Exeter
City Council

Tree and Woodland Strategy
2023- 2033

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1.0 The Strategy

1.1 Introduction

The city council is one of the largest tree owners in Exeter, and the one organisation that the public see as the guardian of the city treescape, both in its role as landowner and through planning controls. As such, it is the key organisation in developing a framework to protect and sustain the city's trees.

Our trees and woodlands are vitally important in helping deliver the council's Corporate Plan and key strategic priorities of:

- Healthy and active city
- Building great neighbourhoods and communities
- Net zero carbon city

The influence of the city's trees extends beyond the city boundaries, and so trees outside its boundaries influence the city in return. To develop a meaningful long-term plan, it is essential that other major stakeholders are involved in the strategy and its delivery. It is not intended that this strategy controls tree management throughout the area of its influence but provides guidance on how the actions of various landowners can influence our landscape.

We already have more tree cover than most other cities – we now want to build on that to help ensure the future health and well-being of our communities.

1.2 The Reasons for a Tree and Woodland Strategy for Exeter

The previous tree strategy covered the period from 2009 to 2014, and consolidated the council's knowledge of its tree stock, and measures to manage trees effectively.

Whilst climate change was noted within the earlier strategy, the impact has evolved in the last ten years and more urgent action is required to mitigate the effects of global warming. Landowners now need to work together to optimise existing and future tree cover in the Greater Exeter area. This strategy provides a framework for collaborative measures where the strengths of various groups and organisations can be utilised for greater overall benefit.

The city council has for many years valued the trees that help frame the city, protecting them through planning controls and designating the Valley Parks. Along with other important landowners, such as the University, Forestry Commission, and Environment Agency, we must now ensure that protection is enhanced, and the opportunity to plant more trees is taken. We have good tree cover in the city, but there is scope to increase this cover both within the city and within the Greater Exeter area.

This strategy provides a framework for the delivery of a progressive arboriculture approach in line with city council corporate strategies. It reflects the concerns and interests expressed by residents, and the views and guidance arising from the arboriculture industry.

This Strategy also illustrates Exeter's current position and recommends a realistic set of proposals for the future of Exeter's Tree and woodland landscape. These recommendations are founded on public consultation feedback, and industry best practice.

1.3 Background

The agricultural economy that gave Exeter its prosperity in the 16th century formed the field networks that determine the rural landscape around Exeter. Hedges form the boundaries to fields, and old woodlands remain in most valleys. The Valley Parks bring many of these ancient hedgerows into the city, and the River Exe forms another green corridor reaching right into and through the heart of the city. This, combined with the higher land to the north, gives the city a pleasingly green and rural feel. A third of the land within the city boundary is woodland, green space or fields. These are also valuable habitat corridors providing wildlife refuges in an increasingly urban landscape, allowing seasonal and foraging migration, and complimenting the Exe estuary as a Special Protection Area (SPA), and internationally recognised wetland sites. Ashclyst Forest to the east, the Matford, Peamore and Haldon greenways to the south, and Stoke Woods to the north, all contribute to the overall woodland canopy of this sub-region.

Exeter was formed at what was the lowest crossing point of the River Exe. The Exe valley is relatively narrow until it reaches Exeter, at which point it opens out to a valley and flood plain almost a mile wide. Formerly, the tides reached Exeter, and the combination of tidal waters and actions of the River Exe (particularly when in spate) eroding and depositing alluvial material, helps gives the Exeter area its topographical character today. The soils in Exeter range from clay to sandstone shales, with additional alluvial deposits from the Exe. The natural climax vegetation would be oak, but the soils are able to support a wide range of species. There is a great diversity of both native and exotic tree types, due in no small measure to the horticultural heritage of the city left by the nurseries of Luccombe, Pince, Veitch, and others.

Exeter is a compact city, encompassing 4774 hectares in total, with a population of 130,800 according to the 2021 Census. However, there are more than 200 hectares of council-owned public open space, including 39 ha of woodland. Together with the Valley Parks, these green spaces make up 10% of the total area of the city. The breakdown of this Public Open Space is evidenced in this Strategies companion document, The Parks and Green Spaces Strategy 2023-33.

There are over 8,000 individual trees on council land, with many thousands more in the woodlands. Other landowners, such as the University, hospital, Forestry Commission, Environment Agency and larger business premises, also actively contribute to the tree cover within the city and beyond.

Exeter is a major centre of employment with large numbers commuting daily into the city. At 1st April 2019 there were 55,800 homes in Exeter. Future growth plans require the provision of 655 homes per year. Large residential developments have and are evolving in the Greater Exeter area outside the borders of the city, and this places pressure on, and underlines the importance of, trees and woodlands and their sustainable management.

Our tree population frames our environment and has become more important in the light of development pressures, climate change, and threats from disease.

1.4 The scope of the strategy

The geographical scope of the strategy covers the whole city and considers the immediate hinterland and nearby woodland areas, such as Haldon and Ashclyst Forests, and reflects the predominantly rural nature of the Exe Valley.

Apart from the city council, the tree population of the city is owned by many landowners such as: the University of Exeter, Environment Agency, and Forestry Commission. Additionally, Devon Wildlife Trust manages large areas of the Valley Parks on behalf of the city council. These bodies have all been approached during the development of this strategy for opinion and information, and in order for the strategy to be successful to benefit the whole of the Greater Exeter area, all will need to be actively involved in the management of our trees.

At the time of writing, street trees remain the responsibility of Devon County Council as the highways authority for the area, but due to the importance of street trees to improve the urban landscape and enhance physical and mental well-being, this strategy seeks to ensure adequate management and protection of existing street trees, and to enhance the street tree population.

Additionally, many trees are owned by individual residential property owners. Although not aimed at individual residents, this strategy recognises the value of trees in private gardens and seeks to provide management guidance and assurance that such trees are valued and valuable to the city.

The strategy will show:

- the context in terms of legislation and policies, and how the strategy influences and determines key actions
- the higher-level values of trees and woodlands in mitigating the effects of climate change and benefitting health and well-being, and the broader ecosystem interactions
- the manner in which trees on council land are inspected, managed and maintained
- that it is essential to have a long-term, planned approach to successional and resilient tree planting; and
- that the tree cover in the city is protected through the planning process.

The strategy duration is a ten-year period from 2023 – 2033 to allow the funding and implementation of measures in a planned and effective manner. The structure of the strategy should ensure the relevance remains after this period and the strategy can be extended with only minor revisions.

1.5 The vision, themes, and objectives

Vision

To protect, care for, and enhance our trees, hedges, and woodlands for the benefit of communities, wildlife, the city, and future generations.

Key themes

The Trees and Woodlands Strategy is designed to complement and achieve the Exeter City council's Corporate Plan.

To achieve this we looked at three key areas:

- the day-to-day management of the trees and woodlands
- the interaction between trees and the communities they share; and
- long-term management of trees and woodlands in our environment.

……and this gave rise to the following themes:

- **Trees and woodlands** – manage and maintain the city's trees and woodlands to provide a greater resilience to climate change and future threats, and create a more diverse and sustainable urban treescape.

- **The community –** trees and woodlands that are managed for the benefit of the city's visitors, residents and communities - for now, and generations to come.

- **Develop a resource management approach** to enable trees and woodlands to be managed and developed as a sustainable asset to support local ecosystems and habitats.

Objectives

These themes formed the framework for the following objectives:

Theme trees and woodlands:

manage and maintain the city's trees and woodlands to give greater resilience to climate change and future threats, and create a more diverse and sustainable urban treescape.

Objective T1: increase the city's canopy cover from 20% to 30% within the next 20 years.

Objective T2: age diversity – work towards a broader age distribution for trees and woodlands across the city.

Objective T3: species diversity - establish a genetically diverse tree population at both a local and city-wide scale.

Objective T4: species suitability - create a tree population that is well-suited to the urban environment, local site conditions, and climate variation.

Objective T5: tree inventory – maintain a comprehensive tree inventory to help inform of management decisions and control risk.

Objective T6: natural assets - gain a better understanding of the ecological structure and function of the urban forest and associated green infrastructure.

Objective T7: gain a better understanding of trees on privately-owned land within the city, and seek to beneficially influence management where such trees have a proportionately high influence on the locality.

Objective T8: develop further the 2009 Green Infrastructure Strategy to manage woodland in the Exeter hinterlands with other landowners for larger-scale benefits, such as macro-scale woodland renewal and new planting, habitat corridors, interconnecting woodlands, biomass development, and woodland management skills, such as coppicing.

Theme the community:

Trees and woodlands that are managed for the benefit of the city's communities and residents, now and for generations to come.

Objective C1: develop collaborative working with organisations that have an interest in the city's trees and urban woodlands.

Objective C2: promote and enable community involvement and neighbourhood action to develop local ownership, interest and understanding.

Objective C3: actively promote appreciation and understanding of trees as a community resource, with all tree owners (residents, farmers, and businesses), to enable local initiatives to support the vitally important ecosystem that they provide.

Objective C4: develop regional collaboration, working in partnership with other local authorities, landowners and NGOs that have an interest in developing the urban forest and large-scale woodland regeneration.

Objective C5: enable cooperation, communication and enforcement to prevent damage to trees with regard to utility companies that operate within the city, and seek opportunities to plant new trees during utility upgrades.

Theme develop a resource management approach:

To enable trees and woodlands to be managed and developed as a sustainable asset to support local ecosystems and habitats.

Objective R1: ensure the city's trees and woodlands are actively and sustainably protected, managed and developed for future generations.

Objective R2: assess and understand canopy cover and set goals to have a better understanding of existing canopy cover and to set an achievable canopy cover target for the future.

Objective R3: environmental equality – promote and ensure the benefits of the urban woodlands are available to all, particularly those in most need.

Objective R4: develop a woodland management plan for all of the council's woodlands throughout the city, linking with adjacent landowners to optimise value.

Objective R5: financial aid and grant funding – develop a funding scheme for tree and woodland establishment and management.

Objective R6: quality standards and resources – ensure that works are completed to the highest standard.

Objective R7: tree establishment, planning and implementation – investment in tree establishment using a systematic, planned and methodical approach.

Objective R8: site suitability – matching species to location to optimise tree cover, establishment and development to maturity.

Objective R9: tree protection policy, promotion and enforcement – ensure adequate measures and resources are in place for tree protection and protection enforcement.

Objective R10: undertake best practice management of publically-owned trees, woodlands and natural assets.

Objective R11: develop and maintain a proportionate, resilient and defendable system of tree risk management.

Objective R12: ensure a reasonable and defendable approach to tree risk management.

Objective R13: maximise wood and green waste utilisation, working with a range of owners, governing bodies and contractors to promote this.

2.0 The Tree and woodland resource

Exeter City Council actively manages over 200 hectares of publicly accessible open space, ranging from formal parks to woodlands and small communal green spaces. There is a wide and diverse collection of trees, ranging from newly planted native woodland species through to the Victorian legacy of formal parks and private gardens, and the residue of ancient oak woodlands and hedgerows that remain in the heart of the city. Together, these green spaces make up nearly 10% of the total area of the city.

Exeter City Council has a comprehensive database of its trees, woodlands, and public open spaces. The database is integrated with GIS mapping software which allows for the positions of the trees and woodlands to be accurately mapped and data easily accessed when required. The tree data can be extracted and used to provide information about the species composition, age classes, size, defects, and risk rating. In order to manage trees and woodlands effectively, this information must be kept up to date.

A 2023 assessment of the canopy cover for the city as a whole, by Treeconomics, resulted in an estimated cover of 20.2%, which is higher than the UK national average (17%) for towns and cities.

Clair Munnery of the University of Exeter has been using i-Tree software to estimate canopy cover for each of Exeter's wards. The survey found that Newtown and St Leonard's is the ward with the least amount of canopy cover at 21%, with Exwick (39.7%) and Pennsylvania (40.8%) identified as being at the higher end of the spectrum. This reflects the period of development of these wards and the housing densities in each.

2.1 Urban tree benefits

It has long been known that trees are beneficial to urban areas. Some of these benefits are tangible and can be quantified in numerical and monetary terms, whilst others are known but not so easily measured.

Recent scientific studies show that trees provide some of the following benefits:

Social

- Quality of place, giving a sense of scale and softening the hard landscape.

- Improvements to mental health and well-being.

- Providing shade and shelter from adverse weather.

Economic

- Trees have the potential to increase property values by up to 18%, and in streets lined with mature trees, house sales complete faster.

- Trees provide timber and bio-mass and other produce, such as fruits, berries, bark, and foliage.

Environment

- Cleaner air through the removal of harmful gasses and particulate matter.

- Carbon sequestration through storage of carbon in the tree biomass and associated organic matter.

- Storm-water attenuation through interception, ground stabilisation and infiltration.

- Moderating urban temperatures, reduced local wind speeds, and lessening the urban heat island effect.

- Phytoremediation of contaminated sites, turning harmful chemicals into less harmful substances.

- Traffic-calming, reducing the speed of traffic by having a visual impact on drivers.

- Noise abatement through deflection and absorption of sound.

- Trees play an important role in biodiversity, providing habitat for wildlife and improving habitat and species connectivity allowing them to move through urban environments and bringing nature into the city.

2.2 The financial and structural value of trees

In recent years there has been a great deal of research into the ecosystem services that trees provide, using systems such as i-Tree, CAVAT (Capital Asset Value for Amenity Trees) and Helliwell.

The findings of these studies provides information about individual trees and tree populations and attempts to quantify the known benefits in numerical terms. This information can then be translated into monetary values. Improved understanding of the financial value of trees helps us to see trees and woodlands as green assets rather than viewing them as an unnecessary cost burden that deplete budgets.

Monetary values provide a means of informing the decision-making process and can guide investment choices by accounting for the financial value of trees alongside the cost of establishment and ongoing maintenance.

Financial values can also be of assistance when deciding the appropriate amount of compensation that should be demanded for illegal tree removal.

Using the CAVAT valuation approach, Treeconomics assessed the value of the tree cover for the city as a whole at £1.32 billion.

2.3 Urban Air Quality

The Lancet Commission on Pollution and Health (Landrigan 2017) found that within the UK 50,000 deaths are linked with poor outdoor air quality each year.

Air pollution is currently the biggest environmental risk to health. Children, the elderly, and people with pre-existing conditions are particularly vulnerable to the effects of poor air quality.

Emissions from transportation are the most common cause of exceeding government air pollution limits in Exeter. The effects of harmful pollution are exacerbated by higher air temperatures which are likely to increase as the climate gets warmer.

Most of the time, pollution levels in Exeter are low. Exeter City Council regularly monitors its air quality and there is a downward trend in harmful pollution with a small number of areas where nitrogen dioxide is above government objectives. The council have made parts of the city air quality management areas, and are taking steps to reduce air pollution across the city. The highest pollution areas are those in the vicinity of the city's congested arterial traffic routes.

Trees are well-known for their ability to improve air quality. Therefore, as tree managers we must do what we can to ensure that this function is optimised as part of the greater plan to improve air quality at both a local and national level.

Alongside grey infrastructure, trees increase turbulence and aid dispersion of pollution. However, dense tree planting along busy roads can exacerbate the problem by trapping the pollution in and creating canyons that fumigate people in the vicinity. Therefore, careful planning is required to prevent negative effects caused by well-intentioned planting.

Trees, hedges and green walls can be used as barriers between pedestrians and vehicles to create a screen offering some protection from the source of the problem. It has been shown that good urban tree planting design can reduce air pollution, and therefore green infrastructure needs to be a consideration when designing and developing the city.

2.4 Climate change

Climate change is the greatest environmental challenge of the twenty-first century. Drastic action needs to be taken if the rise in global temperatures is to be kept to two degrees Celsius below pre-industrial levels; the point at which the Intergovernmental Panel on Climate Change predicts that there would be catastrophic impacts on our planet. The ability of trees to mitigate the effects of climate change are well-known, though in the greater scheme of things urban trees only play a minor role in the reduction of global carbon. Greater London's 8.4 million trees are estimated to sequester about 77,200 tonnes of carbon each year (Rogers et al. 2015). This is approximately 3% of Greater London's annual carbon emissions, or to put it another way, enough to cover its carbon emissions for about 12 days. (Tree Species Selection for Green Infrastructure: A Guide for Specifiers, 2018).

However, on a local level, the ability of trees to assist with moderating local temperature and rainfall extremes, air pollution, and UV exposure is considerable.

It is known that urban environments have their own microclimates and temperatures are greater in built-up areas due to the 'heat island effect'. This is a result of the far greater concentration of grey

infrastructure in cities. The hard landscape of mainly concrete and tarmac absorbs solar radiation more readily than the green areas that make up the majority of the surrounding countryside. This heat is then radiated out into the local environment increasing local temperatures. Adding to this, the free flow of cool air and wind is reduced by tall buildings.

Trees provide a cost-effective means of moderating local temperature extremes by offering shade, deflecting and absorbing solar radiation, and cooling the air by transpiration of water through their leaves during the summer months.

Trees are known to reduce local wind speeds. Tree canopies are permeable, which has the effect of reducing wind speed, and this can have a significant impact on the energy consumption of buildings during the colder months. In contrast, tall buildings generate turbulence and can increase wind speed.

Strategic tree planting can be used to maximise the efficiency of buildings.

2.5 Saving Devon's Treescapes

Due to the potential scale of tree loss, both within the Devon landscape and nationally, a number of regional projects have been established to plan and deliver mitigation measures on a large scale.

Within Devon, the Devon Ash Dieback Resilience Forum (DADRF) has been established from the Devon Tree Officers Group with a number of additional partners. The Forum has been successful in securing funding for the Saving Devon's Treescapes Project (SDT), to be led by the Devon Wildlife Trust.

The Project Steering Group represents the wider interests of DADRF and other key partners in the delivery of the project.

The SDT project will also benefit from support from an Advisory Group comprising of members of the DADRF Landscape and Ecological Resilience Group, with associated Task and Finish Groups as required.

The project aims to encourage communities to get involved in planting trees outside of woodland areas, both in the countryside and in towns and cities, in order to replace trees expected to be lost due to Ash dieback.

By engaging with local communities, schools and volunteer groups, three community nurseries and micro-nurseries will distribute free trees. Headline project proposals include:

- the establishment of at least 250,000 new trees in Devon, outside of woodland areas;
- 125 events and workshops, annual 'tree-week' festivals and 360 landowner visits will inspire community involvement and action; and
- creating or enhancing more than 150km of hedgerow.

Action 1: Increase tree canopy through tree planting, natural regeneration and caring for existing trees with particular focus on wards where canopy cover is identified as low.

Action 2: We will aim to increase our canopy cover from 24% to 30% within the next 20 years.

Action 3: Promote the planting of trees on private land. We will do this by sharing information about the importance of urban trees, as well as offering tree planting advice and promoting and supporting initiatives that offer free or subsidised tree planting schemes.

Action 7: Tree planting proposals will have to provide proof of adequate consideration for the tree's position in the landscape and the potential for any negative impacts (establishment through to maturity)**.**

Action 8: The council will continue to update its tree and woodland inventory to maintain a comprehensive understanding of its tree and woodland resource.

Action 9: The council will Use i-Tree Eco Survey to set and maintain our understanding of the tree stock, canopy cover and ecosystem services for both publicly and privately-owned trees across the city.

Action 12: We will work in collaboration with council departments and local organisations that have an interest in the city's urban forest.

Action 13: We will encourage community involvement and provide volunteering opportunity's allowing people to make a positive contribution to their surrounding area and help advance urban forest goals.

Action 14: The council will aim to improve people's understanding of the importance of urban trees through a range of information channels.

