation Planning Guidance for Sussex embedded into planning policy	✓	✓	✓	✓	✓	✓	✓	✓

Most major developments are required to complete an air quality impact assessment to determine the likely effects of that development on local air quality. They are also required to assess the health damage ‘cost’ of transport associated with the development. This ‘cost’ should then be used to provide appropriate and meaningful mitigation to help reduce the potential effect on health and the local environment. Such mitigation could include electric vehicle charging points, public transport improvements, cycling and walking infrastructure, etc as per District and Borough Air Quality Action Plans. Early engagement with developers and transport planners is key to ensuring potential air quality issues can be addressed or designed-out - e.g. maximising the distance between residential facades and roads (thereby minimising exposure), ensuring airflow is not restricted by new developments and avoiding the creation of street canyons (which can trap pollutants).

The Guidance is currently being revised and is due for publication by the end of the year.

Travel planning

School Travel Plans propose a package of measures that encourage a shift away from car use towards safe, sustainable modes of travel for any journeys to and from school. This can have a range of potential benefits including: reducing traffic congestion and pollution around schools; improving road safety and improving health and fitness.

Travel plan networks can help employers promote sustainable commuting and business travel, and reduce parking pressures at their sites. Such networks can also provide a forum to share best practice and explore opportunities for joint working.

Through collaborative working, travel plan networks can also help secure travel discounts and other employee benefits. In West Sussex there are three subscription networks that employers can join, which are operated by ‘easit’.

- [easitCHICHESTER](#)
- [easitCRAWLEY](#)
- [easitMID SUSSEX](#)

	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	WSCC
Business travel plans	✓		✓	✓		✓	✓	✓
School travel plans	✓		✓	✓	✓	✓	✓	✓
Local authority staff travel plans	✓		✓	✓		✓	✓	✓
Cycle route information	✓		✓	✓			✓	✓
Journey planner	✓				✓		✓	✓
Residential travel plans			✓	✓				✓
Promotion of Easit discount to encourage sustainable travel for staff			✓	✓		✓		✓

WSCC's Travel Plan supports our Business Travel Policy in reducing the impact of their business mileage. Employees are encouraged to:

- Keep business travel to a minimum.
- Use public transport/free bus shuttle services rather than cars where reasonable to do so
- Car share with other colleagues travelling to the same venue (where public transport is not a practical option)
- Use a pool car where appropriate rather than a private car

To enable staff to make more sustainable transport journeys the County Council has introduced a number of initiatives. These include:

- An upgrade to IT equipment has enabled staff to work remotely, and enabled easy access to tele or video conferencing.
- Free to use pool bikes are available at all main hub offices.
- Staff can travel for free on a bus between campuses at Bognor Regis and Chichester. The service is shared with Chichester University.
- Staff can apply for an easitCARD. The card offer many benefits but primarily a 15% discount on off-peak and peak-time travel with Southern services.

Partners will be continuing discussions with developers to embed effective air quality mitigation within local development schemes including the promotion and establishment of effective travel plans. These focus on minimising number of trips made by car.

Resourcing

A continuing challenge for all local authorities is the reduction in funding from Central Government. One of the ways in which we can try to redress this is to work in partnership; by working together we can do more with ever diminishing resources.

Grant funding is made available by central government annually, however the majority of funding is focussed on those towns and cities listed in the *UK plan for tackling roadside nitrogen dioxide concentrations (2017)*. There are no West Sussex areas included, so the County is considered low priority.

However, Sussex-air has been successful in gaining a Defra grant for work across East and West Sussex and Brighton & Hove, to deliver:

- An intensive and targeted intervention with 25 schools in the AQMAs across Sussex to:
 - reduce idling during school drop-off and pick-up times;
 - increase walking and cycling rates to and from school;
 - measure the change in walking and cycling rates, and idling, and assess the effect on local air quality.
- An intensive and targeted intervention with 25 businesses in the AQMAs across Sussex to:
 - reduce local emissions from fixed and mobile plant;
 - increase walking and cycling rates to and from work, and reduce business mileage;
 - deliver eco-driver training to staff working in the 25 businesses;
 - evaluate the change in local emissions from the above measures.
- The dissemination of the project results and key lessons learned:

Governance and reporting

As members of Sussex-air, all partners currently already meet on a quarterly basis to discuss air quality related issues. This will form the basis of a report to a newly created West Sussex Inter Authority Air Quality Group made up of portfolio holders of each of the West Sussex authorities. A template will be produced to highlight success stories or areas of particular concern. Issues of concern will be escalated to the Chief Executive's Board.

This plan will be updated as necessary and will be reviewed annually to ensure that new areas of work are reflected. We will also take all opportunities to work with a wider partnership including the South Downs National Park Authority and Highways England.

