Slough Low Emission Strategy (LES) 2018 – 2025 Summary Final Draft

August 2018

About the Low Emission Strategy (LES)

The Slough Low Emission Strategy (LES) forms part of the Slough Air Quality Action Plan. The LES lays out an integrated, year on year plan to improve air quality over the period until 2025 through a reduction in vehicle emissions by accelerating the uptake of cleaner fuels and technologies.

The LES development has been part funded through the DEFRA Air Quality Grant Programme.

The LES project is managed by Jason Newman, Environmental Quality Manager, Slough Borough Council (SBC), with additional support provided by SBC Officers, representing:

* Transport Policy & Management
* Public Health
* Taxi Licensing
* Planning Policy & Development Management
* Fleet Management
* Procurement Policy
* Carbon Management & Sustainability

This document provides an overview of the key aspects of the Slough LES. The full LES Technical Report provides additional detail on policies and measures we are implementing to improve air quality and health impacts for the residents of our Borough. The LES Technical Report can be found on our website

The LES has been produced with technical support from Low Emission Strategies Ltd.

Foreword

Like many areas of the UK, Slough experiences elevated levels of air pollution which have a marked impact on the health of its residents. While several factors contribute to the borough's air quality, the emissions from road transport vehicles are the most significant source. The Council's Low Emission Strategy supports our new Transport Strategy and forms part of the Slough Air Quality Action Plan (AQAP). It lays out an integrated, year on year plan to improve air quality up to 2025, reducing vehicle emissions by accelerating the uptake of cleaner fuels and technologies.

Reducing air pollution from road transport through a Low Emission Strategy is a Slough Labour Party manifesto pledge and improving the borough's air quality is a key commitment in the council's Five-Year Plan (2018-2023). The Low Emission Strategy targets reductions in vehicle emissions across the borough which will improve air quality and health outcomes. The health and wellbeing of our residents and the people who visit and work in Slough is paramount and we can make great improvements to our local air quality if we work together towards a shared vision.

We are committed to making immediate and long-lasting improvements to our environment and we'd like residents and businesses to help us deliver our plans to create a low emissions future for Slough.

Robert Anderson, Cabinet Member for Environment and Leisure

Executive Summary

Slough, like many urban areas in the UK, experiences elevated levels of air pollution which have a measurable impact on the health of the local population. While there are several factors contributing to our local air quality, including heating and energy production and the cross-boundary transportation of pollution, the emissions from road transport vehicles are the most significant source at present.

Slough Borough Council (SBC) has designated 5 Air Quality Management Areas (AQMA) due to elevated levels of nitrogen dioxide (NO_2) which breach the National Air Quality Objective (annual mean NO2) and where there is relevant exposure to residents. The AQMA are located around the M4, Tuns Lane, Bath Road, Town Centre/A4 and Brands Hill/A4 and cover nearly 2,000 residential properties. Slough has an extensive air quality monitoring network that has shown small improvements in air quality over a 5-year rolling period in most while some areas have either remained stubbornly elevated or deteriorated slightly. Levels in Langley may require the designation of a new AQMA in the future.

While levels of particulate matter (PM) do not exceed EU Limit Values, the Joint Strategic Needs Assessment (JSNA) shows that levels of fine particulates ($PM_{2.5}$) in 2015 accounted for 19.1 premature deaths per 100,000 people in Slough compared with a rate of 11.7 for the South East. The health impacts of air pollution are becoming more apparent with evidence showing effects such as heart attacks, strokes, low birth weight babies and impaired lung and brain development. The World Health Organisation (WHO) categorises diesel exhaust fumes as carcinogenic.

The *SBC Five Year Plan* and *Wellbeing Strategy* commit us to improving health outcomes in the Borough and we have developed a *Low Emission Strategy (LES)* which will support the new *Transport Strategy* and *Local Transport Plan update* in targeting reductions in vehicle emissions by accelerating the uptake of cleaner vehicles and technologies, that are capable of improving air quality and health and also contribute to sustainable growth as part of the transition to a low emission economy.

The LES development has been supported by Government funding and includes practical policies and measures that are in line with best practice and Government policies. The Government has published the 'UK plans for tackling roadside NO_2 concentrations' in 2017. The plans include a national *Clean Air Zone (CAZ) Framework***.** The LES is also in line with the Government's *Road to Zero Strategy*, a key element of the national Industrial Strategy.

The LES comprises sections outlining the reasons why we are taking action (*Evidence for Change*), the measures that we can take as a Council to reduce vehicle emissions and improve air quality and health (*Creating a Low Emission Future: Leading by Example*) and a *Clean Air Zone (CAZ) Framework for Slough* that we can deliver in partnership with key stakeholders to improve the emissions of buses and freight vehicles, while encouraging the take-up of ultra-low emission vehicles (ULEV) through a Slough Electric Vehicle Plan. *A Delivery & Communications Plan* will detail how we can communicate key messages through our Public Health team, set

roles, responsibilities and timescales for delivery while monitoring implementation and updating the strategy when necessary.
The LES builds on significant activity in the Borough in demonstrating leadership in *Creating a Low Emission Future;*

- SBC has developed extensive cycling infrastructure in the Borough, including cycle hire facilities
- SBC has successfully introduced electric vehicle charge points across the Borough that continue to show an upward trend in use
- We have successfully installed EV charge points at its Council Offices to allow our EV fleet, staff EVs and visitor EVs to use
- We have introduced electric pool cars and electric bikes as part of the Slough Fleet Challenge to reduce 'grey' vehicle emissions and costs
- Slough has the fourth largest number of plug-in vehicles registered per local authority in the UK with over 4,500.
- SBC Environmental Services Fleet meets the latest European (Euro VI) Emission Standards with plans to look at alternative fuels to diesel as part of the next fleet replacement cycle (2024). The SBC appraisal of alternative fuels and technologies using whole life costs (WLC) has been published as best practice by the Local Government Association (LGA).
- SBC is reviewing van and light commercial vehicle operations and is procuring the cleanest (Euro 6/VI) vehicles while transitioning to ULEVs where feasible
- SBC has introduced new taxi emission standards
- SBC has secured £157,000 in Government funding to develop a dedicated, rapid charging network to support high growth in plug-in taxis and private hire vehicles
- SBC will support the cleanest emission standards for vehicles through Social Value procurement criteria and relevant contracts
- SBC will introduce Air Quality Planning Guidance in line with national planning policy and guidance to support the Local Plan, requiring mitigation to be integrated into the design stage of new developments,
- Electric charge points will be required on all new developments with new parking provision

As part of the Slough Clean Air Zone (CAZ) Framework we will:

- raise awareness of vehicle emissions and their impact on air quality and health
- look at the feasibility of introducing CAZ in Slough which could potentially set emission standards for taxis, buses, coaches, lorries and vans in key areas
- develop a low emissions pathway to 2025 in partnership with local bus operators
- promote the development of alternative refueling infrastructure for buses and freight vehicles
- provide co-ordination in supporting the uptake of ULEVs and developing charging infrastructure to support growth through the Slough Electric Vehicle Plan

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Aims and Objectives

Aims

- Improve air quality and health outcomes across Slough by reducing vehicle emissions through the accelerated uptake of cleaner fuels and technologies
- Embed an innovative approach to vehicle emission reduction through integrated policy implementation
- Provide a platform for inward investment as part of the transition to a low emission economy

Objectives
1 General
1a Ensure all relevant Council strategies consider and support measures to improve air quality and health outcomes in partnership with stakeholders
2 Evidence for Change
2a Provide a robust framework for monitoring and modelling air quality across Slough
2b Use national and local data to assess the impact on health of Slough residents arising from air pollution
2c Work with local health professionals to promote awareness of the impact of vehicle emissions on health
3 Creating a Low Emission Future: Leading by Example
3a Provide measures to improve vehicle emissions through the Transport Strategy and Local Transport Plans
3b Provide policies to support improvements in air quality through the Local Plan update and review of CIL requirements
3c Develop planning guidance to promote air quality mitigation at design stage and support wider air quality improvements through off-set mitigation
3d Introduce specifications for electric vehicle charging as part of new development schemes
3e Implement vehicle emission standards through Social Value procurement practices
3f Consider whole life costs and alternatives to diesel in SBC vehicle fleet procurements
3g Introduce Clean Air Zone & ULEV Taxi emission standards and infrastructure to support the take-up of ultra-low emission taxis
3h Implement the Fleet Challenge to reduce emissions from the SBC 'grey fleet'
4 Slough Clean Air Zone (CAZ) Framework
4a Look at the feasible implementation of Clean Air Zones (CAZ) including emission standards for buses, taxis, lorries and vans
4b Implement measures to support the take-up of ultra-low emission vehicles (ULEV) through the Slough Electric Vehicle Plan
4c Work in partnership with bus and freight operators to reduce emissions
4d Work in partnership with Highways England to reduce the impact of vehicles on the Strategic Road Network (M4)
4e Capitalise on Heathrow expansion to help us realise the potential benefits of this opportunity to improve air quality in Slough
4e Prepare a Low Emission Programme to deliver measures within the LES
5 Communication and Delivery Plan
5a Produce an integrated LES communication & delivery plan

1 Introduction

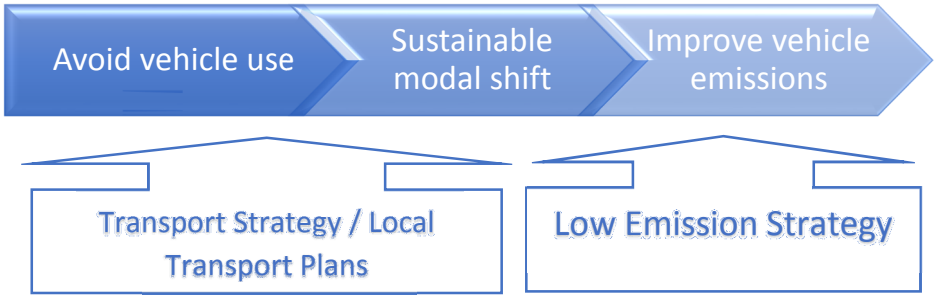
While emissions from heating and energy production, and the cross-boundary transportation of pollution, contribute to pollution levels, the emissions from road transport vehicles are the most significant cause of poor air quality in Slough, due to the volume and age of the vehicles on our roads and the influence of the national motorway network and Heathrow.

Our first aim is to provide policies and measures that will help to reduce vehicle use and promote the take-up of sustainable modes of transport in Slough, including public transport. Our new Transport Strategy[1] will include detailed plans that will help us to manage traffic and achieve sustainable growth in line with our new Local Plan[2].

However, we acknowledge that there will still be vehicles on our roads. The Slough Borough Council (SBC) Low Emission Strategy (LES) forms part of the Air Quality Action Plan (AQAP) and is designed to tackle road transport related pollution and improve health outcomes by implementing innovative policies and measures that seek to reduce vehicle emissions, by helping to accelerate the uptake of cleaner fuels and technologies. It is believed that this approach will also secure win wins in reducing vehicle emissions of Carbon and noise. The LES forms part of the Transport Strategy and Local Transport Plan Update.