Action 15: We will continue to work with other local authorities and non-government organisations across the city and countywide to ensure that there is widespread collaboration in reaching local and regional goals.

Action 17: We will attempt to improve access to woodlands with particular emphasis on areas where public-access opportunities have not been fully realised.

Action 21: We will work towards creating a tree establishment plan that is influenced by canopy cover assessment, species, and age diversity to meet canopy cover objectives.

Action 29: The council will aim to improve people's understanding of the importance of urban trees through a range of information channels,

3.0 Wildlife and biodiversity and biosecurity

3.1 Wildlife and biodiversity

Exeter City Council's green spaces, including hedgerows, riparian corridors, and woodlands provide habitat for wildlife and provide spaces where people can enjoy informal active recreation throughout the city. In general, the more biodiverse an area is – the greater the

range of species and landscape types – the better for sustaining and evolving the more complex food chains and habitats.

3.2 Exeter's habitats

The Valley Parks and Nature Reserves in the city provide an important refuge for wildlife and offer places where people can learn about, enjoy, and interact with nature. These include Riverside, Ludwell Valley, Mincinglake, Alphington, and Whitstone Valley Parks, and Local Nature Reserves at Belvidere Meadows in Duryard and St James', and Barley Valley Local Nature Reserve in Exwick. RSPB nature reserves are located at Countess Wear, Topsham and Exwick in the wetland areas that are associated with the River Exe.

The lower reaches of the Exe, with its foreshore and low-lying land, is internationally recognised for its importance for wintering wildfowl and waders. There are also many rare species of plants, and the sandbanks and mudflats support communities of invertebrates that are of national significance. The site contains key features of geological interest and has been the subject of considerable scientific research. Due to this, Natural England have designated it as Site of Special Scientific Interest (SSSI).

Stoke Woods (Forestry Commission) is situated to the north of the city and has been designated as a SSSI, in part because of its geological and ecological interest. It still retains a small area of ancient semi-natural woodland a significant heritage feature for Exeter, as well as presenting a rich diversity of habitat for species partly or wholly reliant on its continued existence.

3.3 Tree based habitats

Exeter's green infrastructure makes an important contribution to these diverse and valuable ecosystems, providing a green link between different sites and habitats, allowing species to migrate through the city.

Trees and woodlands provide valuable habitats for a great variety of plants, lichens, fungi, mosses, mammals, birds, and insects (Hart, 1998). Woodlands are essential to a broad range of species. Native broadleaved woodland is particularly notable for their value to wildlife and biodiversity, supporting important and sometimes rare flora and fauna.

Veteran trees, as well as deadwood habitat, provide specialist niches for wildlife, including many fungi, lichens, and invertebrates. As such, both are highly valued and efforts must be made to retain and enhance trees with such characteristics. Deadwood in its various forms, whether it be standing dead trees, deadwood within live canopies or fallen and heaped deadwood on the ground, are all part of the lifecycle of a tree. Trees with cavities, cracks and fissures also offer valuable habitat for various woodland species including birds and bats. It should be remembered however that urban trees are quite often not in their natural setting and a balance must be struck between ensuring the safety of those who can be affected and the need for wildlife habitat. Efforts must be made to retain deadwood and trees with desirable characteristics where they do not pose a significant threat to public safety.

There is a risk that tree works can disrupt various species, particularly when they are vulnerable to disturbance, such as the disruption of birds, dormice and bats during breeding, nesting, roosting, and hibernating. Compliance with the 1981 Wildlife and Countryside Act and subsequent regulations requires appropriate checks and controls to be in place to ensure species protection.

Silviculture and urban tree management can have a positive impact on flora and fauna by improving species and age diversity, creating differing habitats that are often an integral part of habitat management and species conservation. For example, the process of coppicing in woodland makes conditions much more conducive for particular species of ground flora by improving light penetration to the woodland floor.

Wildlife habitats benefit enormously from well-informed tree and woodland management, conservation, and habitat improvement. Urban wildlife habitats can be fragmented and cut off from surrounding green infrastructure. There needs to be a concerted effort to improve wildlife corridors and habitat connectivity by bridging gaps in tree groups, woodlands, and hedgerows where it is possible to do so.

The council will comply with all appropriate legislation and will seek specialist advice when it is considered necessary and appropriate to do so.

Exeter City Council works closely with other organisations in the city, such as Devon Wildlife Trust, The Forestry Commission, RSPB, Natural England, and the Environment Agency, to ensure that our tree and woodland management supports and complements habitats and wildlife.

3.4 Biosecurity - the current situation

The *Application of Biosecurity in Arboriculture: Guidance Notes*, (Arboricultural Association 2018) stated that there has been more than a 600% increase in new pests and diseases arriving into the UK compared with the previous 20 years. This statistic is very concerning, and the rise has been largely attributed to increased global trade and climate change.

Many tree pests and diseases are imported on live plant material via the horticulture and forestry plant trades. These pests and diseases can have devastating consequences on the UK tree population, often as there will be no natural predators or controlling agents. Once established, control measures are extremely difficult and expensive to implement. Preventative measures to reduce the risk of further introduction and spread of harmful organisms is a more practical option.

Pest and diseases not only have negative consequences for urban tree populations and their associated ecosystems, but they can also have a far more serious impact on biodiversity and the wider environment.

The economic effects of dealing with the impacts of these harmful agents can be massive, for example it was recently estimated that ash dieback will cost the UK economy in the region of 15 billion pounds. The effects of further pest and disease outbreaks will no doubt put more pressure on the natural environment and the tree management resources.

Pest and disease outbreaks can put the public at greater risk of harm due to increased frequency of dead and dying trees that are more likely to fail as a result. In addition, there are direct health threats from harmful pests such as the Oak Processionary Moth (OPM) which has now reached the UK and is becoming established in London's tree population, despite efforts to contain and eradicate it. The OPM caterpillars produce hairs that commonly cause an allergic reaction leading to skin rash, conjunctivitis and respiratory problems further threatening human health.

Exotic pests and diseases present in the UK include Acute Oak Decline, Elm Zig-Zag Sawfly, Sweet Chestnut Blight, Red Band Needle Blight, Larch Tree Disease, and Shoot Blight of Cedar to name a few.

Pests and diseases established in Europe include Emerald Ash Borer, Plane Wilt, Oak Wilt, Pine Processionary Moth, and Phoney Disease of Peach. All of which have the potential to have devastating consequences for our tree population should they migrate.

It is important to keep in mind that indigenous populations of insects, bacteria, moulds, and fungi are part of the natural ecosystems, and their presence should not necessarily cause alarm. They usually play an essential role in the natural environment and the balanced cycle of decay and degradation in our trees and woodlands. Trees often live with insect infestations and wood degrading fungi for many years, and their presence does not automatically mean that a tree is in poor condition, or that action needs to be taken.

3.5 Biosecurity - what we are doing about it.

Because arboriculturists regularly encountered infected plant material, shred and transport branches and move from site to site, there is the risk that they may unintentionally facilitate the spread of harmful organisms. Therefore, measures and actions must be taken to reduce the chances of inadvertently spreading unwanted pests or pathogens throughout the city and the wider area.

In order to combat these issues the council follows the highest biosecurity standards and there are practical measures that can be taken to limit the risk. The council will take the following actions:

Action 1: Follow the latest government legislation and advice and comply with movement restrictions and Plant Health Notices where they apply.

Action 2: Retain on site infested / infected logs, where it is safe and practical to do so. Where logs cannot remain on site, it may be necessary to strip the bark or remove the logs and burn them at a nearby burn site.

Action 3: Retain on site infected / infested woodchip and other plant material where it is practical to do so. Where this is not possible or desirable to leave the arising's on site they will be taken to a nearby licenced green waste handling facility where they can be pasteurised or sterilised as necessary.

Action 4: Contaminated material will not be used as mulch or substrate.

Action 5: Anyone visiting an infected site should thoroughly clean footwear, equipment, and vehicles before leaving the infected area.

Action 6: New trees will be procured from trusted nurseries that adhere to the highest biosecurity practices (quarantine and isolation) and have a plant passport or phytosanitary certificate as required.

Action 7: Imported plants will be inspected before being planted.

Action 8: The latest biosecurity information will be distributed to staff, contractors, and members of the public to raise awareness, and assist with the early identification and eradication or control of harmful organisms.

Action 9: Report new pest and disease finding to the Forestry Research via the Tree Alert portal to ensure that they are made aware of the new outbreaks and distribution of tree threats.

Action 10: Phased tree planting and removal to ensure that there is good representation of all age classes at both a local and city level.

Action 11: Undertake tree planting and removal with a focus on creating a diverse mixture of species and genotypes.

Action 12: Source and select trees for planting that are well-suited to the local site conditions, alongside the phased removal of trees that are not suitable or have become problematic as a result.

Action 13: We will seek advice from, and work in collaboration with, local ecologists and nature conservancy charities such as Devon Wildlife Trust in order to gain a better understanding of the council's green infrastructure, and the special management that is required in order to protect and enhance the wildlife that they support.

Action 14: We will continue to work with other local authorities and non-government organisations across the city and countywide to ensure that there is widespread collaboration in reaching local and regional goals.

Action 15: The council will develop a woodland management plan to ensure that council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard.

Action 16: We will manage ECC's trees and woodlands in accordance with the latest industry best standards and practices. Continued monitoring and auditing of the arboriculture contractors works to ensure that it completed to the highest standard.

Action 17: We will improve the ecological value of our woodlands by developing a woodland management plan that is focused on sustainability and ecological integrity whilst facilitating appropriate public access.

Action 18: All planting stock must be procured from trusted nurseries that adhere to the highest biosecurity practices (quarantine and isolation) and have a plant passport or phytosanitary certificate as required.

Action 19: Staff, partner organisations and contractors will be expected to follow the highest biosecurity practices and stay up to date with the latest government advice and recommendations.

4.0 Tree establishment

4.1 Increasing canopy cover

Over the past 10 years the city council has planted in excess of 10,000 trees at various sites in the city. The city council recognises the importance of successional tree planting and aims to increase the city's canopy cover from its current level of 24.5% to 30% within the next 20 years. As the city council owns 18% of the total city area, with the remaining 82% in private ownership it is clear that in order to achieve the 30% canopy cover target there is need for collaboration with other landowners and organisations that have an interest in urban woodlands.

It is essential that replacement planting by as many landowners as possible is to an overall strategic aim to ensure that canopy cover, species and age diversity are not only sustained but also increased. Whilst native species clearly have advantages in providing habitats that match local biospheres, exotic species have beneficial attributes as well. Thus a balanced approach to species mix, and a focus on increasing canopy cover in areas where it is at its lowest will help towards reducing environmental inequality.

Many of the city's parks and open spaces already have good levels of canopy cover and care needs to be taken to avoid creating overstocked tree groups that are more predisposed to poor tree health and in some cases wind-throw. Management should encourage sufficient space for, and healthy growth of, individual specimens to reach their full potential.

It is not always possible or in the best interest of anyone to replace trees in the same location. Quite often trees have been planted without consideration for their future growth or have succumbed to soil-borne disease. Existing guides assist in choosing and planting trees (Defra, 2018. *Urban Tree Manual-v15*), and local tree planting plans will provide a framework that clearly states the reasons for the preferred species range, and allow community groups and landowners to use these as a basis for securing funding from a range of sources as part of a sustainable and long-term aim. To provide a more comprehensive overview of the extent of tree cover, and help to develop silvicultural management within Exeter, the city council's tree team will continue to map and identify sites that meet the criteria for sustainable tree growth, as well as seeking financial aid from sources such as grant funding and donations from local businesses and members of the public.

4.2 Successional planting

Tree planting is an important part of silvicultural management, and successional planting is an essential tool to develop canopy cover and manage tree species biodiversity. Carrying out tree planting on a planned and regular basis helps to create a varied and diverse age structure. This means that as older trees are lost they are replaced by already established successors, as occurs naturally in woodlands and forests. A diversity of age ranges also contributes to increased biodiversity with trees providing differing habitats, food sources and ecological niches at the different stages of their life cycle.

4.3 The Right Tree for the Right Place

The principles in DEFRAs *Urban Tree Manual V15* will be used to assist in selecting the "right tree for right place". The following factors will be considered:

1. **Location:** choosing the site, aspect, and an assessment of constraints.

2. **Tree selection:** ensuring appropriate species for the long term.

3. **Ecosystem services:** the broader benefits trees bring to the area.

4. **Biodiversity:** tree selection to enhance and support biodiversity.

5. **Procurement:** procurement policies and standards, including preferred provenance.

6. **Planting and establishment:** ground preparation, tree handling processes, adequate investment in after care, including, mulching, weeding, watering, and formative pruning.

7. **Pests and diseases:** identification of threats, management solutions.

4.4 The need for a planned and structured approach

One of the biggest challenges for tree planting and woodland creation in the urban environment is finding suitable land and positions to plant trees. There are often competing needs for greenspace as well as many above and below ground constraints. To overcome these challenges an ad-hoc approach to planting must be avoided, and instead opt for tree establishment that is planned as part of a larger strategic tree plan, with long-term consideration for the competing uses of green space and the sustainability of the urban forest as a whole.

Well thought out planting schemes should aim to achieve the greatest benefits and long-term sustainability whilst having consideration for people and property that could be adversely affected. This approach is expected to optimise the ecosystem services whilst reducing the level of tree-related complaints, and the requirement and costs of remedial works.

4.5 Procurement of healthy planting stock

The UK's trees and forests are coming under increasing threat due to climate change and the rising level of pests and diseases entering the UK due to globalisation and a warming climate. One of the ways of reducing risk is by procuring planting stock from local nurseries that follow the highest biosecurity standards to help prevent the spread of indigenous and exotic plant pests and pathogens.

4.6 Species selection

Selecting trees that are well-suited to the planting site will go some way to ensuring successful establishment, also resulting in a less susceptible and more resilient tree stock overall. It is now generally understood that species and genetic diversity is key to ensuring that the treescape is more resilient to biotic and abiotic threats. To help avoid monocultures, a useful guide is the '10, 20, 30 Rule'. This states that for any given tree population there should be no more than 10% of a particular species, 20% of a particular genus and 30% of a particular family.

Encouraging natural regeneration, where appropriate, is also an effective way of increasing genetic diversity that is adapted to local and changing conditions, and thus building more resilience.

Native broadleaved woodlands support a broad spectrum of indigenous flora and fauna and are of great ecological and historical importance. Often these qualify for a biodiversity action plan, especially if of ancient origin. Woodland planting will generally consist of native species which will be chosen according to the local National Vegetation Classification type, with the use of tools such as the Forestry Commissions Ecological Site Classification in order to make sure that the most appropriate species are selected, and that they are in keeping and with the existing or adjacent woodland ecosystem.

Exotic trees and cultivars however do have their place in the city and Exeter has a long history of breeding, importing, and planting ornamental and exotic trees. Urban environments often consist of engineered landscapes for which many of our native tree species are not well suited and it is often necessary to plant other species. Having the ability to use a variety of native and introduced trees allows more choice and a better ability to match the tree species with the prevailing site conditions, leading to better long term results. An example is the urban heat sink caused by buildings and roads absorbing then releasing heat, and an exotic tree from a latitude closer to the equator with xerophytic characteristics may thrive. Ornamental trees are also desirable for their ability to add variation and interest to many of Exeter's parks and open spaces, and private gardens, whilst contributing to the greater diversity and resilience of the tree stock.

In order to achieve best planting practice tree planting, specifications will be made in accordance with *British Standard Trees: from nursery to independence in the landscape - Recommendations BS8545: 2014*

What are we going to do about this?

Action 1: Increase tree canopy through tree planting, natural regeneration and caring for existing trees with particular focus on wards where canopy cover is identified as low.

Action 2: We will aim to increase our canopy cover from 24% to 30% within the next 20 years.

Action 3: Promote the planting of trees on private land. We will do this by sharing information about the importance of urban trees as well as offering tree planting advice and promoting and supporting initiatives that offer free or subsidised tree planting schemes.

Action 4: Phased tree planting and removal to ensure that there is good representation of all age classes at both a local and city level.

Action 5: Undertake tree planting and removal with a focus on creating a diverse mixture of species and genotypes.

Action 6: Source and select trees for planting that are well suited to the local site conditions, alongside the phased removal of trees that are not suitable or have become problematic as a result.

Action 7: Tree planting proposals will have to provide proof of adequate consideration for the tree's position in the landscape and the potential for any negative impacts. (Establishment through to maturity).

Action 13: We will encourage community involvement and provide volunteering opportunity's allowing people to make a positive contribution to their surrounding area and help advance urban forest goals.

Action 15: We will continue to work with other local authorities and non-government organisations across the city and countywide to ensure that there is widespread collaboration in reaching local and regional goals.

Action 18: The council will develop a woodland management plan to ensure that council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard.

Action 19: The council will seek to take advantage of any available financial aid and grants for tree and woodland establishment and management.

Action 21: We will work towards creating a tree establishment plan that is influenced by canopy cover assessment, species and age diversity in order to meet canopy cover objectives.

Action 31: All planting stock must be procured from trusted nurseries that adhere to the highest biosecurity practices (quarantine and isolation) and have a plant passport or phytosanitary certificate as required.

Action 32: Staff, partner organisations and contractors will be expected to follow the highest biosecurity practices and stay up to date with the latest government advice and recommendations.

5.0 Planning and development

5.1 Trees in relation to development

There is an increasing demand for housing in the city and this inevitably places more pressure on trees and the natural environment. Exeter City Council aims to ensure that housing growth is balanced and sustainable and is achieved without the loss of the city's character and biodiversity.

Well-established trees are known to add great value to new development and it is desirable to make sure that they are retained and protected throughout the development process.

Trees are particularly vulnerable to irreparable damage during the construction phase, through direct damage caused by factors such as root severance, mechanical damage to stems and branches and or indirect damage through root zone soil compaction and contamination.

The Town and Country Planning Act 1990 (section 197) puts a specific duty on local authorities to ensure, whenever it is appropriate that, in granting planning permission for any development, adequate provision is made by the imposition of conditions for the preservation or planting of trees.

This means that the impact on existing trees and the requirement for the planting of new trees is considered as part of any new development. Trees that could be impacted by a new development will be assessed and evaluated by an arboriculturists with reference to British Standard BS5837: *Trees in relation to design, demolition and construction – recommendation* as part of an informed decision-making process.

Where tree officers think that it is necessary to amend a development proposal they can communicate this to the applicant. Once the final application has been received and assessed it can be considered for approval taking into account the local development plan, planning policy and other material considerations. Permission can be granted with several conditions which can include the retention and protection of particular trees or the provision of new planting on site or on public land elsewhere. This does not however allow the council to make unrealistic demands on the developer, and applicants can appeal refused planning permission or conditions through the Planning Inspectorate.

The government has published a mandate within 'A Green Future: Our 25 Year Plan to Improve the Environment' Defra, 2018, to ensure that there is *a 'biodiversity net gain' meaning the delivery of much-needed infrastructure and housing is not at the expense of vital biodiversity. Biodiversity net gain requires developers to ensure habitats for wildlife are enhanced and left in a measurably better state than they*

were pre-development. They must assess the type of habitat and its condition before submitting plans, and then demonstrate how they are improving biodiversity – such as through the creation of green corridors, planting more trees, or forming local nature spaces. Green improvements on site would be encouraged, but in the rare circumstances where they are not possible, developers will need to pay a levy for habitat creation or improvement elsewhere (Defra, 2019).

Exeter City Council will work with developers and other stakeholders to ensure that the guidance within 'A Green Future: Our 25 Year Plan to Improve the Environment' is followed to achieve a 'net environmental gain' in relation to development, to deliver environmental improvements.

