HALTON
BOROUGH COUNCIL

A Strategy for Halton's Trees and Woodlands

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1. INTRODUCTION

Trees are often seen as static objects in the environment. They are sometimes referred to as “street furniture”. However, they are much more than that. They are dynamic living systems that have evolved with remarkable resilience, enabling them to adapt to challenges such as limb loss, changing of environment, and many fungal and bacterial diseases. They can respond and adjust to the changing conditions of their surroundings and their own structure. There is now a large body of evidence supporting that trees play a cost effective and crucial role in enhancing people's quality of life, supporting the local economy, and preserving the natural environment not only for the individual but also society as a whole (Trees and Design Group (TDAG), 2021). As humankind is becoming more urbanised than ever before and with the England having over 80% of its population living in an urban setting (Government Office for Science, 2021), it is now more important than ever for us to make trees a key component of our infrastructure. It is essential to urban society that we find a delicate balance, to ensure that the natural processes of trees do not pose risks to the safety of individuals and property all whist we are able to maximise the benefits trees provide us.

The importance of trees has been emphasised by several government reports including a national survey of England’s urban trees and their management entitled Trees in Towns II, published in February 2008 and in December 2011, the National Tree Safety Group released its guidance on how tree owners should approach tree safety management (3.3 refers). More recently, the Government’s England Trees Action Plan 2021, highlighted the many benefits of trees which included climate change mitigation and nature recovery.

Under the Occupiers Liability Act 1957, it is the legal responsibility of the landowner to carry out reasonable tree risk assessment and ensure that any foreseeable hazards are identified and made safe as soon reasonably possible. It is not always possible to completely eliminate the risks associated with trees, but there are often some indicators that may be used to identify an increased risk. These could be crown dieback, structural faults or decay sites, including pathogenic pests or diseases. Qualified arboriculturists can conduct thorough investigations to address these issues effectively and this tree and woodland strategy will help us to make evidence-based decisions on how we manage our trees and woodlands.

Halton Borough Council acknowledges the paramount importance of safety when it comes to managing our trees. We are committed to developing a harmonious relationship between public safety and our tree population by promoting the local benefits that trees provide but not at the expense of public safety. Trees offer numerous benefits to society, ranging from aesthetic appeal to social cohesion, economic value, and health advantages.

They reduce noise pollution, provide shade and cooling, filter pollution, and improve air quality. They also support wildlife and biodiversity, enhance property values, provide recreational opportunities and improve people’s mental and physical health.

Therefore, let us work together to protect and enhance our natural environment while also promoting safety and prosperity for our communities. By doing so, we can ensure that we enjoy the benefits of a healthy and thriving urban forest while minimizing the risks associated with trees.

1.1 BENEFITS OF TREES

- Trees play a vital role in urban and rural ecosystems by helping to support a great variety of wildlife.
- A large beech tree can provide enough oxygen for the daily requirements of ten people.
- Property in tree lined streets is worth 18% more than in similar streets without trees.
- Trees intercept water, store some of it and reduce storm runoff, and the possibility of flooding.

- Trees help to lock up the carbon emissions that contribute to global warming. For example, 1 hectare of woodland grown to maturity and looked after forever would absorb the carbon emissions of 100 average family cars driven for one year (Climate Care/Trees for Cities estimate).
- Trees have a positive impact on the incidence of asthma, skin cancer and stress related illness by filtering out polluted air, reducing smog formation, shading out solar radiation and provide an attractive, calming setting for recreation.
- Trees can also save up to 10% of energy consumption through their moderation of the local climate.

1.2 EXECUTIVE SUMMARY

Halton Borough Council changed the way it manages its trees in following the adoption of the policy document A Strategy for Halton's Trees and Woodlands in 2018. This new approach focussed resources into the management of trees that are in Council ownership by routinely inspecting trees in accordance with a risk-based methodology. If during an inspection, a tree poses an unacceptable risk of harm to people or property, remedial work will be carried out. The Council now only prunes or removes trees for sound arboricultural reasons and is no longer be able to routinely respond to requests for tree works for any reasons other than safety or the prevention of damage. The Council will however seek to act as a "good neighbour"; officers will treat enquiries with diligence and respect, and in some cases action resident requests where appropriate in keeping with the themes of this strategy. The Council will inspect, undertake remedial works, and respond to tree enquiries according to urgency. Timescales are proposed in this document and should be adopted as standard.

1.3 VISION STATEMENT

Halton Borough Council is committed to protecting and enhancing our urban forest. Our goal is to ensure that future generations can benefit from the natural capital that a healthy treescape can bring. By 2030, we will have a comprehensive understanding of the trees and woodlands in our Borough. We will also work with partners across the Liverpool City Region to identify and protect our ancient woodlands and veteran trees. This will be achieved by collecting data through monitoring and routine inspections of trees. The information obtained will enable us to make evidence-based decisions regarding our tree management practices. Additionally, it will provide us with a better understanding of the ecosystem services that these trees provide and how we can maximize their benefits to the Borough.

1.4 WHAT IS THE HBC TREE AND WOODLAND STRATEGY?

Halton Borough Council has developed and implemented a comprehensive framework known as the HBC Tree and Woodland Strategy. This strategy aims to guide the management, conservation, and enhancement of the trees and woodlands within the Borough. Additionally, it aims to promote sustainable practices, protect existing trees and woodland, and encourage the creation of new ones. The Tree and Woodland Strategy outlines the Council's aims and actions to ensure the future of the treescape, as well as the benefits it will provide to the environment, public health, communities, and wildlife.

1.5 WHY DOES HALTON BOROUGH COUNCIL NEED A TREE AND WOODLAND STRATEGY?

With the UK Government target of increasing total tree cover in the UK from 14 to 17% and the emergence of new obligations under the Environment Act 2021, HBC is in a timely position to update our strategy. This will ensure we continue to maintain a high level of commitment to the responsible safe management of our trees and woodlands.

This updated strategy will enable us to maximize the social, economic, and environmental benefits trees provide us as a multifunctional asset and natural resources in our Borough. While the fundamental principles and methodology of the strategy will remain unchanged, the new version will focus on implementing improved evidence-based management and expanding the total canopy cover whilst also expanding our knowledge aiding in understanding our urban forest better. This approach aligns with the targets set by the UK Committee on Climate Change for increasing forestry cover, aiming to enhance the positive impact of our tree stock on the public and the environment.

On October 16, 2019, Halton Borough Council declared a climate emergency, acknowledging the urgent need to mitigate the impacts of climate change at a local level. This led to the development of the Halton Borough Climate Change Action Plan 2022-2027. As part of this plan, a 3-stage action plan for our tree and woodland strategy has been created. This strategy will work alongside other policies, both local and national, such as the upcoming Local Nature Recovery Strategy, The Big Halton Forest, and Biodiversity Net Gain.

2. OBJECTIVES OF THE STRATEGY

Sustainability is at the heart of the Council's long-term aims and this Tree and Woodlands Strategy sets out how the benefits provided by trees and woodlands will be maintained and enhanced. This will include positive steps to consolidate tree stocks and address some of the recurring problems associated with the Council's trees.

The primary aims are summarised as follows:

- To take an evidence-based approach on the management and planting of our trees
- Identify new appropriate planting site.
- Develop effective planting and after care programs for new planting sites to increase tree establishment rate.
- Continue to be a responsible landowner by routinely inspecting the trees on Council owned land that could pose a threat to the public or property.
- Increase our understanding of our tree stock by collecting further data on our collective tree species, size and age and monitoring pathogens.
- Ensure staff's competencies by keeping qualifications and training up to date.
- Raise the awareness of trees as a multifunctional asset and the value they bring to people and the environment.
- Increase community engagement by creating community planting opportunities and tree planting programs.
- Increase the tree canopy cover across Halton by 7%, with priority given to areas with low canopy cover.
- To protect, consolidate and, where necessary, restructure the legacy of established trees and woodland.
- Maximise the ecosystem services provided by the Council's trees.

- To continue to improve our urban forest resilience by increasing our tree species diversity and age range.
- Promote biodiversity and conserve tree and woodland eco-systems.
- Conserve and protect ancient woodland and ancient trees with significant ecological, historical and amenity value.
- Work with partners to expand the woodland cover through sustainable external funding to ensure the delivery of the Council's 'Big Halton Forest' initiative to plant 130,000 new trees across the Borough by 2030.
- Fulfil the Council's duty of care with responsible management of its tree stocks. By using appropriate tree risk management systems like Quantified Tree Risk Assessment (QTRA) and monitor the health and condition of the trees with the aim to keep risks as low as it is reasonably practical to do so.

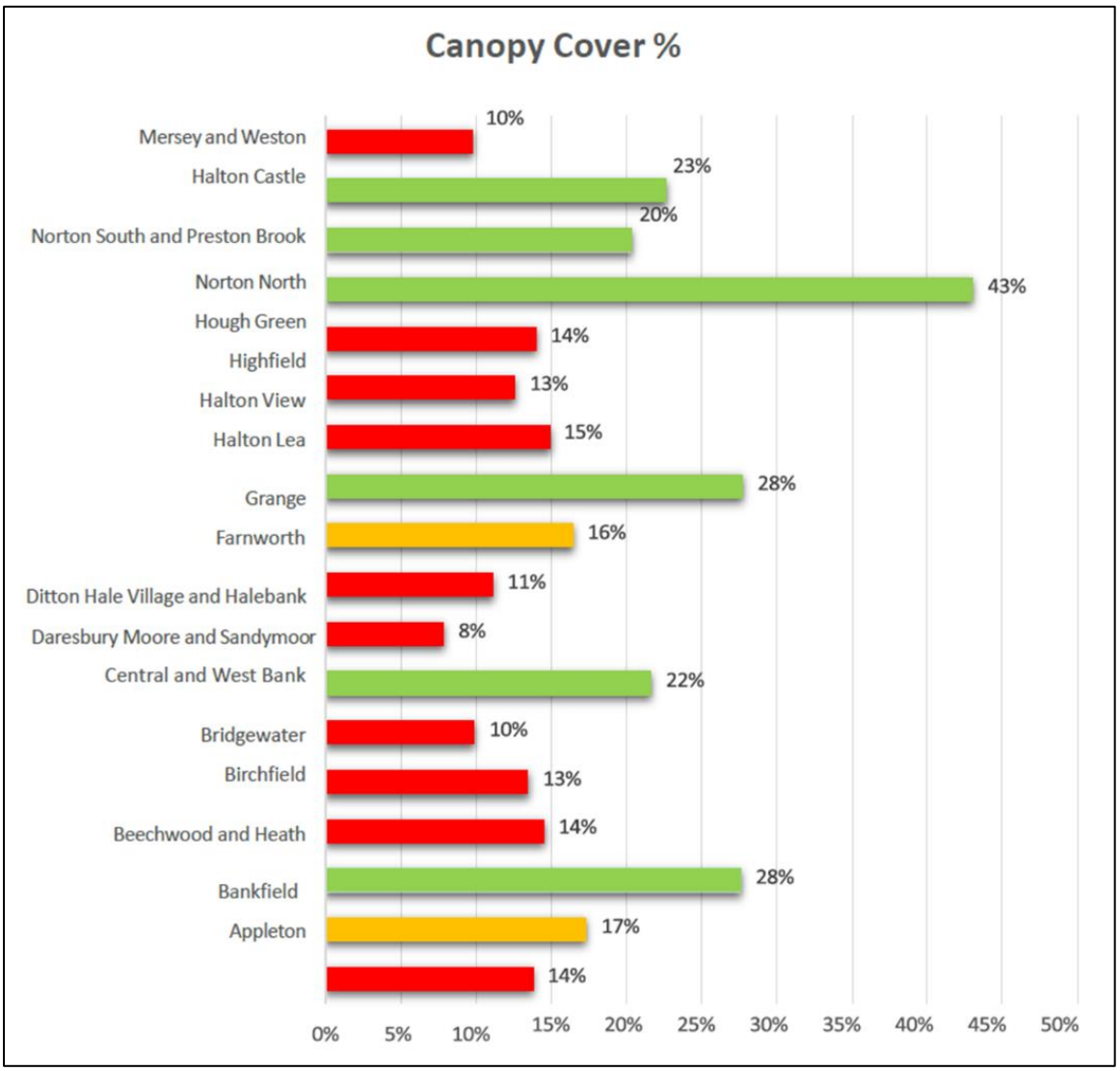
2.1 HALTON'S URBAN FOREST OVERVIEW

Using the most recent data from Bluesky's National Tree Map we have been able to take a more comprehensive look at Halton's urban forest, with the data showing a total canopy cover of approximately 16.2% for the entire Borough. Although HBC canopy cover is slightly higher than the average of other local authorities at 15.8%, there is still room for improvement to achieve the UK Government target of 17.5% canopy cover by 2050. Recent studies have recommended that the UK canopy cover target should be 20% or more (Doick et al., 2017)

Halton, however, boasts a total of 6 wards exceeding the recommended target of 20% canopy cover according to our analysis of the Bluesky data, with Norton North having a total canopy cover of 43%. The data also shows that the Borough has at least 275,000 trees above 3m tall; these trees are spread throughout the 18 wards, all with different varying coverage. Approximately 68,000 of these trees are located on Halton Borough Councils land; this makes Halton Borough Council one the biggest custodians of trees in the Borough.

We have used this information to improve our understanding of the current situation in our urban forest. We have been able to identify the total canopy cover within the Borough, calculate the canopy cover per ward, and identify 12 priority wards where increasing the canopy cover will be most beneficial to the public.

Figure 1: Halton Borough Councils approximate canopy cover in percentage per ward. Wards are displayed with a traffic light system indicating priority. Red top priority, Amber = medium priority, Green = no priority.



We have also used free open-source data provided by the Tree Equity Score UK to investigate the current disparities in Halton's canopy cover and which neighbourhoods are benefiting the most or the least. The information we found has helped us identify neighbourhoods where tree planting efforts will have the most benefit to people's health and wellbeing and climate resilience.

There are multiple factors that can impact an area's priority in addition to canopy cover alone. Our research suggests that factors such as population density, air pollution levels, temperature variation, Tree Equity Score, and Tree Canopy Gap can affect the benefits attained from increasing our canopy cover. By utilizing the open-source data available through Tree Equity Score UK, we have gained a deeper understanding of these benefits.

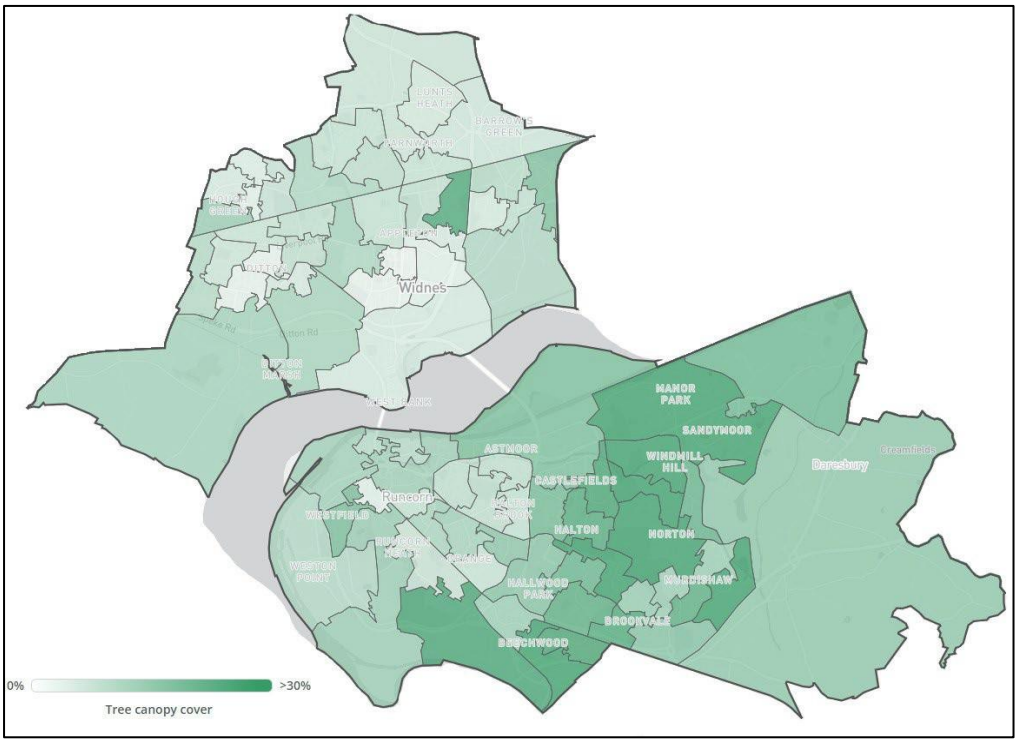
It is important to note that information collected by the Woodland Trust in their Tree Equity Score UK database is based on neighbourhoods, not wards, which may cause some discrepancies when compared to our Bluesky data on based on current wards.

Table 1: Table showing the 12 priority wards in order of canopy cover from lowest to highest; Source data from Bluesky.

Neighbourhoods	Canopy Cover %
Ditton Hale Village and Halebank	8%
Mersey and Weston	10%
Central and West Bank	10%
Farnworth	11%
Highfield	13%
Bridgewater	13%
Appleton	14%
Hough Green	14%
Birchfield	14%
Halton View	15%
Grange	16%
Bankfield	17%

It is important to note that although we have listed our wards based on their canopy cover percentage, we have not determined priority on this metric alone.

Figure 2: Tree canopy cover taken from Tree Equity score UK showing the neighbourhoods with the best canopy cover in darker green and lighter green indicating lower canopy cover.



Projects such as the Big Halton Forest, where the Council and its partners aim to plant 130,000 trees by 2030, will increase our tree equity score from 79 up to 100 by the time the trees reach medium size.

Not only will this increase Halton's tree equity score, but these trees will also contribute to society with their ecosystem services (see Figure 4). It is estimated that around 5.86 sq.-km of canopy expansion is required to reach an increase in canopy cover of 105,095 medium-sized trees. The Borough's current land size is 1,624 sq. km (Halton Borough Council, 2024).

Figure 3: A map of Halton's tree equity score sourced from treeequityscore.org

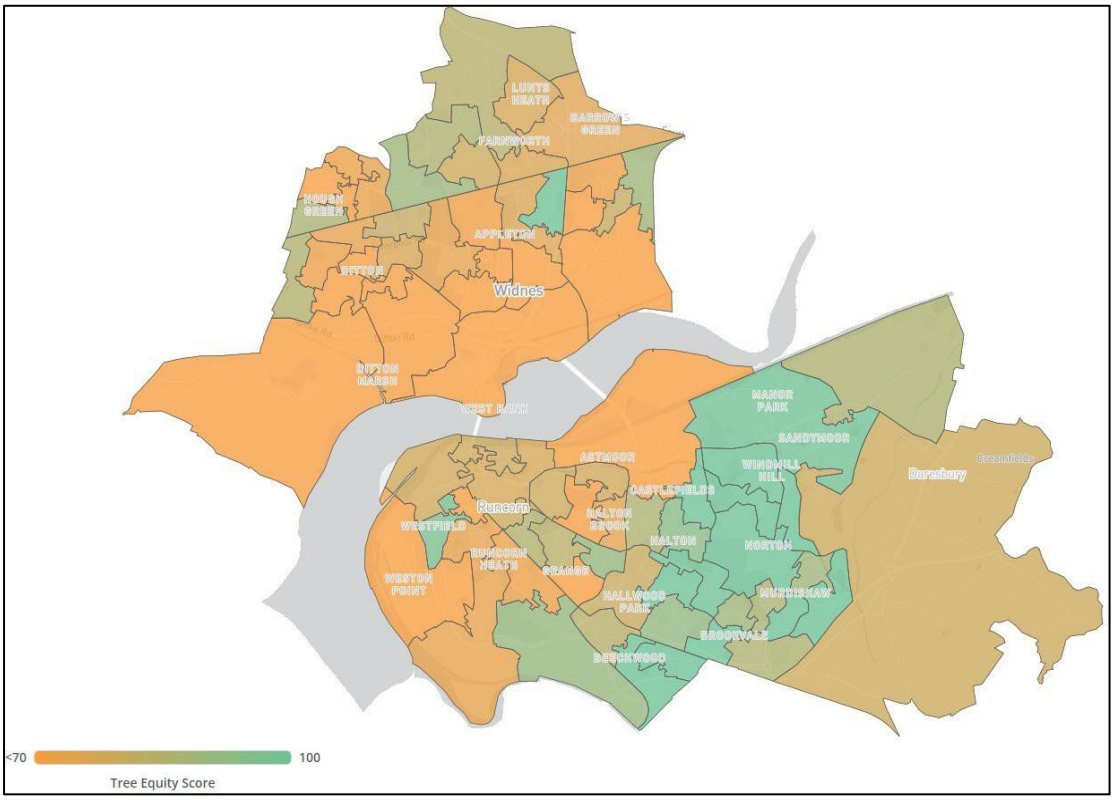
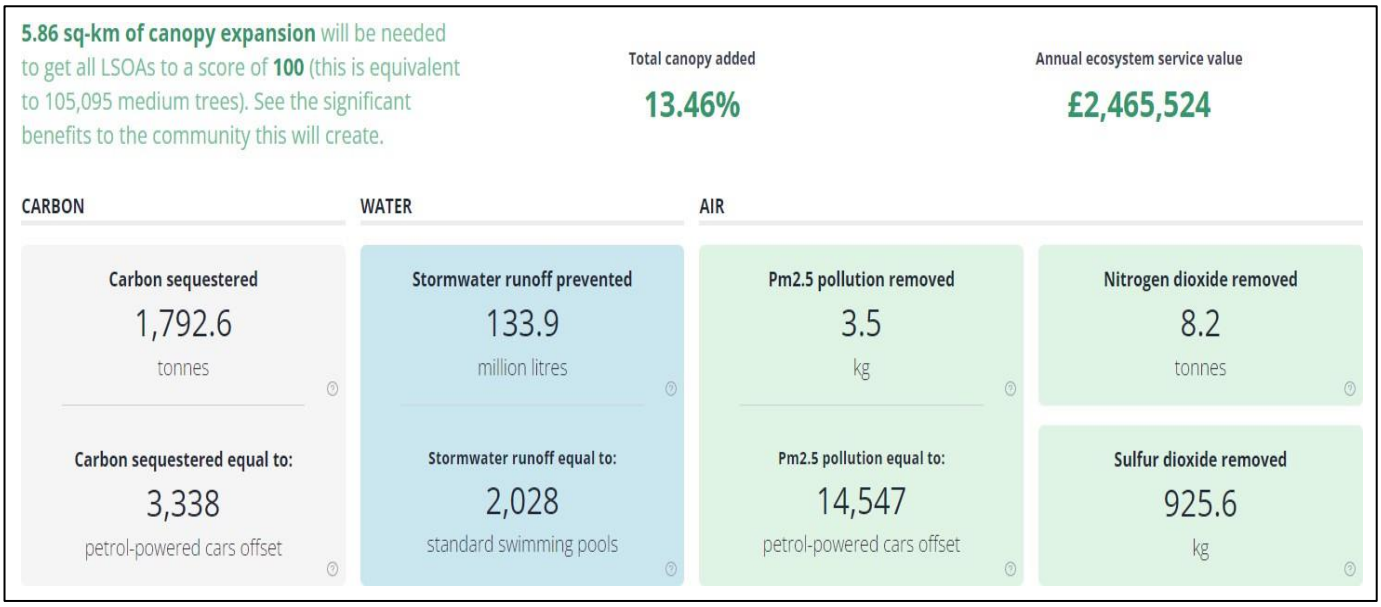


