



Essex Highways Strategy for Managing its Green Estate

2024

Essex Highways Strategy for Managing its Green Estate

Foreword - exploring and embracing opportunities to improve the environment.

We recognise the vital role that the highways network plays in the lives of the residents as well as the travelling public and local businesses, especially as the county strives to respond to the cost-of-living crisis and other global issues.

While we celebrate the benefits of our transport network in providing movement for people, goods, and services essential to support our way of life and plans for prosperity, we also acknowledge its potential to impact negatively on the environment.

However, more importantly, we also acknowledge its potential to help the environment, through sympathetic planning that uses environmentally friendly materials wherever practicable, and through associated soft landscaping. In this way, the transport network can act as natural green corridors through creating, restoring, and connecting places for wildflowers, trees, shrubs, parks, and linear landscaping to flourish.

This Essex County Council Essex Highways Strategy for managing its Green Estate, along with the Essex County Council Essex Highways Decarbonisation Strategy, is at the heart of the Council's environmental planning for its Highway assets.

This Strategy acknowledges how urgent actions are now needed to improve green infrastructure and biodiversity, help restore local nature, and alleviate flood risk but also manage water resources better. This is encouraging Highways to evolve the fundamental purpose of its assets – especially its Green Estate – in a manner that makes a positive contribution to all environmental challenges, thereby improving the health and wellbeing of all.

Highways has a long and successful history of working collaboratively with others to improve the benefits of outcomes, and this Strategy sets out how Highways embraces a unique opportunity to make a positive contribution to the environment, not least through unlocking additional funding and harnessing new resource.

This Strategy also sets out how the environment is a key consideration in all Highway related decision making, thereby supporting the Council's strategic priorities documented in Everyone's Essex, as well as promoting the Council's vision for 'Safer, Greener and Healthier Travel', and contributing towards achieving the County's target of net zero by 2050.

Cllr. Tom Cunningham



Portfolio Holder for Highways, Infrastructure and Sustainable Transport

Essex Highways' assets are currently managed via the Essex Highways strategic partnership, which is a collaboration between ECC and contractor Ringway Jacobs, which was formed on the 1st of April 2012.

This Strategy is a supplementary strategic document to the Highways Infrastructure Asset Management Plan (HIAMP) which forms the keystone of the Essex Highways Strategic Partnership whose objective is to deliver the Council's strategic priorities. This Strategic Partnership makes us very flexible and adaptive to change – such as the need to respond to the current environmental challenges. It also positions us well to realise the potential benefits from the Council's emerging plans relating to devolution.

Both Essex County Council and Ringway Jacobs are committed to exploring the opportunities presented through this Strategy for improving the environment. At the same time, the partnership remains committed to long term efficient and cost-effective management of Highways' assets, to deliver a transport system that supports sustainable economic growth and promotes the very best quality of life for the residents of Essex.



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Director Highways and Transport



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1. Summary

Actions needed urgently to address climate change, improve green infrastructure and biodiversity, help restore local nature, and alleviate flood risk but also manage water resources better, are encouraging Essex County Council (ECC) Essex Highways (Highways) to evolve beyond its fundamental purpose.

This Strategy is aimed accordingly at the collaborative investigation of opportunities for Highways to support improvements to the environment. Implementation of such opportunities, where practicable, will support the Council's net zero ambitions, the Essex Climate Action Commission publication 'Net Zero, making Essex carbon neutral', the priorities within the publication 'Everyone's Essex, our plan for levelling up the county, 2021-25', the Council's vision for 'Safer, Greener and Healthier Travel', as well as all themes within the emerging Local Transport Plan(4). All of which will promote peoples' health and wellbeing and add social value.

The financial challenges currently faced by the Council are not underestimated, however. It is a requirement of this Strategy, therefore, that where any proposal to manage green estate would increase costs to Highways, especially maintenance costs, the possibility of obtaining external funding in perpetuity will be explored fully in the first instance. Similarly, in the case of any required works associated with such proposals, the possibility of them being funded, undertaken, and maintained in perpetuity, by other groups or organisations who are approved for safe working within the highway, in those instances where proposed activities are legally permissible and meet with the approval of Highways, will also be explored fully in the first instance.

Where proposals to manage green estate increase costs to Highways, and no external funding or resource for works and ongoing maintenance in perpetuity can be secured, these proposals will be the subject of business cases that clearly set out the environmental benefits as well as financial costs. These business cases will then be presented to ECC to determine if members wish to support the proposals, but there will NOT be a presumption that funding, and resource will be forthcoming.

2. Context: reviewing the activities of Highways to explore opportunities to improve the environment.

Actions required to address environmental challenges are encouraging Highways to evolve beyond its fundamental purpose. This Strategy primarily sets out how Highways will review the management of its Green Estate, to consider new opportunities to fulfil the Council's strategic priorities for its residents.

This Strategy sets out how Highways will review the management of its Green Estate, to explore opportunities to improve the environment. This Strategy also acknowledges that Essex County Council (ECC) owns a vast network of other highways assets, and that the way it manages the maintenance and renewals of these assets, as well as the way it manages improvement schemes, has the potential to impact negatively on the environment. This Strategy therefore also sets out how Highways will explore opportunities not only to mitigate the potential for negative impacts on the environment but to bring about improvements to the environment. (For information relating to reducing carbon emissions, however, please refer to the ECC Essex Highways Decarbonisation Strategy).

This Strategy will not alter the fundamental purpose of the highway. Nor will it alter permissible activities in the highway, which are governed by the Highways Act 1980 (and subsequent amendments) as well as governed by common law in the absence of defined statutes. Nor will it change the Council's general duty of care to highway users and the community to maintain the highway in a condition fit for its purpose. This duty extends also to ensuring operations carried out in its name either directly or through contractors, agents or providers are executed in a safe and appropriate manner. The issue of safety will remain paramount, and Highways will continue to employ the advice of experts to assess all aspects of risk.

Neither does this Strategy redefine the established maintenance practices and standards relating to its assets, including its Green Estate, which can be found in its published maintenance policies and strategies. However, this Strategy sets out how Highways will evaluate and potentially implement new opportunities to support improvements to green infrastructure, water management and biodiversity, as well as to support the recovery of local nature. Support for these initiatives will have the potential to improve people's health and wellbeing and make a positive contribution to social value.

Note that the management of Highways assets in respect of new developments, is set out in the Essex Design Guide published on the Essex County Council website and will therefore not be included in this Strategy.

2.1 Financial Challenges – unlocking additional funding.

This Strategy can unlock new funding and harness new resources.

This Strategy acknowledges the current financial challenges faced by the Council, which are influenced by global political events that are resulting in a cost-of-living crisis. However, this Strategy has the potential to unlock additional funding external to ECC as well as to harness the

resource and commitment of local groups, external organisations, and businesses, to address environmental challenges.

2.2 Financial Challenges – funding any increases in Highways costs.

Where any proposal to manage green estate would increase costs to Highways, the possibility of obtaining external funding will be explored fully in the first instance. Similarly, in the case of any required works associated with such proposals, the possibility of them being funded, undertaken, and maintained in perpetuity, by other groups or organisations who are approved for safe working within the highway, will also be explored fully in the first instance. Where increases in costs and resources cannot be secured from external sources, then these will be the subject of business cases submitted to ECC to determine if members wish to provide support. There will NOT be a presumption that funding, and resource will be forthcoming.

Highways has a long and successful history of working collaboratively with others and will be continuing to investigate fully opportunities through this way of working. However, while it is anticipated that much can be achieved through working efficiently within existing resources, the financial capacity of Highways to evolve management of its assets, especially its Green Estate, in a manner sympathetic to improvements for nature, is currently extremely limited.