5.2 Development on council land

There are occasions when it is considered desirable to develop council owned land. In order to protect trees on or near to these proposed developments the council will adhere to best practice. The current British Standard BS5837: *Trees in relation to design, demolition and construction – recommendation* provides clear guidance on the steps that should be followed to protect and manage the existing trees throughout the development process. An appropriately qualified arborist will be consulted throughout the course of the development.

5.3 Tree Preservation Orders

Tree Preservation Orders (TPOs) are administered by the council's Planning Department, as is standard practice with most local authorities. TPOs are designed to protect trees that provide significant amenity to the area. A TPO can be applied to any species of tree but the protection does not include hedges, bushes or shrubs. TPOs can apply to individual trees (including saplings), groups of trees and woodlands. No tree species is automatically protected.

There will be a presumption against the cutting down or pruning of a protected tree, unless there are compelling grounds to do so, for example, the tree has become unstable. Where permission is granted the council may impose conditions requiring that a replacement tree is planted.

A TPO makes it a criminal offence to cut down, top, lop, uproot, wilfully damage or destroy a tree that is protected by that order, or cause or permit such actions, without the authority's permission. Anyone found guilty of such an offence is liable to prosecution, and an unlimited fine can be imposed for destroying or removing a protected tree without consent from the council.

The council rarely places TPOs on its own land, as this would be an unnecessary administrative burden, and the council as a body is expected to be a responsible tree manager. There are however, exceptional circumstance where there is a threat from a third party and a TPO will be applied to a council tree.

5.4 Conservation Areas

Exeter has 20 Conservation Areas, which are administered by the council's Planning Department.

Conservation areas are areas of special architectural and historic interest, the character or appearance of which it is desirable to preserve and enhance (Mynors, 2011).

Under the Town and Country Planning Act 1990 the council has a duty to publicise planning applications in conservation areas and have regard to the character and appearance of the area in carrying out its planning functions. Trees are recognised as an element in the character of a conservation area and as such there are rules that apply before works can be undertaken to trees in one of these areas.

Proposed tree works in a conservation area require that the council is given six weeks prior written notice detailing the proposed works. This gives the council the opportunity to place a TPO on a tree should it be deemed necessary.

5.5 Hedgerow regulations

The Hedgerow Regulations 1997 offer legal protection to hedges that are considered to be of importance. Anyone proposing to remove a hedgerow or part of the hedgerow which is covered by the regulations must notify the council of their intention to do so by submitting a Hedgerow Removal Notice.

A hedgerow is defined as having a continuous length of or exceeding 20 metres, or if it has a continuous length of less than 20 metres and at each end meets another hedgerow. Any gap resulting from a breach of the hedgerow regulations and any gap of 20m or less will be treated as part of the hedgerow (Maclean, 2017).

5.6 High Hedges

Under the Anti-social Behaviour Act 2003 the council has powers to intervene and act as an impartial adjudicator if there is a neighbourly dispute regarding an evergreen or semi evergreen hedge that is over 2m in height and all other means to resolve the issue have been exhausted. Further information can be found on the council's website.

What are we going to do about this?

Action 1: We will engage with utility companies to ensure that their operations do not have a negative impact on council trees. The council will provide channels for residents and communities to report damage or trees at risk from damage by others.

Action 2: There will be a presumption against the cutting down or pruning of a protected tree. Where permission is granted the council will seek impose conditions requiring that a replacement trees is planted

Action 3: The council will seek to prosecute anyone who illegally damages or destroys public trees.

Action 4: Trees that could be impacted by a new development will be assessed and evaluated by an arboriculture's with reference to British Standard BS5837: Trees in relation to design, demolition and construction – recommendation as part of an informed decision making process.

6.0 Tree management on council land

The city council is responsible for a considerable proportion of the city's trees, and there is a range of management measures in place to ensure trees are managed safely, but with the minimum of intervention.

6.1 Tree risk management

To ensure that the council fulfils its duty of care we have adopted a Tree Risk Strategy that ensures that the council has a reasonable and defendable approach to tree risk management. The Tree Risk Strategy has been developed using a recognised standard methodology (Quantified Tree Risk Assessment) and follows the latest industry guidance and best practices.

6.2 Tree surveys

The city council operates a relational database linked to a Geographical Information System (GIS) to provide spatial mapping. Trees are either recorded individually, as part of a group, or as a woodland, depending most often on factors such as the tree's surroundings (targets) and the estimated level of risk (probability of failure and size of part).

6.3 Tree inspections

All council-owned trees are subject to periodic inspection, and these are carried out by appropriately qualified personnel. As part of our risk-based approach, inspections are prioritised according to location. This means that we would generally inspect trees in busy areas such as the city centre more frequently than those in lower use areas such as a woodland.

Systematic tree inspections ensure that where trees are in decline or have become hazardous due to structural defects, disease or decay, they are identified and appropriate works are prescribed accordingly. It also allows an overview of the tree stock to plan management and planting needs on an appropriate scale, such as when outbreaks of pests or diseases occur.

6.4 Pro-active tree maintenance

As part of a proactive approach to tree management a "Ward Work" programme ensures each of Exeter's 13 Wards are visited at least once every five years. Ward work includes the following operations:

- Crown lifting to achieve statutory clearances over footpaths, cycle ways and highways.

- Removal of hazardous deadwood and hung-up limbs.

- The removal of basal suckers and epicormic growths.

- The severing of ivy to facilitate future tree inspections.

- The clearing of branches away from buildings (2 metres where possible).

- Pruning to clear infrastructure such as signs, lamp posts, and walls.

- Felling of small dead trees where they present a significant threat.

- Formative pruning and maintenance of young trees (mulching, stake removal, etc.).

Ward work does not include the removal of branches that overhang private properties. Some tree works may also be delayed due to factors such as the presence of nesting birds, the requirement for traffic management and specialist equipment hire.

6.5 General tree works

Alongside the ward work, the cyclical tree inspections programme and enquiries from members of the public lead to further works. Tree works are generally prioritised according to the assessed level of risk as part of ECC's risk-based approach to tree management.

Trees in urban areas are often the cause of complaint particularly when they are in close proximity to properties and areas of high occupancy.

Problems can often be alleviated through good arboricultural management, however there are situations where poor past management and species selection mean that the arboricultural options are limited and it is not always possible to reach a solution that meets everyone's needs. The council will do what is in the interest of the wider population and cannot always meet the desires of individuals.

Many tree species have great longevity and there is a tendency for people to think that they have an infinite lifespan. Although trees are generally longer lived than humans they, like all living things, will eventually fail. This is something that can lead to outcry from the public when pre-emptive action is required to manage the

decline of trees in the interest of public safety. Keeping in mind both the value of trees and the fact that they can fail and cause harm, there must be a balanced approach to tree management that takes into account the known value of trees whilst ensuring that there is not an unacceptable risk to the public.

All tree works will be carried out in accordance with the current British Standard (BS3998) or equivalent.

6.6 Enquiries

The council receives a high volume of tree-related enquiries. In an attempt to improve efficiency in this area the web-based reporting system has been streamlined to allow for easy reporting of tree-related complaints and hazards. People also have the opportunity to report issues via telephone, email, and post. In addition to this there is a list of "Frequently Asked Questions" (FAQ) on the website providing information about some of the more common causes of complaint and related policies. Although it is intended to respond to all enquires within 14 days of receiving the initial report of the problem, at busy times of the year response time for non-urgent enquiries may be longer.

6.7 Requests for tree work

Under normal circumstances the council will only carry out works to trees for the following reasons:

- The tree is structurally compromised and poses a significant threat to the public, in line with the Tree Risk Management Strategy.

- Tree branches are low over footways, cycle paths, and roads, or obstructing signage, lights or site lines.

- The trees branches are close or touching buildings or other infrastructure.

- There is a proven case of tree related subsidence.

- The control of pests and diseases.

- For tree and woodland improvement / management.

6.8 Tree removal

Trees may need to be removed for a number of reasons, for example:

- The tree is hazardous and poses a significant threat to people and or property.

- The tree is self-set or inappropriately planted, and where its unsuitability for the location outweighs any environmental benefits.

- To abate a nuisance that could lead to litigation.

- The tree is found to be causing damage through subsidence.

- To make way for approved development or engineering works.

- Thinning works to improve the quality of the retained trees.

- Woodland management works, for example in accordance with the UK Forestry Standard.

6.9 Nuisance issues

Trees are often the cause of complaint. Commonly these nuisances are caused by seasonal events such as leaf fall in the autumn or shade caused by trees throughout the growing season. These problems are usually an inconvenience rather than a reasonable justification for heavy pruning or tree removal.

The council will not normally undertake tree pruning or removal for the following complaints:

- Overhanging branches.

- Leaves and fruit falling onto private property.

- Honeydew and sap.

- Nesting and roosting birds.

- Excessive tree height.

- Swaying trees and branches.

- Unproven claims of root damage, perceived or otherwise.

- Issues with shade and shadows.

- Phone line, power line and signal disruption.

- Trees blocking views.

- Pollen allergies.

All nuisance-related enquiries will be considered on a case-by-case basis, and the complainant will be informed about the outcome of the assessment.

6.10 Tree work standards

The majority of the tree works are carried out by the council's appointed contractors and will be carried out to the highest standard. It is a contractual requirement that the contractors are and remain approved by the Arboricultural Association.

All works are expected to be completed in accordance with the current industry best practice, such as British Standards 3998:2010 *Tree Work – Recommendations.* Other industry standards and guidelines are to be followed for operations that are not covered in BS3998 for tasks such as tree planting.

To ensure that the expected quality of work is delivered the councils tree team randomly audits approximately 10% of the completed jobs. If the standard is not met the contractors will be asked to return to site and make good before payment is made.

6.11 Veteran and ancient trees

A desktop study of the Woodland Trusts, Ancient Tree Inventory shows that there are approximately 26 veteran trees, 20 'notable' trees and three ancient trees recorded on Exeter's public open space (March 2019).

Exeter's ancient and veteran trees provide an important link to Exeter's rich and varied past and as such are of great historical importance. Veteran trees are known for the supporting a broad diversity of species and have special importance culturally, ecologically, biologically, and aesthetically.

Specialist management is required to sustain these trees so that they continue to exist for as long as possible. The city council's veteran tree management accords with Natural England's "*Veteran Trees Guide to Good Management Guidance*".

6.12 Tree management on ECC housing land

Exeter City Council owns and manages over 400 properties providing rented accommodation throughout the city. The property type varies from blocks of flats and sheltered housing to individual dwellings. The properties often have private gardens or are surrounded by communal gardens and green spaces. The management of the trees on these sites is within the remit of Exeter City Council's Tree Management programme.

There are currently over 1000 trees associated with city council housing land. The trees provide multiple benefits and play an important role in enhancing and softening the built environment, making them more enjoyable places to live. Trees on housing land contribute to the wider treescape and form an important part of the green infrastructure, providing connectivity and a green link to the surrounding areas.

The housing tree stock is diverse with a mixture of native and introduced trees of varying species and age ranges, from newly planted young trees through to mature and veteran age classes.

The trees found in communal areas have usually been planted in a planned manner, with less formal ad hoc planting often occurring in tenanted gardens. There is generally relatively few mature trees that predate the houses and have managed to survive despite the surrounding land being developed.

Due to the transient nature of tenancies, there is a legacy of little consideration for the long-term growth and sustainability of trees within gardens. Self-set trees are also commonplace and frequently occupy neglected gardens, and some of the more inaccessible communal areas. The effects of self-set trees and the ad hoc approach to planting is that many trees exist in locations where they are not suitable or desirable. In some cases this can be tolerated whilst in others there is a real impact on the reasonable enjoyment of the property. In contrast, there other areas that are completely devoid of trees and have become characterless and bleak as a result.

The council aims to address this by phased removal and pruning of trees that have become problematic or hazardous, in conjunction with a programme of tree planting to ensure that canopy cover is sustainable, and increased in areas where it is currently poor.

6.13 Vandalism and damage to council trees

As with other urban areas Exeter's tree are subject to varying levels of vandalism. Sometimes this vandalism is caused by deliberate action whilst on other occasions it can occur through simple ignorance and trees can become accidently damaged through lack of care. Vandalism sometimes occurs randomly whilst on other occasions there are patterns with incidences occurring in particular areas usually alongside other antisocial behaviour.

More obvious forms of vandalism include topping, hacking, and ring barking of trees usually because of a perceived nuisance. Newly planted trees are particularly vulnerable to vandalism because they are easily snapped and broken. This is a source of great frustration for both the council and the local community who are all too aware of the difficulties and costs incurred in planting and establishing replacements.

Other forms of vandalism occur through the actions of others undertaking works in the public realm. The most common examples include the severing of roots for the installation of utility's and infrastructure, compaction of root areas with materials and or machinery. Urban trees are often severely affected by soil compaction. Most contractors undertaking this work for utilities have policies clearly stating that trees within the work zone must be protected, but often this is not correctly managed and irreversible damage is done. Even if the tree is not killed immediately, and the long-term impact on the trees stability and physiological condition are not immediately obvious, relatively "minor" failures

such as damage to the bark, or ground contamination by diesel, cement or road salt will have a detrimental and often fatal effect.

In an attempt to mitigate the effects of vandalism to newly planted trees the council will use larger planting stock which is less vulnerable to vandalism, particularly with regards to the snapping of stems and branches. The use of tree guards will also be considered where they are cost effective and can significantly reduce the risk. The downside to these measures is that they are often expensive and as such they will be limited to circumstances where they are the only means of successful tree establishment.

Attempts to educate people about the great importance of urban trees through the creation of tree trails and volunteering opportunities for schools is hoped to go some way to changing attitudes and reducing levels of vandalism as a result.

6.14 Tree-related damage claims

Trees are living organisms and despite a dynamic management system being in place accidents and damage can occur. Trees are managed to minimise the risk of accidental damage or injury from fallen limbs or failure of the whole tree, maintain reasonable and adequate clearance from properties and structures, and structural damage. The city council will assess any insurance-related matters with the support of the tree team. The city council will not pay any unsubstantiated claims, and will only pay claims where liability is proven, and foreseeable harm or damage has occurred. The onus is on the claimant to provide evidence to support a claim.

What are we going to do about this?

Action 1: The council will continue to update its tree and woodland inventory in order to maintain a comprehensive understanding of its tree and woodland resource.

Action 2: We will risk assess trees using a recognised methodology (QTRA), set appropriate re-inspection intervals and keep records on the council's tree database (Confirm) in accordance with the council's Tree Risk Management Strategy.

Action 3: We will seek advice from, and work in collaboration with, local ecologists and nature conservancy charities such as Devon Wildlife Trust in order to gain a better understanding of the council's green infrastructure, and the special management that is required in order to protect and enhance the wildlife that they support.

Action 4: We will encourage community involvement and provide volunteering opportunity's allowing people to make a positive contribution to their surrounding area and help advance urban forest goals.

Action 5: The council will aim to improve people's understanding of the importance of urban trees through a range of information channels.

Action 6: We will engage with utility companies to ensure that their operations do not have a negative impact on council trees. The council will provide channels for residents and communities to report damage or trees at risk from damage by others.

Action 7: The council will develop a woodland management plan to ensure that council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard.

Action 8: We will manage ECC's trees and woodlands in accordance with the latest industry best standards and practices. Continued monitoring and auditing of the arboriculture contractors works to ensure that it completed to the highest standard.

Action 9: The council will seek to prosecute anyone who illegally damages or destroys public trees.

Action 10: The council will manage its trees in accordance with industry standards and best practice to ensure that council trees are in good physiological and structural condition in order to promote longevity and maximise ecosystem services.

Action 11: The council will manage tree risk in accordance with its Tree Risk Management Strategy following the latest industry guidance (NTSG) and using a well-recognised and accepted risk assessment methodology.

Action 12: The council will aim to improve people's understanding of the importance of urban trees through a range of information channels.

7.0 Delivery of the Tree and Woodland Strategy

7.1 Action Plans

A five-year action plan will be developed reflecting the objectives of this strategy to provide a structured and funded approach to tree management in and around the city.

In conjunction with this a longer-term ten-year plan will be developed in partnership with others to enable larger scale planting and woodland development, with an investment programme.

7.2 Strategy monitoring and review

This strategy, and the action plans, will be reviewed and updated annually to ensure that it remains relevant to the city, and is compliant with current legislation, guidance and industry best practice.

7.3 Investment plan

A short and medium-term investment plan is required to provide a planned approach to delivering the Tree and Woodland Strategy. Long-term planning is particularly essential due to the long timescales for trees to establish, whilst allowing the flexibility to react to short term but significant risks such as infections and storm damage.

Revenue expenditure:

Inspection regime

The inspection regime has been developed over the last 10 years to the point where the frequency and style of inspection provides adequate and proportionate risk management data, with records digitally updated in real time. The volume and costs of works will vary according to a wide range of influences, and works are prioritised primarily in relation to risk. The current inspections and works budget is appropriate with an allowance for contract upgrade, and assuming no significant impact from legislative, work practice or waste disposal changes.

Woodland management

Old and new woodlands need management, though this can be on a long-term rolling programme. It is assessed on individual locations rather than a fixed maintenance structure. However the budget restraints since 2010 have resulted in a number of woodlands missing restorative felling, or formative thinning, resulting in poor and weak specimens subject to windthrow.

There is insufficient funding within the Revenue budget to manage woodland management effectively. Whilst existing woodlands are not being adequately managed, the capacity to promote more sustainable community woodland schemes is jeopardised. A capital –funded Woodland management scheme would enable existing woodlands to be brought into line, primarily by utilising a mix of volunteer and contractor resources, and aligned with community woodland planting schemes.

Problematic trees

Some of the council's tree stock is simply not suitable for its position and may be causing significant damage to property and infrastructure as a result. There are also trees that pose an unacceptable risk due to the presence of structural defects. Defects which may be inherent to a particular species or cultivar, or simply because the tree has become damaged, diseased or in a state of declined due adverse growing conditions and old age. These trees will require an ongoing program of phased removal and replacement, in line with the councils Tree Risk Management Strategy.

Capital projects

Ash Die Back

The eventual implications remain difficult to assess. Current advice is that special care may be needed during felling operations, particularly where manual felling or removal is required. Heavily infected trees are often not safe to climb, significantly increasing costs associated with specialist equipment hire, in order to enable safe removal.

 At the same time sanitation felling ahead of potential infection is both unpopular and difficult to justify in terms of environmental impact and cost. Whilst the extent to which Local Authorities will take on public safety felling of trees in unknown ownership is likely to be far less than that undertaken during the Dutch Elm Disease outbreak of the 1970s, there will some instances where this will need to be addressed.

It remains the case that the disease outbreak could cost ECC an extra £50,000 to £150,000 per year for the next 5 years or longer. (ECC Ash Dieback Action Plan 2019).

Revenue Position

Previous and planned budgets.

Year	Annual Revenue budget	Tree and woodland development projects	Annual revenue maintenance budget	Housing Staffing costs	Housing works	Ash Dieback	Public Realm Staffing costs
2019-2020	225,620 192,320	2,000	112,980	(33,300)	170,000	0	106,870
2020-2021	231,630 197,060	3,000	112,980	(34,570)	150,000	50,000	112,880
2021-2022	200000	10,000	150,000	(35,000)	140,000	50,000	114,000
2022-2023	210000	5,000	150,000	(35,500)	100,000	100,000	116,000
2023-2024	220000	3,000	150,000	(36,000)	100,000	100,000	118,000
2024-2025	221000	3,000	150,000	(45,000)		75,000	121,000

Estimated budgets include an increase for RPI costs, but a decrease over time to reflect less costly reactive works, improved efficiency, and a peak in terms of woodland planting capacity after 2023. Ash dieback measures are noted separately as potential capital funding as the revenue budget will not cope with the volume and complexity of Ash tree removal, based on current predictions and work practices.

