

Redraft of Tree Policy and Tree Risk Management Plan for Doncaster Council's Trees and Woodlands

February 2021

Covering note

This draft responds to the of the Tree Policy Review Report produced by Professor Ian Rotherham, Sheffield Hallam University having consulted a range of professional, expert, and local stakeholders.

The brief of the Tree Policy Review was to

1. Consultation and decision-making (and consequent operations) for street and urban tree removal and replacement – both individual and avenues of street trees.
2. Valuation of trees within the removal and replacement decision-making process in relation to their climate mitigation and carbon sequestration services, and in relation to other ecological, social and economic values these trees might have.

This draft addresses these issues as highlighted in the Review, and is therefore NOT a wholesale rewrite of the previous Tree Policy.

The review identified key issues in three main areas:

- i. Process & decision-making;
- ii. Communication & engagement;
- iii. Implementation & process

This has led to redrafting or additional material particularly in sections 3 – 8, 14, 16, and Policy 6

This policy now contains section 8 on Trees and Climate Change

The original Tree Policy was originally written to sit within a Tree Strategy included in Doncaster Green Infrastructure Strategy 2014 – 2028 as Theme 2: Trees and Woodland. This has meant that the strategic perspective complementing the Tree Policy has been less visible. While much of the Green Infrastructure Strategy still applies, it's status is now in question following the approval of the (Team Doncaster) Environment & Sustainability Strategy 2020 – 2030

Tim Newton - Policy Insight & Change Service, DMBC



Doncaster
Council

Tree Policy and Tree Risk Management Plan for Doncaster Council's Trees and Woodlands

Revision draft - February 2021

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1. FORWARD

Trees enhance the quality of life in urban environments, and form an integral part of their shape, colour and diversity. They are essential to our health and well-being, not only in reducing some of the adverse impacts of the urban environment but also in enhancing our enjoyment of the street scene.

Trees also provide economic benefits to Doncaster – directly through wood products, such as timber or biomass, and indirectly through eco-system services; their leaves and branches filter out pollution, reduce the risk of flooding, cool urban air temperatures and shade us from the sun's harmful ultra-violet rays. Trees contribute to climate change mitigation by absorbing and locking up carbon dioxide, thus helping the world avoid catastrophic climate change; and increased tree cover will help adapt the borough for the effects of unavoidable climate change.

However, a recently completed study to measure Doncaster's area of tree canopy cover has showed that it is below both the South Yorkshire and national averages, and also revealed that some areas of the borough have much lower tree cover than others. Not only is it important that our existing trees are conserved and managed to ensure they bring benefit to future generations, but we also need to identify and action ways to increase their numbers across the borough, particularly in areas of low canopy cover and poor air quality.

The adoption of the Tree Policy and Tree Risk Management Plan for Doncaster Council's Trees and Woodlands in July 2019 signalled a new commitment by Doncaster Council to look after one of the most valuable natural resources in its care. In September 2019, Doncaster declared a Climate and Biodiversity Emergency, in recognition that Climate Change and sustainability are amongst the biggest issues of the 21st century and the effects of human-made and dangerous climate change are already being felt and seen. In light of this, Doncaster Council has undertaken a review of the policy and embedded a new principle – ***the principle of minimal tree removal*** – to further strengthen our commitment to protecting and increasing our valuable tree resource to maximise its benefits for climate change mitigation.

We cannot take this resource for granted: we must manage and constantly replenish Doncaster's municipal tree stock for our children and future generations. We must also raise awareness of the importance of the urban forest on both public and privately owned land and encourage all resident's to manage all of Doncaster's trees carefully for many years to come and to plant more.

2. INTRODUCTION

Trees are long-lived community assets, which are essential to our health and well-being, not only in enhancing our enjoyment of the street scene, but by reducing some of the adverse impacts of urban environments.

However, they can also cause a range of issues, from being a nuisance or inconvenience to potentially causing serious injury or property damage.

3. NATIONAL POLICY CONTEXT

The Government's A Green Future: Our 25 Year Plan to Improve the Environment (2018) recognises the value of trees and woodland as 'natural capital assets' - elements of nature that either directly or indirectly bring value to people and the country at large, for example by providing clean air and water, wildlife, energy, wood, soil for food production, recreation and protection from hazards.

The 25 Year Plan made a number of commitments aiming to maximise the benefits of woodland and trees, supporting woodland creation, greening our towns and cities, and planting more trees in and around our towns and cities.

As part of the delivery of the Climate Change Action 2008 and the UK's net-zero target for 2050, the government's commitment is to increase tree planting across the UK to 30,000 hectares of tree planting per year by 2025. This reflects Committee on Climate Change (CCC) advice that the UK should increase planting rates to between 30,000 and 50,000 hectares per year and maintain these to 2050 to reach net zero emissions.

Department for Environment Food and Rural Affairs published an England Tree Strategy consultation in June 2020 and expect to publish the final Strategy in spring 2021. This will provide a national framework for delivery of the Governments commitments.

4. DONCASTER'S STRATEGY FOR TREES AND WOODLAND

A strategy for Doncaster's trees and woodland was originally set out as Theme 2 (pages 22 – 30) in ***Doncaster Green Infrastructure Strategy 2014 – 2028; Making Doncaster a Greener, Healthier, more Attractive Borough***. This set out (pages 23 – 24, section 3.29) the following broad objectives:-

- To ensure that trees and woodlands contribute to a high quality urban environment for present and future generations through the use of sustainable management practices and appropriate protection measures;
- To safeguard the borough's existing tree and woodland resource and promote a better understanding of the management, care and value of trees;
- To improve understanding about the distribution, function, condition and value of the borough's trees and woodlands in order to enable better informed decision making about priorities for management and ensure that management practices are appropriate and sustainable;
- To establish more trees and expand and develop woodland across the borough and adopt a best practice approach to the selection of species and site to promote a healthy, diverse tree population in locations that can sustain future growth;
- To protect wildlife and enhance the ecological value of the borough's trees, woodlands and non-woodland habitats and improve their resilience to climate change;
- To ensure that the benefits provided by public investment in trees and woodlands offer comparative 'value for money' and contribute to environmental sustainability; and,
- To involve local people in planning and managing trees and woodlands, to help achieve more cohesive communities and to show how individuals can contribute to environmental sustainability.

Following the declaration of a climate emergency in 2019 and the work of the Doncaster Climate Commission, the strategic partnership Team Doncaster has agreed an **Environment and Sustainability Strategy 2020 – 2030**. This Strategy includes commitments to the natural environment including to

- Protect and enhance WOODLAND and GREEN SPACES, plant more TREES.
- Protect and enhance BIODIVERSITY to support resilient ecosystems.

