



Northampton Low Emission Strategy (NLES) 2017 – 2025

The LES forms part of the Northampton Borough Council Air Quality Action Plan (AQAP) in line with the requirements of Part IV of the Environment Act 1995



December 2017

About the Northampton Low Emission Strategy (NLES)

The Northampton Low Emission Strategy (NLES) has been developed through collaboration between Northampton Borough Council (NBC) and Northamptonshire County Council (NCC), including Public Health with each organisation having an input and contributing to the content of the strategy.

The NLES project is funded by DEFRA and managed by the NBC Environmental Health & Licensing Department, with technical support provided by Low Emissions Strategies Ltd. The NLES is intended to influence and shape local and regional strategies, plans and policies to facilitate a reduction in emissions from vehicles, and improve air quality, resulting in a healthier place for people to live, work and visit.

The Strategy sets out specific aims and objectives to be achieved over the next five years, although it is recognised that further action will continue to be required beyond the timeframe of this Strategy. It is intended that the Strategy will be kept under review and will be renewed towards the end of the five year period to take into account changing needs, technologies and priorities.

The Strategy forms part of the Northampton Air Quality Action Plan (AQAP) and a *Task Group* will be set up to deliver the objectives within this Strategy and provide an annual progress report.

The Northampton Low Emission Strategy (NLES) forms part of the Northampton Borough Council (NBC) Air Quality Action Plan. The NLES 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.

In 2016 we undertook 12 weeks of consultation on the draft LES, receiving substantial feedback. NBC Scrutiny Panel 4 carried out a review of the draft strategy and action plan during the winter of 2017 and produced 26 constructive recommendations. We have taken these comments and recommendations into account during the preparation of this Strategy.

Foreword

Executive Summary

Traffic in our urban centre and areas near busy roads are affecting concentrations of air pollution that can have a significant impact on the health of the general population, with those having underlying health conditions being most at risk. There are two pollutants of greatest concern: nitrogen dioxide (NO₂) and particulate matter (PM), which have an adverse effect on health and are mainly a problem because of vehicle exhaust emissions, with diesel exhaust emissions contributing most to the air pollution problem.

Unlike the smoke and smog problems of the past, NO₂ and PM are invisible, leading to a perception that the air is “clean”. However, particulate matter is so fine that it is inhaled deep into the respiratory tract and, in the case of very fine particles and NO₂ may transfer into the blood stream. A range of health problems are attributed to exposure to elevated levels of nitrogen dioxide and particulate matter, the most obvious being respiratory conditions, asthma and coronary heart disease, but evidence is now also showing a strong association with cancer, strokes, low birth-weight babies and even childhood cognitive development. These health conditions impact both on quality of life and life expectancy. The Public Health Outcomes Indicator for air pollution points to as many as one in twenty deaths each year in Northampton being attributable to particulate air pollution.

NO₂ and particulates, together with other air pollutants, have been set an upper air quality limit value that the general population should not be exposed to in order to protect public health. These limits are legally binding through EU and UK law. The urban area of Northampton has been identified as having elevated levels of air pollution and Air Quality Management Areas (AQMA) have been designated where there is relevant exposure to NO₂. Current projections indicate that concentrations of NO₂ may not fall below the limit value in some parts of the Borough until after 2020. Continued failure to meet the limit values will put the UK Government at risk of legal action being taken against it under European law, with the further risk of any fine imposed on the UK Government being passed down to local authorities if their action, or in-action, has contributed to the limit value being exceeded. Legal action has already been taken against the UK Government by Client Earth for the continued breach of the limit values in both the European Courts and UK Supreme Court. It is therefore important, not least for the protection of public health, that all public bodies work together to achieve compliance with the limit values by the earliest possible date.

Knowing that we have an air quality problem is one thing, but introducing effective actions to tackle the problem is another. We know that traffic-related emissions are the main reason why people are exposed to levels of air pollution which can damage health, but our society and economy is structured around the effective and efficient movement of people and goods. The challenge is to reduce emissions, without adversely impacting on the economy and our need to travel. Conversely, this is also an opportunity for our society and economy to benefit from the innovation and activity that will lead us to a low emission future.

We already know a lot about the concentrations of air pollutants in the Borough and where air pollution is highest, however, we also need to build our air quality monitoring and

modelling capability to inform evidence-based decision-making so that the most cost-effective and viable options to deliver air quality improvements are considered.

No single action will solve our air quality problems, but a range of actions and activity is required at a local, regional, national and European level in order to achieve the desired reduction in emissions. This Strategy considers the local and regional activity required to reduce emissions, having regard to the national and European context. The Strategy is a collaboration between the Borough and County Councils and recognises that the actions that will have greatest impact are ones which are implemented across the region, such as regional transport planning, developing electric vehicle charging infrastructure and spatial planning policies.

This Strategy has three main themes:

- ***Evidence for Change***
- ***Creating a Low Emission Future***
- ***Northampton Vehicle Emission Framework***

The first theme: ***Evidence for Change***, outlines the evidence which is driving the need for change, including the impact on health and the legal consequences of not taking action. Evidence arising from national studies and work by the Borough in its role in assessing local air quality has identified where air quality is poor and what causes the main air pollution problems. We know that diesel vehicles cause the most significant air quality issues and exposure to poor air quality is highest in urban areas, and when people live near busy roads and junctions. Evidence suggests that action targeting the most polluting vehicles which operate mainly in urban areas, for example older diesel buses, will achieve the most significant air quality and health benefits. Action to improve air quality can, in most cases, deliver additional benefits by reducing carbon dioxide emissions and reducing environmental noise. This evidence will help inform what decision making is required to reduce emissions, but the evidence base needs to develop further to help inform decision making in the future and to ensure the aims and objectives of this Strategy are being achieved.

The second theme: ***Creating a Low Emission Future***, considers what needs to be done to shape the places where we live and work, how we travel and the choices we make so that low emission travel becomes part of normal everyday life. The NLES will help inform other strategies and policies to achieve this. Notable strategic plans include the Northamptonshire Transportation Plan (2012), Northampton Town Transport Strategy (2013) and Highways Air Quality Strategy (2013), developed in partnership with Northamptonshire County Council and the Local Development Plan produced by the Borough, but other policies and plans, for example on Procurement, and Commissioning of Services and Taxi Licensing can also influence how the low emission future is achieved and how the places where we work and live are shaped. An *Air Quality & Planning Technical Guide* has been developed as part of the NLES to be used to assess the air quality impact from new development and help quantify the level of mitigation required to make developments sustainable. We will use this Guide to help shape new developments, for

example by creating electric charging point infrastructure, so that low emission choices are easy to make.

Clean Air Zones (CAZ) and Low Emission Zones (LEZ) are ways in which local authorities can regulate emissions from vehicles in urban centres, by only allowing vehicles into zoned areas which emit a low level of exhaust emissions. Such Zones are considered to be the most effective way of reducing emissions in pollution hotspots. The Highways Air Quality Strategy (Policy 4) states – *‘Where air quality and carbon emissions is a problem and a major concern for local communities, the County Council will consider the introduction of low emission zones to encourage the use of cleaner vehicles, limit access to certain vehicle types or reduce the number of vehicles overall.’* The Government has published a national Clean Air Zone Framework for introducing CAZ. We will work in partnership with the County Council to look at the feasibility of implementing CAZ in Northampton. This study will look at current and predicted pollution hotspots and the interventions that can be implemented to improve vehicle emissions and air quality, including criteria laid down in the national CAZ Framework or alternative standards that may be appropriate through a LEZ. All stakeholders will be consulted as part of our assessments and any potential implementation plans.

Changing behaviour is a key element of delivering a low emission future. The car has become an essential part of everyday life for most people, but increasingly people are interested in alternative travel options and travel planning, with active travel (walking and cycling) – the ultimate low emission vehicle – being increasingly important. The NLES can be used to compliment the travel planning and active travel strategies across Northampton.



Department for Transport (DfT) figures show that over 100,000 plug-in vehicles were registered in the UK by mid-2017 as people are seeing the benefits of lower running costs and environmental benefits. Plug-in vehicles have zero exhaust emission capabilities and represent a significant opportunity for improving air quality. However, ULEVs still represent a very small percentage of the cars on the roads in Northampton and more work needs to

be done to promote ultra-low emission vehicles as a viable option for more people. We will develop a Northampton Electric Vehicle Plan to promote policies and measures to support plug-in vehicle uptake – not just for cars but for all vehicle types. We will help facilitate the private sector in developing the transport energy infrastructure for the future.

The NLES will also help raise awareness of the impact which emissions, particularly from vehicles, have on air quality on health. It can be a confusing picture, for many years diesel engines have been seen as better for the environment because of their lower CO₂ emissions compared to petrol, but we know that diesel engines emit higher levels of nitrogen dioxide than their petrol equivalents and so contribute more to air quality problems. The NLES will help to educate and inform so that everyone, from key decision makers to individuals considering their next vehicle purchase, will be better informed about the health and environmental consequences of the choice they make.

Finally, as part of *Creating a Low Emission Future*, we will lead by example. Public sector organisations operate a large number of vehicles and employ many people across the region and therefore have the potential to influence the uptake of low emission vehicles, both as part of their business operations and in the wider population. We will carry out fleet reviews to see how low emission vehicles can be incorporated into the vehicle mix, and will promote the uptake of low emission vehicles for employees. Public authorities can influence others through the commissioning of services and the procurement of goods and services so consideration will be given to how this influence can be used to encourage providers to reduce their emissions.

Theme 3 – ***Northampton Vehicle Emission Framework*** considers each of the main vehicle sectors which contribute to local air pollution problems. The emphasis is on reducing overall emissions by moving to cleaner fuels and technologies, such as electric, hybrid-electric, natural gas & bio-methane and hydrogen, and also reducing emissions from conventional diesel and petrol driven vehicles. There are many factors to be taken into account when choosing a new vehicle, whether this be an individual, bus company, taxi driver or fleet manager. Decisions are heavily influenced by previous purchase choices and initial purchase price. Because alternative fuels and technologies are still emerging onto the market there is uncertainty about choosing something different. The LES illustrates the potential for an increasing number of low and ultra low emission vehicle alternatives to save money. Further work is required to better understand the barriers to ULEV uptake and we will work with individuals and organisations to make low emission vehicles a viable and affordable alternative. The following vehicle sectors are considered in the NLES:

- **Private Cars** – Diesel car sales have risen three-fold in the last decade, and now exceed petrol car sales, with low emission alternatives continuing to represent less than 1% of privately owned vehicles on the roads of Northampton. As engine technology improves and new cars come onto the market, emissions will reduce, but this will take a long time and therefore the LES will promote the accelerated uptake of ultra-low emission fuels and technologies.

- **Buses** – as a public transport option, buses are part of the solution, but, because they are mainly diesel powered, they also contribute to the air pollution problem; particularly in our urban centre and arterial routes where air quality is poorest. Bus companies typically operate buses for a long time and older buses produce higher emissions than modern equivalents. The NLES will encourage and support bus operators to accelerate bus replacement programmes; operate newer, cleaner buses in urban areas; fit NOx and particulate abatement technology on buses; and consider low emission alternatives as part of a low emission pathway to 2025.
- **Commercial Vehicles and Freight** – Northampton has one of the busiest strategic motorway networks in the UK and is a hub for major logistics and distribution companies. Consequently the number of Heavy Goods Vehicles (HGVs) on the road network contributes significantly to overall air pollution. Recent years have also seen an increase in the number of light goods vehicles (LGVs), which may be attributed to an increase in internet sales, home deliveries and growth in the independent service sector and trades. The commercial sector can be difficult to influence, but they understand the need to reduce their carbon footprint and improve green credentials. The NLES will aim to support the commercial sector to reduce emissions from fleet operations, for example by assisting companies to understand whole-life costs of vehicles and support alternative, low emission fuels such as electricity, natural and bio-methane gas, liquefied natural gas (LNG) and, potentially in the future, Hydrogen.
- **Taxis and Private Hire Vehicles** – over 850 Hackney Carriage taxis and private hire vehicles operate in Northampton and most are diesel cars, however, the Toyota petrol hybrid is the most popular private hire vehicle. The majority of journeys are short journeys in town and city centres and therefore contribute to overall air pollution. However, as well as being a contributor to the pollution problem, taxis and private hire can be part of the solution, by show-casing the potential for low-emission vehicles and “normalising” their use to the thousands of passengers they carry each year. The NLES will encourage and support taxi and private hire operators to switch to low emission alternatives and consider what policy incentives will support taxi and private hire operators to make the change.
- **Public Sector Fleet** – public sector organisations operate many cars, vans and heavy goods vehicles, such as refuse disposal and highway maintenance vehicles. Public sector employees also use their own cars, the “grey fleet”, for business journeys. The NLES will seek to increase the number of low emission vehicles in both the direct fleet and grey fleet in public sector organisations. We will use whole life costing of vehicles to balance potentially higher purchase costs, but lower running costs of low emission vehicles compared to traditional fuel types. Policy incentives will also be considered to incentivise uptake of privately owned low emission vehicles that form part of the grey fleet.

A detailed **Delivery and Communications Plan** will accompany this Strategy.

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Vision, Aims and Objectives

Vision

- A vibrant Northampton where clean air creates a healthy environment for people to live, work and invest
- A Borough where air quality meets the Limit Values as set out in EC Directive 2008/50EC by 2021

Aims

- Improve air quality and health outcomes across Northampton by reducing vehicle emissions through the accelerated uptake of cleaner fuels and technologies
- Embed an innovative approach to vehicle emission reduction through integrated policy development and implementation

Objectives
1 General
1a Ensure all relevant Borough and County 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 Northampton
2b Use national and local data to assess the impact on health of Northampton 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 in support of the Northampton Town Transport Strategy
3b Undertake a Clean Air Zone (CAZ) / Low Emission Zone (LEZ) feasibility study
3c Develop air quality and 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
3e Consider whole life costs and alternatives to diesel in NBC vehicle fleet procurements
3f Introduce Clean Air Taxi emission standards and infrastructure to support the take-up of ultra-low emission taxis
4 Northampton Vehicle Emission Framework
4a Look at the feasible implementation of Clean Air Zones (CAZ) / Low Emission Zones (LEZ) including potential emission standards for buses, taxis, lorries and vans, in line with National Air Quality Plans
4b Develop measures to support vehicle emission reduction activity through Clean Air Partnerships and Clean Air Recognition Schemes
4c Provide policies and measures to support the take-up of ultra-low emission vehicles (ULEV) through the development of a Northampton Electric Vehicle Plan
4d Work in partnership with bus and freight operators to reduce emissions
5 Communication and Delivery Plan
5a Produce an integrated communications and delivery plan for measures in the NLES

1 Introduction

1.1 Like many urban areas Northampton experiences elevated levels of air pollution that has a measurable health impact on the residents of the Borough. As industrial emissions have subsided they have been replaced with vehicle related pollution, exacerbated by the position of the Borough in the vicinity of the national strategic road network.

Northampton Borough Council (NBC) has developed a Low Emission Strategy (NLES) as part of its Air Quality Action Plan (AQAP) 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 has been produced with funding support from DEFRA¹ Air Quality Grant Programme. The LES supports and compliments key Borough and County Strategies.

1.2 Levels of nitrogen dioxide (NO₂) have remained stubbornly elevated over the last decade in some measured locations as action to improve air quality has stuttered for several reasons. Firstly, because over-optimistic predictions of future air quality have encouraged the belief that things would get better on their own, as newer vehicles, required to meet more stringent emission standards, enter the fleet. Evidence has shown that many new vehicles emit far more oxides of nitrogen (NO_x, a precursor for NO₂) in real-world driving than in tests by manufacturers.

Secondly, national transport and travel planning guidance has tended to focus on measures to avoid using vehicles and shifting to sustainable transport modes as a key approach to solving air quality problems. The LES acknowledges that we can go further and promotes an *emission reduction progression* that also seeks to improve the emissions of the vehicle fleet, whereby, the LES compliments transport and travel planning. See figure 1.

Thirdly, there has been an increase in focus on reducing carbon emissions with some measures adversely affecting air quality. The Government has encouraged diesel car sales through reduced Vehicle Excise Duty (VED)² with sales increasing from 20% of cars bought to 60% within 15 years³. We now know that even the newest diesel cars can emit significantly more NO_x than petrol cars and in some cases certainly more than the manufacturer's tests claim.

Lastly, while transport and travel planning plays a major role in potentially improving air quality, local authorities can make use of wider policy areas, including land-use planning, procurement practices and licensing standards to support the accelerated take-up and use of low emission vehicles that also have the potential to provide an enhanced platform for inward investment. The LES provides an over-arching framework of vehicle emission reduction activity to be delivered through an integrated policy approach. Figure 2 illustrates

¹ Department for Environment, Food and Rural Affairs

² <https://www.gov.uk/government/publications/vehicle-excise-duty>

³ www.smmmt.co.uk

this approach, highlighting the drivers, policy areas, key stakeholders and potential outcomes of the NLES.

1.3 In 2013, NCC published a Northamptonshire Highways Air Quality Strategy⁴ as a 'daughter document' to the Northamptonshire Transportation Plan (2012)⁵. The aims and the policies of the Strategy are shown below. The NLES seeks to update and build on the vehicle emission improvement policies.

Aim

The aim of this Highways Air Quality Strategy is to reduce the number of transport-related Air Quality Management Areas in Northamptonshire to zero and maintain that position.

Air Quality Policy 1: We will seek to reduce the impact of vehicle emissions and improve air quality in Northamptonshire by encouraging modal shift, by managing congestion on our road network and through effective partnership working.

Air Quality Policy 2: We will aim to reduce the vehicle emissions that have a damaging effect on air quality by increasing the attractiveness of low-polluting alternatives to the private car and encouraging modal shift.

Air Quality Policy 3: We will continue to be part of the Plugged in Places scheme and will work with partners and residents to install charging points at key locations.

Air Quality Policy 4: Where air quality and carbon emissions is a problem and a major concern for local communities, the County Council will consider the introduction of low emission zones to encourage the use of cleaner vehicles, limit access to certain vehicle types or reduce the number of vehicles overall.

Air Quality Policy 5: We will work to reduce vehicle emissions on our urban roads by tackling congestion through network management.

Air Quality Policy 6: We will work with local operators and Government to seek the introduction of buses fuelled by alternative fuel sources in Northamptonshire.

Air Quality Policy 7: We will work more closely with the district and borough councils to improve air quality in the county and reduce the number of Air Quality Management Areas.

Air Quality Policy 8: We will work with our partners and stakeholders to increase the importance that is placed on air quality management when new developments are planned. If a proposed development is expected to have a detrimental effect on air quality at a location then funding should be sought from the developer to mitigate the problem.

⁴ <https://www3.northamptonshire.gov.uk/councilservices/northamptonshire-highways/transport-plans-and-policies/Documents/Northamptonshire%20Highway%20Air%20Quality%20Strategy.pdf>

⁵ <https://www3.northamptonshire.gov.uk/councilservices/northamptonshire-highways/transport-plans-and-policies/Documents/Northamptonshire%20Transportation%20Plan%20-%20Fit%20for%20Purpose.pdf>

1.3 Everyone in Northampton has a role to play in improving air quality, including individuals, businesses, public sector organisations and local and national Government. Northampton Borough Council (NBC), together with Northamptonshire County Council (NCC), recognise that together they can provide the strategic commitment to implement a range of actions, both at a policy level and practical level, to improve air quality for the people of Northampton.

Figure 1 – Emission Reduction Progression



1.4 The NLES has been structured into 3 sections:

- * *Evidence for Change* - which highlights the information gathered by Northampton on air quality and vehicle emissions and the health impacts of air pollution. This section also looks at the legal obligations of local air quality management (LAQM).

- * *Creating a Low Emission Future: Leading by Example* – this section looks at how NBC and NCC can use a variety of policy mechanisms to improve air quality and achieve good growth.

- * *Northampton Vehicle Emission Framework* – detailing specific vehicle measures to both discourage the most polluting vehicles while encouraging the uptake of cleaner vehicle technologies and fuels.