APPENDIX 1

Local Air Quality Management Duties

Established under the Environment Act 1995, Local Air Quality Management (LAQM) places a duty on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the national air quality objectives are likely to be achieved. Where an exceedance is considered likely, the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) which sets out the measures it intends to put in place in pursuit of the objectives. There are currently over 500 Air Quality Management Areas (AQMAs) in England for non-compliance with the UK's Air Quality annual mean objective for nitrogen dioxide.

The statutory air quality objectives applicable to LAQM in England can be found in the table below:

Pollutant	Air Quality Objective [‡]	Measured as
	Concentration	
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean

[‡]Units are in microgrammes of pollutant per cubic metre of air (µg/m³)

After declaring an Air Quality Management Area, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

The local authority is also required by statute to produce an Annual Status Report (ASR) showing the strategies employed by the authority to improve air quality and detail any progress that has been made.

There is no regulatory requirement on the Council to carry out continuous monitoring; it is up to the authority to determine how it monitors air pollution. Diffusion tubes (small plastic passive tubes) are a recognised standard method of monitoring for NO₂ and most authorities use them as they present value for money when compared to the high cost of continuous monitoring (which also has an ongoing service and maintenance cost).

Diffusion tubes need to be left in place ideally for 12 months, but at least achieve a data capture rate of 75% to enable results to be compared to the NO₂ annual mean objective. Levels are often elevated during the winter months and lower in other months. Exposing tubes for very short periods (e.g. a couple of months) will not enable comparison of the results with the annual mean objective.

Results from monitoring are not available until April of the following year, as correction factors from Defra are not made available until late March.

The long-term air quality objectives apply where members of the public are likely to be regularly present for long periods e.g. homes, schools, hospitals, etc. Guidance states that the objectives should generally not apply to gardens of residential properties and kerbside sites. The 1-hour mean objectives are designed to take account of short term exposure.

Concentrations of NO₂ decrease away from the roadside. Government guidance requires us to predict roadside measurements back to the nearest receptors using a standard modelling tool. When this is done at Shoreham High Street, for example, the level drops below the annual mean objective. Additionally, there is a link between pollutant concentrations measured both inside and outside of a building. For this reason it is considered appropriate to measure/predict at the building façade to represent relevant exposure and to assess exposure for pollutants with an annual mean objective. Smaller particles, especially PM_{2.5}, do not decrease so rapidly away from the road. Where annual mean concentrations are measured above 60µg/m³ this indicates the 1-hour mean objective may be exceeded.

Councils are not required to carry out monitoring of Particulate PM_{2.5} at the moment. We are however working with other Sussex Authorities and West Sussex Public Health (through Sussex-air) to determine our approach to reducing emissions and concentrations as per Government guidance.

Costs associated with monitoring comprise the service and maintenance of the continuous monitoring sites (approximately £2,500-£3,500 per year for each site), diffusion tube monitoring (£2,500-3,000 per year) and officer time.

Links to Action Plans and Annual Status Reports for each Air Quality Management Area in West Sussex

Adur

Air Quality Action Plan 2007 <https://www.adur-worthing.gov.uk/media/media,104971,en.pdf>

Annual Status Report 2017 <https://www.adur-worthing.gov.uk/media/media,146121,en.pdf>

Arun

Air Quality Action Plan – there are no Air Quality Management Areas in Arun District

Annual Status Report 2017 <https://www.arun.gov.uk/air-quality-including-bonfires>

Chichester

Air Quality Action Plan 2015 <http://www.chichester.gov.uk/CHttpHandler.ashx?id=6298&p=0>

Annual Status Report 2017 <http://www.chichester.gov.uk/CHttpHandler.ashx?id=29107&p=0>

Crawley

Air Quality Action Plan

Annual Status Report 2017 <http://www.crawley.gov.uk/pw/web/PUB337919>

Horsham

Air Quality Action Plan Cowfold 2013 https://www.horsham.gov.uk/_data/assets/pdf_file/0004/14494/Cowfold-AQ-Action-Plan-draftfinal..pdf

Air Quality Action Plan Storrington 2012

https://www.horsham.gov.uk/_data/assets/pdf_file/0013/5431/Storrington-AQ-ActionPlan-draft.pdf

Annual Status Report 2017 https://www.horsham.gov.uk/_data/assets/pdf_file/0007/50569/ASR2017_finalv2.pdf

Mid Sussex

Air Quality Action Plan 2017 <http://www.midsussex.gov.uk/media/79521/air-quality-action-plan-2017-web.pdf>

Annual Status Report 2017 http://www.midsussex.gov.uk/media/79904/mid_sussex_asr_2017_for-web.pdf