The desired outcome is to *Improved green space provision and increased tree coverage*.

Doncaster Council's Tree Policy and Tree Risk Management Plan sits very firmly within these national and local strategies.

5. SCOPE AND OBJECTIVES OF THIS POLICY

The scope of the policy extends to all trees and woodland under the direct management of Doncaster Council's Street Scene Trees and Woodlands Service (i.e. council owned trees in streets, parks and open spaces, council houses, cemeteries and leisure centres) and to those where Street Scene is acting as a managing agent (e.g. for other Council departments or schools).

This policy **does not** apply to decisions relating to protected trees or trees affected by development, which are administered by the Local Planning Authority, or trees on land not owned by Doncaster Council, except where issues of public safety override.

Further information on Doncaster Council's tree services can be found at <http://www.doncaster.gov.uk/services/environmental/tree-services>

Specific objectives of this Policy are:-

- To implement the principles of **Theme 2: Trees and Woodlands of the Doncaster Green Infrastructure Strategy 2014-2028** and the **Team Doncaster Environment and Sustainability Strategy 2020 – 2030** commitments to the natural environment;[REF 1]
- To provide a risk management framework for Doncaster Council's trees and woodland;
- To provide a policy framework to guide decisions on tree management by Street Scene Officers;
- To act as a source of information about the management of public trees within the borough;
- To maximise the benefits that public trees and woodlands can contribute to climate change mitigation;
- To ensure net increases in the volume of trees in the Council's Care, and hence a net increase in the carbon stored. (*Green Infrastructure Strategy 3.34 The Council will continue to plant trees to enhance urban and natural areas within the Borough and will seek to plant more trees each year than it fells.*)
- To remove trees only where no reasonable alternative solution can be found.
- To support the main vision of the Council [REF 2] to find new ways of working to develop public services in a way that ensures all of Doncaster's people and communities benefit with an improved quality of life in Doncaster.

6. COMMUNICATION AND ENGAGEMENT

While this Policy concerns trees that are owned by Doncaster Council, it is recognised that residents are stakeholders in the quality of natural and urban environments. Primary stakeholders should be communicated with and engaged in a manner that is proportionate to the nature, impact, scale and urgency of the work to be undertaken.

Primary stakeholders may include

- Residents in the immediate vicinity where there are Council-owned trees or tree maintenance work is planned
- Elected Members representing those residents
- Other Council services

There may be a range of other local stakeholders including

- Residents who regularly walk, cycle or drive through an area (particularly where trees impact on roads and pavements, and particularly those local residents with mobility issues)
- Businesses
- Schools
- Amenity groups or neighbourhood volunteers.

Communications planning

Doncaster Council will be proactive in identifying where tree maintenance work may have significant impact on local stakeholders or elicit strong public reactions. Where this may be the case, a communications plan will be agreed with a senior manager that is relevant to the nature, scope and urgency of the work. This plan will co-ordinate across services involved, and ensure that there is a fully-informed single channel of communication or spokesperson.

- When engaging with stakeholders Doncaster Council will be open and accountable in our decision making process. Doncaster Council commits that:
- We will proactively engage with stakeholders, using a range of methods to provide information that is clear, easy to understand and accessible to all Doncaster residents;
- Engagement will be undertaken in reasonable timeframes and with a shared understanding of the decision-making processes (It is recognised that delays between informing the public of works taking place and the action happening on the ground can be detrimental);
- The method of engagement will be proportionate to the work being proposed; and
- We will undertake evaluation processes to continually improve our approach to engagement.

Notification and information sharing

Much of the work pruning, removal and replacement of trees, particularly urban and street trees, is decided upon through expert assessment by qualified officers, particularly where there is risk or danger to members of the public.

In such circumstances, local resident stakeholders will be engaged through notification and sharing of information. The nature of which will depend on the nature, impact, scale and urgency of the work, but may include

- Information on a dedicated page on the Council's website
- Letters delivered to residents
- Standardised, clear, on-site signage
- Meetings with residents or stakeholders

Depending on the nature and urgency of the work, a reasonable timescale will be established to allow local stakeholder to request and receive further information.

Notification and information needs to be perceived as transparent and timely, enabling local resident stakeholders feeling properly informed of the action being taken, the reasons for the action, the timescales, and any inconvenience that may be experienced as a result of the work.

Consultation

There may be circumstances where local views may be sought to assist planning or decision-making on a course of action or timescale. Local resident stakeholders will be engaged through consultation, again the nature of which will depend on the nature, scale and urgency of the work. In addition to the methods used for notification, consultation of residents may also include

- Identifying a single point of contact for residents in the Council
- Questionnaire – via letter or online
- Direct contact, for example, face-to-face or online meetings, or telephone calls, particularly with residents most immediately affected.
- Involvement of Council communications team and briefing of Customer Services.

Consultation needs to be perceived as transparent and timely, enabling local resident stakeholders to feel that their views have properly been taken account of. Feedback on planning and decisions taken need to demonstrate how the views of local resident stakeholders local residents were considered and taken into account, bearing in mind that there may be diverging opinions and that work needs to be fully informed by qualified expert assessment. Given this, it is likely that a more detailed communications plan is required, with the nomination of a lead officer to co-ordinate and act as spokesperson where necessary.

Trees, wherever they stand, make a valuable contribution to the quality of life for Doncaster's residents. The urban forest is one of the most visible parts of the green infrastructure network and provides a multitude of benefits for society. The research establishing that trees are a cost-effective way of bringing a wide range of benefits to the environment, individuals and society as a whole³ also shows clearly that benefits are strongly related to size, with the largest trees providing the greatest benefits. It is important, therefore, that trees, particularly large canopied species, are not unnecessarily lost from the landscape, or have their capacity to provide benefits reduced by unnecessary pruning.

8. TREES AND CLIMATE CHANGE

One of the many causes of climate change is deforestation, particularly of tropical and sub-tropical forests, often cleared to produce agricultural goods for the global market. With the loss of forest also goes the benefits of local and regional climate regulation, and the impact on rainfall, temperature, air and water quality.

Loss of tree cover reduces the benefits

A warming climate means number of things

- warmer wetter winters
- hotter dryer summers
- more frequent heavy weather including heavier rainfall, flooding and storms.
- changes to seasonal patterns – spring flowers bloom earlier
- climate temperature zones move Northwards (in the Northern hemisphere)

The health of trees may be put at risk in a number of ways including

- lack of adaptation to warmer conditions
- lack of water in hot summers
- damage from heavy winds
- water-logging and soil erosion from flooding
- Loss of pollinators and other insects and animals that have a beneficial relationship with trees
- Pests and diseases thriving in warmer conditions

As well as protecting and maintain populations of trees from the impact of climate change, trees may also be part of the solution. The three most important elements of our response to the warming of the planet's atmosphere and the impact this is having are

Mitigation – reducing the level of greenhouse gases including carbon dioxide being released into the atmosphere by human activity.