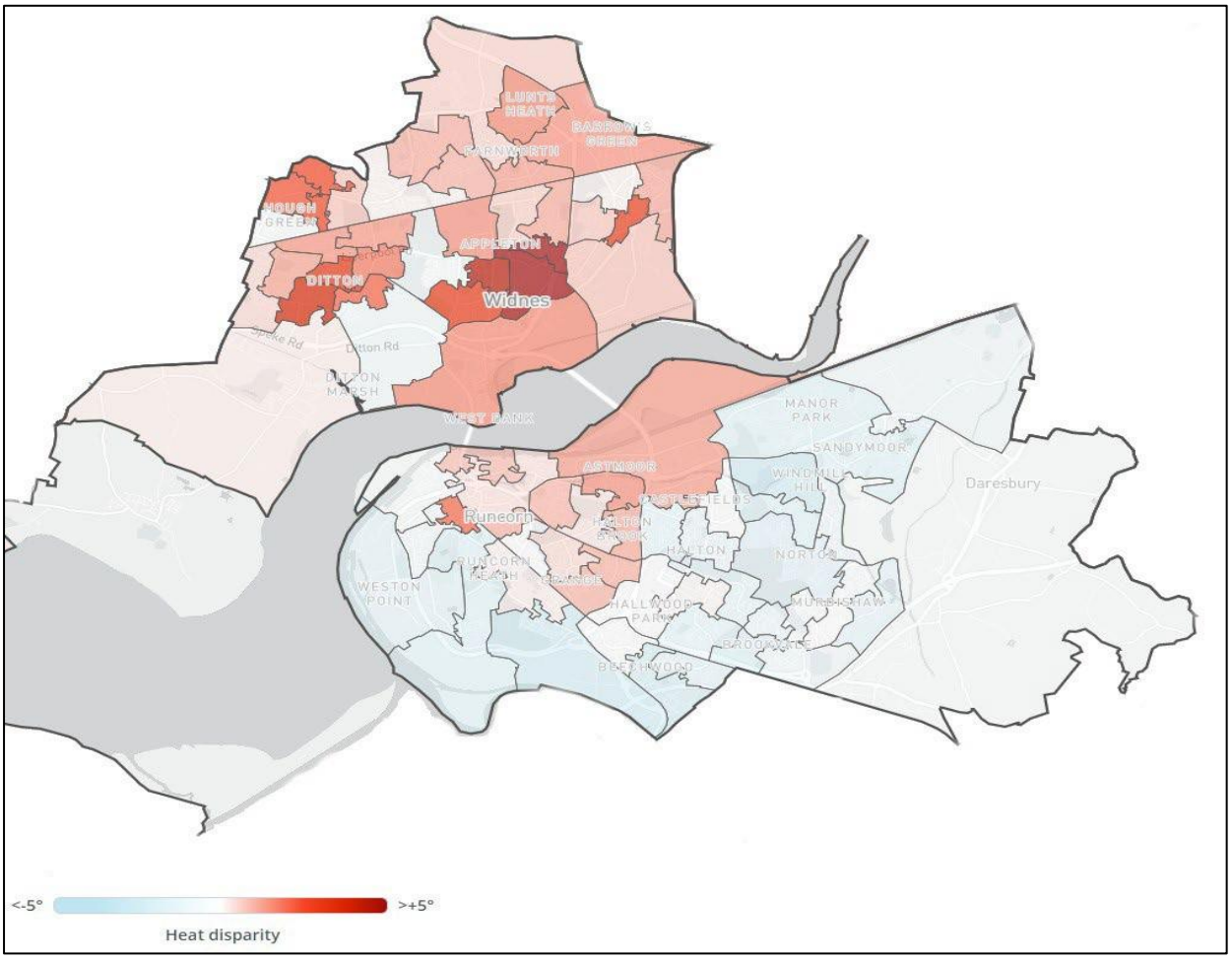
Figure 4: Image taken from https://uk.treeequityscore.org/reports/local-authority/E06000006 Tree Equity UK Showing varying statistic on the ecosystem services provided by planting 105,095 trees that reach medium size.



The temperature variation within Halton's urban forest will be factored in when determining which areas require priority attention. It is common for urbanised regions to be warmer, typically by 1-2℃, when compared to their less urbanised counterparts.

The presence of a higher number of artificial surfaces that trap and gradually release heat, coupled with a lack of greenery, gives rise to the "urban heat island effect" (Ferranti et al., 2021). The Met Office has predicted that the UK will continue to experience hotter temperatures for more extended periods, with the highest temperature on record being 40.3℃ in 2022.

Figure 5: Map of Halton's heat disparity. Sourced from Tree Equity Score UK.



Research shows that 20% of homes in England suffer from overheating, and this risk is expected to increase in the future. The elderly and vulnerable populations are particularly at risk, which means that there is a higher chance of overheating and poor indoor air quality. Vulnerable communities that lack access to indoor air cooling or green spaces are most affected by overheating. In addition, the elderly population is also at a higher risk (Ferranti et al., 2021). In Halton, the second largest demographic age group is 65+, which accounts for 19% of the Borough's total population (Halton Borough Council, 2024).

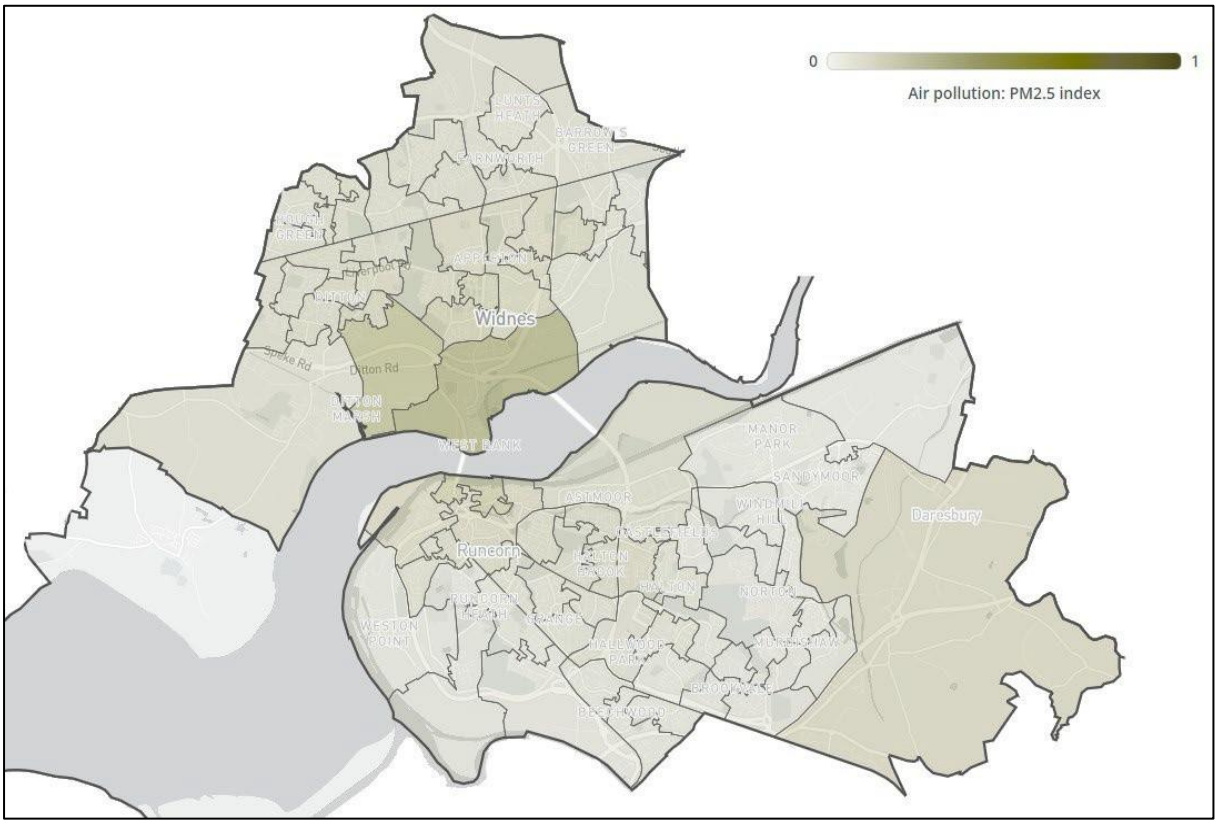
The air quality standards set by the World Health Organization (WHO) are not met in 90% of cities, and the WHO recognizes that air pollution is the leading environmental risk to global health. In the UK alone, poor outdoor air quality is responsible for 50,000 deaths annually. The most susceptible groups are children, the elderly, and people with pre-existing medical conditions.

Air pollution is largely determined by urban design with green infrastructure such as trees, parks, and green walls playing a vital part in combating particulates in the air. The design of urban infrastructure also decides how air pollution is dispersed (Ferranti et al., 2019); it is widely acknowledged that trees are an effective means of filtering small particulate matter from the air.

Research has indicated that conifers demonstrate better particulate filtration capabilities than other species, outperforming broadleaf trees by more than double (Matthias Steinparzer et al., 2023). It is essential to explore and implement effective means of mitigating air pollution.

In order to implement a strategic planting plan to maximise the benefit of conifers in our urban forest we must collect further data on our species diversity for future planting.

Figure 6: Map of Halton's Air pollution PM2.5 sourced from Tree Equity Score UK



2.2 THE BIG HALTON FOREST

The Big Halton Forest is an initiative which aspires to deliver a green recovery by tackling the climate emergency head on through the planting of trees and enhancement of green infrastructure of Runcorn and Widnes and its villages. The Council will work with individuals, communities, organisations, and businesses with the aim of adding a new tree for every citizen by 2030 across the Borough of Halton. This will be in addition to the approximately 1,500 new trees we plant each year.

The following goals for the Big Halton Forest are:

- Plant 130,000 trees by 2030, one for every person across Halton, which could increase canopy cover from 16.2% by 7.7% to a total of 23.9% when trees reach maturity.
- Restore or expand greenspaces and woodlands for the benefit of both communities and wildlife.
- Inspire a passion for trees, woods & waterfronts.

2.3 CHALLENGES

Not all wards will be able to increase their canopy cover due to varying constraints such as:

- Space availability - Not all wards will have the same available space for expanding green spaces or appropriate soil volume for planting trees.
- Infrastructure – The current and existing infrastructure such as buildings, roads and utilities often play a pivotal role in the canopy cover of urban areas.
- Cost – Some built up urban areas can cost considerably more to plant, establish, and maintain trees due to access and ground conditions.
- Community engagement – It is important that the stakeholders affected most by the planting of the trees are informed and engaged in the selection, planting, and establishment processes. Effective engagement can reduce unwanted vandalism and creates a sense of community and ownership towards the trees.

- Species selection – It is important that the correct tree is chosen for the local climate and growing conditions.
- Long-term sustainability – Ensuring the long-term survival of newly planted trees is vital to increasing the canopy cover of our Borough and reaching our canopy cover targets.

3. CONTEXT

Halton Borough Council has adopted the following Plans, Strategies and Guidance which support this strategy document.

- Delivery and Allocations Local Plan (2022)
- Sustainability Appraisal Report
- Habitats Regulations Assessment
- Halton Borough Council Climate Change Action Plan 2022 – 2027
- Halton Borough Council Infrastructure Plan

These documents provide a strategic plan to deliver a network of high-quality green spaces. They set out to ensure green space will be designed and managed as a multifunctional resource, delivering a wide range of environmental and quality of life benefits. Trees and woodlands are a very important part of this and play a vital role in defining Halton's green environment.

Woodlands, especially old trees and ancient woodlands are amongst our richest habitats. The highest levels of biodiversity are often found in woodlands that are actively and sensitively managed. Their diversity is even greater when they form part of a mixed landscape near other features such as ponds, grasslands and even residential gardens.

Hedgerows linking woodlands act as wildlife corridors and so greatly promote the extent and range of wildlife. To protect this ecological asset an evaluation will be given to the sensitivity of the species and habitats identified to ensure public access remains appropriate, without affecting biodiversity.

The challenge in the future will be to maintain and enhance diversity. Planning and management needs to be aimed at providing a natural environment which is resilient to climate change. Climate change will impact on the range of native wild plants and animals and hence the character of our woods. Woodlands protect ground water from pollution and lessen the likelihood of flooding by intercepting rain before it reaches watercourses. Strategically planted shelterbelts intercept air pollutants.

To realise integrated and multifunctional landscape management the Council will work closely with external partners and a variety of landowners. The Trees and Woodland Strategy is mutually compatible with these overlapping plans and strategic documents and thus provides a clear direction for the management of the Halton's Green space and natural environment assets.

3.1 THE LOCAL PLAN

The Delivery and Allocations Local Plan (DALP) 2022 provides a robust and up-to-date policy framework to guide future development within the Borough. This document reviews, replaces or compliments several core strategy documents. It is important to note that the Local Plan should be read as a whole as the policies are cross cutting and inter-relate.

3.2 SECTION 20- KEY POLICIES IN THE LOCAL PLAN PERTINENT TO THIS STRATEGY

HE1: Natural Environment and Nature Conservation

Halton benefits from a broad range of diversity in landscapes and townscapes, which identify the area's unique and beautiful natural environment. There are also several designated areas identified for their unique landscape or rare habitats and species that require protection from development which would be damaging and harmful. The Council recognises the importance of these features and assets and the planning policies contained within this document provide the opportunity to ensure that not only are these features and assets protected, but where possible enhanced for the enjoyment of current and future generations.

HE2: Heritage Assets and the Historic Environment

Halton contains a range of heritage assets which are not only of historical value but provide a social and economic resource and contribute to the character of the Borough. These assets should therefore be conserved and where possible enhanced for current and future generations and to ensure a strong sense of place and improve local distinctiveness.

Halton Borough Council has a duty to conserve and enhance the significance, character and appearance of the Borough's historic environment when carrying out its statutory functions and through the planning system.

HE3: Waterways and Waterfronts

One of the defining characteristics of the Borough are its unique waterways and waterfronts. This includes the Mersey Estuary which both divides and unites the principal towns of Runcorn and Widnes, the Manchester Ship Canal, the Bridgewater Canal, St Helens Canal and the Weaver Navigation. Halton's waterways provide an attractive setting for waterside development, are a recreational resource and contribute to the Borough's 'sense of place'.

HE4: CS(R)21: Green Infrastructure

Green Infrastructure is a network of multi-functional green spaces, urban and rural, which can deliver a wide range of environmental, economic, and quality of life benefits for local communities. Therefore, Green Infrastructure is considered a key element similar to water, waste, transport and energy infrastructure.

Recognising greenspace as an important land-use, the Plan seeks to ensure adequate provision in the Borough in terms of quantity, quality, and distribution. The amenity value of greenspace is recognised as being wide ranging. Even where greenspaces are not publicly accessible, many of them are recognised as having an important visual, wildlife or structural role to play. They can also have economic significance, in enhancing the overall attractiveness of the Borough.

HE5: Trees and Landscaping - Woodlands, Trees and Hedgerows

Woodlands, Trees and Hedgerows are an important visual and ecological asset; they provide a significant contribution to an area's distinctiveness as well as playing a significant role in mitigating and addressing climate change. Whilst the landscape of Halton encompasses all outdoor space; from town centre squares and pedestrian precincts to the Green Belt and open countryside, each play a key part in creating a distinct local character.

HE7: Pollution and Nuisance

This policy together with CS23 – Local Plan: Managing Pollution and Risk looks to ensure that development considers the potential environmental impacts on people, buildings, land, air and water arising from the development itself and any former use of the site, including adverse effects arising from pollution and nuisance.

HE9: Water Management and Flood Risk

In recent years, planning policy relating to flood risk has evolved to reflect the greater concern and awareness of the consequences of flooding has to the health and safety of the public. Parts of Halton are at risk from different sources of flooding including, main rivers, ordinary watercourses, surface water runoff, sewer flooding and the residual risks associated with artificial water bodies such as the Manchester Ship Canal, the Bridgewater Canal, St Helens Canal, the Weaver Navigation and reservoirs.

4. COUNCIL POLICY

In December 2018 'A Strategy for Halton's Trees & Woodlands' was approved by the Executive Board following a report of the member led Tree and Woodland Working Group established by the Urban Renewal Policy & Performance Board.

The aim of the strategy was to clearly articulate how the Council manages its trees and woodlands within the resources that it has. It sets out exactly what the Council will and will not do in relation to tree and woodland management.

The strategy explains how the Council will inspect its trees and woodland and how it will prioritise its work programme.

In 2022 the Council agreed its first formal five-year Climate Change Action Plan for the years 2022 – 2027 and appointed an Executive Board Member for Climate Change with the aim for the Council's operations to reach carbon net zero by 2040.

Within this five-year plan it was recognised that actions are already underway in the wider Borough & with Council partners on tackling climate change, as the Council journeys to a wider Borough- wide climate change strategy.

Two key themes of this action plan which relate to this tree and woodland strategy are climate change mitigation and climate change sequestration.

A key initiative to help address these themes is the Big Halton Forest which was also launched in 2022. This is an eight-year plan to help improve green and blue infrastructure in Halton and includes a pledge to plant an additional 130,000 new trees across Halton by 2030.

4.1 LITERATURE, LEGISLATION AND GUIDANCE.

Other relevant legislation/guidance includes:

Environment Act 2021 https://www.legislation.gov.uk/ukpga/2021/30/contents
National Planning Policy Framework
https://www.gov.uk/government/publications/national-planning-policy-framework --2

'A Green Future: Our 25 Year Plan to Improve the Environment' (2018)

https://www.gov.uk/government/publications/25-year-environment-plan

DEFRA Tree Health Resilience Strategy (2018) Building the resilience of our trees, woods and forests to pests and diseases

Tree health resilience strategy (publishing.service.gov.uk)
Forestry Commission – How to protect and manage the Urban Forest.
https://www.gov.uk/guidance/how-to-protect-and-manage-the-urban-forest

4.2 NATIONAL TREE SAFTY GROUP

The National Tree Safety Group (NTSG) comprises representatives from 20 organisations. These range from tree specialists such as the Arboricultural Association and the Institute of Chartered Foresters, to tree owners and managers such as the Country Land and Business Association, National Farmers Union and the Forestry Commission, to conservation organisations such as the National Trust, Woodland Trust and Ancient Tree Forum.

The aim of the NTSG is to develop a nationally recognised approach to tree safety management and to provide guidance that is proportionate to the actual risks from trees. Its national guidance document entitled Common Sense Risk

Management of Trees was released in December 2011. The NTSG guidance is underpinned by 5 key principals:

- Trees provide a wide variety of benefits to society
- Trees are living organisms that naturally lose branches or fail
- The overall risk to human safety is extremely low. With the annual risk of death being 1 in 10,000,000
- Tree owners have a legal duty of care
- Tree owners should take a balanced and proportionate approach to tree safety management

The NTSG has produced three documents:

- Common sense risk management of trees (The main guidance document)
- A Landowner Summary (for estates and smallholdings)
- Managing Trees for Safety (for the domestic tree owner)

These are downloadable free from the Forestry Commission's Publications website https://ntsgroup.org.uk

4.3 STAKEHOLDER INVOLVEMENT

It is very important that stakeholders and residents living in Halton understand the principles set out in this strategy, particularly that cyclical renewal and management of trees is necessary to ensure their long term sustainably. This strategy will be available on the Halton Borough Council web site.

It is hoped residents will be assured that Halton's trees are being sensitively and professionally managed to achieve long term sustainability. The Council would like residents to feel a sense of involvement and communal ownership and take pride in Halton's extensive tree cover, woods and greenspaces. The Council will seek to support further community-based projects regarding trees, in particular to encourage schools and youth groups to become involved in Halton's trees and woodland. This work will build on successful schemes delivered with local housing associations, sports clubs, volunteer groups, and private businesses through the delivery of the Big Halton Forest.

Trees and woodlands offer a variety of outdoor opportunities for recreation and learning. The priority will be to provide high quality access near to where people live and work. To ensure trees and woodlands remain valued as a `lifelong' resource appropriate information needs to be freely available. This should include recognition of their historic, archaeological and cultural significance.

Partnership working promotes community involvement, and so links to existing partners should be strengthened and new ones established by providing advice and support to communities with plans to create and maintain their own woodland or become involved in managing existing blocks of woodland in their neighbourhood. Partnerships can help support funding applications and could qualify for funding from organisations such as The Woodland Trust.