Worthing

Air Quality Action Plan 2015 <https://www.adur-worthing.gov.uk/media/media,138133,en.pdf>

Annual Status Report 2017 <https://www.adur-worthing.gov.uk/media/media,147096,en.pdf>

APPENDIX 2

District and Borough Councils planning policies

Each District and Borough council has to prepare a local plan which sets planning policies in a local authority area. These are very important when deciding planning applications. A number of policies within local plans specifically reference air quality (see District and Borough Council websites for full text):

Adur: Policy 28: Transport and Connectivity

In order to secure significant improvements to transport and mobility in Adur, new development should ensure it contributes to the mitigation of air pollution, particularly in Air Quality Management Areas. Air quality assessments may be required. Where practical, new development should be located and designed to incorporate facilities for electric vehicle charging points, thereby extending the current network.

Adur: Policy 34 Pollution and Contamination

Development should not result in pollution or hazards which prejudice the health and safety of the local community and the environment. New development in Adur will be located in areas most suitable to the use of that development to avoid risks from noise, air, odour or light pollution. Where appropriate, air quality assessments will be required in conjunction with development proposals.

Arun: Policy QE DM3: Air Quality

All major development proposals must assess the likely impacts of the development on air quality and mitigate any negative impacts. Development proposed nearby an Air Quality Management Area (AQMA) declared within the Plan period, will require an air quality assessment. Developers must ensure delivery of the actions set out within any Air Quality Action Plan.

Arun: Policy QE SP1: Quality of the environment

All development must contribute positively to the quality of the environment and will ensure that development does not have a significantly negative impact upon residential amenity, the natural environment or upon leisure and recreational activities enjoyed by residents and visitors.

Arun: Policy H SP5: Traveller and Travelling Showpeople Accommodation

Planning applications for Traveller sites shall, amongst other things be located in areas with easy and safe access to a range of local services including schools, shops and healthcare facilities either by foot, cycle, public transport or car. Residential sites shall not be located immediately adjacent to major transport corridors unless noise, safety and air quality impacts can be mitigated.

Chichester: Policy 32: Horticultural Development

Within designated Horticultural Development Areas, planning permission will be granted for new glasshouse, packhouse and polytunnel development where it can be demonstrated that the proposal does not generate unacceptable levels of soil, water, odour or air pollution and there is no significant adverse impact resulting from artificial lighting on the occupants of nearby sensitive properties or on the appearance of the site in the landscape.

Chichester: Policy 39: Transport, Accessibility and Parking

Planning permission will be granted for development where it can be demonstrated that, along with other essential criteria, the location and design will minimise additional traffic generation and movement and would not create or add to problems of safety, congestion, air pollution, or other damage to the

environment. Where development is likely to have an impact on an Air Quality Management Area, an air quality assessment will be required.

Chichester: Policy 40: Sustainable Design and Construction

For all new dwellings or for new non-domestic buildings, the developer must demonstrate, amongst other things, that the reduction of the impacts associated with traffic or pollution (including air, water, noise and light pollution) will be achieved.

Crawley: Policy ENV10: Pollution Management and Land Contamination

Development, including extensions and intensification of existing uses, will be permitted where the proposed use would not lead to a significant increase (including cumulative increase) in levels of pollution or hazards, or where impacts can be appropriately mitigated to ensure impacts are controlled, and as far as possible reduced.

Crawley: Policy ENV12: Air Quality

Development proposals that do not result in a material negative impact on air quality will normally be permitted. Developers must provide evidence showing the air quality impact of the proposed development, and outlining an appropriate mitigation strategy. Development proposals within a declared Air Quality Management Area, will demonstrate how mitigation measures will be incorporated to help address objectives identified in the relevant Air Quality Action Plan.

Horsham: Policy 24: Environmental Protection

The policy emphasises the need to minimise emissions from development and advises applicants to refer to the requirements of the HDC Planning Advice Document: Air Quality & Emissions Reduction Guidance (May 2014). This guidance sets out a range of locally specific measures to guide applicants on minimising and/or offsetting the emissions from new development, including the consideration of cumulative impacts.

Mid Sussex: DP21 Transport

Decisions on development proposals will take account of a number of factors including whether the scheme is sustainably located to minimise the need for travel; appropriate opportunities to facilitate and promote the increased use of alternative means of transport to the private car have been fully explored and taken up and the scheme avoids severe additional traffic congestion, individually or cumulatively, taking account of any proposed mitigation. Where practical and viable, developments should be located and designed to incorporate facilities for charging plug-in and other ultra-low emission vehicles.

Mid Sussex: DP29: Noise, Air and Light Pollution

Development will only be permitted where it does not cause unacceptable levels of air pollution; where existing exposure to poor air quality can be mitigated or would not cause any adverse effects on the proposed development, and where appropriate development proposals are consistent with Air Quality Management Plans.

