

Managing the Effects of Air Pollution on the Epping Forest Special Area of Conservation

Draft Mitigation Strategy

July 2020

This is an emerging draft Strategy which will be the subject of consultation with key stakeholders.

Working Draft

Executive Summary

To be completed

Working Draft

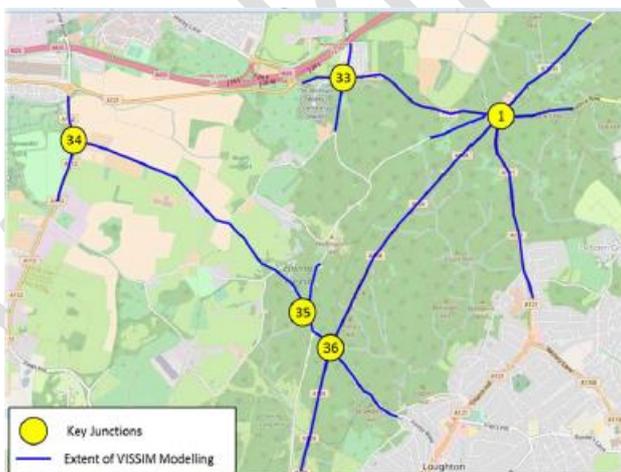
1. Introduction

- 1.1 This Strategy has been developed to provide a strategic approach to mitigating the effects of development on the integrity of the Epping Forest Special Area of Conservation (the Epping Forest SAC) in relation to atmospheric pollution.
- 1.2 Epping Forest has been designated as a Special Area of Conservation (SAC) because of the significance of its ecological features (known as 'qualifying features'), specifically its beech forest, wet and dry heaths and population of stag beetle. SACs are international designations and have the highest level of protection afforded to them through UK legislation and Government policy.
- 1.3 Under UK legislation Epping Forest District Council (the Council) is a competent authority with a duty to ensure that plans and projects (including the emerging Local Plan) have no adverse effect on the integrity the Epping Forest SAC either alone, or in combination with other plans and projects. As part of that responsibility the Council, as local planning authority, has undertaken a Habitats Regulations Assessment (HRA) of its emerging Local Plan. The legislative context in relation to the Council's responsibilities as a competent authority is set out at pages xx – xx of the updated Habitats Regulations Assessment 2020 (the HRA 2020).
- 1.4 The HRA 2020 concludes that without appropriate mitigation development proposed through the emerging Local Plan would have an adverse effect on the integrity of the Epping Forest SAC as a result of atmospheric pollution. The key contributor to that atmospheric pollution arises from vehicles.
- 1.5 The Epping Forest SAC is bisected by a number of key routes which serve communities in the wider Epping Forest District and beyond. We know, having undertaken detailed traffic modelling, that new development, primarily for housing and employment, will result in increases in traffic on those roads. This traffic modelling was then used to inform air quality modelling, the outputs of which show that over the period of the Local Plan growth up to 2033, if no mitigation measures are introduced, air pollution arising from vehicles will still have a harming effect on the health of the interest features within the Epping Forest SAC compared to a situation with no growth. It is important to recognise that whilst vehicles are a contributing factor, there are other land use activities that are also having an adverse impact on the ecological health of the Epping Forest SAC and this Strategy has also given consideration to actions that the Council could take to reduce the contribution that these land uses make to atmospheric pollution.
- 1.6 This Strategy has been developed in response to the findings of the Council's updated Habitats Regulations Assessment 2020 by setting out the suite of mitigation measures that are needed to address the effects of atmospheric pollution arising primarily from new development proposed to be brought forward within the District. It is therefore an important part of the evidence base that supports the emerging Local Plan. The Strategy

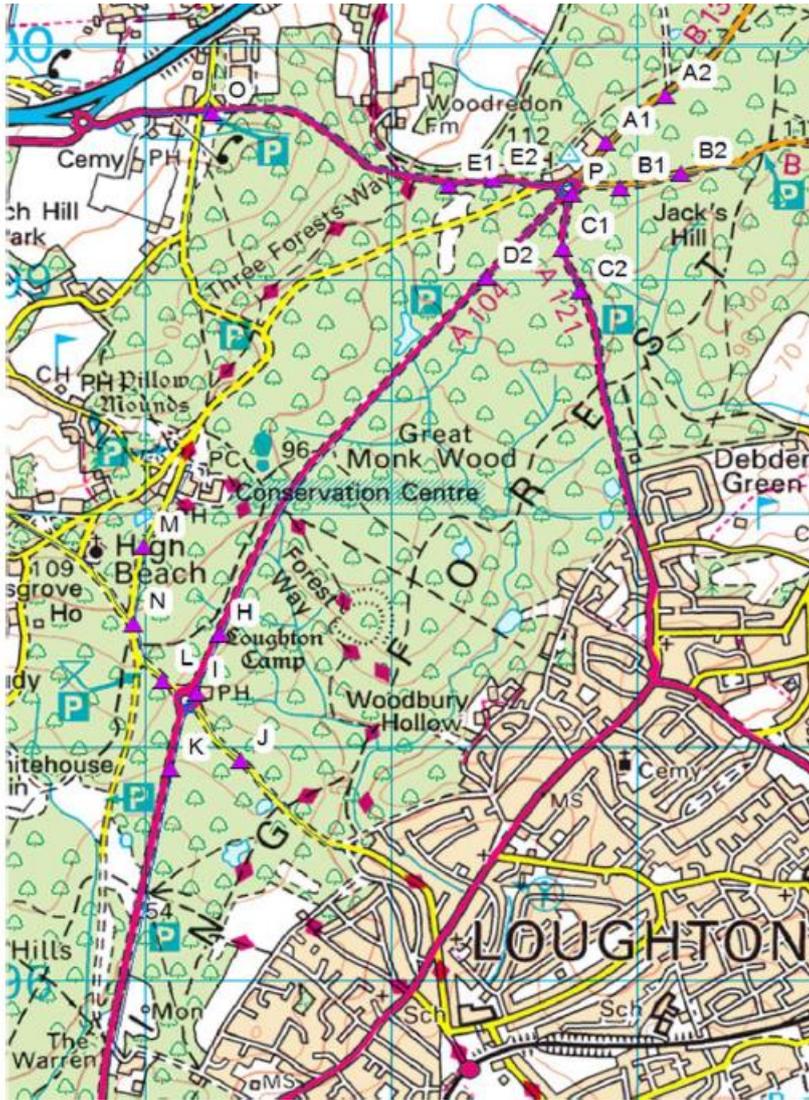
also sets out how these mitigation measures will be implemented and how the efficacy of those mitigation measures will be monitored and reviewed.

2. The HRA methodology

- 2.1 To support an understanding of the likely significant effects of the emerging Local Plan on the Epping Forest SAC bespoke traffic and air quality modelling has been undertaken based on observed data and on-site monitoring. As such a robust approach has been undertaken to understanding the issues arising from development within Epping Forest District (EFD). The technical notes explaining the traffic and air quality modelling methodology are contained within Appendices X and X of the HRA 2020 which can be viewed here (*insert link*).
- 2.2 The predicted change in vehicle flows and mean maximum queue length and duration was modelled on a series of roads within 200m of Epping Forest SAC. This took account of all expected growth over the plan period, including Local Plan development and extant planning permissions, background traffic growth arising from development in surrounding local authority areas (including extant planning permissions) and predicted background growth in traffic generally as derived by national traffic growth projections. The level of growth applied within EFD arising from the emerging Local Plan had regard to the advice note of the Inspector examining the emerging Local Plan dated 2 August 2020.
- 2.3 The roads were selected in consultation with the Conservators of Epping Forest and were considered to be those most likely to experience the greatest change in flows (and therefore impact) due to the proposed housing and employment growth within and outwith the District for the period to 2033. The modelled network is shown in Figure 1 below.