The financial challenges currently faced by the Council are not underestimated. It is a requirement of this Strategy, therefore, that where any proposal to manage green estate would increase costs to Highways, especially maintenance costs, the possibility of obtaining external funding in perpetuity will be explored fully in the first instance. Similarly, in the case of any required works associated with such proposals, the possibility of them being funded, undertaken, and maintained in perpetuity, by other groups or organisations who are approved for safe working within the highway, in those instances where proposed activities are legally permissible and meet with the approval of Highways, will also be explored fully in the first instance.

Where proposals to manage green estate increase costs to Highways, and no external funding or resource for works and ongoing maintenance in perpetuity can be secured, these proposals will be the subject of business cases that clearly set out the environmental benefits as well as financial costs. These business cases will then be presented to ECC to determine if members wish to support the proposals, but there will NOT be a presumption that funding, and resource will be forthcoming.

2.3 Net Zero by 2050

This Strategy helps support the Council's net zero ambitions.

Recently, there has been heightened awareness in political and public perception of the impacts from climate change and environmental decline. The urgency for action has been universally agreed with the COP21 Paris Agreement, and the UK is the first country to enshrine in law a commitment to reducing greenhouse gas emissions to net zero by 2050.

The Essex Climate Action Commission publication 'Net Zero, making Essex carbon neutral' outlines the importance of ECC Green Infrastructure Strategy for biodiversity, flood and drought control, soil health, air quality, reduced urban heat island effect and human health and wellbeing. It outlines the following objectives and recommendations for Essex:

- 30% of all land in Essex will enhance biodiversity and the natural environment by creating natural green infrastructure. The target is 25% by 2030, and 30% by 2040.
- To increase urban greening: 30% greening of our towns, villages, and new developments by 2030.

In short, The Essex Climate Action Commission publication 'Net Zero, making Essex carbon neutral' states: "The natural world is our best ally in reversing climate change – it is key to absorbing and storing carbon."

This Strategy supports the Council's net zero ambitions and the related objectives and recommendations within ECC Green Infrastructure Strategy, through setting out how Highways will evaluate and potentially implement new opportunities for managing its assets in a manner which considers all environmental challenges in its decision making.

2.4 'Everyone's Essex, our plan for levelling up the county, 2021-25'

This Strategy supports 'Everyone's Essex'.

The document 'Everyone's Essex, our plan for levelling up the county, 2021-25' sets out the Council's twenty strategic priorities that will make Essex a stronger county, not just for us, but also for our children and their children. These priorities fall into four categories: Economy, Environment, Health, and Family.

Under the Environment category, the Council pledges to work to hit our net zero targets, by ensuring the council significantly reduces its carbon footprint, whilst also supporting an acceleration in the progress towards active and alternative forms of travel across the county. This includes a step change in sustainable travel across the county, by growing passenger transport and active travel. The Council also pledges to help all our communities to enjoy a high-quality environment, by making them more resilient against flooding, heat stress and water shortages, by enhancing our county's green infrastructure and by reducing air pollution.

The publications ECC Green Infrastructure Strategy and the Essex Green Infrastructure Standards, champion for the enhancement, protection, and creation of an inclusive and integrated network of green spaces. Observing the principles within these publications will assist with ensuring quality and consistency in the provision, management, and stewardship of Green Infrastructure, which is an essential part of creating and sustaining green spaces for the benefit of people and wildlife.

This Strategy supports 'Everyone's Essex', by setting out how Highways will evaluate and potentially implement new opportunities for managing its assets in a manner which considers these priorities and pledges.

2.5 The Local Transport Plan

This Strategy has the potential to promote every key objective within the emerging LTP(4), through its consideration for actions to address climate change and environmental decline wherever practicable.

The Local Transport Act 2008 requires Transport Authorities such as Essex County Council to develop a Local Transport Plan (LTP) that covers all aspects of transport. The current LTP, which is the third iteration of this strategy, was adopted in 2011 and sets out the Council's aspirations for improving travel in the county, demonstrating the importance of meeting these aspirations to achieving sustainable long-term economic growth in Essex and enriching the lives of our residents. To enable delivery of this vision, the LTP contains a suite of 15 transport policies that apply throughout Essex.

A revised LTP(4) is currently being developed that will replace LTP(3). LTP4 will be evidence led and focussed upon the delivery of strategic themes linked to the delivery of wider Essex and Government priorities, including actions to address environmental challenges. LTP4 will include updated policies that will govern how ECC addresses the environmental impacts of travel and

ensure long term sustainability. The LTP will also consider mitigation necessary to ensure resilience to the impacts of climate change.

In August 2022, an Essex Transport Policy Note was published as an addendum to the LTP. This stated the position of ECC regarding decarbonisation of transport, with reference made to proposed development of the policy to support the transition to sustainable zero carbon transport. The note also stated the adoption of ECC's 'Safer, Greener and Healthier Travel' vision, as well as its support for the Essex Climate Action Commission's Report: 'Net Zero, Making Essex Carbon Neutral'.

This ECC Essex Highways Strategy for managing Green Estate will promote every key objective within the LTP(4), through its consideration for actions to address climate change and environmental decline wherever practicable.

2.6 The Essex Highways Strategic Partnership, and the 'Safer, Greener and Healthier Travel' Vision

ECC owns a vast network of highway assets. The ways in which these assets are maintained and renewed can have a significant impact on the environment. This Strategy supports the 'Safer, Greener and Healthier Travel' vision.

ECC owns and maintains a vast network of highways and transportation assets: over 5,000 miles of roads, together with a footway network of 4,000 miles, and 4,000 miles of Public Rights of Way. In addition, there are over 1,500 bridges and other highway structures, over 130,000 streetlights, 11,700 illuminated signs, 1,900 beacons and wall lights, and over 2,700 lit bollards, and over 500 Traffic Signals and Crossings. There are also other asset groups such as cycle tracks, highway gullies and drains, vehicle restraint systems, traffic signs, passenger transport infrastructure and bus telematics.

These assets are currently managed via the Essex Highways strategic partnership which is a collaboration between ECC and contractor Ringway Jacobs. (The exception to this is passenger transport and bus telematics infrastructure which is managed wholly by ECC). The strategic partnership contract was established via the Highways Strategic Transformation, and commenced on the 1st April 2012.

The delivery of maintenance and improvement works on this vast network of assets, therefore, has the potential for enormous impact on the environment. However, rather than waiting until commencement of new highway service arrangements, Highways is acting now in terms of

reviewing its potential to support actions to address environmental challenges. This Strategy is therefore in keeping with the Council's vision for 'Safer, Greener and Healthier Travel' for current and future users of the transport network.

2.7 The Department for Transport (DfT): potential financial incentives to Local Authorities who address environmental challenges.

This Strategy is likely to help address any revised, incentivised funding requirements implemented by the DfT, and to supports bids by ECC for additional funding.

The DfT Incentive Fund, which provided financial incentives to Local Authorities who could evidence sound asset management practices, was an initiative implemented by the DfT between 2015/16 to 2020/21. It is not currently clear whether the DfT is preparing to rehabilitate the Incentive Fund in a different format. This Strategy therefore places ECC in a favourable position for evidencing continued sound asset management practices, including how it deals with the Green Estate, thereby safeguarding any future Incentivised Funding from the DfT.

The DfT is also placing significant emphasis on business cases that address environmental challenges, therefore this Strategy will contribute to supporting bids to the DfT and other organisations for additional funding.

3. Highways' Assets create Fragmentation and Destruction of Green Infrastructure.

The transport network creates fragmentation and destruction of Green Infrastructure.

Green infrastructure can be defined as a carefully planned network of high quality natural and semi-natural assets and habitat types. This includes green, and blue spaces (water), and other strategically planned environmental features that maintain and deliver our ecosystem services. In a practical sense, this means green infrastructure helps provide food and water and regulate the climate, and in a cultural sense it refers to providing wellbeing and quality of life.