A detailed *delivery plan* will be developed to allocate roles, responsibilities and timescales for implementing key NLES measures. The structure of the NLES is illustrated in figure 3.

1.5 The NLES is one of the first emerging strategies of its kind in the UK and has been developed in parallel with other local authorities. DEFRA's Plans to Improve Air Quality⁶ recognises the approach taken by Slough and others and states, "As a minimum we expect all local authorities with areas currently exceeding the required levels to consider putting in place a Low Emission Strategy. Such a Strategy could be used to set out a range of commitments and actions to tackle pollution as part of a coherent multi-year programme and ensure they identify and exploit the national assistance available."

⁶ <https://www.gov.uk/government/publications/air-quality-in-the-uk-plan-to-reduce-nitrogen-dioxide-emissions>

Figure 2 - Low Emission Strategy Drivers, Policy Areas, Stakeholders & Outcomes

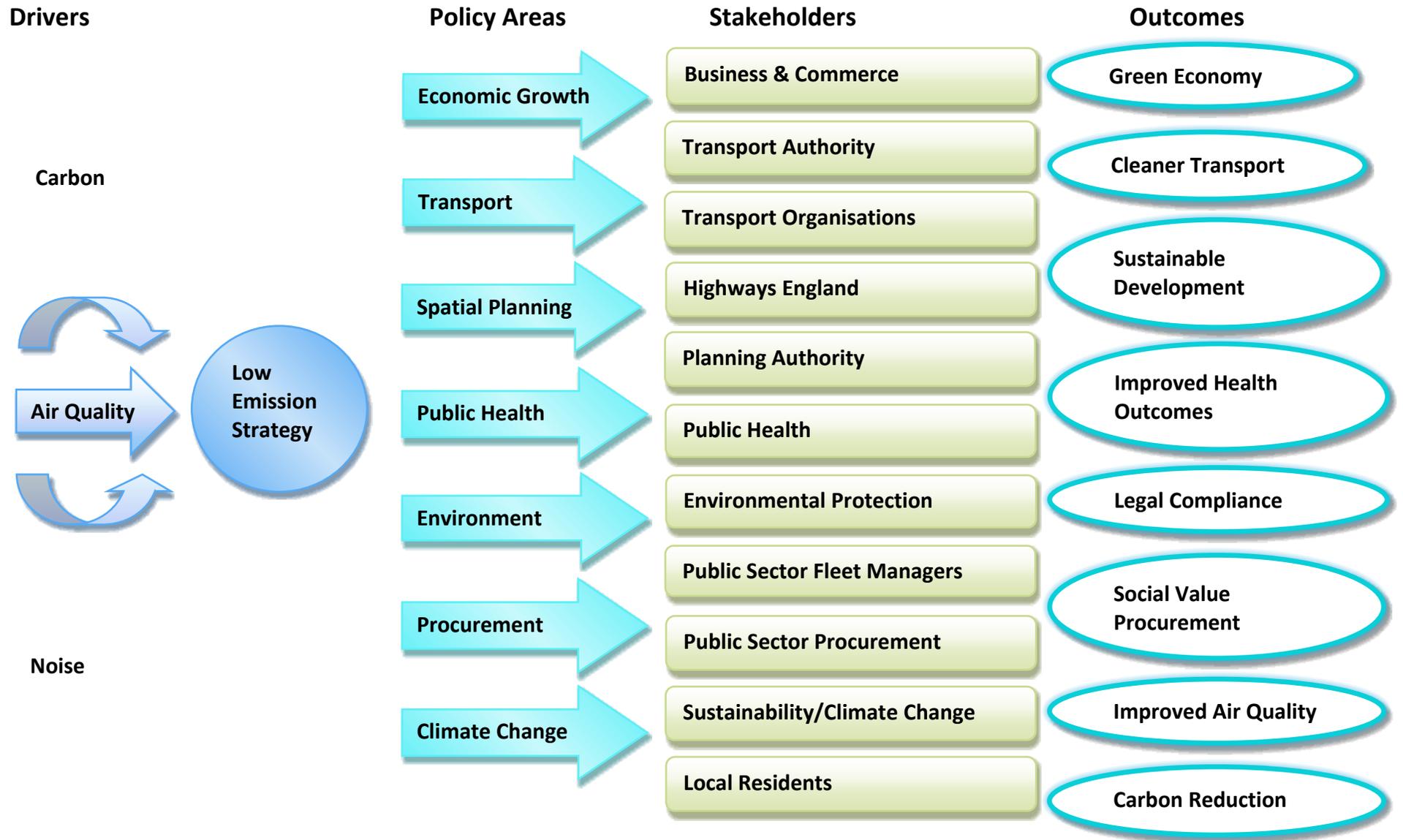
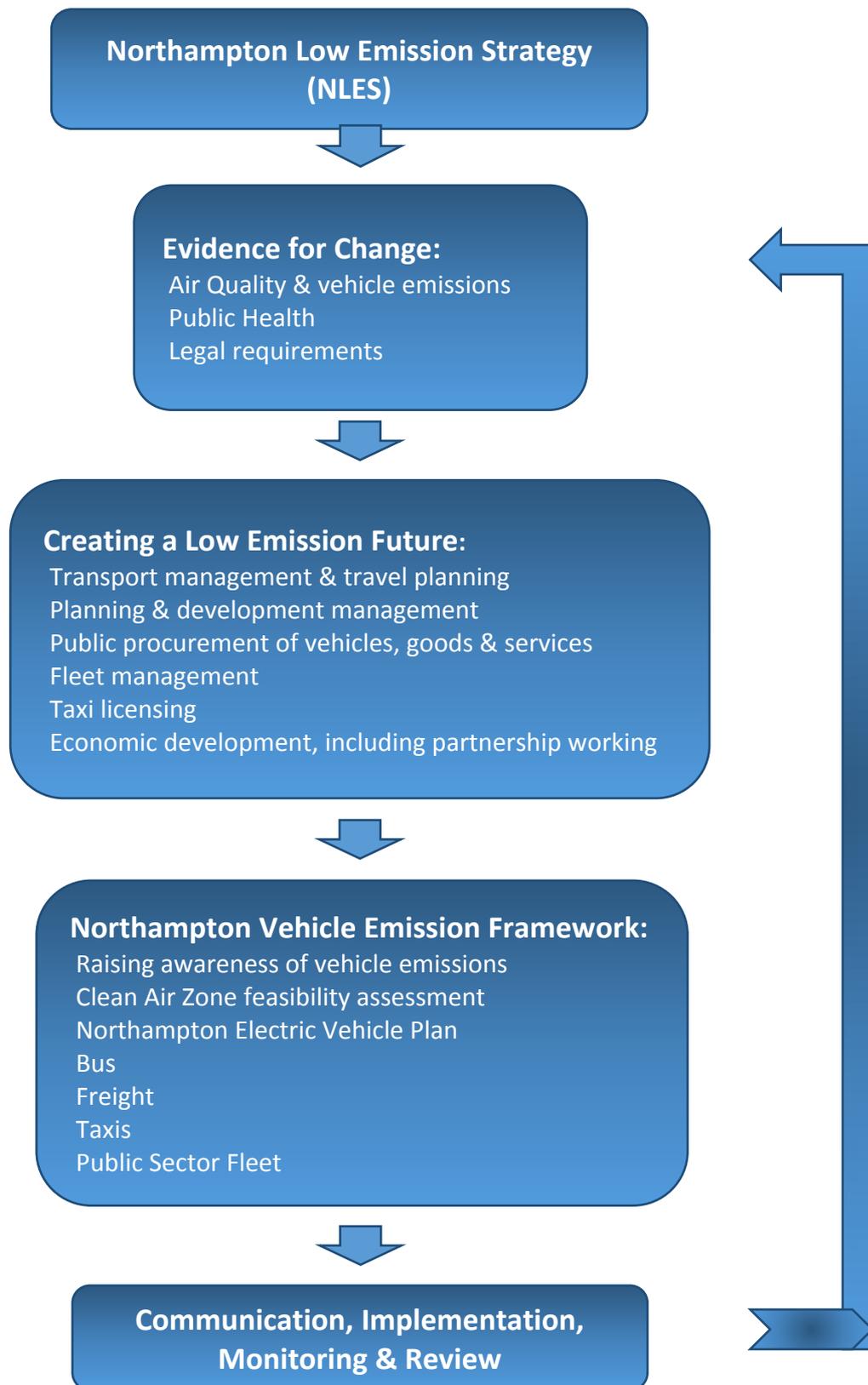


Figure 3 - Low Emission Strategy Structure



2 EVIDENCE FOR CHANGE

2.1 AIR QUALITY AND VEHICLE EMISSIONS

2.1.1 Nitrogen Dioxide (NO₂)

NBC has an extensive air quality monitoring network of automatic monitoring stations (looking at NO₂ and particulate matter) and diffusion tubes (monitoring NO₂). Full details of the monitoring results can be found on the NBC website⁷. Air Quality Management Areas (AQMA) have been designated where levels of NO₂ exceed the Government's Air Quality Objective (AQO), which is equivalent to the European Union (EU) Limit Value⁸, and where there is relevant exposure to the public.

No AQMA has been designated due to particulate matter (PM) levels, however, concentrations in Northampton still have significant impact on health (see section 2.2).

While levels of NO₂ have improved in some areas of the Borough, concentrations at key locations have remained stubbornly elevated over the last decade and at some locations, concentrations have increased, including in the vicinity of the new bus station. NBC has revoked 2 Air Quality Management Areas (AQMA) designations where NO₂ levels have improved and there are currently 7 Air Quality Management Areas (AQMA) where there is relevant exposure, including:

1. [ZONE 1 - The M1 corridor](#) (between Junctions 15 and 16)
2. [ZONE 2 - Victoria Promenade](#) (an area encompassing a number of properties along Bridge Stree, Victoria Promenade and Victoria Gardens)
3. [ZONE 3 - St James](#) (an area encompassing a number of properties along St James Road, Weedon Road, Harlestone Road and adjoining streets)
4. [ZONE 4 - Harborough Road](#) (an area encompassing roads and properties fronting parts of Kingsthorpe Grove, Harborough Road, Cranford Terrace, Alexandra Terrace and Boughton Green Road)
5. [ZONE 5 - A45 London Road](#) (An area encompassing a number of properties overlooking the northbound and southbound carriageways of the A45, extending from Woodland Road to the Queen Eleanor interchange)
6. [ZONE 6 - Campbell Square](#) (An area encompassing a number of properties located at the junction of Grafton Street, Campbell Street, Regent Square and Barrack Road)
7. [ZONE 8 - St Michael's Road](#) (An area encompassing all properties fronting St Michael's Road)

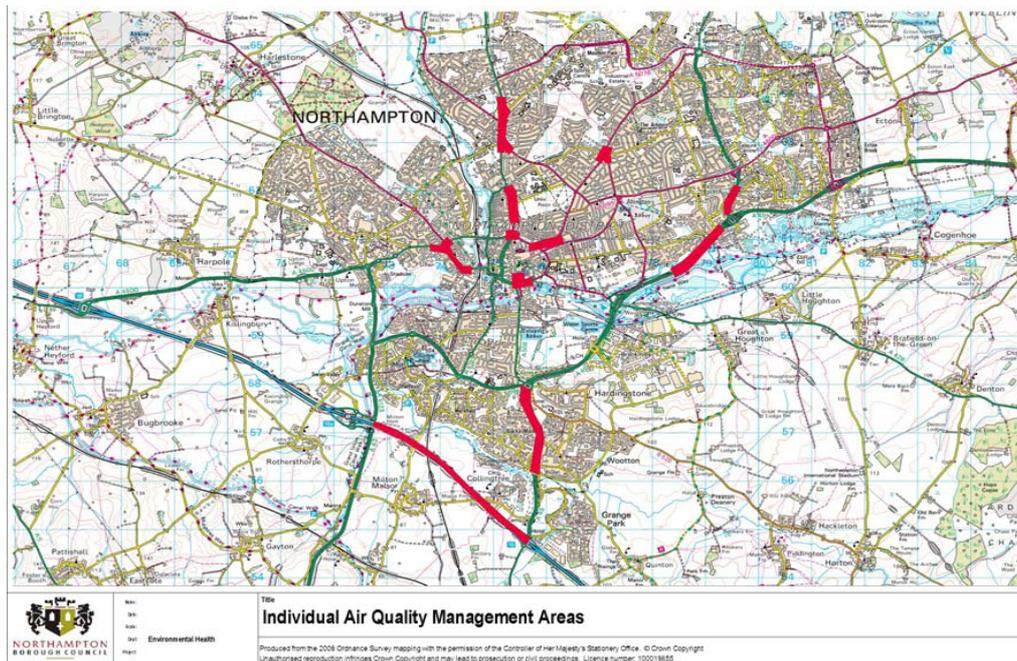
Map 1 shows the locations of the current AQMA. Due to elevated concentrations in the vicinity of the bus station and at other locations that are not within AQMA, NBC are considering the re-designation of all the central AQMA to form one urban AQMA, covering all the main Town Centre roads. The proposed AQMA is shown in map 2.

⁷ <http://www.northampton.gov.uk/info/200075/pollution/1083/air-quality-review>

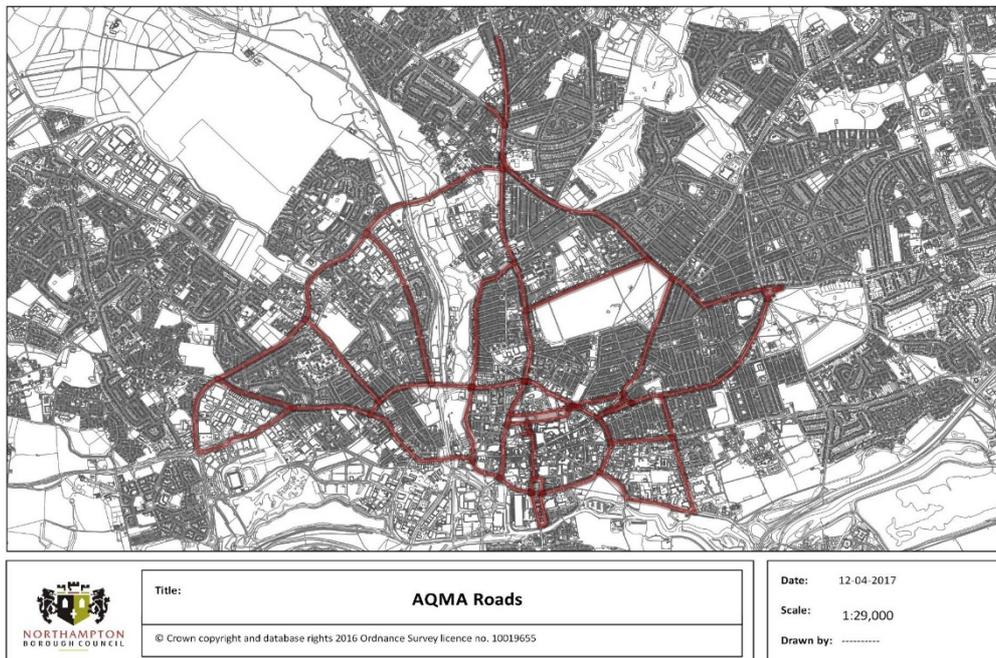
⁸ <https://uk-air.defra.gov.uk/air-pollution/uk-eu-limits>

The predominant cause of elevated levels of NO₂ is road transport emissions. The emissions of Oxides of Nitrogen (NO_x - the pre-cursor for NO₂) from different vehicle types have a varying significance, depending on location. For example, buses are a significant contributor in the inner urban area and on arterial routes, while heavy and light goods vehicles are a significant contributor on trunk roads. Passenger cars, particularly diesel, play a significant role in all areas.

Map 1 – Northampton Air Quality Management Areas (AQMA)



Map 2 – Proposed urban Air Quality Management Area (AQMA) roads in Northampton



2.12 Continuing Assessment of Low Emission Strategy Measures

NBC and NCC will undertake a detailed assessment of current and future air quality to 2025, taking into account predicted traffic growth in the Borough. This modelling will incorporate traffic growth figures for future years that are predicted by the NCC transport models and use the latest vehicle emission factors and local monitoring data to evaluate the following:

- Levels of NO₂ and PM in identified hotspots over the coming years
- Any new, predicted areas of concern
- The impact of measures in the NLES to improve air quality in key locations, including the potential implementation of Clean Air Zones (CAZ) or Low Emission Zones (LEZ)

The outputs from this assessment will be used in the consideration of any additional activity that is required to improve air quality to meet EU Limit Values and improve health.

The outputs will be used by Public Health, as part of the ongoing NLES health impact assessment (HIA) for the Borough, looking at any benefits or disbenefits to health arising from the implementation of key intervention scenarios, such as CAZ or LEZ.

2.2 HEALTH IMPACTS OF AIR POLLUTION

2.21 It is estimated that the health impact of NO₂ in the UK accounts for 23,000 (9,500 – 38,000) premature deaths (see table 1), while the combined impact of NO₂ 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 £27.9bn⁹.

Table 1 – Estimated health impact of NO₂ 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

2.22 The adverse health effects from short and long-term exposure to air pollution range from premature deaths caused by heart and lung disease to worsening of respiratory symptoms (i.e. asthma, chronic obstructive pulmonary disease (COPD, commonly known as chronic bronchitis), which lead to a reduced quality of life and increased health care costs. There is also evidence linking air pollution with a range of cancers (lung and bladder in particular), strokes¹⁰, low birth weight babies¹¹ and subsequent neurodevelopment problems in children^{12,13}. In 2013, the World Health Organisation (WHO) classified diesel exhaust emissions as carcinogenic to humans¹⁴.

2.23 The two main pollutants of concern in urban areas are nitrogen dioxide (NO₂) and particulate matter (PM₁₀, PM_{2.5}). Studies have shown an association between nitrogen dioxide in outdoor air with adverse health effects, including reduced life expectancy, however, it has not been clear if these effects were caused by NO₂ itself or by other pollutants (such as particulate matter) emitted from the same source: for example traffic will produce both NO₂ and PM emissions. The Government has recently stated¹⁵ that NO₂ increases mortality by an average of 4.3% across the UK.