- 2.4 Using the generated traffic scenarios, information on the vehicle fleet mix, average vehicle speeds and queue lengths (all of which influence the emissions profile), air quality specialists calculated expected NO_x concentrations, ammonia concentrations and nitrogen deposition rates for the modelled links. For some road sections (particularly around Wake Arms Roundabout which lies within the Epping Forest SAC) multiple transects were modelled in order to capture the effects of queuing traffic. The modelled links are depicted in Figure 2 below.



3. The Issue

- 3.1 The main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂). Ammonia can have a directly toxic effect upon vegetation and research suggests that this may also be true for NO_x at high concentrations or in the presence of equivalent amounts of sulphur dioxide. In particular, greater NO_x or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to vegetation and soils. An increase in the deposition of nitrogen from the atmosphere is generally regarded to lead to an increase in soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats. Ammonia and nitrogen can also have a serious deleterious effect on lichens which take their nutrients directly from atmosphere.

Table x: Main sources and effects of air pollutants on habitats and species

Pollutant	Source	Effects on Habitats and Species
Acid Deposition	SO ₂ , NO _x and ammonia all contribute to acid deposition. Although future trends in SO ₂ emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is possible that increased ammonia emissions may cancel out any gains produced by reduced SO ₂ levels.	Can affect habitats and species through both wet (acid rain) and dry deposition. Some sites will be more at risk than others depending on soil type, bed rock geology, weathering rate and buffering capacity.
Ammonia (NH ₃)	Ammonia is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but levels have increased considerably with expansion in numbers of agricultural livestock. Ammonia reacts with acid pollutants such as the products of SO ₂ and NO _x emissions to produce fine ammonium (NH ₄ ⁺) - containing aerosol which may be transferred much longer distances (can therefore be a significant transboundary issue.)	Adverse effects are as a result of nitrogen deposition leading to eutrophication. As emissions mostly occur at ground level in the rural environment and NH ₃ is rapidly deposited, some of the most acute problems of NH ₃ deposition are for close to the roadside or close to point sources in intensive agricultural landscapes.
Nitrogen oxides (NO _x)	Nitrogen oxides are mostly produced in combustion processes. About one quarter of the UK's emissions are from power stations, one-half from motor vehicles, and the rest from other industrial and domestic combustion processes.	Deposition of nitrogen compounds (nitrates (NO ₃), nitrogen dioxide (NO ₂) and nitric acid (HNO ₃) can lead to both soil and freshwater acidification. In addition, NO _x can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species
Nitrogen (N) deposition	The pollutants that contribute to nitrogen deposition derive mainly from NO _x and NH ₃ emissions. These pollutants cause acidification (see also acid deposition) as well as eutrophication.	Species-rich plant communities with relatively high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication, due to its promotion of competitive and invasive species which can respond readily to elevated levels of N. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Sulphur Dioxide (SO ₂)	Main sources of SO ₂ emissions are electricity generation, industry and domestic fuel combustion. May also arise from shipping and increased	Wet and dry deposition of SO ₂ acidifies soils and freshwater, and alters the species composition of plant and

	atmospheric concentrations in busy ports. Total SO ₂ emissions have decreased substantially in the UK since the 1980s – UK emissions in 2018 decreased by 96% relative to 1990, below the 2020 NECD and Gothenburg emission targets ¹ .	associated animal communities. The significance of impacts depends on levels of deposition and the buffering capacity of soils
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3.2 The Forest is known to be adversely affected by relatively poor local air quality alongside the roads that run through it and this has been demonstrated to have negatively affected the epiphytic lichen communities of the woodland. The nature of the road network around the modelled part of the Forest is such that journeys between a number of key settlements around the Forest by car, van or bus effectively need to use Forest roads. Moreover, queues are known to build up around most arms of the Wake Arms Roundabout, primarily during the AM and PM peak, which increases emissions compared to the same volume and composition of free-flowing traffic.

3.3 As such, emissions from road traffic are the focus of the air quality modelling. Regulations control the sulphur content of fuel used by road traffic vehicles, therefore emissions of SO₂ are not assessed. Emissions of NO_x from road traffic are decreasing due to the implementation of tighter European type approval standards (Euro Standards). However, ammonia is produced by the control systems that are designed to reduce emissions of NO_x from road traffic vehicles. Emissions of ammonia are greater from petrol than from diesel cars, whilst the converse is generally the case for NO_x. The full results of the air quality modelling are contained within Appendix x of the HRA 2020. Published internal Natural England guidance on air quality assessments for Habitats Regulations Assessments² indicates that the first step once it has been confirmed that a site is air quality sensitive is to determine whether the change in pollutant concentrations (in this case NO_x and ammonia, leading to nitrogen deposition) due to growth ‘in combination’ exceeds 1% of the critical level. If it does not exceed 1% of the critical level then it can be concluded that no likely significant effect will arise since the total change in pollutant concentrations is imperceptible. The critical levels for NO_x and ammonia and the critical load for nitrogen deposition, are set out below:

Pollutant	Critical Level	Critical Load
Oxides of nitrogen (NO _x)	30 micrograms per cubic metre (30µgm ⁻³)	N/A
Ammonia (NH ₃)	1 microgram per cubic metre (1µgm ⁻³)	N/A
Nitrogen deposition	N/A	10-20 kilograms of nitrogen per hectare per year (10 kgN/ha/yr)

¹ UK Informative Inventory Report (1990 to 2018) - https://uk-air.defra.gov.uk/assets/documents/reports/cat07/2003131327_GB_IIR_2020_v1.0.pdf

² <http://publications.naturalengland.org.uk/publication/4720542048845824>

- 3.4 The plan showing the Transects that have been modelled are set out in Figure 2 above. Since the '1% of the critical level/load' threshold is forecast to be exceeded for NO_x, ammonia and nitrogen deposition at the roadside for the majority of receptors due to growth 'in combination', an appropriate assessment was required to be undertaken.
- 3.5 The outputs of modelling undertaken showed that growth in Epping Forest District up to 2033 (i.e. the end of the Local Plan period) is the primary source of additional ammonia and NO_x emissions on the modelled road sections and all other plans and projects would appear to make a negligible contribution to the 'in combination' effect. This is thought to be because the average daily traffic flow on all the modelled sections of road is dominated by people who either live or work in Epping Forest District, particularly the settlements that surround the SAC, including Epping itself.
- 3.6 The HRA 2020 makes it clear that in order to address the effects of Local Plan development on air pollution on the Forest, a number of mitigation measures need to be implemented. These will be secured through: the determination of planning and other development related applications; the development of strategic Masterplans; and strategic initiatives implemented by the Council. The Spatial Strategy and a number of policies within the Epping Forest District Local Plan Submission Version 2017 provide the Framework to support improvements in air quality over the course of the Plan period. These are set out in Section 4 below. These provide the Framework by which the forecast effects will be mitigated to such an extent that an adverse effect on site integrity no longer arises. They will be supported by this Strategy, which sets out a number of specific measures that will be implemented over the course of the Local Plan period. There are other actions that the Council can take, outside of the planning regime, that can also support the management of air quality within the District and these are set out in Appendix x. Consequently, this Air Pollution Mitigation Strategy brings together all of the proposed approaches to support the improvement of air quality in the District. Whilst this is primarily to manage any likely significant effects on the integrity of the Epping Forest Special Area of Conservation, it will also have wider benefits in relation to peoples' health.