Adaptation – becoming resilient to the impact of changes in the climate that are already happening.

Biodiversity – restoring the natural world and the ecological processes that support all life on earth.

Reducing CO₂ in the atmosphere

Trees, like all plants, take out ('sequester') carbon dioxide from the atmosphere to use to build the structure of their cells. As trees grow, their wood and leaves are essentially 'stores' of carbon.

Doncaster's tree canopy cover has been estimated to store 1,945 Kt of CO₂, absorbing 77 Kt of CO₂ annually.

Team Doncaster's Environment & Sustainability Strategy has an ambition for the Borough to become carbon neutral by 2040, and the maintenance and enhancement of our natural carbon stores, including trees and woodland, will be a significant element.

Accounting for the carbon stored in Doncaster Council's tree stock and the annual rate of sequestration for carbon from the atmosphere is extremely challenging, given that every tree grows in a unique set of local circumstances. Carbon accounting and modelling technologies are currently rudimentary and will be developed much further over the coming years. However, to begin carbon accounting for the tree stock, an annual report will be provided commenting on what available data indicates for the net increase in volume of the tree stock and the implications for carbon sequestration and storage.

Resilience and adaptation

Trees and woodland can play a significant role in natural methods to reduce flood risk, particularly when planted at scale in higher river catchment areas.

Large areas of woodland can also help bring atmospheric water (rain, mist, dew) to dryer areas.

The cooling effect of urban trees and other vegetation will have a significant impact during warming summers and heatwaves to come, protecting wellbeing and potentially saving healthcare costs.

Trees may also act as wind breaks, protecting buildings and infrastructure from storm damage.

In addition to the benefits while trees are growing, harvested wood may be used as a biofuel where carbon capture technology is also used.

Biodiversity

Trees, particularly mixed native trees and woodland, can provide the conditions to support a wide range of other plant, insect and animal life.

It is important to recognise that individual trees are part of a local natural landscape: birds and insects will travel and forage across local environments between trees, hedges, shrubs and bushes irrespective of the ownership of the land on which these grow. Biodiversity is enhanced by having connecting habitats, hence street trees should, for example, be appreciated for their biodiversity value in relation to nearby trees in gardens, parks and woodland.

All of the above benefits depend on 'the right tree in the right place' and good regimes of inspection and maintenance. Some non-native trees have little positive impact, and may even do damage to local ecosystems for example by being invasive or bringing new pests and diseases with them.

9. TREE CANOPY COVER

Tree canopy cover is “the layer of leaves, branches and tree stems that cover the ground when viewed from above”. Its measurement can be used as a proxy for the benefits provided by the urban forest - the greater the area of canopy cover the greater the environmental benefits provided by trees.

Doncaster’s tree canopy cover (including both municipal and private trees) has been estimated at 12.62%[REF A] However, this is the lowest canopy cover in South Yorkshire (average of 16.4%) and below the average for England (16% - based on 283 towns and cities)[REF 4] and ranges across the borough from 7.2% to 23.5%. The Urban Forestry and Woodland Advisory Committee Network recommend that a minimum standard for tree canopy cover is set for a local area, with evidence showing that 20% is a good aspiration for a borough like Doncaster[REF 5].

10. TREE RELATED PROBLEMS

The Council receive many enquiries each year raising concerns about trees on its land. Whilst we recognise that the removal or pruning of trees is sometimes necessary, requests are frequently based on unfounded fears or a misguided belief that trees need to be regularly pruned. Trees that are free from defect have the ability to withstand the stresses created by stormy and other adverse weather conditions. Occasionally, a few trees fail, whether in part (a branch) or in full (uproot) but, through a programme of regular inspection, those trees that pose an unacceptable risk of harm to persons or property can be identified and given appropriate remedial work to reduce the risk to an acceptable level.

Within Doncaster there are a number of recurring sources of complaint or concern, including:

- tree size;
- overhanging and low branches;
- shading and loss of light;
- loss of a view;
- interference with TV and satellite reception;
- falling leaves, twigs, blossom, fruit and nuts and sticky deposits from honeydew;
- physical damage to structures such as buildings, walls, footpaths, driveways or drains; and
- root encroachment and moisture depletion subsidence damage

In order to conserve and sustain the public tree resource and maximise the benefits that it can provide it is essential that individual issues are dealt with consistently and that decisions on tree pruning and removal are balanced against the positive contribution that trees make to the environment and its enjoyment by local communities.

11. POLICIES

POLICY 1 – Managing Trees

All trees on Doncaster Council land will be managed proactively through routine inspections at a frequency proportionate to the risk that they pose to identify potential hazards and to specify and prioritise any tree maintenance work required to keep any risk of harm or damage as low as reasonably practicable.

The principle aim of this policy is to put in operation a reasonable, defensible and proactive tree management system that conserves and enhances the tree population on land for which Doncaster Council is responsible and makes efficient use of available resources.

Nothing in life is entirely safe. People assess risks and make decisions about them constantly in everyday life. The risk of being struck and killed by a tree or branch falling is actually extremely low – in the order of 1 in 10 million for those trees in or adjacent to areas of high public use (Health and Safety Executive, 2007)[REF 6], or less if high wind incidents are excluded. So far as non-fatal injuries in the UK are concerned, the number of accident and emergency cases (A&E) attributable to being struck by trees (about 55 a year) is exceedingly small compared with the roughly 2.9 million leisure-related A&E cases per year (National Tree Safety group, 2011)[REF 7].

However, it is not generally perceived in this way by the public, particularly following any tree failure incident, and, all too often, pressure is applied for unnecessary pruning or removal of healthy trees in order to be seen to be ‘doing something’.

Doncaster Council is responsible for many thousands of trees growing in its woodlands, parks and open spaces, cemeteries, housing estates, industrial estates and alongside the highway and has a legal ‘duty of care’ to consider the risks posed by its trees to users of its land and neighbours and ensure that the risk of harm to persons and property is as low as ‘reasonably practicable’. The legal framework does not require the elimination of risk altogether - to do so would create an unacceptable loss of the many benefits that trees provide.

The Health and Safety Executive (2007)[REF 9] considers that “for trees in a frequently visited zone, a system for periodic, proactive checks is appropriate”. In order to limit the risk of significant harm from tree failure, all trees under the management of Street Scene are being recorded and mapped and will be cyclically inspected, at a frequency determined by the type and number of targets within falling distance (). We will aim to publicise schedules of planned proactive inspections on our website with target dates for completion.