[1] https://www.slough.gov.uk/downloads/SBC_IO_DraftTransportStrategy.pdf
[2] http://www.slough.gov.uk/council/strategies-plans-and-policies/the-emerging-local-plan-for-slough-2016-2036.aspx

Slough vehicle emission reduction hierarchy

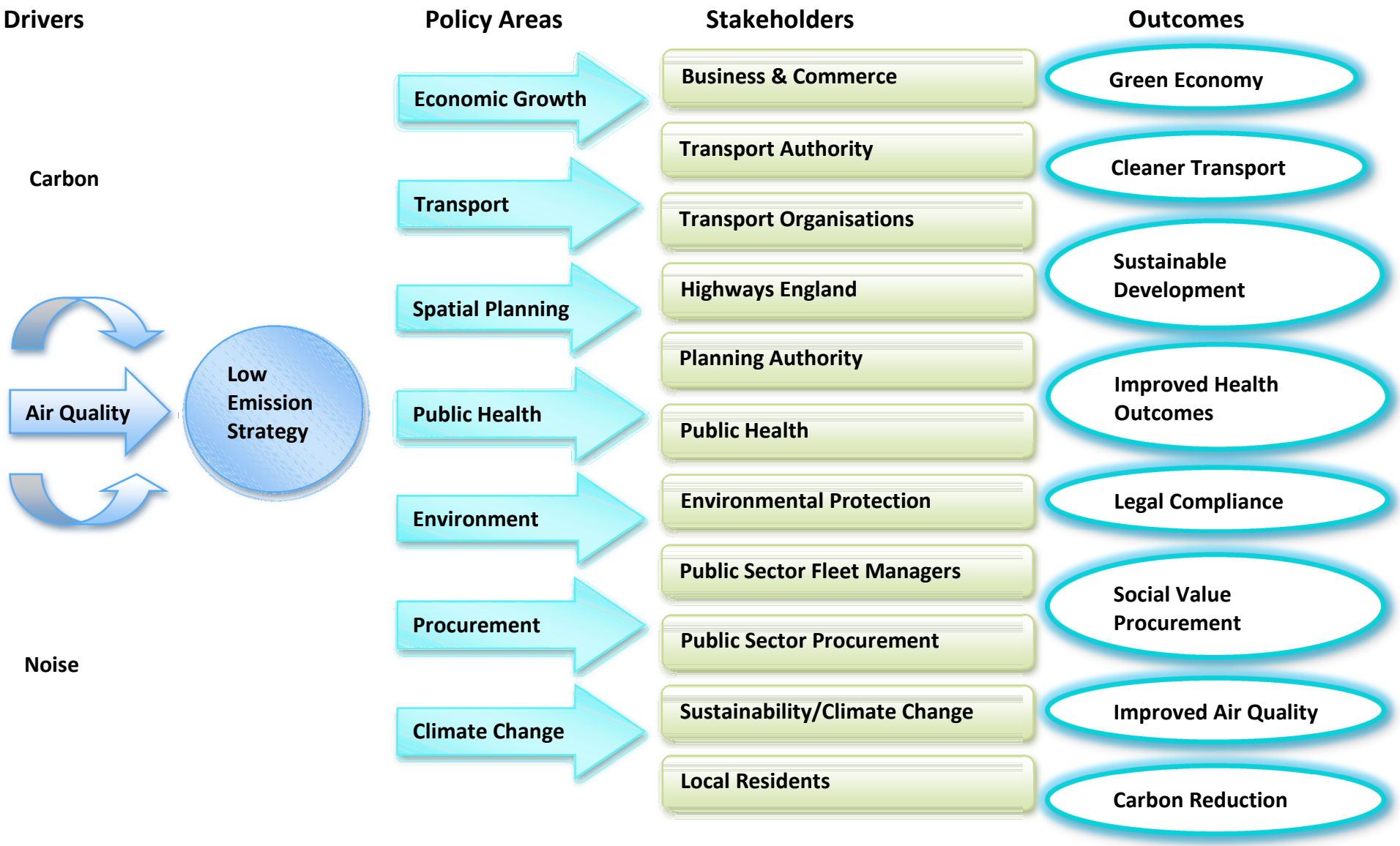


A key driver of the LES is improving public health. It is acknowledged that poor air quality affects deprived communities disproportionately and in line with the **Slough Wellbeing Strategy (2016-2020)**[3] and **Slough 5 Year Plan (2018-2023)**[4] the LES will seek to deliver outcomes that assist in:

- Protecting vulnerable children
- Increasing life expectancy by focusing on inequalities
- Improving mental health and wellbeing

The LES details the *Evidence for Change* we have gathered through air quality monitoring and modelling, and also through our Public Health work, looking at the impacts of air pollution on the health of the residents of Slough. In *Creating a Low Emission Future: Leading by Example* and through the introduction of a *Clean Air Zone Framework* for Slough we believe that we can integrate all relevant Council policies to work in partnership with key stakeholders to drive down vehicle emissions. This is illustrated in the diagram below.

[3] http://www.slough.gov.uk/downloads/SJWS-2016.pdf
[4] http://www.slough.gov.uk/downloads/Five-year-plan-18-23.pdf


Drivers
Policy Areas
Stakeholders
Outcomes
Carbon
Air Quality
Noise
Low Emission Strategy
Economic Growth
Transport
Spatial Planning
Public Health
Environment
Procurement
Climate Change
Business & Commerce
Transport Authority
Transport Organisations
Highways England
Planning Authority
Public Health
Environmental Protection
Public Sector Fleet Managers
Public Sector Procurement
Sustainability/Climate Change
Local Residents
Green Economy
Cleaner Transport
Sustainable Development
Improved Health Outcomes
Legal Compliance
Social Value Procurement
Improved Air Quality
Carbon Reduction

2 Evidence for Change

2.1 Air Quality and Vehicle Emissions

Nitrogen Dioxide (NO_2)

SBC has an extensive air quality monitoring network of automatic monitoring stations (looking at NO_2 and particulate matter) and diffusion tubes (monitoring NO_2). Full details of the monitoring results can be found on the SBC website[5].

Levels of NO_2 in key locations in the borough where there is relevant exposure to the public have remained stubbornly elevated over the last decade and exceed the Government's Air Quality Objectives (AQO) and the European Union (EU) Limit Value[6]. SBC has designated these affected areas as Air Quality Management Areas (AQMA), including:

- Slough Town Centre
- M4 corridor
- Tuns Lane, including the Bath Road extension
- Brands Hill

A map showing the locations of the AQMA can be seen opposite. The emissions from road transport vehicles are the most significant cause of elevated NO_2 levels in all the AQMA.

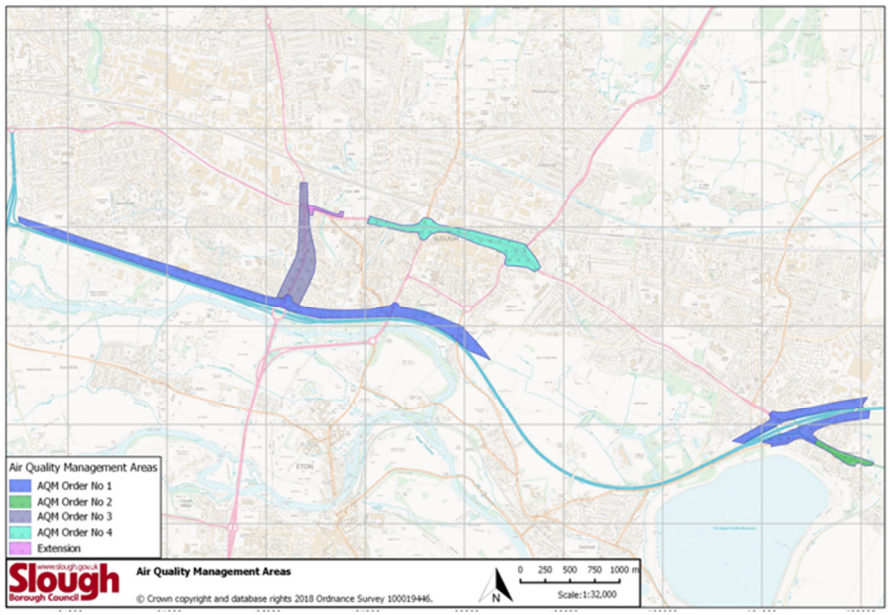
[5] http://www.slough.gov.uk/pests-pollution-and-food-hygiene/air-quality-reports.aspx

[6] https://uk-air.defra.gov.uk/air-pollution/uk-eu-limits

Particulate Matter

SBC monitors and has modelled the predicted levels of the fractions of particulate matter (PM_{10} and $PM_{2.5}$) that are known to have a significant health impact. While levels are compliant with AQO there is still a significant health impact. Based on concentrations in 2014 it is estimated that levels of $PM_{2.5}$ alone accounted for 6.2% of all deaths in Slough (see section 2.2).

Air Quality Management Areas in Slough



2.2 Health Impacts of Air Pollution

It is estimated that the health impact of NO_2 in the UK accounts for 23,000 (9,500 – 38,000) premature deaths (see table below), while the combined impact of NO_2 and particulate matter ($PM_{2.5}$) in the UK is estimated to cause 44,750 to 52,500 attributable deaths per annum, with an annual cost to society of £25.3bn to £27.9bn[7].

Estimated health impact of NO_2 in the UK (2013 data)

	Central (2.5%)	Low (1%)	High (4%)
Annual equivalent attributable deaths	**23,500**	**9,500**	**38,000**
Annual Social Cost	**£13.3bn**	**£5.3bn**	**£21.4bn**

Studies show that the adverse health effects from short and long-term exposure to air pollution include:

- Increase in deaths from cardiovascular and respiratory diseases (COMEAP[8]). People with chronic respiratory diseases such as chronic obstructive pulmonary disease (COPD) and asthma are especially vulnerable to the detrimental effects of air pollution. Air pollution can induce the acute exacerbation of COPD and the onset of asthma, increasing morbidity and mortality[9] (see table below)
- Increase in coronary events, including myocardial infarction and ischaemic heart disease[10]
- Increase in low birth weight babies (<2500g)[11]
- Increase in childhood asthma development and wheeze[12]
- Inhibits neurological development in children[13] (it is thought that particulates pass through the olfactory system into the brain where they prevent normal synapse development)
- Inhibits lung function in children, permanently affecting lung capacity[14]

Emergency hospital admissions for COPD (Chronic Obstructive Pulmonary Disease) 2016/2017

	Slough	South East	England
Number of admissions per 100,000 people	**703**	**313**	**417**

The World Health Organisation (WHO) classifies diesel exhaust emissions as carcinogenic to humans with evidence linking air pollution with a range of cancers[15] (lung and bladder in particular).