2.24 *Particulate Matter*

⁹ Tackling nitrogen dioxide in our towns and cities, UK overview document, DEFRA, December 2015,

¹⁰ Short term exposure to air pollution and stroke: systematic review and meta-analysis, BMJ March 2015; 350:h1295

¹¹ [http://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(13\)70192-9/abstract](http://www.thelancet.com/journals/lanres/article/PIIS2213-2600(13)70192-9/abstract)

¹² <http://www.ncbi.nlm.nih.gov/pubmed/25229653>

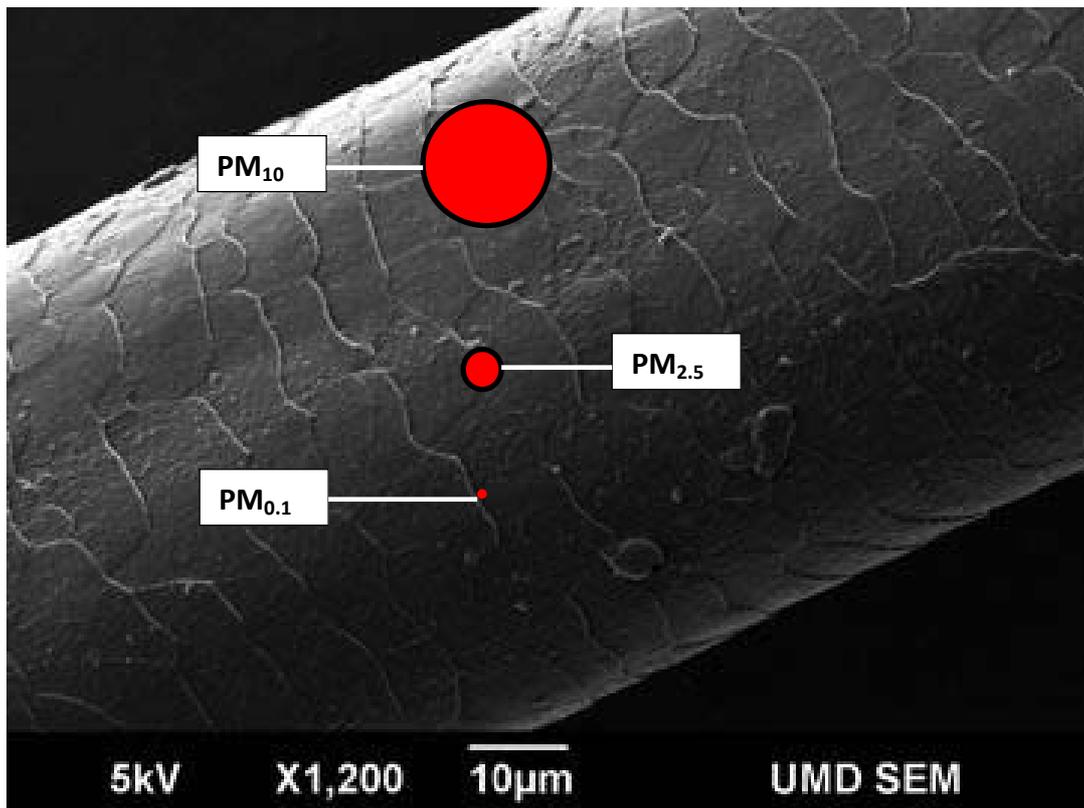
¹³ Association between Traffic-Related Air Pollution in Schools and Cognitive Development in Primary School Children: A Prospective Cohort Study, PLOS Medicine (March 2015)

¹⁴ http://www.iarc.fr/en/media-centre/iarcnews/pdf/pr221_E.pdf

¹⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/460401/air-quality-econanalysis-nitrogen-interim-guidance.pdf

Figure 4 illustrates the size of particulate matter fractions relative to a human hair. The small particle sizes means that that these pollutants can be inhaled deep into the lung tissue and the smallest particles can pass into the bloodstream and be circulated around the body to key organs, including the liver and brain. The Government Committee on the Medical Effects of Air Pollutants (COMEAP)¹⁶ has found a clear causal link between exposure to particulates and adverse impacts on health, with a clear recommendation that reducing the concentration of particulate matter in air will benefit public health.

Figure 4 - Particle size relative to human hair



PM₁₀ – coarse particles (smaller than 10 microns / 0.01mm)
 PM_{2.5} – fine particles (smaller than 2.5 microns / 0.0025mm)
 PM_{0.1} – ultra-fine particles (smaller than 0.1 microns / 0.0001mm)

Public Health England (PHE)¹⁷ use PM_{2.5} as an indicator for mortality attributable to particulate air pollution. The Indicator suggests that in 2010, across Northampton, 6.1% of people aged over 25 will die prematurely each year because of particulate air pollution: equivalent to 102 deaths per year or 1168 associated life years lost. Table 2 shows the estimated fraction of mortality attributable to particulate air pollution for people aged over 25 years in Northamptonshire.

2.25 Premature death is the ultimate health impact associated with air pollution, but poor air quality particularly affects people with pre-existing respiratory and cardiac problems. It

¹⁶ Statement on the Evidence for Differential Health Effects of particulate Matter According to Source or Components, COMEAP (March 2015)

¹⁷ Estimating Local Mortality Burdens Associated with Particulate Air Pollution, Public Health England, 2014

can be seen from Table 3 and 4 that the number of people affected by asthma and COPD in Northampton, respectively, is higher than for England as a whole. These figures give an indication of the levels of ill health and the size of the 'high risk' population that will benefit most from improvements in air quality in the Borough.

Table 2: Estimated fraction of mortality attributable to particulate air pollution in Northamptonshire for people aged over 25 years (2010)⁷.

	Percentage mortality attributable to PM_{2.5}	Attributable Deaths aged 25+	Associated Life-Years lost
England	5.6%	25,002	264,749
Northamptonshire	5.7%	323	3,513
Corby	5.6%	29	330
Daventry	5.5%	33	349
East Northamptonshire	5.5%	42	390
Kettering	5.8%	47	493
Northampton	6.1%	102	1168
South Northamptonshire	5.4%	34	384
Wellingborough	5.9%	36	400

Table 3: Rates of Prevalence for Asthma 2012/13¹⁸

	% Population with Asthma	Number of People with Asthma
Northampton	6.12%	13,800
England	5.9%	3,127,590

Table 4: Mortality rates for COPD Northampton, East Midlands and England 2010¹⁹

	All Cause Mortality (per 100,000)	COPD Mortality (per 100,000)
Northampton	589	29
East Midlands	545	24
England	538	25

¹⁸ Public Health Northampton

¹⁹ NHS Information Centre for Health and Social Care

2.26 The evidence suggests there is a close link between air pollution and areas of high deprivation. Individuals living in areas of high deprivation often live in accommodation close to roads that have high levels of emissions. The Environment Agency estimates that people living in the most deprived areas have over five times the exposure to air pollutants as individuals living in the least deprived areas (Environment Agency, 2003). Individuals in more deprived areas have poorer health in general, so they suffer more adverse health effects than people experiencing the same level of emissions exposure in less deprived areas (British Medical Association, 2012).

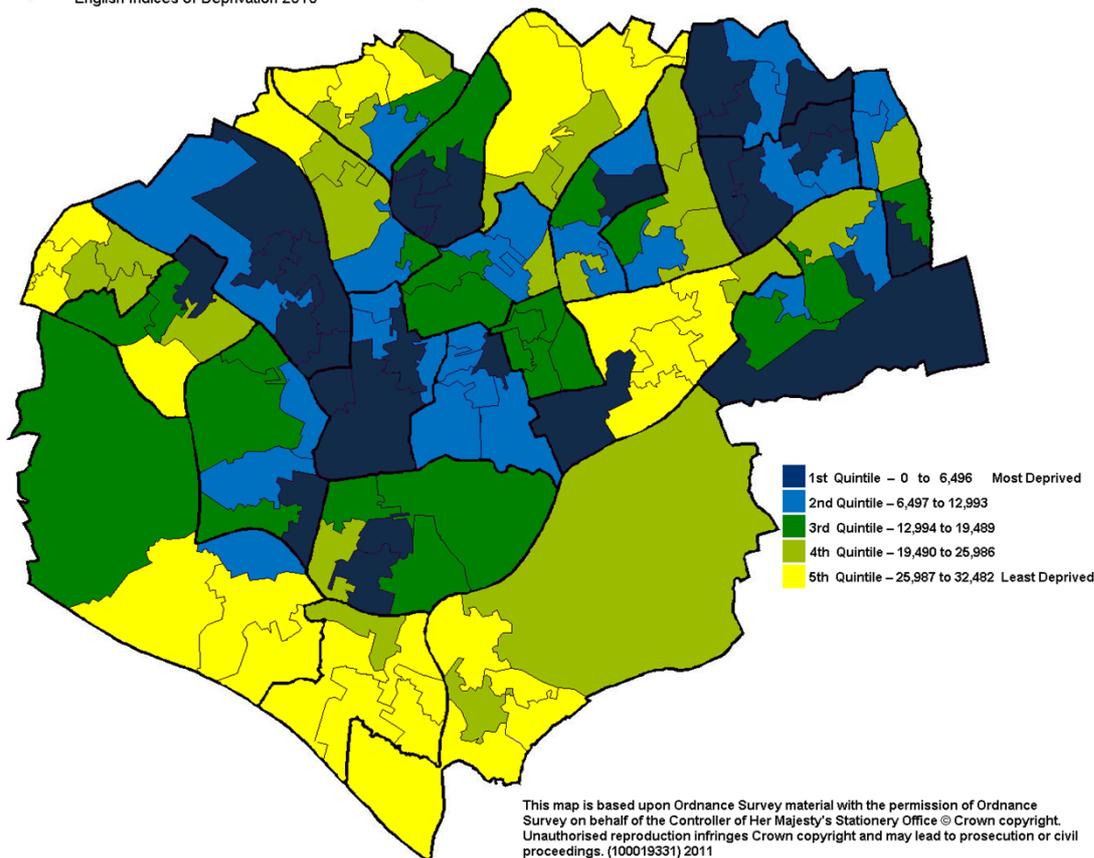
The proportion of children living in high traffic density areas has been found to increase with decreasing median family income for all ethnicities except white (Gunier, 2003). Minority children are about three times more likely to live in high traffic areas compared to white children. Therefore minority children have a higher potential of exposure to vehicle emissions, and this is of particular concern considering the previously discussed vulnerability of children to air pollution and emissions. Map 3 shows the spatial distribution of deprivation in Northampton.

Map 3 – Spatial Distribution of Deprivation in Northampton

Overall Index of Multiple Deprivation 2010

Northampton by LSOA

Source: Department for Communities and Local Government
English Indices of Deprivation 2010



2.27 **Damage Costs**

The mortality and morbidity effects of exposure to poor air quality can be translated into an economic cost to society. A conservative estimate for one type of pollution (particulates) is that it reduces average life expectancy in the UK by around six months, worth £16 billion a year in the UK²⁰. HM Treasury together with DEFRA have developed guidance²¹ on how to quantify the economic impact that policies, plans and projects have on air quality. The guidance uses “damage costs” to quantify the impact of different pollutants from different sectors.

Transport accounts for the most significant economic impact on air quality with an average “cost” of £44,430 and £25,252 per tonne of emissions for particulate matter (PM) and Oxides of Nitrogen (NOx) respectively. This impact is even greater in urban areas, for example in urban conurbations the damage cost associated with transport rises to £107,965 and £61,365 per tonne for PM and NOx respectively.

The concept of damage costs associated with air quality is used later within this Strategy when considering “good growth” and particularly in relation to new developments and the role of the planning system to contribute to the achievement of sustainable development. It is also used in comparing the whole life costs (WLC) of different vehicle technologies.

2.3 **LEGAL COMPLIANCE**

2.31 NBC has a legal duty under the Environment Act 1995²² 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). NBC 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 Northampton.

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 AQO (see table 5). 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 2011²³ 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 NO₂. 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

²⁰ <https://www.gov.uk/guidance/air-quality-economic-analysis>

²¹ [Valuing impacts on air quality: Supplementary Green Book guidance, HM Treasury and DEFRA, May 2013](#)

²² <http://www.legislation.gov.uk/ukpga/1995/25/contents>

²³ <http://www.legislation.gov.uk/ukpga/2011/20/contents/enacted>

with the World Health Organisation (WHO) Air Quality Guideline Values for NO₂, while the WHO recommends lower concentrations for particulate matter than the EU Limit Values (see table 6).

Table 5 - Limit Values & 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	1 st January 2010
PM ₁₀		40µgm ⁻³	1 st January 2005
PM _{2.5}	Stage 1	25µgm ⁻³	1 st January 2015
	Stage 2	20µgm ⁻³	1 st January 2020

Table 6 - 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

3.1 In order to create change it is important that key organisations, including the Borough and County and other public sectors organisations who promote health and environmental improvements, lead by example. Public sector organisations operate fleets of vehicles and are significant employers in the area, generating thousands of business miles each year, and are responsible for spending public money when procuring goods and services. These represent significant opportunities for influencing change, both within the public sector, but also beyond, including employees and the many private and voluntary sector organisations who engage with the public sector on a daily basis.

Additionally, we can influence vehicle emission improvements through our transport plans and strategies, local planning policies and taxi licensing standards.

We are also mindful of the economic opportunities that new technologies can bring. The NLES 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 Northampton at the forefront of creating low emission business opportunities.

3.2 TRANSPORT MANAGEMENT & TRAVEL PLANNING

NBC will:

- **Promote modal shift away from cars to sustainable transport modes, including public transport, walking and cycling**
- **Promote travel planning**
- **Undertake a Clean Air Zone (CAZ) / Low Emission Zone (LEZ) feasibility study in partnership with NCC and in line with the national Clean Air Zone Framework and Northamptonshire Highways Air Quality Strategy**
- **Promote the uptake of ultra-low emission vehicles (ULEV) in line with the Northampton Electric Vehicle Plan**

3.21 NCC published the Northamptonshire Transportation Plan in 2012. As part of the Plan, thematic strategies and town strategies have, or are in the process of being published as 'daughter documents. These include the **Northampton Town Transport Strategy (2013)**^{24a}

²⁴ <https://www3.northamptonshire.gov.uk/councilservices/northamptonshire-highways/transport-plans-and-policies/Documents/Northampton%20Town%20Transport%20Strategy.pdf>

and thematic strategies regarding Air Quality (2013), Smart Travel Choices (2013)²⁵ and a Bus Strategy draft for consultation (2017)²⁶.

The Northampton Town Transport Strategy identifies key transport issues affecting Northampton, including the lack of a completed Outer Ring Road which adds to congestion on the Inner Ring Road. The Strategy outlines key modal shift measures and plans to manage traffic growth and congestion which will have a potential air quality benefit in pollution hotspots near junctions. The Strategy also includes a commitment to improve air quality so that AQMA can be revoked. The NLES seeks to support the Transport Strategy by focussing on measures that are capable of improving the emissions of vehicles on the Borough roads.

3.22 Smart Travel Choices

The Smart Travel Choices Strategy (2013) outlines policies and measures to promote sustainable modal shift through **active travel** choices and **travel planning**. Active travel is an approach to travel and transport that focuses on physical activity (walking and cycling) as opposed to motorised and carbon-dependent means. Active travel is cheap, inclusive and accessible, but is also the ultimate “low emission vehicle”. Choosing to walk or cycle over motorised transport will not only reduce air pollutants, congestion and climate change impacts (20% of car-related CO₂ emissions are from journeys <5km), it will also:

- Improve health and well-being for the individual - Inactivity has a health effect comparable in scale to that of air quality. Eliminating inactivity in the UK would cut mortality rates by 7.5%²⁷.
- Promote a vibrant local economy
- Benefit community cohesion

Figure 5 shows the economic benefits each year of getting just one child to walk or cycle to school²⁸.

Active travel offers excellent opportunities for health improvement for the individual and will go some way to reduce the number of vehicles on the road and therefore emissions. It is also relevant that individuals undertaking active travel can reduce their own exposure to pollutants (exposure is around 5 times higher in a vehicle than on the pavement). This Strategy recognises the importance of active travel, but acknowledges that it is unlikely that enough people will switch from using motorised transport to walking and cycling to make the difference to air quality that is required to protect health and achieve air quality targets. The NLES is supportive of any action which promotes active travel, but, in order to achieve the scale of change necessary to improve air quality, the NLES focus will be on reducing vehicle emissions.

²⁵ <https://www3.northamptonshire.gov.uk/councilservices/northamptonshire-highways/transport-plans-and-policies/Documents/Northamptonshire%20Smarter%20Travel%20Choices%20Strategy.pdf>

²⁶ <https://www3.northamptonshire.gov.uk/councilservices/northamptonshire-highways/transport-plans-and-policies/Documents/Northamptonshire%20Bus%20Strategy.pdf>

²⁷ http://www.panorama.am/en/current_topics/2015/01/15/inactivity-deaths/

²⁸ Kings Fund infographic 2014

Figure 5 – Illustration of the health benefits from walking and cycling



Travel Planning

A Travel Plan is a long-term management strategy for integrating proposals to promote and encourage sustainable travel. Travel Plans are a tool particularly aimed at reducing the need to travel, gaining economic efficiencies, reducing the impact of car travel and encouraging greater use of public transport, cycling and walking.

In addition to general travel planning guidance produced by NCC in partnership with NBC, specific Area Travel Planning (ATP) Strategies have been produced for Brackmills and Telford Way Industrial Estates.

Employers are also encouraged to employ smart working practices to reduce the need for journeys altogether, for example: flexible working, home working and using remote tele/video conferencing facilities.

The current travel planning model focuses on reducing journeys by car, however, the approach can also be used to encourage emission reductions. The NLES will use the existing Travel Planning Networks to engage with key employers, providing access to thousands of employees in the Borough to promote the uptake low emission vehicles when developing travel plans.

Travel planning is also important when new housing and business developments are taking place because people are considering new ways of travel and are more likely to consider alternative travel options. Travel Planning is already a key feature of the development management process and developers are often required to produce travel plans for new developments. The Air Quality and Planning Guidance will add further weight to travel

planning as a tool to off-set and mitigate against the impact of air quality from new developments.

3.23 Clean Air Zones (CAZ) & Low Emission Zones (LEZ)

In July 2017, the Government published its 'UK plan for tackling roadside nitrogen dioxide concentrations'²⁹. 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 UK³⁰. The framework identifies towns and cities where NO₂ concentrations are predicted to exceed the EU Limit Value in 2020 and five cities outside London, comprising Birmingham, Derby, Leeds, Nottingham and Southampton, will be legally required to introduce Clean Air Zones (CAZ) in the shortest possible time and by 2020 at the latest. London will be required to introduce an Ultra-Low Emission Zone in 2019 that will initially cover the Congestion Charging Area and then be expanded to the area bounded by the North and South Circular roads. The framework also identifies over 20 other towns and cities that will also be considered for mandated CAZ.

NO₂ levels in Northampton are significantly elevated in key locations and we believe that the Government's modelling is over optimistic in predicting compliance with the EU Limit Values in Northampton by 2020. For example, the Government model assumes that 73% of all bus km travelled in Northampton in 2020 will be by Euro VI Standard buses. We know that, given the current bus emission profile (see section 4.6), there will only be a few Euro VI buses introduced as part of current investment plans. Therefore, we need to consider robust plans that can effectively reduce vehicle emissions in key locations - setting standards that, at least, mirror the Government modeling assumption. This could be achieved through the implementation of Clean Air Zones (CAZ) or Low Emission Zones (LEZ).

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.

²⁹ <https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017>

³⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/612592/clean-air-zone-framework.pdf



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 Northampton, NBC will assess the feasibility of implementing a CAZ in the Borough, including the consideration of non-charging and charging CAZ requirements. The type of zone envisaged would not include passenger vehicles.

Low Emission Zones (LEZ)

The Government has published a national CAZ Framework, setting fixed emission standards and charging criteria for vehicles within a Zone. As Northampton is not mandated to introduce or consider the feasibility of a CAZ it is possible that a LEZ may be more suitable for Northampton. A LEZ is similar to a CAZ, however, there is more flexibility/discretion as to the emission standards to be set and enforcement criteria to be used which reflect our local needs and circumstances.

NBC, in partnership with NCC, will undertake a feasibility study regarding the potential for implementing either a CAZ or a LEZ in Northampton.

Further information can be found in Section 4 – Northampton Vehicle Emission Framework

3.3 LAND-USE PLANNING & DEVELOPMENT CONTROL

NBC will:

- **Adopt Air Quality and Planning Technical Guidance as part of the NLES**
- **The guidance will provide clarity to developers in considering air quality and new developments**
- **The guidance will promote the consideration of mitigation at the design stage and provide mechanisms for off-setting mitigation on major schemes**
- **Electric vehicle charging specifications will be introduced for new developments**

3.31 Introduction

Sustainability is at the heart of national planning policy, whereby the environmental, social and economic impact of development must be taken into account when making Local Plans and when taking planning decisions. The National Planning Policy Framework (NPPF)³¹ recognises the importance of air quality and sustainable transport when deciding where new development is needed and when determining individual planning applications.

The NLES approach simplifies the consideration of air quality impacts associated with development schemes and focuses on incorporation of mitigation at design stage, countering the cumulative impacts of aggregated developments, providing clarity and certainty to developers and the defining of “sustainability” in air quality terms.

While this guidance is primarily focussed on reducing emissions from road transport vehicles, measures to control other sources, including biomass CHP, are also included.