4. Planning Policy Framework

- 4.1 The following policies within the Epping Forest District Local Plan Submission Version 2017 (LPSV) provide the framework for addressing the effects of Local Plan development on air pollution on the Forest.

Policy SP 2 Spatial Development Strategy

- 4.2 Policy SP 2 sets out the sequential approach to the location of development with a focus on locations which have access to existing infrastructure, or where there is the greatest opportunity to provide additional infrastructure capacity. Both traffic modelling and Habitats Regulations Assessment was used to inform the approach taken. In addition, the allocation of strategic employment sites in locations where new homes are to be provided. The approach provides the greatest opportunity to provide an alternative to the private car in terms of journey choice and therefore reduce the harmful effects that traffic emissions have on both ecological and human health.

Policy DM 2 Epping Forest SAC and the Lee Valley SPA

- 4.3 Policy DM 2 provides the policy which gives this Mitigation Strategy its planning status as a material consideration in the consideration of planning and other relevant applications. It also provides the expectations of the Council in that it expects all relevant development proposals to assist in the conservation and enhancement of the biodiversity, character, appearance and landscape setting of the Epping Forest Special Area of Conservation. This is a main policy to which this Strategy is linked.

Policy DM 22 Air Quality:

- 4.4 This policy seeks to ensure that both residents and the ecological assets of the District, including the Epping Forest SAC, are protected from the impacts of atmospheric pollution. The policy and supporting text to Policy DM 22 includes the commitment to produce a strategic mitigation strategy and is also a main policy to which this Strategy is linked.

Policy T 1 Sustainable Transport Choices.

- 4.5 This policy sets out the Council's commitment to:
- achieve improvements to strategic rail connections and other public transport networks to the wider area;
 - promote transport choice through improvements to public transport services and supporting infrastructure;
 - provide coherent and direct cycling and walking networks to provide a genuine alternative to the car;
 - facilitate a modal shift and to promote opportunities for sustainable transport modes; and
 - secure the provision of electric vehicle charging points in all new development which includes vehicle parking spaces.
- 4.6 The implementation of Policy T 1 is one of the ways in which reductions in atmospheric pollution across the District will be achieved. Paragraph 3.80 of the LPSV explains that the sustainable transport policies seek to widen the choice of travel opportunities using public transport, walking and cycling. Paragraph 3.88 states that the LPSV will ensure the provision of facilities and services in new strategic developments to provide high levels of self-containment and secure the provision of, or financial support for, bus services and walking and cycling facilities. As set out in paragraph 3.89 such an approach can be expected to have a wider benefit as it can also provide access to new transport opportunities for existing residents, thus reducing increases in background traffic growth. Paragraph 3.90 reiterates that the Council will require the provision of electric vehicle charging points in all new development which includes vehicle parking spaces. These requirements are also included within relevant site-specific policies in Chapter 5 and Appendix 6 to the LPSV.
- 4.7 The policy requirement for the provision of electric vehicle charging points in all new developments regardless of their proposed use which include the provision of new parking spaces has two benefits:

- ensure that developments can support the growth in electric vehicles without the need to retrofit such provision in the future; and
- provide confidence for people who have not purchased electric vehicles that they can do so because they can access the necessary infrastructure now.

Development proposals will need to be able to demonstrate that all new parking spaces can have direct access to a charging point.

- 4.8 The Council's Epping Forest District Cycle Action Plan provides a range of specific proposals for improving the cycling infrastructure across the District. The Council's Infrastructure Delivery Plan identifies all of these projects and sets out how these should be funded through the planning process.

Policy DM 5: Green and Blue Infrastructure

- 4.9 This policy provides the framework within which the Council is developing a Green and Blue Infrastructure (GI) Strategy. The GI Strategy supports a number of objectives including to avoid and mitigate harm to the Forest arising from recreational pressures. It also includes ways of improving walking and cycling connections to support sustainable transport choices and proposals to work with the Conservators of Epping Forest to secure the introduction of car parking charging as a mechanism to encourage visitors to use Suitable Alternative Natural Greenspace. These elements will also have some benefit from an air pollution perspective.

Policy DM 21: Local Environmental Impacts, Pollution and Land Contamination.

- 4.10 This is a positive development management policy relating to environmental impact, pollution and land contamination. It is a positive policy as it provides for the prevention of detrimental impacts as a result of environmental conditions resulting from new development such as air quality, and provides for the reuse and recycling of building materials and the use of local products, thus reducing atmospheric pollutants further, and the use of water resources during the manufacturing process. Whilst traffic is the main contributor to atmospheric pollution issues there are other generators of air pollution that need to be considered and which will support, albeit only by a small amount, positive improvements to air quality.

Policy D 5: Communications Infrastructure.

- 4.11 This is a development management policy relating to communications infrastructure. It is a positive policy which ensures that developments make provision for high speed internet and telecommunications. This supports the potential to reduce the need to travel, particularly during the morning and evening peak hours and will therefore make a positive contribution to reducing atmospheric pollution.

Site-specific policies

- 4.12 The LPSV includes a number of site-specific policies which will support the management of, and improvements to, air quality. The site-specific policies vary depending on the scale of

development proposed. The Garden Town Communities and strategic Masterplan sites in particular provide a key role in reducing the use of private passenger vehicles including through:

- the delivery of strong local cultural, recreational, social (including health and educational facilities where required), local employment and shopping facilities to support the day-to-day needs of residents which are within walkable distance – the ‘self-sufficiency’ principle.
- The provision of sustainable movement and access to local and strategic destinations (including by rail, bus and walking/cycling).
- The provision of generous, well connected and biodiverse rich green space provision so that residents don’t have to travel to be able to access more natural green space.

4.13 These site-specific requirements are key to ensuring the provision of infrastructure to support the achievement of a reduction in private car use. In particular there are significant opportunities to secure such infrastructure on the strategic masterplan sites. These larger sites also provide the opportunity to ensure that community infrastructure and services and local employment opportunities (such as education and health provision, local facilities and services, and open space) are integrated as part of the design of development. This will provide opportunities to minimise the use of the private car. These sites will also be supported by the provision of new passenger transport services. Such provision could provide wider benefits to existing residents and businesses where current passenger transport services are limited or non-existent.

5 What we need to achieve by 2033 and how we will get there.

5.1 There is a need for the Council, as competent authority, to not only set the planning policy context, but also identify specific mitigation measures that need to be implemented based on the current evidence and in recognition of the ‘high bar’ that the Habitats Regulations set, in order to be able to demonstrate ‘no adverse effect’ on the integrity of the Forest.

5.2 The targets that need to be achieved by 2033 in order to demonstrate ‘no adverse effect’ are as follows:

Targets to be included once modelling work and analysis has been completed.

5.3 The following measures have been identified as those which provide the greatest level of certainty in terms of their efficacy, either because they are capable of being modelled, or because they are measures which will help to support the delivery of those modelled measures. They are collectively shown to be likely to be effective.

5.4 The measures set out are those which the Council will bring into effect now and those which it will develop further so that they can inform what else may need to be implemented based on monitoring and evaluation to inform the statutory review of the Local Plan which needs to be completed within five years of its adoption.