Estimated effects on annual mortality in 2016 of anthropogenic $PM_{2.5}$ air pollution in Slough[16]

[7] Tackling nitrogen dioxide in our towns and cities, UK overview document, DEFRA, December 2015,
[8] https://www.gov.uk/government/groups/committee-on-the-medical-effects-of-air-pollutants-comeap
[9] Kelly FJ & Fussel JC, Pubmed, 2011
[10] Cesaroni, BMJ, 2014
[11] Pederson, Lancet, 2013
[12] Takenoue, Paediatrics Int, 2012
[13] Jordi Sunyer, CREAL, PRBB group leader, 18 June 2014
[14] http://www.escapeproject.eu
[15] http://www.iarc.fr/en/media-centre/iarcnews/pdf/pr221_E.pdf

Area	Slough	South East	England
Mean anthropogenic PM2.5	**11**	**9.8**	**9.3**
Attributable fraction of deaths (%)	**6.2**	**5.5**	**5.3**
Attributable deaths	**47**	**3,804**	**24,170**
Associated life years lost	**559**	**45,652**	**290,036**

2.3 Legal Compliance

SBC has a legal duty under the Environment Act 1995[17] to review and assess air quality in the Borough and designate any areas where there is relevant exposure to the public to air pollution that is likely to exceed the Government Air Quality Objectives (AQO) as Air Quality Management Areas (AQMA). SBC is required to produce an Air Quality Action Plan (AQAP) to show how we will pursue the achievement of the AQO. This LES forms part of the AQAP for Slough.

Limits on air quality concentrations are set by the EU and adopted by Member States. In the UK the EU Limit Values are the same as the Air Quality Objectives (AQO). While local authorities have a duty to pursue Government Air Quality Objectives (AQO), there is no legal duty to meet the AQO, however, the reserve powers of the Localism Act 2011[18] allow for any EU fines to be passed onto any public authority "whose act or omission" has contributed to the breach in EU law.

The EU has commenced infraction proceedings against the UK Government and Devolved Administrations for failing to meet the legally binding EU Limit Value for NO_2. As the UK has voted to leave the EU it is unclear at present whether the current Limit Values will be retained or whether sanctions will be imposed.

It should be noted that the main driver to improve air quality is public health and that EU Limit Values are health based and correlate with the World Health Organisation (WHO) Air Quality

[16] http://www.phoutcomes.info/public-health-outcomes-framework#page/3/gid/1000043/pat/6/par/E12000008/ati/102/are/E06000039/iid/30101/age/230/sex/4

[17] http://www.legislation.gov.uk/ukpga/1995/25/contents

[18] http://www.legislation.gov.uk/ukpga/2011/20/contents/enacted

Guideline Values for NO_2, while the WHO recommends lower concentrations for particulate matter than the EU Limit Values.

Limit Values and Target dates for NO2 and PM compliance

Air Quality Directive 2008/50/EC - Limit Values and Target Dates for compliance for Nitrogen Dioxide and Particulate Matter			
		Limit Value (annual mean)	Target Date
Nitrogen Dioxide		40µgm^{-3}	1st January 2010
PM_{10}		40µgm^{-3}	1st January 2005
$PM_{2.5}$	Stage 1	25µgm^{-3}	1st January 2015
	Stage 2	20µgm^{-3}	1st January 2020

World Health Organisation (WHO) Air Quality Guideline Values

Air Quality Guideline Values (WHO)			
		WHO Guideline Values	
Pollutant		Short Term Exposure	Long Term Exposure (annual mean)
Nitrogen Dioxide (NO_2)		200 µgm^{-3} (24hr)	40 µgm^{-3}
Particulate Matter (PM)	PM_{10}	50 µgm^{-3} (24hr)	20 µgm^{-3}
	$PM_{2.5}$	25 µgm^{-3} (24hr)	10 µgm^{-3}
Sulphur Dioxide (SO_2)		20 µgm^{-3} (24hr) 500 µgm^{-3} (10 min)	Not Required
Ozone (O_3)		100 µgm^{-3} (24hr)	

3 Creating a Low Emission Future: Leading by Example

SBC recognises that it cannot improve air quality alone. However, we do believe that we can ensure that all relevant Council policies are designed to influence and reduce road transport emissions as far as possible, enabling us to work in partnership with key stakeholders to tackle the problems we face.

The LES seeks to provide a platform for inward investment through the promotion of alternative vehicle emission technologies as part of the transition to a low emission economy. Alternative refuelling and electric vehicle charging infrastructure, new vehicle ownership and usage models, maintenance and ancillary support mechanisms and the development of SMART technologies to assist ultra-low emission vehicle (ULEV) take-up will require the development of new skills as part of the drive to put Slough at the forefront of creating low emission business opportunities.

3.1 Transport Management & Travel Planning

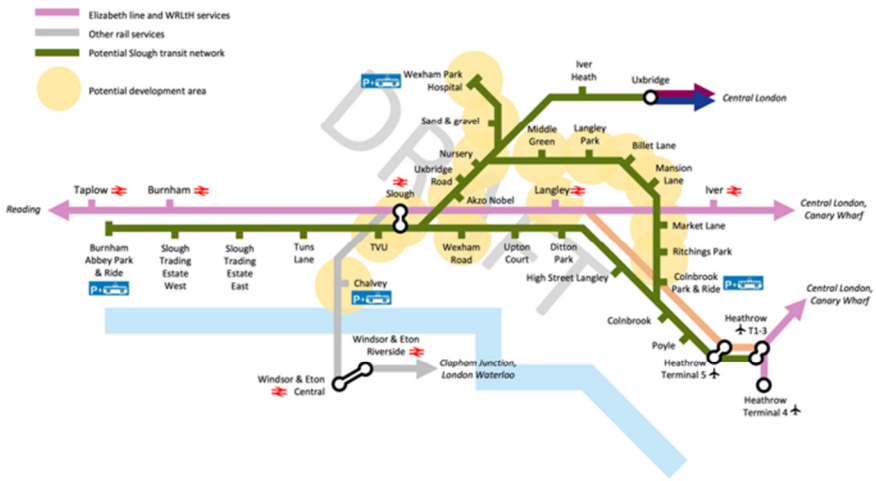
Significant development growth is planned for Slough, with the Local Plan Review[19] predicting the construction of over 900 dwellings per year until 2030. As part of the transport planning for such growth, SBC is in the process of updating the Local Transport Plan (LTP) 2012 and publishing a Transport Strategy[20]. SBC Transport Policy focuses on sustainable modal shift and acknowledges that additional measures to improve vehicle emissions are required.

The draft Transport Strategy outlines key themes, building on the outcomes from the Local Transport Plan (LTP3), and details major infrastructure projects, including Slough Mass Rapid Transit (SMaRT), the Elizabeth Line (formerly known as Cross Rail), M4 Smart Motorway and the Western Rail Link to Heathrow (WRLtH) that will significantly increase public transport provision. It discusses the further investment needed to deliver a transport network that will facilitate ambitious growth plans. The Transport Strategy recognises the challenges and opportunities that may arise from the construction of a third runway at Heathrow.

Potential Slough Transit Network (shown in green)

[19] Local Plan Review, Issues and Options Committee Report 2016

[20] https://www.slough.gov.uk/downloads/SBC_IO_DraftTransportStrategy.pdf



Cycling

In recent years, delivery of our LTP3 Smarter Travel Strategy has been accelerated by additional funding through the Government's Local Sustainable Transport Fund (LSTF). Over the past five years, the Council and its partners have been delivering a £10 million programme of infrastructure, service and behavioural change measures intended to encourage a greater share of journeys to be made on foot, by bicycle or using public transport. Projects delivered or ongoing include:

- new off-road east-west cycle paths, such as through Salt Hill Park;
- on-road cycle route improvements, such as on Salt Hill Avenue;
- a bike hire scheme (additional docking stations and bicycles are planned);
- workplace business engagement and personalised travel planning including promotion of car clubs;
- an extensive way-finding programme;
- numerous improvements around schools to improve environments for pedestrians and cyclists (including a Safer Routes to School to aid pedestrians and cyclists;
- opening of a new cycle hub facility on Brunel Way close to Slough station;
- travel planning activities in schools (including Bike-It training);
- extensive use of travel plans as part of the development consent process for residential, commercial and educational uses;
- development of an east-west cycle route between Slough and Maidenhead (with Buckinghamshire CC).

Cycle Hire, Montem Leisure Centre

Access Funding

Following a successful bid to the Department for Transport Access Fund, SBC has been awarded £1.5m of revenue support to achieve our behaviour change goals. We will be beginning our campaign under the "Better By…" theme, including ambitious targets for sustainable modal shift. We will be committing to the following initiatives over the next 3 years:

· Engage with 30,000 employees across businesses and organisations in order to achieve mode shift in the borough
· Support 3,000 unemployed people access employment, education and training opportunities
· Encourage 15,000 pupils to take up sustainable modes of transport
· Engage residents across the borough and from areas with the highest health deprivation indices in Slough

The Sustainable Transport Team will be rolling out a number of sustainable travel events at key locations and within schools and businesses with more intense activity launching during Spring/Summer 2018. This includes community engagement events and awareness campaigns such as;

· Cycle Training and Scooter Training for Children and Adults across the borough
· Group Cycle Rides on leisure and commuter routes around the borough
· Dr Bikes - free bicycle checks, minor repairs and maintenance advice for members of the public, school and employers
· Journey Planning for jobseekers, youths seeking education and training opportunities
· Bike Loans to disadvantaged families and community groups
· Cycling and Walking competitions, giveaways and competitive events
· Travel Planning advice for schools and businesses
· Targeted road safety awareness and advice
· Promoting mode-shift to car sharing, passenger transport and cycling and walking
· Advising businesses on implementing cycle to work schemes and achieving travel plan targets
· Providing matched funding to businesses to implement sustainable transport facilities such as cycle parking, shower facilities etc.
· Access to and promotion of the cycle hire scheme
· Production and distribution of information on our activities, infrastructure, routes and events
· Wayfinding totems to advise members of the public and highlight keys attractions in Slough

3.2 Land-Use Planning & Development Control

Air quality is a material consideration that we take-into account when making our plans and when taking planning decisions.

The Planning and Compulsory Purchase Act 2004, amended by the Localism Act 2011, requires planning authorities to prepare Local Plans. As part of the Slough Local Development Framework, the Core Strategy 2006-2026 was implemented in December 2008[21]. The Core Strategy includes policies to minimize and mitigate any development impacts on air quality and also prevent future occupants of developments being exposed to levels of poor air quality.

SBC is currently updating its Local Plan[22] and will ensure that our policies will consider the cumulative impacts of development.

A key objective of the LES is to produce guidance for the consideration of air quality through the land-use planning and development control system. Further details can be found in the full LES report. We will produce further air quality & planning guidance, covering non-transport sources, to support the implementation of our new Local Plan as part of the Slough Air Quality Action Plan 2019.

The LES approach aims to simplify the consideration of air quality impacts associated with development schemes and focus on incorporating mitigation at the design stage, helping to counter the cumulative impacts of aggregated developments and providing clarity to developers on what scheme designs are needed.