Green Infrastructure provides a multitude of benefits integral to the health and wellbeing of our communities and to the economy of the county, through the relationships between the air, land, water, animals, and plants. Roads impact negatively on biodiversity and ecosystems, through fragmentation of green infrastructure and habitats. The size of the impact can perhaps more readily be understood with reference to the statistic that ECC owns and maintains around 5,000

miles of roads. In this regard, our transport network has a huge impact on our environment and our quality of life.

3.1 Highways' Green Estate represents Potential Green Corridors.

Essex Highways' Green Estate assets have the potential to be developed to act as 'Green Corridors' that can connect urban and rural areas of Green Infrastructure and enable continuity of habitat. Many Highways' Green Estate assets are included within ECC Green Infrastructure assets, such as ECC Essex Highways Public Rights of Way footpaths, cycleways and tracks, and bridleways; highway verges (including Sites of Special Scientific Interest); street trees; urban greening; hedgerows, and green spaces around premises. These Green Estate assets can be developed to act as 'Green Corridors' (verges, green wedges, and green fingers), that can connect urban and rural areas of Green Infrastructure and enable continuity of habitat.

Improvements to the connectivity and accessibility of existing green infrastructure and creation of new green infrastructure have the potential to be highly influenced by Highways. For example, there is a possibility of reconnecting green spaces fragmented by the road network through the creation of wildlife crossings, planting of road verges and roundabouts, planting of street trees, as well as the creation of rain gardens and other sustainable drainage solutions. More ambitious projects may include green bridges, which can:

- Create a safe crossing point for wildlife movement.
- Join up habitats and connect colonies.
- Create a crossing point for people.
- Benefit pollinators.
- Integrate roads and railways into the surrounding landscape.

Increasing connectivity will increase habitat area, increase populations species – some of which may be protected – increase species movement, and can add to the intrinsic character and beauty of the landscape. Improving connectivity will not only enhance biodiversity and local nature recovery but will also provide a wide range of opportunities for people to explore the outdoors in both urban and rural areas and encourage the take-up of active travel.

3.2 Highway Assets can create Better Connections between Green Spaces and Public Transport.

Providing better connection between green infrastructure assets and improving access to green infrastructure assets, will help green infrastructure to be seen not just as a destination but also as an attractive through route that links places and communities, thereby helping foster a sense of community and place.

Highways will consider opportunities for better connections between green spaces and public transport, such as situating new bus stops next to open space entrances. It will also consider opportunities to work with key landowners to increase benefits from publicly accessible land. Providing better connection between green infrastructure assets and improving access to green infrastructure assets supports several ECC strategies and plans, such as the Local Transport Plan, Cycling Strategy, Walking Strategy, Sustainable Modes of Travel Strategy, as well as the Public Rights of Way Improvement Plan. Better connections will help green infrastructure to be seen not just as a destination but also as an attractive through route that links places and communities, thereby helping foster a sense of community and place. This encourages social inclusion and independence. It also encourages increased physical activity through active travel, leisure, and sports pursuits, which not only provides the personal benefits derived from exercise but reduces reliance on the motor car, which reduces traffic congestion and noise and improves air quality.

Intelligent use of green infrastructure and appropriate planting in street and roadside design can also be incorporated as traffic calming measures. These not only help soften the street scene by creating visual interest but improve the microclimate and provide valuable wildlife habitats.

When exploring these opportunities, Highways will consider how people access green spaces to encourage modal shift from cars to more sustainable and active travel options, by observing a well-established concept which places the most vulnerable road users at the top. This prioritises pedestrians and people with disabilities, followed by cyclists and horse riders, public transport, then motorised transport. The objective will not be to give priority for pedestrians, horse riders and cyclists in every situation, but to ensure that the needs of vulnerable road users are considered first.

3.3 Green Estate - considering and implementing strategic priorities for improvements for Green Infrastructure.

This Strategy recognises that there will be strategic, wider priorities for improvements to green infrastructure and local nature recovery, and as far as practicable Highways will consider the way in which it manages its Green Estate to support these priorities.

This Strategy sets out how Highways will work with others to identify areas of strategic importance for the creation or improvement to green infrastructure that could provide most benefit for locally native species of recognised nature conservation priority. For example, this Strategy acknowledges the Essex Climate Focus Area (CFA) which has been created to pilot accelerated climate action and showcase best practice in sustainable land stewardship. Climate action for the CFA will be undertaken in collaboration with local councils, charities, residents, landowners, and businesses. The geographical area covers almost one third of the county: the Blackwater and River Colne catchment area. This Strategy also acknowledges that other areas of priority are being identified through the Local Nature Recovery Strategy.

3.4 Local Highways Panels ensure collaborative working to improving green infrastructure.

Working in partnership will help to achieve a coordinated approach to evaluating and implementing opportunities to manage Highways' Green Estate, which will improve green infrastructure in a manner that reflects strategic priorities as well as reflects community value of its importance.

All twelve Boroughs, City and Districts areas have Local Highway Panels (LHPs), and these are responsible for making recommendations and setting priorities for Highway schemes in their areas. Panels are made up of a representative number of Members from the County and the individual Borough, City or District. The LHP Members meet regularly to discuss and consider concerns for Highways within their local Borough, City or District boundaries. The Panels prioritise the local concerns and make recommendations to the Cabinet Member for the implementation of highway schemes that address the concerns of local people.

A network of public rights of way, footpaths, bridleways, footways, and cycle routes exists in the county, including other accessible greenways. Green infrastructure is all about 'place making' and 'place keeping' (the long-term maintenance of a place), in which the communities are their true owners. Communities can provide useful information on what existing green infrastructure should

be kept, the best places for new connections, routes, and linkages, and what new additions they would like in their area. Seeking input and involvement from local communities, can tap into their local knowledge and give them a chance to demonstrate the importance by which they view green infrastructure, whilst also incorporating wider strategic priorities.

3.5 Highways' Green Estate: roadside verges are potential wildflower corridors.

Essex roadside verges have the potential to be (or continue to be) sanctuaries for wildflowers, pollinating insects, reptiles, amphibians, and small mammals, and can act as essential green corridors for these species to use as connections to other wildlife areas.

Generally, the grass verges beside roads and footways that extend up to the boundary wall, hedge, or fence, are part of the highway, and it is Highways responsibility to maintain the verges, including cutting the grass. This is especially important at road junctions or accesses where clear visibility for drivers and pedestrians is essential. District, City and Parish Councils may carry out additional mowing within the highway for amenity purposes.

This Strategy acknowledges that grass cutting verges is an important aspect of keeping roads and footways safe for users. If not managed well, vegetation can reduce sight lines on an approach to a busy road junction. This means that Highways sometimes must cut back or remove vegetation such as overhanging trees and shrubs, to preserve sightlines. Special attention is paid to cutting down growth along our high-speed roads, which includes sections of the A13 and A120, as well as the A130, A127, A1245 and A133.

The Wildlife Trust has stated that it would like to see a ribbon of wildflowers running alongside roads, and on roundabouts, supporting crucial pollinators like bees and butterflies. It states that small changes, such as mowing later in summer could make a big contribution to putting nature on the road to recovery. It further states that thousands of miles of road verges need to become a key part of an essential national Nature Recovery Network, connecting town and countryside, and joining up vital places for wildlife. Verges rich in native wildflowers support more wildlife, are more resilient to environmental change, enhance ecological connectivity and provide better ecosystem services such as pollination.

Essex roadside verges, therefore, have the potential to be (or continue to be) sanctuaries for wildflowers, pollinating insects, reptiles, amphibians, and small mammals. They could also provide essential green corridors for these species to use as connections to other wildlife areas, thereby enabling their dispersal and increase as opposed to their decline through habitat fragmentation

and destruction. Furthermore, for many people wildflowers on our roadside verges contribute greatly to their feeling of wellbeing.

While this Strategy fundamentally supports consideration of amendments to grass cutting schedules where practicable, it recommends that agreements to such proposals follow the advice of experts. For example, management of roadside verges to support wildflower growth may not be a simple matter of cutting less frequently and may require carefully considered cyclical programmes. Essex County Council will consider practice as set out in: 'Managing Grassland Road Verges, a best practice guide, published by Plant Life, 2019'.