To create further engagement with stakeholders the Council employed 2 rangers in 2021 who have actively worked with volunteer groups on planting projects. The Council is currently in discussions with The Mersey Forest regarding the renewal of our membership.

5. SERVICE DELIVERY, POLICIES AND PRIORITIES

5.1 STANDARDS OF SERVICE DELIVERY

Trees are complex organisms with a long natural lifecycle, to manage them sustainably, a strategic operational approach is essential. As understanding of the way pruning affects trees has evolved; the basic premise has not changed: all tree surgery is not for the benefit of the tree, other than to enable it to continue to coexist in an artificial human environment.

The management and maintenance of trees is therefore a complex and skilled task, often requiring different services and organisations to work closely together in order that trees are appropriately managed to minimise the risk they may pose and may be posed to them.

An important part of delivering an effective risk management system is ensuring that the tree managers have the pre-requisite skills, with suitable qualifications and experience to meet the challenges.

The complexity of tree stock within Halton requires well trained Arboriculturists as an integral part of a defensible tree and woodland management service. This has been substantiated by industry best practice, peer review and confirmed in common law precedence.

The breadth of arboriculture knowledge and skill is not only needed by those who undertake the works, pruning, planting and removing trees, but in this highly regulated industry, also those inspecting the trees, responding to service requests and specifying works must be appropriately qualified.

Analysis of tree related enquiries has enabled the Council to monitor customer concerns, prioritise work and the way that it is undertaken. Improved levels of consultation and communication have been developed, which are detailed below. Equally, firmer policies have been developed that inform residents of the Council's actions in respect to common concerns. These policies are integral to a more proactive level of service delivered within financial constraints.

5.2 COMMON LAW RIGHTS

In the English legal system, Common Law refers to laws that have been developed through precedent set by similar cases as opposed to being created through legislative statutes.

Under English Common Law Rights, you have a right to remove (abate) the nuisance associated with trees encroaching onto your property. The following advice with respect to encroaching trees is given for general guidance only. You are advised to obtain independent legal advice before acting:

a) You can only consider removing those parts of the tree from the point where they cross the boundary of your property. You must not go beyond your property boundary without the permission of the tree owner. You have no legal right to cut or remove any part of a tree that does not overhang your property.
b) You are strongly advised to consult a professional tree surgeon for guidance on how best to prune back encroaching trees, unless the works are trivial meaning you could do the works with hand secateurs or similar.
c) You are strongly advised to tell the owner of the trees what you plan to do. You can find out if the trees are owned by the Council by telephoning the Halton Direct Link.
d) Before you consider doing any works to the trees you should find out if they are protected by a Tree Preservation Order or if they are in a Conservation Area. If trees are protected, then you will need to gain consent by making an application / give notice to the Council. For guidance on how to check if the trees are protected and how to make an application, please telephone the Contact Centre.
e) Legally you do not own those parts of the tree that encroach over your property, and you should make arrangements to return these to the owner. You are advised to discuss this with your neighbour to agree a mutually acceptable solution.
f) If your actions render a tree to be unsafe you may be liable for any subsequent damage, or injury that results from tree failure.

5.3 LEGAL CONSIDERATIONS (MEETING THE COUNCIL'S DUTY OF CARE)

The risk presented by trees is low. For example, the Health and Safety Executive estimate the risk of death caused by a failing tree or branch is 1 in 10,000,000, which is much lower than the risks accepted by people on a day-to-day basis such as using the roads where the risk of death is 1 in 16,800. These low risks must also be balanced with the benefits trees provide.

The Council has a duty of care to employees and members of the public in respect of the safety of trees in its ownership. This does not mean that the Council must maintain all its trees in a safe condition. Trees are dynamic organisms, subject to the forces of nature, which can fail without showing warning symptoms and can never be classed as entirely safe. However, the Council must try to keep risks presented by trees as low as is reasonably practicable.

The most recent guidance in the Tree Health and Safety Group's "Common Sense Guide to the Management of Tree Safety" published by the Forestry Commission in 2011 sets how out a Local Authority should approach tree safety. This involves zoning areas based on the usage of the ground around the trees, working out a level of tree inspection needed, employing trained and competent staff to complete various levels of survey and recording and storing all findings on a database.

In support of this Strategy the Council has produced a Tree Risk Management Plan (Appendix 4), which includes all the measures recommended in current guidance.

6. GENERAL POLICIES

6.1 PRIORITIES

TP1: The Council will maintain its trees and woodlands in accordance with its obligations to observe duty of care and the safety of both people and property.
TP1.1: Implement the regime of periodic tree inspections and data recording as set out in the Tree Risk Management Plan.
TP1.2: Staff employed to manage the Councils tree stock will keep up to date training and continued professional development to ensure that tree management decisions are well founded and in line with current industry practice.
TP1.3: To undertake tree works in line with the risk-based prioritisation.

TP2: The Council will encourage a better understanding of tree and woodland management and in so doing promote community involvement.
TP2.1: The Council will seek to disseminate information on its tree and woodland activities as widely as possible.
TP2.2: The aim will be to support and maximise community involvement in the Halton's trees and woodlands.

TP3: The removal of trees and woodlands shall be resisted, unless there is sound Health and Safety, or arboricultural reasons supported within this strategy.
TP3.1: The removal of healthy trees in response to complaints shall be resisted unless the complaint has an overriding justification, and no alternative management practice can be implemented.

TP4: The Council will maintain its trees and woodlands in a way that demonstrates best practice, providing worthy examples of management for others to follow.
TP4.1: To provide plans for long term management and development of trees and woodlands as essential components within the landscape.
TP4.2: To ensure the best use of resources is made during the planning of operations.
TP4.3: To supplement the Council's spending by seeking additional funding from external sources wherever possible.
TP4.4: To realise any economic potential of trees, and woodlands, or materials generated from them, where this does not conflict with the other policies and priorities of the Strategy.

7. OPERATIONAL POLICIES

7.1 BIRD DROPPINGS

TP5: Council trees will not be pruned or removed to stop or reduce bird droppings from trees, nor will the Council remove bird droppings from private land.
Bird droppings may be a nuisance, but the problem is not considered a sufficient reason to prune or remove a tree. Nesting birds are protected under the Wildlife and Countryside Act (and other related wildlife law).
TP5.1: Residents will be advised of their powers to exercise your Common Law right to remove the nuisance associated with encroaching trees or alternatively that warm soapy water is usually sufficient in removing bird droppings.

7.2 BLOSSOM

TP6: Council trees will not be removed to stop or reduce blossom from trees and fallen blossom will not be removed from private land.

Blossom is a natural occurrence, which cannot be avoided by pruning.

TP6.1: Roads, streets, foot or cycle paths will be swept of excessive blossom as part of normal cleaning cycles.

TP6.2: Residents will be informed of their entitlement to exercise their Common Law right to remove (abate) the nuisance associated with encroaching trees.

7.3 LOW TREE BRANCHES; ROAD, CYCLE OR FOOTPATHS

TP7: The Council will carry out work to a Council owned tree with the aim to maintain a minimum of:

- Road – 5.5 metres height clearance to comply with Highways Act S 154
- Cycle path next to a road or highway – 3 metres height clearance
- Footpath next to a road or highway – 2.5 metres height clearance

TP7.1: These works will be identified and actioned in routine pro-active surveying and as a result of reported breaches of these standards.

7.4 TREES OVERHANGING PROPERTY

TP8: Council owned trees will not be pruned or removed to stop the nuisance of overhanging branches.

TP8.1: All trees will be inspected every on a frequency determined by the trees target occupancy level in line with QTRA guidance. Maintenance will be carried out if the tree is considered likely to touch property structures prior to re-inspection.

TP8.2: Residents will be informed of their entitlement to exercise their Common Law right to remove (abate) the nuisance associated with encroaching trees.

7.5 DRAINS

TP9: The roots of Council owned trees will not be pruned, removed or cut to prevent roots entering a drain that is already broken or damaged.

TP9.1: Residents will be advised that tree roots typically invade drains that are already broken or damaged.

TP9.2: Trees themselves very rarely break or damage a drain. Tree roots found in drains are usually due to an underlying problem with a broken pipe.

TP9.3: If residents are concerned about the condition of their drains, they are advised to contact their Water and Sewerage Company or a drainage expert.

7.6 FRUIT, BERRIES, NUTS AND SEEDS

TP10: Council owned trees will not be pruned or removed to stop or reduce the nuisance of fruit, berries, nuts or seeds, nor will the Council remove fallen fruit, seeds or seedlings from private land including gutters.

TP10.1: Should fallen fruit lead to significant anti-social problem residents will be advised to contact the police.

TP10.2: Residents will be advised that the maintenance of gutters is the responsibility of the landowner and that the Council is not obliged to remove fruit/berries/nuts/seeds or seedlings that may have fallen from Council owned trees.

TP10.3: Residents or the Council's tree team will report a road, street or highway that needs to be cleaned to the Environment Services.

7.7 POISONOUS BERRIES

TP11: There is no general policy to remove trees bearing poisonous fruit / foliage (such as yew trees). However, where it is claimed or known that unsupervised young children or livestock are likely to be exposed to poisonous berries or foliage, such cases will be investigated and appropriate action considered.

TP11.1: All reported concerns over a tree with poisonous berries that unsupervised young children are exposed to will be investigated promptly.

7.8 LEAVES

TP12: Council owned trees will not be pruned or removed to stop or reduce leaf fall nor will the Council remove fallen leaves from private property.

TP12.1: Residents will be advised that the loss of leaves from trees in the autumn is part of the natural cycle and cannot be avoided by pruning.

TP12.2: Residents will be advised that the maintenance of gutters is the responsibility of the landowner, and the Council is not obliged to remove leaves that may have fallen from Council owned trees.

TP12.3: Where leaves have been reported to have accumulated on Council owned roads, footpaths these will be reported to Environment Services.

7.9 LIGHT

TP13: A Council owned tree will not be pruned or removed to improve natural light in or to a property. This includes properties with (or planned to be installed) solar panels.

TP 13.1: Residents will be advised that in law there is no general right to light.

7.10 SUCKERS FROM TREE ROOTS

TP14: Council owned trees will not be pruned or removed to stop or reduce the nuisance of sucker growth on private land.

TP14.1: Residents will be advised of their rights to remove suckers on their land.

7.11 PERSONAL MEDICAL CONDITION – COMPLAINT

TP15: There is no policy regarding personal medical conditions that may be specifically affected by nearby Council owned trees. Such cases will be investigated, and appropriate action considered.

TP15.1: Residents will be informed of their entitlement to exercise their Common Law right to remove (abate) the nuisance associated with encroaching trees.

7.12 POLLEN

TP16: Council owned trees will not be pruned or removed to stop or reduce the release of pollen.

TP16.1: Residents will be advised that pollen is a natural and seasonal problem.

7.13 TREES AFFECTING STREET LIGHTS, SIGNS AND TRAFFIC VIEW

TP17: Work on Council owned trees will be undertaken to maintain clear sight lines (where feasible) at junctions, access points (associated with a street, road or highway), traffic signals and street signs.

TP17.1: These works will be identified and actioned in routine pro-active surveying and as a result of reported, breach of standards.

7.14 SAP AND HONEYDEW

TP18: Council owned trees will not be pruned or removed to reduce honeydew or other sticky residue from trees.

TP18.1: Residents will be advised that honeydew is a natural and seasonal problem. When new trees are planted, we try to choose trees less likely to cause this problem.

7.15 SUBSIDENCE DAMAGE TO PROPERTY (TREE-RELATED)

TP19: The Council has in place active tree management systems to minimise risk of damage being caused to buildings and other structures because of the action of Council owned trees.

TP19.1: Residents will be advised that if they have concerns about tree related subsidence damage to property, that they should contact their insurance provider for advice.

TP19.2: If a resident wishes to make a formal claim for damage they will be advised to contact the Council Insurance Team Direct. Alternatively, the case will be investigated by the Council's Environment Services Team, once reported.

7.16 TRIP HAZARDS

TP20: The Council will make safe an unacceptable trip hazard caused by the growth of Council owned trees.

TP20.1: All reported cases will be investigated and actioned accordingly.

7.17 TREE TOUCHING BUILDING

TP21: If a Council owned tree is touching a property (house, boundary wall, garage etc.) action will be taken to remove the problem.

TP21.1: All reported cases will be investigated and actioned accordingly.

7.18 TREE TOO BIG / TOO TALL

TP22: Council owned trees will not be pruned or removed because they are considered to be too big or tall.

TP22.1: Residents will be advised that a tree may seem too big for where it is, but this does not make it dangerous.

TP22.2: All trees inspected every on a frequency determined by the trees target occupancy level in line with QTRA guidance.

7.19 TREE AND TV / SATELLITE RECEPTION

TP23: Council owned trees will not be pruned or removed to prevent interference with TV / satellite installation / reception.

TP23.1: Residents will be advised that their satellite or TV provider may be able to suggest an alternative solution to the problem.

7.20 VISTAS AND VIEWS

TP24: Council owned trees will not be pruned or removed to improve the view from a private property.

TP24.1: The Council will promote the amenity value offered by trees in their own right.

7.21 WILD ANIMAL / INSECT PEST

TP25: Council owned trees will not be pruned or removed to stop or reduce incidents of perceived pests such as bees, wasps, or wild animals, unless it is in the national or public safety interest to do so due to a harmful invasive species.

TP25.1: On private land residents will be advised that external companies provide a chargeable service for removing certain pest species.

8. POLICIES AND PRIORITIES FOR THE MANAGEMENT OF COUNCIL OWNED TREES

The Council's tree stocks can be divided into 6 main categories as follows:

1. **Street Trees and Trees in Residential Areas**: Street trees are planted in pavements or road verges. These help to filter traffic pollution; provide shade for car parking and improve the overall appearance of the street scene. Trees in residential areas are trees growing within and around housing estates to enhance the local environment.
2. **Parks and Open Spaces:** These are frequently the trees of greatest local significance and provide maximum visual amenity for both residents and visitors.
3. **Woodlands:** These are usually dating back to historical local landowners and areas of Halton's agricultural past. These woodlands are usually a valuable wildlife and amenity resource within the urban fringe and form many of Halton's Local Nature Reserves.
4. **Highway Structure:** Mostly new plantings alongside major roads to attenuate noise; filter traffic pollution and provide visual amenity and habitat for wildlife corridors.
5. **Village and Rural Trees**: The villages have a unique character, much of which is achieved by their content of historic trees, as well as those growing within the surrounding countryside.
6. **New and Replacement Planting:** polices and priorities in respect of new and replacement planting are a key element of the strategy and decisions made now will have a bearing on the future resilience and sustainability of Halton's tree cover.

Each category of tree cover is assessed below and the specific policies and priorities that relate to them are detailed.

8.1 STREET TREES AND TREES IN RESIDENTIAL AREAS

The trees in streets and residential areas have to survive in difficult environments. Utilities demand space, as do road signs, streetlights and aerial telecommunications. The limited space is made even more challenging because of polluting car emissions, road salt, oil and other contaminants. Against the odds, trees can and do survive but often with a limited life expectancy.

The character of Halton's street trees vary, from the older roadside planting in areas like Higher Runcorn and Northern Widnes, to the newer developments of Upton Rocks and Sandymoor.

Many of Halton's streets have tree populations that are over-mature. Such trees are vulnerable to climatic change, disease and damage. As time progresses this overmature population of street trees will be removed as individual trees deteriorate. In these areas new trees will be introduced between the mature specimens to ensure that there will be continuous future tree cover.

A large proportion of trees fringe housing estates that enhance the environment and are very important to the quality of life for the residents. However, as the trees mature, design faults such as planting trees too close to each other, property and gardens and selecting inappropriate species for a given situation become evident.

Problems of branch and root encroachment are therefore common and make up a high proportion of enquiries to the Council.

TP26: To endeavour to protect street trees from threats such as loss of verges and damage to same.
TP26.1: Work with and monitor the activities of utility companies to minimise accidental operational damage to trees.

TP27: To place a priority on the replacement of ageing street trees; particularly where these adjoin major traffic routes. Planting will ensure the selection of the most appropriate species for the location.
TP27.1: To plant new and replacement street trees in appropriate sites, giving priority to streets where trees are currently standing or have been in the past.
TP27.2: To consider alternative planting positions and methods of establishment where maintenance of street trees in the same positions of the trees to be replaced will be either unduly difficult or expensive to maintain.

TP28: To renew and restructure tree stocks planted within residential areas;
TP28.1: Consider a phased removal of trees growing too close to buildings and replace with new planting more appropriate to the situation or relocate planting areas to more suitable sites in the neighbourhood. Replanting will be, as far as is practicable, carried out using a combination of standard trees, whips and bare root transplants.
TP28.2: To thin dense groups of trees to allow full crown development where there is sufficient space.
TP28.3: To ensure that replacement planting is sufficient to retain the existing level of canopy cover in the area.

TP29: To maintain the formal arboriculture features in the urban landscape by careful management and timely renewal as required.
TP29.1: To consider the long-term development and safe life expectancy of mature avenues and instigate a policy of gradual renewal and replacement in advance of them becoming untenable. Measures could include pruning, total removal and replacement, partial removal and replacement.
TP30: To take action to restructure avenue trees planted with inappropriate species too close to neighbouring properties.
TP30.1: In areas where avenue trees pose a potential threat to adjoining buildings, the Council will manage or restructure the avenues to minimise the impact on the properties. Options will include but not be limited to:

- Removing avenue trees and replacing with low water demand species.
- Removing avenue trees adjoining buildings and filling the gaps with smaller low water demand species.
- As far as possible maintaining regular spacing and the avenue effect.

8.2 PARKS AND OPEN SPACES

Trees are fundamental to the structure of parks and very important contributors to the environment of the area. The nature of different parks and green spaces is very variable. For example, Victoria Park has a declining tree population displaying over maturity in comparison to Town Park with younger but neglected stock, which is now in need of management by selective thinning. The latter is now urgently required to prevent very high losses over the next ten years. For this reason, management must be planned on a site-by-site basis.

Certain newer areas of Halton contain large open spaces of short grass and minimal structural planting. These areas are ideal for enhancement. Research in The Woodland Trust's report "Trees or Turf" aims to demonstrate that management of woodlands could be markedly cheaper than maintaining some types of grassland. By creating small woodlands on such amenity grassland opportunities for wildlife can be promoted in addition to landscape enhancement.

An example of this has been realised in recent decades in the Arley Woods area of West Widnes, which now has an approved masterplan for its further development as a natural parkland. This area of land also includes a designated area of wild grassland which is valuable to nature. Town Park has also benefitted from its own bespoke masterplan, and further masterplans are in development for sites including Spike Island.

TP31: To maintain tree cover within Halton's parks by renewing the tree stocks and increasing the range of age classes present and Species diversity.
TP31.1: To commence a replacement programme that incorporates a diverse range of tree species and, where appropriate, to re-establish historic landscapes.
TP31.2: To ensure that management work takes into consideration the sensitivities of the residents who use and care about the parks. Ensure that the reasons for operations are explained to the public before commencement.
TP31.3: To carry out tree removal and replanting in a phased way rather than causing large amounts of disturbance and change to the landscape of the park in one operation.
TP31.4: To carry out replacement tree planting in anticipation of the need to replace older tree stocks in the future. Planting of low maintenance bare rooted whips with appropriate guards will be favoured over larger planting stock.

8.3 WOODLANDS

Woodland's provide considerable benefits in terms of ecosystem services, biodiversity and landscape amenity however, some woods have a flaw, which is that many trees, including some unsuitable fast-growing species are too close to residential properties as illustrated in Image 1 and Image 2. It has been identified that the issue of proximity, particularly encroaching branches, accounts for the majority of enquires received by the Council.

The Council will also work closely with the Local Planning Authority and developers to mitigate the effects of new development on existing mature woodlands (see Section 11).

Image 1 - Woodland trees affecting property 1

Image 2 - Woodland trees affecting property 2

TP32: The Council will seek to reduce impact of woodland trees on adjoining properties.

TP32.1: Where necessary, the woodland belts will be restructured cutting trees back from the edge of property boundaries. Following the tree removal new native small trees and woody shrubs will be planted to form a woodland fringe. The replanting will both replace the lost biomass and provide improved wildlife habitat. In addition to the edge clearance some light selective thinning will be carried out in the belts to ensure some of the best trees have room for proper crown development. The aim of the thinning is to slowly reduce the number of trees in some of the belts to achieve the effect of groves of full crowned trees rather than dense woodland conditions. However, this process will be done in stages, to maintain stability and to spread the significant financial impact.

TP32.2: Visual tree inspections will be periodically carried out on boundary trees to monitor the health and condition of the tree, any foreseeable risks to property will be assessed by a suitably trained officer. This assessment will determine what mitigation is needed if any.

TP33: Woods will be managed in a fully sustainable manner which may include periodic thinning to allow proper crown development and light to reach the woodland floor.

TP33.1: In suitable woods, selective thinning will be carried out removing no more than 10% of the trees by number.

TP33:.2 Woodland belts that are unsuitable for either thinning or restructuring with a dense understory cover of species such as hawthorn and blackthorn will be managed as non- intervention areas.

TP34: The woods will not be clear felled, and management will be on a continuous cover basis.

TP34.1: Natural re-generation within the woodland belts will be managed and encouraged.

TP34.2: Management will endeavour to increase the age range and species diversity within the woods.

TP35: The Council will encourage community involvement and where practical, advise residents when work is proposed.

TP35.1: The Council will try to address the problems of anti-social behaviour in woodlands.

TP35.2: The Council will encourage community involvement in the woods and support projects such as Coppicing and Woodcraft.