[21] http://www.slough.gov.uk/downloads/Adopted_Core_Strategy_16-12-08.pdf
[22] www.slough.gov.uk/localplan

SBC will:

- Adopt Air Quality Planning Guidance to provide clarity to developers through the planning system
- Require air quality mitigation to be integrated into development schemes at the design stage
- Require appropriate air quality mitigation, proportionate in scale and kind to development scheme impact, including off-set mitigation on major schemes to support the Low Emission Strategy Infrastructure Programme
- Introduce standards for plug-in vehicle charging on new development schemes
- Adopt emission controls for non-road mobile machinery (NRMM)

Planning decisions will ensure that new developments will help Slough sustain compliance with EU Limit Values in areas outside AQMAs and ensure that new developments contribute to achieving EU Limit Values in Air Quality Management Areas and Clean Air

Zones and are consistent with the local Air Quality Action Plan and Low Emission Strategy.

3.3 Public Sector Procurement

We will use of procurement practices to support the uptake of low and ultra-low emission vehicles, including:

- Require minimum vehicle emission standards as part of Social Value procurement processes where relevant
- Set emission standards for all major contracts where vehicle use is inherent in the contract
- Use whole life costs (WLC) in the evaluation of vehicle procurement exercises, including the consideration of alternatives to diesel technology.
- The Waste and Recycling Fleet complied with the Euro VI Emission Standard from 1st December 2017
- Seek to migrate the refuse collection vehicle (RCV) fleet to natural gas / biomethane or electric as part of the next procurement cycle
- Review the SBC light commercial fleet and pursue opportunities to transfer to plug-in vehicles where feasible
- All SBC light commercial and community service vehicles will meet the Euro 6/VI Emission Standard

Procurement is an essential process enabling the Council to fulfil its responsibility to provide cost effective and efficient services which deliver the Council's priorities. The areas of procurement which can contribute to a reduction in vehicle emissions are:

a) *Contracts relating to goods and services provided to public sector organisations*

b) *Procurement of vehicles by the public sector*

Goods and Services Provided to Slough Council

Social Value

The Public Services (Social Value) Act 2012[23] came into force on the 31st January 2013. The Act, for the first time, places a duty on public bodies to consider social value, including environmental considerations, ahead of a procurement. The wording of the Act states that we must consider:

(a) how what is proposed to be procured might improve the economic, social and environmental well-being of the relevant area, and;
(b) how, in conducting the process of procurement, it might act with a view to securing that improvement.

Sustainable Award Criteria

While the requirements do not apply to all types of procurement The Act provides scope to include the consideration of vehicle emissions, arising from contract delivery and their impact on the health of the community. All general contracts involving road vehicles, such as the delivery of goods to the Council, will include a standard clause relating to vehicle emissions (see below).

Standard vehicle emission clause in relevant general contracts

[23] http://www.legislation.gov.uk/ukpga/2012/3/enacted

- All contractors using commercial goods vehicle/s in the delivery of SBC contracts shall ensure that diesel vehicle emissions comply with European Emission Standard VI/6 and Euro 6 c and d when introduced
- In such cases, contractors shall supply an inventory of the vehicles to be used in the delivery of the contract and their European Emission Standards. SBC must be notified should any other vehicle not of the specified Standard be used in exceptional circumstances
- SBC will take-into account vehicle emission standards that go beyond Euro VI/6, including the use of low emission alternative fuels, such as natural gas/biomethane/hydrogen) or zero emission capable vehicles, as part of tendering and evaluation processes

With respect to the procurement of larger scale contract services involving both in-house and external providers, such as Environmental Services, Repairs, Maintenance and Investment (RMI contract), Community Transport Fleet Services and other major contracts with significant fleet profiles, the minimum vehicle emission requirements are specified below.

Vehicle Emission Standards for large scale service contracts

• A Minimum standard of EURO VI/6 (fleet profile)
• A 10% uptake of Electric/hybrid/gas of the total fleet profile (by 2018) rising to 25% of the total fleet profile (by 2021)
• A 3% reduction per annum C02 targets for fleet emissions (contractually obliged to commit to)
• A 3% reduction per annum of fuel saving targets fleet emissions (contractually obliged to commit to)
• Mandatory Environmental reporting requirement built into the specification (including Fleet Profile (make, model, size), annual mileage recorded, fuel type) – from this we can work out the carbon, NOx and particulate emissions assuming an average speed profile

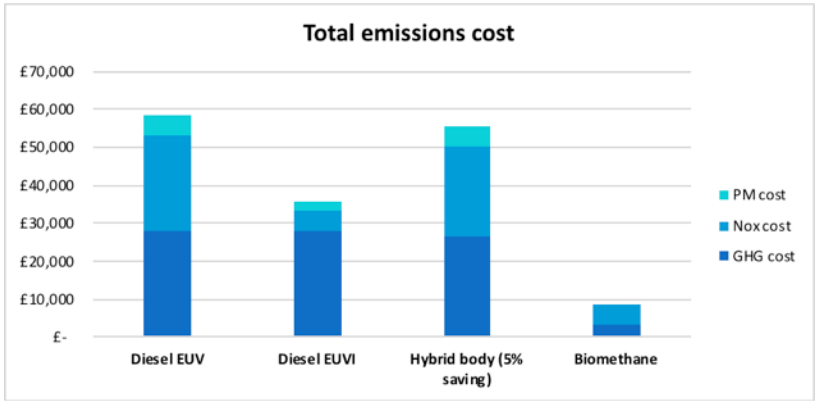
Procurement of Slough Council Vehicles

The Cleaner Road Transport Vehicles Regulations 2011 require public sector organisations to consider the energy use and environmental impact of vehicles they buy or lease. A key concept of the Regulations is the consideration of **whole life costs** whereby the operational costs over a vehicle life, including pollution damage costs, are taken-into account rather than just the purchase price. This helps to redress the issue of low emission vehicles costing more than conventional vehicles, while potentially having lower operating costs that outweigh the purchase increment.

SBC has led by example and has implemented the requirements of these Regulations in respect of the procurement and operation of the SBC Fleet. We will work with other public sector organisations, including the NHS, to promote best practice in vehicle procurement exercises.

Our appraisal of the options for procuring a new Waste Fleet was published by the Local Government Association as best practice[24].

Whole-life emission costs of diesel RCVs and alternatives



Euro VI refuse collection vehicles came into service in 2017 and we will consider alternative fuelling vehicles including biomethane and electric for our next procurement cycle in 2023.

Where it is feasible we will procure ULEVs for our Community Transport Fleet which currently complies with the Euro 6/VI Standard.

Clean Van Commitment[25]

SBC is a signatory to the national Clean Van Commitment.

We will ensure that all our vans under 3.5 tonnes will be zero emission capable by 2028.

SBC Euro VI refuse collection lorry

Ultra-low emission SBC Fleet vehicle

3.4 Slough Council Fleet Challenge

[24] http://www.local.gov.uk/sites/default/files/documents/sloughs-rcv-options-appra-d7c.pdf

[25] https://www.cleanairday.org.uk/clean-van-commitment

The SBC ‘grey’ fleet (vehicles owned and used by staff as part of their Council duties) emissions amounted to 401 tonnes of carbon dioxide in 2014/15 due to staff driving 0.9 million business miles.

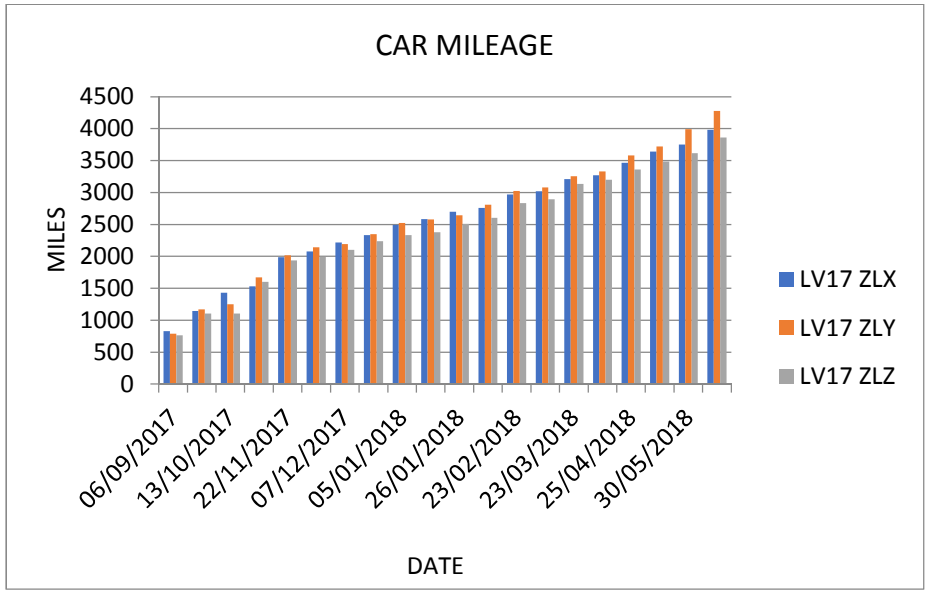
In June 2017 we launched the SBC Fleet Challenge that aims to reduce ‘grey’ fleet use to 10& of current levels by 2025. This will be achieved through the implementation of a Travel Hierarchy and by providing easy access to alternatives such as conferencing systems (video, web and audio) in order to avoid unnecessary journeys, pool cars (EVs) for local visits within the Borough and neighbouring authorities, bus passes, travel warrants for trains, pool bikes or e-bikes, and requiring the mandatory use of hire cars for all business journeys that average over 90 miles/day.

The Fleet Challenge programme will enable SBC to:

- Implement a Travel Hierarchy aimed at supporting and encouraging sustainable travel options
- Avoiding unnecessary journeys
- Providing access to alternatives to car use and increasing the use of electric pool cars and electric bikes
- decarbonise its fleet across the estate by increasing the number and use of EV pool cars, electric bikes and other ULEV technologies.
- significantly reduce the dependency on the use of grey fleet whilst reducing revenue spend (on mileage claims)
- set out emission specifications with our fleet contracts to reduce emissions
- Build on the successful ‘My Electric Avenue’ Project to increase the take-up of ULEVs, reduce emissions and save costs for both staff and the Council

The Fleet Challenge started with 3 electric Renault Zoe and 6 electric bikes. We have now added a further 3 new electric Nissan Leaf to the vehicle pool. In our first year of the Fleet Challenge, 178 staff have signed up to use the electric cars, travelling a total of 12.119 miles while saving 2.8 tonnes of CO2e and £5,453 in costs.

83 staff have used the electric bikes, travelling 765 miles.