General tree enquiries or requests for service may be made through the Council’s contact centre. However, an inspection may not be completed if a routine proactive inspection has been completed, or is due, on a tree within 18 months of the date of an enquiry, unless works necessary to maintain safety are identified. Further guidance on tree inspections can be found at Appendix A.

POLICY 2 - Maintaining Trees

All tree work operations specified and carried out on trees on Doncaster Council land will be undertaken in accordance with arboricultural best practice, and the felling or unnecessary pruning of trees on Council land will be resisted, unless there is a sound reason and no reasonable alternative solution can be found.

In order to achieve the aspiration of increasing urban tree canopy cover (), and thereby maximise the benefits that the urban forest provides, it is essential that we conserve the existing municipal tree resource, particularly the largest trees. For this reason, we are introducing the 'principle of minimal tree removal'. The removal of any tree on Council land will be considered **only** a last resort, where no reasonable alternative solution can be found to reduce risk or remove danger.

Trees are dynamic, continually self-optimizing organisms that do not normally require regular pruning. However, tree maintenance work is sometimes desirable, or necessary, to improve tree structure, prevent damage or maintain safety. All tree pruning has an impact upon the health and structure of a tree and will be specified **only** where it is deemed necessary, and will be prioritised for completion according to urgency, with safety issues given the greatest weighting.

Many trees grow or have been planted in groups, and work specified on one tree may have an adverse impact on others or result in a loss of unity of an arboricultural feature (e.g. an avenue). In some cases, the removal of trees may favour the development of other trees. The impact on surrounding trees or arboricultural features will be considered whenever work is being specified and may result in work on individual trees being declined or deferred for consideration of the management options for the whole feature [REF B].

Additionally, because of the limited resources available we must carefully manage the need for tree work and will always give priority to issues, such as :-

- unsafe trees;
- trees touching / damaging buildings; or
- trees obstructing footpaths, roads, street-lamps or road-signs.

This means that there will be requests for pruning or other work on trees that are not considered a priority and may be declined.

Whilst it is not possible to anticipate every situation, the tables at Appendix B will be used to guide decisions on whether tree removal or pruning will be carried out and to ensure that requests for works to trees on Council land are dealt with efficiently, consistently and fairly.

All tree work will be completed in line with current British Standards (BS3998: Tree Work – Recommendations)[REF 10]. We will not do any work that exceeds these recommendations, except where there is no alternative to comply with legal requirements. Further guidance on tree pruning operations can be found at Appendix C.

POLICY 3 – Planting Trees

Every opportunity will be taken to plant new trees to expand our urban forest and woodland estate on appropriate sites throughout the borough, and planting practice will seek to ensure that all transplanted trees achieve independence in the landscape and reach their full genetic potential.

The planting of trees is essential to produce a diverse urban forest that will be resilient to climate change and pest and disease outbreaks, and to help achieve the aspiration of increasing urban tree canopy cover () to increase the range and magnitude of environmental benefits that Doncaster’s urban forest provides.

Doncaster Council will continue to plant trees on its land as part of its winter works programme, more specifically between November and February.

We will seek year by year to increase the net volume of Doncaster Council’s tree stock.

To achieve this we will, wherever possible:

- plant replacement trees at minimum heavy standard size on a one-for-one basis for every tree we remove in the course of routine arboricultural operations;
- plant replacement trees at a rate proportionate to the trunk diameter of a felled tree () where the removal is undertaken for other reasons;
- require the funding to plant replacement trees at the appropriate replacement rate where acting as managing agent;
- look for opportunities to secure additional funding to plant new trees and groups of trees at appropriate nursery stock size in suitable locations;
- target resources in areas where it adds particular natural capital value, for example areas with low tree canopy coverage or poor air quality; and
- look for opportunities to expand our woodland estate at appropriate locations using both natural regeneration and transplants.

When selecting new trees, we will follow the principle that the ‘right tree’ is planted in the ‘right place’ and in a way that allows each tree to thrive in the landscape and reach its full genetic potential (size). Careful species choice will seek to create a robust tree resource by encouraging diversity through use of a wide range of native, naturalised and exotic tree species and cultivars, except in rural areas, ancient semi-natural woods, green belt or nature conservation sites where priority will be given to local provenance, native species.

Woodland planting has been shown as a cost effective way of managing land[REF 11] and woodland creation can attract grant funding. Any new woodland planting proposals will be considered carefully for their long term implications, particularly with regard to cost, to avoid developing a burden on already limited resources and so consideration must be made of long term funding for such sites, for example through timber production.

BIOSECURITY

The threat to our natural environment has never been greater. Increased global trade, and the movement of goods between countries, means an increased risk of spreading pests and diseases. Trees in Britain are now vulnerable to a range of new pests and diseases, and outbreaks seriously threaten sustainable urban forest management. Biosecurity is a set of precautions that aim to prevent the introduction and spread of harmful organisms.

- To help maintain a robust and healthy municipal tree resource, it is essential that all trees to be planted on Doncaster Council land:
- are of the appropriate high quality in compliance with British Standard 393126 or other internationally recognised alternative;
- are in a healthy condition and free from pests, diseases and physiological disorders;
- are growing on well-developed, undamaged roots; and
- must be approved prior to planting where supplied by a 3rd party organisation (e.g. a 'friends of' group).

To avoid the introduction of potentially harmful pests and diseases we will seek to procure British grown nursery stock. Any imported tree stock must have spent at least one full growing season on a UK nursery and have been subjected to a full pest and disease programme. Evidence of this control programme, together with a comprehensive audit trail of when the imported trees were received and how long they have been on the nursery, should be available. This audit trail should extend beyond the nursery after despatch, allowing for a full recall in the event that any pest and or disease problems may subsequently manifest themselves in the landscape.

POLICY 4 - The Woodland Estate

Any management we undertake in our woodland estate will conform to sustainable forest management principles, be appropriate for the site and will be balanced with the multipurpose objectives of biodiversity, recreation, access, education, geodiversity and landscape value, and helping to offset the impacts of climate change.

Our woods vary hugely. Some sites are much more valuable and sensitive (ecologically, culturally and/or visually) than others and the amount and type of management undertaken needs to reflect this. However, we also recognise that our woods must deliver an income from sustainable harvesting of wood products, such as timber and biomass, to support management and improvement works across the whole estate.

Doncaster Council's woodland estate provides free public access and we will seek to ensure that sites are safe and welcoming for visitors through carrying out regular safety inspections of infrastructure (e.g. car parks, boundary fenestration, paths and signs).