<u>10 year management plan</u>

Arising from the detailed action plans for tree management within the city and the Greater Exeter area, a long-term plan for tree care, tree and woodland planting schemes, and cyclical woodland management will be developed. This will be undertaken in conjunction with partner organisations such as Devon Wildlife Trust and adjacent Local Authorities.

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9.0 Appendices

9.1 Policy and Strategy Links

Exeter Corporate Plan

The Corporate Plan 2022- 2026 has three strands:

- Healthy and active city
- Building great neighbourhoods and communities
- Net zero carbon city

The Tree and Woodland Strategy supports the Corporate Plan by promoting and enhancing carbon sequestration and negating the effects of air pollution, enhancing the amenity and recreational values of urban areas, and encouraging recreational activity in woodlands.

Liveable Exeter

Liveable Exeter is a transformational housing delivery programme identifying eight liveable neighbourhoods within Exeter. Active Design principles guide the key outcomes including 'Activity for All' and a network of multi-functional open space. The benefits of trees within local urban landscapes has been long established and this strategy will provide guidance on a resilient tree programme.

England's Tree Health Resilience Strategy.   Gov.uk 2018

This strategy sets out plans to reduce the risk of pest and disease threats. It also sets out how to strengthen the resilience of our trees to withstand threats. The strategy includes a national action plan, which sets out what is already being done, what is needed to protect our trees, and the important benefits they provide.

'A Green Future: Our 25 Year Plan to Improve the Environment', Defra, January 2018

This 25 year environment plan sets out government action to help the natural world regain and retain good health. It aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species and provide richer wildlife habitats. It calls for an approach to agriculture, forestry, land use and fishing that puts the environment first.

One of the key objectives is "increasing woodland in England in line with our aspiration of 12% cover by 2060: this would involve planting 180,000 hectares by end of 2042".

Exeter City Council. Ash Dieback Action Plan, May 2019

This plan is to enable ECC to assess the current position and the potential effect of Ash Dieback in relation to the city and its inhabitants. The outcome of this assessment will assist in our response to avert risk and mitigate the inevitable environmental and ecological impact. This issue-specific plan sits alongside the broader Tree and Woodland Strategy.

Exeter City Council Tree Risk Strategy, May 2019

This risk strategy was produced ahead of the Tree and Woodland Strategy to determine the extent of risk to which the council may be exposed, to identify gaps in the risk management system, and framed the management approach to controlling risk. This will be a live document subject to annual review. It will sit under the Tree and Woodland Strategy.

Local Plan – The Exeter Plan 2020- 2040 (draft 3rd round consultation)

The Local Plan 'Natural Environment' objective relates to protecting and enhancing of Exeter's Natural environment through the cities valley parks, River Exe, and natural greenspaces. Policy NE7 (pending public consultation) specifically references the requirement for developers to provide increases in the amount of Tree cover within Exeter to the 30% target. This Tree and Woodland strategy has contributed as a Supplementary Planning Document providing evidence for the development to date. It will continue to support Local plan policy objectives through the effective management and delivery of Exeter's treescape, and through collaboration across the wider sub-region.

Planning and Local Development Framework (Core Strategy-Sustainability Appraisal Report 2012)

Core Policies that are of particular relevance to trees and woodlands are:

- NE3 – This policy lays out a requirement for developers to apply a mitigation hierarchy to biodiversity loss, and compensate as a last resort to ensure a total target of 10% netgain as per legal requirements.
- NE4 – This Policy mandates that developers proactively protect, enhance and deliver multi-functional greenspaces, capable of delivering environmental, economic and wellbeing benefits.
- NE6 – Requires all development to increase the level of greening factor within Urban environments, including the use of trees, parks, and green roofs.

Live and Move Everyday Active Strategy 2022 Live Better, Move More, report 2019

The Physical Activity Strategy 2019 provides the overall direction for increasing physical activity in Exeter, and a means of aligning other strategies, partnerships and initiatives to secure an Active Design/whole system approach.

The Trees and Woodlands Strategy will contribute to the Physical Activity Strategy 2019.

Parks and Green Spaces Strategy (Draft)

These strategies provide the framework for provision, protection and enhancement of and parks and green spaces, and the protection and value of trees is referenced across all the strategies.

Exeter and East Devon Green Infrastructure Strategy, 2009

This strategy was produced to provide specific opportunities to shape and deliver green infrastructure within the area of the study. The Green Infrastructure Vision is stated as: "Green infrastructure will help to create high-quality, attractive and functional places that will provide a setting for day-to-day living, enhance the character and diversity of the landscape and protect heritage assets that contribute to the area's unique sense of place and cultural identity. It will enrich the area's wildlife value by addressing the negative impact of habitat loss and fragmentation by promoting habitat enhancement and linkage. GI will also help to connect people to places by linking residents and visitors to leisure and work destinations along a network of safe and clearly-defined routes."

This aligns with the aims and objectives of the Trees and Woodlands Strategy. More specifically, the following aims are mirrored in the Trees and Woodlands Strategy.

Aim 2: Reinforcing local identity and distinctiveness

Aim 3: Enhancing biodiversity

Aim 4: Strengthening community cohesion

Aim 5: Promoting health and well-being

Aim 6: Establishing multi-functioning green spaces

Aim 7: Managing the environment

Towards a Carbon Neutral Exeter, report July 2019

The council has made a commitment to become carbon neutral by 2030. There are many measures that can be taken towards achieving this goal, but amongst those where a trees and woodlands strategy can contribute are:

- green corridors and safe off-road walking and cycling routes;
- tree planting to screen from vehicles and airborne pollution;
- the management, maintenance and planting of trees to absorb carbon dioxide; and
- the retention and improvement of green spaces as a haven from traffic.

9.2 Action Plan - actions to achieve themes.

- This table summarises all the action points in relation to the three themes of the strategy. Some action points are duplicated as they support more than one theme.
- Some action points will be ongoing, others will relate to a single project.
- Action points will change over the lifetime of the strategy.

Objectives	Actions
Theme - TREES AND WOODLANDS	
Objective T1*:* Increase the city's canopy cover from 24.5% to 30% within the next 20 years.	**Action 1:** Increase tree canopy through tree planting, natural regeneration and caring for existing trees with particular focus on wards where canopy cover is identified as low. **Action 2:** We will aim to increase our canopy cover from 24% to 30% within the next 20 years. **Action 3:** Promote the planting of trees on private land. We will do this by sharing information about the importance of urban trees as well as offering tree planting advice and promoting and supporting initiatives that offer free or subsidised tree planting schemes.
Objective T2*:* Age diversity – work towards a broader age distribution for trees and woodlands across the city.	**Action 4:** Phased tree planting and removal to ensure that there is good representation of all age classes at both a local and city level.
Objective T3*:* Species diversity - Establish a genetically diverse tree population at both a local and city wide scale.	**Action 5:** Undertake tree planting and removal with a focus on creating a diverse mixture of species and genotypes.
Objective T4: Species Suitability – Create a tree population that is well suited to the urban environment, local site conditions, and climate variation.	**Action 6:** Source and select trees for planting that are well suited to the local site conditions, alongside the phased removal of trees that are not suitable or have become problematic as a result. **Action 7:** Tree planting proposals will have to provide proof of adequate consideration for the tree's position in the landscape and the potential for any negative impacts. (Establishment through to maturity).

Objectives	Actions
Objective T*5*: Tree inventory – Maintain a comprehensive tree inventory to help inform of management decisions and control risk	**Action 8:** The council will continue to update its tree and woodland inventory in order to gain a better understanding of its tree and woodland resource. **Action 9:** The council will Use i-Tree Eco Survey to set and maintain our understanding of the tree stock, canopy cover and ecosystem services for both publicly and privately-owned trees across the city. **Action 10:** We will risk assess trees using a recognised methodology (QTRA), set appropriate re-inspection intervals and keep records on the council's tree database (Confirm) in accordance with the council's Tree Risk Management Strategy.
Objective T6: Natural assets - Gain a better understanding of the ecological structure and function of the urban forest and associated green infrastructure.	**Action 11:** We will seek advice from, and work in collaboration with, local ecologists and nature conservancy charities such as Devon Wildlife Trust in order to gain a better understanding of the council's green infrastructure, and the special management that is required in order to protect and enhance the wildlife that they support.
Objective T7: Gain a better understanding of trees on privately owned land, within the city, and seek to beneficially influence management where such trees have a proportionately high influence on the locality.	**Action 9:** The council will Use i-Tree Eco Survey to set and maintain our understanding of the tree stock, canopy cover and ecosystem services for both publicly and privately-owned trees across the city.
Objective T8: Develop further the 2009 Green Infrastructure Strategy to manage woodland in the Exeter hinterlands with other landowners for larger scale benefits such as macro-scale woodland renewal and new planting, habitat corridors, interconnecting woodlands, biomass development, and woodland management skills such as coppicing.	**Action 9:** The council will Use i-Tree Eco Survey to set and maintain our understanding of the tree stock, canopy cover and ecosystem services for both publicly and privately-owned trees across the city. **Action 11:** We will seek advice from, and work in collaboration with, local ecologists and nature conservancy charities such as Devon Wildlife Trust in order to gain a better understanding of the council's green infrastructure, and the special management that is required in order to protect and enhance the wildlife that they support. **Action 12:** We will work in collaboration with council departments and local organisations that have an interest in the city's urban forest.

Objectives	Actions
	Action 18: The council will develop a woodland management plan to ensure that council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard. **Action 21:** We will work towards creating a tree establishment plan that is influenced by canopy cover assessment, species and age diversity in order to meet canopy cover objectives. **Action 27:** We will improve the ecological value of our woodlands by developing a woodland management plan that is focused on sustainability and ecological integrity whilst facilitating appropriate public access.
Theme - THE COMMUNITY	
Objective C1: Develop collaborative working with organisations that have an interest in the city's trees and urban woodlands.	**Action 12:** We will work in collaboration with council departments and local organisations that have an interest in the city's urban forest. **Action 15:** We will continue to work with other local authorities and non-government organisations across the city and countywide to ensure that there is widespread collaboration in reaching local and regional goals.
Objective C2: Promote and enable community involvement and neighbourhood action to develop local ownership, interest and understanding.	**Action 13:** We will encourage community involvement and provide volunteering opportunity's allowing people to make a positive contribution to their surrounding area and help advance urban forest goals. **Action 14:** The council will aim to improve people's understanding of the importance of urban trees through a range of information channels.
Objective C3: Actively promote appreciation and understanding of trees as a community resource with all tree owners – residents, farmers, and businesses to enable local initiatives to support the vitally important ecosystem that they provide.	**Action 14:** The council will aim to improve people's understanding of the importance of urban trees through a range of information channels.
Objective C4: Develop Regional collaboration – Working in partnership with other local authorities, land owners and	**Action 15**: We will continue to work with other local authorities and non-government organisations across the city and countywide to ensure that there is widespread collaboration in reaching local and regional goals.

Objectives	Actions
NGOs that have an interest in developing the urban forest and large scale woodland regeneration.	
Objective C5: Enable cooperation, communication and enforcement to prevent damage to trees with regard to utility companies that operate within the city, and seek opportunities to plant new trees during utility upgrades.	**Action 16:** We will engage with utility companies to ensure that their operations do not have a negative impact on council trees. The council will provide channels for residents and communities to report damage or trees at risk from damage by others.
Theme - DEVELOP A RESOURCE MANAGEMENT APPROACH	
Objective R1: Ensure the city's trees and woodlands are actively and sustainably protected, managed and developed for future generations.	**Action 8:** The council will continue to update its tree and woodland inventory in order to gain a better understanding of its tree and woodland resource. **Action 18:** The council will develop a woodland management plan to ensure that council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard.
Objective R2: Assess and understand Canopy cover and set goals – to have a better understanding of existing canopy cover and to set an achievable canopy cover target for the future.	**Action 2:** We will aim to increase our canopy cover from 24% to 30% within the next 20 years. **Action 8:** The council will continue to update its tree and woodland inventory in order to gain a better understanding of its tree and woodland resource. **Action 9:** The council will Use i-Tree Eco Survey to set and maintain our understanding of the tree stock, canopy cover and ecosystem services for both publicly and privately-owned trees across the city.
Objective R3: Environmental equality – promote and ensure the benefits of the urban woodlands are available to all, particularly those in most need.	**Action 1:** Increase tree canopy through tree planting, natural regeneration and caring for existing trees with particular focus on wards where canopy cover is identified as low. **Action 13:** We will encourage community involvement and provide volunteering opportunity's allowing people to make a

Objectives	Actions
	positive contribution to their surroundings and help advance urban forest goals. **Action 17:** We will attempt to improve access to woodlands with particular emphasis on areas where public access opportunities have not been fully realised. **Action 27**: We will improve the ecological value of our woodlands by developing a woodland management plan that is focused on sustainability and ecological integrity whilst facilitating appropriate public access.
Objective R4: Develop a woodland management plan for all of the council's woodlands throughout the city, linking with adjacent landowners to optimise value.	**Action 18:** The council will develop a woodland management plan to ensure that Council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard. **Action 27:** We will improve the ecological value of our woodlands by developing a woodland management plan that is focused on sustainability and ecological integrity whilst facilitating appropriate public access.
Objective R5: Financial aid and grant funding – develop a funding scheme for tree and woodland establishment and management.	**Action 19:** The council will seek to take advantage of any available financial aid and grants for tree and woodland establishment and management.
Objective R6: Quality standards and resources – ensure that works are completed to the highest standard.	**Action 18:** The council will develop a woodland management plan to ensure that council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard. **Action 20:** We will manage ECCs trees and woodlands in accordance with the latest industry best standards and practices. Continued monitoring and auditing of the arboriculture contractors works to ensure that it completed to the highest standard. **Action 31:** All planting stock must be procured from trusted nurseries that adhere to the highest biosecurity practices (quarantine and isolation) and have a plant passport or phytosanitary certificate as required.

Objectives	Actions
	Action 32: Staff, partner organisations and contractors will be expected to follow the highest biosecurity practices and stay up to date with the latest government advice and recommendations.
Objective R7: Tree establishment planning and implementation – Investment in tree establishment using a systematic, planned and methodical approach.	**Action 21:** We will work towards creating a tree establishment plan that is influenced by canopy cover assessment, species and age diversity in order to meet canopy cover objectives.
Objective R8: Site suitability – matching species to location to optimise tree cover, establishment and development to maturity.	**Action 22:** We will ensure that newly planted trees have sufficient growing space and suitable growing conditions so that they can reach their genetic potential and thus maximise the benefits that they provide.
Objective R9: Tree protection policy, promotion and enforcement – ensure adequate measures and resources are in place for tree protection and protection enforcement.	**Action 23:** There will be a presumption against the cutting down or pruning of a protected tree. Where permission is granted the Council will seek impose conditions requiring that a replacement trees is planted. **Action 24:** The council will seek to prosecute anyone who illegally damages or destroys public or private trees. **Action 25:** Trees that could be impacted by a new development will be assessed and evaluated by an arboriculture's with reference to British Standard BS5837: *Trees in relation to design, demolition and construction – recommendation* as part of an informed decision making process.
Objective R10: Undertake best practice management of publically owned trees, woodlands and natural assets.	**Action 20:** We will manage ECC's trees and woodlands in accordance with the latest industry best standards and practices. Continued monitoring and auditing of the arboriculture contractors works to ensure that it completed to the highest standard. **Action 26:** The council will manage its trees in accordance with industry standards and best practice to ensure that council trees are in good physiological and structural condition in order to promote longevity and maximise ecosystem services.

Objectives	Actions
	Action 18: The council will develop a woodland management plan to ensure that council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard.
Objective R11: Develop and maintain a proportionate, resilient and defendable system of tree risk management.	**Action 10:** We will risk assess trees using a recognised methodology (QTRA), set appropriate re-inspection intervals and keep records on the council's tree database (Confirm) in accordance with the Council's Tree Risk Management Strategy. **Action 28:** The council will manage tree risk in accordance with its Tree Risk Management Strategy following the latest industry guidance (NTSG) and using a well-recognised and accepted risk assessment methodology.
Objective R12: Ensure a reasonable and defendable approach to tree risk management	**Action 10:** We will risk assess trees using a recognised methodology (QTRA), set appropriate re-inspection intervals and keep records on the council's tree database (Confirm) in accordance with the council's Tree Risk Management Strategy **Action 20:** We will manage ECC's trees and woodlands in accordance with the latest industry best standards and practices. Continued monitoring and auditing of the arboriculture contractors works to ensure that it completed to the highest standard**.** **Action 28:** The council will manage tree risk in accordance with its Tree Risk Management Strategy following the latest industry guidance (NTSG) and using a well-recognised and accepted risk assessment methodology.
Objective R13: Maximise wood and green waste utilisation, and working with a range of owners, governing bodies and contractors to promote this	**Action 30:** The council will seek to recycle and utilise all arising from tree works operations.

9.3 Exeter City Council – Tree Risk Strategy

Exeter City Council – Tree Risk Strategy

Executive Summary

The Council owns many trees and recognises and values the benefit that they bring to the City. Trees do pose a risk to safety but generally the risk to human safety is very low and this risk needs to be considered in balance with the benefits that they provide.

Research has shown that trees provide a range of social, environmental and economic benefits including:

- Improve air quality through the Interception and capture of atmospheric pollution.
- Carbon capture and sequestration.
- Urban cooling through shade and evaporation.
- Flood mitigation through interception, storage and transpiration of rain of rainwater.
- Noise abatement.
- Reduced wind speed
- Improvement of human health and wellbeing.
- Wildlife habitat
- Softening of the hard landscape.
- Trees have the potential to increase property values by up to 18%, and in streets lined with mature trees house sales complete faster.

The Council will undertake routine inspection of their trees in a cost effective way to ensure that the limited tree budget is spent as effectively as possible. Trees that are in the busiest locations (e.g. those next to roads, buildings, busy paths) will be inspected more regularly than those in less used places. All trees will be assessed over a 5 year period according to their priority in relation to public safety.

This approach accords with the current national guidance published in:

Common Sense Risk Management of Trees – The National Tree Safety Group (NTSG).

This strategy allows a proactive management of the Councils trees and safety management will be prioritised over complaints of nuisance from the public unless there is an urgent need for the works. It is vital that the limited budget is spent according to the priority of the works and public safety is the Councils key duty.

Contents

1.0   Mission Statement:

1.1   Trees provide a wide range of benefits to society and the Council recognises the many benefits of trees to the quality of the City. A balance is needed between the need to manage the risk they pose whilst maximising the benefits to the community. The strategy ensures that the Council owned trees are part of a routine inspection programme that is reasonable and cost effective whilst meeting the Councils duty of care to local residents, visitors and employees balanced against the intrinsic value of the trees.

2.0   Service – scope and standards

2.1   Scope:

2.1.1   The strategy relates to trees within Council ownership only and to those trees under day to day Council control (trees on leased land may be excluded due to the provisions or requirements of the lease).

The strategy will integrate the routine inspection of trees with day to day queries (emergency response and general complaints) and ensure that works are prioritised according to need.

The strategy follows current best practice and the following documents or information sources have been used in the development of this strategy document:

- Common Sense Risk Management of Trees – The National Tree Safety Group (NTSG).
- Quantified Tree Risk Assessment – QTRA Ltd.
- Tolerability of Risk Framework - Health and Safety Executive (HSE).

The document has also taken into account the current legal position (both statute law and common law) and how these relate to the Duty of Care placed on landowners.