CAR MILEAGE
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13/10/2017
22/11/2017
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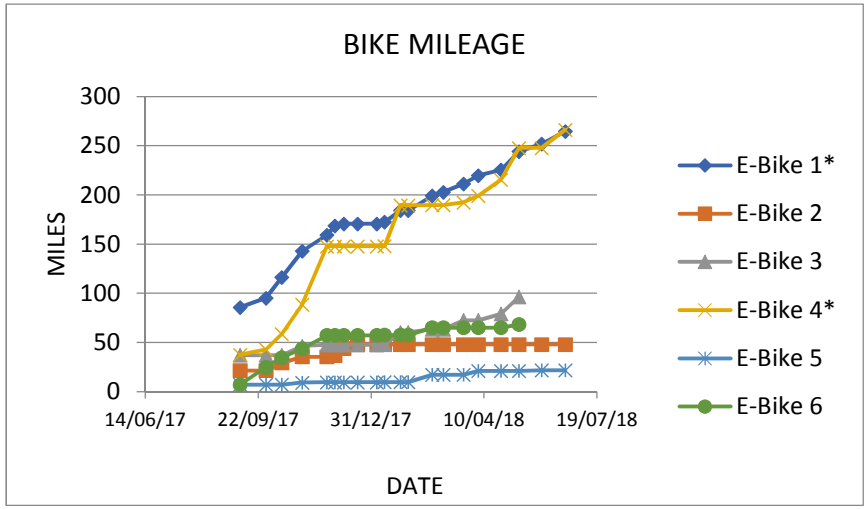
LV17 ZLZ


BIKE MILEAGE
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250
200
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100
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MILES
14/06/17
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E-Bike 1*
E-Bike 2
E-Bike 3
E-Bike 4*
E-Bike 5
E-Bike 6

3.5 Taxi Licensing

SBC currently licenses 107 taxis (Hackney Carriages) and 639 private hire vehicles (PHV). While the majority of vehicles are diesel, we have seen a significant growth in the number of petrol/electric hybrids registered (90) in recent years. The breakdown of all our currently licensed vehicles by Euro Standard is shown below.

Euro Emission Standards of currently licensed vehicles

	Hackney Carriage		Private Hire Vehicle	
	Petrol	**Diesel**	**Petrol**	**Diesel**
Euro 1	0	0	0	0
Euro 2	0	2	0	0
Euro 3	0	13	0	1
Euro 4	2	20	6	33
Euro 5	3	45	18	412
Euro 6	1	16	1	81
Petrol electric hybrid (E 4/5/6)	5	0	84	2
Dual Fuel (petrol/gas)	0	0	1	0

We will work in partnership with the taxi and private hire trade in Slough to encourage the take-up of ULEVs and set minimum emission standards through our licensing powers, including:

- Set minimum emission standards for both Hackney Carriages and private hire vehicles (PHV) that comply with national Clean Air requirements and also promote the use of ultra-low emission vehicles (ULEV)
- Install a network of dedicated, rapid charging units to support the growth in ULEV taxi take-up
- Encourage the development of SMART APPS for taxi drivers to connect with electric charging infrastructure and for customers to connect to ULEV taxis
- Facilitate 'trade' days for taxi drivers to meet with ULEV taxi manufacturers / retailers, infrastructure providers and other support organisations
- Introduce a plug-in taxi demonstration for drivers to experience the use zero emission capable vehicles
- Promote the use of ULEV taxis for public sector taxi contracts

Slough taxi emission policy for new drivers

1. From **1st September 2018** - All new vehicles to be licensed for the first time as a private hire vehicle by a new applicant for a private hire driver licence must be to ultra-low emission vehicle (ULEV) standard.
2. ULEV standard means, a vehicle that uses low carbon technologies and emits less than 75g of CO2/km from the tailpipe and is capable of operating in zero tailpipe emission mode for a range of at least ten miles.
3. That all vehicles must be under 3 years of age from the date of first registration at the time of first being licensed.
4. Any ULEV standard vehicle once licenced by a new applicant must only be replaced by another ULEV standard vehicle under 3 years of age.

5. New applicants will not be permitted to have a vehicle currently licensed by Slough Borough Council, transferred to them after the effective date, unless the vehicle is of the required ULEV standard and is under 3 years of age from the date of first registration.

Slough taxi emission policy for existing licensed drivers

All Currently licensed vehicles to run their term until 9 Years of age **Any ULEV to be aged up to maximum of 12 years – for new vehicles only**	
Compliance Dates & Emission Standard	**Vehicle to be Licensed All Private Hire and Saloon Hackney Carriages**
1st September 2019 Clean Air Zone Standard (Euro 6 diesel / Euro 5 petrol) or ULEV	All licensing renewals i.e. renewals of currently licensed vehicles
1st September 2019 Clean Air Zone Standard (Euro 6 diesel / Euro 6 petrol) or ULEV	All new vehicles to be licensed by current licence holders i.e. where the current licensed vehicle needs to be replaced
ULEV from 1st September 2025	All licensing renewals i.e. renewals of current vehicles and all new vehicles to be licensed.

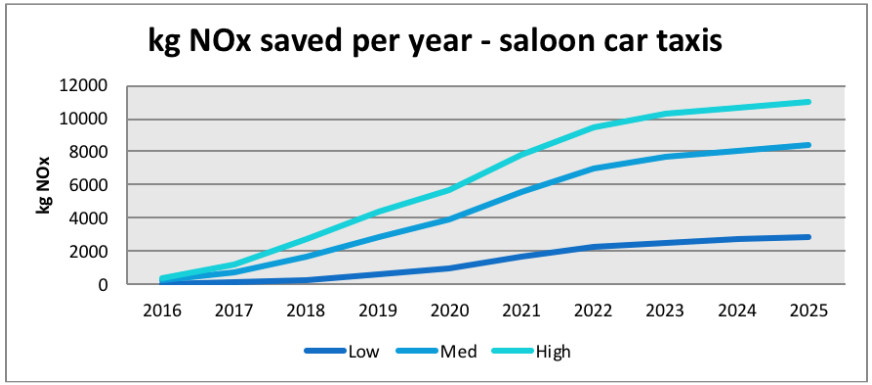
Note – separate standards will be introduced for wheelchair accessible Hackneys following consultation with the trade

Ultra-low emission taxi support

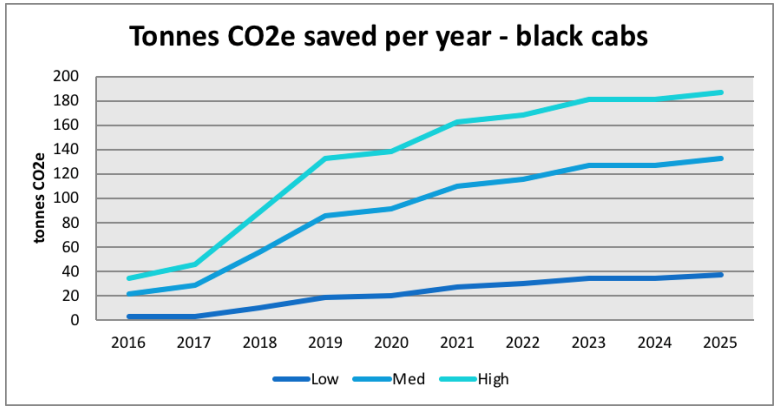
Following submission of the **Slough Ultra-Low Emission Taxi Study** to the Government, in March 2017, the Government awarded Slough £157,000 to install 7 rapid charging units for charging taxis. Ultra-Low Emission Taxi Funding was awarded to 9 authorities nationally. These rapid chargers will be rolled out over the next 2 years (2018/19) at the following locations:

- Slough railway station – front entrance
- Slough Railway station – rear entrance
- Harrow Market, Langley
- Burnham Railway station
- The Grove car park, town centre
- Burlington car park, town centre
- Church Street, town centre

The Ultra-Low Emission Taxi Study showed that based on a high take-up of ULEVs we estimate that we will reduce emissions of NOx from saloon vehicles by up to 11 tonnes a year in 2025 – see table below



The Study also showed that, based on a high take-up of ULEVs we will reduce carbon dioxide equivalent emissions of over 180 tonnes a year by 2025 from our wheelchair accessible Hackneys – see table below



Additionally, incentives to promote the uptake of plug-in taxis will be considered, including:

- Dedicated ULEV taxi ranks at Slough, Burnham and Langley Railway Stations
- Dedicated SMART APP for taxi drivers to book charging facilities
- Discounted charging rates for early adopters
- ULEVs to be prioritised when SBC, and other public services, procure taxi services
- SBC will be holding 'trade' days when taxi drivers can meet with ULEV manufacturers and service providers to discuss opportunities
- SBC will introduce a plug-in taxi demonstration programme to enable taxi drivers to experience and see the benefits of using zero emission capable taxis

Nissan eNV200 electric taxi

Range extended plug-in London Taxi

Rapid charger on Brunel Way opposite Slough Station Taxi Rank

Public and Private Sector Taxi Contracts and Standards

SBC will work with other public and private sector stakeholders to promote the use of ULEV taxis as part of any taxi contract requirements.

4 Slough Clean Air Zone Framework

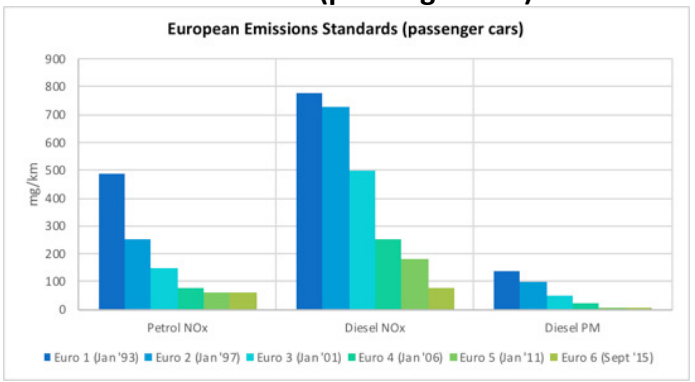
The Clean Air Zone (CAZ) Framework includes low and ultra-low emission vehicle specific measures that are being developed and implemented in Slough to accelerate the uptake of cleaner vehicles and the provision of vehicle infrastructure to support growth, including:

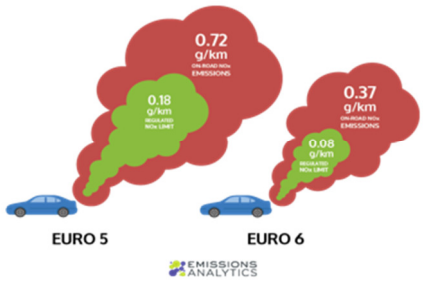
- Raise awareness of vehicle emissions and benefits of low and ultra-low emission vehicles
- Look at the feasible implementation of a Clean Air Zones (CAZ) in the Borough in consultation with key stakeholders
- Develop and implement the Slough Electric Vehicle Plan, in line with the Government's Road to Zero Strategy
- Work with bus operators to achieve continuing improvements in bus emissions and consider alternatives to diesel technology
- Work with key stakeholders to improve the emissions from freight vehicles
- Implement emission standards for taxis and promote the uptake of ultra-low emission taxis (see section 3.6)
- Lead by example when setting emission standards for SBC fleet vehicles (see section 3.4) and reducing emissions from the 'grey' fleet through the Fleet Challenge
- Work in partnership with Highways England to reduce the impact of emissions from the M4 motorway