Plant Life, 2019 states: *'In order to maximise the biodiversity and environmental potential of any verge, there are three steps to consider:*

- *Assessment: understanding what you've got*
- *Management Specifications*
- *Monitoring – performance management*

Plant Life 2019 also suggests that achieving low soil fertility is key to enhancing wildlife value as most wildflowers are associated with lower fertility soils:

The guiding principle for creating species-rich road verges is to avoid the use of fertile topsoil. High soil fertility encourages excessive growth of non-desirable species and reduces the success of wildflower establishment.

Conversely, soils with high fertility containing high levels of nitrates and phosphate, for example, support more vigorous grasses and competitive species such as nettles and cow parsley. Plant Life 2019 advises that regular management is essential, and that an annual or cyclical programme helps manage problems such as competitive species. For example, grasses often outcompete wildflowers as they typically have extensive root systems, can be vigorous and can cope with a wider range of conditions. Without regular management, grasses can quickly dominate which reduces species diversity. Where this proactive cycle does not occur long-term, the biodiversity value of the road verge is diminished as verges quickly develop into bramble thickets and scrub.

This Strategy also sets out that in those instances where verges or grassland areas are the subject of agreed amendments to grass cutting schedules, they are allocated a new classification and recorded in an appropriate system. The information recorded should include the revised details relating to grass cutting and associated management (management plan), together with anticipated benefits as well as a process for assessing, reviewing, and reporting performance. It should also include the identifies of those involved in the decision-making process, including those from external organisations, communities, and Councils.

3.6 Highways' Green Estate: SSSIs

Highways verges already include many Sites of Special Scientific Interest (SSSIs) - these sites are amongst the best in the country for the wildlife, habitats or geological interest found there.

It is acknowledged that grass-cutting verges and other green areas such as embankments, is one activity that could be reviewed to assist with supporting the growth of wildflowers. For example, there are already many Sites of Special Scientific Interest (SSSIs) among Highways Green Estate, and their management follows specialist advice provided by ECC Place Services ecological experts.

3.7 Highways' Green Estate: weed spraying.

Highways is currently trialling an environmentally friendly product based on wood vinegar.

Weed control is an important environmental maintenance activity. Untreated weeds can have a detrimental impact on our network as they can grow quickly, ultimately causing damage to drainage infrastructure, footways, and road surfaces. Our proactive approach to dealing with weeds and vegetation helps us to protect assets and preserve its lifespan, which represents better value for money for the residents of Essex in the long run because it helps to avoid increased maintenance costs.

Historically, glyphosate has been the routine chemical employed for weed-spraying. However, Highways is currently trialling a more environmentally friendly product based on wood vinegar. Results are still being assessed and no decision has yet been made regarding replacing glyphosate with the wood vinegar alternative.

3.8 Highways' Assets - Mitigating the environmental impact of Highway Works

ECC owns a vast network of highways assets. Highways will consider the way it manages the maintenance and renewals of these assets, as well as the way it manages improvement schemes, to explore opportunities not only to mitigate the potential for negative impacts on the environment but to make improvements to the environment.

Highways will assess the potential environmental impacts of its works, both reactive and planned, and will review its practices to identify opportunities for ecological benefits wherever practicable. For example, it will explore how it can implement better water management, such as retaining

highway surface water run-off, so that it can be released back into the environment. It will also explore how it can improve water quality and air quality, increase biodiversity and habitat protection, and reduce carbon emissions. (For further information on carbon emissions reduction, please refer to ECC Essex Highways Decarbonisation Strategy).

The exploration of opportunities to help the environment, will include consideration of use of green infrastructure such as planting in street and roadside designs. The planting and retaining of trees, low hedges and other vegetation alongside roads improves air quality through pollutants being absorbed through leaves, plant surfaces, and bark. Exploration can also include incorporating green infrastructure as traffic calming measures.

Planting such as this can help soften the visual scene and make active travel appealing. This creates an alternative to using the car and public transport for short trips to work, school, and other destinations, which relieves the pressure on the road network and has a positive impact on air quality and carbon emissions reduction. It can also enhance a sense of place, fostering a sense of community ownership, which encourages independence and promotes wellbeing. It also helps with providing shading, creating microclimates, and providing valuable wildlife habitats. For example, the Safe School Streets initiative includes options such as planting to make walking more appealing.

Green infrastructure in the highway can also provide Sustainable Urban Drainage Systems (SuDS) which remove water from hard drainage infrastructure, which helps to prevent flooding and to improve water quality. For example, in the right locations and where affordable, combining green infrastructure with permeable pavements which allow surface water to soak through the soil, may reduce storm management costs and environmental pollution. In addition, green walls, or green embankments along infrastructure function as noise barriers and reduce air pollution through particulate filtering.

Roadside hedges can also be planted in 'bioretention areas' which absorb the highway water as a SuDS feature and improve water quality before releasing it back into the environment. Hedges are also flexible in that they can be planted in troughs where underground services restrict tree planting. Furthermore, hedge troughs can also accommodate amenity infrastructure such as seating, bins, and cycle racks, which supports active travel. Where there are large buildings close to the road, low hedges can be more effective than taller trees in reducing the impact of pollution from vehicles. However, funding ongoing revenue maintenance needs to be a key aspect when considering implementing these measures.

3.8.1 Highways Works – incorporating products to support wildlife movement and protection.

The negative results of wildlife crossing roads are all too familiar to us. Avoiding this tragic outcome can be encouraged through the implementation of equipment to protect wildlife movement.

Consideration will also be given to the inclusion of products to assist with wildlife movement and protection, where appropriate, such as amphibian ladders (that can be installed in gully pots), tunnels and guide walls (including otter shelves), wildlife kerbs and wildlife refuge apparatus. These are largely of relatively small cost compared to the cost of broader activities, and therefore may be considered within current highways capital budgets.

3.9 Highways' Green Estate – Public Rights of Way Improvement Plan (RoWIP)

A great deal of Highways' Green Estate is on Public Rights of Way (PRoW) footpaths and bridleways, which are home to a significant volume and variety of wildlife. They provide unique opportunities as 'green corridors, wedges, and fingers' for connecting green infrastructure and creating wildlife corridors that link habitats.

The Public Rights of Way network in Essex comprises approximately 6,531km of footpaths (84%), bridleways (12%), restricted byways (0.01%) and byways (4%) which provide access to the countryside and links between green spaces, towns, villages, and places of employment.

Some or all the byways could be considered as providing special habitat, and adjacent hedgerows and ditches reflect a wealth of biodiversity. Byways also have areas of partly compacted ground which are important for specialist plant species and associated invertebrates.

The Essex Rights of Way Improvement Plan (RoWIP) 2009, is a statutory document for improving the provision of access to the countryside through a Rights of Way network. The planning system will be used wherever possible to improve Public Rights of Way and pedestrian environments which is also reflected in the Local Transport Plan (2011) Policy 15 'Walking and Public Rights of Way'. This encourages a move towards active and sustainable travel and healthier lifestyles.

A review of the RoWIP is currently underway, and through it we will explore new opportunities to promote the 'Safer, Greener, and Healthier Travel' vision, such as better provision for walkers, cyclists, and equestrians. We will also explore new opportunities for better links for bus passenger

travel to the existing Public Rights of Way and cycle networks, to make non-motorised movement easier.

It is worth noting that some settlements and surrounding areas on the rights of way network are fragmented. The RoWIP will identify gaps and missing links in the rights of way network around towns and villages, with a view to creating good local access for all user groups to green spaces, the countryside, and the coast. This will include exploring the potential for circular routes, as well as for developments to coastal paths as part of the Shoreline Management Plan.