Measures that will be implemented now

Initiatives to support walking, cycling and increased public transport use

- 5.6 Policy T 1 of the LPSV seeks to secure reductions in the use of private vehicles for journeys, and in particular journeys during the peak hours. The spatial strategy for the LPSV has also been developed in order to maximise the opportunities for reducing vehicle usage. This is a well-established approach to plan-making and decision-making and has multiple benefits. In this instance securing modal shift will have benefits for the Forest and is a positive mitigation measure. It will reduce the level of growth in the number of vehicles using roads through the Forest which would contribute to air pollution than would otherwise be the case and support reductions in the length of queues on roads through the Forest, particularly at peak times, which is known to be a contributing factor to that air pollution. The Harlow and Gilston Garden Town, within which a significant proportion of the new homes in the District will be located, has set ambitious targets for reducing the use of the private car. There are real opportunities by working collaboratively, both with the other local authorities involved and site developers to achieve a step change in modal shift. The Council's expectation that the strategic allocations (both housing focused and employment focused) outside of the Garden Town also invest in the delivery of enhanced public transport, walking and cycling opportunities will support reductions in the use of the private car. The scale of development proposed for these strategic sites and the Garden Town communities means that there is a critical mass of development to make such expectations viable.

Can the benefits of the mitigation be modelled?

- 5.7 Only a limited amount of modal shift has been modelled recognising that what is achieved can be difficult to predict. In addition the interventions will also provide opportunities for existing residents of Epping Forest District to change the way that they chose to travel but the limited amount of modal shift assumed does not take account of this wider benefit. Therefore securing modal shift has the potential to make an additional contribution to improvements in air pollution within the Forest.

How it will be delivered.

- 5.8 The Council has recently appointed a Sustainable Transport Officer who will be leading on the development of this initiative. This will include taking forward the development of an area wide public transport strategy and working with the Conservators of Epping Forest in the development of an Epping Forest Transport Strategy to support the objective of getting more visitors to come to the Forest by means other than the car.
- 5.9 These strategies will help to then further develop the package of measures to be brought forward. A current package of measures include the provision of public transport, walking and cycling infrastructure and supporting measures as identified in the Infrastructure Delivery Plans developed to support the LPSV and the Harlow and Gilston Garden Town. The delivery of these measures will be secured primarily in partnership with Essex County Council and through the design of new development including as a result of individual development proposals over a certain size being required to submit site specific travel plans.

Taking forward the implementation of these measures is a key task for the Council's recently appointed Sustainable Transport Officer. The measures and, where appropriate, funding for off-site measures will be secured through the imposition of planning conditions or Section 106 planning obligations on individual planning permissions and implemented by site developers or Essex County Council. For larger sites the provision of infrastructure to support public transport, walking and cycling related infrastructure will be provided on, or in close proximity to the site and the design and layout of schemes will be required, primarily through Policies SP 3 (Place Shaping) SP 4 (Development and Delivery of Garden Communities in the Harlow and Gilston Garden Town) T 1 (Sustainable Transport Choices), DM 9 (High Quality Design), D 1 (Delivery of Infrastructure) and the site specific requirements set out in Appendix 6 of the LPSV.

How it will be funded.

- 5.10 Through a number of funding schemes including through the securing of monies from planning applications, Essex County Council Local Transport Funding, Department for Transport funding and where appropriate funding bids such as the Housing Infrastructure Fund.

How its success will be monitored.

- 5.11 Through the monitoring of site specific travel plans, the delivery of infrastructure through investment programmes including the LPSV and Harlow and Gilston Infrastructure Delivery Plans and through future traffic surveys.

Electric Vehicle charging points.

- 5.12 Policy T 1 (Sustainable Transport Choices) of the LPSV requires that all development which results in a net increase in vehicle parking spaces must ensure that those spaces have direct access to an electric vehicle parking space. The requirement ensures that there will be greater opportunities for people to be able to access charging points. This will support future decision-making by residents and businesses when making vehicle purchases. Automatic Number Plate Recognition (ANPR) data collected has shown that the Vehicle Fleet Mix for vehicles using roads through the Forest is older than the national average and therefore purchase decisions may come forward sooner than might be expected.
- 5.13 As the requirement relates to 'destination' sites as well as 'origin' sites it will give people greater comfort that, if they are purchasing cheaper electric vehicles which have greater range limitations, that charging options will be available. This also supports the wider role out of measures for the provision of electric vehicle charging points (i.e. autonomous measures) being encouraged and supported by the UK Government.
- 5.14 It is also important to ensure that provision is made in support of Government decisions to introduce the ban of sales of new petrol, diesel and hybrid cars and vans by 2035 but that the motor industry has indicated that it will be implementing such actions sooner. In addition the UK Government has introduced financial incentives to support the uptake of electric vehicle purchases through Road Vehicle Taxation differentiation and company car tax rates.

Can the benefits of the mitigation be modelled?

- 5.15 Not with certainty. Therefore, no account has been taken of the uptake in electric vehicles over and above those included in national projections to represent the policy. The modelling has, however, now included the proportion of electric and other low-emission vehicles that are currently using roads through the Forest based on the data collected through the ANPR surveys.

How it will be funded.

- 5.16 This is a requirement for new development sites and will be funded by individual developers.

How it will be delivered.

- 5.17 The measures will be secured through the imposition of planning conditions on individual planning permissions and implemented by site developers.

How its success will be monitored.

- 5.18 Through future ANPR surveys. Nevertheless it is acknowledged that the take up of electric vehicles will be influenced by a number of factors and not solely on the provision of electric vehicle charging points. Therefore any initiatives which result in an increase in electric vehicle charging points is considered to be a supportive and necessary measure but does not act as mitigation in its own right. Further measures to encourage the purchase of electric vehicles are being investigated as the electrification of the fleet will benefit both human health (AQMA) and the integrity of the EFSAC.

Strategic Road Signage Strategy

- 5.19 Highway signage can play an important part in directing people to key destinations, especially those who are unfamiliar with the local road network. Signage that has been in place for many years may no longer be appropriate within the context of the present day and may contribute to issues such as those being faced by the Forest in relation to air pollution. For example, reviewing and implementing changes to the brown signs which denote tourist attractions could be an effective way of directing visitors away from key air pollution 'hot spots'. As an example, the brown tourist sign for the Forest Visitor Centre at High Beech located on the roundabout at Junction 26 of the M25 directs people along the A121 Honey Lane east up to the Wake Arms Roundabout (WAR), and then from the WAR down to the Robin Hood Roundabout. Replacing these signs and directing visitors instead along Dowding Way, Sewardstone Road and Avey Lane to access High Beech and the Forest car parks in that area would remove some traffic off the WAR and Robin Hood Roundabout and on roads through the Forest generally.
- 5.20 In developing such a strategy it will need to also have regard to the need for providing passing bays on more constrained parts of the more rural roads such as Avey Lane, and working with the Conservators of Epping Forest both in terms of the signage, but also ensuring that their own website and mapping focuses on those routes that reduce traffic

movements through the Forest. The review of the brown tourist signs in particular is an identified action in the Epping Forest Transport Strategy 2009-2016.

How it will be funded.

5.21 TBC

How it will be delivered

5.22 In partnership between EFDC, ECC and the Conservators of Epping Forest.

How its success will be monitored.

5.23 Through future ANPR surveys.

HGV Route Management Strategies

5.24 Route Management Strategies will be required for developments which will generate HGV movements. This is a well-established planning mechanism and will enable HGV restrictions to be placed on, primarily, employment development within the District to prevent an increase in HGVs on roads through the Forest. HGVs contribute to atmospheric pollution in two ways. Firstly, they are primarily diesel fuelled. Secondly, they contribute to queuing traffic both in terms of their size (an HGV is on average equivalent to 2.3 passenger car units) but also because they are slower moving vehicles when they move through junctions they take a greater amount of time and therefore contribute to queuing at those junctions. The use of Route Management Strategies will help to reduce the number of new HGVs that will use roads through the Forest from the larger employment allocations proposed in the LPSV.