³¹https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

3.32 National Policy & Practice

National Planning Policy Framework

National planning policy is set by the National Planning Policy Framework (NPPF). The NPPF places a general presumption in favour of sustainable development, stressing the importance of local development plans. One of its 12 Core Planning Principles states that planning should:

“contribute to conserving and enhancing the natural environment and reducing pollution”, by: (paragraph 109) “preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability”.

It goes on to state (paragraphs 120 and 124) that:

“To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account.

Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with local air quality action plans.

(Paragraph 152) Local planning authorities should seek opportunities to achieve each of the economic, social and environmental dimensions of sustainable development, and net gains across all three. Significant adverse impacts on any of these dimensions should be avoided and, wherever possible, alternative options which reduce or eliminate such impacts should be pursued. Where adverse impacts are unavoidable, measures to mitigate the impact should be considered. Where adequate mitigation measures are not possible, compensatory measures may be appropriate.”

National Planning Practice Guidance

National Planning Practice Guidance (NPPG)³² provides advice to planning authorities on implementing the NPPF, including guidance on how air quality can be considered as part of the planning process, stating that, “Local Plans may need to consider:

- the potential cumulative impact of a number of smaller developments on air quality as well as the effect of more substantial developments;
- the impact of point sources of air pollution (pollution that originates from one place); and,

³² <https://www.gov.uk/government/collections/planning-practice-guidance>

- ways in which new development would be appropriate in locations where air quality is or likely to be a concern and not give rise to unacceptable risks from pollution. This could be through, for example, identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or **low emissions strategy** where applicable.

When deciding whether air quality is relevant to a planning application, considerations may include whether the development would:

- Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle (HGV) flows over a period of a year or more.
- Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area;
- Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.
- Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations.”

The NPPG states that where a planning proposal, including mitigation, prevents sustained compliance with EU Limit Values or National Objectives for air quality and cannot be made acceptable then refusal of planning permission should be considered.

3.33 Northampton Local Plan (Part 2)

The Planning and Compulsory Purchase Act 2004, amended by the Localism Act 2011 requires planning authorities to prepare Local Plans. The current Northampton Local Plan was adopted in 1997 and needs updating in order to effectively guide and respond to future development proposals across the Borough, and to reflect more recent Government policy. The new **Northampton Local Plan (Part 2)** will provide detailed development management policies to 2029.

The Council has undertaken an Options stage public consultation to continue to progress the preparation of an updated Northampton Local Plan (Part 2), scheduled to be adopted in Spring 2018. The **Central Area Action Plan (CAAP) 2013** contains development plan policies for the central area. Some of the CAAP policies have now been superseded by recent development and/or changes in legislation, such as recent changes regarding permitted development rights, and therefore need to be updated. It is proposed that the new Local Plan (Part 2) will contain those CAAP policies which remain up to date and any CAAP policies which need updating. Once adopted, the new Northampton Local Plan (Part 2) will supersede the Central Area Action Plan.

Air Quality

While the Local Plan 1997 pre-dates the Local Air Quality Management regime, pollution control policies, including air quality, are found in the **West Northamptonshire Joint Core Strategy (JCS) 2014 (Local Plan, Part 1)**. Pollution control policies concerning air quality will be included in the new Local Plan (Part 2). The JCS states:

Policy BN9 – Planning for Pollution Control

Proposals for new development which are likely to cause pollution or likely to result in exposure to sources of pollution or risks to safety will need to demonstrate that they provide opportunities to minimise and where possible reduce pollution issues that are a barrier to achieving sustainable development and healthy communities, including:

- a) *Maintaining and improving air quality, particularly in poor air quality areas, in accordance with National Air Quality Standards and best practice; ...development that is likely to cause pollution, either individually or cumulatively, will only be permitted if measures can be implemented to minimise pollution to a level which provides a high standard of protection for health and environmental quality*

The Planning Obligations Supplementary Planning Document (SPD) 2013 states:

PO9: Environmental Health and Air Quality

Where the Council identifies that there is a detrimental impact on air quality arising from development proposal, which cannot be mitigated through planning conditions, it will secure obligations to seek the provision of appropriate mitigating and offsetting measures. The obligation(s) will be proportionate to the development proposed and dependent on the types of mitigating measures agreed.....The Council will also require the developer to prepare a Management Plan, outlining how the applicable mitigation measure(s) will be managed and maintained. The developer will be responsible for securing the long term management and maintenance of the mitigation measure(s).

3.34 Development Classification, Assessment and Mitigation

The air quality assessment process follows a three stage process:

1. Determining the classification of the development proposal;
2. Assessing and quantifying the impact on local air quality;
3. Determining the level of a mitigation required by the proposal to make the scheme acceptable.

Stage 1 - Development Type Classification

The classification of developments is shown in figure 6. The assessment and mitigation of development proposals is shown in figure 7.

Figure 6 – Air Quality Classification of Developments

Scheme Type	Minor	Medium	Major
Threshold	Below NBC/NCC threshold criteria for a Transport Assessment ³³	Meets NBC/NCC threshold criteria for a Transport Assessment ³	Medium type developments which also trigger any of the following criteria: i) Where development is within or adjacent ³⁴ to an AQMA or CAZ ii) Where development requires an EIA ³⁵ and air quality is to be considered iii) Where any of the criteria in Table V are triggered
Assessment	None (other than for exposure)	None (other than for exposure)	Air Quality Assessment required including evaluation of changes in vehicle related emissions ³⁶
Mitigation	Type 1	Types 1 and 2	Types 1, 2 and 3

Table 7 – Additional Trigger Criteria for Major Developments

- Proposals in areas where sustained compliance with EU Limit Values is at risk
- Any development proposing a net increase of 100 or more parking spaces
- Any development that could increase the existing traffic flows on roads of > 10,000 AADT* by 5% or more
- Any developments that could increase traffic flows by 5% or more in road canyons with > 5,000 AADT
- Proposals that could introduce or significantly alter congestion (DfT Congestion) and includes the introduction of substantial road infrastructure changes
- Proposals that reduce average speeds by more than 10 km per hour
- Proposals that include additional HGV movements by more than 10% of total trips
- Where significant demolition and construction works are proposed
- Where a centralised combustion unit of thermal input >300kWh is proposed

*AADT = Annual Average Daily Traffic flows

Stage 2 - Air Quality Impact Assessment

MINOR and MEDIUM Classified Proposals

Smaller development proposals may not in themselves create an additional air quality problem but will add to local air pollution and potentially introduce more people likely to be

³³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263054/guidance-transport-assessment.pdf

³⁴ Where development has potential to impact on concentrations in AQMA or CAZ

³⁵ <https://www.gov.uk/guidance/environmental-impact-assessment>

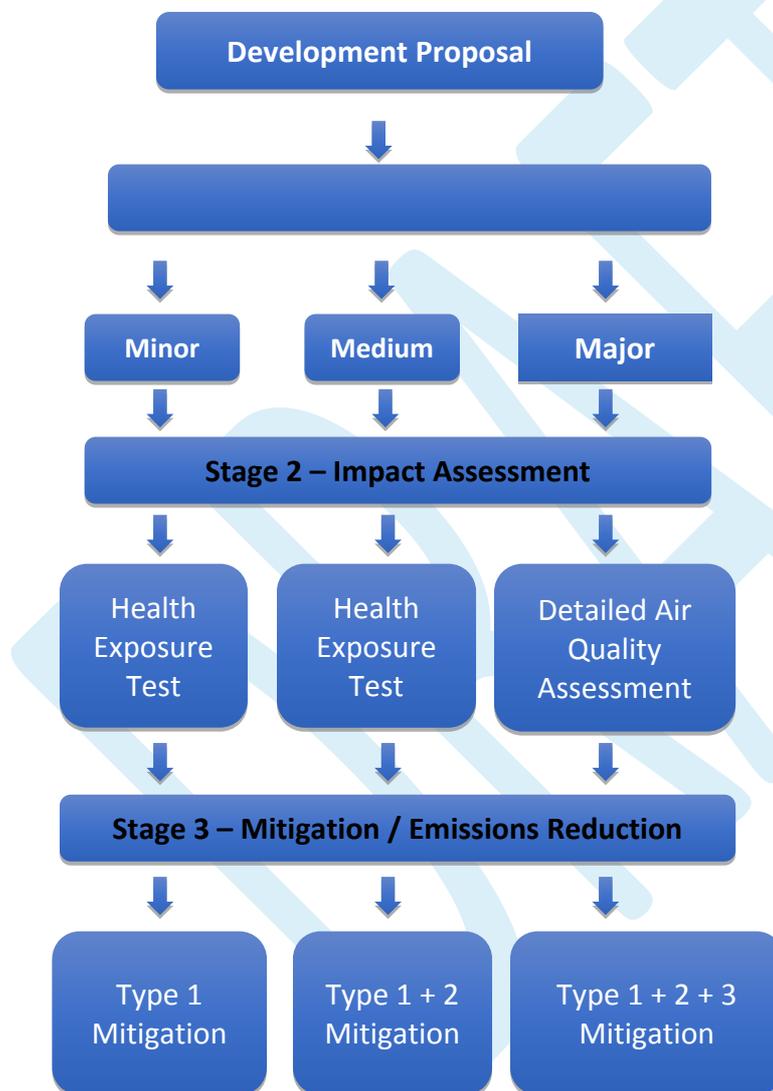
³⁶ Assessment includes monetisation of the impacts arising from emission changes in line with Defra IGCB Damage Costs

exposed to existing levels of poor air quality. An assessment of the likelihood of introducing additional exposure will be determined using the following criteria:

- The proposal is adjacent to or within an AQMA;
- The proposal is in a location 30m from roads at or above the relevant national objective highlighted on the DEFRA GIS modelled maps - <http://uk-air.defra.gov.uk/data/gis-mapping> (or within 100m of the motorway network)
- The proposal is one of the Land Use types:
 - C1 to C3;
 - C4 (Homes of Multiple Occupation);
 - D1
- The above land use type is within 30m of a road with >10,000 AADT³⁷

The outcome of the exposure assessment will determine the level of mitigation required make the development acceptable. Should there be no acceptable mitigation the recommendation may be to consider refusing the proposal on air quality grounds.

Figure 7 – Classification, Assessment & Mitigation of New Developments



Type 1 Mitigation:

- Design, layout and distance to reduce exposure
- Plug-in vehicle charge points where

Type 2 Mitigation:

On-site and off-set mitigation

- Monitored Travel Plan

Type 3 Mitigation (Off-set):

- Support for -
- Implementation & operation of CAZ and ULEV Hub & Corridor roll-out

MAJOR Classified Proposals

The scale and nature of this type of proposal is such that a detailed air quality assessment will be required to determine the impact on public health and the local environment. The assessment requires:

- i) The identification of the level of exposure through the change in pollutant concentrations including cumulative impacts arising from the proposal, during both demolition/construction operations and operational phases. Mitigation measures should be identified and modelled where practicable
- ii) The calculation of pollutant emissions costs from the development

Protocol for an Air Quality Assessment and advice on the calculation of emission damage costs can be obtained from NBC, Environmental Health Department.

* The methodology to be used for the determination of pollutant concentration change should meet the requirements of the Department for the Environment, Food and Rural Affairs (DEFRA) Technical Guidance Note LAQM TG. (16)³⁸

* The pollutant emissions costs calculation will identify the health and environmental damage costs associated with the proposal and will assist the Council in assessing the overall impacts on air quality arising from major developments. NBC **may** use the damage costs in considering the appropriate scale and kind of mitigation that is required to make certain major schemes acceptable in terms of air quality. The calculation utilises the most recent DEFRA Emissions Factor Toolkit³⁹ to estimate the additional pollutant emissions from a proposed development and the latest DEFRA IGCB Air Quality Damage Costs for the specific pollutant of interest, to calculate the resultant damage cost⁴⁰. The calculation process includes:

- Identifying the additional trip rates generated by the proposal (from the Transport Assessment);
- The emissions calculated for the pollutants of concern (NO_x and PM₁₀) [from the Emissions Factor Toolkit];
- The air quality damage costs calculation for the specific pollutant emissions (from DEFRA IGCB);
- The result is totalled for a five-year period to enable mitigation implementation.

The calculation is summarised below:

$$\text{Road Transport Emission Increase} = \Sigma[\text{Estimated trip rate for 5 years} \times \text{Emission rate per 10 km per vehicle type} \times \text{Damage Costs}]$$

³⁸ <https://laqm.defra.gov.uk/technical-guidance/>

³⁹ <https://laqm.defra.gov.uk/documents/EFTv7.0-user-guide-v1.pdf>

⁴⁰ <https://www.gov.uk/guidance/air-quality-economic-analysis>

Stage 3 - Mitigation

Where mitigation is not integrated into a proposal, we will require this through planning conditions. The NPPF (paragraph 152) states that “where adequate mitigation measures are not possible, compensatory measures may be appropriate”. If on-site mitigation is not feasible to make the site acceptable then we will seek compensation for the identified air quality impacts through a section 106 agreement in scale and kind to the impact on emission changes. Where there is no increase in the trip rate there are no damage costs.

Default mitigation measures are presented for each type of proposal that demonstrate a minimum requirement. This is not an exhaustive list and will be adapted for particular locations and needs identified by the Council and the scale of damage costs for major schemes. We welcome the opportunity to work with developers to devise innovative measures that will lead to improving local air quality. Type 1 mitigation is listed in table 8 and Types 2 and 3 are listed in tables 9 and 10 respectively.

Due to elevated concentrations of particulate matter in Northampton, MEDIUM and MAJOR developments will be required to implement suitable abatement controls for the use of non-road mobile machinery (NRMM) – see table 11.

Type 1 Mitigation

Table 8 – Type 1 Mitigation

Plug-in Vehicle Re-Charging:

Residential:

1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking) and ensure appropriate cabling is provided to enable increase in future provision

Commercial/Retail:

10% of parking spaces (32 amp) which may be phased with 5% initial provision and the remainder at an agreed trigger level. At least 1 charging unit should be provided for every 10 disabled parking spaces. Where 50 parking spaces or more are provided then 1 rapid charging unit (43kW/50kW) per 50 spaces shall also be considered and parking time limited to a maximum of 1 hour.

Industrial:

10% of parking spaces which may be phased with 5% initial provision and the remainder at an agreed trigger level. At least 1 charging unit should be provided for every 10 disabled parking spaces. Where 50 parking spaces or more are provided then 1 rapid charging unit (43kW/50kW) per 50 spaces shall also be considered and parking time limited to a maximum of 1 hour.

All charging unit shall be installed where practical.

Code of Construction Practice

Construction Environmental Management Plan (CEMP) to be incorporated into MEDIUM and MAJOR developments and agreed with Council Officers. This shall include NRMM controls (see table A)

Green Infrastructure

Where it can be shown that such infrastructure will reduce exposure from air pollution

Heating

All gas-fired boilers to meet a minimum standard of <40 mgNO_x/kWh

All gas-fired CHP plant to meet minimum emission standards of:

Spark ignition engine 250 mgNO_x/Nm³

Compression ignition engine 400 mgNO_x/Nm³

Type 2 Mitigation

Measures to be considered where appropriate

Table 9 – Type 2 Mitigation

- Monitored Travel Plan
- Measures to support public transport infrastructure and promote use
- Measures to support cycling and walking infrastructure
- Measures to support the Northampton Electric Vehicle Plan
- Measures to support car clubs and integrate with electric car clubs
- Non-road mobile machinery (NRMM) controls (see table A)
- Construction Environmental Management Plan (CEMP)

Commercial development specific:

- Use reasonable endeavors to use/require vehicle use complying with the latest European Emission Standard
- Provide a fleet emission reduction strategy, including low emission fuels and technologies, including ultra-low emission service vehicles

Type 3 Mitigation**Table 10 – Type 3 Mitigation****Off-set mitigation to support:**

- Implementation and operation of Clean Air Zones (CAZ) or Low Emission Zone
- Development of Ultra-Low Emission Hubs and Corridors
- Northampton Electric Vehicle Plan
- Cycling Hubs
- Plugged-in development and demonstration schemes
- Infrastructure for low emission, alternative fuels eg. refuse collection services etc

Further information on the suitability of mitigation for developments can be obtained from the Council's Environmental Health Department and through pre-application discussions.

Table 11 – Non-Road Mobile Machinery (NRMM) Controls

NRMM of net power between 37kW and 560kW will be required to meet the standards based upon the engine emissions standards in EU Directive 97/68/EC and its subsequent amendments. This will apply to both variable and constant speed engines for both NO_x and PM. These standards are:

(a) NRMM used on the site of any MEDIUM classified development in or adjacent to the urban AQMA will be required to meet Stage IIIA of the Directive as a minimum.

(b) NRMM used on any MAJOR classified development in the urban area will be required to meet Stage IIIB of the Directive as a minimum.

From 1 September 2020 the following changes will apply:

- (a) NRMM used on any construction or demolition site within the Northampton urban area will be required to meet Stage IIIB of the Directive as a minimum.
- (b) NRMM used on any MEDIUM or MAJOR classified development will be required to meet Stage IV of the Directive as a minimum.

The requirements may be met using the following techniques;

(a) Reorganisation of NRMM fleet (b) Replacing equipment (with new or second hand equipment which meets the policy) (c) Retrofit abatement technologies (d) Re-engineing.

All eligible NRMM should meet the standards above unless it can be demonstrated that the machinery is not available or that a comprehensive retrofit to meet both PM and NO_x emission standards is not feasible.

9.5 Non- Transport Related Emissions from Developments

While road transport vehicle emissions are a significant cause of elevated pollution levels in the Borough and the primary focus of this guidance, there is concern that the increased use of biomass, for heating and power, and the use of diesel generators for electricity has the potential to hinder the Council's efforts to improve air quality.

It is considered that the un-mitigated combustion of biomass and use of large-scale diesel generators is not appropriate within the Northampton urban area. Developments including the following will be subject to a full air quality assessment and planning approval resisted where there is a detrimental impact on air quality:

- Use of biomass for heating or power
- Use of diesel generators for power
- Part A and B Processes prescribed under the Environmental Protection Act 1990
- Any other point source requiring an Environmental Impact Assessment (EIA)

3.4 PUBLIC SECTOR PROCUREMENT

NBC will:

- **Require the consideration of vehicle emissions as part of Social Value procurement processes where relevant**
- **Set emission standards for all major contracts eg maintenance etc, 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.**
- **NBC will require the latest European Emission Standards as part of any fleet contracts**
- **NBC will comply with best practice laid down by the Government Buying Standards for Transport**
- **NBC will encourage staff to avoid 'business miles' and improve their vehicle emissions where required to travel for work**

3.41 Local Authority Spending

The purchasing power of the public sector is significant across Northampton and the County, which is an opportunity to influence the providers of goods and services to ensure the vehicles used by the providers emit the lowest possible emissions

Public sector organisations must follow strict procurement rules, but included within those rules is a duty⁴¹ to consider "social value" as part of the procurement process. This means that when procuring goods and services authorities must take into account social and environmental considerations and can set criteria when awarding contracts and procuring service how these may be improved. For example this could include incorporating minimum vehicle emission standards when awarding contracts.

It is recommended that the following standards are integrated into tendering and contract award evaluation:

- All contracting of goods and services where vehicles will be required to access the urban area should include provision for meeting the current European Emission Standard.

⁴¹ The Public Services (Social Value) Act 2012

- Additional weight should be given in award criteria to tenders that can demonstrate best practice in minimising vehicle emissions and the use of low and ultra-low emission vehicles. See table 12.