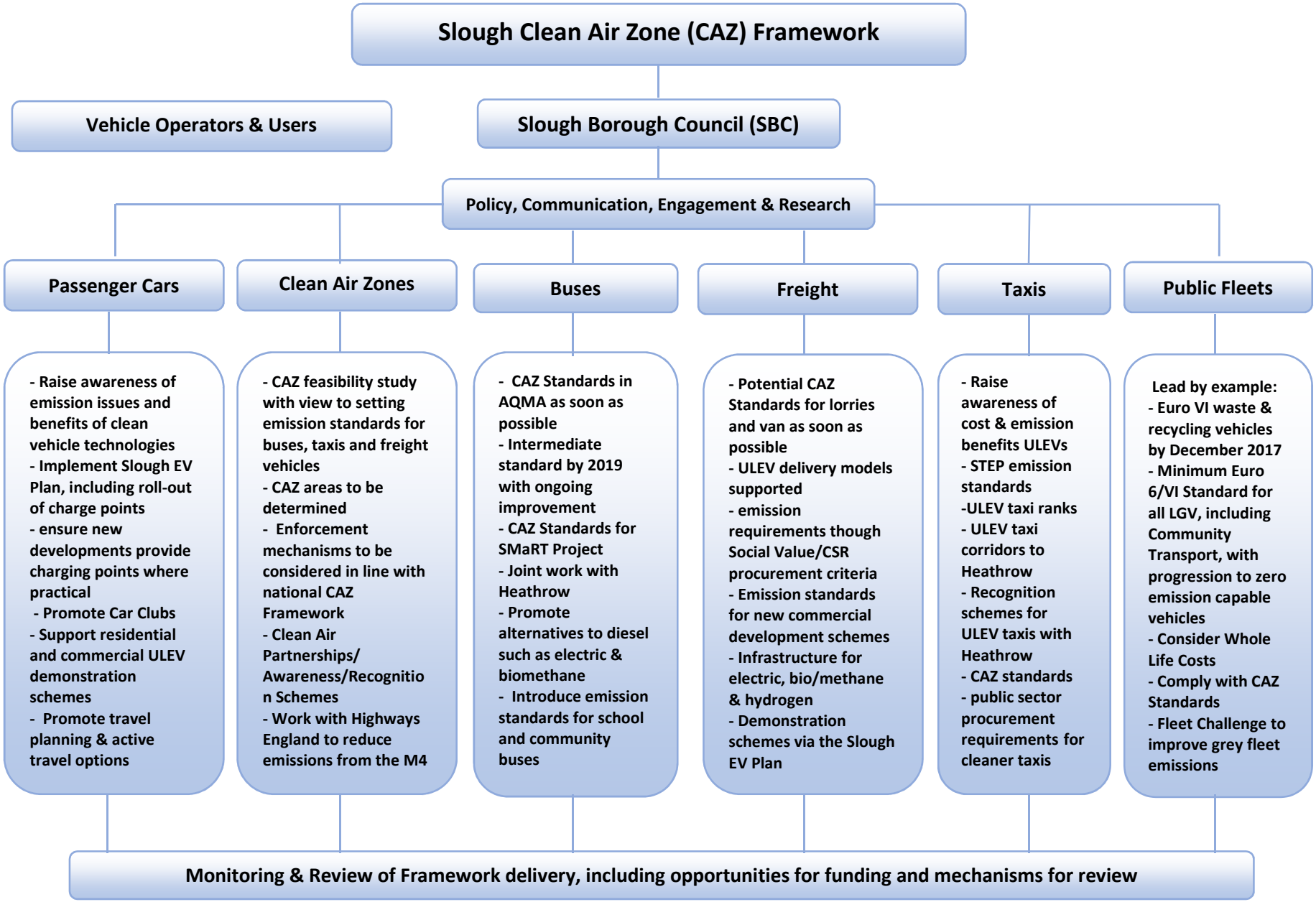
The Slough CAZ Framework seeks to raise awareness about the relative emissions of cars and also the total cost of ownership (TCO) of standard technologies compared with alternative fuelled models. As the volume of ULEV manufacture increases, purchase costs are likely to become similar to standard vehicle technologies, meaning that motorists will achieve noticeable cost benefits of buying and running an ULEV going forward.

While European Emission Standards for cars have progressively improved (see table below), a key issue for air quality has been the significant take-up in diesel cars, which have been shown to emit far more NOx in real world driving than during manufacturers tests (see below). Real world emission tests will help tackle this. Diesel cars sales have also begun to fall recently.

European Emissions Standards (passenger cars)






Slough Clean Air Zone (CAZ) Framework
Vehicle Operators & Users
Slough Borough Council (SBC)
Policy, Communication, Engagement & Research
Passenger Cars
Clean Air Zones
Buses
Freight
Taxis
Public Fleets
- Raise awareness of emission issues and benefits of clean vehicle technologies
- Implement Slough EV Plan, including roll-out of charge points
- ensure new developments provide charging points where practical
- Promote Car Clubs
- Support residential and commercial ULEV demonstration schemes
- Promote travel planning & active travel options
- CAZ feasibility study with view to setting emission standards for buses, taxis and freight vehicles
- CAZ areas to be determined
- Enforcement mechanisms to be considered in line with national CAZ Framework
- Clean Air Partnerships/ Awareness/Recognition Schemes
- Work with Highways England to reduce emissions from the M4
- CAZ Standards in AQMA as soon as possible
- Intermediate standard by 2019 with ongoing improvement
- CAZ Standards for SMaRT Project
- Joint work with Heathrow
- Promote alternatives to diesel such as electric & biomethane
- Introduce emission standards for school and community buses
- Potential CAZ Standards for lorries and van as soon as possible
- ULEV delivery models supported
- emission requirements though Social Value/CSR procurement criteria
- Emission standards for new commercial development schemes
- Infrastructure for electric, bio/methane & hydrogen
- Demonstration schemes via the Slough EV Plan
- Raise awareness of cost & emission benefits ULEVs
- STEP emission standards
-ULEV taxi ranks
- ULEV taxi corridors to Heathrow
- Recognition schemes for ULEV taxis with Heathrow
- CAZ standards
- public sector procurement requirements for cleaner taxis
Lead by example:
- Euro VI waste & recycling vehicles by December 2017
- Minimum Euro 6/VI Standard for all LGV, including Community Transport, with progression to zero emission capable vehicles
- Consider Whole Life Costs
- Comply with CAZ Standards
- Fleet Challenge to improve grey fleet emissions
Monitoring & Review of Framework delivery, including opportunities for funding and mechanisms for review

4,1 Clean Air Zones (CAZ)

In July 2017, the Government published its 'UK plan for tackling roadside nitrogen dioxide concentrations'[26]. The plans set out the Government's approach to improving air quality in the UK, reducing health impacts, and fulfilling its legal obligations. The plans include a framework for implementing Clean Air Zones (CAZ) in the UK[27]. The Government plans identify CAZ as the most effective way to improve urban air quality in the shortest timeframe.

The aim of CAZ is to bring together local measures to deliver **immediate action** to improve air quality and health with **support for towns and cities to grow** while delivering sustained reductions in pollution and a **transition to a low emission economy**. Where there are the most persistent pollution problems, this is supported by restrictions to encourage only the cleanest vehicles to operate in the town or city.

Clean Air Zones fall into two categories:

- **Non-charging Clean Air Zones** – These are defined geographic areas used as a focus for action to improve air quality. This action can take a range of forms but does not include the use of charge-based access restrictions. Emission standards for buses, coaches and taxis are required in addition to measures to promote the uptake of ULEVs
- **Charging Clean Air Zones** – These are zones where, in addition to the above, vehicle owners are required to pay a charge to enter, or move within, a zone if they are driving a vehicle that does not meet the particular standard for their vehicle type in that class of zone. Clean Air Zone proposals are not required to include a charging zone. Certain exemptions may be granted for specialist vehicle types including emergency vehicles.

With current and predicted air quality levels in Slough, SBC will assess the feasibility of implementing CAZ in the Borough, including non-charging and charging CAZ requirements. The type of zone envisaged would not include passenger vehicles.

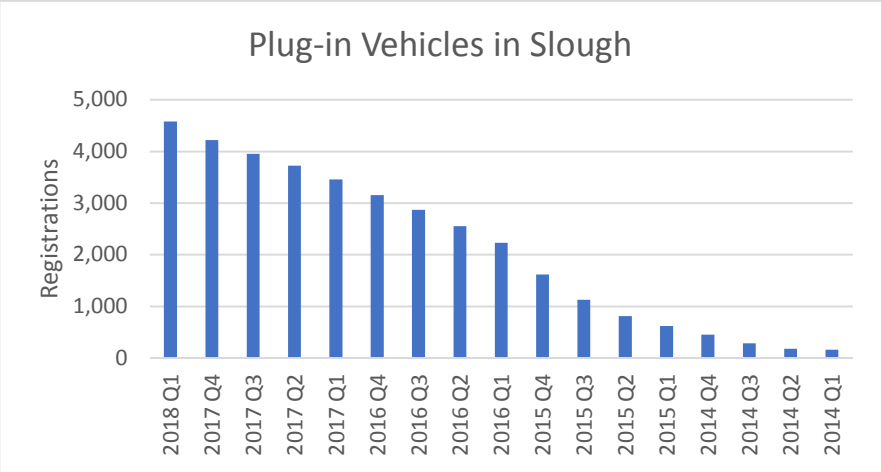
4.2 Slough Electric Vehicle Plan

[26] https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017

[27] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/612592/clean-air-zone-framework.pdf

By the end of March 2018 there were 141,603 plug-in vehicles registered in the UK. Slough has the 4th highest registrations of plug-in vehicles per local authority with over 4,500 (see table below). The number of plug-in model available is increasing[28] while costs are reducing.

Plug-in vehicle registrations in Slough (Q1 2014 – Q1 2018)



The Slough CAZ Framework will seek to continue support for the take up of ultra-low emission vehicles (ULEV) with the development and implementation of the **Slough Electric Vehicle Plan**.