The tree risk strategy aims to target resources to reduce the risk posed by trees where the risk is identified as being at its greatest – this is a prioritised system.

2.1.2   This enables the Council to ensure that the tree budget is allocated according to need taking into account a full range of factors. The strategy also ensures that money is spent where the risk is greatest and to avoid reactive spending where those trees pose a low risk of harm.

2.2   Prioritisation of risk:

2.2.1   The law requires only that the Council should "take reasonable care to avoid acts or omissions which cause a reasonably foreseeable risk of injury to persons or property". This strategy aims to ensure that the prioritisation of inspections is reasonable and that the Exeter City Council meets their duty of care. In order to achieve this it is necessary to prioritise inspections as many of the trees within the Councils ownership pose a very low risk of harm.

However, many others are in locations where the land use is high and it is important that there is a systematic method of inspecting the trees, according to their priority, to ensure a reasonable approach is taken and that budget is allocated according to need.

The NTSG document states:

Defendable Practice
A key objective for most owners and managers is to maintain a defendable position at the lowest cost while avoiding undesirable loss of valued trees. Defendable management is consistent with a duty of care based on reasonable care, reasonable likelihood and reasonable practicability. Landowners and managers who know how important their trees are tend to take an interest in them; including their setting and how people use their land, the benefits that trees bring and their structural features. It is reasonable that decisions regarding tree safety are considered against a background of the general low risk from falling trees. Being reasonable involves taking actions proportionate to the risk. This inevitably involves a judgment for owners, duty holders and advisers. Reasonable tree management has both reactive and proactive elements. While the owner or manager may need to react to events involving dangerous trees as they arise, it is also prudent to have forward-looking procedures to keep tree-related risks at an acceptable level. These procedures do not need to be complicated and may be incorporated into a tree strategy where applicable.

2.2.2 Both the NTSG publication (Common sense approach to risk management of trees, 2012) and the Quantified Tree Risk Assessment system (QTRA) advocate a prioritisation based on the use of the site or the area under trees or within striking distance of the trees (commonly known as the Target Area) as the starting point for a priority based system. Simply put trees within busy places, or close to buildings, pose a higher risk due to the number of people using the site.

2.2.3 Trees naturally shed branches or parts and this only poses a risk to public safety when people are using the area where the part falls. Any inspection programme needs to focus resources on the areas of the greatest use where trees are most likely to injure people or damage property. This is a reasonable approach.

2.2.4 The QTRA system provides a robust method of prioritising targets according to site use. Arguably this is the strongest part of the system and the target evaluation method has been adopted here as it is simple to implement and is transparent in how it works. The system has also been peer reviewed and adapted following user input.

2.3 Risk of Harm (Risk Index):

2.3.1 A risk index will be used to prioritise works. This is a method of determining the importance of the necessary works to minimise the risk posed to people or property.

The QTRA system produces an 'output' that is called the Risk of Harm and is defined as follows:

Risk

Risk is the combination of the probability of an event and its consequence (Anon. 2009). In terms of assessing risks from falling trees and branches, the commonly quoted equation 'risk = likelihood x consequence' is appropriate e.g. risk is the product of (1) the likelihood that the tree will fail in the coming year, (2) the likelihood of the target being occupied, and (3) the magnitude of the expected consequence.

Risk of significant harm

The QTRA output is termed the Risk of Harm and is a combined measure of the likelihood and the consequence of tree failure considered in terms of the loss, within the coming year, of a human life, something of comparable value or a proportion thereof.

Using the QTRA system a risk index is produced as follows:

Target occupation **x** size of the part **x** probability of the part failing **=** the Risk

The Risk Index is actually based on quantified measures of the three components (above) and produces a probability. This allows the risk to be measured against Health and Safety Executive (HSE) guidance that quotes different levels of risk as a probability (see Figure 1 below).

The above method also pays regard to HSE guidance relating to the 'Tolerability of Risk Framework' and the NTSG guidance.
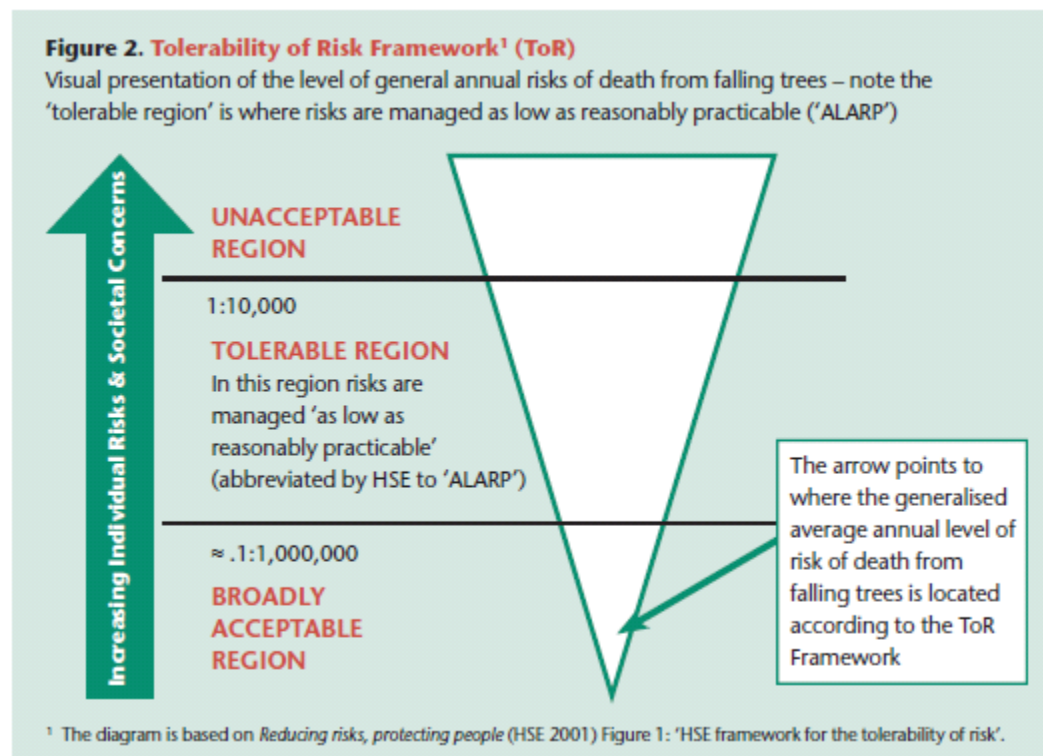
Figure 1 - Excerpt from NTSG Common Sense Risk Management of Trees 2011.

2.3.2   The HSE guidance also advises that any residual risks are not unduly high and that they should be kept as low as reasonably possible (ALARP).

ALARP (As Low As Reasonably Practicable)

Determining that risks have been reduced to 'As Low As Reasonably Practicable' involves an evaluation and comparison of both the risk to be reduced and the sacrifice or cost involved in reducing that risk. If it can be shown that there is gross disproportion between

them, the risk being insignificant in relation to the sacrifice or cost, it can be demonstrated that to reduce the risk further is not reasonably practicable.

The NTSG guidance states (in relation to acceptability of risks) that:

Accordingly the HSE has identified that an individual risk of death of one in one million per year for both workers and the public corresponds to a very low level of risk, and this should be used as a guideline for the threshold between the broadly acceptable and tolerable regions. It points out that this level of risk is extremely small when compared with the general background level of risk which people face and engage with voluntarily.

2.3.3   Therefore, the QTRA system has been adopted as part of the Risk Strategy as it provides a clear measure that both uses and corresponds to the HSE and NTSG advice. Tree works will be prioritised accordingly. The QTRA user manual (V5. 2018) is attached as an appendix to this document to avoid replicating its methods in this strategy (the user manual defines the parameters of the system).

2.4   Standards:

2.4.1   Tree works that are required to maintain the Councils tree stock will be carried out in accordance with BS3998:2010 (Tree Work Recommendations), wherever possible, to minimise the long term impacts of tree surgery work both in terms of the risk they pose and the ongoing maintenance costs.

2.4.2   In general terms the greater the level of tree surgery works that are undertaken to any specific tree the higher the long term maintenance costs. Heavy tree surgery tends to result in a requirement for ongoing management works, or introduce defects that require regular pruning works to prevent failure (e.g. topping) and minimise risk. This is species and individual specific but it is desirable to limit the extent of tree surgery works for several reasons.

2.4.3   Recommended works will seek to minimise the level and extent of tree surgery to minimise costs and risk.

3.0   System implementation and parameters – Performance Indicators

3.1   It is important that the risk strategy is robust and easily audited with clearly identified outcomes. A set of performance indicators (clear outcomes) are set out below and the implementation of these will be checked and audited on an ongoing basis. Following review changes will be implemented to adjust the system accordingly.

3.2   The performance indicators are:

- A comprehensive record will be kept of all tree inspections.
- Inspections and subsequent tree surgery works will be recorded on the tree database (Confirm).
- The inspections will be phased so that every tree (or group of trees) will be inspected at least once over a 5 year period. The frequency of inspection will depend on the use of the area and the risk

posed by specific individual trees. All trees will be inspected within the designated timescale for each tree or risk zone (see zoning).

- All tree surgery works will adhere to current best practice where possible and unless there is an overriding justification not to.
- All urgent tree works will be undertaken within the specified timescale i.e. within 1 week.
- Non urgent works will be undertaken on a priority basis. Works will be prioritised according to need or by using the QTRA risk index i.e. the higher the risk posed by the defect the quicker the work will be done. Non urgent works will be reviewed every three months and carried out according to priority and budget.
- The risk zones will be reviewed at least every 5 years or following an inspection or where additional information that reveals a higher or lower use of the site.
- The inspection rota will be reviewed every 3 months to ensure that the annual and 3 monthly target of sites to be inspected is met.
- The whole strategy will be reviewed annually and any necessary actions will be programmed and implemented with a clear timescale or deadline set.
- All staff will be trained according to need and the training programme. All inspectors will be adequately qualified and experienced. Inspectors will be trained in Basic Tree Inspection as a minimum. Inspectors should be working toward Professional Tree Inspection level.

4.0   Site zoning – risk zoning and mapping

4.1   The NTSG document (Common Sense Risk Management of Trees, 2011) states:

Key steps in tree safety management
The essentials:
A reasonable and balanced approach forms the basis of a tree safety strategy for sensible tree safety management. By a "strategy", we mean a plan that guides management decisions and practice, in a reasonable and cost-effective way, typically covering three essential aspects:

- Zoning: appreciating tree stock in relation to people or property
- Tree inspection: assessing obvious tree defects
- Managing risk at an acceptable level: identifying, prioritising and undertaking safety work according to level of risk.

4.2   In order to ensure that the available budget is allocated properly and that the Council is inspecting the trees appropriately the different sites will be zoned according to use.

4.3   Risk zones

4.3.1   An initial, desk based, zoning exercise was undertaken to prioritise which the inspection regime for sites. Whilst this was a useful starting point and allowed for a reasonable starting position, it was essential to revise the zoning on a site by site and tree by tree basis during the inspections. In addition the date of the last inspection was considered when determining which sites to assess – older sites were generally looked at first to bring the whole inspection rota back into order.

4.3.2   The initial approach is being refined during inspections. The inspector will assess the target zone during the site inspection and correct or alter where necessary, based on site observations.

4.3.4   Any risk assessment valuation system can be used in conjunction with this strategy and where trees are identified as having the potential of posing an unacceptable risk this will be refined using a recognised system (e.g. Quantified Tree Risk Assessment system (QTRA Ltd)). Any system that is used must correspond with the advice in the NTSG guidance. The broad categories above provide a simple and easily used approach and the categories can be calculated utilising the Councils existing GIS data and system.

4.3.5   Where an inspector finds a tree that may pose an unacceptable risk consideration is given to if and how the risk can be made ALARP.

4.3.6   The greatest risk to public safety has proved to be from trees within falling distance of where people move at speed in vehicles (NTSG). Therefore, roads are considered to be high priority targets especially where the use is high or where speeds are fast. The City does include numerous quiet rural lanes and roads which will also be prioritised according to use and the factors in 4.4.2.

4.3.7   Resources will be allocated to address high risk trees first but with scope to address high nuisance trees where these are causing an unacceptable disturbance e.g. highway clearance. There is flexibility within the system to allow allocation for cost effectiveness for management purposes i.e. if inspections reveal management works that will reduce long term costs these will be considered if funds permit.

4.3.8   The initial spreadsheet used to undertake the zoning exercise was updated as a secondary record following the inspection of a site. This will be superseded over the first five years by the Confirm database as it is essential that this is the primary record and the tool to determine future inspections.

4.4	Frequency of inspection

4.4.1	The NTSG guidance does not specify a frequency of inspection and states that this is a decision for the landowner to make. The Council needs to balance the cost of inspections, the available resources (time and cost) against the risk posed by the trees.

4.4.2	The re-inspection frequency will be determined by:

- The use of the site of part of the site influenced by the tree.
- The age and size of the tree.
- The species of the tree.
- The presence of existing defects

4.4.3	All of the above are relevant factors in determining the risk posed by trees as, for example, a young beech tree will pose a much lower risk than a large mature one, in the same location, and may not require as frequent an inspection. The database will then be used to ensure that sites due for re-inspection are assessed in line with their inspection date. Due to workloads it may not always be possible to inspect the tree(s) on the precise month that was recommended. They will be inspected as close to that as reasonably practicable.

4.4.4	The surveyor will refine the frequency of inspection using the re-inspection date in the Confirm database.

4.4.5	The zoning is based on an initial desk based exercise which is a reasonable initial approach. Any high risk trees that are identified on a day to day basis will be re-prioritised accordingly.

4.4.6	The inspection rota will be managed using the Confirm software based on the inspectors recommendation, so as to identify trees requiring annual inspection and then those that can be inspected on a two, three, four or five year basis with an inspection occurring at least once in the five year rota.

4.4.7	Low risk sites / areas may include high risk trees and this is an unavoidable consequence of a target led system. However, during routine inspections of site high risk trees will be prioritised on a different inspection frequency.

4.5	Level of inspection

4.5.1	It is possible to assess the risk posed by trees using different level of inspections. Trees in locations with very low use may not require detailed inspection and the level of risk can be reasonably assessed following a brief walkover survey with a preliminary visual assessment.

4.5.2	Surveys will be conducted using the Visual Tree Assessment Methodology (Mattheck & Breloer 1994) and will be ground based assessments.

4.5.3	Where the survey identifies potential hazards that require further assessment this will be recommended by the surveyor and the tree will have a detailed inspection or climbing inspection. This will be carried out in the timescale specified by the inspector and according to priority.

4.5.4	Walkover surveys will be used on general site visits (following routine queries) as a quick method of assessing if any potentially high risk hazards are present. Walkover surveys will also be used for woodlands and trees in groups.

4.5.5   Detailed inspections – to be carried out using decay detection equipment if appropriate or using suitable tools (e.g. trowel, airspade etc).

4.5.6   Climbing inspections – where a defect in the canopy on a section of the tree that may lead to harm cannot be assessed then a climbing inspection will be undertaken and the results recorded on the tree record. The climber will be competent in tree inspection and will record the size and location of defects using photos where required. A climber could also be directed by a more experienced operative on the ground.

4.5.7   Other Council members of staff will also report problems e.g. Parks and Open Spaces teams, Engineers, Housing Officers when they observe problems arising from high winds etc or during routine visits to sites. The reporting of defects from site managers provides an important role in the risk strategy in the time between the routine inspections.

4.6   Recording of information

4.6.1   All information will be recorded on the Councils tree database (Confirm software). The individual record for each tree will be updated and the basic information checked (heights, spreads, age class, trunk diameter etc.) during routine surveys. The updating of information is important as the data is used in the zone calculation.

4.6.2   Every year there will be an update of the Risk Zones and inspection prioritise program.

4.7   Level of data collection:

4.7.1   Individual trees will have a unique record in the database and this will be updated following or at the time of inspection. Inspectors will use hand held devices with the Confirm software to capture data.

4.7.2   Groups or woodlands will be assessed as a unit with a single record for each group or woodland. A walkover survey will be conducted of groups or collection of trees. Where an individual tree within the group or woodland requires particular attention or poses a different (higher) risk than the collective a unique record will be created e.g. large trees on a woodland edge growing next to a busy road may be picked up individually. The collective database record will be updated at or immediately following the inspection.

4.7.3   In some instances individual trees within woodlands have been recorded but due to dense canopy cover GPS accuracy was poor and the position was marked by eye. Several years later the location of these trees can be very difficult to determine. Where this is the case a new record is created for the woodland or group unit, as appropriate. All trees are assessed but the type of record altered to suit changing circumstances.

4.8   Risk Control Measures

4.8.1   Where tree works are identified the following measures will be considered:

- Tree removal
- Tree pruning
- Bracing or propping – in conjunction with pruning and after an assessment of the tree.
- Signage – where warning sign may be the reasonable measure to reduce the risk.
- Public awareness – interpretation boards or signs that may aid public understanding of risk – e.g. signs advising the public to be wary of entering sites during extreme weather conditions.
- Site closure – where appropriate or enforceable.
- Target control – excluding access using fencing, dense planting or vegetation management, moving footpaths.

4.8.2   The risk control measure will minimise the risk posed to an acceptable and reasonable level. Risk cannot be removed entirely and a balance will be made between risk reduction and the benefit provided by the feature.

4.9   Personnel

- People who hold the Professional Tree Inspectors Certificate or who have appropriate qualification and/or experience.
- Site managers or Council staff who can report defects or queries relating to trees.
-

4,10   Training

4.10.1   All formal inspectors will be trained in the QTRA system and be a licensed user as a minimum requirement.

4.10.2   All inspectors will be aiming for Professional Tree Inspector standard (LANTRA accreditation / certificate of competence).

4.10.3   Other Council staff (e.g. site managers) who may report problems or queries between formal inspections do not require specific training. A number of council staff have undertaken Basic Tree Inspector Training to allow them to identify basic defects. Exeter City Council will run training events for key members of staff so that they are able to identify hazardous trees, which will then be reported to the Tree Team for further investigation.

5.0   Prevention of future risk

5.1   The risk strategy aims to reduce the risk posed by trees on an ongoing basis where reasonably practicable. This will be achieved by regular review of the implementation of the strategy and through other management measures.

5.2   Tree planting

5.2.1 The requirement for tree surgery can be reduced over the long term by careful tree species selection when undertaking new planting. Where new planting is required or desirable careful consideration will be given to the choice of planting species. The selected species needs to meet the long term objectives of the site, have the opportunity to fulfil its true potential and provide all the possible benefits. Consideration will be given to the following:

- Soil – The condition and type of soil needs to be considered when making the choice about which species to plant and if any improvement need to be made prior to planting.
- The above and below ground space available – including proximity of adjacent buildings, roads, footpaths, services and other structures.
- Site orientation and available light – will the planting be to the south of inhabited structures or will it dominate a particular feature near it?
- The shape of the proposed tree in relation to the space e.g. spreading, fastigiated etc.
- The ultimate size of the tree – is the tree a large, medium or small species.
- Species characteristics – does the species have a tendency to shed branches, have high volumes of fruit, have a rooting pattern that may damage surfaces or structures, is the species especially shade bearing? Planting should avoid using species with known problems where that may conflict with the site use.
- Will the planting location block views?
- Is there the opportunity to broaden the age structure with a view to creating a varied and sustainable canopy cover for the location?
- On sites where monocultures exist, can the tree stock be diversified by introducing a mixture of species and therefore improving the resilience to pest, diseases and climate change?
- Tree planting should be carried out in accordance with British Standard BS8545_2014.