8.4 HIGHWAY STRUCTURE

The Borough of Halton has excellent transport links being part of the region's transport network. The M56 motorway runs through the south of the Borough and the M62 to the North. These motorways are linked by the local roads network built during the 1960 and 70's as part of the New Town Development spanning the River Mersey with the Silver Jubilee Bridge and the new Mersey Gateway. This network of high-speed roads is heavily planted with pioneer species such as Poplar, Willow, Sycamore, Ash, Alder, Maple and Birch.

TP36: To maintain the formal arboriculture features in the Highway by careful management and timely renewal as required.

TP36.1: To consider the long-term development and safe life expectancy of highway tree plantings and instigate a policy of gradual renewal and replacement in advance of them becoming untenable. Measures could include pruning, total removal and replacement, partial removal and replacement.

TP36.2: To thin dense groups of trees to allow full crown development where there is sufficient space. Replanting will be, as far as is practicable, carried out using a combination of standard trees, whips and bare root transplants.

TP36.3: To ensure that replacement planting is sufficient to retain the existing level of screening and canopy cover in the area.

8.5 VILLAGE AND RURAL TREES

Many of the trees in the civil parishes and rural areas are privately owned. Despite this the Council still has responsibility for a small proportion. These trees include trees up to 200 years old and are amongst the oldest managed by the Authority.

Distinctive village scenes can be maintained and enhanced by planting tree species that originally generated such landscapes. The use of native species will be prioritised within locations where appropriate i.e. rural verges. In certain village locations, the use of non-native stock may be considered where site restrictions or the surrounding landscape dictates. For the foreseeable future planting of ash will not be supported.

Many trees have been planted on verges by village communities. Where possible, the Council has helped facilitate these requests by offering suitable planting locations and the commitment to manage those trees planted on Council-owned land. The Council will fulfil its duty of care in respect of Council-owned trees in villages which will be surveyed in line with the Tree Risk Management Plan.

TP37: The Council will preserve and enhance the distinctiveness of village and rural trees in its ownership.

TP37.1: To ensure that all Council-owned trees in Villages are mapped on the Tree database and receive appropriate inspections in line with the Tree Risk Management Plan.

TP37.2: To replace all trees which are removed in these areas and attempt to expand tree cover where this is appropriate.

TP37.3: To re-plant using suitable trees except where this would result in loss of familiar vernacular.

8.6 NEW AND REPLACEMENT PLANTING

A key aim of this strategy is to increase the canopy cover of trees within Halton by both increasing the rate in which we plant new trees and replacement planting. Opportunities to improve wildlife habitats and connectivity between woods and tree groups will be a major consideration in identifying new planting areas.

Prior to 2023, circa 1,500 trees annually were budgeted for as new or replacement plantings by the Council. The Big Halton Forest provides the opportunity to ensure new plantings across the Borough can be increased by 130.000 trees during the project period 2022 - 2030.

Trees as living organisms have a finite life expectancy. Whilst relatively long-lived, the stress and strain of the urban environment significantly shortens their life span. Tree surveys and inspections in Halton have revealed a large number which are not suitable for their location in the medium to long term.

The expansion of tree cover will be on a planned basis. To build in resilience to pests and diseases, planting stock will be selected from a wide range of genera and species. The guiding principle for new planting will be using no more than 10% of the same species, no more than 20% of the same genus and no more than 30% from the same plant family. However, this principle must be balanced with other factors such as site conditions and design criteria. The best way to have a resilient urban forest is by increasing its biodiversity.

While the aim is to produce a more even spread of canopy cover over Council owned land it is important that we set targets to achieve this within Council tree planting budgets. As detailed earlier within the strategy, the Council has very high levels of canopy cover on land within its ownership.

The aim will be to retain and expand this cover in the following ways:

- Council owned street trees that are removed will be replaced on a one for one basis, using established nursery grown standard trees.
- Trees felled owing to them being inappropriate for their location will typically be replanted on a one for one basis.
- Trees felled within groups, avenues or woodlands will not be replaced, where it is considered appropriate arboricultural or woodland management, to reduce competition between species.

Many of the problems encountered during the daily management of trees can be directly attributed to the inappropriate choice of species at the time of planting. Greatest long term economic savings in tree management can be achieved by ensuring the philosophy of “Right Tree in the Right Place” is followed every time a new or replacement tree is selected and planted.

Deciding which tree species to plant will take account of a range of factors beyond purely ornamental or conservation values. Trees must be selected in the light of the need for resilience to changes caused by climate change in particular drought resistance. Some diseases such as Ash Dieback will be a major limiting factor for the use of certain species or genera.

Planting is only the first stage in the process of planted trees achieving independence in the landscape. Well drafted planting specifications will ensure healthy trees are established, failures minimised, and defects, which could affect the mature condition of the tree, removed at the time which is most cost effective. A tree requires space in which to grow if it is to thrive and provide its many positive benefits. To achieve this any proposed site should provide adequate space for both the tree and, most importantly, its root system to develop in the long-term. Species selection must be with consideration to the tree's ultimate size.

The constraints of the urban environment can make the planting of street trees and avenues impractical. With fore-planning and management of open spaces, the addition of trees within the urban environment can be created.

TP38: The Council will encourage an increase in tree cover by new and replacement planting, placing great emphasis on the use of appropriate tree species.

TP38.1: To implement the planting plan that sustains the tree population, with emphasis on the long-term replacement of mature and over mature trees.

TP38.2: Secure new external funding to ensure the delivery of the Big Halton Forest initiative.

TP38.3: As and when the prospect arises, to work with other organisations to secure additional funding streams for the establishment and management of tree stocks.

TP38.4: To pay careful attention to the site conditions in particular providing sufficient space for root development.

TP38.5: To ensure that all planting stock used, of whatever type, is healthy and has a well- formed root structure. Imported plants must have spent at least one growing season in the UK and be free from pests and diseases.
TP38.6: To ensure all newly planted trees achieve independence in the landscape by virtue of a sustained programme of maintenance.
TP38.7: As far as is practicable, reduce the tree maintenance commitment by the use of smaller planting stock that will establish quickly and require less attention.

TP39: To maintain a high level of training and awareness of tree pests and diseases and take prompt action, in accordance with best practice guidance, to, as far as is practicable, alleviate the impact when they are discovered.
TP39.1: The condition of Council owned trees will be monitored as part of the normal health and safety inspections policy and promptly dealt with if they present a significant risk to the public. This does not mean that all infected or dead trees will be removed. The Council's policy on tree pests will be reviewed on an annual basis.
TP39.2: Where appropriate and advised, simple biosecurity measures such as cleaning boots, shoes and tyres after visiting woodlands will be implemented.
TP39.3: With regard to protected trees, the Council will not grant permission to fell infected ash trees unless the disease has caused the tree to become dangerous or to present a significant health and safety risk.

9. CLIMATE CHANGE

The effects of climate change, caused by anthropogenic carbon emissions which are enhancing the greenhouse effect of the upper atmosphere include summer drought and more frequent storm events. Measures to address mitigation, adaptation and sequestration for these predicted effects of climate change will be incorporated into the tree and woodland strategy wherever possible, taking full account of the Halton Borough Council Climate Change Action Plan 2022 – 2027 and associated action plans.

The urban forests in the UK are anticipated to experience substantial effects due to climate change. This is projected to result in changes in the dynamics of tree growth, health, and species composition, impacting the overall ecosystem.

The effects that Climate Change can have on our urban forests:

- Increased Temperature:
  - Impact: Rising temperatures can lead to heat stress in trees, affecting their growth and overall health.
  - Shift in Species: Some tree species may struggle to adapt to higher temperatures, leading to a change in species composition in urban forests.

- Changes in Precipitation Patterns:
  - Drought Stress: More frequent and severe droughts can increase water stress in trees, making them more vulnerable to pests and diseases.
  - Flooding: Intense rainfall events can lead to soil erosion, root damage, and increased risk of tree failure in urban areas.

- Pests and Diseases:
  - Range Expansion: Warmer temperatures may allow pests and diseases to thrive in regions where they were previously limited, posing a greater risk to urban trees.
  - New Invasive Species: Climate change can facilitate the introduction and establishment of new invasive species that can harm urban forests.

- Extreme Weather Events:
  - Storm Damage: More frequent storms and extreme weather events can cause physical damage to trees, leading to loss of canopy cover and reduced urban forest resilience.
  - Windthrow: Increased wind speeds associated with climate change can uproot trees and impact the structural integrity of urban forests.
- Altered Growing Seasons:
  - Phenological Shifts: Changes in growing seasons and flowering times can disrupt the ecological relationships between trees, pollinators, and other wildlife in urban environments.
  - Early Leafing: Warmer temperatures may trigger early leaf emergence, exposing trees to late frosts and potential damage.
- Carbon Sequestration:
  - Reduced Capacity: Climate change can affect the ability of urban forests to sequester carbon, potentially reducing their role in mitigating greenhouse gas emissions.
- Change in Strategies:
  - Tree Selection: Planting climate-resilient tree species that are better adapted to future conditions.
  - Water Management: Implementing irrigation systems to mitigate drought stress and improve tree health.
  - Green Infrastructure: Integrating urban forests with green infrastructure to enhance resilience and provide multiple benefits to cities.

9.1 BIO SECURITY

Climate change presents significant challenges to the biosecurity of urban forests in the UK. The warming climate and changes in environmental conditions increase the risk of invasive species infestations. As temperatures rise, invasive pests and diseases find more favourable conditions for establishment and spread, posing a threat to the health of urban trees. This shift in pest dynamics could lead to the expansion of ranges for existing pests, introducing new threats to the urban forest ecosystem.

Implementing effective biosecurity measures is crucial for safeguarding the health of Halton's urban forests.

- Regular monitoring of tree health to detect early signs of pest infestations or diseases.
- Educating the public on the importance of biosecurity and the role they play in preventing the spread of pests.
- Prioritising purchase of UK and Ireland Sourced and Grown (UKISG) tree stock.
- Raising awareness among stakeholders about the risks associated with invasive species.
- Developing and implementing effective risk management strategies to mitigate biosecurity risks.
- Engaging with relevant agencies such as the Forestry Commission North West Tree Health Group and Forest Research Tree Alert to enhance biosecurity awareness.
- Operation staff will be made aware of biosecurity protocols and best practices to prevent the spread of pests and diseases
- Ensure that all equipment used during tree surgery, such as cutting tools and climbing gear, is properly sanitized to prevent cross-contamination when working with diseased trees.

Key practices including regular monitoring and surveillance to detect early signs of pest infestations or diseases. Education and awareness initiatives play a vital role in informing the public about biosecurity risks and prevention methods. Conducting thorough risk assessments helps identify potential threats, leading to the development of targeted management strategies.

Enforcing quarantine measures for plant material and implementing integrated pest management strategies are essential components of biosecurity planning. Collaboration with government agencies, research institutions, and local communities enhances biosecurity efforts. Training programs for arborists and greenspace management professionals will improve the Councils ability to respond to biosecurity threats effectively.

By following these best practices, urban forest managers and stakeholders can create a resilient and sustainable urban forest ecosystem that is better equipped to combat the challenges of invasive species and climate change.

10. PEST AND DISEASE

The management of our urban forests has always been a difficult task. Due to the expansion of urbanisation threatening out natural environment the increase in international trade and climate change our urban forests are now in an extremely vulnerable position.

Since the 1960s, the UK has lost approximately 30 million Elm (Ulmus procera) trees due to the spread of Dutch Elm Disease (Ophiostoma novo-ulmi). This is a good example of the extent a pathogen can have on our trees if not prepared.

Ash dieback (Hymenoscyphus fraxineus) has been present in the UK since 2012, we are expected to lose up to 80% of our Ash (Fraxinus excelsior). Phytophthora austrocedri and Phytophthora lateralis are also present in the UK. These pathogens alone can cause a devastating effect to our tree stock if not managed appropriately.

10.1 PRIORITY PESTS AND DISEASES THAT ARE PRESENT IN THE UK.

Ash dieback (Hymenoscyphus fraxineus)

Host species:
Ash, with European ash being very susceptible.

Figure 7: Diamond shaped lesion on the stem of Fraxinus exlecsior. Credit Peter Crow - Forest Research

Figure 8: Dieback of canopy in Fraxinus excelsior. Credit Gosling - Woodland Trust.

Ash Dieback, otherwise known as Chalara has had a significant impact on the ash trees of the UK. The disease was first identified in the UK in 2012 and has since spread throughout the country, affecting trees of all ages. The fungus grows inside the tree, blocking the essential water and nutrient transport systems, often leading to fatality. This disease has resulted in significant losses of ash trees in the UK.

Chalara causes distinctive diamond-shaped lesions on the branches and stems of the tree, usually near the point where a shoot or branch connects to the trunk. Other symptoms include wilting of leaves and shoots, as well as dieback of branches. Later in the season, small, white, cup-shaped fruiting bodies of the fungus can be found in the leaf litter at the base of the tree.

Acute oak decline (AOD)

Host trees:
Mainly pedunculate oaks and sessile oaks.

Figure 9: Bleeding on bark and leaf loss Credit: Forestry Commission.

Figure 10: D-shaped boring hole created from the native oak jewel beetle (Agrilus biguttatus) Credit: Forestry Commission.

AOD, is a complex disease involving several casual agents. AOD was discovered in the UK in the late 20th century. It mainly affects pedunculate and sessile oaks but can be found in other oak species. Researchers believe that AOD could occur due to environmental conditions and some studies have also shown it could be a result of historical stress. Research into this disease complex is ongoing.

AOD typically affects older oak trees, but it has also been found in younger trees. It causes dark bleeds down the trunk of the tree. You may find small, D-shaped exit holes of the oak jewel beetle in the bark. In severe cases the tree starts to lose leaves, causing the crown to thin. AOD can be fatal within 4 to 6 years of the symptoms first appearing.

Dothistroma septosporum

Host species:
A range of conifer species, in particular pines.

Figure 11: Red-brown needles caused by Dothistroma septosporum Credit: Forestry commission.

Figure 12: Discoloured leaves in canopy Credit: Forestry Commission.

Dothistroma needle blight is a disease of conifer trees, with pines demonstrating to be the most susceptible species. It has been spreading across the UK since the 1990s and is now found throughout the country. Its origin is unknown. The fungus causes the needles to develop red spots and bands. As the disease progresses, the entire needle turns a red-brown colour, while the needle base remains green. This typically occurs in the older needles first, making it possible to distinguish from frost damage, which affects younger needles initially. This infection leads to needle shedding in late summer. Continued shedding of needles over a few years can weaken the tree and be fatal.

Elm zigzag sawfly (Aproceros leucopoda)

Host trees:
English elm, wych elm, field elm.

Figure 13: Larvae of the Aproceros leucopoda eating the leaf of a elm tree Credit: Max Blake – Forest Research.

Figure 14: Elm leaf with a distintive zigzag pattern created by the larvae of the Aproceros leucopoda Credit: Peter Crow-Forest Research.

The elm zigzag sawfly is an invasive pest from eastern Asia. It poses a serious threat to our elm trees, which are already rapidly declining due to the introduced Dutch elm disease. If we experience additional losses of elm, it will further endanger our elm-dependent species, such as the white-letter hairstreak butterfly. Similar to many of our other priority pests, this pest causes damage to the tree during its larval stage.

The larvae resemble small green caterpillars and feed on elm leaves in a distinctive pattern, creating a zigzag between the leaf veins. However, it is important to note that as the larvae mature, these patterns become less noticeable, and eventually they stop feeding in this manner. Other signs of infestation include dieback and leaf loss. The elm zigzag sawfly is present in England, specifically in the South East and East Midlands.

Horse chestnut leaf miner (*Cameraria ohridella)*

Host trees:
Horse chestnut and some maple trees.

Figure 15: Horse chestnut leaf with Cameraria ohridella. Credit Suzy Sancisi - Forest Research.

The horse chestnut leaf miner is a species of moth believed to be native to south-eastern Europe. It was first discovered in the UK in 2002. This pest feeds on horse chestnut trees and shrubs of the Aesculus genus. Although it is thought not to pose a serious threat, its main impact is on the visual appearance of the tree.

The larvae of the horse chestnut leaf miner live and feed within the leaves of the tree. They create small white or brown blotches between the leaf veins, which can cause the entire leaf to turn brown later in the season. As a result, an infested horse chestnut tree can appear orangery brown in summer.

Oak processionary (Thaumetopoea processionea)

Host trees:
Oak trees (Quercus sp.).

Figure 16: Elm leaf with a distinctive zigzag pattern created by the larvae of the Aproceros leucopoda Credit: Peter Crow-Forest Research.

The Oak Processionary Moth (OPM) is originally from central and southern Europe but has since spread to northern Europe, possibly assisted by the trade and movement of live oak trees and currently present around London. OPM caterpillars feed on the foliage of oak trees, and their hairs can cause skin irritation, so it is important to avoid touching or approaching the caterpillars or their nests. In the UK, the government is currently conducting a surveillance and control programme to minimize the population and prevent further spread.

The caterpillars move in processions from their nests to feeding areas and are recognizable by their distinctive movement. They form a line, sometimes multiple caterpillars wide, and move together. Their nests, made from white silk-like material, can be found on branches or the trunk of the tree and range in size from that of a golf ball to a rugby ball. Caterpillars and nests are typically observed in late spring and summer. The adult OPM moth is seldom seen and can be difficult to identify.

Oriental chestnut gall wasp (*Dryocosmus kuriphilus)*

Host trees:
Sweet chestnut trees.

Figure 17: Photograph of Dryocosmus kuriphilus. Credit Gyorgy Csoka Hungry Forest Research Institute, Bugwood.org

Figure 18: Gall on Chestnut leaves. Credit: Matteo Maspero - Forestry Commision.

This pest was first discovered in 2015 by an Observatree volunteer in Greater London, indicating that it had spread from its potential introduction site or had been introduced twice. This pest is native to Asia and targets sweet chestnut trees. It has spread and is now present in and around London and the southeast.

This particular pest is the only known species that causes galls on sweet chestnut trees, so finding galls is an important symptom to watch for. Galls are circular growths that can appear on the buds, leaves, or leaf stalks. If a tree has many galls, it can weaken the tree, making it more vulnerable to other pests and diseases, such as sweet chestnut blight, which can be fatal.

Phytophthora austrocedri

Host species:
Juniper and cypress trees

Figure 19: Phytophthora austrocedri. Credit Forest Research.

Phytophthora austrocedri is a highly destructive pathogen that affects juniper and cypress trees, often leading to dieback and death. Its origin is currently unknown, but the disease was first identified in the UK in 2011 by Forest Research, during their study of dieback in juniper trees. The pathogen has been detected in England and Scotland but nowhere else.

This disease poses a significant threat to juniper, which is one of only three native conifer species in the UK. The remaining juniper woodlands are limited, and many of them are under protection. The pathogen has been discovered in the second largest juniper population at the Upper Teesdale National Nature Reserve.

The primary target of the pathogen is the tree roots, but it can also spread upward. Symptoms of infection include foliage discoloration, dieback, and lesions, which are not visible without removing the bark.

Phytophthora lateralis

Host species:
Mainly Lawson cypress.

Figure 20: Mainly Lawson cypress. Credit Ian Murgatroyd - Forestry Commision.

Phytophthora lateralis is a pathogen that affects the Lawson cypress tree. It can also affect red cedar, Sawara cypress, Pacific yew, and juniper. This phytophthora is thought to be from Asia. It was first found in the UK in 2010, but how it got here is unknown. It is possible it arrived on imported plants. It has been found in all four countries of the UK but tends to be found more in Scotland and Northern Ireland.

The pathogen primarily attacks the tree's roots but can move further up the tree. Symptoms include discoloration of foliage, dieback, and lesions. The lesions are not visible unless the bark is removed.

Sweet chestnut blight Cryphonectria parasitica

Host species:
European sweet chestnut.

Figure 21: Image of bark cracking from Cryphonectria parasitica. Credit Ana Pérez Sierra - Forest Research.

In North America, severe outbreaks of sweet chestnut blight have led to widespread losses of sweet chestnut trees. The disease originated from Asia and has been present in England since 2011, but only at a small number of sites in central and southern England. Any sites found with chestnut blight are subject to eradication programs.

The fungus enters the tree through bark cracks or wounds. There is some evidence that it can also enter via damage caused by the Oriental chestnut gall wasp. Symptoms include cankers, cracking and discoloration on the bark, bright orange fruiting bodies, wilting and dying back of foliage, and epicormic growth beneath the cankers.

10.2 DISEASES THAT ARE NOT YET PRESENT IN THE UK BUT ARE AT RISK OF ENTERING.

Agrilus fleischeri

Host trees:
Poplars and willows.

Figure 22: Agrilus fleischeri larval galleries. Credit Mr Zang Kai.

Figure 23: Adult Agrilus fleischeri with D-shaped exit hole. Credit Mr Zang Kai.

Like its relatives A. fleischeri is a wood borer, the larvae cause destruction by feeding and tunnelling under the bark of the tree. Whilst generally not fatal to the host it is thought that the beetles can reduce their productivity and vitality and make them more vulnerable to other pests and diseases. Fatal infestations have however been reported in Lombardy poplar (Populus nigra var. italica) in China, but the species also affects several other poplar species and narrow- leaf willow (Salix schwerinii).

The non-native but closely related A. ater has recently been found breeding in the UK and is physically similar to A. fleischeri. The larvae of both are found in poplar trees but A. ater seems to prefer stressed or dying trees whereas A. fleischeri appears to be more aggressive and can also attack healthy trees.

Signs to look out for include D-shaped exit holes in the bark, like other agrilus species. Infestation is likely to be difficult to detect until the symptoms become severe because much of the insect's life cycle is hidden within the tree.

Asian longhorn (Anoplophora glabripennis).

Host trees:
A broad variety of broadleaf trees.

Figure 24: Image of Anoplophora glabripennis. Credit George Gate - Forest Research.

Asian longhorn beetle is not currently known to be in the UK. In 2012 an outbreak occurred in Kent, resulting in a rapid eradication programme. This programme was successful, no evidence of Asian longhorn beetle has been found in the area since. This pest is native to Asia and could potentially enter the UK in wood products or live plants.