[28] https://www.goultralow.com/

The Government has pledged that almost all new car and light goods vehicle sales will be zero emission by 2050 [29] and will continue to provide a grant of up to £4,500 towards the purchase of ultra-low emission cars, including plug-in vehicles[30] and also provide support for rolling out the charging infrastructure needed to enable take-up, including home charging[31], [32]

In order to promote and support the take-up of ultra-low emission plug-in vehicles, including cars, taxis and commercial vehicles, we will develop and implement a **Slough Electric Vehicle Plan** with the following objectives:

1) Support home and workplace charging as the primary charging location utilising the local planning process, business support and private sector investment;
2) Creation of a strategic Slough public charge point network that ensures electric car users reach their destination through a simplistic access, usage and payment model;
3) Ensure charging opportunities are available for residents with and without private driveways;

[29] https://www.gov.uk/government/news/uk-government-pledges-bold-ambition-for-electric-cars
[30] https://www.gov.uk/plug-in-car-van-grants
[31] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/515932/electric-vehicle-homecharge-scheme-guidance-for-customers-2015.pdf
[32] https://www.gov.uk/government/publications/workplace-charging-scheme-guidance-for-applicants-installers-and-manufacturers

4) In line with our Air Quality & Planning Guidance we will work with developers to provide practical charging solutions and support plug-in vehicle demonstration schemes on new residential and commercial developments;
5) Work with bus operators to develop ultra-low emission corridors, including the potential for the Slough Mass Rapid Transit (SMaRT) Scheme
6) Install a network of rapid charging hubs to facilitate a high growth rate in plug-in taxis and the use of smart technology to link taxi operators with charging infrastructure and customers;
7) Develop an Electric Car Club across the Borough
8) Link and compliment with a potential Ultra-Low Emission Zone at Heathrow
9) Tackle the perceived and actual barriers to EV ownership through targeted marketing, promotion and information;
10) Work with the Thames Valley Berkshire Local Enterprise Partnership[33] to help businesses achieve resource efficiency savings and to attract investment in ULEV technology and infrastructure;
11) Deliver an exemplary public sector ULEV operation – demonstrating to employees, business and the wider community the benefits and savings of ULEV vehicles and related air quality improvements through the SBC Fleet Challenge and the Clean Van Challenge;
12) Seek opportunities for small-scale renewable energy generation to power ULEVs and two-way energy delivery from ULEVs to power homes when appropriate, reducing domestic bills and energy demands on the national grid;
13) Support the freight industry to invest in ULEV vehicles, especially in relation to last-mile delivery operations.
14) Ensure that our plans are in line with the Government's Road to Zero Strategy[34]

Slough electric bus trial with Reading Buses

[33] http://thamesvalleyberkshire.co.uk

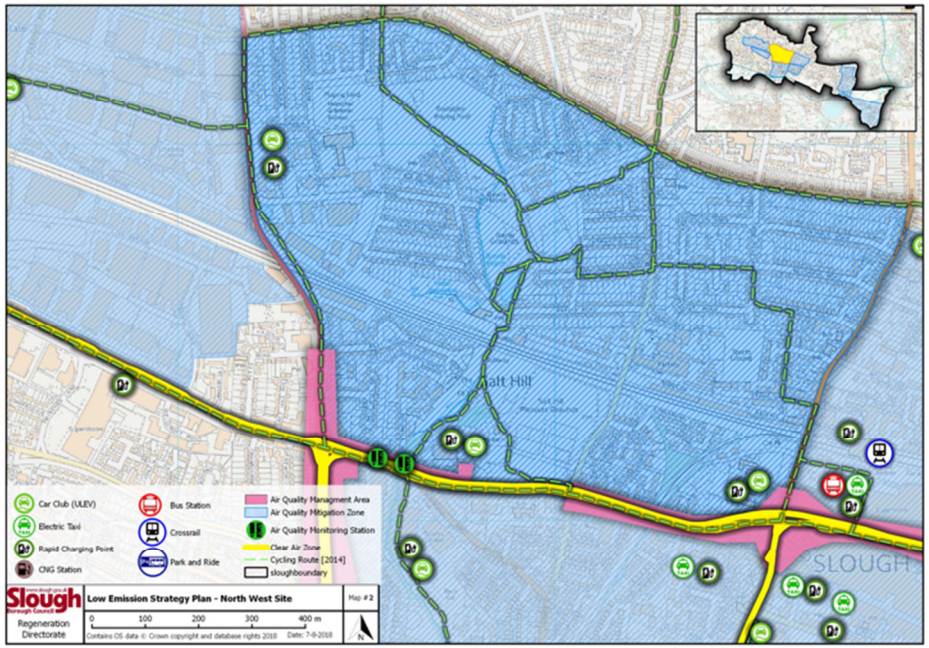
[34] https://www.gov.uk/government/news/government-launches-road-to-zero-strategy-to-lead-the-world-in-zero-emission-vehicle-technology

4.3 Low Emission Strategy Infrastructure Programme

SBC has started planning for the infrastructure that we need to fulfil our ambitions. We have developed a draft **Slough Low Emission Programme** that seeks to enable a high take-up of ULEVs and zero emission capable alternatives to owning a vehicle, through the provision of necessary infrastructure.

The programme is designed to be fluid to accommodate opportunities for expansion and will be funded through a mixture of our own budget, grant funding opportunities, local enterprise partnership (LEP), Heathrow Airport Ltd Community Funding and funding from planning obligations on major schemes. The Low Emission Programme is split into 7 sectors of Slough, covering the AQMA. The North-West Sector map is shown.

All maps of the Low Emission Programme can be found on the SBC Low Emission Strategy webpage[35]



[35] http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx

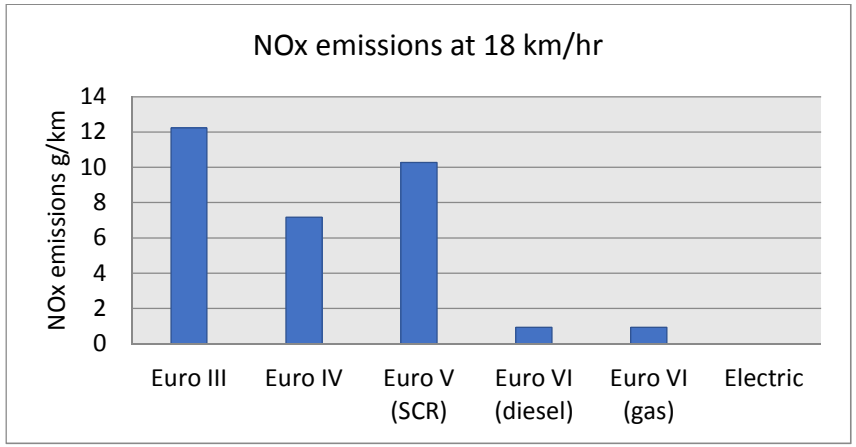
4.4 Buses

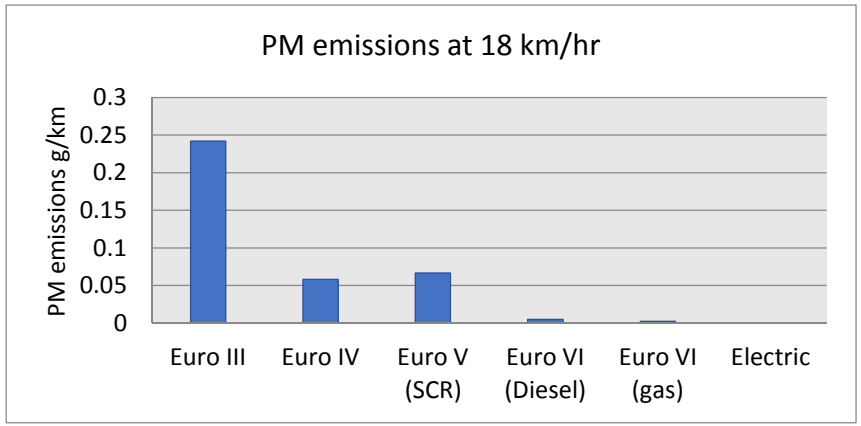
We recognise the vital role that public transport plays in our everyday lives and buses provide efficient transport modes and an alternative to private vehicle use and potential for reducing congestion. We also understand that older buses can cause significant emissions.

SBC will:

- Work in partnership with bus and coach operators to identify an emission reduction pathway to 2025
- Require a minimum Euro IV Emission Standard for commercial bus services in our AQMAs by 2021
- Require a minimum Euro VI Standard for new, tendered commercial bus services from 2018
- Ensure that Euro VI buses are used on the Slough Mass Rapid Transit (SMaRT) from the outset
- Assess the feasibility of implementing CAZ in the Borough
- Support funding opportunities to reduce emissions
- Support the introduction of ultra-low emission buses
- Undertake an electric bus route trial in Slough
- Promote ultra-low emission corridors as part of SMaRT and Heathrow developments
- Promote alternatives to heavy diesel such as electric and biomethane

The bus emissions of NOx and particulate matter at urban speeds by Euro Standard can be seen in the tables below.



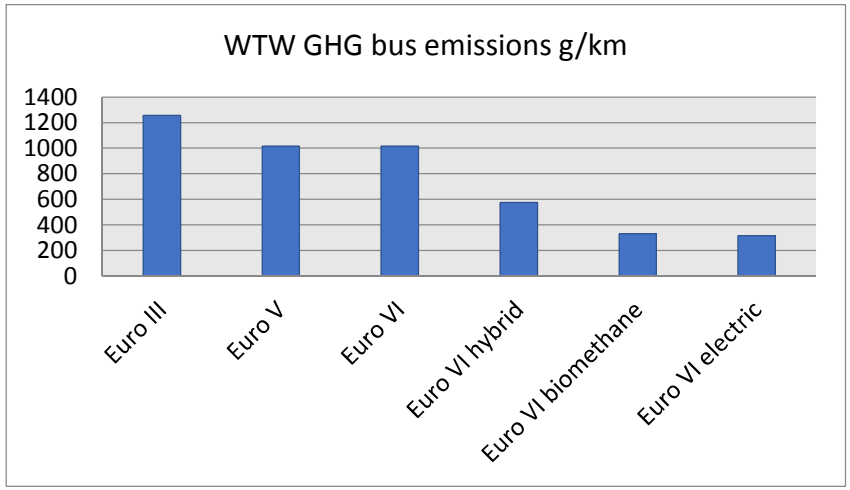


Ultra-low Emission Pathways

While we will continue to work with bus operators to progressively reduce harmful emissions from buses we will also seek to promote the greenhouse gas benefits of moving away from diesel to

alternatively fuelled buses such as biomethane and electric technologies.

The relative, well-to wheel greenhouse emissions of diesel, biomethane and electric buses can be seen in the table below.



We will build on the experience of other towns and cities in supporting diesel alternatives. Biomethane buses have been successfully rolled out in Reading, Sunderland, Darlington, Beccles, Runcorn, Bristol and Nottingham. Cities such as London, Nottingham, Milton Keynes and Coventry have successfully introduced electric buses. While the capital cost of these buses is higher than standard diesel buses, there can be significant fuel and maintenance savings providing overall savings to operators.

Slough Mass Rapid Transport (SMaRT)

The Slough Mass Rapid Transit (SMaRT) scheme[36] aims to improve the Maidenhead, Slough, Heathrow corridor, providing a bus service that is quicker, more frequent, and more reliable, and also reducing congestion along this strategic route. Our vision for SMaRT is that of a scheme which will provide a high quality, fast and reliable public transport.

SMaRT Phase 1 extends from Slough Trading Estate to Slough railway station, while Phase 2 would extend SMaRT eastwards to the Borough boundary and Heathrow.