5.2.2 Consideration of the above should lead to the most suitable tree being chosen for the site and reduce potential nuisance factors that lead to pressure for inappropriate tree surgery. Ideally trees would only require minimal pruning over their lifetimes reducing risk and management costs. Given sufficient space trees can shed parts naturally without leading to a high or unacceptable risk. This aim can be achieved via sensible plant selection.

5.3 Formative pruning

5.3.1 Many defects that lead to tree failure when trees are mature can be removed by routine formative pruning in the early years of a trees life. The aim of formative pruning should be to produce a tree that has a branch structure which is mechanically sound and generally free from potentially hazardous features.

5.3.2 Trees are generally more able to cope with pruning when young compared to pruning them at maturity. Pruning mature trees tends to lead to the formation of extensive decay and defects increasing the risk they posed, thereby increasing management costs.

5.3.3 Pruning young trees formatively can address inherent weaknesses and form a crown shape that prevents trees conflicting with nearby features e.g. roads or buildings. Formative pruning is cheaper than pruning mature trees and involves less risk from tree surgery operations (lower use of chainsaws and removal or large limbs).

5.3.4   Many structural defects arise from poor nursery practice (or the inherent method of growing trees close to together). Formative pruning needs to start in the nursery so plant selection is important.

5.3.5   During the inspection of the Councils tree stock young trees will be inspected to record their location, species etc. as part of the tree database. The inspection will also include an assessment of their structural condition and formative pruning will be carried out to promote a defect free structure and with growth encouraged to clear structures by the time the tree reaches maturity (first 50 years).

5.3.6   The following actions will be taken (Performance Indicator):

- New trees will be inspected on delivery from the supplier – any trees with a poor or unacceptable structural form (trees not complying with BS3936 part 1 or other current guidance) will be rejected.
- Young trees will be formatively pruned after establishment (at least two years after planting and once they are in a good physiological condition) to:
- Remove or suppress weak branch unions.
- Remove crossing branches that will cause structural weakness
- Select a clear single leader – secondary or aggressive growth will be shortened to sub-dominate (suppress) or removed.
- Remove branches along the main stem to create a widely spaced structure.
- Suppress the temporary lower crown where the branches may develop to obstruct features like roads or buildings or become excessively long or heavy.
- Prune storm damaged trees to prevent failure in later life.

5.3.7   Live growth will be removed to create a good structure. The physiological condition of the tree needs to be assessed before any pruning is recommended. Ideally trees will be pruned when they are in the optimum condition to respond well to the loss of leaf material.

5.4   Failure Log

5.4.1   As part of the ongoing monitoring of the Councils tree stock a failure log will be kept and maintained. This will enable patterns to be seen relating to:

5.4.2   Particular species that have a tendency to fail.

5.4.3   Areas where tree failure may be highest or where 'hot spots' of failure may occur.

5.4.4   Collection of the data will help to inform estimation of real risk levels (as opposed to purely surveyor estimated risk) and see patterns of tree failure. The data can be correlated and analysed to help future priority setting and inform management decisions relating to budget allocation, species choice etc.

5.4.5   The failure log will include:

- Tree species
- Age class
- Location
- Weather conditions at the time of failure

- Specific type of failure
- Contributory factors
- How foreseeable the incident was prior to failure
- Action taken following failure

5.4.6   Appendix 3 includes an example of the failure log and in addition a spreadsheet or database will be kept of failure to allow easier analysis.

5.4.7   In practice this has been difficult to implement whilst responding to storm related events especially when this has led to multiple issues across parts of the city. Location seems to be a more important issue than species – the direction of wind and the proximity to coastal areas seem to be more likely to influence damage or failure than species.

6.0   Review

6.1   The Risk Strategy will be reviewed annually and this will be a full review of the contents and implementation.

6.2   The annual review will assess the effectiveness of the strategy by ensuring that an adequate number of trees and sites are being inspected and that appropriate works are implemented.

6.3   The annual review will consider any accidents, failures and near misses that have occurred and what measures are required to reduce risks.

6.4   The annual review will also include:

- Zoning – the risk zone allocation will be reviewed and any sites where the zoning is thought to be incorrect will be amended.

- Inspections – the review will assess the effectiveness of the inspection program / rota. If all the sites on the rota for that year have not been inspected then the suitability of the rota will be assessed and modified as necessary.
- Performance Indicators – the review will ensure that the PI are being met.
- Benchmarking – the strategy will be measured / assessed against another organisation of a similar size and type.
- The Risk Strategy will be amended to take into account any changes in best practice or legislation.

6.5   A three monthly review of the inspection rota will be carried out to assess if an adequate number of sites is being inspected each month / 3 month period.

6.6   Complaints and work requests from the Public

6.6.1   The aim of the strategy is to ensure that limited funds are spent as efficiently as possible. The Council will not prune or fell trees due to the minor nuisance that the pose unless the nuisance is excessive or breaches legislation e.g. highway clearance and / or the nuisance cannot be resolved by other means.

6.6.2   In general the Council will not prune trees for the following reasons:

- Shading or loss of light
- Domination of houses or gardens
- Television reception
- To gain views.
- Leaf Fall

7.0   Internal Audit

7.1   The Strategy will be assessed internally by Environment and City Management Manager.

7.2   Areas that pose a risk to the system will be assessed e.g. budgets, resources etc.

7.3   Each part of the system will be audited / assessed to see if it is functioning correctly with an assessment every three months with a full review annually.

7.4   Any deficiencies in the system will be reported to the Tree Manager for with a recommendation for improvement.

8.0   References / Bibliography

Mattheck K & Breloer H, The Body Language of Trees, Department of the Environment 1994.

Lonsdale D Dr, Principles of Tree Hazard Assessment and Management, Department for Transport Local Government and the Regions, 1999.

Common Sense Risk Management of Trees – The National Tree Safety Group (NTSG).

Quantified Tree Risk Assessment – QTRA Ltd, User Manual V3.05 2012.

Appendix 1 Failure Log – example form for collecting data

Date:	Location:	
Tree Species:	**Age Class:** Y / EM / MA / M / OM / VET	**Ezzytreev Ref:**
Weather conditions at time of failure:		
Specific type of failure – describe:		
Contributory Factors (if any):		
Was the failure foreseeable?		
Did the failure lead to damage to property or injury of people?		
Action taken:		
Officer:		
Failure Log Spreadsheet updated (Date):	**Confirm Record updated (date):**	

Tree Risk Assessment Appendix 2 – Quantified Tree Risk Assessment

A Non-technical Summary Tree safety management is about limiting the risk of harm from tree failure while maintaining the benefits conferred by trees. Although it may seem counter-intuitive, the condition of trees should not necessarily be the first consideration. Instead, tree managers should first take account of the usage of the land on and around which the trees stand, and this in turn will inform the process of assessing the trees.

The Quantified Tree Risk Assessment (QTRA) method applies established and accepted risk management principles to tree safety management. Firstly, the targets (people and property) onto which trees could fail are assessed and quantified, thus enabling tree managers to determine whether they need to assess trees and to what degree of rigour an assessment or inspection of the trees is required. Where necessary, a tree or branch is then considered in terms of both its size (potential impact) and probability of failure. Values derived from the assessment of these three components (target, size and probability of failure) are combined to calculate a risk of harm within the coming year. The year is simply a convenient time-frame over which to measure the risk and does not in itself infer that the risk should be re-assessed annually; rather the frequency of re-assessment should be informed by the level of risk and the characteristics of the tree population and land-use.

The quantification of risk is not the only consideration when managing tree safety. The financial cost of reducing the risk and the potential loss of the many benefits from trees should be accounted for when making risk management decisions. By quantifying the risks we can more readily assess this balance.

Green	**Broadly Acceptable**	Do nothing.
Yellow	**Tolerable**	Do nothing, unless you expect the risk to increase significantly before the next assessment. The benefits conferred by the tree will usually outweigh the risk.
Amber	**Tolerable**	Reduce the risk unless there is broad stakeholder agreement to retain it.
Red	**Unacceptable**	Reduce the risk.

(QTRA - a non-technical summary V5.2.3 2018)

Appendix 2   Exeter City Council, 2019. Ash Dieback Action Plan

This plan is to enable ECC to assess our current position and the potential effect of Ash Dieback in relation to our city and its inhabitants. The outcome of this assessment will assist in our response to avert risk and mitigate the inevitable environmental and ecological impact.

This document lays out the Ash Dieback Action Plan for Exeter City Council:

  • About Ash Dieback and the need for the toolkit
  • Benefits of Trees and Woodlands
  • General management advice
  • Ash Trees in the UK/ Region/ County/ Area
  • Potential impact of Ash Dieback on landscape and biodiversity in Exeter City
  • Potential impact of Ash Dieback on local landowners, land managers and homeowners
  • Potential impact of Ash Dieback on local utilities and infrastructure organisations
  • Potential impact of Ash Dieback on your organisation and the potential financial implications
  • Recovery from the effects of Ash Dieback

  In addition, a Delivery Plan is set out which covers:

  • Production of a baseline ash tree survey.
  • Establishing a multi-agency structure.
  • Reviewing current legal practice.
  • Developing a risk management plan.
  • Producing a publicly available local bio-security tool-kit / guidance for ash dieback.
  • Developing and running local training.
  • Producing a communications strategy and public information.
  • Developing an Ash Dieback recovery plan.
  • Creating measured systems to monitor and assess the spread of ash dieback.
  • Preparing and developing a tree strategy to ensure preparedness for future tree   diseases.

  Key Findings, Recommendations and Actions:

  • Only trees with an intolerable ratio of risk of harm are recommended appropriate works.
  • Exeter City Council manages an estimated 200,000 trees of which there are 465 plotted ash, however this figure is likely to be far greater as many of the trees have not yet been individually recorded. In addition to this the council owns and manages approximately 40 hectares of broadleaved woodland.
  • Homeowners taking felling operations into their own or untrained hands will be at greater risk due to the disease.
  • Summer 2019 will give us a more conclusive idea of the progression within the city.

• This disease outbreak could cost ECC an extra £50,000 to £150,000 per year for the next 5-10 years.
• The existing Tree Risk Strategy will provide a means of managing the risks that infected trees pose to people and property.
• Our web document will be updated as and how the spread of the disease progresses.
• A document will be released on our internal news site aiding symptom recognition along with a facility for notifying our Tree Team.
• Tolerant and resistant trees should be retained, as should a proportion of dying or dead trees where it is safe to do so.
• Identify positions within the city for re stocking and doubling our planting numbers in advance of the biodiversity loss.
• Further plotting of ash on our existing mapping system and database alongside the use of a spreadsheet that accounts for dates, locations and numbers of trees lost to the disease.
• Our tree strategy will incorporate our reaction to the impact of events such as this.

Appendix 3   Ash Dieback and Dutch Elm Disease

Ash dieback is caused by the airborne fungus *Hymenoscyphus fraxineus* that is thought to have originated in Asia. The disease was first recognised in Europe in the 1992 and has spread across the continent, causing devastation to the ash tree populations in its path. Ash dieback was first recorded in the UK in 2012, although it is now thought that it is likely to have been here for a decade before that. The disease now affects most parts of the UK and it is becoming established in Exeter's hedgerows, trees and woodlands.

It is expected that Exeter, as with the majority of the UK, will lose between 50-85% of its native tree species *Fraxinus excelsior*, the Common Ash tree and its variants.

The common ash (Fraxinus excelsior) is one of our most important and prolific native tree species. The species accounts for 12% of broadleaved woodland in Great Britain and is commonly found in parks, gardens and hedgerows. They grow in a wide range of soils and climatic conditions, fulfilling roles in terms of amenity and ecosystem services, whilst providing valuable habitat for a wide range of species. There are 955 species associated with ash trees, of which 45 are believed to have only ever been found on ash (Sankus. M, 2019)

Ash is a common species around Exeter and elsewhere in the UK. The council has approximately 465 plotted Ash trees (June 2018), however, this figure is likely to be far greater as many of the trees have not yet been individually recorded. In addition to this, the council owns and manages approximately 40 hectares of broadleaved woodland, for which Ash is a major component.

Ash dieback is expected to have a devastating impact on Exeter's Ash trees and it is likely to result in the loss of the majority of the city's Ash tree population. The disease is already having a major impact on trees in the surrounding countryside. The loss of Ash trees will have significant impact on the cityscape and ecosystem services. Removing infected trees and replanting with alternative species, will also have a substantial financial cost, which will put further pressure on already strained budgets.

 There is however, some hope and experience, from our European neighbours, showing that approximately 5% of Ash trees are genetically tolerant to the disease. Research indicates that these genetic traits can be inherited and therefore it is important that we retain as many healthy Ash trees

as possible. This will go some way to mitigate the effects of the disease and ensure that there is a seed source for future generations, of genetically tolerant ash trees. Dead and dying trees can also continue to perform some of their ecosystem functions and it is therefore important that we retain trees where they do not pose a significant threat to the public.

"Natural regeneration will encourage the process of natural selection for tolerance, so healthy trees should be maintained for as long as possible to ensure regeneration from tolerant mother trees." (Defra – June 2019)

In response to the impacts of the disease and the scale of the problem, Exeter City Council has put in place an Ash Dieback Action Plan (see appendix xxx for a summary). The Action Plan was developed using the Ash Dieback Action Plan Toolkit, a guidance document produced by the Tree Council https://www.treecouncil.org.uk/What-We-Do/Ash-Dieback

The Action Plan accords with the overall Tree and Woodland Strategy, but specifically focuses on the challenges presented by Ash dieback. The Action Plan addresses both the short term risk implications, as well as the longer term impacts on the landscape, ecosystem services and the wider environment.

The council is working in line with local plans and national objectives and is a member of the Devon Ash Dieback Resilience Forum. DADRF is convened by Devon County Council and members of the forum include Local Authorities, private estates, conservation Charities and industry bodies.

"*The Devon Ash Dieback Resilience Forum is working collaboratively to raise awareness, provide advice, and manage the risks posed by the disease and spearhead measures to mitigate its environmental consequences. The Forum has published freely available Guidance Notes, and the full set is available on the Devon Local Nature Partnership website"* (Devon County Council, 2019*).*

There are currently no commercially available treatments for Ash dieback. Because of the airborne nature of the disease and its presence in the wider environment, the current understanding is that sanitation felling is not an effective means of controlling its spread. At present only those trees that pose a significant threat to public safety, will be subject to remedial action.

In an attempt to mitigate the effects of the disease, the council will seek to retain those trees that do not pose a significant threat, promote natural regeneration (where it is appropriate to do so) and increase tree planting numbers, using a diversity of species and genotypes.

Dutch elm disease

Dutch elm disease (*Ophiostoma ulmi*) is now known to have been in the United Kingdom since the 1920s. During the 1960s and 1970s, a much more aggressive strain of the fungus *Ophiostoma novo-ulmi* emerged. The more aggressive strain of the disease, has had a devastating impact on the UKs elm population (*Ulmus* spp. and the closely related *Zelkova* spp.). By the time *Ophiostoma novo-ulmi* had become established in the 1970s, millions of elm trees had been killed by the disease.

Dutch elm disease is now present throughout the UK and continues to pose a problem, preventing the majority of the native elm population getting past the juvenile stage (15-20 years). Dutch elm disease is carried by Elm bark Beetles, mainly in the genus *Scolytus,* which acts as a vector for the spread of the fungus. The disease is also known the have the ability to spread via root contact from infected to healthy trees.

Dutch elm disease effects the trees vascular system, ultimately killing its host. However, the underground component often persists. English elm (*Ulmus procera),* is one of the most common elm species in Devon and it has a suckering habit. The characteristic suckering of the English elm, means that infected trees often asexually reproduce, resulting in dense groups of young trees that are all genetically identical and are highly susceptible to reinfection.

Reinfection usually occurs within the first 10-20 years of regrowth and the cycle of regeneration, infection and dieback continues. Once infected, trees can die within one or two growing seasons.

Attempts to control the spread of DED in the UK, have mostly been abandoned, because the disease is now well established in the wider environment and control measures are largely ineffective.

Breeding programs have led to the production of disease resistant cultivars, but these trees are not likely to offer a like for like equivalent replacement for our native elm species.

The cyclical and ongoing nature of the disease usually necessitates continued management, particularly where the infected trees pose a threat to people and property. Along with a program of dead elm removal, the council will continue to plant trees on an annual basis and aim to increase species diversity to offset the loss.

Devon County Council – Ash dieback, viewed 2019. For more information see the following link https://www.devon.gov.uk/environment/ash-dieback

Sancus. M, 2019. Arboriculture Association – Ash Dieback Guidance, 2019. Can be found online at https://www.trees.org.uk/Help-Advice/Public/Ash-Dieback-%E2%80%93-Practice-Guidance

Appendix 4   Treeconomics Map of Exeter 2018

(Munnery (Treeconomics), 2018)

Figure 3: Map of Canopy cover percentages by ward

Canopy Cover (%)