How it will be funded.

5.25 This will be a requirement of any planning application in relation to principally new employment development sites or extensions to existing sites. Therefore, there is no specific financial cost associated with this measure.

How it will be delivered.

5.26 The measures will be secured through the imposition of planning conditions or Section 106 planning obligations on individual planning permissions and implemented by site developers.

How its success will be monitored.

5.27 Through future ANPR surveys.

Communications Infrastructure

- 5.28 The promotion and enhancement of communications infrastructure supports the objective of reducing car usage, and will support reductions in work based travel. This will therefore have some benefit in slowing increases in traffic growth on roads through the Forest.

Can the benefits of the mitigation be modelled?

- 5.29 Not specifically. Therefore this intervention is not considered to be a mitigation measure but rather will support the LPSV objective of reducing reliance on the private car, which will have a beneficial effect on the Forest through reductions in traffic growth.

How it will be delivered.

- 5.30 Through the application of Policy D 5 of the LPSV. The Policy requires all major development proposals to demonstrate how high speed broadband infrastructure will be accommodated. In addition other initiatives that are in place which are not linked to development, such as the Superfast Essex programme, will result in improved communications infrastructure for existing residents and businesses which will support home-working for existing residents.

How it will be funded.

- 5.31 This is a requirement for new development sites and will be funded by individual developers.

How its success will be monitored.

- 5.32 Through traffic monitoring.

Awareness Raising Campaign

- 5.33 The issues of air pollution and the climate crisis are becoming far more widely known about and actions to address them are going higher up the agenda in terms of peoples priorities. However, beyond the development world little is currently known by the majority of residents and businesses within the District of the issues facing the Forest. Beginning an awareness raising campaign about the issues, and the fact that everyone within the District who drives a vehicle through the Forest is contributing to the issues affecting its long-term health. Undertaking an awareness raising campaign which includes information about the range of grants and incentives that exist, together with an understanding of what the longer-term financial savings that could be achieved by switching to electric, or other alternative technologies can help to influence decision making when looking to buy a new car or making decisions as to how they want to travel in the future. Such a campaign can begin the conversation and help to support other initiatives within the strategy and help achieve the targets that need to be met in terms of improvements in air pollution.

How it will be funded

- 5.34 By Epping Forest District Council.

How will it be delivered

- 5.35 By Epping Forest District Council

How its success will be monitored.

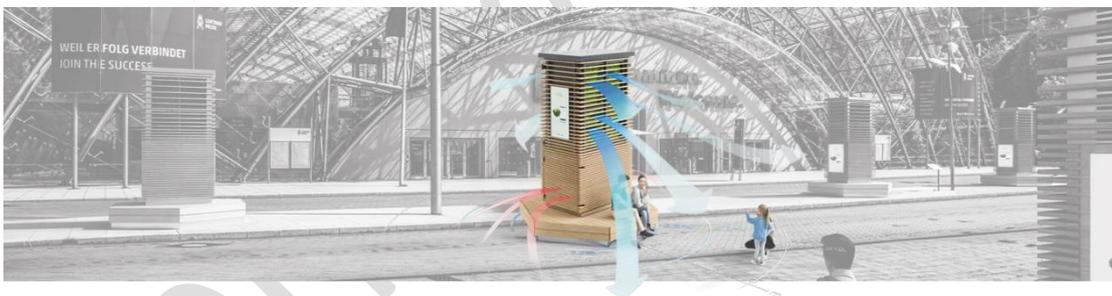
- 5.36 Through traffic monitoring, air quality monitoring and ANPR surveys.

'Novel' Measures

- 5.37 Recognising the challenges that many places are experiencing in relation to the effects of air quality on both human and ecological health there are a number of new technologies that the Council considers could be trialled in the Forest to support the other mitigation and support measures identified above. It is important that we consider trying some of these measures, which in some cases, may actually involve using the Forest as a real world opportunity to test their effectiveness. We need to do this so that we have done everything we can to reduce air pollution before we have to introduce more 'draconian' measures such as a CAZ or banning HGVs and possibly LGVs from using roads through the Forest. There are two measures in particular that we are investigating implementing.

City Trees

- 5.38 The ability of certain moss cultures to filter pollutants such as particulate matter and nitrogen oxides from the air makes them ideal natural air purifiers. But in cities, where air purification is a great challenge, mosses are barely able to survive due to their need for water and shade. This problem can be solved by connecting different mosses with fully automated water and nutrient provision based on unique Internet of Things technology. Air filtering performance is quantitatively proven and the plants' requirements are measured in real time. The City Tree came into being in order to address these issues by providing the world's first bio-tech filter to quantifiably improve air quality.
- 5.39 City Trees have been installed by the London Borough of Waltham Forest at Leytonstone Station and The Thatched House (at the junction of two heavily trafficked roads – Leytonstone High Road / Leytonstone Road and Cann Hall Road / Crownfield Road). Whilst these have been developed in order to respond to the effects of air pollution on human health they target one of the key pollutants that we are trying to address. They are self-sustaining structures that contain a water tank, with automatic irrigation and plant sensors all powered by on board solar panels and batteries. Consequently, they could be suitable for locating at Wake Arms Roundabout and Robin Hood Roundabout in particular. More information can be viewed [here](#).



A road based pollution extraction system

5.40 This is a new patented technology which captures pollution at the source of production - in the roadway, next to vehicle exhausts. A series of partially submerged pods are installed in the centre of the roadway at "hotspot areas" of high pollution, slow moving and or stationary traffic. These pods are connected under the surface to pipework which extracts the polluted air into a roadside cleaning unit. The air that leaves the roadside unit is cleaned to a rate of 99%, removing particulate matter (PM1 - PM10) along with a range of harmful gases including Nitrogen Oxide (NOx), Carbon Monoxide (CO), Hydrocarbons (HC) and Ozone (O3). The road based pods can also be used for "lane delineation" also known as "white lines". The maintenance required by the roadside air cleaning unit varies depending on the density of pollution and volume of traffic but timescales vary between 3 and 12 month intervals.

Further investigative work prior to implementation

Introduction of a Clean Air Zone:

- 5.41 The air quality modelling that has been undertaken to support the development of this strategy and to inform an update to the LPSV Habitats Regulations Assessment (HRA) has demonstrated that, based on current information and assumptions, in order to achieve the conservation objectives for the EFSAC a key mitigation measure will be the need to implement a Clean Air Zone (CAZ) prior to the end of the Local Plan period in 2033.
- 5.42 The approach set out below is in accordance with [Government guidance](#) for the development of a CAZ. A CAZ is a recognised measure for securing improvements in air quality with a particular focus on addressing emissions from vehicles. A CAZ is normally implemented as a mechanism for addressing concerns about high levels of traffic related pollution on human health i.e. NOx and particulate matter. However, a CAZ could be equally effective in securing improvements in atmospheric pollution which is having an adverse effect on the integrity of the EFSAC, when targeted appropriately.
- 5.43 In undertaking the air quality modelling work to support the development of this strategy the Council has collected data on the type and age of vehicles using roads through the EFSAC on a daily basis which means that we have a much better understanding of which vehicles are having the greatest impact on the EFSAC in terms of emissions of NOx and ammonia. This has helped us to focus on the type of CAZ that would need to be implemented.