Euro VI buses will be used from commencement of the SMaRT scheme. Ultra-low emission buses will be considered going forward.

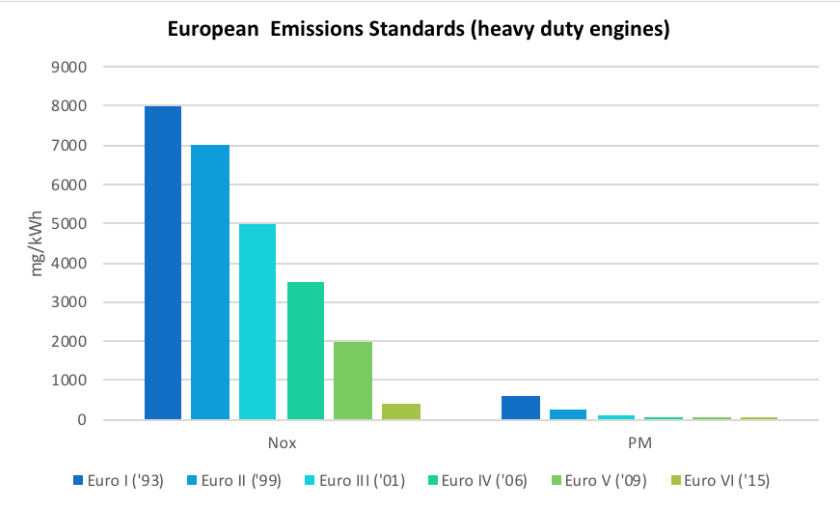
4.5 Freight & Logistics

[36] http://www.slough.gov.uk/parking-travel-and-roads/slough-mass-rapid-transit-smart.aspx

Freight transport is a key aspect of the Slough road transport network and contributes to the local economy. Slough is home to the largest private industrial estate in Europe (Slough Industrial Estate).

Heavy goods vehicle (HGV) mileage driven in Slough In 2016 is at similar levels to 2000, however, light goods vehicle (LGV eg. vans) mileage has increased by almost a third over the same period due mainly to the growth in dot.com / home delivery businesses[37].

European Emission Standards for Heavy Duty Engines



While HGV emissions from the latest, Euro VI, vehicles are demonstrating significant emission improvements over previous Euro Standards (see table opposite), there has been an underestimation of the emissions caused by vans, with the latest Euro Standard vehicles only recently entering the market.

SBC will work in partnership with the freight industry to reduce vehicle emissions where feasible, including:

- Assess the feasibility of introducing a CAZ in the Borough for lorries and vans
- Seeking opportunities to increase the take-up of alternative fuels and technologies by HGV and LGV operators by supporting projects for alternative refuelling infrastructure such as natural gas/ biomethane and electric charging infrastructure, in line with the Government's Road to Zero Strategy[38]
- Promote electric delivery vehicles and infrastructure through the Slough Electric Vehicle Plan
- Promote sustainable emission criteria in public sector purchasing decisions
- Using the Air Quality & Planning Technical Guidance to ensure new commercial developments incorporate facilities for ultra-low emission vehicles, such as electric charging points and minimum Euro emission standards for fleet vehicles
- Working with Highways England to support freight emission reduction initiatives
- Working with commercial fleet operators to use whole-life costing during vehicle procurement to

[37] http://www.dft.gov.uk/traffic-counts/area.php?region=South+East&la=Slough

[38] https://www.gov.uk/government/publications/reducing-emissions-from-road-transport-road-to-zero-strategy

promote the economic as well as environmental and health benefits from low emission HGVs and LGVs.

- Work with freight organizations to look at alternatives to diesel powered refrigeration units
- Encourage both the public and private sector to consider freight vehicle movements through Delivery Service Plans.
- Look at HGV routing to avoid AQMAs
- Encourage more freight to be transported by rail for long-haul journeys.

Gas refuelling, John Lewis Partnership

4.5 M4 Motorway

Highways England is the Government agency charged with operating, maintaining and improving England's motorways and major A roads ('the Strategic Road Network') including the M4 motorway. Through the Road Investment Strategy, the UK government has allocated a ringfenced £100 million for an Air Quality Fund available through to 2021 for Highways England to help improve air quality on its network. This is to meet the dual vision of the Road Investment Strategy of not only protecting the environment but also improving it, including air quality.

SBC has designated an AQMA along the M4 corridor and will be working in partnership with Highways England to implement measures to reduce the impact of emissions from the motorway traffic on the affected communities.

4.6 Heathrow

Plans to expand Heathrow will include a full assessment of the air quality impacts on the Borough. We will ensure that any plans include measures to minimise any impacts on Slough and provide opportunities to improve vehicle emissions and air quality, in line with this strategy.

5 Delivery & Communication Plan

SBC will:

- Produce an integrated Delivery Plan as part of the final LES, identifying key roles and responsibilities and timescales
- Produce an up to date Air Quality Action Plan (AQAP) for all Slough AQMAs by 2019
- Produce an effective Communication Plan in partnership with Public Health to promote key messages and measures in the LES
- Monitor the implementation of measures and their success based on appropriate 'success' criteria
- Review the measures in the LES on an annual basis
- Keep appraised of current and upcoming funding opportunities to support LES

5.1 Delivery Plan

As part of the final LES, SBC will develop and implement a detailed **Delivery Plan**, outlining key roles and responsibilities for delivering measures and the timescales for delivery.

We will also update our Air Quality Action Plan (AQAP) by 2019 to cover all Slough AQMA and include specific low emission measures outlined in the LES within the update AQAP.

5.2 Communication Plan

SBC believe that it is essential to raise awareness of the impacts of air pollution, including vehicle emissions, on health and also measures that can help reduce emissions and improve air quality. In partnership with Public health we will produce a **Communication Plan** to accompany the LES, highlighting key messages and measures that will be delivered. The Communication Plan will be informed by guidance on this issue, including NICE Guidelines – *'Air pollution: outdoor air quality and health'*[39] and DEFRA guidance – '*Air Quality: A Briefing for Directors of Public Health'*[40].

The communication plan will focus on both short term and immediate messaging for peaks in air pollution, as well as longer term engagement strategies to amalgamate the local community. It will also tie in with key local and national campaigns which both directly and indirectly lead to a reduction in congestion and emissions. For example, national walk to work day, cycle to work day, Slough half marathon and national clean air day.

As part of the customer facing communication work we will also be integrating an air quality section to the new Slough Public Health 'One You' website[41]. This page will serve to be the community facing source of information for everything to do with air quality. This will include keys facts and information, alerts, downloadable resources and campaign related information. It can also be used to inform vehicle users of the measures they can take to reduce their emissions by travel planning and vehicle choice. As part of the development of this new site we will look to encourage local businesses and residents to "make a pledge". The pledge will be linked to key local priorities, such as improving air quality, and allow us to provide stage to shout about the good things happening

[39] https://www.nice.org.uk/guidance/ng70/chapter/Recommendations#awareness-raising

[40] https://laqm.defra.gov.uk/assets/63091defraairqualityguide9web.pdf

[41] Launch date August 2018

across the borough and to engage and support people directly with making meaningful change.

Short term and immediate public health messages will focus on enabling the public to reduce their personal exposure by avoiding areas of higher pollution; this is beneficial for the general population and those with existing health conditions. Examples of successful implementation of health communication include air quality services such as airTEXT/airALERT[42] and 'Know and Respond'. All of these services provide free information about the quality of outdoor air they breathe. The consideration of measures that foster awareness of the effects of air pollution in the local population can enable local residents to make informed decisions on how to reduce their exposure and if required, to better manage their health conditions.

The communication plan within the Slough strategy will follow the six principles for public communication about air pollution based on qualitative research in 2013 for Defra.

A. Explaining what air pollution is: Using information about what particulate matter and other air pollutants are made of and where they can go to get air pollution onto the local agenda – not statistics about health consequences.
B. Helping people understand how they can protect themselves: Without raising public concern about air pollution unless there is clear and ample information to satisfy people's desire to do something to reduce their exposure.
C. Explaining the health impacts: Focusing on what is known for certain about the health consequences of air pollution.
D. Making it local: Talking about air pollution as a problem linked to specific places within Slough, not just as a general problem of the atmosphere.
E. Explaining how individuals can make a difference: Keeping the focus on practical improvements – not long-term solutions.

A strategic approach to the communication plan will prove vital when attempting to reach the widest audience possible. Local groups, organisations and businesses have an important role to play by introducing incentives for staff to walk or cycle to work, take up car sharing or work from home, or spreading key messages in the community. This element could form a more formal Clean Air Partnership for Slough.

Everyone will need to take some action if we are to significantly improve air quality. While the impact of an individual household or business may be small, the combined impact of actions taken by the local authority, large and small businesses and individuals could be great.

F. Demonstrating leadership and empower communities, instead of simply expecting individuals to change their behaviour. Utilising the council, as an exemplar organisation to support others to follow in our steps.

[42] http://www.airtext.info

SBC will provide all relevant documents relating to the LES on a dedicated web page[43] that will be updated regularly.

[43] http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx

Glossary of Terms

AQMA	-	Air Quality Management Area
AQAP	-	Air Quality Action Plan
CAZ	-	Clean Air Zone
CDV	-	Car derived van
CO2	-	Carbon Dioxide

CO2e	-	Carbon Dioxide equivalent
CVTF	-	Clean Vehicle Technology Fund
DEFRA and Rural Affairs	-	Department for the Environment, Food
DfT	-	Department for Transport
DPF	-	Diesel Particulate Filter
EEV	-	Environmentally Enhanced Vehicle
EU	-	European Union
Euro Standard	-	European Emission Standard
FTA	-	Freight Transport Association
HC	-	Hackney Carriage
HDV	-	Heavy Duty Vehicle ie bus or lorry
HGV	-	Heavy Goods Vehicle ie lorry
LES	-	Low Emission Strategy
LEV better	-	Low Emission Vehicle ie EEV standard or
LEZ	-	Low Emission Zone
LGV	-	Light Goods Vehicle
NHS	-	National Health Service
NICE	-	National Institute for Clinical Excellence
NO_2	-	Nitrogen Dioxide
NOx	-	Oxides of Nitrogen ie a mixture of Nitrogen Dioxide, Nitric Oxide and Nitrous Oxide
OLEV	-	Office for Low Emission Vehicles
PHE	-	Public Health England
PHV	-	Private Hire vehicle
PM	-	Particulate Matter
PM_{10} size	-	Particulate Matter less than 10 microns in
$PM_{2.5}$ in size	-	Particulate Matter less than 2.5 microns
RCV	-	Refuse Collection Vehicle
RHA	-	Road Haulage Association
SCRT	-	Selective Catalytic Reduction Technology
TCO	-	Total Cost of Ownership
ug/m^3	-	micrograms per metre cubed
ULEV g/km CO2	-	Ultra Low Emission Vehicle ie below 75
ULEZ	-	Ultra Low Emission Zone
WHO	-	World Health Organisation
WLC	-	Whole Life Costs