	30.0 - 40.8
	28.0 - 29.9
	25.0 - 27.9
	21.0 - 24.9
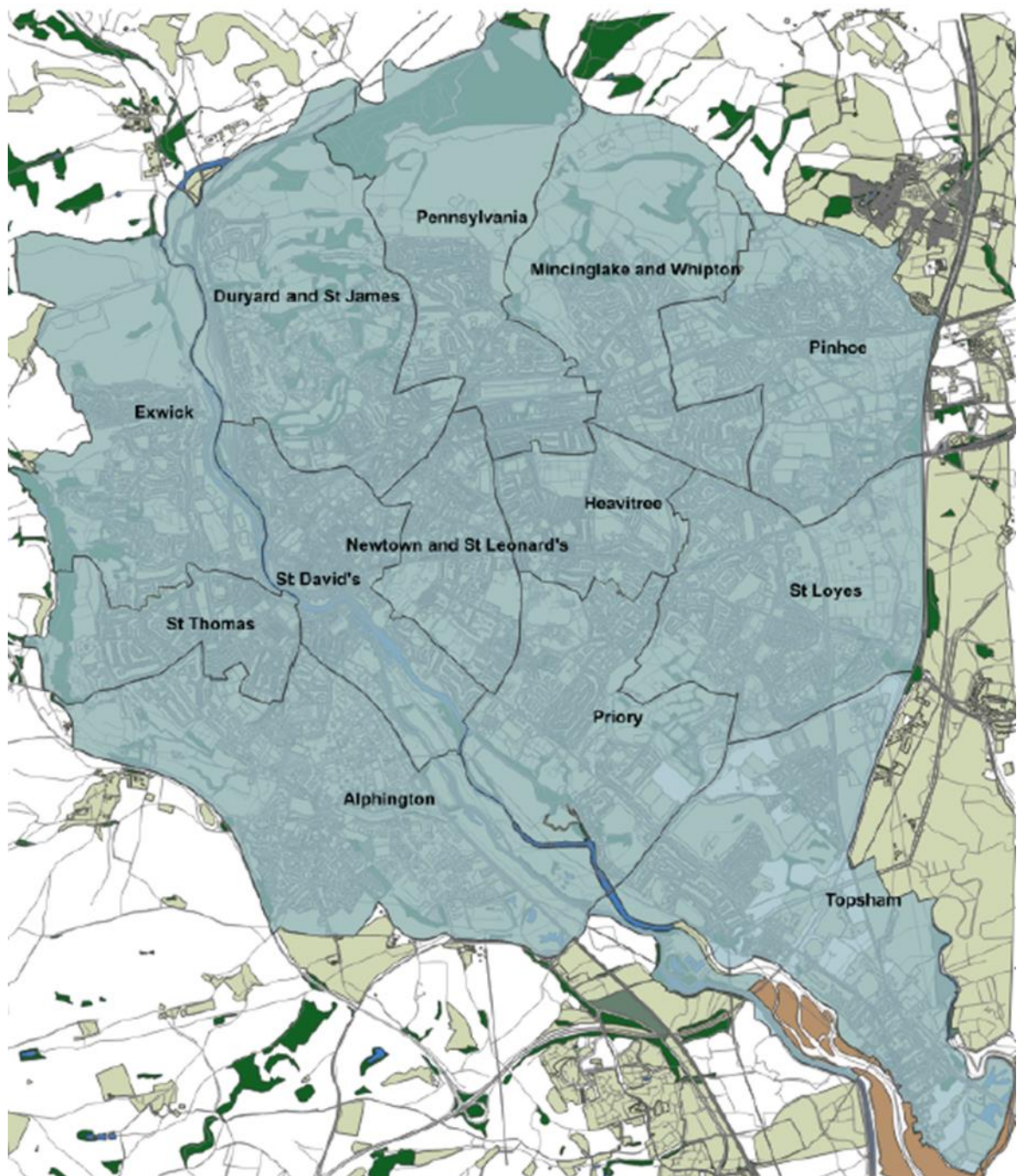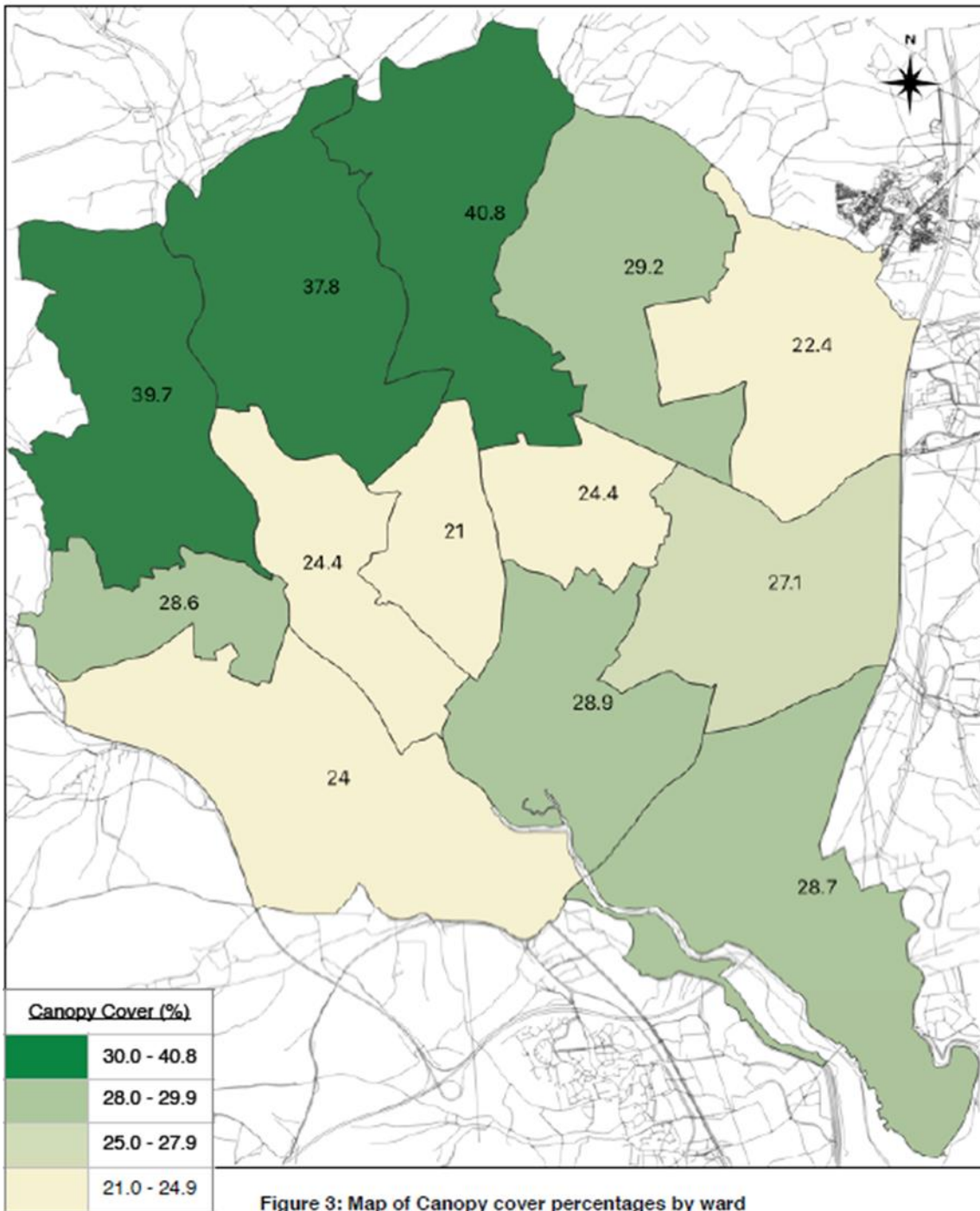
(Munnery (Treeconomics), 2018)

Appendix 5 Defra, 2018. 'A Green Future: Our 25 Year Plan to Improve the Environment'

The 25 Year Environment Plan aims to deliver cleaner air and water in urban and rural landscapes, protect species and enrich wildlife habitats by implementing approaches that prioritise the environment. It aims to reform the management of agriculture and fisheries, marine and terrestrial environments and nature restoration, tackle waste and soil degradation in rural and urban areas, and tackle the effects of climate change; higher temperatures, rising sea levels, extreme weather and ocean acidification.

The UK Government aims to lead on conservation, climate change, land use, sustainable global food supplies and marine health, champion sustainable development, lead in environmental science, innovate for clean growth and increase resource efficiency, in addition to delivering gold standards in protecting and growing natural capital, using this as a decision-making tool. Using scientific and economical evidence, benefits in all environmental aspects for wellbeing, health and economy will be considered.

Due to Government responsibilities for policies and programmes affecting sectors nationally and internationally, some aspects apply to the UK as a whole. Where responsibility rests with the Northern Ireland Executive and the Scottish and Welsh Governments, the proposals apply to England only.

The UK Government will work with the Devolved Administrations to uphold environmental standards, protect shared natural heritage, and continue to work areas where common frameworks need to be retained. The Plan does not pre-empt these discussions.

The full document is available here: https://www.gov.uk/government/publications/25-year-environment-plan

Appendix 6   Defra, 2018. The Tree Health Resilience Strategy

The Tree Health Resilience Strategy aims to protect England's tree population from pest and disease threats. Due to the impossibility of eliminating all threats from occurring, the strategy aims to strengthen protection, minimise impacts and enhance resilience of England's trees.

The strategy tackles threats of pests and diseases by reducing risk of occurrence and strengthening trees to better withstand threats. It focuses on delivering three outcomes to build resilience:
(1) Resistance, (2) Response and recovery, (3) Adaptation.

The strategy calls for collective action to build the resilience of UK trees to help them resist, respond, recover, and adapt to pests and diseases. The priority areas include:

• Protecting and valuing trees as important natural capital
• Prioritising biosecurity in all aspects
• Developing and applying the latest science and evidence on threats to inform the risk-based approach
• Applying the environmental goals to the management of England's trees
• Build knowledge and capability to apply the concepts of resilience at all levels

The environmental goals for tree resilience and improving baseline diversity, health and condition include:

• Extent – continued increase of trees
• Connectivity – enhancing the linear forest and matrix of trees within other habitat settings
• Diversity – enhancing genetic diversity and structural diversity of England's treescape
• Condition – encourage healthier trees

The strategy will deliver environmental and behavioural goals through a National Action Plan and is intended to be used by various stakeholders, applicable at all levels to enable others to apply the broad concepts of resilience to the management of trees.

Full document available here: https://www.gov.uk/government/publications/tree-health-resilience-strategy-2018

Appendix 7 Saving Devon's Treescape - objectives

The project

People are passionate about trees. Our project will harness this passion by empowering 36,500 people – most of whom will never have undertaken practical conservation action before – to make lasting improvements to their treescapes, providing hope in the face of the alarming changes that ash dieback is already bringing. Ash dieback is everyone's problem; Saving Devon's treescape will encourage everyone to be part of the solution.

The project will deliver across Devon, with 50% of resources dedicated to action in five priority areas (two urban and three rural). These will be Malborough (South Devon); Torbay; Exeter and Cranbrook new town; Neroche area (Blackdown Hills AONB); and Coly Valleys (East Devon).

The project is urgent. Firstly, because ash dieback is happening now, and the pace of its impacts on Devon's treescape is accelerating. Secondly, because (in recognition of the gravity of the coming crisis) we have been offered substantial – but strictly time limited – match funding by Devon County Council for any grant that can be secured.

Objective 1: Awaken interest in TOWs and engage people in their long term care

- **3 new community tree nurseries will empower local people and generate tree stock for a Free Tree Scheme;**
- **2 hubs will be developed to coordinate sustainable woodfuel supplies;**
- **100 schools will engage in outdoor learning and treescape creation / enhancement in their grounds and neighbourhoods;**
- **Free Tree packs, information and advice will be distributed at 29 shows;**
- **80 community events will inspire people to work for healthy treescapes;**
- **45 TOWs workshops for communities, farmers and landowners will reach 675 people; and**
- **In each of the five priority areas a new volunteer group will be established and supported to plant, tag and nurture new TOWs.**

Objective 2: Safeguard the future of TOWs and their wildlife

- **360 treescapes advisory visits will be made to farmers and landowners;**
- **150km of existing hedges will be enhanced through sustainable management regimes, emphasising important hedgerow trees and treelines.**

Objective 3: Establish more trees in the landscape and enhance connectivity

- **A 3-2-1 ash replacement formula will be championed, with at least three new trees planted (or encouraged) for every large ash lost, two for every medium-sized ash, and one for every small ash;**
- **427 native "Landmark" trees will be planted and nurtured, one for every parish in Devon;**
- **250,000 new urban and rural TOWs will be established, around 50% within the five project priority landscapes;**
- **50 hectares of TOWs will be planted in field corners and copses;**

- **20 km of exemplar "Flagship" hedgerows with standards will be planted in prominent, accessible landscapes, demonstrating best practice to landowners and the wider public;**
- **2,500 hedgerow trees will be established through planting and aftercare;**
- **12,000 hedgerow saplings will be tagged and nurtured to the point where they are no longer vulnerable to hedge trimming; and**
- **4,500 metres of wild 'fruit routes' will be established in urban landscapes, including 19,500 TOWs bearing edible fruit for foraging by both humans and wildlife.**

Appendix 8   ECC tree species

Acacia dealbata
Acer buergarianum
Acer campestre
Acer Campestre Queen Elizabeth
Acer capillipes
Acer cappadocicum
Acer ginnala
Acer griseum
Acer lobelii
Acer negundo
Acer palmatum
Acer palmatum 'Atropurpureum'
Acer palmatum Osakazuki
Acer platanoides
Acer platanoides Crimson King
Acer platanoides 'Drummondii'
Acer pseudoplatanus
Acer pseudoplatanus Leopoldii
Acer pseudoplatanus Purpureum
Acer pseudoplatanus Variegatum
Acer rubrum 'Armstrong'
Acer rufinerve
Acer saccharinum
Acer saccharum
Aesculus flava
Aesculus hippocastanum
Aesculus hippocastanum Baumann
Aesculus x carnea
Ailanthus altissima
Alnus cordata
Alnus glutinosa
Alnus glutinosa 'Laciniata'
Alnus incana
Alnus incana Laciniata
Amelanchier arborea Robin Hill
Amelanchier lamarckii Robin H
Amelanchier sp.
Araucaria araucana
Arbutus unedo
Azara microphylla
Betula alba
Betula albosin Septentrionalis
Betula albosinensis fascinatio

Betula ermanii
Betula grossa
Betula nigra
Betula pendula
Betula pendula 'Dalecarlica'
Betula pendula 'Fastigiata'
Betula pendula 'Purpurea'
Betula pendula 'Tristis'
Betula pendula Youngii
Betula pubescens
Betula utilis
Betula utilis jacquemontii
Carpinus betulus
Carpinus betulus 'Fastigiata'
Carpinus betulus Frans Fontane
Castanea sativa
Catalpa bignonioides
Catalpa speciosa
Cedrus atlantica 'Glauca'
Cedrus brevifolia
Cedrus deodara
Cedrus libani
Cercidiphyllum japonicum
Cercis canadensis
Cercis siliquastrum
Chamaecyparis Erecta Viridis
Chamaecyparis lawsoniana
Chamaecyparis lawsoniana Lutea
Chamaecyparis nootkatensis
Chamaecyparis pisifera Plumosa
Chamaecyparis pisifera Sq
Chamaecyparis spp.
Cornus controversa
Cornus mas
Corylus avellana
Corylus colurna
Cotoneaster frigidus
Cotoneaster simonsii
Cotoneaster x watereri
Crataegus crus-gallii
Crataegus laevigata Pauls S
Crataegus monogyna
Crataegus monogyna 'Stricta'
Crataegus prunifolia
Crataegus x lavalleei
Cryptomeria japonica

Cupressus × leylandii
Cupressus arizonica
Cupressus cashmeriana
Cupressus macrocarpa
Davidia involucrata
Eucalyptus gunii
Euonymus latifolius
Fagus sylvatica
Fagus sylvatica Aspleniifolia
Fagus sylvatica 'Dawyck'
Fagus sylvatica Dawyck Gold
Fagus sylvatica 'Pendula'
Fagus sylvatica 'Purpurea'
Fagus sylvatica Rohanii
Ficus carica
Fraxinus americana
Fraxinus angustifolia
Fraxinus excelsior
Fraxinus excelsior Diversifoli
Fraxinus excelsior Jaspidea
Fraxinus excelsior Pendula
Fraxinus ornus
Fraxinus oxycarpa
Fraxinus oxycarpa Raywood
Fraxinus pennsylvanica
Ginkgo biloba
Gleditsia triacanthos
Gleditsia triacanthos Sunburst
Hamamelis intermedia
Hamamelis intermedia 'Harry'
Ilex aquifolium
Ilex aquifolium Aureomarginata
Ilex aquifolium variegatum
Ilex x altaclerensis
Juglans nigra
Juglans regia
Juniperus communis
Juniperus communis Compressa
Juniperus phoenicea
Koelreuteria paniculata
Laburnum anagyroides
Laburnum x watereri 'Vossii'
Lagerstroemia
Larix decidua
Larix kaempferi
Laurus nobilis

Ligustrum lucidum
Ligustrum lucidum Exc superbum
Liquidamber styraciflua
Liriodendron tulipifera
Magnolia Galaxy
Magnolia grandiflora
Magnolia Kobus
Magnolia stellata
Magnolia x Brooklynensis
Magnolia x soulangeana
Magnolia 'Yellow Bird'
Malus baccata
Malus Cox's Orange Pippin
Malus domestica
Malus 'Eleyi'
Malus floribunda
Malus Jonagold
Malus 'Rudolph'
Malus sylvestris
Malus tschonoskii
Malus x purpurea
Mespilus germanica
Metasequoia glyptostroboides
Morus alba
Morus nigra
Nothofagus obliqua
Nyssa sylvatica
Ostrya carpinifolia
Parrotia persica
Parrotia persica Vanessa
Paulownia tomentosa
Phillyrea latifolia
Picea abies
Pinus mugo
Pinus nigra
Pinus nigra austriaca
Pinus radiata
Pinus strobus
Pinus sylvestris
Pinus wallichiana
Pittosporum bicolor
Pittosporum tenuifolium
Platanus orientalis
Platanus x hispanica
Populus alba
Populus nigra

Populus nigra betulifolia
Populus nigra 'Italica'
Populus tremula
Populus trichocarpa
Populus x canadensis
Prunus - Pink Perfection
Prunus 'Accolade'
Prunus Amanogawa
Prunus avium
Prunus avium Plena
Prunus cerasifera
Prunus cerasifera 'Pissardii'
Prunus domestica
Prunus Kanzan
Prunus laurocerasus
Prunus lusitanica
Prunus maackii 'Amber Beauty'
Prunus padus
Prunus padus Watereri
Prunus sato-zakura
Prunus sato-zakura 'Kanzan'
Prunus serrula
Prunus serrula 'Tibetica'
Prunus serrulata
Prunus Shirofugen
Prunus Shirotae
Prunus spinosa
Prunus 'Sunset Boulevard'
Prunus Tai-haku
Prunus x hillieri 'Spire'
Prunus x yedoensis
Pseudotsuga menziesii
Pterocarya fraxinifolia
Pyrus calleryana 'Chanticleer'
Pyrus communis
Pyrus salicifolia Pendula
Quercus cerris
Quercus frainetto
Quercus ilex
Quercus palustris
Quercus petraea
Quercus pubescens
Quercus robur
Quercus robur 'Fastigiata'
Quercus rubra
Quercus x hispanica Lucombeana

Rhus typhina
Robinia pseudoacacia
Robinia pseudoacacia 'Frisia'
Salix alba
Salix babylonica 'Tortuosa'
Salix caprea
Salix daphnoides
Salix fragilis
Salix x sepulcralis chrysocoma
Sambucus nigra
Sequoia sempervirens
Sequoiadendron giganteum
Sophora japonica
Sorbus americana
Sorbus aria
Sorbus aucuparia
Sorbus aucuparia Aspleniifolia
Sorbus aucuparia Sheerwater S
Sorbus aucuparia 'Streetwise'
Sorbus cashmiriana
Sorbus intermedia
Syringa vulgaris
Taxodium distichum
Taxus baccata
Taxus baccata 'Fastigiata'
Thuja plicata
Thuja plicata 'Zebrina'
Thujopsis dolabrata Aurea
Tilia americana
Tilia cordata
Tilia cordata 'Greenspire'
Tilia oliveri
Tilia platyphyllos
Tilia platyphyllos 'Aurea'
Tilia platyphyllos 'Rubra'
Tilia tomentosa 'Brabant'
Tilia tomentosa 'Petiolaris'
Tilia x euchlora
Tilia x europaea 'Pallida'
Tilia x europea
Trachycarpus fortunei
Ulmus glabra
Ulmus glabra 'Exoniensis'
Ulmus lobel
Ulmus procera
X Cupressocyparis leylandii

Zelkova serrata
Zelkova serrata 'Green Vase'

Appendix 9   Most common individually identified trees on ECC land

The table below lists the most common individually identified trees on ECC land. Taking into account woodlands, Quercus, Fraxinus and Acer will be the most populous species

SPECIES	OCCURANCES	%
Betula pendula	361	4%
Fraxinus excelsior	340	4%
Acer platanoides	338	4%
Acer pseudoplatanus	332	4%
Quercus robur	326	4%
Tilia sp.	286	3%
Sorbus aucuparia	254	3%
Chamaecyparis lawsoniana	234	3%
Prunus sp.	195	2%
Tilia x europea	175	2%
Carpinus betulus	139	2%
Fagus sylvatica	138	2%
Ilex aquifolium	138	2%
Crataegus monogyna	129	2%
Pinus sylvestris	122	1%
Prunus avium	117	1%
Aesculus hippocastanum	108	1%
Acer campestre	102	1%
Taxus baccata	99	1%
Tilia cordata	90	1%
Platanus x hispanica	87	1%
Betula sp.	82	1%
Betula pubescens	80	1%
Alnus glutinosa	75	1%
Malus sp.	75	1%
Quercus ilex	71	1%
Taxus baccata 'Fastigiata'	69	1%
Thuja plicata	65	1%
Quercus rubra	61	1%
Betula pendula 'Tristis'	60	1%
Betula utilis jacquemontii	60	1%
Sorbus aria	60	1%
Alnus sp.	57	1%
Acer pseudoplatanus 'Leopoldii'	55	1%
Liquidamber styraciflua	55	1%
Fagus sylvatica 'Purpurea'	51	1%
Acer saccharinum	50	1%
Fraxinus ornus	49	1%
Fraxinus angustifolia	46	1%
Pinus nigra	45	1%