Woodland sites perform a range of qualitative functions. Whilst each wood will contribute to more than one function, knowing the priority objective for each site helps to create a decision hierarchy when setting work priorities in woodland management plans, which will be produced for every site.

A cornerstone of our woodland management strategy is the network of key managed woods. A key managed wood is defined as one "whose objectives will only be achieved through active woodland management and which is therefore a priority for the attention of the Council".

These key managed woods offer the best opportunity for delivery of overall woodland objectives by the quickest possible means, and will help support management of the remaining estate through income generation and are, therefore, the main focus of management.

The majority of silvicultural management will be through thinning. Whilst these works will provide an income, we must also recognise opportunities to exploit the commercial potential of single-species, non-native plantations in some of our woods, which have the potential for a greater economic return for reinvestment in woodland management and infrastructure improvements. Therefore, in some situations, we will undertake clear felling or select felling (and restocking) where the landscape impact will be limited.

Woodland often provides appropriate conditions for species of open ground habitats that are threatened in the wider landscape, so we will seek to restore and maintain existing rides and glades and, where appropriate, create new ones to enhance biodiversity and enjoyment for visitors.

Many woodland sites are relatively undisturbed and conserve historical or cultural features, such as remnants of charcoal and saw pits, historic boundary ditches and more modern buildings (e.g. ice houses). We will seek to protect these features and, where appropriate, provide interpretation for the benefit of visitors.

Conserving existing veteran trees is of great importance for biodiversity and a habitat priority in the Doncaster Biodiversity Action Plan. A veteran tree is a tree that is “of interest biologically, culturally or aesthetically because of its age, size or condition” [REF 13]. One of their key values is the amount and variety of deadwood they provide which is, in turn, an important resource for rare fungi and insects. We will manage our woods to protect and nurture veteran trees, for example by removing vigorous plantation trees that are overshadowing them, and to increase the presence of deadwood habitat.

POLICY 5 - Protecting Trees

Doncaster Council will seek prosecution of and / or compensation from any person or organisation responsible for causing malicious damage to or removing any Council owned tree(s) or for the theft of timber from its land.

Ideally we would like there to be no incidences of damage to trees on Doncaster Council land. However, the perceived value of trees varies greatly amongst Doncaster’s residents and communities and the public tree resource is being placed under increasing pressure as a reaction to real or perceived problems related to trees (e.g. perceived fear of tree failure or blocking of sunlight) and increased contact with human activity (e.g. land development and installation of utility services).

Malicious damage includes the unauthorised pruning or felling of a mature or semi-mature tree or the wanton vandalism of a newly planted tree on Council owned land, and may constitute criminal damage. In addition, with the increasing popularity of wood burners the theft of timber from our woodland estate is becoming an increasing problem.

We encourage local communities to report incidents of vandalism or illegal felling or pruning of Council trees. Incidents should be reported to South Yorkshire Police on their non-emergency number: 101 and then reported to the Council’s tree team via the contact centre.

We will investigate all incidents of alleged damage or theft to us and make a reasoned decision whether it merits further action. In making this decision, the decisive issue is whether the damage has unacceptably affected the wider public amenity. Where appropriate, we will calculate a

monetary valuation for the amenity of a damaged tree () or for stolen timber to assist in making a decision and to support any prosecution.

Even though a successful prosecution cannot remedy the damage caused it can have an important deterrent effect and we will publicise incidents to increase public knowledge as a deterrent to others.

UTILITY SERVICE MAINTENANCE AND INSTALLATION

Utility companies have a statutory right of undertakers to carry out works within the public highway in order to provide and maintain their apparatus. There is no need for damage to be caused by the installation and maintenance of utilities if work is properly planned, taking account of the presence of trees. However, there have been several instances of work leading to extensive root damage to trees.

We cannot unreasonably withhold permission for utility maintenance work but expect that the National Joint Utility Group (NJUG) guidelines [REF 14] are followed in all work around trees. All statutory undertakers have voluntarily signed up to this industry code of practice.

If a tree is damaged by utility works to a degree that can be remediated without tree removal then the utility contractor will be pursued for the full costs of remedial works.

If a tree is damaged to a degree that requires removal then the contractor will be pursued for the full costs of remedial works including tree and stump removal and replacement planting at a rate proportionate to the trunk diameter of the damaged tree ().

POLICY 6 - Tree Management Standards

All staff employed in the inspection and maintenance of trees on Doncaster Council land will be appropriately trained and all work will be specified and undertaken in accordance with current arboricultural best practice.

Tree work requires a high degree of skill and will only be specified and undertaken on Doncaster Council land by well trained and competent arborists.

All tree maintenance work will be specified and carried out to comply with current best practice for arboricultural operations [REF 15] and the policies set out in the Tree Policy and Tree Risk Management Plan for Doncaster Metropolitan Borough Council's Trees and Woodlands.

Maintaining an appropriately qualified and competent tree inspection and maintenance team is critical to the defensibility of the tree risk management plan. All our staff employed for the purpose of inspecting, managing and maintaining trees on Doncaster Council land are trained and competent to carry out all arboricultural operations relevant to their role. These competencies are kept up to date through regular training and updating of qualifications.

All woodland (silvicultural) work will be specified and carried out to comply with the UK Forestry Standard [REF 16] and Forest Industry Safety Accord [REF 17] guidelines. All contractors working in Doncaster Council woodland sites will be vetted through the procurement process.

POLICY 7 - Private Trees

The Council will aim to inform private tree owners of their legal responsibilities with regard to their trees and will, where appropriate, use its statutory powers to implement works to privately owned trees in the interests of public safety.

As well as its legal 'duty of care' to consider the risks posed by trees on its own land, Doncaster Council has responsibilities under the Highways Act, and powers under the Local Government (Miscellaneous Provisions) Act and in common law, to ensure that members of the public are not put at risk by trees on privately owned land.

Where concerns are raised about the safety of a privately owned tree, a site visit will be made and a routine tree survey carried out. Where clear and present signs of immediate instability (i.e. uprooting or other structural failure) are found the tree owner will be notified and advised what remedial work is necessary and given a timescale for completion.

Where defects that are not imminently hazardous are found or suspected Doncaster Council has no powers to intervene, but will seek to advise tree owners of their duty of care with respect to trees on their land.

Whilst it is not possible to anticipate every situation, table B1 at Appendix B will be used to guide decisions on what action Street Scene will take following allegations of dangerous trees on privately owned land and whether the Council will seek to recover its costs from the land owner.