Worthing:

A full review of the adopted Worthing Core Strategy is being undertaken and a new Local Plan is currently being prepared. It is expected that the Draft Local Plan (which will include policies relating to Air Quality) will be published for consultation in autumn 2018.

APPENDIX 3

What are our challenges?

There are some actions that we are either constrained by regulations from undertaking, or there are practical reasons why they are not suitable. These include:

Traffic management	
Action	Constraint
Yellow boxes to prevent roundabouts being blocked	<p>Traffic regulations state that yellow boxes can only be placed where there are also permanent traffic signals. This is because a circulating vehicle has priority over those entering and there is potential confusion over right of way if it stops to avoid obstructing the box when its exit is blocked. Also, a vehicle stopped in an outer lane might obscure vehicles continuing to circulate on the inner lanes (whose exit might not be blocked) from the view of drivers entering the roundabout.</p> <p>The regulations do not prohibit the use of keep clear markings on roundabouts, but the potential problems of sight lines and re-establishing priorities still apply.</p>
Countdown timers showing how long until traffic lights will change to green to encourage drivers to switch engines off	Countdown timers do not work with the MOVA automated control system at traffic lights. The system monitors traffic flows and changes the lights accordingly. A countdown would require the timer to complete before changing the lights regardless of whether there is traffic waiting or not.
Speed limits	The benefit of speed limit changes to improve air quality depends on the specific characteristics of any air quality problems in that location. Within AQMAs, traffic congestion that results in air quality problems often means that imposing speed limits is unlikely to directly address the problem as traffic is typically slow moving anyway. However, there may be a benefit to speed limit change if it helps to smooth traffic flow and prevent the stop-start nature of congestion. It may also help improve actual and perceived road safety which could encourage increased walking and cycling.
Diversions away from Air Quality Management Areas	Whilst the specific characteristics of AQMAs vary widely, a common theme in attempting to tackle the issues is that the opportunities to divert traffic away from these locations are limited by the lack of alternative routes which limits the number of measures available to address these issues.
Clean Air Zones/Low Emission Zones	These areas require political support and agreement amongst all tiers of government and local businesses and communities. In addition the ability to charge is restricted by Central Government. Feasibility studies are required to test their likely effectiveness in West Sussex.
Freight satellite navigation systems	<p>We have very little influence over the operators of satellite navigation systems. Local delivery services are likely to know where the better routes are and we have advisory information on the best through routes. Satellite navigation systems also require drivers/freight companies to update their device regularly.</p> <p>A further complication is satellite navigation devices for trucks are often significantly more expensive than that for cars, so some drivers may not be using the appropriate devices.</p>

APPENDIX 4

Summary of joint actions

Action	Rationale
Drivers in all West Sussex local authorities to be offered driver training	Smoother driving techniques have been shown to have a beneficial effect on emissions as well as reducing costs. Should be economies of scale for employing training across all authorities
Co-ordination of behaviour change activities	By providing a collective front we may have a bigger impact and be more resource efficient
Take advantage of opportunities to work together with communities	By providing a collective front we may be able to do more with less.
Engage parish councils, residents and businesses in activities that will benefit local air quality	Wider stakeholder engagement will strengthen the messages and can emphasise the co-benefits of taking action.
Public information campaign	There is a mass of information that is often difficult to interpret, making it hard for people to make informed decisions. Providing off the shelf information would help authorities with limited resources. Subjects could include: <ul style="list-style-type: none"> • how to limit the impacts of domestic coal/wood burning • where to hire bikes • how to limit exposure to poor air quality
Anti-idling campaign eg <ul style="list-style-type: none"> • Stickers for resident/business vehicles “I’m not an idler” • Anti-idling messages on the back of public sector vehicles • Examine feasibility of enforcing legal duty 	The Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 state that is an offence to idle your engine unnecessarily when stationary. The “switch off” signs at level crossings have limited success and schools report continuing problems.
Work with the planning system to increase the standards for developers including EV charging points	Future proofs new developments and is cheaper than retrofitting.
Joint statements to Government to push for action	There would be greater strength in statements from all partners.
Examine feasibility for adding air quality monitoring to on-street pay & display machines	Greater spread of monitoring will allow more accurate measurements.
Examine feasibility for differential parking charges to promote low emission vehicles	Positive promotion of low emission vehicles.
Take advantage of any opportunities to align policies	Aligned policies, such as taxi policy, would deliver consensus on encouragement or requirements and allow greater clarity for operators.
Produce a County Council ultra-low emission vehicle strategy	Working with partners to produce this will help enable a consistent approach across the county.