Clean Air Zones

- 5.44 There are four types, or classes, of conventional CAZ, that have been used by local authorities in other parts of the country as follows:

Class	Vehicle type
A	Buses, coaches, taxis, private hire vehicles
B	Buses, coaches, taxis, private hire vehicles, heavy goods vehicles
C	Buses, coaches, taxis, private hire vehicles, heavy goods vehicles, vans, minibuses
D	Buses, coaches, taxis, private hire vehicles, heavy goods vehicles, vans, minibuses, cars, the local authority has the option to include motorcycles

- 5.45 The aim of a conventional CAZ is to discourage older vehicles, and in particular diesel vehicles, from using areas which have significant air quality issues such as Air Quality Management Areas (AQMA), as these vehicles make the greatest contribution to emissions of NOx. Emissions of ammonia however, are greater from petrol vehicles. As such, a potential fifth CAZ class, or type, may need to be considered which favours electric vehicles

or vehicles using other technologies which have zero on-road emissions of NOx and ammonia, and would therefore benefit both the integrity of the EFSAC and also AQMAs, designated to protect human health.

- 5.46 We know from data we have collected that the following vehicle types have the greatest effect on the integrity of the EFSAC³:

Vans: Approximately 18% of the daily traffic using roads through the EFSAC is made up of diesel vans but they contributed up to 45% of NOx emissions in 2017.

HGVs: Approximately 2% of the daily traffic using roads through the EFSAC is made up of diesel HGVs but they contributed up to 37% of NOx emissions in 2017.

Older private cars: Approximately 28% of the daily traffic using roads through the EFSAC is made up of older diesel cars (pre-Euro 6) which contributed up to 45% of NOx emissions in 2017.

Petrol cars: Approximately 40% of the daily traffic using roads through the EFSAC is made up of petrol cars which contributed up to 88% of ammonia emissions in 2017.

What minimum emission standards apply to a CAZ?

- 5.47 In terms of NOx, each vehicle type has a minimum emission standard to avoid charges for entering the CAZ, however there are currently no limitations on emissions of ammonia. A vehicle's emission standard can be found in a vehicle logbook or from the vehicle manufacturer, although there is also a useful vehicle emissions checker on the Transport for London (TfL) website.
- 5.48 To avoid being charged in a traditional CAZ, a vehicle must meet the following minimum standard.

Vehicle type	CAZ minimum standard
Buses, coaches, heavy goods vehicles	Euro VI
Vans, minibuses, taxis, private hire vehicles, cars	Euro 6 (diesel) and Euro 4 (petrol)
Motorcycles	Euro 3

³ Vehicle fleet composition data for EFSAC from 2017 ANPR data survey. Emissions data is the maximum contribution by vehicle type, which varies according to road, fleet mix and speed (NOx only), derived in the air quality modelling assessment.

5.49 There are some national exemptions from the charge for the following:

- vehicles that are ultra-low emission
- disabled passenger tax class vehicles
- military vehicles
- historic vehicles
- vehicles retrofitted with technology accredited by the [Clean Vehicle Retrofit Accreditation Scheme](#) (CVRAS)⁴

What type of CAZ might need to be applied for the EFSAC?

5.50 Based on the most up-to-date evidence the type of conventional CAZ that would need to be applied would be a Class D CAZ. This means that the following vehicles would be included:

Buses, coaches, taxis, private hire vehicles, heavy goods vehicles, vans, minibuses, and cars.

We also have the option to include motorcycles and can bring in some local exemptions. In particular we will need to think about how this might apply to vehicles operated by the emergency services.

Further consideration of the potential implications on emissions of ammonia is currently underway. The feasibility of a potential 'Class E' CAZ, which further promotes the use of electric vehicles, should be considered.

What does this mean in practice?

5.48 The standards for a conventional Class D CAZ are as follows:

- **Euro 3** for motorcycles, mopeds, motorised tricycles and quadricycles (L category).
- **Euro 4** for petrol cars, vans, minibuses and other specialist vehicles.
- **Euro 6** for diesel cars, vans and minibuses and other specialist vehicles.
- **Euro VI** for lorries, buses and coaches and other specialist heavy vehicles.

This means that vehicles which comply with the appropriate NOx standard would be able to enter the CAZ without being charged.

5.49 With regard to NOx, **Euro 3** became mandatory for all new motorcycles in 2007. **Euro 4** became mandatory for all new cars in 2005 and light vans in 2006. **Euro 6** became mandatory for all new heavy-duty engines for goods vehicles and buses from January 2014, from September 2015 for cars and light vans, and from September 2016 for larger vans up to and including 3.5 tonnes gross vehicle weight.

⁴ The key retrofit technologies are:

- Exhaust after treatment systems – these use a diesel particulate filter (DPF) to reduce emissions of particulate matter and a selective catalytic reduction (SCR) system which reduces nitrogen oxide emissions. They are applied to an existing vehicle powertrain.
- Re-power systems – this involves completely stripping out the existing engine and replacing it with a brand-new powertrain which could be a cleaner diesel engine, a petrol engine + LPG system, a 100% electric powertrain or a hybrid electric powertrain.

5.50 In developing a CAZ for the Forest careful consideration will need to be given to what categories are included to ensure that we are addressing both NO_x and ammonia. To provide an understanding of the current situation in relation to the vehicles using the Forest we have used the data that we collected in 2019 to set out the proportion of vehicles currently using the roads within the Forest which would not comply with the CAZ standards is as follows:

Euro 3: xx % would not comply *Data to be provided*

Euro 4: xx% would not comply *Data to be provided*

Euro 6: xx% would not comply *Data to be provided*

5.51 Vehicles that comply with the CAZ standards set will be able to be driven within the CAZ without having to pay a daily charge. Vehicles which do not comply with the standards can still be driven within the CAZ but would be subject to a daily charge.

5.52 The following are examples of the level of charging, or proposed levels of charging, for other schemes of a similar nature.

The London Ultra Low Emission Zone (ULEZ):

- £12.50 for most vehicle types, including cars, motorcycles and vans (up to and including 3.5 tonnes).
- £100 for heavier vehicles, including lorries (over 3.5 tonnes) and buses/coaches (over 5 tonnes).

Birmingham CAZ:

- £8 for cars, vans and minibuses
- £50 for HGVs, buses and coaches.

When would a CAZ for the Epping Forest SAC be put in place?

5.53 There is currently no date set for introducing a CAZ on roads through the EFSAC. A significant amount of practical work needs to be undertaken before a CAZ would be introduced, including undertaking further monitoring of vehicles and emissions. The work the Council will be undertaking, which will be concluded to support the statutory review of the Local Plan within five years of adoption includes:

- Undertaking more detailed feasibility work to be clear as to whether the CAZ should apply to all roads through the EFSAC or just some.
- Developing a better understanding of where existing vehicles would go if they chose another route to make their journey. This is to ensure that we understand the effects that could occur in other places as a result of the introduction of a CAZ. For example, displaced journeys could end up going through places which also have air quality issues which affect human health.
- Setting up a partnership of key organisations to determine the exact nature of any scheme. Organisations would include Essex County Council, Transport for London,

adjoining local authorities, the Road Haulage Association, the Federation of Small Businesses, and the Emergency Services.

- Undertaking further monitoring of air quality in to provide an understanding of vehicle fleet mix profile to be assessed against the targets set in this strategy.
- Identifying whether any financial initiatives are needed over and above any national schemes to support the achievement of the targets and to minimise the financial impacts on those who need to use the Forest roads including small businesses.

The process for developing a CAZ is set out at Appendix X *To be completed*.