12. COMMON LAW RIGHTS

In the English legal system, 'Common Law' refers to laws that have been developed through precedent set by similar court cases, as opposed to being created through legislative statutes. Under English Common Law, property owners have a right to remove (abate) the nuisance associated with trees encroaching onto their property.

The following advice is given for someone wishing to exercise their Common Law right with respect to the encroachment of Council owned trees:

- you can only consider removing those parts of the tree from the point where they cross the boundary of your property and have no legal right to cut or remove any part of a tree that does not overhang your property;
- legally, you do not own the encroaching branches, although, Doncaster Council does not require, nor expect, to have these returned and you should make appropriate arrangements to dispose of them yourself (e.g. in your green bin);
- you are strongly advised to consult a professional arborist for guidance on how best to prune back encroaching trees, unless the works are such that you could do them with hand secateurs or similar; o there is no legal right of access to Doncaster Council land to undertake tree work;
- unauthorised persons are not allowed to use a chainsaw or other power tools and equipment in parks or public open spaces; and
- before you consider doing any works to a tree you should find out if it is protected by a Tree Preservation Order or within a Conservation Area as you will need to get consent from the Local Planning Authority for any works if the trees are protected.

Failure to follow the above guidance when pruning a Council owned tree may be classed as malicious damage and may result in enforcement action (policy 5; as below) or a hefty fine if a tree is protected.

13. RISK MANAGEMENT

QUANTIFYING RISK

In order to make proactive inspections of all Council owned trees as efficient and effective as possible, an inspection method, known as Quantified Tree Risk Assessment (QTRA)[REF 18], has been adopted.

According to the method's author and developer, QTRA and tree safety management is in essence:

“A matter of limiting the risk of significant harm from tree failure whilst maintaining the benefits conferred by trees. Although it may seem counterintuitive, the condition of trees should not be the first consideration. Instead, tree managers should consider first the usage of the land on which the trees stand, which in turn will inform the process of assessing the trees.”

The QTRA system applies established and accepted risk management principles to tree safety management. Firstly, the targets (people and property) upon which trees could fall are assessed and quantified, thus enabling tree managers to determine whether or not and to what degree of rigour a survey or inspection of the trees is required. Where necessary, the tree or branch is then considered in terms of both impact potential (size) and probability of failure. Values derived from the assessment of these three components (target, impact potential and probability of failure) are combined to calculate the probability of significant harm occurring.

The system moves the management of tree safety away from labelling trees as either 'safe' or 'unsafe', thereby requiring definitive statements of tree safety from either tree surveyors or tree managers. Instead QTRA quantifies the risk of significant harm from tree failure in a way that enables tree managers to balance safety with tree value and operate to a predetermined limit of reasonable or acceptable risk.

In terms of acceptable risk, the Health and Safety Executive (HSE) suggests that the threshold of acceptable risk should be set at 1/10,000 per annum for members of the public who “have a risk imposed on them in the wider interest [REF 19]”. (Health and Safety Executive (2013) Management of the risk from falling trees or branches. SIM 01/2007/05, available at: http://www.hse.gov.uk/foi/internalops/sims/ag_food/010705.htm)

On the basis of this, Doncaster Council has adopted 1 in 10,000 as its threshold of acceptable annual risk from any particular tree hazard. It is the intention of this policy to implement a system of proactive inspection of trees to identify those with a risk of harm greater than 1 in 10,000 and use current resources to reduce those risks to an acceptable level through appropriate tree maintenance practices

TREE INSPECTION

Tree inspections will be carried out only by trained, competent and qualified Tree Officers (policy 6) using the following inspection hierarchy (see right):

Explanation of the tree inspection processes and outcomes is set out at Appendix A.

As well as identifying trees with a risk of harm greater than 1 in 10,000, proactive inspections allow tree managers to identify emerging issues and specify appropriate remedial works to remove a potential structural weakness, obstruction or actionable nuisance before it develops, and to actively monitor the tree stock for the presence and spread of pests and diseases.

Level 1: Routine Tree Inspection

A basic proactive or reactive visual inspection

Level 2: Individual Tree Risk Inspection

A thorough ground-based inspection of defects identified or suspected during a 'routine tree inspection'

Level 3: Detailed Tree Inspection

Performed to provide detailed information about specific tree parts, defects, targets or site conditions

DECISION PATHWAY

Where a Level 3 inspection may lead to significant intervention or felling and replacement, a Decision Pathway will be followed (see Appendix for example, final format to be confirmed) that will provide a step-by-step process to be followed. Evidence for the completion of each step will be recorded in a register, which will then be used to inform any notification, consultation or communication with local stakeholders

RISK ZONING

For a programme of proactive tree inspections to be manageable and cost-effective, most resources need to be focussed in areas where there is potentially most risk to people and property. One of the greatest benefits of QTRA is that it enables an informed overview of the risks associated with a tree population to be carried out as a desktop exercise before a survey of the trees.

This initial 'target' analysis is achieved by placing sites within common categories of target value and occupation as set out in table 2. Large sites (e.g. parks) may contain two or more different risk zones dependant on nearby targets. Each tree is visited at the frequency determined by the allocated risk zoning of its location, or at an increased frequency where dictated by an individual tree risk survey.

Table:

| Risk Zone Categories | Example Target Criteria | Inspection Frequency |
|-----------------------------|---|-----------------------------|
| High Risk Zone | <ul style="list-style-type: none"> o major infrastructure including, strategic distributor 'A' class roads, busy junctions prone to standing traffic and land adjacent to railways and motorways; and o areas of high density pedestrian use including town centre pedestrianised areas, busy parks and children's playgrounds. | 2 years |
| Moderate Risk Zone | <ul style="list-style-type: none"> o other 'A' class roads and principle 'B' class roads; o medium density pedestrian use including parks; o sheltered housing and open-plan housing estates. | 3 years |
| Low Risk Zone | <ul style="list-style-type: none"> o other classified and busy rural roads; o low density pedestrian use including public open space; o enclosed housing estate gardens; and o industrial estates. | 5 years |
| Very Low Risk Zone | <ul style="list-style-type: none"> o other rural roads and unsurfaced roads; o isolated green spaces; o woodland paths/tracks. | 5-10 years |

14. TREE VALUATION

The Town and Country Planning Act introduced the concept that trees have a public amenity value. However, it does not prescribe how their value should be estimated.

Street Scene has adopted the Capital Asset Value for Amenity Trees (CAVAT) methodology, which is widely used in UK arboriculture as a valuation tool for amenity trees, and will use it to assess the value of a tree following malicious damage in support of a prosecution or claim for compensation. CAVAT has also been designed to allow integration with computerised tree inventories to express the value of a tree population as a whole and analyse how the value of the tree stock changes over time, and in particular how that relates to investment. Used in this way it will enable the effective demonstration of productive and cost effective use of financial resources, and provide an argument to safeguard the budget for continued tree planting and management.