Essex has one of the country's longest coastlines stretching for over 300 miles. Much of the Essex coast is particularly vulnerable to the effects of climate change including the loss of salt marsh (which is itself, a natural form of coastal sea defence) and the increased risk of coastal erosion and flooding to numerous communities and landowners.

The Shoreline Management Plan is a high level non-statutory plan being promoted by the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency, with ECC being a key stakeholder. The plan considers how the Essex coastline will change over three epochs – from the present to 20 years ahead; 20-50 years ahead; and 50-100 years ahead - with options for either holding the line, managed retreat, addressing the line or no active intervention. The plan proposes 85 policy development zones and will link directly into Local Development frameworks. The plan will have a direct bearing on the management of seawall and coastal rights of way. (Refer to ECC Coastal Officer for more information).

The RoWIP review will also improve our knowledge of our green infrastructure assets along our road network, which will help us identify opportunities to support improvements to green infrastructure, biodiversity, and Local Nature Recovery. This will partly be achieved through identifying related existing environmental problems and working in collaboration to implement solutions. It will also review opportunities to improve water management through natural flood management techniques where practicable.

Highways will also consider providing links to high priority sites for green infrastructure improvements such as mineral extraction sites and waste management sites subsequently filled and being developed for an alternative purpose. Restoration of mineral and waste sites offers unique opportunities for the creation of high-quality green infrastructure, especially where these are located in close proximity to communities. This can be secured in perpetuity by dedicating new public rights of way. The Sandon Quarry, Chelmsford, restoration scheme, for instance, will provide public access and circular permissive routes for walkers and horse riders.

The Essex Minerals Local Plan will deliver significant, long-term benefits for wildlife and people, transforming intensive agricultural land to wildlife-rich habitats through positive planning of minerals development. In addition, the Waste Local Plan sets out that all restoration schemes

should, in the first instance, be seen as an opportunity to enhance and upgrade greenways. It highlights the opportunity to establish Public Rights of Way where possible, especially the provision of Bridleways as multiuser paths, as part of any permission granted.

4. Highways' Green Estate: could help to prevent flooding.

Essex is one of the top ten areas at risk of surface water flooding in the UK.

Essex is predicted to experience an increase in winter flooding events and summer droughts through climate change. It is the increased frequency of extreme rainfall events through climate change that contributes to flood risk. Appropriate management of Highways' Green Estate, however, could provide significant opportunities to deliver space for water and natural options for water resource and flood management.

Sustainable Urban Drainage Systems (SuDS) are the preferred approach to managing surface water. There are different SuDS features available to suit the constraints of a site. These include green roofs, permeable paving, ponds, wetlands, and shallow ditches called swales. The main purpose of sustainable drainage systems is to mimic the natural drainage conditions of a site before development. This is achieved by capturing water and allowing as much as possible to evaporate or soak into the ground close to where it originated, at a controlled rate that does not increase flood risk.

Implementing strategic flooding solutions through SuDS, incorporating more natural flood management techniques, could provide clear opportunities to deliver environmental benefits. This will not only include better water management but creation and restoration of wetland habitat.

Natural flood management involves techniques which aim to work with natural features and characteristics to manage the sources and pathways of flood waters, rather than through engineered, hard infrastructure solutions. Using green infrastructure as part of the natural flood management solutions, rather than hard and grey infrastructure to attenuate flooding, can provide multiple environmental benefits, but these also require funding to cover ongoing revenue maintenance needs which is a key aspect when considering implementing these measures. For example, through:

- The creation of rain gardens in the highway verge (note that the verge may be built out to act as a traffic calming measure). These are planted areas within the verge that collect surface water runoff from the road and allows the water to drain away into the

soil. Rain gardens are often a small-scale sustainable drainage technique, well suited for capturing gutter rainfall and runoff from limited areas. ECC, Essex Highways, Anglian Water and Castle Point Borough Council collaborated to install the first Essex rain garden scheme on highway verges on Park Avenue, Canvey Island. Properties here were at risk from flooding when the road became inundated during heavy rainfall. The gardens are built to receive water straight from the road surface, the plants use this to grow, and the gardens remove pollutants as water naturally soaks into the ground below. ECC has already rolled out several of these types of schemes across the county, and early results of benefits are very encouraging.

- Green roofs and walls. These are vegetative areas on a roof or wall. They absorb water, provide shade, and reduce temperatures of the surrounding air, thereby reducing the urban heat island effect.
- Bio retention areas. These are specially prepared hollows in the ground that include layers of materials such as sand which are designed to filter out pollutants and improve water quality before the water filters into the soil. These areas are also planted to absorb water and improve biodiversity and amenity. Their main purpose is to attenuate peak runoff as well as to remove stormwater runoff pollutants.
- Coastal and estuary management (for example, saltmarshes). Refer to ECC Shoreline Management Plan for more information. Essex has one of the longest coastlines in the country, much of which is of international significance for wildlife.
- Woodland creations. The creation of woodlands offers the potential for very significant benefits in local nature recovery, biodiversity, natural flood water management and carbon sequestration.
- Leaky Dams. These are a form of Natural Flood Management. Barriers made of natural woody materials are laid within water channels and allow normal base-flows of water to pass underneath and through. When flood flows are higher, the barriers create an obstruction to reduce the flow. These can also create wetland habitats, and thereby improve biodiversity and local nature recovery. Leaky dams are typically a much lower carbon footprint than alternative flood mitigation methods, they also minimise disruption of the natural landscape while creating new pond and wetland environments.
- River restoration (natural meanders and bank profiles). Introducing meanders to a previously straightened or existing straight river profile, can reduce speed of flow and therefore assist with flood water management.

4.1 Highways' Green Estate: potential for Better Water Management

Highways Green Estate provides significant opportunities to deliver improved water management.

While Essex is one of the top ten areas at risk of surface water flooding in the UK, this may seem incongruous given that East England is the driest part of the UK and is seriously water stressed (having difficulty meeting current water demands).

East Anglia is a major producer of food which requires a high level of water, it is also the location for a significant amount of industry which also requires water, and it is also an area of significant housing growth which will increase water consumption. Essex is already severely water stressed - so much water is being taken out of the environment that the health of the environment is suffering.

While water management is already included in design guidance for significant, new schemes and housing developments, there is more we can do through asset maintenance, improvements, and renewals operations to improve our use of water. For example, ECC is currently working with Water Resources East to draft a 'Water Strategy' for Essex, and Highways will explore opportunities to support it through changes in current Highways practices.

Essex Highways currently uses water within its depots for drinking and washing and hygiene, for cleaning vehicles, for Gully Cleansing and for Winter Precautionary Salting pre-wet process. We will explore the potential for producing a Highways base line for water usage and assess ways of how reductions can reasonably and practicably be achieved. (For more information, refer to the ECC Essex Highways Decarbonisation Strategy).

The impact of water management, however, extends beyond human and operational use, as we undertake drainage maintenance as well as broader scoped drainage works in the highway. In Essex, 20% of the quality issues recorded in our water bodies are linked to runoff from buildings and roads and other impermeable surfaces. Through our management of surface water on the highway we will explore opportunities to retain surface water where practicable and affordable, as well as filtering out pollutants, so that water with improved quality can be released slowly back into the environment. This will include the possibility of utilising natural flood management techniques, which employ nature-based materials and solutions which integrate more readily with the surrounding environment and can be used to improve water quality. Nature based solutions to managing water also contribute to the protection of our environmental heritage.

Among the recommendations within the emerging Essex Water Strategy, Highways is encouraged to:

- ensure that they understand their current water usage, identify leaks, and adopt water efficiency measures.
- Fit smart metres to facilities and fix leaks as soon as possible.
- Consider implementing grey and rainwater recycling, suggesting that facilities should be retrofitted with water efficiency and water recycling measures.
- include water targets within their procurement sustainability charters and other strategies.
- work with Anglian Water and Thames Water to create a pollution reduction strategy that prevents road run-off laden with petrochemicals, microplastics and heavy metals entering waterbodies, by exploiting green infrastructure such as SuDS wherever possible.
- retrofit Sustainable Drainage Systems (SuDS) and Green Infrastructure, where practicable and affordable, to remove the impact of built environment and transport drainage on the ecological status of our waterbodies.
- As soon as possible identify any roads which have high traffic volumes and review water treatment systems with a view to establishing a programme for improvements. Consider prioritising interventions such as sustainable drainage and other nature-based solutions.