- 5.54 This further monitoring will be a key component of the preparatory work. This is because there are already some initiatives which may influence the take up of less polluting vehicles or reduce the level of polluting vehicles on roads within the EFSAC. If these changes occur then it may be that the introduction of a CAZ is not needed. However, at this point in time the evidence we have points to the need for a CAZ, although consideration must be taken regarding the impact on ammonia emissions. Some examples of these initiatives are set out below.

Changes to London Low Emission Zone

- 5.55 The Mayor of London is introducing higher standards for heavier vehicles entering the London Low Emission Zone (LLEZ) on 26 October 2020 (with new charges being introduced at the end of February 2021). The LLEZ operates to encourage the most polluting heavy diesel vehicles driving in London to become cleaner. The LEZ covers most of Greater London and is in operation 24 hours a day, every day of the year. This includes roads within LB Waltham Forest such as Woodford Green which then links into Epping New Road.

Extension of London Ultra Low Emission Zone

- 5.56 The Mayor of London is introducing changes to the London Ultra Low Emission Zone (ULEZ) in October 2021. The changes involve extending the current central London ULEZ out to the North and South Circulars. The North Circular (A406) lies close to the administrative boundary of EFDC and it is likely that some journeys that originate in EFD would have destinations within the extended ULEZ area. As a result individuals and organisations whose vehicles currently do not comply with the ULEZ standards may already be making decisions about purchasing less polluting vehicles, and in particular looking toward purchasing electric or other zero-emission vehicles.

Tax incentives

- 5.57 Government has introduced a number of fiscal incentives and grants for businesses and individuals designed to encourage the take up of electric and low emission vehicles including:
- Reduced car tax
 - Significantly lower tax levels for users of company cars. For company car drivers and fleet operators choosing an electric car from April 2020, there will be zero tax on Benefit in Kind (BIK) during 2020 / 2021. This zero rate also applies to hybrid vehicles with

emissions from 1 - 50g/km and a pure electric range of over 130 miles. There are now 11 new tax bands for vehicles with emissions of 75g/km and below, some of which are linked to the electric mile range that the vehicle offers. The government has also announced the tax rate for the next three years, helping businesses to plan ahead. The electric car tax on benefit in kind rate will increase to 1% in 2021 / 2022 and 2% in 2022 / 2023.

- Cars bought by a business with CO2 emissions of less than 50g/km are eligible for 100% first year capital allowances. This means with electric cars, the business can deduct the full cost from its pre-tax profits. On a car costing around £40,000 this could amount to a tax relief of £7,600 in the first year.
- Employers who provide electricity at a place of work can qualify for an exemption to this being taxed as a benefit-in-kind if the electricity is provided via a dedicated charge point, if the charging facilities are provided at or near the workplace and the charging must be available to either all employees or all the employer's employees at a particular location.
- There are also grants available for businesses and private individuals towards the costs of buying electric charging infrastructure and towards the cost of purchasing a vehicle.

This is currently being checked

Scrappage schemes

- 5.58 It is understood that the government is potentially exploring introducing a vehicle scrappage scheme which, if introduced, would be incentivising those with the oldest and most polluting vehicles to replace them with an electric vehicle. Notwithstanding this a number of the larger car manufacturers have initiated their own scrappage schemes. A shift toward electric vehicles would reduce emissions of both ammonia and NOx and would therefore be of great benefit to the integrity of the EFSAC.

Increases in home working

- 5.59 Government provides a traffic modelling tool which provides assumptions on growth in traffic over time. There are suggestions that these growth assumptions under-estimate the increase in home-working and this was before more people experienced working from home during the COVID-19 crisis. There is the potential that, if more people work from home on a more regular basis then the level of growth in background traffic that we have had to assume in our traffic modelling which has then informed our air quality modelling may be over-estimating the amount of traffic that will be using roads through the EFSAC by the end of the Local Plan in 2033.
- 5.60 All of these examples can have an influence on the level and type of traffic that will use the roads within the EFSAC in the future. However, we cannot take these into account as there is insufficient certainty as to by how much any of these factors will change the quantum of traffic and profile of vehicle types.

The importance of monitoring and review

- 5.61 The Council fully recognises that the introduction of a CAZ will have a real impact on both individuals and businesses. Therefore, committing to develop and, if necessary,

implementing a CAZ covering roads within the EFSAC has not been taken lightly. However, if we don't take this approach then we would be prevented from bringing forward much needed homes and job opportunities across the District. That is why as part of the detailed work that we will be starting to undertake we need to make sure that the final decision on introducing a CAZ is based on the most up-to-date information so that we can be certain that we are focusing our efforts in the correct way. It also means that we can look at focusing any financial assistance that may be needed by individuals and businesses in particular can be properly targeted. It is also important to recognise that although the CAZ would be put in place to protect the Epping Forest itself, which is an important resource to residents across the District, the more cleaner vehicles we have in the District the better the District's air quality will be for all of our residents.

How it will be funded

- 5.62 There are currently a number of Government funding initiatives in place to support the development of CAZs. Whilst these are focused on addressing issues of air pollution as they affect human health the Council will be discussing with the Department for the Environment, Farming and Rural Affairs and the Ministry of Housing, Communities and Local Government the potential of securing Government funding recognising the unique challenges that the District is facing.

Banning HGVs and, if necessary LGVs from using roads through the Forest

- 5.63 This is currently being investigated as an extension of the Route Management Strategy approach. This can be modelled in the future if monitoring data indicates that this may be necessary. There are some practical challenges in looking at this approach which are still being considered over and above the potential economic impact for local businesses. These challenges include:
- The impacts on communities which are located on routes that HGVs would use as an alternative to roads through the Forest.
 - The impact on the capacity of other parts of the road network to accommodate additional HGV movements.
 - The impacts on communities where there is no other routing option in terms of the need for HGVs to serve them. This includes local businesses including supermarkets.
 - How much of an air quality benefit would arise which would justify this approach.
 - Who would pay for the implementation of the scheme this as it may be difficult, on the face of it, to demonstrate that development proposals should pay when applying the CIL Section 122 tests.
- 5.64 Variants could be to ban HGVs during peak hours and also consider extending this to include LGVs. A key consideration for this approach would be how practical it would be for deliveries to businesses which have planning conditions restricting hours of delivery and the effects on small businesses and customers in relation to LGVs.

Inclusion of a trigger policy for the release of larger sites

- 5.65 This approach would involve identifying sites which have the potential to make a material contribution to increases in traffic on roads through the Forest. The development of a ‘trigger’ policy so that a site or only a certain proportion of a site could come forward for development when it could be demonstrated through future monitoring and modelling that the development of the site would not have an adverse effect on integrity or an unacceptably delayed achievement of the conservation objectives for the Forest. This might be considered to be a more certain mechanism for HRA purposes as these schemes could be removed from the modelling so that it would be possible to provide air quality data with and without such developments. This would mean that they remain allocated in the Plan but that their release would be managed based on evidence. This type of approach is not a ‘novel’ one in planning policy terms.