The beetles have a juvenile larval stage in their lifecycle. The larvae cause destruction by feeding and tunnelling under the bark of the tree. This can weaken the tree and ultimately be fatal. Signs to look out for include circular exit holes in the bark (I cm in diameter), sawdust-like waste material around the base of the tree and feeding damage to the bark, shoots and leaves. As most of the pest's life is spent inside the tree, detection can be difficult.

Emerald ash borer (Agrilus planipennis).

Host trees:
Most ash species.

Figure 25: Agrilus planipennis with D-shaped exit holes. Credit Fera Science Limited.

The emerald ash borer is a pest originally from Eastern Asia, but it has spread outside its native range to the USA and Canada, causing significant losses of ash trees. Its range is expanding westward across Eurasia, bringing it closer to the UK.

This pest causes damage to trees during its larval phase and spends most of its life inside the tree, making it hard to detect. The larvae feed within the tree, disrupting its essential water and nutrient transport systems. Symptoms of infestation include leaf loss, dying branches, epicormic growth, and larval galleries under the bark. When the adults emerge from the tree, they leave behind D-shaped exit holes. An infestation is usually fatal, and small trees can die within a year.

Plane wilt (Ceratocystis platani)

Host species:
Plane trees.

Figure 26: Wilting of foliage on a Plane tree. Credits Panos Tsopelas, FRIA, Greece.

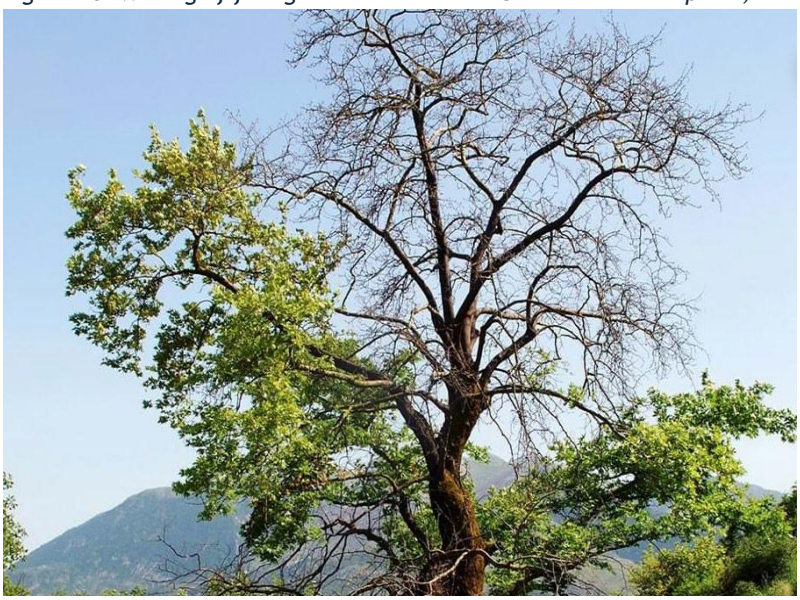


Figure 27: Staining of under bark. Credit Forest Research.

The causal agent is a fungus native to North America. It is not present in the UK but is present in mainland Europe and has been reported in countries as close as France. The disease affects the tree's water and nutrient transport systems and is fatal within 3 to 7 years of infection.

This disease causes sudden wilting of foliage. This can occur across the whole crown if the fungus entered via the roots, or in discrete areas of the crown if the fungus was introduced above ground. Leaf loss and yellowing may also occur. The disease causes cankers, these can be difficult to see and can appear as vertical cracks in the bark. Under the bark dark brown staining may be evident.

Although these pathogens are not yet present in the UK, they all pose a serious threat to Halton’s current tree stock.

11. PRIVATELY OWNED TREES AND WOODLAND POLICIES AND PRIORITIES

11.1 TREES AND DEVELOPMENT

The significance and changes to the National Planning Policy Framework (NPPF) and National Planning Practice Guidance means there will be major investment in housing, community facilities and infrastructure. This brings with it opportunities for innovative and strategically planned tree and woodland enhancement. It is essential that trees and woodlands are recognised as an essential part of the design and fabric of growth.

Accommodating the predicted growth in Halton's population and economy provides significant opportunities for a strategic approach to tree and woodland planting. There are several initiatives to enhance the natural environment. They all offer opportunities to increase the tree and woodland cover of Halton as part of the mosaic of green space and habitats. However, as each has its own agenda and priorities, efforts should be made to ensure that they are coordinated and complimentary.

The scale of development which will need to take place in the coming decades will facilitate significant funding for the creation of attractive and green residential and business environments. Developers have a valuable role as the key players in the majority of land use changes. They need to respect the existing trees and where appropriate incorporate tree planting within new developments. There is extensive research showing that retained trees and newly planted trees increase the sale value of new properties providing firm financial reasons for developers to consider trees as integral part of their projects.

TP40: The Council will respond to tree issues within planning applications, in accordance with Local Plan Policies, in such a way that ensures the retention of good quality trees and woodland coverage or ensures its creation. Development will not be supported that would directly or indirectly damage existing ancient woodland or ancient trees.

TP40.1: To be guided by best practices and local policies for a consistent approach to assessing planning applications.

TP40.2: Trees and woodlands are to be given significant consideration within planning applications, requiring submission of Arboricultural Impact Assessment (AIA) surveys in accordance with British Standard 5837:2012 "Trees in relation to demolition, design and construction – Recommendations". Where trees are on or within influencing distance of a potential development (within 15m of the development area) an AIA must be prepared and submitted as part of the planning application.

TP40.3: The British Standard sets out a process to protect trees at every stage of a development. The Council will, normally, condition the tree protection measures set out in the AIA. This will include proper provision for arboricultural supervision by a qualified Arboriculturist and a timetable for inspection visits and the method of reporting findings to all parties including Council Open Space Officers.

TP40.4: Producing an AIA is only the first stage in protecting trees during construction. The tree protection measures set out in the AIA are often either disregarded or are poorly implemented once planning permission has been granted. The Council will seek to enforce conditions relating to tree protection and to consider prosecution when planning conditions are breached or there are breaches of Tree Preservation Orders (TPO) or the requirements of Conservation Area regulations. Trees and woodlands need long term management to ensure their current and future value. Opportunities will be taken on both Council and private land to achieve this long-term management. This will be done through funding applications, working with communities, partner landholders and land managers and, within developments, through planning conditions and obligations as set out in the approved Delivery and Allocations Local Plan (2022).

TP40.5: It is extremely important that plans for remedial tree planting and green infrastructure submitted as part of planning applications come to fruition. When granting planning permissions, the Council will set conditions for the protection, planting and proper maintenance of trees and periodically check on compliance.
TP40.6: Where appropriate, the Council will allocate funds produced from the Community Infrastructure levy and external funding opportunities for community tree planting projects.
TP40.7: The Council will utilise planning powers to retain and protect good quality existing trees threatened by new development including changes to existing properties and enforce the tree protection measures put in place.

TP41: The Council will require that new and replacement tree and woodland planting to be included in new development proposals wherever it is practicable to do so.
TP41.1: To require developers to submit details of tree species, size of planting stock to be used and numbers to be planted as part of their proposals. Planting should aim to replace any loss of biomass and, where practicable, retain or increase the canopy cover on the site. Where it is difficult to achieve, the Council will consider offering alternative planting sites on its own land.
TP41.2: To ensure that provision made for tree planning takes account of industry best practice, in particular, BS 8545:2014 “Trees from nursery to independence in the landscape-Recommendations”. Further guidance is available from the publications of the Trees and Design Action Group (TDAG).
TP41.3: The Council will encourage planting of healthy plant material. In the light of the threat from imported pests and diseases all planting stock used in Halton should be healthy and sourced from reliable sources with appropriate documentation such as plant passports or Plant health management standard where required. While British grown stock is preferable, if imported stock is used it should have spent at least one year in a UK nursery under observation. Similarly, landscaping materials should be sourced from pest and disease-free areas only.

TP42: Biodiversity Net Gain (BNG) became mandatory on 12 February 2024. BNG is a way of creating and improving natural habitats. BNG makes sure development has a measurably positive impact (‘net gain’) on biodiversity, compared to what was there before development.
TP42.1: The Liverpool City Region is developing a Local Nature Recovery Strategy (LNRS). The LNRS enables the first step of urgent action required to restore the natural environment, which provides a range of benefits to the people of the region. Nature-based solutions can improve our air and water quality, help us to achieve Net Zero, build resilience to climate change and provide access to thriving green spaces. Council officers have submitted a long list of sites within Halton to the Liverpool City Region as opportunities for the delivery of the LNRS priorities within the Borough.
TP42.2: The Council will update its Bio-Diversity Action Plan (2003) to ensure the contribution of new tree plantings or other works (such as to water courses/reed beds) arising from the Big Halton Forest initiative or BNG can be realised.

TP43: Orchards. Traditional and organically managed orchards, such as at Norton Priory are a much-loved part of our heritage and countryside. They are recognised as a Priority Habitat by the Natural Environment and Rural Communities Act 2006. Orchards can be attractive places yielding food for people and habitat for wildlife. Threats to old orchards include neglect, intensification of agriculture and pressure from land development.
TP43.1: Halton BC will not allow the loss of traditional orchards to development and where traditional orchards are under threat it will protect these e.g. through the use of Tree Preservation Orders.
TP43.2 To encourage healthy eating and to provide the next generation of traditional orchards, HBC will support the planting of community orchards where possible.

12. TREE PRESERVATION ORDERS

There are currently 112 TPOs and 10 Local Authority Conservation Areas in Halton (Under review). The pressure for development sometimes necessitates the pro-active use of Tree Preservation Orders (TPO's). TPO's are also used reactively when a threat to the condition or retention of a tree is known. The Council will, as far as funding will allow review many of its older Tree Preservation Orders.

The work on trees protected by a TPO places a duty on the tree owner to be granted permission from the Council prior to undertaking the work. The Council has a duty to respond to these requests within 8 weeks. In the event that the Council refuse permission for work on, or removal of a protected tree, the owner can appeal to the Planning Inspectorate.

Before carrying out any tree work or felling of trees within a Local Authority Conservation Area the Local Planning Authority must be given six weeks advance notice. During the six-week period the Council may decide to protect the trees in question. However, if no response is received from the Council work may proceed.

To carry out work, damage or remove trees which are the subject of Tree Preservation Order or within a Conservation order without permission is a criminal offence that, on conviction, carries fines of up to £20,000 per tree. However, if trees are illegally removed to facilitate development, then the fine per tree is unlimited and may reflect the increase in land value that has resulted from the loss of the tree.

12.1 PROTECTION THROUGH ADVICE

Where necessary and appropriate the Council will provide advice on trees in relation to planning TPOs and work in Conservation areas with the aim of making the process more efficient and therefore provide a cost-effective service.

There are, unfortunately, many people willing to offer tree advice, which is inaccurate and may have serious consequences for the tree and its owner. Arboriculture is an established technical discipline where qualifications at various levels are available. Research is carried out to further our knowledge of trees and their care, good advice is available and should be sought from reliable sources. Tree owners should be aware that research has resulted in updated and changed tree management in the last 20 years. Consequently, any person offering advice should keep their knowledge up to date, through membership of an appropriate professional body.

Also of concern is the numbers of people who carry out tree surgery work whose technical abilities are poor. This can lead to low standards of work, which are not in the interests of the tree or its owner. Only reputable companies, capable of working to recognised standards of work such as "British Standard 3998: 2010, "Tree work Recommendations", should be engaged to carry out tree work. Companies or individuals undertaking tree work should hold Public Liability Insurance cover and proof of cover should be provided before commencement.

As the Local Planning Authority, the Council has a statutory duty to protect trees of greatest amenity value. This section sets out Halton Council's approach to the protection of privately owned trees.

TP44: The Council will seek to ensure that all trees and woodlands making a positive contribution to the environment* are protected.

TP44.1: To utilise and enforce planning powers to retain and protect trees through Tree Preservation Orders and Conservation Area status.
TP44.2: To comment and advise on strategy and other initiatives which affect trees and woodlands. *based on the quality and value categorised using the criteria within BS5837:2012 Trees in relation to design, demolition and construction – Recommendations

TP45: The outright removal of good quality trees and woodlands shall be resisted unless there are sound arboricultural and technical reasons such as irrefutable evidence of damage caused to a property by soil volume change associated with trees.

TP45.1: To protect trees of amenity value.

TP46: The Council will promote public awareness and a better understanding of tree and woodland management through community consultation and involvement and via its established communication channels.

TP46.1 The Council will promote good standards of tree and woodland care.
TP46.2: To, as far as possible, encourage owners of notable trees that are worthy of protection to adopt better practices of tree care. TP45.3: To support community tree initiatives.
TP46.4: To support the work of national bodies such as the Tree Council.
TP46.5: To publish suitable advisory information on the Council website.

12.2 FORESTRY FELLING

Statutory protection is afforded to trees under the Forestry Act 1967 (as amended) and permission from the Forestry Commission (FC) to fell growing trees is often required. There are certain exemptions which include trees in gardens, orchards, Churchyards and designated public open spaces. This permission is granted by the FC via a Felling Licence. Typically, an application would be required where trees above 8 cm stem diameter at 1.3 m diameter above ground level need to be felled. If the felling is for thinning a plantation the minimum diameter rises to 10 cm and in the case of coppicing the minimum is 15 cm. A licence is not needed to fell up to 5m3 of timber within a given calendar quarter. However, this drops to 2m3 if the timber is sold. Any felling approved as part of a planning permission will not need a felling licence. Felling trees within the scope of the regulations without a felling licence is illegal and subject to prosecution and fines.

12.3 TREE PROTECTION

Sale of Council land

Where Council land is sold or leased there may be an increased risk of tree loss and failure to replace them. Valuable trees will be identified and protected prior to sale or transfer of the land to retain the Borough's asset for the benefit of the wider population.

In conjunction with its duty, as set out in the Town and Country Planning Act, the Council will incorporate policies relating to Trees and Woodlands within its Local Development Framework. Policies protecting trees exist within the Core Strategy and Planning Policies Development Plan documents.

12.4 MEMORIAL TREE PLANTING

Requests for tree memorialisation can sometimes be accommodated within parks or cemeteries wherever such requests coincide with planned revisions to existing planting schemes. Any agreed planting will be subject to the conditions of the Memorial Tree Planting in Parks Policy.

Customer Advice:
Requests for memorial tree planting should be made to the Parks Manager at: Environment Services, Picow Farm Depot, Runcorn WA7 4UB or via HDL@halton.gov.uk.

There is a cost attached to all memorial plantings. The price is variable and will be based upon the cost of the tree, planting materials and associated labour. However, due the tree being a species and siting/location of the Council's choosing, the final cost to the client will represent a percentage of the total cost, the remainder being met by the Council as part of a wider scheme.

TP47: Requests for tree memorialisation can sometimes be accommodated within parks and cemeteries wherever such requests coincide with planned revisions to existing planting schemes.
In the planning of such works, suitable plots within the park will have been identified in advance by parks management along with a suitable species of tree for that given location.

TP47.1: At the point of request, clients may be invited to select one of these plots (complete with the allocated tree species for that plot), and then invited to contribute towards the establishment of that tree.
TP47.2: Plantings will not be accompanied by a plaque in any case; however accurate maps and records will be kept of all trees which have been planted in conjunction with a request for memorialisation. A copy of this plan may be supplied on request to the contributing party so they may retain a record of where the tree is located, its species and date of planting.
TP47.3: Aspects of the planting procedure will be completed in accordance with the Council's standard tree planting good practice.
TP47.4: Every stage of the planting process will be completed by parks staff and at a time of the departments choosing. The scheduling of planting may be subject to changes at short notice due to variables such as unsuitable weather conditions.
TP47.5: The time of planting will be communicated to the contributing party; however, it is not intended that plantings become a ceremony of any kind.
TP47.6: Where the planting takes place in the absence of the contributing party, they will be contacted shortly afterwards and informed that the planting has been completed.
TP47.7: Except where Civic requirements dictate, Tree plantings will only take place at a suitable time of year (usually mid-winter). This will often lead to a delay between the initial request for memorialisation and the final planting operation but will give the greatest chance of successful establishment of the tree.
TP47.8: The cost of memorial planting does not entitle the requesting party to ownership of the tree.
TP47.9: The tree will remain the property of the Council and as such the Council assume responsibility for all aspects of maintenance and aftercare of the tree and reserve the right to carry out any form of maintenance necessary to keep the tree in a safe and healthy condition for the duration of its life.
TP47.10: In the case of trees becoming damaged or failing beyond natural recovery during its normal establishment period, the Council will replace the tree with a similar species where possible.
TP47.11: In cases where a tree successfully establishes, matures and reaches the end of its natural life, the Council reserves the right to remove the tree and not replace it.
TP47.12: No other form of memorials shall be placed on or around the tree or upon the surrounding ground. Any such additional memorial or decoration will be removed and disposed of by Council staff.

13. SUMMARY OF THE KEY ELEMENTS TO THIS STRATEGY

This strategy highlights the immense value of Halton's trees and woodlands to the wellbeing of its residents and the substantial contribution it makes to Halton's sustainable future. The focus of this new strategy is consolidation of the Council's trees stocks; the majority are even aged and all growing towards maturity at the same time. Up to this point they have required relatively low maintenance. However, increasing growth rates are causing conflicts with private properties on the boundaries of the woods and close to trees growing within residential areas. Dealing with these problems is taking up a high proportion of the allocated funds and unless positive management steps are put in place the level of service requests will increase exponentially.

It is important that the need for this programme is recognised, and adequate resources allocated. Faults of both design and implementation such as planting trees too close to each other and buildings and allowing deviation from carefully planned species layouts and mixtures need rectifying by restructuring woodlands, and tree and tree groups in residential areas. Where it is necessary to remove trees, these will be replaced with more suitable species while retaining or improving the level of canopy cover. Shallow, narrow crowned and un-thinned trees provide only a fraction of the ecosystem services of healthy full crowned trees.

Dense woods prevent light reaching the ground leading to lack ground flora and poor natural re- generation of tree species. It is therefore necessary to instigate a programme of periodic thinning in many of the woods and tree groups. The tree stock must be carefully managed to provide a degree of resilience to both imported pests and diseases and the climate change. The expansion of the `urban forest' will be a priority to ensure that the ecosystem services can be maintained to meet the needs of a growing population. However, this will be carefully planned and targeted to as far as possible avoid the mistakes of the past. Development in Halton presents both challenges and opportunities for its tree cover. The Council will seek to ensure suitable trees are retained on development sites and commensurate and appropriate provision is made for new tree planting and green space.

Unless adequate resourcing chains are provided there is a danger that the problems will get progressively worse to the point where the tree stocks become a negative asset. It is hoped that both stakeholders and residents of Halton will appreciate that the `urban forest' requires careful management to thrive and provide the considerable benefits of which it is capable. The Council's policies and priorities contained in this strategy represent a commitment to sustainable management of Halton's trees for both the existing and future generations. Every effort has been taken to make this Tree and Woodland Strategy as comprehensive as possible. However, we acknowledge that it would not be possible to anticipate every eventuality. The Council therefore reserves the right to exercise discretion in application of policies where this is in the best interests of the Council.

14. ACKNOWLEDGEMENTS

This strategy has been developed with assistance from The Mersey Forest and supported by data from Tree Equity Score UK. We carry out tree risk assessments using the QTRA methodology when appropriate.

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16. GLOSSARY OF TERMS

Ancient Trees – Trees significantly older, and often larger in girth, than the general tree population providing a rich variety of habitats for wildlife.

Ancient Woodlands – Woodland thought to have been in existence since at least 1600 and designated on the Natural England register of ancient woodlands.

Biomass – Renewable vegetation that can be used as a carbon neutral fuel source. This includes not only the timber but small branches and foliage.

Carbon neutral fuel - The term carbon neutral fuel is used for wood used for fuel that comes from sustainably managed woodlands where the carbon loss will rapidly be mediated by replacement trees

Canopy Cover – The area of ground occupied (covered) by the overall branch spread of trees normally expressed as a percentage of the total land area.

Coppice and Standards – A traditional woodland management practice of retaining a proportion of single stemmed trees within an area of coppice to grow on for timber production

Coppicing – a pruning technique where a tree or shrub is cut to ground level, resulting in regeneration of new stems from the base. It is a popular conservation practice for the benefits it offers to wildlife and to the trees themselves. Trees naturally retrench (shedding their branches to extend their lifespan) and coppicing can be an excellent way of simulating this to increase the life of the tree. It also increases biodiversity, as greater amounts of light can reach the ground, allowing other species to grow there. Many of these species are food sources for butterflies and other insects, which in turn provide food for birds, bats and mammals. Management of the Council's structure planting (tree and shrub plantations where the coppice management is applied) is carried out in accordance with horticultural best practice standards and is a well-established operation that has been in place since the late 1990's.

Ecosystem disservices – Trees can cause problems in conditions particularity when growing in close association with roads, railways and buildings.

Trees can also have negative effects on the urban atmosphere for example roadside trees trapping polluting gasses under the canopy. However, most researchers see the net effect of trees on the atmosphere as positive.

Ecosystem Services – Services provided by trees and vegetation that contribute to the quality of the environment such as their capacity to sequester carbon from the atmosphere and reduce surface water runoff.

Heat Island Effect – Urbans areas are warmer than the surrounding countryside by virtue of the concentrated activities their population particularly energy use. Hard surfaces store thermal energy and release it slowly keeping up nighttime temperatures. In heat waves urban conditions can lead to even higher temperatures.

High Water Demand Trees – Trees that take up large amounts of water from the soil in comparison to other species with a lesser capacity to extract water.

Mature trees – Trees in the second third of their life cycle and still growing strongly.

Natural Regeneration – Young self-sown trees derived from naturally distributed seed produced by nearby trees.