Key aspects of these recommendations are also included within the ECC Essex Highways Decarbonisation Strategy, but it is important to recognise the need for funding to ensure ongoing revenue maintenance needs are met when implementing such measures.

5. Highways' Activities: responding to Biodiversity Duty

The management of Highways' Green Estate and Highways Activities in general represents a unique opportunity to contribute to the Council's wider biodiversity duty.

Consideration of Essex Highways activities to improve green infrastructure, local nature recovery, and water management, will have the potential to support our Biodiversity Duty. Public authorities who operate in England must consider what they can do to conserve and enhance biodiversity in England. This is the strengthened 'biodiversity duty' that the Environment Act 2021 introduces.

This means that, as a public authority, we must:

- Consider what we can do to conserve and enhance biodiversity.
- Agree policies and specific objectives based on our considerations.
- Act to deliver our policies and achieve our objectives.

We must agree our policies and objectives as soon as possible. Consideration is not restricted to Highway activities, but arguably the management of Highways' Green Estate represents a unique opportunity to contribute to the Council's wider biodiversity duty.

All Essex Highways activities consider the basic legal requirement not to harm protected species and habitats. Biodiversity is considered for larger schemes where environmental impact assessment is part of the planning consent, and it is also encouraged for relatively small improvement schemes such as standalone cycle lane projects. However, going forward we will review our highway activities with a view to identifying opportunities for wider support for our biodiversity duty where practicable. These activities and opportunities will be forwarded for consideration to ECC which is leading on the preparation of a plan to support our Biodiversity Duty.

5.1 Highways' Activities: responding to the legal requirement for 10% Biodiversity Net Gain

The requirement for 10% Biodiversity Net Gain (BNG) for schemes requiring planning consent is expected to become law in January 2024.

The requirement for 10% Biodiversity Net Gain (BNG) for schemes requiring planning consent is expected to become law in January 2024.

ECC is working with farmers and landowners across the county, with a view to exploring the market potential of Biodiversity credits, which will enable businesses and other external organisations to purchase means of implementing Biodiversity Net Gain where they do not have the required capacity on their own estate. The British Standards Institute is working with all parties to develop a process that will provide assurance for standards as well as provide confidence in contractual agreements.

ECC is also exploring the potential for developing ECC owned packages of land into Biodiversity credits or CO2e offsetting credits. Following the implementation of the BNG law, Highways will investigate how ECC packages of land may be utilised by Highways for the purpose of fulfilling the anticipated 10% BNG requirement, for those occasions where Highways schemes have ground areas and characteristics that will not facilitate a 10% BNG.

6. Local Nature Recovery

Highways will continue to explore opportunities to manage its Green Estate and related highway activities in a manner which supports the work of the Essex Local Nature Partnership.

The Essex Local Nature Partnership (LNP) was launched in March 2022, and works to steer collaborative work of conservationists, government, businesses, NGO's (non-profit organisations), local authorities, and other organisations in partnership. Their aim is to protect, improve, create, and connect our county's natural landscape to deliver multiple, environment, social and economic benefits. The partnership is now formed from more than forty organisations in Essex, including Highways.

The Essex LNP was launched with one of the primary aims being to support the delivery of the Essex Local Nature Recovery Strategy (LNRS). The final version of the LNRS is expected to be completed in June 2024.

The Local Nature Recovery Delivery Strategy Structure is shown in the chart below:

Local Nature Recovery Strategy Delivery Structure

LNRS Delivery Structure Diagram



Local Nature Recovery Strategies (LNRS) must describe opportunities, set priorities, and propose potential measures for the recovery and enhancement of species.

The LNRS subgroups include:

- Coastal and Marine
- Trees and Woodland
- Grassland
- Freshwater and Wetland
- Priority Species and Species Assemblages
- Mapping and Data
- Farmer & Landowner
- Local Sites Partnership

Natural England (NE), as the government's statutory adviser for the natural environment, has wide-ranging expertise in species and species recovery with which to support the identification of opportunities, priorities, and potential measures for species recovery in the LNRS. NE will provide a LNRS senior adviser to work closely with each Responsible Authority (RA) across England. These senior advisers will bring local ecological expertise from their area teams. Of most importance, they will also be supported by NE's national species specialists, who will provide expert advice and evidence to feed into LNRSs. Environment Agency (EA) and Forestry Commission (FC) area teams will also directly support the preparation of LNRSs, collaborating with NE area teams to deliver this support in an integrated way. EA and FC will provide additional expert species advice, with particular focus on their respective specialisms of water-dependent species and woodland species.

The work of the LNP also includes Stakeholder Opportunity Mapping. The Purpose of the Stakeholder Opportunity Map is:

- To seek key LNRS stakeholders' spatial priorities and opportunities for nature recovery.
- To prepare for the opportunity mapping analysis, to see if opportunities identified by stakeholders align with the opportunities identified by data analysis undertaken by Ground Control (non-profit organisation).
- To ensure that stakeholders' key opportunities for nature recovery have been identified, including those that may not be included within the data sets available to the LNRS or may not be captured by the opportunities identified by the data analysis.

The LNRS mapping team asked the core working group and subgroups to identify on an interactive Geographical Information System (GIS) map where the key opportunities are for nature recovery from their organisation's perspective. The creation of the map is an iterative process. Ground Control, alongside the LNRS mapping team, will create the opportunity maps. There is a detailed process behind this which includes:

- Starting with a base map of each habitat type. Core habitat data has been utilised from both National and Local data sets.

- BEETLE Modelling (ecology modelling) determines the priority spatial areas and interconnectivity for habitat creation through likely species flow and movement corridors across the landscape. The outcomes are to make existing habitats bigger and stronger, as well as making existing habitats better connected.
- Constraints. Constraints data is inputted to see where there are areas where habitat enhancement or creation is not possible.
- The opportunities for nature recovery (in this case woodland creation) are ranked based on an agreed criteria and priority level.

Involving a wide range of local people and organisations in participative, transparent decision making enables input of vital expertise, experience, and evidence to shape credible plans for ambitious species recovery in LNRS, while promoting broad collective ownership to support their future delivery.

Moving forwards, the LNRS' next steps will focus on compilation; the mapping team will continue work on analysing opportunity areas, the strategy will continue to be drafted and stakeholder engagement will continue.

In summary, the next steps are:

- Develop the opportunity maps for nature recovery opportunities across the county.
- Strategy content to be drafted and circulated to key stakeholders for review.
- Detailed engagement with farmers, landowners, and other key stakeholders.
- Prepare for the pre-public consultation with Supporting Authorities.
- Prepare for the public consultation in early 2024.

Highways is an active member of the Local Nature Recovery partnership and will continue to explore opportunities to manage its Green Estate and related highway activities in a manner which supports the work and priorities of the Essex Local Nature Partnership.

7. Managing Highways' Green Estate: ECC Tree Plan

A Tree Plan is currently underway which will enable inspection, management, and new planting of trees on Highway Land. The identification of appropriate locations for the planting of additional trees on Highway Land, will include compliance with all aspects of road safety as well as compliance with all laws relating to permissive activities within the Highway.