Table 12 – Emission Reduction Criteria for Tender Evaluation

SCORE	SCORE STANDARDS	
5	Excellent answer	Can evidence vehicle emission reduction activity, considering NOx, NO2, PM & CO2, and, using reasonable endeavours, will use vehicles (including NRMM) that comply with the latest European Emission Standard (Euro Standard) and include at least 25% of vehicles that are classified as low or ultra low emission vehicles to deliver the contract
4	Good answer	Can evidence vehicle emission reduction activity, considering NOx, NO2, PM & CO2, and, using reasonable endeavours, will use vehicles (including NRMM) that comply with the latest Euro Standard and include some vehicles that are classified as low or ultra low emission vehicles to deliver the contract to deliver the contract
3	Acceptable answer	Can evidence vehicle emission reduction activity, considering NOx, NO2, PM & CO2, and, using reasonable endeavours, will use vehicles (including NRMM) that comply with the latest Euro Standard to deliver the contract
2	Poor answer	Can provide a commitment to vehicle emission standards for NOx, NO2, PM & CO2 (including NRMM) but may fall below the current or previous Euro Standard to deliver the contract
1	Very poor answer	Information may be provided but cannot commit to a reasonable vehicle emission standard to deliver the contract
0	No answer given	No information provided

3.42 Local Sourcing

Local sourcing is practised widely by local authorities, whereby local suppliers are encouraged to bid for Council contracts. Such initiatives have the potential to support the local economy while helping reduce overall mileage. Local sourcing offers the potential for lighter goods vehicles to be used in delivery. Helping local suppliers develop emission strategies can provide competitive advantage in procurement decisions.

3.43 Procurement is an essential vehicle enabling the Council to fulfil its responsibility to provide cost effective and efficient services which deliver the Council's priorities. The Council's aim is to promote effective procurement across the whole organisation using innovative, sustainable and modern procurement practices, harnessing a culture of continuous improvement, whilst remaining flexible to a rapidly changing environment and new models of, and partnerships in, the delivery of services.

Recent legislation and guidance encourages the public sector to support the uptake and deployment of low emission vehicles through sustainable procurement decisions. 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*

3.44 Goods and Services Provided to the Public Sector

Social Value

Public sector organisations are required to look at best value, rather than lowest cost, when making procurement decisions. The Public Services (Social Value) Act 2012⁴² 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:

The authority 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.*

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, where the requirements do apply.

Sustainable Award Criteria

Sustainability should be one of the criteria which is considered in all procurement decisions. Vehicle emissions can be considered in award decisions as part of sustainable procurement practices. The extent to which organisations give weight to vehicle emissions will depend on circumstance and cost, however, all general contracts involving road vehicles, such as the delivery of goods to the Council, will include a standard clause relating to vehicle emissions.

There is potential for suppliers to gain a competitive advantage in tendering for public sector contracts through the consideration of the emissions of the vehicles they use.

With respect to the procurement of larger scale contract services (eg highways, repair & maintenance and other major contracts with significant fleet profiles) minimum vehicle emission requirements will be specified.

3.45 Procurement of Public Sector Vehicles

⁴² <http://www.legislation.gov.uk/ukpga/2012/3/enacted>

The **Cleaner Road Transport Vehicles Regulations 2011 (CRTV Regs)** 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.

The Regulations state that any public sector contracting authority, entity or operator when purchasing or leasing road transport vehicles must take into account the operational lifetime energy and environmental impacts, in respect of vehicles purchased or leased, including:

- Energy consumption
- Carbon Dioxide emissions
- Emissions of Oxides of Nitrogen, Hydrocarbons and Particulate Matter
- Noise can also be taken into account

To satisfy the requirements of the Regulations, one of 3 options must be chosen:

1. The technical specification for energy and environmental performance is set out in the documentation for the purchase and leasing of road transport vehicles or services.
2. Energy and environmental performance is included as part of the contract award criteria.
3. A monetised whole life cost assessment, including the damage cost of lifetime emissions, is carried out as part of the tender evaluation.

Therefore, to carry out any vehicle or transport service procurement one of these three options must be included in the procurement process.

3.46 NBC Fleet Vehicles

The NBC Fleet is managed under contract hire through Specialist Fleet Services (SFS) and comprises refuse collection vehicles and around 85 car derived vans. The vans are a minimum Euro 5 Standard. Fleet operation contracts are reviewed regularly and provide an opportunity to specify vehicle emission standards and also assess the potential for introducing ultra low emission vehicles. The next contract renewal will specify that vehicles should meet a minimum of Euro 6/Euro VI Standard.

All NBC vehicle procurement activities comply with best practice under the **Government Buying Standards for Transport**⁴³.

3.47 NBC Employees

NBC is a major employer in the Borough and many of our employees will drive vehicles of their own, in their personal life, but also on business carried out on behalf of the Council – the so-called grey fleet. The NLES will seek to support and incentivise employees to consider low emission and ultra-low emission vehicles in the future. Opportunities to support and incentivise the uptake of low emission vehicles could include:

- Salary Sacrifice and Car Lease schemes for LEVs and ULEVs.

⁴³ <https://www.gov.uk/government/publications/sustainable-procurement-the-gbs-for-transport-vehicles>

- Providing ULEV pool cars so that employees become familiar with “new” technology.
- Providing electric vehicle charge-points in workplaces.

3.6 TAXIS

NBC will:

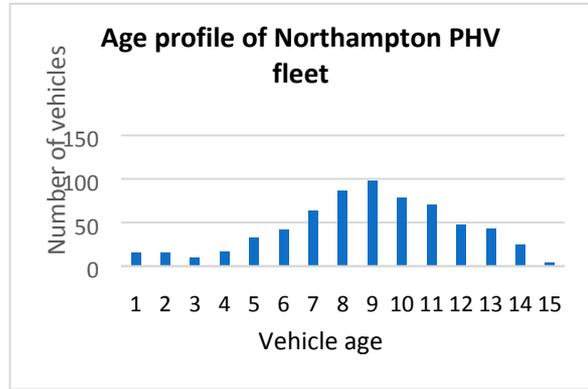
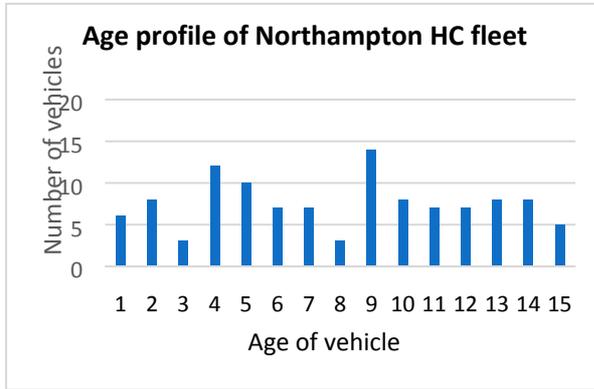
- **Set minimum emission standards for both Hackney Carriages and private hire vehicles (PHV) that comply with CAZ/LEZ requirements and also promotes the use of ultra-low emission vehicles (ULEV)**
- **Install a network of dedicated, rapid charging units to support the growth in ULEV taxi take-up**
- **Develop SMART APPS for taxi drivers to connect with electric charging infrastructure and for customers to connect to ULEV taxis**
- **Promote and support demonstrations of ULEVs with the taxi trade**
- **Promote the use of ULEV taxis for public sector taxi contracts**

3.61 The Government expects local authorities to take a lead and use available powers to reduce vehicle emissions where possible, including controlling emissions from taxis. Taxis operate mainly in the urban area where air pollution is greatest and often leave their engines idling on taxi ranks where members of the public are often exposed.

3.62 NBC will be looking at the feasibility of implementing a Clean Air Zone (CAZ) or Low Emission Zone (LEZ) in the Borough (see section 4) that will seek to restrict access to the most polluting commercial vehicles whilst also seeking to promote an acceleration in the uptake of ultra-low emission vehicles (ULEVs). In line with the National Air Quality Plan, the introduction of a CAZ will also require minimum emission standards for taxis.

3.63 There are 150 licensed Hackney Carriages (HC) and 709 Private Hire Vehicles (PHV) in Northampton. The most used PHV, by far, is the Toyota Prius. The age profile of taxis licensed in Northampton is shown in table 13.

Table 13 – Age profile of HC and PHV taxis licensed in Northampton



NBC will seek to set emission standards for taxis. The proposed minimum emission standard for taxis in Northampton is shown in table 14. These standards will be discussed by the Taxi Licensing Committee in December 2017. The Committee will also discuss incentives that can be introduced to promote the uptake of ULEV taxis.

Table 14 – Proposed emission standard requirements for taxis

Taxi licensing type and compliance dates	Emission standard
All new registrations From: 1st January 2018	ULEV* taxi Euro 6 petrol hybrid (Sept 2014/15) Euro 6 petrol (Sept 2014/15) Euro 5 petrol hybrid (Sept 2009) Euro 5 petrol (Sept 2009) Euro 6 diesel (Sept 2014/15)
All licensing renewals From: 31st December 2020	ULEV taxi Euro 6 petrol hybrid Euro 6 petrol Euro 5 petrol hybrid Euro 5 petrol Euro 6 diesel
All licensing renewals From: 31st December 2025	ULEV Euro 6c petrol/hybrid Euro 6c petrol or equivalent standard (NOx, PM) for other fuelled vehicles (including Euro 6c diesel subject to emissions)
All licensing renewals From: 31st December 2028	ULEV Euro 6c petrol/hybrid or equivalent standard (NOx, PM) for other fuelled vehicles

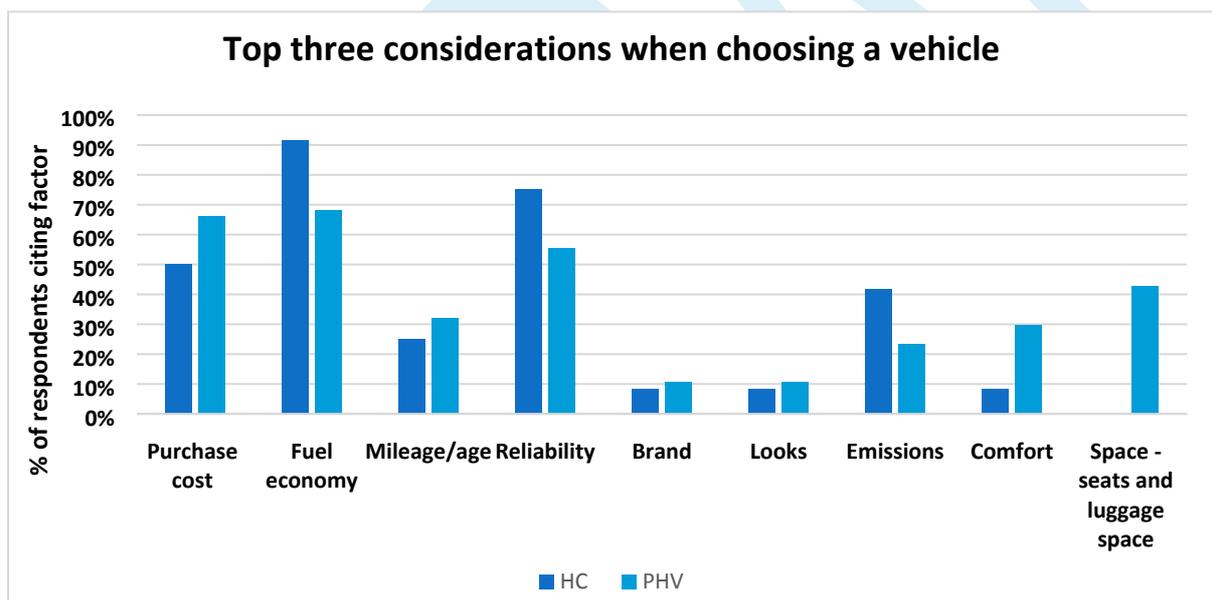
All licensing renewals	ULEV
From: 31st December 2030	
*Less than 75 g/km and at least 10 km zero emissions	
NBC will consider & implement incentives to promote the cleanest technologies	
NBC carried out an Ultra Low Emission Taxi Feasibility Study with potential for infrastructure funding and ULEV taxi plug in vehicle supplement of at least £3k	
Delegated Powers: Licensing Officers discretion to depart from this policy in exceptional circumstances	

3.64 Northampton Ultra-Low Emission Taxi Feasibility Study

In 2016, NBC was one of 15 authorities who undertook an **Ultra-Low Emission Taxi Feasibility Study**⁴⁴, a pre-requisite for Government funding to support the uptake of ultra-low emission taxis. The study showed that there is interest from the taxi trade in using plug-in vehicles and that at around 3p per mile to run, Northampton taxi drivers could achieve significant cost savings by switching from their diesel vehicles. A key issue is the availability of dedicated rapid charging facilities for taxis.

Taxi drivers were surveyed on how they choose their vehicles and how they are operated. Table 15 shows the main considerations for drivers in Northampton when purchasing a taxi.

Table 15 – Driver considerations when purchasing a taxi



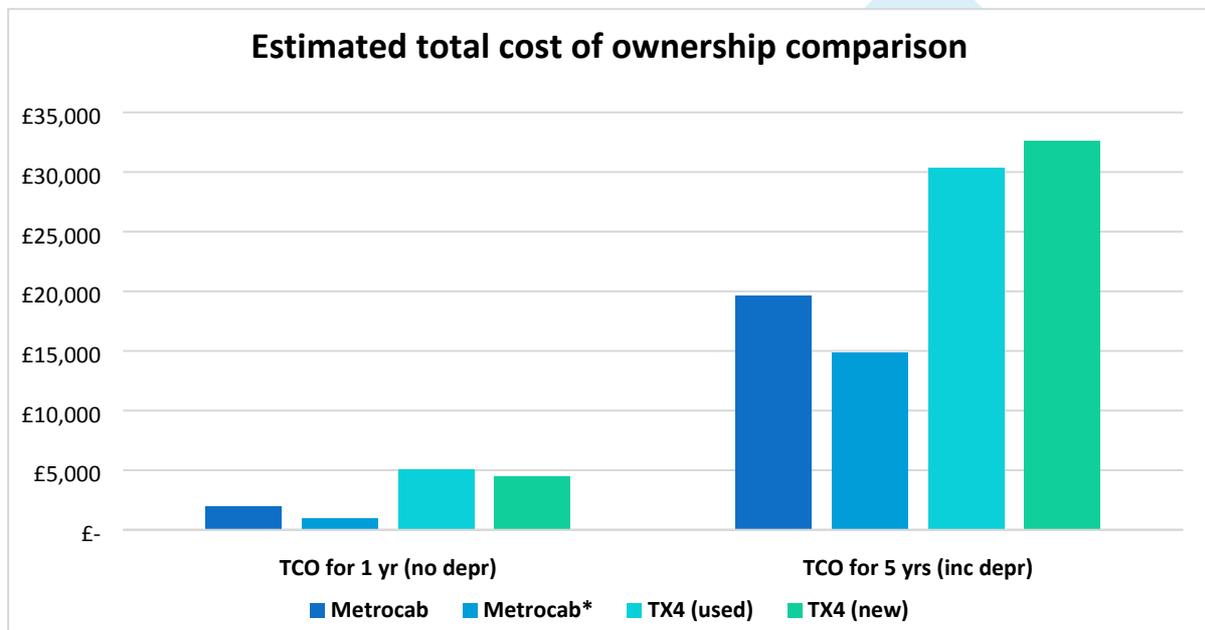
⁴⁴ NBC Ultra Low Emission Taxi Feasibility Study for OLEV (March 2016), LES Ltd/Mint Green Ltd

The study used data supplied by Northampton taxi drivers to compare the current total cost of ownership (TCO) of running a diesel vehicle compared with a plug-in alternative. Table 16 shows that a plug-in, disabled access Hackney could achieve savings of nearly £4,000 per annum, including vehicle depreciation and table 17 shows than an electric PHV could achieve savings of nearly £3,000 per annum compared with a diesel saloon car.

Figure 8 shows examples of disabled access, plug-in taxis entering the market.

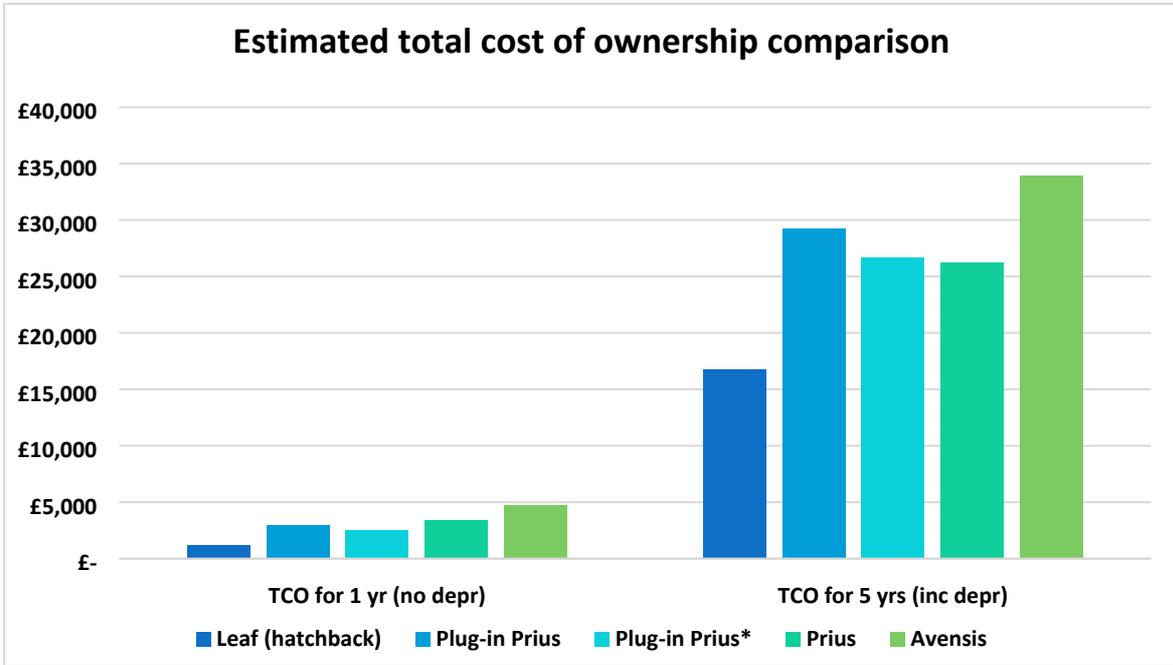
The study looked at the projected emission savings of NOx, Particulate Matter and CO2 that could accrue from switching from diesel taxis to plug-in vehicles. The analysis was broken down by disabled access taxi (black cab) and saloon type taxi (typical PHV) and looked at low, medium and high take-up of plug-in taxis. Tables 18 and 19 show the projected emissions savings of NOx for black cabs and saloon cars respectively. Table 20 shows the projected emission savings of CO2e for private hire vehicles.

Table 16 – Total Cost of Ownership (TCO) of plug-in and diesel Hackney Carriages



The Metrocab is a new, disabled access, range extended electric black cab with a small petrol engine (www.metrocab.com) *denotes use of vehicle in electric mode only. The performance is similar to the new plug-in London Taxi. The TX4 is a typical, disabled access, diesel black cab.