Newly planted trees – Trees that require regular maintenance and have yet to become established in the landscape

Over mature trees – Trees in the final third of their life expectancy and beginning to decline with very slow growth rates of growth or signs of natural retrenchment (bare dead branches in the upper crown with a healthy but reduced crown at a lower level)

Pollarding – A traditional management technique often used in deer parks and wood pasture which involves cutting off the tree at a height of around 3 to 4 m on a cyclical basis to provide firewood and small poles; the regrowth is then safe from browsing livestock and deer. In an urban situation pollarding is often used to control the crown spread of trees and reduce the water demand. Cyclically reducing trees to a low framework of branches is a form of pollarding. Some species are particularly tolerant of this treatment such and lime, London plane and willow.

Semi Mature Trees – Trees in the first third of their life cycle and growing strongly.

SUDS – Acronym for Sustainable Urban Drainage Schemes which allow for natural drainage of water runoff from roofs and hard surfaces into the ground, rather than directing runoff into the sewerage and main drainage systems.

Specimen Trees - Largely free standing, Council owned trees in streets or public open spaces.

Structured Soils – Specially formed soils that can be compacted but still allow root growth and water percolation. Normal structural soils have a high percentage of sand and gravels.

Tree Stocks – The total of Council owned trees.

Tree Belt – Narrow belt of trees typically 15 to 20 m often planted for screening and shelter. Tree belts were widely planted by PDC surrounding residential areas and edging roads.

Urban Forest – All trees and woody vegetation which grow within a town or city, or any urbanized area collectively form the urban forest regardless of ownership. This includes street trees, Parks and gardens both public and private, trees in woodlands and along waterways and trees on agricultural land.

Veteran Trees – Traditionally, trees with the same characteristics as given for ancient trees. However, more recently, the term has been expanded to include trees of any age that have features that support wildlife such as splits, cracks, holes and dead wood.

Wet Woodlands – Woodland growing on soils subject to seasonal waterlogging, often in river valleys and adjacent to watercourses. Common species in wet woodlands include alder, willow, aspen and birch.

Whips – Transplanted and bare rooted nursery stock 60 cm to 1.2 m.

Young Trees – Recently established trees that have achieved independence in the landscape.

Appendix 1 - The Right Tree in the Right Place Framework

Right Tree in the Right Place Framework

Landscape Impact

- Consider the existing use of the space and question whether the presence of trees would be a positive addition.
- Identify the landscape type and what constraints this will place on the selection of species.
- Examine existing habitats to assess their compatibility with additional trees and woodlands and therefore the latter's ability to add value.
- Establish the history of tree cover to determine whether new additions would be appropriate.

Site Constraint

- Maintain local distinctiveness
- Assess the impact of planting on vistas.
- Consider the presence of underground and overhead services.
- Meet the statutory safety requirements of access for pedestrians and vehicles.
- Assess impact on the nearest buildings to be sure that future potential problems can be minimised, particularly
- subsidence.
- Prioritise sites in relation to where greatest public benefit can be realised.

Species Consideration

- Select species known to thrive on the soil type, its compaction, nutrients and available water.
- Consider space available relative to size of tree at maturity unless the tree is destined for controlled management such as coppicing or pollarding.
- Select the largest growing species the site will reasonably accommodate.
- Consider use of natural regeneration where appropriate.
- Use native species where possible.
- Maintain diversity within the tree population planting no more that 10%of any species, 20% of any genus and 30% of any plant family.
- Consider the species' tolerance to disease and wind damage.
- Consider the use of fruit tree planting as a productive and attractive feature.
- Consider potential nuisance of fruit fall in the autumn, slippery paths, and associated requests for service to deal with problems.

Appendix 2 - Consultation Protocol

Consultation Protocol

TREE WORK OPERATIONS - tree Work Operations are described as follows:

Major Tree Work Operations

These operations are classified as any work that alters the appearance of a tree significantly. These works may include:

- Felling of any live tree over 20cm diameter at 1.5m from ground level.
- Transplanting a tree that, prior to transplantation, does not require the support of a stake or underground guying system.
- Major crown reduction - in excess of 30% of the canopy.
- Pollarding, if the tree has not been pollarded before, or has not been pollard within the last 10 years.
- Coppicing, if the tree has not been coppiced before, or has not been coppiced within the last 20 years.
- Schedule of minor works that would have a significant cumulative impact on a landscape character or habitat.

Minor Tree Work Operations

These procedures are good management practice and are carried out in accordance with BS 3998:2010 'Tree Work-Recommendations'. Some of the operations are undertaken on a regular, cyclical basis. The work should have no adverse impact upon the health of the tree, or significantly change its appearance, such that the amenity of the tree, or the townscape, is diminished. This work includes the following operations:

- Felling of dead trees.
- Felling of dying or diseased trees, where 40% of the canopy has died and no recovery is possible.
- Felling of newly planted trees that had been damaged, vandalised, diseased, dead or dying.
- Pollarding, when the tree is under a regular management regime.
- Coppicing, when the tree is under a regular management regime.
- Formative pruning of young trees to promote a well-developed canopy.
- Cleaning out the canopy. This operation includes the removal of dead wood, diseased or dying branches and snags, which may harbour pests and diseases. It also includes the removal of crossing branches, unwanted climbing plants and objects.
- Crown lifting is a procedure which removes the lower branches from the main stem, or branch system, up to a specified height above ground. It is usually carried out to provide sufficient headroom for pedestrians, cyclists and vehicles to pass under the canopy, or to allow light to reach surrounding plants and buildings.
- Crown thinning is an operation carried out to reduce the density of foliage. This may help to make the tree safer by reducing wind resistance, giving a more balanced weight distribution and removing unsafe branches. It stimulates good growth by admitting more light and air to the crown and encourages good branch development in young trees. Thinning may also be carried out to allow light into buildings.
- The following pruning operations: - The removal, or shortening, of branches which are interfering with overhead public utility wires and lamp heads; The removal, or shortening of branches which would, in time, become excessively long and heavy; Shortening branches so as to manage excessive end weight; Removing, or shortening, branches which are weakly attached, dead, detached but hanging, cracked, seriously decayed or a hazard; Balancing the crowns of storm-damaged trees; Crown reduction and crown thinning to reduce the lever arm or the sail area of hazardous trees and root pruning to abate minor structural damage, or a trip hazard.

TREE MANAGEMENT PROCEDURES

Tree Management Procedures fall within four categories which are described as follows:

Proactive Works: These are the subject of planned management surveys. These surveys are usually undertaken on a cyclical basis. In some circumstances, the client service may request a survey to be undertaken of a tree(s) on land for which it is responsible. Works set out in the schedules may include tree work operations of a major and minor nature.

Reactive Works: This is reactive work. It is usually scheduled in response to enquiries or notifications to the Council but may also include work identified as part of an unscheduled inspection. Works may include operations of a major and minor nature.

Emergency Works: These works are required to make a tree safe without delay.

Under the Framework Agreement the contractor appointed to deal with such work shall be available 24 hours a day, 365 days a year, and is required to respond to a call out immediately. Occasionally, an event may occur whereby a tree does not present a hazard, but the situation, or circumstance, requires an immediate solution which can only be resolved by pruning or felling. These works may include operations of a major and minor nature.

Urgent Works: These works are required to rectify a hazard and, in accordance with the Framework Agreement, must be undertaken within 7 or less working days. These works may include operations of a major and minor nature.

CONSULTATION PROCESS FOR TREE WORK OPERATIONS

Major Tree Work Operations Consultation will take place in advance of any works being undertaken. The consultation will comprise the following:

1. Relevant Ward and Parish Councillors shall be advised of Major tree work operations that are programmed 14 days in advance of the works.
2. The works will be advertised on the Council's website.
3. Notices shall be posted on trees stating the nature of the proposals and a brief explanation for the reasons for undertaking the work.

Minor Tree Work Operations Consultation – no formal consultation will take place in advance of the works other than relevant Ward Members and Parish Councils notified of the pro-active works commencing in their area.

Emergency Works Consultation - No consultation will be undertaken Urgent Works Consultation - No consultation will be undertaken.

Duty to consult on the felling of Street Trees - Under Section 115 of the Environment Act 2021, the Council has a statutory duty to consult with residents on the felling of street trees where no exemptions apply. The Council anticipates that the Duty to Consult will be required on a small number of trees felled under the Authority's control.

In order to ensure that members of the public are aware of the proposed felling, the local highway authority should ensure that: A notice is placed on the street tree or trees in question; the consultation runs for at least 28 days; the local highway authority publishes a response to the consultation. After 2 years the results of the consultation will expire, and a new consultation must be undertaken if the local highway authority wishes to fell any street tree or trees previously consulted on.

The Duty to Consult does not apply to trees that are:

a) of a diameter not exceeding 80mm (measured over the bark, at a point 1.3 metres above ground level).

b) dead. A dead tree no longer produces leaves or foliage (where it should). The stem's outer bark and cambial tissue layers are dead.

c) required to be felled under the Plant Health Act 1967. Under this Act, statutory plant health notices can be issued that require the owner or manager to eradicate or contain notifiable pests and diseases. This can include felling a tree and failure to comply can result in enforcement action and prosecution. An order must be received under this Act for the removal of the tree/trees for this exemption to apply.

d) required to be felled under any enactment on the basis that the tree is dangerous. required to be felled to comply with a duty to make reasonable adjustments in the Equality Act 2010 because the tree is causing an obstruction (see section 20 of that Act). Under this act, trees can be required to be felled if the authority considers that this is necessary to comply with its duties under the act because the tree is causing an obstruction. This exemption does not apply where appropriate and proportionate engineering solutions can remedy the obstruction and felling is not required to meet these duties.

e) required to be felled to comply with a duty in section 29 of the Equality Act 2010 (prohibitions on discrimination etc in the provision of services) because the tree is causing an obstruction. Under this act, trees can be required to be felled if the authority considers that this is necessary to comply with its duties under the act because the tree is causing an obstruction. This exemption does not apply where appropriate and proportionate engineering solutions can remedy the obstruction and felling is not required to meet these duties.

f) required to be felled for the purpose of carrying out development authorised by planning permission granted under section 70, 73, 76D, 77 or 79 of the Town and Country Planning Act 1990. Provided that the planning permission specifically permits the felling of the street tree or trees in question.

g) required to be felled for the purpose of carrying out development authorised by outline planning permission granted under section 92 of the Town and Country Planning Act 1990. Provided that the planning permission specifically permits the felling of the street tree or trees in question

h) subject to other exemptions. A Statutory Undertaker undertaking emergency operational works that require the felling of a street tree.

Appendix 3 - Summary of Tree Policies

TP1: The Council will maintain its trees and woodlands in accordance with its obligations to observe duty of care and the safety of both people and property.

TP2: The Council will encourage a better understanding of tree and woodland management and in so doing promote community involvement.

TP3: The removal of trees and woodlands shall be resisted, unless there is sound Health and Safety, or arboricultural reasons supported within this strategy.

TP4: The Council will maintain its trees and woodlands in a way that demonstrates best practice, providing worthy examples of management for others to follow.

TP5: Council trees will not be pruned or removed to stop or reduce bird droppings from trees, nor will the Council remove bird droppings from private land.

TP6: Council trees will not be removed to stop or reduce blossom from trees and fallen blossom will not be removed from private land.

TP7: Policy: The Council will carry out work to a Council owned tree with the aim to maintain a minimum of:

- Road – 5.5 metre height clearance
- Cycle path next to a road or highway – 3 metres height clearance
- Footpath next to a road or highway – 2.5 metres height clearance

TP8: Council owned trees will not be pruned or removed to stop the nuisance of overhanging branches.

TP9: The roots of Council owned trees will not be pruned, removed, or cut to prevent roots entering a drain that is already broken or damaged.

TP10: Council owned trees will not be pruned or removed to stop or reduce the nuisance of fruit, berries, nuts, or seeds, nor will the Council remove fallen fruit, seeds or seedlings from private land including gutters.

TP11: There is no general policy to remove trees bearing poisonous fruit / foliage (such as yew trees). However, where it is claimed or known that unsupervised young children or livestock are likely to be exposed to poisonous berries or foliage, such cases will be investigated and appropriate action considered.

TP12: Council owned trees will not be pruned or removed to stop or reduce leaf fall nor will the Council remove fallen leaves from private property.

TP13: A Council owned tree will not be pruned or removed to improve natural light in or to a property. This includes properties with (or planned to be installed) solar panels.

TP14: Council owned trees will not be pruned or removed to stop or reduce the nuisance of sucker growth on private land.

TP15: There is no policy regarding personal medical conditions that may be specifically affected by nearby Council owned trees. Such cases will be investigated, and appropriate action considered.

TP16: Council owned trees will not be pruned or removed to stop or reduce the release of pollen.

TP17: Work on Council owned trees will be undertaken to maintain clear sight lines (where feasible) at junctions, access points (associated with a street, road, or highway), traffic signals and street signs.

TP18: Policy: Council owned trees will not be pruned or removed to reduce honeydew or other sticky residue from trees.

TP19: The Council has in place active tree management systems to minimise risk of damage being caused to buildings and other structures because of the action of Council owned trees.

TP20: The Council will make safe an unacceptable trip hazard caused by the growth of Council owned trees.

TP21: If a Council owned tree is touching a property (house, boundary wall, garage etc.) action will be taken to remove the problem.

TP22: Council owned trees will not be pruned or removed because they are considered to be too big or tall.

TP23: Council owned trees will not be pruned or removed to prevent interference with TV / satellite installation / reception.

TP24: Council owned trees will not be pruned or removed to improve the view from a private property.

TP25: Council owned trees will not be pruned or removed to stop or reduce incidents of perceived pests such as bees, wasps, or wild animals, unless it is in the national or public safety interest to do so due to a harmful invasive species.

TP26: To endeavour to protect street trees from threats such as loss of verges and damage to same.

TP27: To place a priority on the replacement of ageing street trees; particularly where these adjoin major traffic routes. Planting will ensure the selection of the most appropriate species for the location.

TP28: To renew and restructure tree stocks planted within residential areas;

TP29: To maintain formal arboricultural features in the urban landscape by careful management and timely renewal as required.

TP30: To take action to restructure avenue trees planted with inappropriate species too close to neighbouring properties.

TP31: To maintain tree cover within Halton's parks by renewing the tree stocks and increasing the range of age classes present.

TP32: The Council will seek to reduce impact of woodland trees on adjoining properties.

TP33: Woods will be managed in a fully sustainable manner which will include periodic thinning to allow proper crown development and light to reach the woodland floor.

TP34: The woods will not be clear felled and management will be on a continuous cover basis.

TP35: The Council will encourage community involvement and where practical, advise residents when work is proposed.

TP36: To maintain formal arboricultural features in the Highway by careful management and timely renewal as required.

TP37: The Council will preserve and enhance the distinctiveness of village and rural trees in its ownership.

TP38: The Council will encourage an increase in tree cover by new and replacement planting, placing great emphasis on use of appropriate tree species.

TP39: To maintain a high level of training and awareness of tree pests diseases and take prompt action, in accordance with best practice guidance, to, as far as is practicable, alleviate the impact when they are discovered.

TP40: The Council will respond to tree issues within planning applications, in accordance with Local Plan Policies, in such a way that ensures the retention of good quality trees and woodland coverage or ensures its creation. Development will not be supported that would directly or indirectly damage existing ancient woodland or ancient trees.

TP41: The Council will require that new and replacement tree and woodland planting to be included in new development proposals wherever it is practicable to do so.

TP42: Biodiversity Net Gain (BNG) became mandatory on 12 February 2024. BNG is a way of creating and improving natural habitats. BNG makes sure development has a measurably positive impact ('net gain') on biodiversity, compared to what was there before development.

TP43: Orchards. Traditional and organically managed orchards, such as at Norton Priory, are a much-loved part of our heritage and countryside. They are recognised as a Priority Habitat by the Natural Environment and Rural Communities Act 2006. Orchards can be attractive places yielding food for people and habitat for wildlife.

TP44: The Council will seek to ensure that all trees and woodlands making a positive contribution to the environment* are protected.

*based on the quality and value categorised using the criteria within BS5837:2012 Trees in relation to design, demolition, and construction – Recommendations

TP45: The outright removal of good quality trees and woodlands shall be resisted unless there are sound arboricultural and technical reasons such as irrefutable evidence of damage caused to a property by soil volume change associated with trees.

TP46: The Council will promote public awareness and a better understanding of tree and woodland management through community consultation and involvement.

TP47: Requests for tree memorialisation can sometimes be accommodated within parks wherever such requests coincide with planned revisions to existing planting schemes.

Appendix 4 - A Strategy for Halton's Trees and Woodlands Part 2: Tree Risk Assessment

1. Tree Risk Management

The Local Authority either in its capacity as owner or manager, is responsible for trees located on land for which it manages or has control over under the Health and Safety at Work Act 1974 and the Occupiers Liability Act 1999. As such, it has a common law and statutory duty of care in relation to its trees.

Compliance with this duty requires the operation of a reasonable systematic inspection of all its trees and to ensure that members of the public and staff are not put at risk because of a failure by the Council to take all reasonable precautions to ensure their safety.

A Risk Assessment is required under the Management of Health and Safety Regulations 1999 along with a need to inspect trees in or near public places, or adjacent to buildings or working areas. This is to assess whether they represent a risk to life or property, and to take any remedial action as appropriate.
This document sets out minimum standards of inspection; competence and record keeping that Halton Borough Council will commit to and is in accordance with the industry guidelines.

2. The Nature of Tree Risk Failure

Where land is constantly occupied by people or by valuable property, a moderately small tree might, by virtue of its position, represent a significant "Risk of Harm". On the other hand, a large tree in an area of low access such as a remote woodland or country park will represent only a very low "Risk of Harm" even where its stability is substantially compromised.

In the latter scenario, access to a remote area will be considerably reduced during the high wind events that are most likely to result in failure of trees and as a result the risk from tree failure in these areas is further reduced.

3. The System

Halton Borough Council has adopted a system known as Quantified Tree Risk Assessment (QTRA). This methodology has led the way in the field of tree safety management with a risk assessment approach that is led by the usage and value of the targets having potential to be affected by trees. The target led approach to tree safety management is a considerable shift from the generally accepted wisdom where the tree assessor focuses on identifying defects in trees and then seeks to remove or modify the tree.

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 the survey of trees. When the risk overview is complete, the assessment will usually record only the general attributes of groups or collections of trees.
Assessing and recording individual trees will be necessary only where they are likely to be significant in relation to the targets.

3.1 Target

In tree risk assessment, a target is a person/s or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it.

3.2 Definition of Tree Failure Hazards

For a tree-failure hazard to exist, two criteria must be fulfilled. There must be potential for failure of the tree and potential for injury or damage to result. The issue that the inspector must address is the likelihood, or risk, of a combination of factors resulting in harm, and the likely severity of the harm. The starting point of the inspection process is to establish that there is potential for significant harm to occur, and in this regard, there must be something of significance (a significant 'target') that is exposed to a risk from tree failure. *There cannot be a significant risk of significant harm in the absence of something significant to be harmed.*

At all times hazards are to be assessed in relation to the target. Parts of the tree or group that are not significant in their relationship with targets will not be assessed further for tree failure.

3.3 Hazard

A hazard is the disposition of a thing, a condition, or a situation to produce injury (Health and Safety Executive 1995) A tree-failure hazard is present when a tree has potential to cause harm to people or property.

3.4 Probability

Statistical probability is a measure of the likelihood of something happening.

3.5 Risk

Risk is the probability of something adverse happening. The QTRA system is a risk assessment process which uses numerical estimates.

3.6 Reasonable Practicability

The concept of ''reasonable practicability" is a central tenet of English law, which is evident throughout the English Health and Safety legislation and guidance (e.g. Health and Safety at Work Act 1974), and in judgements of the higher courts in relation to tree failure.

3.7 Acceptable Risk

The Local Authority is constantly exposed to risk and accepts or rejects risks of varying degrees.

When evaluating tree-failure hazards, two types of risk will be considered. Consideration is given to the person upon whom a risk is imposed.

With regard to the level of acceptable risk, The British Medical Associations Guide "Living with Risk" (Henderson 1987) states *'few people would commit their own resources to reduce an annual risk of death that was already as low as 1/10,000'*. It is therefore suggested that a 1/10,000 might be a suitable place to start with the limit of acceptable risk. The Health and Safety Executive identified that 'For members of the public who have a risk imposed on them 'in the wider interest' HSE would set this limit at 1/10,000 per annum.'

3.8 Cost and Benefit

The benefits of trees are always under-estimated; they are essential to our well-being and enhance our built and natural environments. It is essential within our management principles to maintain a balance between the benefits of risk reduction and the cost of risk reduction; not only financially but also in terms of the lost amenity and other tree related benefits.

3.9 Assessing the Level of Risk and Zoning

Assessments will be undertaken by the appropriately qualified Council Officer with sufficient local knowledge and with advice from relevant on-site staff and colleagues.

Zoning is a practice whereby landowners and managers define areas of land according to levels of use. This practice prioritises the most used areas, and by doing so contributes to a cost-effective approach to tree inspection and focusing resources where most needed. As groups and individual trees are inspected, each area is assigned a refined risk zone which will in turn inform the re-inspection regime for that tree or group of trees.

For a programme of tree inspection to be manageable, most resources need to be directed to areas where there is potentially most risk to people and property. This is initiated by designating a site, or each part of a site to one of three Risk Zones (Table 1 refers).

These zones will reflect typical usage but must be kept under review. The level of risk changes over time. For example, plans to hold an event involving many people in a moderate risk zone will change its status to high risk for the duration of the event; new facilities or activities may change the patterns of public usage permanently and may require a review of the designated risk zone originally associated with the area in which the trees or tree groups are located.

The designation of Risk Zones is a matter of informed judgement and periodic review. It is the responsibility of the Council to ensure that risk is periodically reviewed, realistically assessed and decisions documented within the inspection data.