CAVAT quantifies a tree's value as a general public asset, focusing on the wider benefits of trees to communities, rather than pure visual amenity or as the property of the Council. It calculates a value for the tree expressed in monetary terms as the **cost of replacement**; i.e. how much would need to be spent on new planting to give effective compensation for the loss of a tree, or a number of trees, based on the size of trunk area of an existing tree. That value is modified primarily by how strongly a tree contributes to public amenity using:

- public accessibility of a tree;
- its townscape and visual importance; and
- other factors, including its life expectancy and health.

CAVAT requires a significant amount of knowledge of the growth of trees and species' differences to value a tree reliably. All staff undertaking tree valuations will be appropriately trained and competent for the task.

CAVAT is not used where removal is deemed essential for safety reasons.

15. PESTS AND DISEASES

At a time of growing concern about the increasing threat of tree pest and disease epidemics worldwide, the Dutch Elm Disease (DED) outbreak of the late 1960s and early 1970s is a salutary reminder of the potentially devastating impact of a major tree disease outbreak, having resulted in the demise of an estimated 30 million elm trees across Britain by 1985. DED is still endemic in the borough.

We will actively monitor our tree stock for the presence and spread of tree pests and diseases and report the presence of any notifiable, significant or new pest/disease outbreaks to DEFRA and the Forestry Commission in order to identify and put in place a programme of preventative and remedial work. Sanitation felling to halt the spread of pests and diseases will only be undertaken where supported by the current advice of the appropriate Government agency. Any diseased tree that poses an unacceptable risk to persons or property will be removed in accordance with policy guidelines.

16. TREE REPLACEMENT REQUIREMENTS

Where trees are removed in the course of risk management or routine arboricultural operations replacement planting will be undertaken on a one-for-one basis, with new trees normally specified at heavy standard nursery stock size, as defined by British Standard 3936 Nursery stock -Part 1: Specification for trees and shrubs.

The number of replacement trees required to compensate for the removal of trees for other reasons, such as a road improvement scheme or as a result of root damage from utility works, will depend upon the size of the tree(s) being lost and is set out in table 3.

Table 3: Replacement Tree Planting Requirements

| Trunk Diameter of Felled Tree (cm measured at 1.5 metres) | Number of replacement trees (heavy standard nursery stock 12 – 14 cm trunk diameter) |
|--|---|
| Less than 19.9 | 1 |
| 20-29.9 | 2 |
| 30-39.9 | 3 |
| 40-49.9 | 4 |
| 50-59.9 | 5 |
| 60-69.9 | 6 |
| 70-79.9 | 7 |
| 80+ | Determined by Amenity Valuation |

Number of Replacement

This table has been adapted from the Bristol Tree Replacement Standard that has become widely used by Local Authorities.

It is recognised that replacement trees may take some years' growth before providing the full environmental, social and economic benefit that was provided by the tree removed. Some of the carbon stored may be retained where harvested wood is used for example in construction or the production of biochar.

Doncaster Council is committed to ensuring net increases in the overall volume of trees in the Council's Care, and will be compiling an annual report on the basis of available data to estimate changes in the carbon storage and sequestration potential of the tree stock.

17. CONSTRAINTS ON TREE MANAGEMENT

There are a number of legal constraints that must be complied with when Street Scene is planning tree work, which includes:

PROTECTED TREES

Where trees or woods have been protected by a Tree Preservation Order (TPO) under the Town and Country Planning Act the owner requires the formal consent of the Local Planning Authority before starting any work. Doncaster Council is not exempt from this requirement and must apply for consent to prune or fell any tree on its land that is subject to a TPO, except for emergency work. This process can take 8 weeks to complete.

Whilst Doncaster Council is not required to give the Local Planning Authority six weeks written notice prior to carrying out any work to a tree on its land within one of the borough's 46 Conservation Areas we must ensure that tree work does not have an adverse impact on the 'special character and appearance of the conservation area'. To do this, we will always consult the Local Planning Authority prior to undertaking tree removal, except in an emergency.

FELLING LICENCE

Under the Forestry Act 1967 felling trees in certain locations, including woodland and street trees, requires consent in the form of a felling licence from the Forestry Commission. (Tree felling: Getting Permission, Forestry Commission 2020, sourced from <https://www.gov.uk/government/publications/tree-felling-getting-permission>)

The licence application requires xyz

There are however exemptions for the requirement for a felling licence, which may include

- Prevention of danger or prevention or abatement of a nuisance.
- Immediately required for the purpose of carrying out development authorised under the Town and Country Planning Act 1990.
- Carried out by a statutory undertaker (e.g. a Utilities)
- In compliance with any obligation imposed by or under an Act of Parliament such as Highways Act 1980 to maintain public highways.

Doncaster Council will always consider application for a felling licence prior to felling trees, considering exceptions to this in liaison with the Forestry Commission.

For a felling licence or exemption, each tree needs to be considered individually for the obstruction, risk or damage it proposes.

Where an exemption is used, Doncaster Council will keep a record of the full details of the tree removed and the rationale.

DECISION PATHWAY

The process for assessing and reaching the decision to fell will follow the steps laid out in the Decision Pathway (see Appendix for illustration – final version to be confirmed) and will be recorded in a Register, which will include the reason for felling and details of the relevant felling licence or exception at section 9 of the Forestry Act under which felling has been carried out.

ENGINEERING SOLUTIONS

Forestry Commission Guidance: Highways Tree Management Operation Note 051 recognises the value of street and urban trees and emphasises the need to properly maintain trees which can avoid the need for felling, and to look at a range of engineering and maintenance solutions that can be applied throughout a trees' life that allow both trees and the highway to mutually co-exist.

Doncaster Council, in applying the principle of minimal tree removal, will always consider the range of appropriate engineering solutions that may prevent felling of street or urban trees

Appendix B contain a list of potential engineering alternatives to street tree removal to be used as reference within the Decision Pathway. It should be noted that this is not a definitive list and that arboricultural good practice and highways maintenance methods resources and technologies will develop over time. This list will be updated as necessary.

BIRDS

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to kill, injure or take wild birds, their young, their eggs or nests and, for bird species listed in Schedule 1 of the Act, to disturb them whilst building or using a nest. For this reason, Doncaster Council will only consider removing or pruning coniferous tree species or undertaking woodland management outside of the bird nesting season and will not undertake any tree work where active bird nests are identified during pre-start checks.