Table 17 – Total Cost of Ownership (TCO) of plug-in and diesel private hire vehicles



*denotes driven in mainly electric mode

Figure 8 – Examples of plug-in, disabled access taxis entering the market

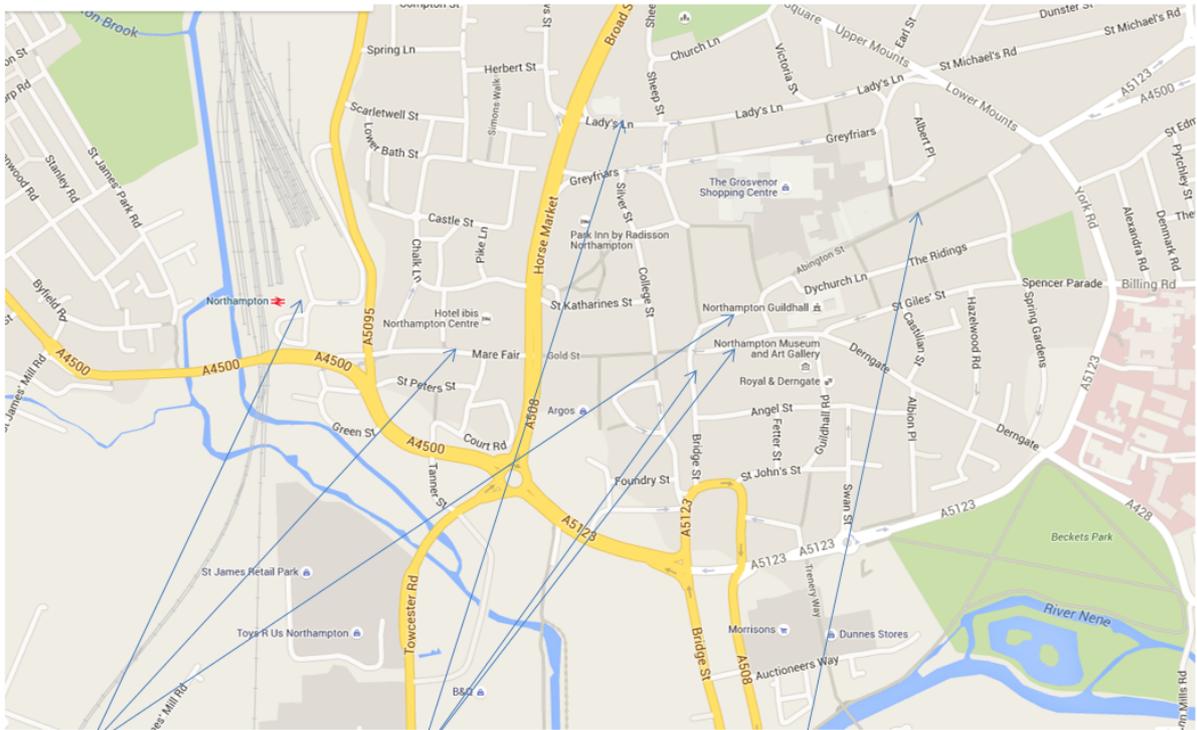


Nissan eNV200 electric taxi



Range extended plug-in London Taxi

Map 4 – Existing and proposed taxi ranks in Northampton



1. Permanent ranks 24hrs

2. Night time ranks (2300 – 0500)

3. Proposed rank (Overview & Scrutiny decision?)

Table 18 – NOx emissions (kg) saved by disabled access taxis based on take-up scenarios of plug-in vehicles

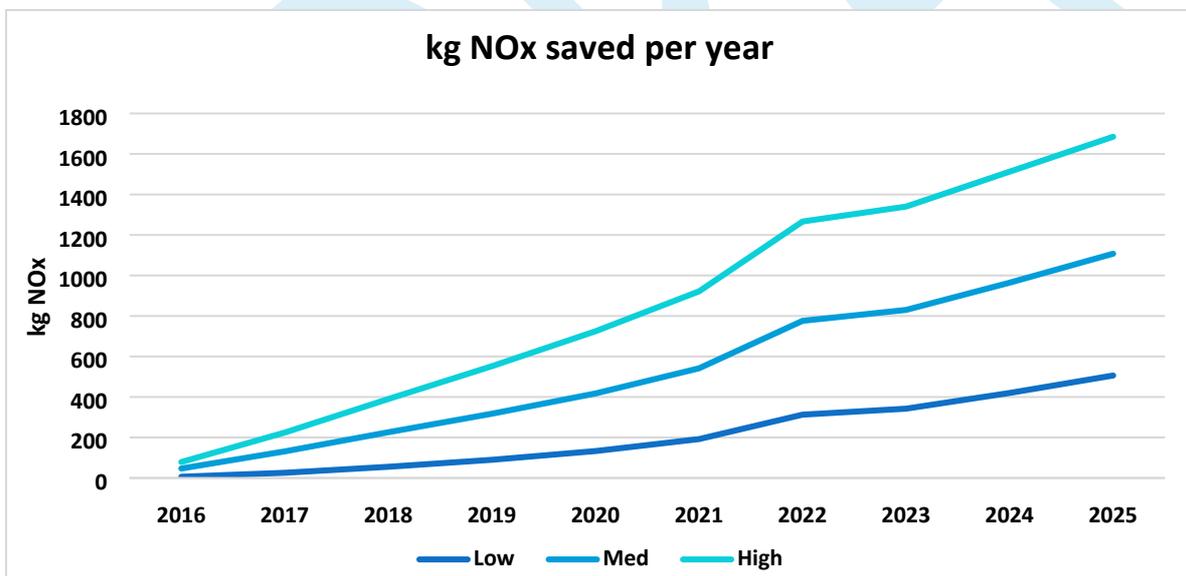


Table 19 – NOx emissions (kg) saved by saloon car taxis based on take-up scenarios of plug-in vehicles

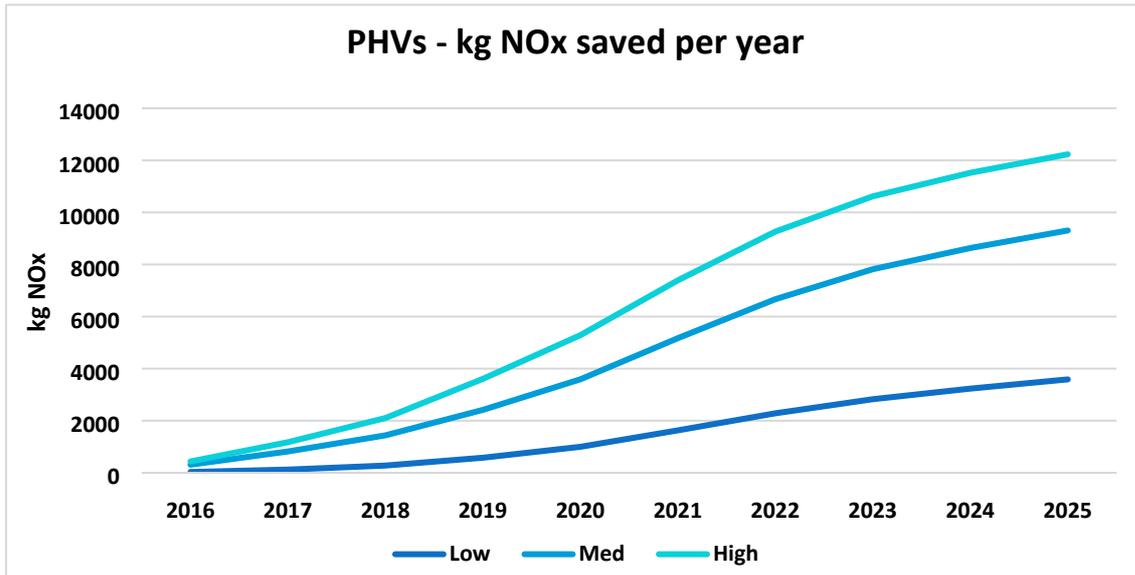
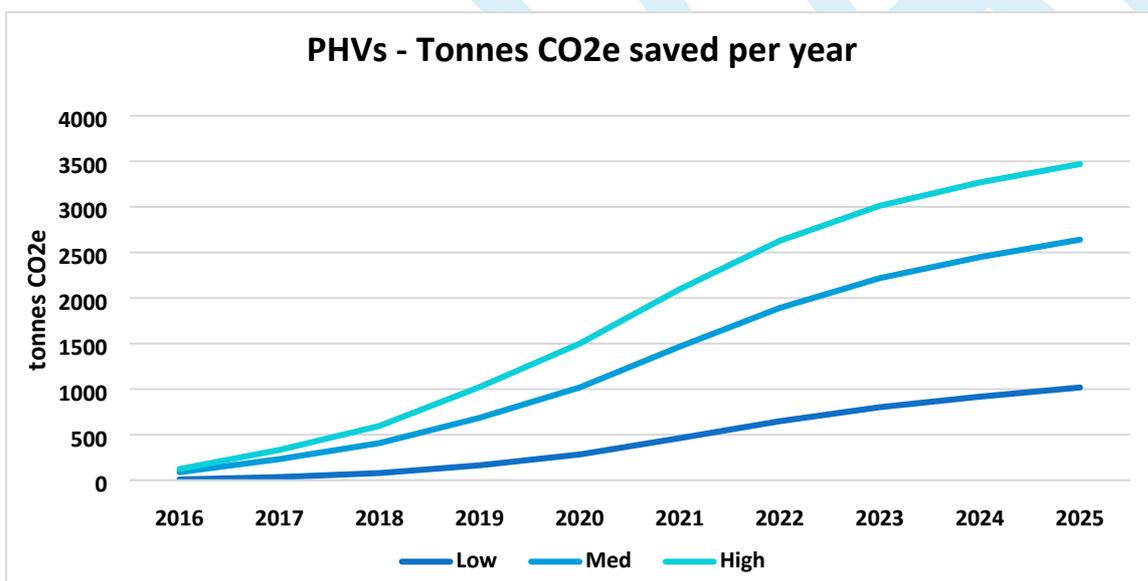


Table 20 – Carbon Dioxide equivalent emissions (tonnes) saved by PHV taxis based on take-up scenarios of plug-in vehicles



3.65 Northampton Ultra-Low Emission Taxi Funding

Following the Ultra-Low Emission Taxi Study, the Office for Low Emission Vehicles (OLEV) released a first round of funding for charging infrastructure for taxis. While NBC were unable to proceed at that stage, we have been informed that a further round of funding will be made available soon. We have also been invited by OLEV to attend the Ultra-Low Emission Taxi Working Group meetings in order to share experience.

Subject to funding, we will look to install dedicated rapid charging facilities for taxis in locations near to either current or proposed ranks (see map 4) and other locations suitable for PHV drivers. We will also look to support ULEV taxi demonstrations to allow the trade to experience using plug-in taxis.

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

- Dedicated ULEV taxi ranks
- Dedicated SMART APP for taxi drivers to book charging facilities
- Discounted charging rates for early adopters

3.66 Public and Private Sector Taxi Contracts and Standards

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

4 NORTHAMPTON VEHICLE EMISSION FRAMEWORK

NBC will:

- **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) or Low Emission Zones (LEZ) in the Borough in consultation with key stakeholders**
- **Develop and implement the Northampton Electric Vehicle Plan**
- **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**
- **Work in partnership with Highways England to reduce the impact of emissions from the M1 motorway**

4.1 This section outlines the **Northampton Vehicle Emission Framework** which will be delivered by NBC and key stakeholders in line with the Northamptonshire Transportation Plan and Daughter Documents. The Framework includes low and ultra-low emission vehicle specific measures that are being developed and implemented in Northampton to accelerate the uptake of cleaner vehicles, including the provision of infrastructure to support growth. The Framework builds on the policy support mechanisms discussed in Section 3 – Creating a Low Emission Future: Leading by Example, including land-use planning, procurement and licensing measures and provides a delivery framework to support the uptake of low and ultra-low vehicles, including the pursuit of funding opportunities and mechanisms for monitoring and review.

What is a low or ultra-low emission vehicle?

We normally associate vehicles that either meet or go beyond the latest European Emission Standard (Euro Standard – see section 4.2) as achieving the low emission vehicle status. However, some vehicle emissions are far higher under real-world driving conditions than in official tests and this needs to be recognised when promoting emission standards. The Government defines a low emission bus as meeting Euro VI⁴⁵ emission standards while reducing CO₂ emissions by 15% compared with Euro V buses. The Government defines light duty vehicles (cars and LGVs) as ultra-low emission if they emit less than 75 g/km of CO₂ and can travel 10km in zero emission mode, irrespective of the Euro Standard.

4.2 European Emission Standards (Euro Standards)

In order for manufactures to sell vehicles within EU Member States they must limit exhaust emissions to a level dictated by the latest Euro Standard, assessed during a standardised test cycle – see table 21. It can be seen that diesel cars emit significantly more NO_x per vehicle than petrol cars. Emissions projections assume the Standards will not be met and there are plans to amend the Euro 6 regulations to use real world testing in the vehicle approval process with the introduction of Euro 6c in 2017 (ICCT 2014⁴⁶). Euro 6 and 5 diesel cars have had compliance issues especially with the NO_x requirements. Figure 9 illustrates the difference between the test cycle emissions of Euro 5 and 6 diesel cars and their respective real world emissions. Further information on how to identify the real-world emissions of cars and vans can be found in section 4.32.

The European Emission Standards for heavy duty vehicles (buses and lorries) are more stringent for Euro VI vehicles compared with previous standards – see table 22. Evidence suggests that Euro VI vehicles are demonstrating significant improvements under real world driving conditions. Figure 10 shows the results of conformity tests carried out⁴⁷ on heavy duty vehicles with different Euro Standards, including buses and trucks. Each dot represents a real world test. The ‘conformity factor’ is the ratio of the result to the standard limit, so a value of

⁴⁵ European Emission Standards use normal numbering for light duty vehicles and Roman numerals for heavy duty vehicles

⁴⁶ <http://www.theicct.org/real-world-exhaust-emissions-modern-diesel-cars>

⁴⁷ “Briefing: Comparison of real-world off-cycle NO_x emissions control in Euro IV, V, and VI”, March 2015, www.theicct.org

'2' means the vehicle was emitting twice the amount of NOx compared with its Euro standard, and any value under '1' would mean it was cleaner than the Euro standard.

Table 21 - European Emissions Standards (passenger cars)

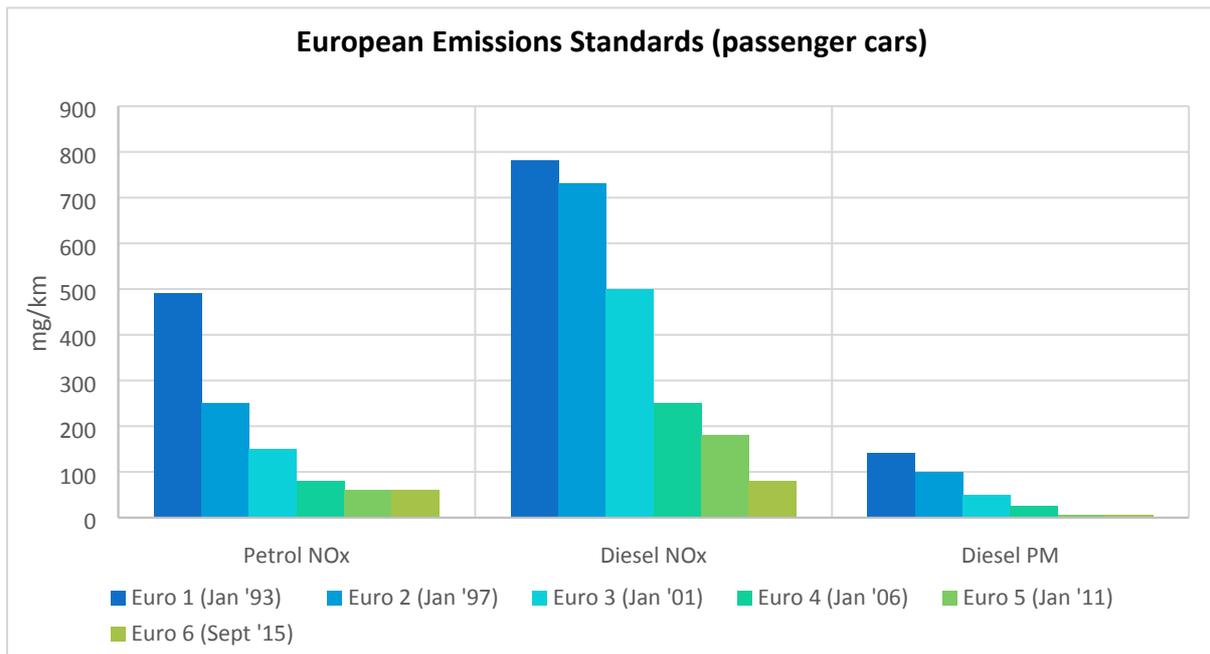


Figure 9 - Real World NOx Emissions from Diesel Cars compared with Regulated Limits