The criteria to define Halton Council tree risk zones shown in Table 1, are as follows:

- Highway characteristics are prioritised according to traffic volume, speed, and emergency accessibility. Top priority areas include congested junctions, major roads, and emergency access routes.
- Public areas and buildings are prioritised according to occupancy. Top priority areas around schools, shopping precincts, emergency, and medical facilities.
- Tree population characteristics are primarily prioritised according to age and species. Discrete populations of trees that are mature to over-mature, or key single veteran specimens will be prioritised.

Table 1 - Tree risk zone categories and examples

Hazard Zone Categories	Examples of target criteria
High Hazard *N.B. All Highway Inspections are undertaken every 6 months as a minimum by virtue of the planned highway inspection. Non-highway related sites are inspected every 18 months*	• Street trees in defined town centre. Inspection areas include Category 1 footways • Street trees on Category 2 footways • Street trees on urban Category 2 & 3 roads (40mph and below) • Public buildings (high use sites) * • Schools and Social Service sites* • Footpaths and cycle ways* • Major play areas* • Parks and public space areas* • Cemeteries • Seating areas • Car park areas adjacent to high use sites* • Sites identified by Open Space Officers as high risk • Trees with high-risk characteristics identified by Open Space Officers *High use sites = >36 people per hour Sites to receive Highway Tree Inspections are marked blue and underlined (4.1 refers).
Medium Hazard *Inspections every 2½ years*	• Street trees on Category 2 & 3 rural routes (over 40mph) • Public buildings (all other sites with moderate use) ** • Schools and Social Services** • Informal play areas, minor paths, and grass recreational areas** • Woodlands** • Car parks** • Sites identified by Open Space Officers as moderate risk • Trees with moderate risk characteristics identified by Open Space Officers • **Medium use sites = <36 people per hour • Sites to receive Highway Tree Inspections are marked blue and underlined (4.1 refers).
Low Hazard *Highway or Level 1 Inspection every 5 years*	• Street trees on remaining roads, detached footways or cycle ways • Low use parks or public areas with dispersed recreation • Open areas, woodland and peripheral areas with limited use or access • Pedestrian rates lower than 1 per hour • Trees with moderate risk characteristics identified by Open Space Officers • Sites to receive Highway Tree Inspections are marked blue and underlined (4.1 refers).

The timing of high and moderate risk inspection is designed to ensure that trees are seen at different times of year, both in the winter and when in leaf. This will give a better overall indication of a tree's physiological and structural condition. It would be an advantage if the low-risk inspections are carried out at different times of the year for the same reason. Sites should be checked for hazardous trees or branches after strong winds.

3.10 Assessing Hazards

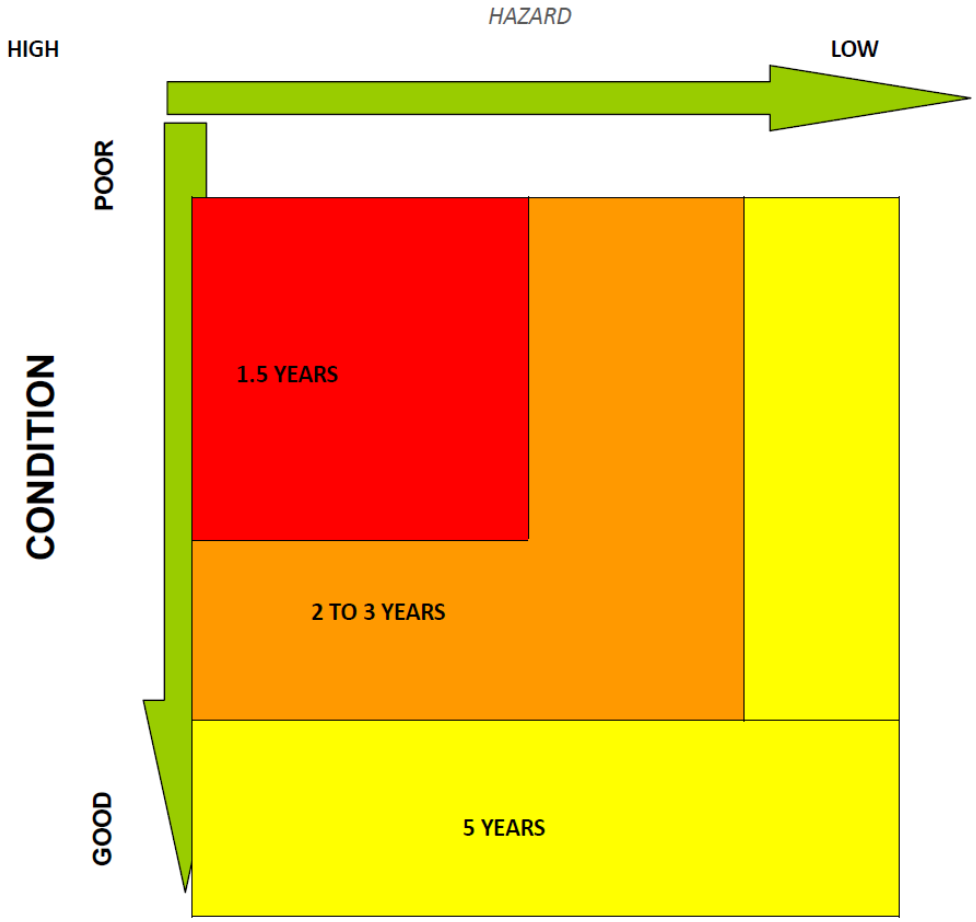
Many trees are potentially hazardous, but only the conditions most likely to lead to injury or damage to people or property can reasonably be addressed by inspectors. In practice only visible defects are likely to be identified during an initial survey unless a more detailed individual inspection is undertaken.

It is the responsibility of the inspector to ensure that the hazard is assessed within a level of their competency and recorded accurately. The frequency, condition and method of inspection will reflect the designated Risk Zones shown within the tables below.

Table 2 - Frequency and method of inspection showing the reflection of designated Risk Zones

Hazard Zone Categories	**Timing of Inspections**	**Recommended Inspection Methods**	**Comments**
High Hazard	<1.5 years	Walk-by tree inspections	Trees will be viewed from all sides using a systematic process to look for obvious defects. (4.4 Refers - Competence)
Medium Hazard	2 to 3 years	Walk-by tree inspections	
Low Hazard	5 yearly	Walk-by tree inspections	

Table 3 - Frequency of inspection showing target and tree condition for re-inspections



The timing of inspections is to be led by two components. If for example a tree in good condition in a high hazard area the inspection regime will be 5 years. If a tree is identified as in poor condition and in a low hazard area the inspection will still be 5 years.

3.11 Recording Information

The Council uses Alloy as its tree management system, which enables tree inspectors to record and store all inspections and public enquiries with a clear audit trail.

Information is recorded against individual trees or groups irrespective of whether works are specified or not. Where it is appropriate, photographic evidence will be attached to the tree record for future reference.

3.12 Work Priorities

The priority for implementing remedial action will depend on both the assessment of risk, presented hazards and the subsequent risk score.

In a high-risk area trees which show obvious signs of imminent collapse, or are otherwise seriously hazardous, should be dealt with immediately on the best advice of the inspector.

Works identified during inspections will be prioritised as follows within Table 4.

Table 4 - Reactionary timescales following inspection

Urgency	Risk of harm	Notes	Time to complete works
Emergency	High	Response to trees where the associated risks are perceived to be imminently dangerous.	Council will attend site and make safe normally within 1 hour and always within 2 hours. The site can be made safe by completing works or by cordoning off area/s at risk until works are completed.
Urgent	Medium	Response to trees where the associated risks are perceived as urgent but not imminently dangerous.	7 working days to complete. If resources are not available to complete works within 7 working days then areas at risk will be cordoned off.
Essential	≥1/10,000 per year	Works on trees that are not considered high risk but where remedial work is required.	1 year to complete
Desireable	≥1/10,000 per year	Improvement works to enhance streetscene or public space...Work to abate nuisance caused by Council trees.	5 years to complete
Private - Urgent	*The degree of risk will determine the actions to be taken by the local authority. In the first instance the owner or occupier will be given every opportunity to mitigate the risk posed**	Response to trees where the associated risks are perceived to be imminently dangerous. Site can be made safe by completing work, or by cordoning off areas at risk until work completed	Council will attend site and make safe normally within 1 hour and always within 2 hours. The site can be made safe by completing works or by cordoning off area/s at risk until works are completed.

*The local authority can act without consent using the Local (Miscellaneous Provisions) Act 1976 (Section 5 refers).

3.13 General Legal Duty

No matter how low the risks, the need remains to consider the safety of trees under the Local Authority control. Halton Borough Council as owners have a duty (under English Law) to ensure, as far as reasonably practicable, that people and property are not exposed to unreasonable levels of risk from the mechanical failure of trees under the Council's control.

To achieve this, evaluation of tree hazards is only carried out by trained Council Officers, and experienced or qualified Council Arborists (Section 4.3 refers).

4. The Tree Inspection Procedure

It is the responsibility of the Council to ensure that tree safety inspection procedures are in place and that they are undertaken only by staff or others who meet the requirements of competency (4.4 refers).
Initial assessment; detailed inspection and prescribing remedial action need not be undertaken by the same person.

4.1 Highway Tree Inspections

This type of inspection is restricted to all highways in Halton. The inspection will be carried out by Highway Inspectors as part of their inspection process at frequencies dictated by a risk-based code of practice and defects found will be recorded in the Mayrise computerised system. Highway Inspectors will have attained the Level 1 Tree Inspection Certificate. The procedure will ordinarily consist of a walked inspection consistent with current highway inspection procedures. The inspector will observe trees within the highway on both sides on the road systematically looking for obvious defects that are described in the Level 1 Tree Inspection Course (4.4 refers).

Occasionally and where appropriate, drive by inspections will be undertaken by two officers, one a dedicated driver whilst the other person observes. If a defect is seen that requires closer investigation, a more detailed inspection will be undertaken on foot.

It should be noted that reliance on drive-by inspections is not appropriate in busy urban areas. Initial drive-by inspections can, when appropriate, assist in deciding where tree management, walk-over or detailed inspection might be necessary.

Where tree defects are found on the highway, these will be referred to Open Space Officers to inspect in greater detail, who will initiate the remedial action.

4.2 Level 1 Tree Inspections

This inspection procedure will be carried out at all other Council sites, public buildings, parks, woodlands, and open spaces. The frequency of inspections will be dictated by the site zoning regime shown in Table 2. The person carrying out the inspection will have attended the Level 1 Tree Inspection Course, passed the assessment, and gained the Level 1 Tree Inspection Certificate (4.4 refers).

4.3 Professional Tree Inspections

Halton Borough Council's Open Space Officers are qualified and can demonstrate competence to undertake systematic expert tree inspection, in order to identify and recommend remediation for hazards arising from impaired condition or structural integrity in trees.

These inspections will be undertaken following identification of significant defects by Highway Tree and Level 1 Inspections. Professional Tree Inspections will also be carried out in response to reactive Level 1 Inspections. Systematic inspections of high-risk trees identified by the Council's Open Space Officers will be carried out at the designated times.

4.4 Competence

The rating of target areas (zoning) must be done in accordance with the guidelines in table 2 above and by suitably qualified members of staff and who may have specific local knowledge.

The HSE (2007) considers that someone to be competent requires a working knowledge of trees and their defects but need not be an arboricultural specialist.

The Council has finite resources to reasonably meet its duty of care by demonstrating a defendable, proactive tree management regime. Currently, trees will receive initial inspection as per the frequencies shown in Table 2, and by officers who have received, as a minimum the initial basic tree survey training - a Level 1 Tree Inspection Course. Trees identified with defects and consequently posing a medium to high risk to the public are referred to Open Space Officers who have training and experience to undertake a systematic professional tree inspection in order to identify and recommend remediation of hazards arising from impaired condition or structural integrity.

Officers who are undertaking initial inspections, the Council will ensure the provision of a Level 1 Tree Inspection Course based on accredited courses delivered by the Arboricultural Association or LANTRA. This one-day course is designed for people with limited, or no arboricultural knowledge. The Level 1 course is also a preliminary qualification for tree surgeons, dedicated tree inspectors, and assistant and principal arboricultural officers wishing to complete a higher-level programme. There is an assessment at the end of the day. A certificate is awarded to those candidates who pass the assessment.

The candidates on the course are trained to visually assess a tree for obvious defects, record them, assign a hazard rating, and provide a report of their findings. The type of defect that a candidate is trained to look for are detailed below:

- Dieback of the crown – i.e. foliage not dense, foliage not the right colour or size
- Dead branches (especially on species that are not oaks)
- Dead trees
- Detached branches, hanging branches or branches lodged within the canopy
- Compression forks
- Cracks and splits
- Major or numerous cavities
- Dead bark
- Significant bulges
- Evidence of root damage or severance
- Presence of ivy and its significance
- “Bleeding” areas and fluxes

There can be only 3 outcomes of a Level 1 inspection:

1) The tree has no observed significant defects and therefore requires no action
2) The tree requires a more detailed inspection, or the inspector needs further advice or clarification from an Open Space Officer. The inspectors will be trained to assign a priority of low, medium, or high risk so that a professional tree inspection can be programmed accordingly
3) The work is an emergency (such as a hanging branch over a highway or footpath, or a tree is in imminent danger of collapse).

Depending on the competence and confidence of individual employees, Level 1 Tree Inspection training may need to be refreshed. However, the skills learnt on the course will be applied regularly through inspection and the employee will learn informally from the Open Space Officers as and when further advice is sought. It is therefore possible that refresher training will be rendered unnecessary.

NB. It is important that Level 1 Tree Inspectors are aware of current legislation relating to trees and wildlife and Halton Borough Council's Tree Policy when carrying out their inspections.
In emergency situations the Level 1 inspector can order the work directly e.g. for a hung-up branch over a busy carriageway.
Although emergency work is exempt from the Tree Preservation Order and Conservation Area legislation the Local Planning Authority must still be notified of works carried out to trees subject to such constraints.

4.5 Reactive and Emergency Tree Inspections

In addition to the planned inspections, reactive Level 1 Tree Inspections will be carried out because of customer complaints, concerns and enquiries, events, storms or following reports of damage to a tree or its root system from accidental or environmental causes.

5. Inspection of Trees in Private Ownership

Trees on private land within falling distance of a highway, or Borough Council land can also present a hazard to the public.

Owners are responsible for trees on their property and have a legal duty of care. "This duty of care is to take reasonable care to avoid acts or omissions that cause a reasonably foreseeable risk of injury to persons or property" (NTSG 2010). Best practice advice on fulfilling this duty is now available from the National Tree Safety Group (NTSG).

It is advisable for Level 1 Tree Inspectors, when looking at trees to give a cursory glance to neighbouring trees within falling distance of the Highway or Council land. They should note any trees that may be of concern to them during their planned inspection. They should follow the procedure for further advice or assistance from the Council's Open Space Officers

6. Measuring Performance

The following local indicators have been developed to measure the performance of all the key areas of the system.

- Percentage of work required on Council owned trees falling in the emergency category (target annual reduction)
- Percentage of planned work undertaken on time (target annual increase)
- Percentage of re-inspections undertaken within the assigned re-inspection date – target percentage rate is 100%

Performance targets will be further defined as data becomes available from tree inspections.

7. References

Ellison, M.J. (2005) Quantified Tree Risk Assessment (QTRA)

Lonsdale, D. (1999) Principles of Tree Hazard Assessment, Stationary Office Health and Safety Executive (1996) Use of Risk Assessments within Government Departments - HSE Books

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Mynors, C. (2002) - The Law of Trees, Forests and Hedgerows Adams, J. - Arboricultural Journal 2007 Dangerous Trees

Local (Miscellaneous Provisions) Act 1976 c.57 Part 1 GENERAL - Dangerous trees and excavations s23

Highways Act1980 c.66 Part IX LAWFUL AND UNLAWFUL INTERFERENCE WITH HIGHWAYS AND STREETS s154

Appendix 5 - QTRA Practice Notes - Quantified Tree Risk Assessment - Balancing Risks with Benefits

"When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind"

William Thomson, Lord Kelvin, Popular Lectures and Addresses [1891-1894]

1. INTRODUCTION

Every day we encounter risks in all our activities, and the way we manage those risks is to make choices. We weigh up the costs and benefits of the risk to determine whether it is acceptable, unacceptable, or tolerable. For example, if you want to travel by car you must accept that even with all the extensive risk control measures, such as seat-belts, speed limits, airbags, and crash barriers, there is still a significant risk of death. This is an everyday risk that is taken for granted and tolerated by millions of people in return for the benefits of convenient travel. Managing trees should take a similarly balanced approach.

A risk from falling trees exists only if there is both potential for tree failure and potential for harm to result. The job of the risk assessor is to consider the likelihood and consequences of tree failure. The outcome of this assessment can then inform consideration of the risk by the tree manager, who may also be the owner.

Using a comprehensive range of values1, Quantified Tree Risk Assessment (QTRA) enables the tree assessor to identify and analyse the risk from tree failure in three key stages. 1) to consider land-use in terms of vulnerability to impact and likelihood of occupation, 2) to consider the consequences of an impact, taking account of the size of the tree or branch concerned, and 3) to estimate the probability that the tree or branch will fail onto the land-use in question. Estimating the values of these components, the assessor can use the QTRA manual calculator or software application to calculate an annual Risk of Harm from a particular tree. To inform management decisions, the risks from different hazards can then be both ranked and compared and considered against broadly acceptable and tolerable levels of risk.

A Proportionate Approach to Risks from Trees

The risks from falling trees are typically low and high risks will usually be encountered only in areas with either elevated levels of human occupation or with valuable property. Where levels of human occupation and value of property are sufficiently low, the assessment of trees for structural weakness will not usually be necessary. Even when land-use indicates that the assessment of trees is appropriate, it is seldom proportionate to assess and evaluate the risk for each individual tree in a population. Often, all that is required is a brief consideration of the trees to identify gross signs of structural weakness or declining health. Doing all that is reasonably practicable does not mean that all trees must be individually examined on a regular basis (HSE 2013).

The QTRA method enables a range of approaches from the broad assessment of large collections of trees to, where necessary, the detailed assessment of an individual tree.

Risk of Harm

The QTRA output is termed the Risk of Harm and is a combined measure of the likelihood and consequences of tree failure, considered against the baseline of a lost human life within the coming year.

ALARP (As Low as Reasonably Practicable) Determining that risks have been reduced to As Low as Reasonably Practicable (HSE 2001) involves an evaluation of both the risk and the sacrifice or cost involved in reducing that risk. If it can be demonstrated that there is gross disproportion between them, the risk being insignificant in relation to the sacrifice or cost, then to reduce the risk further is not 'reasonably practicable'.

Costs and Benefits of Risk Control

Trees confer many benefits to people and the wider environment. When managing any risk, it is essential to maintain a balance between the costs and benefits of risk reduction, which should be considered in the determination of ALARP. It is not only the financial cost of controlling the risk that should be considered, but also the loss of tree-related benefits, and the risk to workers and the public from the risk control measure itself.

When considering risks from falling trees, the cost of risk control will usually be too high when it is clearly 'disproportionate' to the reduction in risk. In the context of QTRA, the issue of 'gross disproportion'2, where decisions are heavily biased in favour of safety, is only likely to be considered where there are risks of 1/10 000 or greater.

Acceptable and Tolerable Risks

The Tolerability of Risk framework (ToR) (HSE 2001) is a widely accepted approach to reaching decisions on whether risks are broadly acceptable, unacceptable, or tolerable. Graphically represented in Figure 1, ToR can be summarised as having a Broadly Acceptable Region where the upper limit is an annual risk of death 1/1 000 000, an Unacceptable Region for which the lower limit is 1/1 000, and between these a Tolerable Region within which the tolerability of a risk will be dependent upon the costs and benefits of risk reduction. In the Tolerable Region, we must ask whether the benefits of risk control are sufficient to justify their cost.

In respect of trees, some risks cross the Broadly Acceptable 1/1 000 000 boundary but remain tolerable. This is because any further reduction would involve a disproportionate cost in terms of the lost environmental, visual, and other benefits, in addition to the financial cost of controlling the risk.

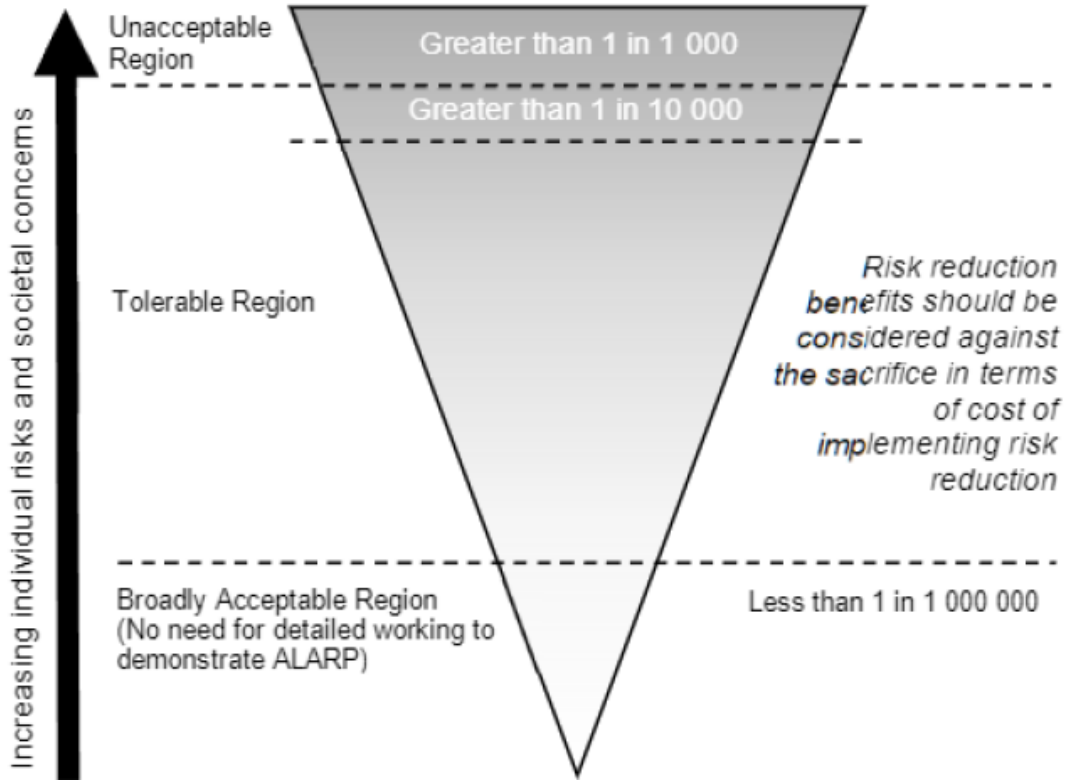
Enable damage to property to be compared with the loss of life, allowing the comparison of risks to people and property. Secondly, the proportionate allocation of financial resources to risk reduction can be informed by VOSL. "A value of statistical life of £1 000 000 is just another way of saying that a reduction in risk of death of 1/100 000 per year has a value of £10 per year" (HSE 1996).