Essex County Council Tree Management Plan, May 2023, outlines the aims and objectives of the Council in relation to future tree management and tree planting, in response to the emerging climate crisis. It is widely acknowledged that trees have multiple benefits that will enhance the lives of the residents across the County. These benefits include:

- Locking up carbon
- Improving air quality
- Reducing flooding
- Reducing the “Heat Island Effect”
- Lowering the energy needs for adjacent buildings.
- Improving biodiversity
- Increasing the value of properties nearby
- Improving local amenity
- Improving the mental and physical health of residents
- Increasing urban mobility by improving the quality of the public realm

ECC has begun to explore a range of opportunities to increase its tree stock:

- Identifying new tree planting opportunities in the Highways and wider ECC estate as part of the tree inspection process.
- Replacing the recently felled trees on the highway network in accordance with the tree planting principles in the Tree Plan.
- Creating tree lined streets and roads by retrofitting trees, utilising existing or new funding programmes.

The Green Streets initiative on Essex Highways land will proactively assess sites for new street trees which will have enough space and favourable environmental conditions to ensure vigorous tree growth, thus locking up additional carbon for ECC. Road Safety will be paramount when choosing appropriate sites on Highway Land for additional tree planting. It should also be noted that proposals to plant trees on Highway Land will be reviewed with regard to permitted activity within the Highway under the Highways Act 1980 (and subsequent amendments), as well as with regard to common law in those instances where there is no defined statute(s), and with regard to Highways Practice Notes (which relate to agreed practice within the Highway).

When choosing sites for planting it is important to avoid creating additional maintenance issues with the adjacent highway's infrastructure – roads, footways, drainage – as well as for private or public property. Where appropriate, tree root retention infrastructure may be needed to avoid root damage to adjacent public or private assets. It is of equal importance to select appropriate species.

Collaborative proposals to plant trees on Highway Land must be accompanied by funding for all costs relating to planting as well as all costs relating to the maintenance of the tree in perpetuity. The exception to this will be where tree planting is part of a planned Highways' scheme, where such costs have been included within the permitted scheme costs. It is worth noting that depending on the species and environmental factors relating to where it is planted, a tree may take between one and five years to become established and may take between 20 and 30 years to reach maturity. A mature tree will absorb around 20-25 kg of CO₂e annually.

The new process for managing trees across the County will be reliant upon a tree management system, which will be trialled for trees on Essex Highways land and will be accessible to both the Place Services Arboricultural team and the Essex Forest Initiative team. There will be multiple uses for the system:

- To record all surveys of sites within the Council's ownership (the surveys have recently commenced).
- To record all trees that either require maintenance work (singular or repeat), as well as mature specimens that require more frequent inspection. *This matter is of critical importance, as the system will not be used to record the location of all trees, only trees which require maintenance or monitoring, and the Tree Plan does not yet include all Districts. The diligence of the highway inspector will therefore remain an important aspect of assessing all aspects of risk relating to Highways' Green Estate.*
- To manage all tree work resulting from inspection, from quotation through to completion and ensure traceability of this.
- To ensure that the 'duty to consult' and issuing of s154 notices is carried out in line with government guidance.
- To record all suitable planting locations in the ECC estate, recommending species and planting requirements.

A priority of the Tree Plan is to establish the size of the tree stock and assess its health. This will be carried out for Highways' Green Estate, the Schools Estate and the built estate, where ECC will aim to carry out regular inspections, recording the results of these inspections on the system.

Trees in urban areas are generally the most beneficial to a large proportion to the Essex population and are also often the most cherished of trees with high aesthetic and emotional values to local

communities. Those in urban locations also require most health monitoring, to manage risk to people or property.

Routine works to trees must be carried out with regard to the Wildlife and Countryside Act 1981. This particularly relates to the protection of nesting birds and bat roosts. The bird nesting season is normally considered to be from mid–February to late August. It should be noted that it is an offence under the above Act to disturb any nesting wild birds.

The Highway Authority will seek co-operation from landowners in dealing with trees and hedges that overhang the highway and impede visibility and safe passage of traffic and/or pedestrians.

8. Managing Highways' Green Estate: Early Engagement Recommended

A collaborative culture and early engagement to involve the right people, has the potential to unlock additional funding and resource to implement new and beneficial opportunities for managing Highways' Green Estate.

This Strategy encourages a collaborative culture and early engagement to involve the right people to identify new, beneficial opportunities for managing Highways' Green Estate. This approach has the potential to unlock additional funding and resource. The right people will be those who will benefit from anticipated improvements, such as local authorities, stakeholders, community representatives, organisations, and user groups.

Sectors and interests to consider may include:

- Highways, transport, drainage, utilities, public health, education, ecology, heritage, landscape, parks/public space, finance, planning, and community liaison authorities.
- Statutory consultees, statutory undertakers, and trusts.
- Community representatives, user groups, Local Access Forums, business, the education sector, and landowners and agricultural sector.

8.1 Managing Highways' Green Estate: Make Rain Happy – Flood Prevention Programme

ECC has a long and successful history of collaborating with water companies such as Anglian Water and Thames Water. Essex residents have benefitted from additional funding and resource provided

by water companies, and Highways embraces opportunities to explore more joint working going forward.

The population of Essex is continuing to increase, especially in urban areas. This means extra housing and associated infrastructure needs to be built to cope, such as shops, roads, supermarkets, and schools. This will continue to cause a loss of green space, preventing rainwater from soaking into the ground. Before urbanisation, the rainwater would filter into the ground where it fell. Not only have we lost green space, but we are also reducing the habitats available for wildlife – leading to a loss in biodiversity. Essex also has a long, low-lying, coastline, which makes it particularly vulnerable to the effects of coastal flooding, erosion, and rising sea levels.

Despite having different types of sewers and drainage systems in our region, our towns and cities are generally composed of impermeable surfaces such as roof areas, road surfaces, concrete surfacing, and paving slabs. As the water is not able to soak through these impermeable surfaces it pours into the drains and sewers managed by our water companies, which can become overwhelmed by the volume of water. This can have devastating consequences on homes, schools, businesses, and the environment.

Anglian Water recognises that the best plan is to work with nature. For example, by creating natural areas, rainwater can soak back into the ground and return naturally to the watercourse. This helps to reduce the need for rainwater to enter the sewer system and reduces the risk of sewers becoming overwhelmed and causing flooding.

The Anglian Water commitment ‘Love Every Drop’, their ‘Making Rain Happy’ initiative, and their collaborative culture, not only deliver benefits of flood prevention but also wider benefits relating to improvements to green infrastructure, local nature recovery and water management – all of which improve biodiversity and add social value.

Essex Highways will continue to explore opportunities to work collaboratively with Anglian Water, Thames Water, and other water companies, to support flood prevention.

9. Highways’ Green Estate: managing risks associated with delivery of improvements

The management of risks associated with delivering identified opportunities to improve the environment, will be accommodated via the Asset Management Strategic and Tactical Quarterly Risk Review process. Outcomes in terms of current risk impact and risk mitigation requirements, will be reported to senior managers quarterly or thereabouts.

Improving nature will address environmental challenges, which will promote people's wellbeing and will contribute to the Council's net zero ambitions. The management of risks associated with this area of development will be accommodated via the Asset Management Strategic and Tactical Quarterly Risk Review process, and outcomes in terms of current risk impact and risk mitigation requirements, will be reported to senior managers quarterly or thereabouts. Variances in results from planned outcomes, will be investigated and measures to redress the balance will be implemented where practicable and affordable.

10. United Nations Sustainability Development Goals, and Essex Social Value

The ECC Essex Highways Strategy for managing its Green Estate will support all forms of social value.

The United Nations Department of Economic and Social Affairs, 2030 agenda for sustainable development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

Social value is defined through the Public Services (Social Value) Act 2012 which came into force in January 2013 and requires all public sector organisations (and their suppliers) to look beyond the financial cost of a contract and consider how the services they commission and procure might improve the economic, social, and environmental well-being of an area.

The perspective of Essex County Council is that social value is the view beyond price that looks at the additional value organisations can bring to our communities, and it works with its suppliers to produce wider benefits for Essex.

This Strategy will explore opportunities to improve green infrastructure, water management and biodiversity – all of which will support the recovery of local nature and improve people's well-being and will contribute to social value.