Prunus padus	45	1%
Robinia pseudoacacia	45	1%
Tilia platyphyllos	43	1%

In order of occurrence frequency within our woodlands;

Frequency	Species
10 of 11 woodlands.	Oak, Ash.
8 of 11 woodlands	Field Maple, Hazel.
6 of 11 woodlands	Cherry, Sycamore.
5 of 11 woodlands	Norway maple, Hawthorn.
3 of 11 woodlands	Lime, Blackthorn, Hornbeam, Willow.
2 of 11 woodlands	Alder, Poplar, Elder, Birch
1 of 11 woodlands	Beech, Chestnut, Rowan, Spindle, Scots pine, Box elder, Yew, Elm, Sweet chestnut

Appendix 10   Veteran Trees

site_code	plot_ number	site_name	feature_location	Age Class	Height (m)	Spread (m)	DBH (cms)	Size class.
66605053	60078	St Bartholomew's Cemetery	Acer pseudoplatanus	V	8	4	250	1
14201459	60006	Westcombe	Castanea sativa	V	16	20	300	10
66601009	60008	St David's Church	Cedrus brevifolia	V	20	22	275	12
66614010	60007	St Margaret's Church	Fagus sylvatica	V	15	15	180	4
66605051	60116	Rougemont Gardens	Morus nigra	V	9	9	75	1
14201988	60011	Belmont Park	Platanus x hispanica	V	20	9	82	1
14201988	60022	Belmont Park	Platanus x hispanica	V	20	9	82	1
14201988	60057	Belmont Park	Platanus x hispanica	V	20	9	82	1
14201988	60066	Belmont Park	Platanus x hispanica	V	20	9	82	1
14201988	60092	Belmont Park	Platanus x hispanica	V	20	9	82	1
14201988	60111	Belmont Park	Platanus x hispanica	V	20	9	82	1
14201988	60139	Belmont Park	Platanus x hispanica	V	20	9	82	1
14201988	60034	Belmont Park	Platanus x hispanica	V	22	18	200	8
66605060	60014	Southernhay Green	Platanus x hispanica	V	24	20	250	12
66617017	60053	St Thomas Church	Quercus cerris	V	22	20	175	8
66605051	60036	Rougemont Gardens	Quercus ilex	V	15	20	200	6
66605060	60010	Southernhay Green	Quercus ilex	V	18	20	180	6
66601001	60068	Bury Meadow	Quercus palustris	V	22	18	110	4
66601001	60058	Bury Meadow	Quercus palustris	V	24	16	180	7
66607003	60177	Heavitree Pleasure Ground	Quercus robur	V	8	4	120	0
66615011	60005	Burrator Drive Play Area	Quercus robur	V	12	10	90	1
66607003	60053	Heavitree Pleasure Ground	Quercus robur	V	12	9	120	1
66615011	60004	Burrator Drive Play Area	Quercus robur	V	15	10	100	2
14201227	60026	Lakeside Avenue	Quercus robur	V	15	12	100	2
66615011	60003	Burrator Drive Play Area	Quercus robur	V	15	15	125	3
66618021	60076	Cowick Barton Playing Field	Quercus robur	V	15	12	180	3
66618021	60025	Cowick Barton Playing Field	Quercus robur	V	9	22	175	3
14201227	60014	Lakeside Avenue	Quercus robur	V	20	15	150	5
66613005	60041	King George V Playing Field	Quercus robur	V	18	14	180	5
66607003	60118	Heavitree Pleasure Ground	Quercus robur	V	12	16	250	5
66607003	60237	Heavitree Pleasure Ground	Quercus robur	V	22	14	160	5

site_code	plot_number	site_name	feature_location	Age Class	Height (m)	Spread (m)	DBH (cms)	Size class.
66618021	60081	Cowick Barton Playing Field	Quercus robur	V	22	15	150	5
66613005	60034	King George V Playing Field	Quercus robur	V	18	16	175	5
66613005	60058	King George V Playing Field	Quercus robur	V	18	17	175	5
66613005	60074	King George V Playing Field	Quercus robur	V	20	14	200	6
66607003	60191	Heavitree Pleasure Ground	Quercus robur	V	22	17	180	7
66613005	60040	King George V Playing Field	Quercus robur	V	23	16	200	7
66613005	60073	King George V Playing Field	Quercus robur	V	24	18	175	8
66613005	60056	King George V Playing Field	Quercus robur	V	22	14	250	8
66613005	60045	King George V Playing Field	Quercus robur	V	22	20	175	8
14201459	60008	Westcombe	Quercus robur	V	24	18	180	8
66613005	60046	King George V Playing Field	Quercus robur	V	22	16	250	9
66613005	60075	King George V Playing Field	Quercus robur	V	20	25	250	13
66601009	60001	St David's Church	Quercus x hispanica Lucombeana	V	9	7	120	1
66607003	60077	Heavitree Pleasure Ground	Robinia pseudoacacia	V	9	10	120	1
66618050	60001	Pinces Gardens Allotments	Sequoiadendron giganteum	V	24	9	250	5
66618050	60000	Pinces Gardens Allotments	Sequoiadendron giganteum	V	23	9	300	6
66607002	60012	The Church of St Michael and All Angels	Taxus baccata - 'Notable Tree' designation	V	9	12	125	1

Appendix 12   ECC Woodlands

Location	Class	Area m2
Alphington Woodland	Woodland	28,844
Chantry Meadow	Woodland	4,661
Horseguards	Woodland	1,430
Farm Hill	Woodland	1,306
Farm Hill	Woodland	1,190
Farm Hill	Woodland	1,306
Guys Road Woodland	Woodland	2,370
Savoy Hill Woodland	Woodland	9,578
Savoy Hill Woodland	Woodland	4,340
Brookway	Woodland	2,103
Rosebarn Lane	Woodland	1,449
Eastern Field	Woodland	91,303
Land adjacent to the River Exe	Woodland	7,185
Land at Bonhay Road, St. Davids	Woodland	2,762

Appendix 13   Classifying our woodlands.

All our woodlands are secondary woodlands (post c1600) no ancient woodland exists, however there are a few veteran trees that are within or close by to our woodlands which do predate 1600.

All our woodlands fit into the following categories:

Amenity Plantation

Mulberry Close

Topsham Millennium Woods

Exwick Cemetery

Pinwood Meadow

Vaughan Road

Well Oak Park

Individual copses

Whitycombe Way

Higher Barley Mount

Mayflower Avenue

Redhills Copses

Farm Hill

Gloucester Road

Infill Copse

Fairpark Car Park

Rosebarn Lane-Stoke Hill

Holman Way Car Park

Kinnerton Estate

Guys Road

Orchards (FLOW are the ribbon orchards planted along the River Exe)

Bromhams Farm Community

Topsham Community Orchard

Eastern Fields

Devonshire Place Community

Cowick Barton Playing Field

Exwick Mill Field (FLOW)

Exwick Station Rd to Health Centre (FLOW)

Exwick Playing Filed (FLOW)

Flowerpot Playing Field (FLOW)

Bonhay Meadow/Exe Bridges/The Malt House (FLOW)

Trews Weir canal side (FLOW)

Double Locks Fruit Wall (FLOW)

Park Woodland

Monkerton Open Space

West Garth Road

Topsham Recreation Ground

Lancelot Road

Great Hill View

Chantry Meadow

Duckes Marsh

Eastern Fields

Grace Road

Plantation for Screening

Alphington Strip Woodland

King William Street Carpark

Rollestone Crescent

Horseguards

Pynes Hill

Bad Homburg Plantation

Dawlish Road

Heavitree Gallows

Hill Barton Road

Roadside individual trees in a group/hedgerow

Hill Barton Lane

Pendragon Road

Semi Natural woodland

Cemetery Field

Savoy Hill

Widecombe Way

Waterway bank

Brookway strip copse

Bonhay Road

Georges Copse

Hamlin Lane PF

Wood pasture

Ludwell Valley Park

Appendix 15   Action Points

Trees and woodlands	Community	Resource Management	GROUP	REF	Action Point
✓		✓	**Section 2 The Tree and Woodland Resource** **Section 4 Tree establishment**	**Action 01**	Increase tree canopy through tree planting, natural regeneration and caring for existing trees with particular focus on wards where canopy cover is identified as low.
✓			**Section 2 The Tree and Woodland Resource** **Section 4 Tree establishment**	**Action 02:**	We will aim to increase our canopy cover from 24% to 30% within the next 20 years.
✓	✓		**Section 2 The Tree and Woodland Resource** **Section 4 Tree establishment**	**Action 03:**	Promote the planting of trees on private land. We will do this by sharing information about the importance of urban trees as well as offering tree planting advice and promoting and supporting initiatives that offer free or subsidised tree planting schemes.
✓		✓	**Section 6 Tree management**	**Action 04:**	Phased tree planting and removal to ensure that there is good representation of all age classes at both a local and city level.

Trees and woodlands	Community	Resource Management	GROUP	REF	Action Point
			on council land Section 4 Tree establishment		
✔		✔	Section 4 Tree establishment	Action 05:	Undertake tree planting and removal with a focus on creating a diverse mixture of species and genotypes.
✔		✔	Section 2 Tree and woodland resource Section 4 Tree establishment	Action 06:	Source and select trees for planting that are well suited to the local site conditions, alongside the phased removal of trees that are not suitable or have become problematic as a result.
✔	✔	✔	Section 4 Tree establishment	Action 07:	Tree planting proposals will have to provide proof of adequate consideration for the tree's position in the landscape and the potential for any negative impacts (establishment through to maturity).
✔		✔	Section 2. The Tree and Woodland Resource	Action 08:	The council will continue to update its tree and woodland inventory in order to maintain a comprehensive understanding of its tree and woodland resource.
✔		✔	Section 2. The Tree and Woodland Resource	Action 09:	The council will take part in the i-Tree Eco survey in order to gain a better understanding of the tree stock, canopy cover and ecosystem services for both publicly and privately owned trees across the city.

Trees and woodlands	Community	Resource Management	GROUP	REF	Action Point
✓		✓	**Section 6. Tree management on Council Land**	**Action 10:**	We will risk assess trees using a recognised methodology (QTRA), set appropriate re-inspection intervals and keep records on the council's tree database (Confirm) in accordance with the council's Tree Risk Management Strategy.
✓		✓	**Section 3 Wildlife and Biodiversity**	**Action 11:**	We will seek advice from, and work in collaboration with, local ecologists and nature conservancy charities such as Devon Wildlife Trust in order to gain a better understanding of the council's green infrastructure, and the special management that is required in order to protect and enhance the wildlife that they support.
✓	✓		**Section 4 Tree establishment**	**Action 12:**	We will work in collaboration with council departments and local organisations that have an interest in the city's urban forest.
	✓	✓	**Section 2. The Tree and Woodland Resource**	**Action 13:**	We will encourage community involvement and provide volunteering opportunity's allowing people to make a positive contribution to their surrounding area and help advance urban forest goals.
	✓		**Section 2. The Tree and Woodland Resource**	**Action 14:**	The council will aim to improve people's understanding of the importance of urban trees through a range of information channels.
✓	✓		**Section 4 Tree establishment**	**Action 15:**	We will continue to work with other local authorities and non-government organisations across the city and countywide to ensure that there is widespread collaboration in reaching local and regional goals.
	✓	✓	**Section 6. Tree management on Council Land**	**Action 16**:	We will engage with utility companies to ensure that their operations do not have a negative impact on council trees. The council will provide channels for residents and communities to report damage or trees at risk from damage by others.

Trees and woodlands	Community	Resource Management	GROUP	REF	Action Point
	✓	✓	Section 2. The Tree and Woodland Resource.	Action 17:	We will attempt to improve access to woodlands with particular emphasis on areas where public access opportunities have not been fully realised.
		✓	Section 6. Tree management on Council Land	Action 18:	The council will develop a woodland management plan to ensure that council woodlands are managed in a planned and sustainable manner that accords with the UK Forestry Standard.
✓		✓	Section 6. Tree management on Council Land	Action 19:	The council will seek to take advantage of any available financial aid and grants for tree and woodland establishment and management.
		✓	Section 6. Tree management on Council Land	Action 20:	We will manage ECC's trees and woodlands in accordance with the latest industry best standards and practices. Continued monitoring and auditing of the arboriculture contractors works to ensure that it completed to the highest standard.
✓		✓	Section 4 Tree establishment	Action 21:	We will work towards creating a tree establishment plan that is influenced by canopy cover assessment, species and age diversity in order to meet canopy cover objectives.
✓		✓	Section 4 Tree establishment	Action 22:	We will ensure that newly planted trees have sufficient growing space and suitable growing conditions so that they can reach their genetic potential and thus maximise the benefits that they provide.
✓		✓	Section 5. Planning and Development	Action 23:	There will be a presumption against the cutting down or pruning of a protected tree. Where permission is granted the Council will seek impose conditions requiring that a replacement trees is planted

Trees and woodlands	Community	Resource Management	GROUP	REF	Action Point
		✓	Section 6. Tree management on Council Land	Action 24:	The council will seek to prosecute anyone who illegally damages or destroys public trees.
✓		✓	Section 5. Planning and Development	Action 25:	Trees that could be impacted by a new development will be assessed and evaluated by an arboriculture's with reference to British Standard BS5837: *Trees in relation to design, demolition and construction – recommendation* as part of an informed decision making process.
		✓	Section 6. Tree management on Council Land	Action 26:	The council will manage its trees in accordance with industry standards and best practice to ensure that council trees are in good physiological and structural condition in order to promote longevity and maximise ecosystem services.
✓	✓	✓	Section 3 Wildlife and Biodiversity	Action 27:	We will improve the ecological value of our woodlands by developing a woodland management plan that is focused on sustainability and ecological integrity whilst facilitating appropriate public access.
		✓	Section 6. Tree management on Council Land	Action 28:	The council will manage tree risk in accordance with its Tree Risk Management Strategy following the latest industry guidance (NTSG) and using a well-recognised and accepted risk assessment methodology.
	✓		Section 4 Tree establishment	Action 29:	The council will aim to improve people's understanding of the importance of urban trees through a range of information channels.
		✓	Section 2.	Action 30	The council will seek to recycle and utilise all arising from tree works operations.

Trees and woodlands	Community	Resource Management	GROUP	REF	Action Point
			The Tree and Woodland Resource		
✓		✓	Section 3. Biosecurity	Action 31:	All planting stock must be procured from trusted nurseries that adhere to the highest biosecurity practices (quarantine and isolation) and have a plant passport or phytosanitary certificate as required.
✓		✓	Section3. Biosecurity	Action 32:	Staff, partner organisations and contractors will be expected to follow the highest biosecurity practices and stay up to date with the latest government advice and recommendations.

Appendix 16

Exeter City Council

Equality Impact Assessment - To be completed using the checklist of questions at the end of the table

Title of work being assessed: Tree and Woodland Strategy

Introduction

This strategy is designed to ensure equitable and proportionate play space provision across the city, but with a localised focus on LSOA areas.

The strategy content provides a full background and context

Lead officer: Paul Faulkner

Service Manager: Lou Harvey

Stakeholders: Residents, employees of the council and visitors to the city.

Revision: 11/3/2020

For each of the areas below, an assessment has been made on whether the policy has a **positive, negative or neutral impact**, and brief details of why this decision was made and notes of any mitigation are included. Where the impact is negative, a **high, medium or low assessment** is given. The assessment rates the impact of the policy based on the current situation (i.e. disregarding any actions planned to be carried out in future).

High impact – a significant potential impact, risk of exposure, history of complaints, no mitigating measures in place etc.

Medium impact –some potential impact exists, some mitigating measures are in place, poor evidence

Low impact – almost no relevancy to the process, e.g. an area that is very much legislation led and where the council has very little discretion

	Neutral	Positive	Negative
Target group / area **Race and ethnicity** (including Gypsies and Travellers; migrant workers asylum seekers etc.)		Broad environmental improvements for all sections of the community	No identified issues.
Disability		Some access improvements to wooded areas	There may be some locations where no meaningful

	Neutral	Positive	Negative
(as defined by the Equality Act - a person has a disability if they have a physical or mental impairment that has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities)			alterations can be made to improve accessibility and use, e.g. due to topography
Sex/Gender			No identified issues.
Gender reassignment	No identified issues		
Religion and belief	No identified issues.		
Sexual orientation (including heterosexual, lesbian, gay, bisexual)	No identified issues		
Age (children and young people aged 0 – 24, adults aged 25 – 50, younger older people aged 51 – 75/80; older people 81+. The age categories are for illustration only as overriding consideration should be given to		Broad environmental improvements for all sections of the community	

	Neutral	Positive	Negative
needs).			
Community relations	No identified issues	Potential for community based activities and ongoing direct involvement	
Human Rights	No identified issues		
Actions identified as a result of the impact assessment			
Action	Lead	By when	
Dynamic assessment of impacts of initiatives arising from the Tree and Woodland Strategy np ensure no unintended adverse consequences	Lou Harvey	Ongoing	

	Equality Impact Assessment Report Questions checklist

1.	Describe the piece of work you are assessing and the reason it is being carried out. Are you:
	    o Making a strategic budget proposal
	    o Developing a new policy, strategy or project
	    o Reviewing and revising a policy, strategy or project
	    o Reviewing a function or a service
	    o Restructuring a service.
	Include any options appraisal and if you have a preferred option explain why.

2.	What are the timescales for completing the work? What committee deadlines do you have to meet?
3.	What are the aims and objectives of the work? How do these link to wider council or strategic objectives.
4.	Who will be the main beneficiaries of the piece of work and in what way? All people in Exeter? Council staff? A specific stakeholder group? A combination of these?
5.	What data do you have on how different groups would be affected by the work?
6.	What research studies or reports have been carried out in other areas of the country or nationally that provide information about the likely impact of your work on equality groups?
7.	What consultation has taken place or is planned with customers (individuals and groups) from equality groups?
8.	What does the consultation indicate about any differential positive or negative impact(s) of this piece of work?
9.	If there are gaps in your previous or planned consultation and research are there any experts/relevant groups that can be contacted to get further views or evidence on the issues? If so please explain who they are and how you will obtain their views.
10.	If you have indicated there is a negative impact on any group, is that impact Legal; Intended; of high or low impact?
11.	If you identified any negative impact that is of low significance, can you minimise or remove it? If so how?
12.	Could you improve the strategy/policy/project's positive impact and if so how?
13.	How do you intend to continue monitoring the impact of this strategy/policy/project?
14.	If there are gaps in your evidence base, do you need to carry out any further research about the likely impact of your work on equality groups?
	There might be a time delay here as you will need to get the results of your consultation before you can continue working your way through the questions.

15.	As a result of this assessment and available evidence collected, including consultation, what if any changes do you need to make to the strategy/policy/project?
16.	Will the changes planned ensure that the negative impact is: Legal; Intended; of low impact?
17.	What monitoring/evaluation/review process have you set up to check the successful implementation of the strategy/policy/project?
18.	How will this monitoring/evaluation further assess the impact on the equality groups/ensure the strategy/policy/project is non-discriminatory?
19.	Please provide an action plan showing any recommendations that have arisen from the assessment and how you plan to take them forward. Are your actions SMART (specific, measurable, achievable, relevant and time-based).
20.	When will you next review this work and the impact assessment?

Appendix 17 References

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