Internationally, there is variation in VOSL, but to provide consistency in QTRA outputs, it is suggested that VOSL of £2 000 000 should be applied internationally. This is ultimately a decision for the tree manager.

2. OWNERSHIP OF RISK

Where many people are exposed to a risk, it is shared between them. Where only one person is exposed, that individual is the recipient of all of the risk and if they have control over it, they are also the owner of the risk. An individual may choose to accept or reject any particular risk to themselves when that risk is under their control. When risks that are imposed upon others become elevated, societal concern will usually require risk controls, which ultimately are imposed by the courts or government regulators.

Figure1: Adapted from U1e Tolerability of Risk framework (HSE 2001).



Value of Statistical Life

The Value of Statistical Life (VOSL) is a widely applied risk management device, which uses the value of a hypothetical life to guide the proportionate allocation of resources to risk reduction. In the UK, this value is currently in the region of £2 000 000, and this is the value adopted in the QTRA method.

In QTRA, placing a statistical value on a human life has two particular uses. Firstly, QTRA uses VOSL enable damage to property to be compared with the loss of life, allowing the comparison of risks to people and property. Secondly, the proportionate allocation of financial resources to risk reduction can be informed by VOSL. *"A value of statistical life of £1 000 000 is just another way of saying that a reduction in risk of death of 1/100 000 per year has a value of £10 per year"* (HSE 1996).

Internationally, tl1ere is variation in VOSL, **but** to provide consistency in QTRA outputs, it is suggested that VOSL of £2 000 000 should be applied internationally. This is ultimately a decision for the tree manager.

Although QTRA outputs might occasionally relate to an individual recipient, this is seldom the case. More often, calculation of the Risk of Harm is based on a cumulative occupation - i.e. the number of people per hour or vehicles per day, without attempting to identify the individuals who share the risk. Where the risk of harm relates to a specific individual or a known group of people, the risk manager might consider the views of those who are exposed to the risk when making management decisions. Where a risk is imposed on the wider community, the principles set out in the ToR framework can be used as a reasonable approach to determine whether the risk is ALARP.

3. THE QTRA METHOD - VERSION 5

The input values for three components of the QTRA calculation are set out in broad ranges of Target, Size, and Probability of Failure. The assessor estimates values for these three components and inputs them on either the manual calculator or software application to calculate the Risk of Harm.

Assessing Land-use (Targets)
The nature of the land-use beneath or adjacent to a tree will usually inform the level and extent of risk assessment to be carried out. In the assessment of Targets, six ranges of value are available. Table 2 sets out these ranges for vehicular frequency, human occupation, and the monetary value of damage to property.

Human Occupation
The probability of pedestrian occupation at a particular location is calculated on the basis that an average pedestrian will spend five seconds walking beneath an average tree. For example, an average occupation of ten pedestrians per day, each occupying the Target for five seconds is a daily occupation of fifty seconds, giving a likelihood of occupation 1/1,728. Where a longer occupation is likely, as with a habitable building, outdoor café, or park bench, the period of occupation can be measured, or estimated as a proportion of a given unit of time, e.g. six hours per day (1/4). The Target is recorded as a range (Table 2).

Weather Affected Targets
Often the nature of a structural weakness in a tree is such that the probability of failure is greatest during windy weather, while the probability of the site being occupied by people during such weather is often low. This applies particularly to outdoor recreational areas. When estimating human Targets, the risk assessor must answer the question ‘in the weather conditions that I expect the likelihood of failure of the tree to be initiated, what is my estimate of human occupation?’ Taking this approach, rather than using the average occupation, ensures that the assessor considers the relationship between weather, people, and trees, along with the nature of the average person with their ability to recognise and avoid unnecessary risks.

Vehicles on the Highway
In the case of vehicles, likelihood of occupation may relate to either the falling tree or branch striking the vehicle or the vehicle striking the fallen tree. Both types of impact are influenced by vehicle speed; the faster the vehicle travels the less likely it is to be struck by the falling tree, but the more likely it is to strike a fallen tree. The probability of a vehicle occupying any particular point in the road is the ratio of the time it is occupied - including a safe stopping distance - to the total time. The average vehicle on a UK road is occupied by 1.6 people (DfT 2010). To account for the substantial protection that the average vehicle provides against most tree impacts and in particular, frontal collisions, QTRA values the substantially protected 1.6 occupants in addition to the value of the vehicle as equivalent to one exposed human life.

Property

Table 1. Size

Size Range	Size of tree or branch	Range of Probability
1	> 450mm (>18”) dia.	1/1 - >1/2
2	260mm (10 1/2”) dia. - 450mm (18”) dia.	1/2 - >1/8.6
3	110mm (4 1/2”) dia. - 250mm (10”) dia.	1/8.6 - >1/82
4	25mm (1”) dia. - 100mm (4”) dia.	1/82 - 1/2 500

* Range 1 is based on a diameter of 600mm.

Property can be anything that could be damaged by a falling tree, from a dwelling, to livestock, parked car, or fence. When evaluating the exposure of property to tree failure, the QTRA assessment considers the cost of repair or replacement that might result from failure of the tree. Ranges of value are presented in Table 2 and the assessor’s estimate need only be sufficient to determine which of the six ranges the cost to select.

In Table 2, the ranges of property value are based on a VOSL of £2 000 000, e.g. where a building with a replacement cost of £20 000 would be valued at 0.01 (1/100) of a life (Target Range 2).

When assessing risks in relation to buildings, the Target to be considered might be the building, the occupants, or both. Occupants of a building could be protected from harm by the structure or substantially exposed to the impact from a falling tree if the structure is not sufficiently robust, and this will determine how the assessor categorises the Target.

Multiple Targets

A Target might be constantly occupied by more than one person and QTRA can account for this. For example, if it is projected that the average occupation will be constant by 10 people, the Risk of Harm is calculated in relation to one person constantly occupying the Target before going on to identify that the average occupation is 10 people. This is expressed as Target 1(10T)/1, where 10T represents the Multiple Targets. In respect of property, a Risk of Harm 1(10T)/1 would be equivalent to a risk of losing £20 000 000 as opposed to £2 000 000.

Tree or Branch Size

A small dead branch of less than 25mm diameter is not likely to cause significant harm even in the case of direct contact with a Target, while a falling branch with a diameter greater than 450mm is likely to cause some harm in the event of contact with all but the most robust Target. The QTRA method categorises Size by the diameter of tree stems and branches (measured beyond any basal taper). An equation derived from weight measurements of trees of different stem diameters is used to produce a data set of comparative weights of trees and branches ranging from 25mm to 600mm diameter, from which Table 1 is compiled. The size of dead branches might be discounted where they have undergone a significant reduction in weight because of degradation and shedding of subordinate branches. This discounting, referred to as ‘Reduced Mass’, reflects an estimated reduction in the mass of a dead branch

Table 2. Targets

Target Range	**Property** (repair or replacement cost)	**Human** (not in vehicles)	**Vehicle Traffic** (number per day)	**Ranges of Value** (probability of occupation or fraction of £2 000 000)
1	£2 000 000 – >£200 000	**Occupation:** Constant – 2.5 hours/day **Pedestrians & cyclists:** 720/hour – 73/hour	26 000 – 2 700 @ 110kph (68mph) 32 000 – 3 300 @ 80kph (50mph) 47 000 – 4 800 @ 50kph (32mph)	1/1 – >1/10
2	£200 000 – >£20 000	**Occupation:** 2.4 hours/day – 15 min/day **Pedestrians & cyclists:** 72/hour – 8/hour	2 600 – 270 @ 110kph (68mph) 3 200 – 330 @ 80kph (50mph) 4 700 – 480 @ 50kph (32mph)	1/10 – >1/100
3	£20 000 – >£2 000	**Occupation:** 14 min/day – 2 min/day **Pedestrians & cyclists:** 7/hour – 2/hour	260 – 27 @ 110kph (68mph) 320 – 33 @ 80kph (50mph) 470 – 48 @ 50kph (32mph)	1/100 – >1/1 000
4	£2 000 – >£200	**Occupation:** 1 min/day – 2 min/week **Pedestrians & cyclists:** 1/hour – 3/day	26 – 4 @ 110kph (68mph) 32 – 4 @ 80kph (50mph) 47 – 6 @ 50kph (32mph)	1/1 000 – >1/10 000
5	£200 – >£20	**Occupation:** 1 min/week – 1 min/month **Pedestrians & cyclists:** 2/day – 2/week	3 – 1 @ 110kph (68mph) 3 – 1 @ 80kph (50mph) 5 – 1 @ 50kph (32mph)	1/10 000 – >1/100 000
6	£20 – £2	**Occupation:** <1 min/month – 0.5 min/year **Pedestrians & cyclists:** 1/week – 6/year	None	1/100 000 – 1/1 000 000

Vehicle, pedestrian, and property Targets are categorised by their frequency of use or their monetary value. The probability of a vehicle or pedestrian occupying a Target area in Target Range 4 is between the upper and lower limits of 1/1 000 and >1/10 000 (column 5). Using the VOSL £2 000 000, the property repair or replacement value for Target Range 4 is £2 000 - >200.

Probability of Failure

In the QTRA assessment, the probability of tree or branch failure within the coming year is estimated and recorded as a range of value (Ranges 1 – 7, Table 3).

Selecting a Probability of Failure (PoF) Range requires the assessor to compare their assessment of the tree or branch against a benchmark of either a non- compromised tree at Probability of Failure Range 7, or a tree or branch that we expect to fail within the year, which can be described as having a 1/1 probability of failure.

During QTRA training, Registered Users go through a number of field exercises in order to calibrate their estimates of Probability of Failure.

Table 3. Probability of Failure

Probability of Failure Range	**Probability**
1	1/1 - >1/10
2	1/10 - >1/100
3	1/100 - >1/1 000
4	1/1 000 - >1/10 000
5	1/10 000 – >1/100 000
6	1/100 000 – >1/1 000 000
7	1/1 000 000 – 1/10 000 000

The QTRA Calculation

The assessor selects a Range of values for each of the three input components of Target, Size and Probability of Failure. The Ranges are entered on either the manual calculator or software application to calculate a Risk of Harm.

The Risk of Harm is expressed as a probability and is rounded, to one significant figure. Any Risk of Harm that is lower than 1/1 000 000 is represented as <1/1 000 000. As a visual aid, the Risk of Harm is colour coded using the traffic light system illustrated in Table 4 (page 7).

Risk of Harm - Monte Carlo Simulations

The Risk of Harm for all combinations of Target, Size and Probability of Failure Ranges has been calculated using Monte Carlo simulations[4]. The QTRA Risk of Harm is the mean value from each set of Monte Carlo results.

In QTRA Version 5, the Risk of Harm should not be calculated without the manual calculator or software application.

Assessing Groups and Populations of Trees

When assessing populations or groups of trees, the highest risk in the group is quantified and if that risk is tolerable, it follows that risks from the remaining trees will also be tolerable, and further calculations are unnecessary. Where the risk is intolerable, the next highest risk will be quantified, and so on until a tolerable risk is established. This process requires prior knowledge of the tree manager's risk tolerance.

Accuracy of Outputs

The purpose of QTRA is not necessarily to provide high degrees of accuracy, but to provide for the quantification of risks from falling trees in a way that risks are categorised within broad ranges (Table 4).

4. INFORMING MANAGEMENT DECISIONS

Balancing Costs and Benefits of Risk Control

When controlling risks from falling trees, the benefit of reduced risk is obvious, but the costs of risk control are all too often neglected. For every risk reduced there will be costs, and the most obvious of these is the financial cost of implementing the control measure. Frequently overlooked is the transfer of risks to workers and the public who might be directly affected by the removal or pruning of trees. Perhaps more importantly, most trees confer benefits, the loss of which should be considered as a cost when balancing the costs and benefits of risk control.

When balancing risk management decisions using QTRA, consideration of the benefits from trees will usually be of a very general nature and not require detailed consideration. The tree manager can consider, in simple terms, whether the overall cost of risk control is a proportionate one. Where risks are approaching 1/10 000, this may be a straightforward balancing of cost and benefits. Where risks are 1/10 000 or greater, it will usually be appropriate to implement risk controls unless the costs are grossly disproportionate to the benefits rather than simply disproportionate. In other words, the balance being weighted more on the side of risk control with higher associated costs.

Considering the Value of Trees

It is necessary to consider the benefits provided by trees, but they cannot easily be monetised, and it is often difficult to place a value on those attributes such as habitat, shading and visual amenity that might be lost to risk control.

A simple approach to considering the value of a tree asset is suggested here, using the concept of “average benefits”. When considered against other similar trees, a tree providing “average benefit”’ will usually present a range of benefits that are typical for the species, age, and situation. Viewed in this way, a tree providing “average benefits” might appear to be low when compared with particularly important trees – such as in Figure 2 but should nonetheless be sufficient to offset a Risk of Harm of less than 1/10 000. Without having to consider the benefits of risk controls, we might reasonably assume that below 1/10 000, the risk from a tree that provides ‘average benefits’ is ALARP.

In contrast, if it can be said that the tree provides lower than average benefits because, for example, it is declining and in poor physiological condition, it may be necessary to consider two further elements. Firstly, is the Risk of Harm in the upper part of the Tolerable Region, and secondly, is the Risk of Harm likely to increase before the next review because of an increased Probability of Failure. If both these conditions apply, then it might be appropriate to consider the balance of costs and benefits of risk reduction in order to determine whether the risk is ALARP. This balance requires the tree manager to take a view of both the reduction in risk and the costs of that reduction.

Fig. 2

Lower Than Average Benefits from Trees

Usually, the benefits provided by a tree will only be significantly reduced below the 'average benefits' that are typical for the species, age, and situation, if the life of the benefits is likely to be shortened, perhaps because the tree is declining or dead. That is not to say that a disbenefit, such as undesirable shading, lifting of a footpath, or restricting the growth of other trees, should not also be considered in the balance of costs and benefits.

The horse chestnut tree in Figure 3 has recently died, and over the next few years, may provide valuable habitats. However, for this tree species and the relatively fast rate at which its wood decays, the lifetime of these benefits is likely to be limited to only a few years. This tree has an already reduced value that will continue to reduce rapidly over the coming five to ten years at the same time as the Risk of Harm is expected to increase. There will be changes in the benefits provided by the tree as it degrades. Visual qualities are likely to reduce while the decaying wood provides habitats for a range of species, for a short while at least. There are no hard and fast measures of these benefits, and it is for the tree manager to decide what is locally important and how it might be balanced with the risks.

Where a risk is within the Tolerable Region and the tree confers lower than average benefits, it might be appropriate to consider implementing risk control while taking account of the financial cost. Here, VOSL can be used to inform a decision on whether the cost of risk control is proportionate. Example 3 below puts this evaluation into a tree management context. There will be occasions when a tree is of such minimal value and the monetary cost of risk reduction so low that it might be reasonable to further reduce an already relatively low risk. Conversely, a tree might be of such considerable value that an annual risk of death greater than 1/10 000 would be deemed tolerable.

Occasionally, decisions will be made to retain elevated risks because the benefits from the tree are particularly high or important to stakeholders, and in these situations, it might be appropriate to assess and document the benefits in some detail. If detailed assessment of benefits is required, there are several methodologies and sources of information (Forest Research 2010).

Delegating Risk Management Decisions

Fig. 3

Understanding of the costs with which risk reduction is balanced can be informed by the risk assessor's knowledge, experience, and on-site observations, but the risk management decisions should be made by the tree manager. That is not to say that the tree manager should review and agree every risk control measure, but when delegating decisions to surveyors and other staff or advisors, tree managers should set out in a policy, statement or contract, the principles and perhaps thresholds to which trees and their associated risks will ordinarily be managed.

Based on the tree manager accepting the principles set out in the QTRA Practice Note and or any other specific instructions, the risk assessor can take account of the cost/benefit balance and for most situations will be able to determine whether the risk is ALARP when providing management recommendations.

Table 4. QTRA Advisory Risk Thresholds

Thresholds	Description	Action
	Unacceptable Risks will not ordinarily be tolerated	• Control the risk
1/1,000		
	Unacceptable (where imposed on others) Risks will not ordinarily be tolerated	• Control the risk • Review the risk
	Tolerable (by agreement) Risks may be tolerated if those exposed to the risk accept it, or the tree has exceptional value	• Control the risk unless there is broad stakeholder agreement to tolerate it, or the tree has exceptional value • Review the risk
1/10 000		
	Tolerable (where imposed on others) Risks are tolerable if ALARP	• Assess costs and benefits of risk control • Control the risk only where a significant benefit might be achieved at reasonable cost • Review the risk
1/1 000 000		
	Broadly Acceptable Risk is already ALARP	• No action currently required • Review the risk

QTRA Informative Risk Thresholds

The QTRA advisory thresholds in Table 4 are proposed as a reasonable approach to balancing safety from falling trees with the costs of risk reduction. This approach takes account of the widely applied principles of ALARP and ToR, but does not dictate how these principles should be applied. While the thresholds can be the foundation of a robust policy for tree risk management, tree managers should make decisions based on their own situation, values, and resources. Importantly, to enable tree assessors to provide appropriate management guidance, it is helpful for them to have some understanding of the tree owner's management preferences prior to assessing the trees.

A Risk of Harm that is less than 1/1 000 000 is Broadly Acceptable and is already ALARP. A Risk of Harm 1/1 000 or greater is unacceptable and will not ordinarily be tolerated. Between these two values, the Risk of Harm is in the Tolerable Region of ToR and will be tolerable if it is ALARP. In the Tolerable Region, management decisions are informed by consideration of the costs and benefits of risk control, including the nature and extent of those benefits provided by trees, which would be lost to risk control measures.

For the purpose of managing risks from falling trees, the Tolerable Region can be further broken down into two sections. From 1/1 000 000 to less than 1/10 000, the Risk of Harm will usually be tolerable providing that the tree confers 'average benefits' as discussed above.

As the Risk of Harm approaches 1/10 000 it will be necessary for the tree manager to consider in more detail the benefits provided by the tree and the overall cost of mitigating the risk.

A Risk of Harm in the Tolerable Region but 1/10 000 or greater will not usually be tolerable where it is imposed on others, such as the public, and if retained, will require a more detailed consideration of ALARP. In exceptional circumstances a tree owner might choose to retain a Risk of Harm that is 1/10 000 or greater. Such a decision might be based on the agreement of those who are exposed to the risk, or perhaps that the tree is of great importance. In these circumstances, the prudent tree manager will consult with the appropriate stakeholders whenever possible.

4. EXAMPLE QTRA CALCULATIONS AND RISK MANAGEMENT DECISIONS

Below are three examples of QTRA calculations and application of the QTRA Advisory Thresholds.

Example 1

	Target		Size		Probability of Failure		Risk of Harm
Range	6	x	1	x	3	=	<1/1 000 000

Example 1 is the assessment of a large (Size 1), unstable tree with a probability of failure of between 1/100 and >1/1 000 (PoF 3). The Target is a footpath with less than one pedestrian passing the tree each week (Target 6). The Risk of Harm is calculated as less than 1/1 000 000 (green). This is an example of where the Target is so low consideration of the structural condition of even a large tree would not usually be necessary.

Example 2

	Target		Size		Probability of Failure		Risk of Harm
Range	1	x	4	x	3	=	1(2T)/50 000

In Example 2, a recently dead branch (Size 4) overhangs a busy urban high street that is on average occupied constantly by two people, and here Multiple Target occupation is considered.

Having an average occupancy of two people, the Risk of Harm 1(2T)/50 000 (yellow) represents a twofold increase in the magnitude of the consequence and is therefore equivalent to a Risk of Harm 1/20 000 (yellow). This risk does not exceed 1/10 000 but being a dead branch at the upper end of the Tolerable Region it is appropriate to consider the balance of costs and benefits of risk control. Dead branches can be expected to degrade over time with the probability of failure increasing as a result. Because it is dead, some of the usual benefits from the branch have been lost and it will be appropriate to consider whether the financial cost of risk control would be proportionate.

Example 3

	Target		Size		Probability of Failure		Risk of Harm
Range	3	x	3	x	3	=	1/500 000

In Example 3, a 200mm diameter defective branch overhangs a country road along which travel between 470 and 48 vehicles each day at an average speed of 50kph (32mph) (Target Range 3). The branch is split and is assessed as having a probability of failure for the coming year of between 1/100 and 1/1 000 (PoF Range 3). The Risk of Harm is calculated as 1/500 000 (yellow), and it needs to be considered whether the risk is ALARP. The cost of removing the branch and reducing the risk to Broadly Acceptable (1/1 000 000) is estimated at £350. To establish whether this is a proportionate cost of risk control, the following equation is applied. £2 000 000 (VOSL) x 1/500 000 = £4 indicating that the projected cost of £350 would be disproportionate to the benefit. Taking account of the financial cost, risk transfer to arborists and passers-by, the cost could be described as grossly disproportionate, even if accrued benefits over say ten years were considered.

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