11. Managing Highways' Green Estate: The Review Process

Where the management of Highways' Green Estate is amended to improve green infrastructure, water management, biodiversity or Local Nature Recovery, sites must be recorded and monitored to see whether sites are providing the benefits intended.

A disciplined review process creates the potential to improve the overall sustainability and performance of such sites, to make them more resilient to the effects of climate change and provide for a wider range of uses with multiple benefits for people and wildlife.

This Strategy supports a disciplined review process, which may require the amendment of existing systems, or the creation of new systems, to record salient details of how Highways manages its assets to support environmental improvement projects. Where practicable, for specific projects, baseline measurements should be determined, performance targets identified, and performance monitored and reported. The frequency of measurement and reporting will be influenced by the project in question. However, variances between actual and anticipated performance should be investigated fully with a view to redressing the balance where practicable.

Glossary

Active Travel. Travel which requires physical activity, such as walking, cycling, horse riding, jogging, and the like.

Anchor Institutions. These are large scale employers, the largest purchasers of goods and services in the locality, controlling large areas of land and/or having relatively fixed assets.

Biodiversity. The term biodiversity (from “biological diversity”) refers to the variety of life on Earth at all its levels, from genes to ecosystems, and can encompass the evolutionary, ecological, and cultural processes that sustain life.

Bioretention Area. These are specially prepared hollows in the ground that include layers of materials such as sand which are designed to filter out pollutants and improve water quality before the water filters into the soil. These areas are also planted to absorb water and improve biodiversity and amenity. Their main purpose is to attenuate peak runoff as well as to remove stormwater runoff pollutants.

British Standards Institute (BSI). BSI is the UK's National Standards Body, incorporated by Royal Charter and responsible independently for preparing British Standards and for coordinating the input of UK experts to European and international standards committees.

Cabinet Members. These are County Councillors chosen by the leader to oversee different parts of the Council.

Carbon dioxide equivalent (CO₂e). CO₂e is the unit for comparing the radiative forcing of greenhouse gases (GHGs) to carbon dioxide. The carbon dioxide equivalent is calculated using the mass of a given GHG multiplied by its global warming potential.

Carbon Emissions Reduction is the quantified decrease in greenhouse gas emissions specifically related to or arising from an activity between two points in time or relative to a baseline.

Carbon footprint. A carbon footprint is the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by our actions.

Carbon Insetting. is generally recognised as the term given to carbon reduction through the implementation of nature-based solutions for those that have the capacity to do so this within their own estate.

Carbon Management. This is the assessment, reduction and removal of greenhouse gas emissions during the planning, optioneering, design, delivery, operation, use, end of life (and beyond) of new, or the management of existing, assets, networks and/or systems.

Carbon neutral. Carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere in carbon sinks. Removing carbon oxide from the atmosphere and then storing it is known as carbon sequestration.

Carbon Offsetting is the discrete reduction in greenhouse gas emissions not arising from the defined subject, made available in the form of a carbon credit meeting a defined set of requirements (as per PAS 2060:2014) and used to counteract emissions from the defined subject. The term 'offsetting' is generally given to the activity of organisations that do not have capacity to implement any kind of nature-based solution with their own estate, so instead fund nature-based solutions to be undertaken elsewhere, such as the purchase of carbon credits.

Carbon Reduction (or Carbon Emissions Reduction) is the process of minimizing greenhouse gas emissions in the development of new, or the refurbishment of existing, assets or networks.

Climate change. Climate change is a long-term change in the average weather patterns that have come to define Earth's local, regional, and global climates. These changes have a broad range of observed effects that are synonymous with the term.

Decarbonisation is a process by which organisations, sectors or other entities aim to achieve zero fossil carbon emissions, typically referring to a reduction of the carbon emissions associated with key sectors, such as electricity, industry and transport.

Ecosystems. An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscape, work together to form a bubble of life. Ecosystems contain biotic or living, parts, as well as abiotic factors, or non-living parts. Biotic factors include plants, animals, and other organisms.

Environmentally Friendly. Environment friendly processes, or environmental-friendly processes (also referred to as eco-friendly, nature-friendly, and green), are sustainability and marketing terms referring to goods, services, laws, guidelines and policies that claim reduced, minimal, or no harm upon ecosystems or the environment.

Gray Infrastructure. Traditional stormwater infrastructure in the built environment such as gutters, drains, pipes, and retention basins.

Greenhouse Effect. Carbon dioxide emissions trap the long wave radiations from the sun, acting as a thermostat for the planet when the carbon cycle is balanced. However, an excess of carbon dioxide in the atmosphere creates a 'greenhouse' effect that results in global warming. This is having a dramatic, negative impact on the environment, through climate change, such that sustained existence of human life is now under threat.

Greenhouse Gas Emissions (GHG). Greenhouse gas emissions (abbreviated as GHG emissions) from human activities strengthen the greenhouse effect, contributing to climate change. Carbon dioxide (CO₂), from burning fossil fuels such as coal, oil, and natural gas, is one of the most important factors in causing climate change.

Grey water. The relatively clean waste water from baths, sinks, washing machines, and other kitchen appliances

Habitat. The natural home or environment of an animal, plant, or other organism.

Hard Infrastructure. This is the physical infrastructure of roads, bridges etc.

Highways' Green Estate. These are 'green assets' such as such as ECC Essex Highways Public Rights of Way footpaths, cycleways and tracks, and bridleways; highway verges (including Sites of Special Scientific Interest); street trees; urban greening (including round-a-bout centres); hedgerows, and green spaces around premises.

Infrastructure is the basic physical and organisational structures, facilities, equipment and services needed for the operation of an organisation, or the services and facilities necessary for an organisation to function.

Life Cycle is the consecutive and interlinked stages of a product, equipment or service, from raw material acquisition or generation from natural resources to design, production, transportation/delivery, use, end-of-life treatment and final disposal.

Local Nature Recovery. Local nature recovery strategies are a system of spatial strategies for nature and environmental improvement required by law under the Act. Each strategy must agree priorities for nature's recovery and map the most valuable existing areas for nature.

Members. Are County Councillors.

Modelling. The process of constructing and manipulating computer-based mathematical, graphical or algorithmic representations, for the purpose of conducting computer-based simulations to study.

Nature-based Solutions are actions to protect, sustainably manage and restore natural or modified ecosystems, simultaneously providing human well-being and biodiversity benefits.

Network is a combination of interconnected assets (buildings and infrastructure) that provide services (e.g. water, power, transport) to society as part of a wider system.

Net-Zero refers to the target of reducing the greenhouse gas emissions that cause global warming to zero by balancing the amount released into the atmosphere from sources with the amount removed and stored by carbon sinks. This is also described as 'carbon neutrality'.

NGO's. (non-profit organisations whose purpose is to address a social, political or environmental issue).

Pollinators. A pollinator is anything that helps carry pollen from the male part of the flower (stamen) to the female part of the same or another flower (stigma). The movement of pollen must occur for the plant to become fertilized and produce fruits, seeds, and young plants.

SuDS. Stands for Sustainable Urban Drainage System. Sustainable drainage systems aim to reduce the amount of runoff from a site. Key to this is to slow the flow of water, to allow it to infiltrate into the ground.

Sustainable Transport. Sustainable transportation refers to low- and zero-emission, energy-efficient, affordable modes of transport, such as public transport, but also including electric and alternative-fuel vehicles. The benefits of sustainable transportation are that it reduces air pollution and noise. In addition, the replacement of combustion engine vehicles with more environment-friendly electric technology can have a major impact on people's health, as they involve less carbon emissions, noise pollution.

Targets. A Performance Target is the specific, planned level of a result to be achieved within an explicit timeframe with a given level of resources.

Urban Heat Island Effect. An urban heat island occurs when a city experiences much warmer temperatures than nearby rural areas. The difference in temperature between urban and less-developed rural areas has to do with how well the surfaces in each environment absorb and hold heat.