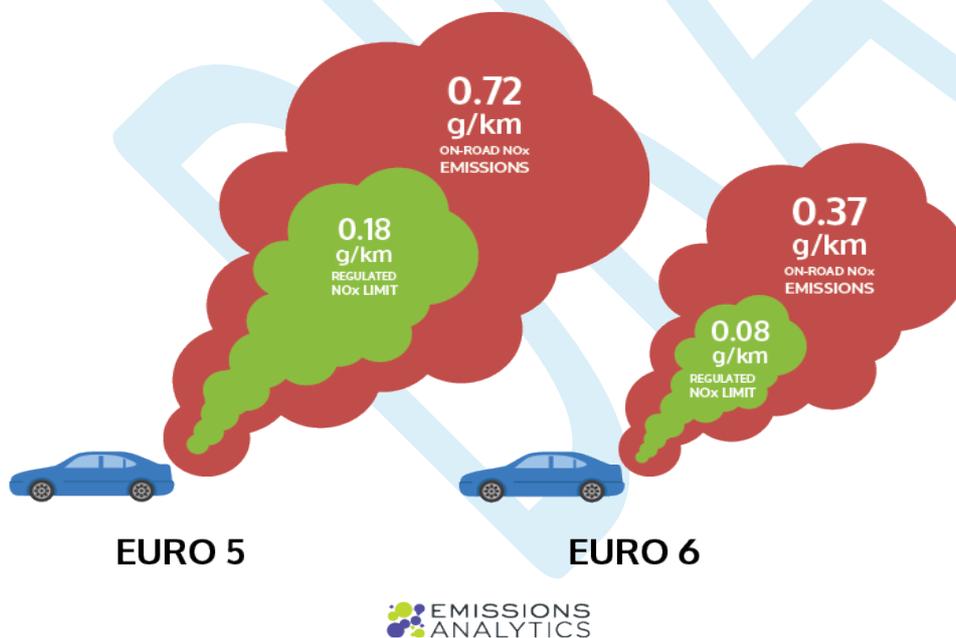


Table 22 – European Emission Standards for Heavy Duty Engines

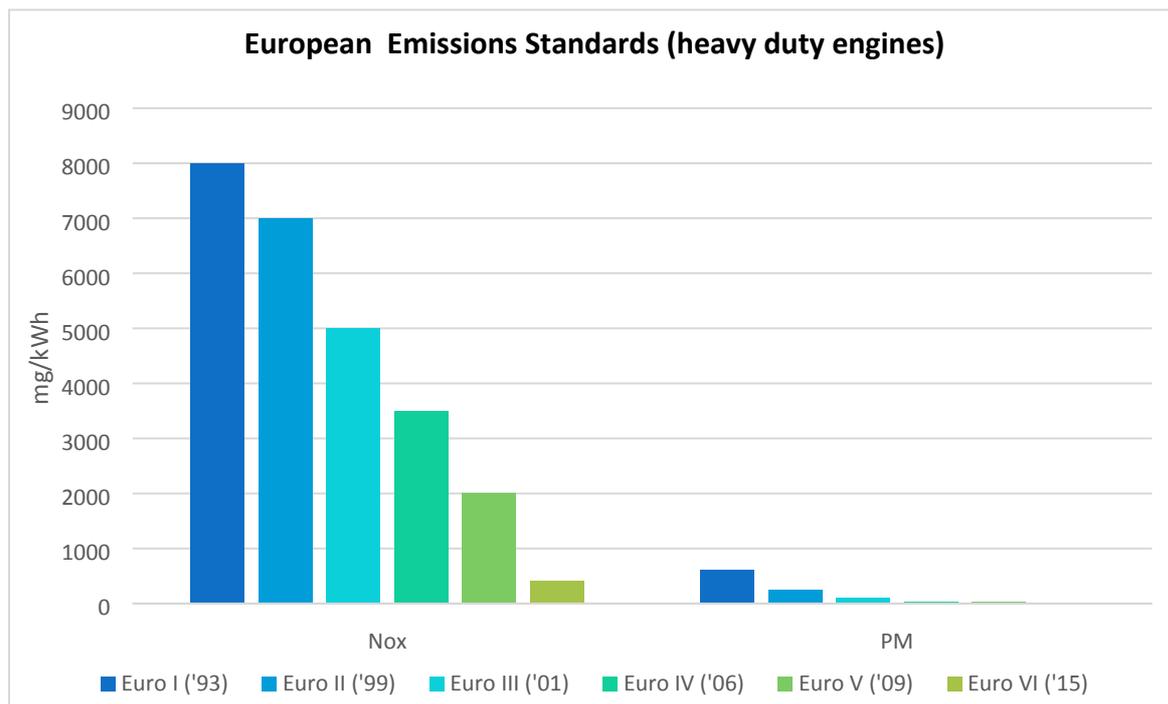
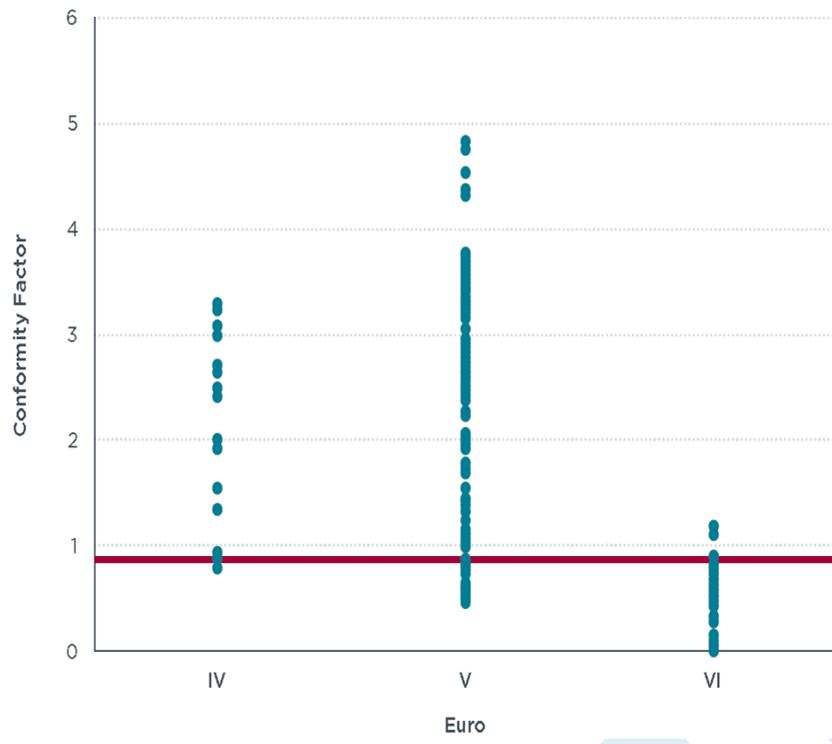
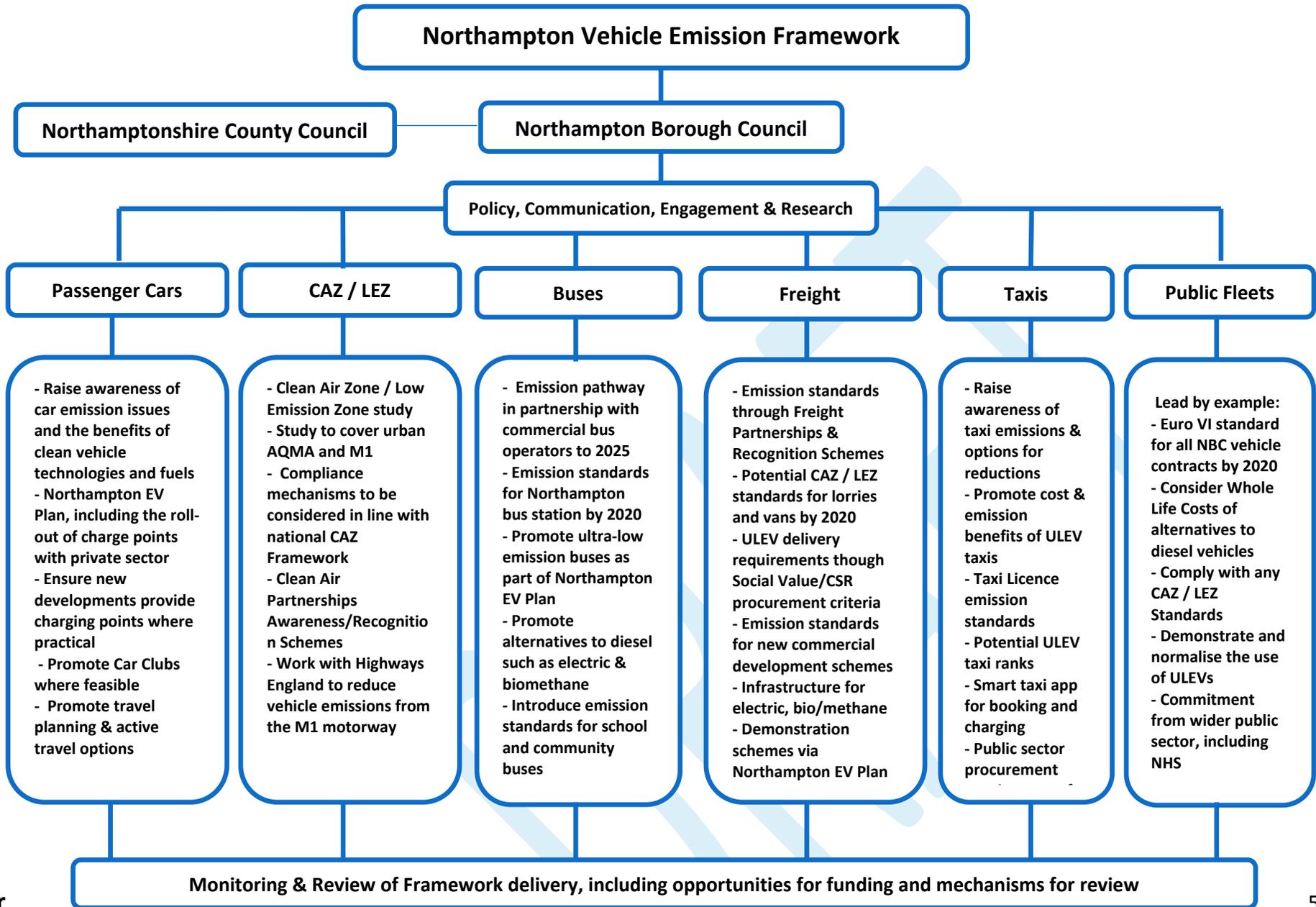


Figure 10 - Performance of heavy duty engines against Euro Standards (ICCT 2015)



DRAFT



4.3 Passenger Cars

NBC will:

- * **Raise awareness of car emission issues & benefits of alternative fuelled cars**
- * **Promote & support the take-up of ultra low emission vehicles (ULEV) through the development and implementation of the Northampton Electric Vehicle Plan**
- * **Ensure new developments provide charging points where practical**
- * **Support residential and commercial ULEV demonstration schemes**

4.31 One of the key reasons that air quality has not improved in line with expectations is the significant increase in diesel car use in the UK. In 2000, around 20% of cars sold were diesel compared with around 60% today⁴⁸. Diesel cars have been promoted as environmentally friendly with generally lower vehicle excise duty (VED)⁴⁹, however, not only are Euro Standards for diesel cars less stringent than for petrol cars but they are now known to emit far more NOx under real world driving conditions than their Euro Standard limit. Further action is needed by Government to look at the incentives provided for diesel cars and their suitability for use in urban areas needs to be questioned.

The Northampton Vehicle Emission 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. Research⁵⁰, shows that over a 3 year period, including depreciation, electric and hybrid models that are likely to cost the motorist less to own. 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.

4.32 How can we know what emissions vehicles produce under real-world driving conditions?

The Mayors of London and Paris are launching an online 'Clean Vehicle Checker' in Autumn 2017. The Clean Vehicle Checker will show consumers how much toxic NOx new cars emit, helping them to choose and buy less polluting vehicles. It will provide an independent evaluation of the emissions of most, new cars and vans on our roads and on the showroom forecourt. By having 'on the road' testing the scheme will help motorists to make an informed choice and incentivise manufacturers to build cleaner vehicles sooner.

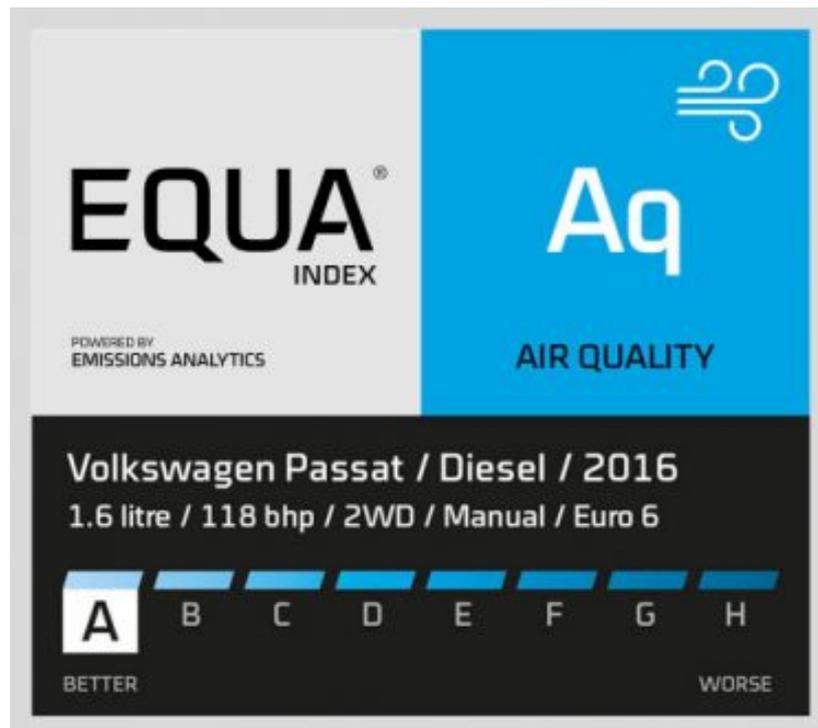
⁴⁸ www.smmmt.co.uk

⁴⁹ <https://www.gov.uk/government/publications/vehicle-excise-duty>

⁵⁰ West Midlands Low Emission Vehicle Strategy (WMLEVS), West Yorkshire Low Emission Strategy (WYLES)

The Clean Vehicle Checker will use real-world emission data provided by Emissions Analytics who have also launched the EQUA Index⁵¹, which provides free-to-access data on vehicles' fuel consumption and NO_x, CO₂ and CO emissions. In terms of NO_x, vehicles are rated from A to H against their real-world emission performance with A rated vehicles meeting the latest European Emission Standards and H rated vehicles emitting more than 12 times the latest Euro Standards.

Motorists can use these real-world emission tools when making future vehicle purchases.



⁵¹ http://equaindex.com/?utm_source=Emissions%20Analytics%20Newsletter&utm_campaign=2d0ac90392-EMAIL_CAMPAIGN_2017_03_31&utm_medium=email&utm_term=0_c35d8b9a1e-2d0ac90392-73487569

4.4 Northampton Electric Vehicle Plan

4.41 By the end of June 2017 there were 105,763 plug-in vehicles registered in the UK, with data indicating that this exponential growth trend is continuing⁵². The number of plug-in model available is increasing⁵³ while costs are reducing.

The Government has pledged that almost all new car and light goods vehicle sales will be zero emission by 2050⁵⁴ and will continue to provide a grant of up to £4,500 towards the purchase of ultra low emission cars, including plug-in vehicles⁵⁵ and also provide support for rolling out the charging infrastructure needed to enable take-up^{56,57}.

Plug-in vehicle registrations in Northamptonshire between 2011 and 2017 (2nd quarter) can be seen in table 23.

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

Table 23 – Plug-in Car and Van Registrations in Northamptonshire (Q4 2011 to Q2 2017)

Authority	2011 Q4	2012 Q4	2013 Q4	2014 Q4	2015 Q4	2016 Q4	2017 Q1	2017 Q2
Corby	0	1	3	17	39	61	67	70
Daventry	1	4	5	29	62	100	111	120
East Northamptonshire	0	2	5	27	56	74	81	86
Kettering	2	3	9	29	82	209	241	263
Northampton	0	3	15	49	129	177	182	201
South Northamptonshire	0	118	91	107	153	290	344	342
Wellingborough	0	2	4	20	29	50	59	67
Northamptonshire	3	133	132	278	532	961	1,085	1,149

4.42 Northampton Electric Vehicle Plan

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 **Northampton Electric Vehicle Plan** with the following objectives:

⁵² DfT Vehicle Statistics

⁵³ <https://www.goultralow.com/>

⁵⁴ <https://www.gov.uk/government/news/uk-government-pledges-bold-ambition-for-electric-cars>

⁵⁵ <https://www.gov.uk/plug-in-car-van-grants>

⁵⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/515932/electric-vehicle-homecharge-scheme-guidance-for-customers-2015.pdf

⁵⁷ <https://www.gov.uk/government/publications/workplace-charging-scheme-guidance-for-applicants-installers-and-manufacturers>

- 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 Northamptonshire 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 equitable for residents with and without private driveways;
- 4) In line with our Air Quality & Planning Guidance (see section 3.3) 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
- 6) Work with the private sector to Implement 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 with Highways England plans for motorway network charging infrastructure
- 9) Tackle the perceived and actual barriers to EV ownership through targeted marketing, promotion and information;
- 10) Work with the Northamptonshire Local Enterprise Partnership 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
- 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 and help with infrastructure installation where possible.

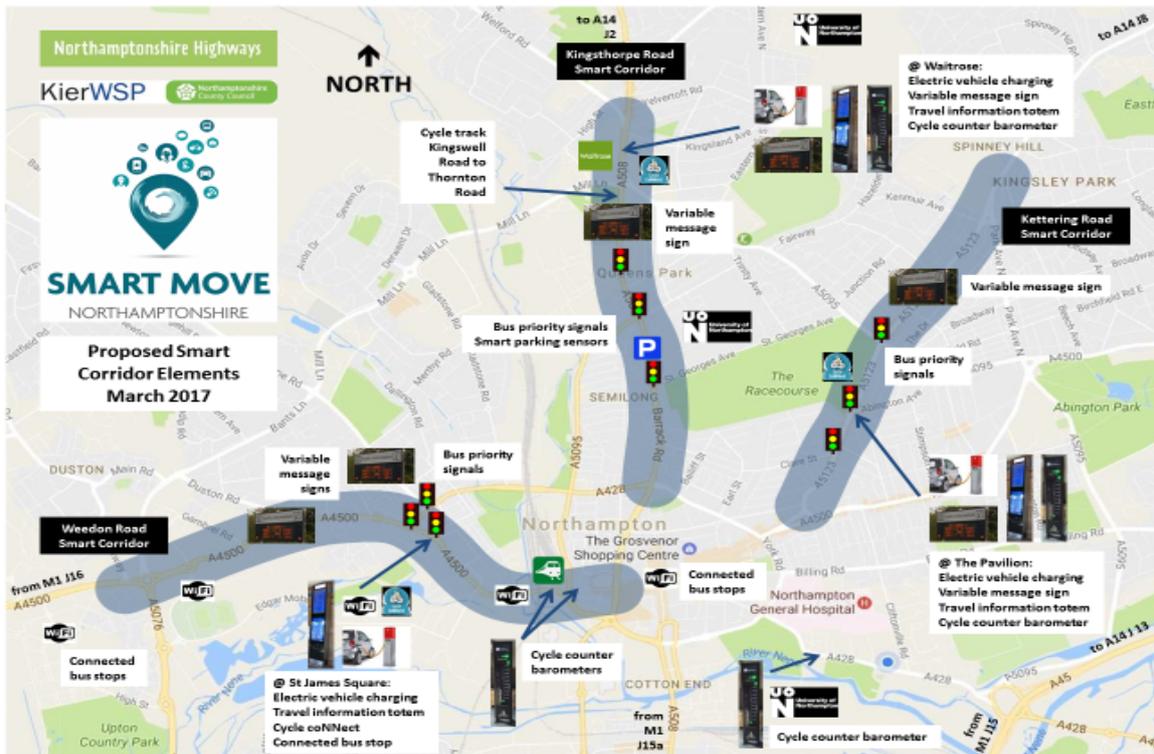


Both NBC and NCC have begun work on installing charging infrastructure. Neither organization believes that, as the take-up of plug-in vehicles increases, the public sector should become a significant transport energy provider and this should be left to the private sector, with support from the public sector.

NBC has introduced charging points in the Town Centre and will look to create facilities in public car parks such as St Johns Multi-Storey Car Park. NCC are working with the private

sector to introduce charging points as part of the Smart Move Project (see figure 11) at St James Square, The Pavillion at Northampton Racecourse and at the Waitrose supermarket. The draft Northampton Electric Vehicle Plan can be found as an appendix.

Figure 11 – Electric Vehicle Charging (Smart Move Project)



4.5 Clean Air Zones (CAZ) & Low Emission Zones (LEZ)

NBC will:

- Undertake a feasibility assessment, including stakeholder consultation, for implementing Clean Air Zones (CAZ) or Low Emission Zones (LEZ), in line with the national Clean Air Zone Framework
- Promote any CAZ through Clean Air Partnerships, Clean Air Awareness and Recognition Schemes

In July 2017, the Government published its 'UK plan for tackling roadside nitrogen dioxide concentrations'⁵⁸. The Plan sets out an approach for meeting these goals by implementing a programme of Clean Air Zones in line with a national **Clean Air Zone Framework**⁵⁹.

As a minimum any Clean Air Zone is expected to:

- be in response to a clearly defined air quality problem, seek to address and continually improve it, and ensure this is understood locally;
- have signs in place along major access routes to clearly delineate the zone;
- be identified in local strategies including (but not limited to) local land use plans and policies and local transport plans at the earliest opportunity to ensure consistency with local ambition;
- provide active support for ultra low emission vehicle (ULEV) take up through facilitating their use;
- include a programme of awareness raising and data sharing;
- include local authorities taking a lead in terms of their own and contractor vehicle operations and procurement in line with this framework;
- ensure bus, taxi and private hire vehicle emission standards (where they do not already) are improved to meet Clean Air Zone standards using licensing, franchising or partnership approaches as appropriate; and
- support healthy, active travel.

NBC will undertake a feasibility study in 2018 which will address the issues above and also include consultation, where appropriate, with key stakeholders. The study will be mindful of the criteria laid down in the national CAZ framework, including CAZ Classes (see table 25) and Clean Air Zone emission standards for vehicle types (see table 26). The study may look at intervention scenarios that differ from the CAZ framework but would constitute Low Emission Zone (LEZ) criteria.

As part of the process of implementing any CAZ or LEZ in Northampton, NBC will be:

⁵⁸ <https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017>

⁵⁹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/612592/clean-air-zone-framework.pdf

- working with SMEs and other businesses to help them understand their options for adapting to a CAZ/LEZ, and the support available to them.
- engaging business participation in environmental sustainability and training programmes, for example to improve driver behaviour, and campaigns to raise employee awareness.
- working with local employers to increase awareness in their staff about local public transport choices and alternatives, and initiatives such as car clubs and car sharing.
- encouraging businesses to commit to use only their cleanest vehicles in a CAZ/LEZ.
- encouraging businesses to commit, when buying new vehicles, to purchase those in line with or higher than CAZ/LEZ standards.
- encouraging businesses to adopt approaches to operations that can support a CAZ.
- encouraging large taxi or private hire users, such as universities and hospitals, to require ultra low emission vehicles within their contracts and promote travel planning to minimise use.
- encouraging the uptake of low and ultra-low emission business recognition schemes
- encouraging delivery service plans with local businesses and public sector organisations.