BATS

Bats are a European Protected Species and all species are protected by the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). Causing damage to or destroying a roost site is a criminal offence which can lead to imprisonment or fine. Trees in Doncaster Council ownership with signs of potential roost features will be subject to assessment by an Ecologist before any work commences. The consent of Natural England is required before any work on a tree supporting roosting bats can be started.

18. CONCLUSIONS, ACTIONS AND MONITORING

This document implements the aims and headline principles set out in Theme 2: Trees and Woodlands of the Doncaster Green Infrastructure Strategy 2014-2028 where they apply to trees on Doncaster Council land and specifically describes the way that Street Scene will manage the municipal tree resource around the central tenet of 'reasonable risk management', to maximise the benefits that trees provide, keep the risk they pose within acceptable limits to ensure that Doncaster's people and communities derive benefit with an improved quality of life, and to provide value for money.

19. ACTION PLAN

Five-year Priorities (2020-2024):

- complete work to record and map all trees on parks & open spaces and highways land;
- complete the first tranches of the routine tree survey and proactive tree works programmes and expand to other areas as mapping is completed;
- initiate service level agreements for tree management with other Council departments and institutions (e.g. schools) and start recording and mapping trees;
- complete broad condition assessments of public woodland estate and review / prepare management plans (policy 4); and
- complete an assessment of urban tree canopy cover across Doncaster borough and a valuation of the public tree stock ().

ANNUAL MONITORING

The effectiveness of the plan will be monitored annually against the following targets and results published on the Council's website:

- progress on implementing the action plan () in line with published timescales;
- the percentage of tree work undertaken by Street Scene as an emergency;
- the percentage of routine tree surveys completed before the specified inspection date;
- the percentage of reactive tree surveys completed within 24 hours (emergency) and 12 days (other enquiries) of receipt;
- the percentage of tree work undertaken by Street Scene as planned systematic work;
- the number of trees removed and replacement trees planted;
- the percentage of newly transplanted trees receiving systematic maintenance until independence in the landscape;
- the percentage of sites in the public woodland estate under positive conservation management;
- the number of enforcement incidents on Council owned trees;
- changes in the composition of the public tree stock and tree canopy cover.

FIVE YEAR REVIEW (2024)

The Tree Risk Management Plan and tree management policies will be reviewed in light of:

- changes to Council policy;
- changes in industry best practice;
- emerging threats (e.g. pest and disease or 5G infrastructure);
- changes in QTRA methodology;
- changes in legislation, legal judgments and emerging case law relating to tree risk management;
- a review of training and competence of council staff engaged in tree inspection and maintenance;
- annual monitoring data;
- a review of asset data relating to the municipal part of the urban forest; and
- a review of the action plan ().

20. Appendix A - Outline Decision Pathway – for illustrative purposes only

| Inspection | Routine or specific | |
|--|---|--|
| | Professional inspection and judgement and assessment against criteria and policies | |
| Step 1 No action | - | No action required |
| | | |
| Step 2 Limited action | e.g. Routine pruning | Notification through signs on trees and notice on web-site |
| | Professional inspection and judgement | |
| Step 3 Remedial intervention necessary | e.g. Severe pruning | Notification through signs on trees and notice on web-site. If major works for a significant tree or an avenue then prior notice and possible consultation |
| | e.g. Pollarding | Notification through signs on trees and notice on web-site. If major works for a significant tree or an avenue then prior notice and possible consultation |
| | Professional inspection and judgement | |
| Step 4 Remedial intervention necessary | e.g. Crown lifting | Notification through signs on trees and notice on web-site. If major works for a significant tree or an avenue then prior notice and possible consultation |
| | | |
| Step 5 Consideration of engineering solutions to structural problems | See Appendix 1 | Notification through signs on trees and notice on web-site. If major works for a significant tree or an avenue then prior notice and possible consultation |
| | Tomography or other specialist inspection | |
| Step 6 Solutions not feasible or viable | Potential removal & replacement | Notification through signs on trees [if time-line allows] and explanatory notice on web-site. If major works for a significant tree or an avenue then prior notice and consultation essential except in the case of emergencies |
| | | |
| Step 7 Emergency works | e.g. Severe pruning | Notification through explanatory notice on web-site. |
| | e.g. Removal | Notification through explanatory notice on web-site. |
| | e.g. Intervention on fallen tree or branches of | Notification through explanatory notice on web-site. |
| | | |
| *Note for certain works a Forestry Commission felling license may be required; and subject to the current Environment Bill at Parliament, a public consultation may be necessary for major local authority felling programmes. | | |

21. Appendix B – Potential engineering alternatives to street tree removal

It should be noted that this is not a definitive list and that arboricultural practice and highways maintenance methods resources and technologies will develop over time.

| Sensitive Engineering Solutions | |
|--|---|
| 1 | Installation of thinner profile kerbs |
| 2 | Excavation of footways for physical root examination prior to an ultimate decision being made on removal |
| 3 | Ramping/ Ro-profiling of footway levels over roots (within acceptable deviation levels). |
| 4 | Flexible paving/ surfacing solution |
| 5 | Removal of displaced kerbs leaving a gap In the channel |
| Tree based Options | |
| 6 | Root pruning |
| 7 | Root Shaving |
| 8 | Root Barriers and Root guidance panels |
| 9 | Excavation beneath the roots damaging the footway |
| 10 | Tree Growth Retardant |
| 11 | Creation of larger tree pits around existing trees |
| 12 | Heavy tree crown reduction / pollarding to stunt tree growth |
| 13 | Retain dead, dying, dangerous and diseased highway trees for their habitat value |
| Other non-engineering solutions | |
| 14 | Line markings on the carriageway to delineate where it is not safe to drive or park |
| 15 | Building out kerb line into carriageway |
| 16 | Footpath Deviation around the tree |
| 17 | Installation of a Geo-grid under the footway to reduce reflective cracking |
| 18 | Reconstruction of the path using loose fill material rather than a sealed surface |
| 19 | Filling in of pavement cracks |
| 20 | Reduce the road width and widen the footways as well as converting them to grass verges |
| 21 | Close a road to traffic |
| 22 | Change to contract specification to leave the footways as they are without carrying out any repairs and removing trip hazards |
| 23 | Abandonment of the existing footway In favour of construction of a new footway elsewhere |
| 24 | Permanent closure of footways to pedestrians. Dig up and replace as grass verges. |
| 25 | Seeking the views of residents about removal where that is considered by the Council to be the only option and getting the residents to sign a legal agreement regarding accepting liabilities. |

22. Appendix C - GLOSSARY OF FREQUENTLY USED TERMS

Crown

Crown lifting

Engineering solution

Felling licence

Pollarding

Pruning

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