6 Monitoring and Review

- 6.1 The Council, as local planning authority, is legally required to undertake a review of its Local Plan every five years. Whilst this does not automatically mean that the Local Plan itself will be updated the review should be informed by the monitoring of data to understand if key indicators in the Local Plan are being achieved, and if they are not, then this can act as a ‘trigger’ which requires the Council to undertake an update to its Local Plan in order to rectify/remedy any issues identified through the review.
- 6.2 In this regard, undertaking a planned approach to air quality monitoring to assess progress on improvements to air quality is a necessary and key component of this strategy. This will involve a number of elements as follows:
- Provision of a continuous air quality monitoring unit. The pollutants to be monitored and the most effective location for doing so will be discussed and agreed with Natural England and the Conservators of Epping Forest. The permanent facility will provide an important source of information based on continuous monitoring which takes account of different seasons and changes in traffic levels across the year.
 - Undertaking on-site passive monitoring of Ammonia and NO₂ (e.g. diffusion tubes) within the Epping Forest Special Area of Conservation) using the same sites and methodology as that undertaken for the air quality monitoring undertaken over the period May 2018 – February 2019. The monitoring will be undertaken every **xx** years for a period of **x** months and will cover the months of **xx**. This will allow for an analysis of conditions with and without leaf cover and across periods where traffic levels are not reduced as a result of school and public holidays. This monitoring will build on the outputs from the continuous air quality monitoring station.
 - Use the results of the on-site monitoring to assess against the ‘predicted’ air quality conditions as assessed through the Updated HRA 2019.
 - Undertake traffic counts at key parts of the road network through the Forest which aligns with air quality monitoring to provide a comparable basis for review and assessment.

The above monitoring proposals are subject to further advice and input including from Natural England and the Conservators of Epping Forest

- 6.3 This monitoring information will inform the review of the Local Plan which will be assessed by undertaking further air quality modelling work, using the same methodology and utilising the most up-to-date projections from DEFRA. On the basis of the most up-to-date modelling outputs the Council will undertake an assessment as to whether the Local Plan should be updated in relation to the level and location of development across the District in consultation with Natural England as the statutory body responsible for oversight of European site protection. This will include consideration as to whether any issues regarding expected improvements are as a result of local issues or are related to regional or national effects, and to which pollutants these issues relate to.
- 6.4 The cost of undertaking the monitoring and comparative assessments will be secured through contributions from all development proposals which are proposed to be approved under the Town and Country Planning Acts, which have required a transport assessment or transport statement. The cost to be secured is £xx per dwelling/self-contained unit or £xx per square metre for non-residential development where a net increase in traffic as a result of the development has been identified.

Working Draft

Appendix 1: Non-planning related activities

Wider activities being undertaken or proposed to be undertaken by the Council

1.1 As well as its function as a local planning authority the Council has duties under the Environment Act 1995 with respect to Local Air Quality Management (LAQM). Whilst the Council's LAQM role is focused on the effects of air quality on human health some of these activities will also have a benefit with respect to supporting improvements in air quality which will be beneficial to ecological health. The Council has decided to incorporate all activities that support air quality improvements for both human and ecological health to ensure that a complete and comprehensive approach is provided in one place. Some of the activities that the Council is undertaking or exploring are as follows:

- Clean Air Day – undertake additional promotional work outside schools, focussing on known problem areas, speaking to parents in vehicles and also raising awareness with the children.
- Idling vehicles promotion campaign – Raise awareness of the impacts of idling vehicles and that idling is an offence that may lead to the issuing of an FPN Enforcement of Idling Vehicles by EFDC – officers have been given the necessary authority to serve Fixed Penalty Notices (May 2018). It is intended for this power to be targeted where complaints are received and it will follow a promotional campaign to highlight this power to residents. There are opportunities to consider whether there are opportunities to include the use of FPNs at sensitive parts of the Forest.
- Effective regulation of Part B and Part A2 regulated activities including solvent emission activities.
- Investigation of complaints regarding, and regular reviews to search for unpermitted industrial activities.
- Investigation of complaints and effective regulation in respect of industrial and domestic bonfires.
- Investigation of complaints, provision of information and effective regulation of smoke control areas (Loughton and Waltham Abbey).
- Participation in 'Clean Air Day' anti-idling promotion initiatives with a focus outside schools.

Providing electric vehicle charging points in Council owned car parks

1.2 The Council is exploring the provision of electric vehicle charging points within its network of car parks across the District.

Working with Partners and Landowners

1.3 There are a number of areas where the Council will use its influence with Partners and Landowners, including though the Green Arc Partnership, in respect of the following:

- Encouraging the change to cleaner buses
- Working with the Conservators of Epping Forest, as a landowner, with regard to management of its agricultural landholdings and use of buffer lands for grazing
- Working with the Conservators of Epping Forest and Essex County Council to encourage the development of an up-to-date Transport and Access Management Strategy for the Forest, including an appropriate approach to encouraging visits to the Forest by means other than the Car such as charging for car parking.
- Working with landowners to encourage changes to land management and agricultural practices by promoting, for example, the government's national Code of Good Agricultural Practice.

Activities outside of the Council's sphere of influence

Note: The government's approach to managing ammonia emissions has been included to provide a 'complete picture' recognising that although not in place and therefore not certain for the purposes of undertaking the HRA nevertheless there will be positive actions taken over the course of the Plan period.

1.4 The government's Clean Air Strategy 2019 has identified a number of actions that it will undertake which will support reductions in the effects on habitats from ammonia, which primarily arises from agricultural practices. It should be noted that these measures have not been taken into account in modelling the 'Mitigated' scenarios in relation to understanding the effects of development on air quality on the Forest. These actions are as follows:

- Government has provided a national code of good agricultural practice (COGAP) to reduce ammonia emissions.
- Government will require and support farmers to make investments in the farm infrastructure and equipment that will reduce emissions.
- A future environmental land management system will fund targeted action to protect habitats impacted by ammonia.
- Government will continue to work with the agriculture sector to ensure the ammonia inventory reflects existing farming practice and the latest evidence on emissions.
- Government will regulate to reduce ammonia emissions from farming by requiring adoption of low emissions farming techniques.
- Government will extend environmental permitting to the dairy and intensive beef sectors.
- Government will regulate to minimise pollution from fertiliser use, seeking advice from an expert group on the optimal policy approach.
- A future environmental land management system will fund targeted action to protect habitats impacted by poor air quality. Achievement of our 2030 air quality targets will reduce the pressure of emissions on semi-natural habitats. However, despite projected improvements, some vulnerable habitats will still be exposed to nitrogen deposition and atmospheric levels of ammonia that are greater than they can tolerate. Natural England is currently examining options to improve the effectiveness of incentive schemes for mitigating ammonia emissions to air and

protecting natural ecosystems. In addition, we have commissioned further work to investigate how these habitats might be protected most effectively through new environmental land management schemes.

1.5 Government proposes to introduce rules on specific emissions reducing practices including:

- a requirement to take action to reduce emissions from urea-based fertilisers. Government proposes to consult on this policy in 2019 with a view to introducing legislation in the shortest possible timeframe;
- a requirement for all solid manure and solid digestate spread to bare land (other than that managed in a no-till system) to be incorporated rapidly (within 12 hours) with legislation to be introduced in the shortest possible timeframe;
- a requirement to spread slurries and digestate using low-emission spreading equipment (trailing shoe or trailing hose or injection) by 2025. Government will also consider options for phasing in this requirement so that those spreading digestate or large volumes of slurry may be required to adopt the practice at an earlier date;
- a requirement for slurry and digestate stores to be covered by 2027. Government will consider options for phasing in this requirement so that those producing or storing digestate or large volumes of slurry may be required to adopt the practice at an earlier date.
- mandatory design standards for new intensive poultry, pig and beef livestock housing and for dairy housing. The standards will be designed in collaboration with industry experts and will include design features to improve animal health and welfare and minimise environmental pollution to air (including greenhouse gas emissions), water and land as far as practicable
- Emissions of ammonia fell by 13% between 1980 and 2015. However, since then there has been an increase in emissions, largely as a result of fertiliser use. Government's aim is to reduce emissions of ammonia against the 2005 baseline by 8% by 2020 and 16% by 2030.