Table 24 - Clean Air Zone Classes

Clean Air Zone class	Vehicles included
A	Buses, coaches and taxis (including private hire)
B	Buses, coaches, taxis and heavy goods vehicles (HGVs)
C	Buses, coaches, taxis, HGVs and light goods vehicles (LGVs)
D	Buses, coaches, taxis, HGVs, LGVs and cars

Table 25 - Clean Air Zone emission standards for vehicle types

Vehicle type	NOx emissions limit
Bus/coaches	Euro VI
HGV	Euro VI
Car/light commercial (up to 1305kg)	Euro 6 (diesel) Euro 4 (petrol)

4.6 Buses

NBC will:

- **Work in partnership with bus and coach operators to identify an emission reduction pathway to 2025**
- **Require a minimum Euro V emission standard for commercial bus services by September 2019**
- **Look at potential retrofits for Euro VI diesel standard by 2020**
- **Promote ultra-low emission buses through the Northampton Electric Vehicle Plan**
- **Promote cleaner/low carbon alternatives to diesel such as methane/biomethane**

4.61 We recognize 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.

Tables 26 and 27 show the relative emissions of buses, by Euro Standard, travelling at urban speeds. It can be seen that Euro V buses tend to emit more NO_x than Euro IV buses due to the ineffective operation of their NO_x catalysts not working properly at low speeds when the exhaust temperature is insufficient. This can be addressed by fitting thermal management technology.

Table 28 illustrates the green house gas emissions of diesel and alternative fuelled buses.



Table 26 - NOx emissions of buses by Euro Standard and fuel type

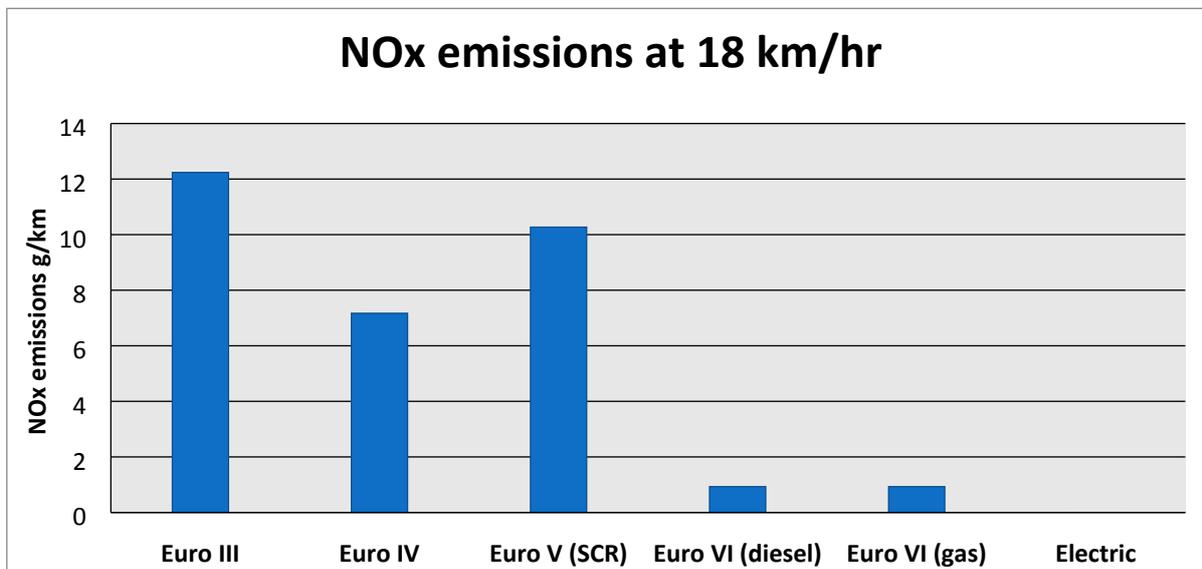


Table 27 – PM emissions of buses by Euro Standard and fuel type

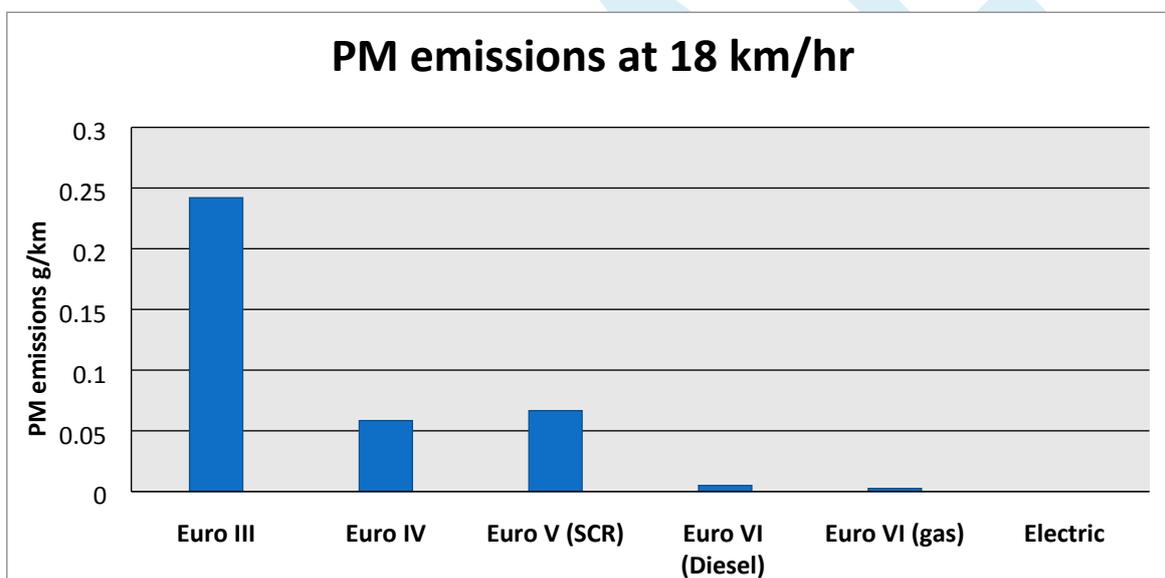
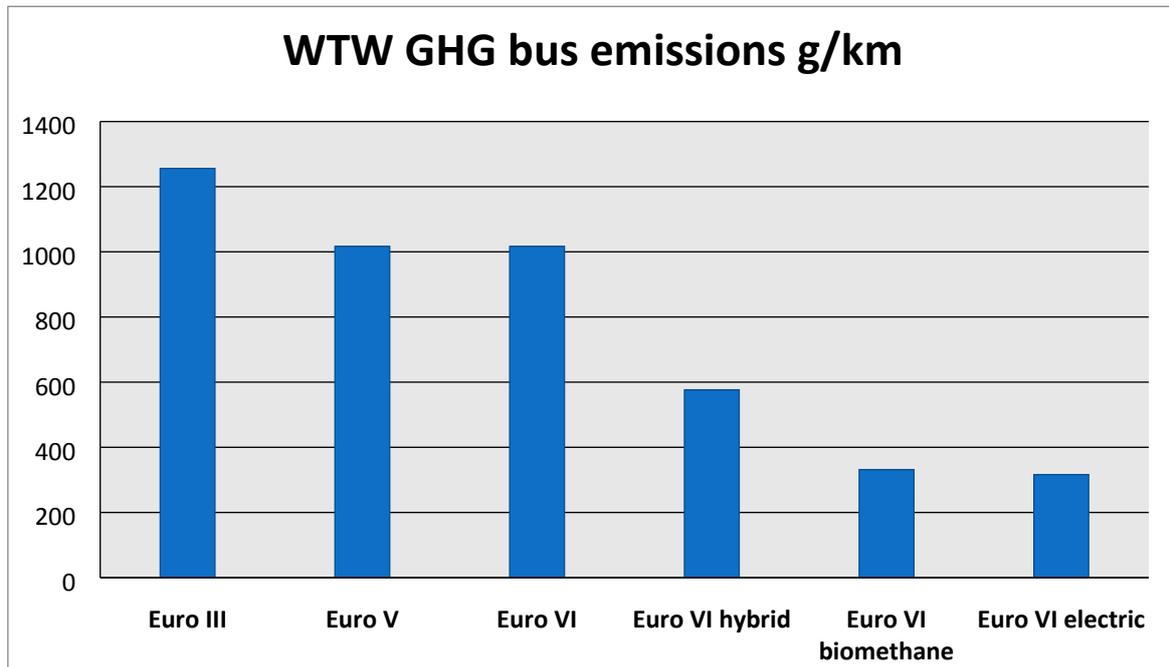


Table 28 – Green House Gas (Well to Wheel) emissions of buses by Euro Standard and fuel type⁶⁰

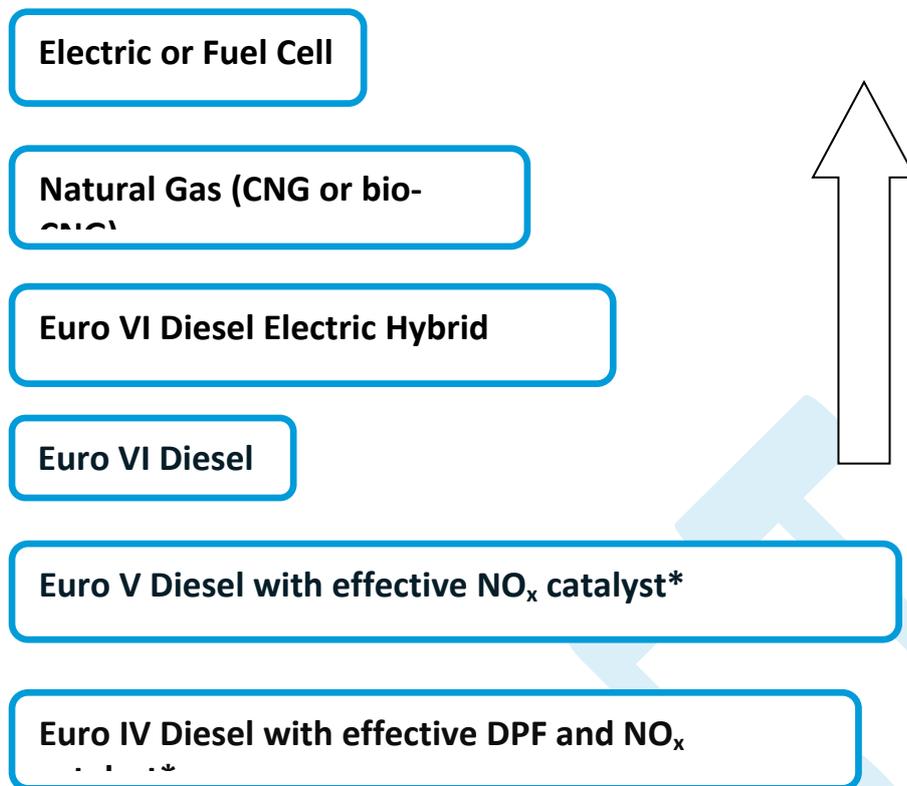


4.62 Emission Standards for Buses

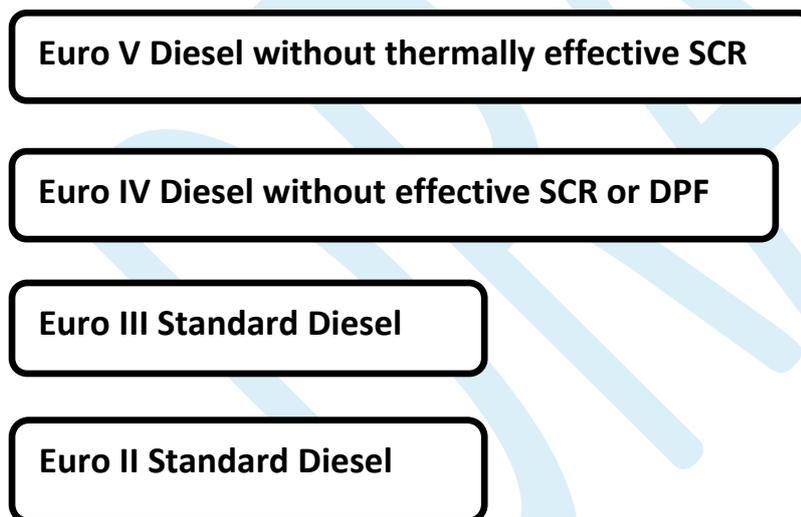
Many bus operators will look to run a bus for at least 15 years on commercial routes meaning that that around 7% of the bus fleet is replaced each year under normal circumstances. While the newest buses (Euro VI) are showing significant emission reductions over previous Euro Standards, the natural turnover of the bus fleet will be insufficient to tackle air quality issues in the short to medium term. It is acknowledged that bus operators cascade buses around the country according to operational needs, including the introduction of emission standards. Further pressures are faced by the bus operators in seeking to comply with CAZ standards that are being introduced around the country, requiring the use of Euro VI buses, which may restrict the ability of bus companies to invest in the cleanest buses in non-CAZ areas.

⁶⁰ Euro VI hybrid figures are for the Volvo full hybrid, LowCVP 2016

Figure 12 – Emission standard for Northampton buses accessing the urban AQMA in 2020 (technologies outlined in increasing order of preference)



Bus technologies not suitable for use in the urban AQMA



*Meets Clean Vehicle Retrofit Accreditation Scheme (CVRAS)⁶¹ standard

⁶¹<http://www.energysavingtrust.org.uk/business/transport/clean-vehicle-retrofit-accreditation-scheme-cvras>

3.64 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 green house gas benefits of moving away from diesel to alternatively fuelled buses such as biomethane and electric technologies.

We will build on the experience of other towns and cities in supporting diesel alternatives. Biomethane buses have been successfully rolled out in Sunderland, Darlington, Reading, Beccles, Runcorn and Bristol and both Bristol and Nottingham, 2 of the 4 Ultra Low Emission Cities in the UK have plans for significant growth in biomethane buses.

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 provide overall savings to operators. The benefits of both these technologies are highlighted below:

Biomethane Buses



ADL/Scania, Nottingham

- Runs on compressed gas
- Spark ignition engine
- Very high GHG savings & very low PM emissions
- No range limitation
- Filling station required, economies of scale favour larger projects
- Significant operational savings

Electric Buses



Milton Keynes

- All electric operation
- Zero tailpipe emissions
- Limited range – more suited to urban routes
- Operational savings
- Choice of infrastructure – overnight charging to inductive and/or rapid charging

4.7 Freight

NBC will:

- * **Look at freight vehicle emissions as part of the CAZ/LEZ feasibility study**
- * **Promote ULEV deliveries through Social Value / Corporate Social Responsibility (CSR) procurement criteria**
- * **Work with Highways England to support vehicle emission reductions for freight vehicles interacting with the M1 and the Northampton road transport network**
- * **Look at infrastructure to support ultra-low emission freight through the Northampton Electric Vehicle Plan**
- * **Recommend emission standards for new commercial developments**
- * **Promote alternative fuelling facilities such as gas & biomethane**
- * **Support ULEV freight demonstration schemes**

4.71 Freight transport is a key aspect of the Northamptonshire road transport network and contributes to the local economy. Northampton is a central freight and logistics hub of the national strategic road network.

Heavy goods vehicle (HGV) mileage driven in Northampton In 2016 is at similar levels to 2000, however, light goods vehicle (LGV eg. vans) mileage has increased over the same period due to the growth in dot.com / home delivery businesses.

While HGV emissions for the latest, Euro VI, vehicles are demonstrating significant emission improvements over previous Euro Standards (see figure 10), there has been an underestimation of the emissions caused by vans, with the latest Euro Standard vehicles only recently entering the market.

Many commercial fleet operators have strategies in place to reduce emissions through their corporate social responsibility (CSR) agendas and due to high annual mileages, many blue chip companies will keep their HGVs for only 3 to 5 years⁶² meaning that the cleanest, Euro VI HGVs already provide a significant share of the total HGV fleet.

Several freight companies have been successfully trialling natural gas and biomethane as an alternative to diesel. With more dedicated gas trucks entering the market, companies have found that there are significant operational cost savings from using gas and reductions in the emissions of both air pollutants and noise. John Lewis Partnership has stated that within 7 years their trucking

⁶² Freight Transport Association (FTA)

fleet will be entirely gas⁶³. The Government has set a reduced fuel duty rate for methane and biomethane until 2024 and also permits the emission savings from using biomethane to be included in CSR reporting. However, further work is needed to expand the refueling infrastructure available.



Gas refueling, John Lewis Partnership 2017

Many organizations are finding that the use of plug-in car derived vans can be cost effective, however, while there are several gas alternatives available in the LGV market, the availability of plug-in LGV models is still limited and needs encouragement to grow this market.

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

- Assess the feasibility of introducing emission standards for freight vehicles as part of the CAZ/LEZ feasibility study
- Seeking opportunities to increase the take-up of alternative fuels and technologies by HGV and LGV operators by supporting projects for alternative refueling infrastructure such as natural gas and biomethane.
- Promote electric delivery vehicles and infrastructure through the Northampton 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 promote the economic as well as environmental and health benefits from low emission HGVs and LGVs.

⁶³ Presentation, ADBA, 2017

- 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.

4.8 M1 Motorway

4.81 Highways England is the government company 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 ring-fenced £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.

4.82 NBC has designated an AQMA along the M1 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.

5 Delivery & Communications Plan

NBC will:

- Produce an integrated **Delivery Plan**, identifying key roles and responsibilities and timescales
- Produce an effective **Communication Plan** in partnership with Public Health and NCC to promote key messages and measures in the NLES
- Monitor the implementation of measures and their success based on appropriate 'success' criteria
- Review the measures in the NLES at suitable intervals
- Keep apprised of current and upcoming funding opportunities to support NLES measures

5.1 Delivery Plan

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

5.2 Communication Plan

5.21 We 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 and NCC we will produce a **Communication Plan** to accompany the NLES, 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*'⁶⁴ and DEFRA guidance – '*Air Quality: A Briefing for Directors of Public Health*'⁶⁵.

5.22 Enabling NBC to adopt a robust and effective local approach that will complement the national strategy from the government is the key aim of the communication plan.

⁶⁴ <https://www.nice.org.uk/guidance/ng70/chapter/Recommendations#awareness-raising>

⁶⁵ <https://laqm.defra.gov.uk/assets/63091defraairqualityguide9web.pdf>

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 and national clean air day.

The communication plan 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.
- 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.

We will also investigate the potential of running a **Clean Air Recognition Scheme** to help amalgamate local groups, organisations and businesses. This scheme will allow us to recognise and reward positive local community efforts of improving air quality and reducing emissions. It will also enable us to provide technical support and advice and provide a measure to gauge their efforts and impact.

This strategic partnership approach to the communication plan will prove vital when attempting to reach the widest audience possible. These 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 within the community. This element could form a Clean Air Partnership for Northampton.

Everyone will need to take some action if we are to significantly improve air quality. While the impact of the 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.

5.3 Clean Air Recognition Scheme

We will seek to work with key stakeholder partners to develop a Clean Air Recognition Scheme to promote and recognise community activity to reduce road transport emissions. The scheme will look at categories, including schools, taxi driver, public transport operators, freight operators, business and local communities, and set criteria to achieve Clean Air Status. Subject to funding, this scheme will be outlined in detail in 2018.

5.4 Monitoring & Review

The NLES details policies and measures that will be implemented up until 2025. As part of the delivery plan we will develop 'success criteria' which will be used to monitor and measure progress on delivering the LES. This information and any changes in our understanding of air quality and health, national policy and legislation and effective emission reduction mechanisms will be used to review the LES at appropriate intervals and update the NLES accordingly.

5.5 Funding Opportunities

NBC will 'horizon scan' in partnership with key stakeholders to identify suitable funding opportunities that will help support the delivery of the NLES.

Glossary of Terms

AQMA	-	Air Quality Management Area
AQAP	-	Air Quality Action Plan
CAZ	-	Clean Air Zone
CDV	-	Car derived van
CO ₂	-	Carbon Dioxide
CVTF	-	Clean Vehicle Technology Fund
DEFRA	-	Department for the Environment, Food and Rural Affairs
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
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	-	Particulate Matter less than 10 microns in size
PM _{2.5}	-	Particulate Matter less than 2.5 microns in size
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	-	Ultra Low Emission Vehicle ie below 75 g/km CO ₂
ULEZ	-	Ultra Low Emission Zone
WHO	-	World Health Organisation
WLC	-	Whole Life Costs