



Tree and Woodland Risk Management Policy

City of Wolverhampton Council

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CITY OF
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COUNCIL

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Executive Summary

Trees, including hedges, are a key part of green infrastructure, defined by Natural England as:

"...a strategically planned and delivered network comprising the broadest range of high-quality green spaces and other environmental features." (Natural England, 2009)

Trees in the City of Wolverhampton Council (CoWC) provide a number of social, environmental and economic benefits and are an integral part of the historic environment.

Wolverhampton's Vision for Trees and Woodlands is of a city with an increasing stock of trees, hedges, and woodlands which:

- Help to mitigate and to adapt to climate change in line with the Council's declaration of a Climate Emergency
- Help to improve air quality and public health.
- Are an integral part of the City's identity and environment, earning it a reputation for high quality in its open spaces, highways, and other public realm as well as across its centres, residential and business areas.
- Help to support regeneration and attract investment
- Support health and wellbeing and social inclusion through their accessibility to all members of the community wherever they live, learn, work, play or shop.
- Are well-managed, healthy, widespread, and diverse with trees of a range of species and of all ages and sizes.
- Promote biodiversity by providing habitat for a range of species and forming an important form of green infrastructure.
- As part of this Vision, the Council supports and wishes to take forward the ten principles of the Charter for Trees, Woods, and People.

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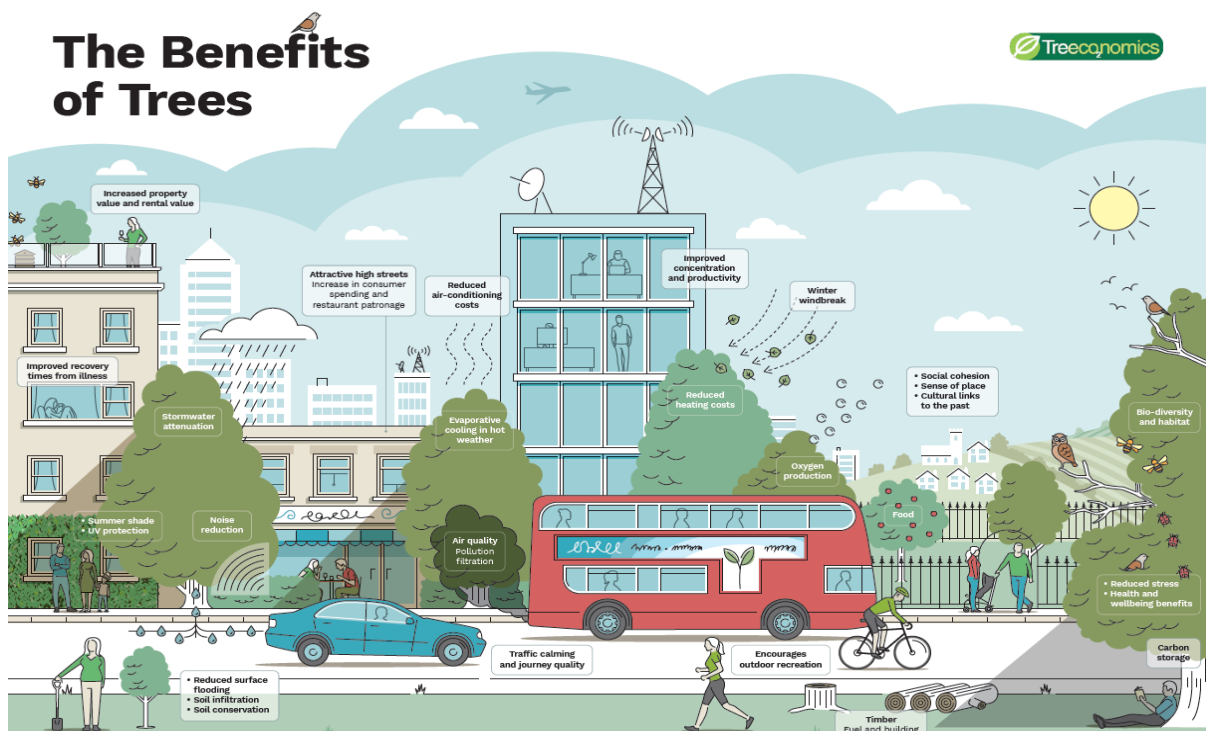
Introduction

There are an estimated 30,000 street trees in the city of Wolverhampton, 350,000 to 400,000 trees in parks, cemeteries, and open spaces and approximately 11,500 on land managed by Wolverhampton Homes (excluding private gardens). With the addition of trees on land managed by other Council services, it is estimated that the total number of trees managed by or on behalf of the City of Wolverhampton Council is >500,000.

Wolverhampton's trees and hedges are coming under increasing pressure as trees planted in Victorian and Edwardian times mature, modern utility locations restrict the potential to plant and replace street trees and as new higher density developments reduce opportunities for significant planting. Many larger forest trees which reach maturity in these locations are either not being replaced or are replaced by smaller species, which have reduced canopies and less impact, while others are lost to development. Therefore, while trees are planted in new developments, Wolverhampton is faced with the prospect of a reduction in tree cover in the city. CoWC will undertake cyclical inspections of their trees to ensure the budget is spent in the most cost-effective way as required and a common-sense approach to risk is adopted. Trees that pose the highest risk are on roads, footpaths, parks, open spaces, and schools these will be inspected as priority. All other trees will be inspected and assessed over a 3-year period according to their priority in relation to public safety.

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The Benefits of Trees



Trees are integral to most natural land-based ecosystems, providing a wide range of ecosystem services to humankind, including mitigating the harmful effects of climate change as well as assisting with climate adaptation. They also bring communities together, playing a part in their cultural and spiritual values and aesthetic appreciation.

However, even with the benefits, trees can pose a risk to people and property meaning landowners and managers of trees have a duty to manage this risk at an acceptable level.

This Tree Risk Management Policy has been created within Environmental Services. It was created to enable a proactive, reasonable, and balanced methodology of inspecting and managing the risk from Wolverhampton City trees.

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Risk from Trees

Research by the centre for decision analysis and risk management (darm). It demonstrates that the overall risk to the public from falling trees is extremely low, representing about a one in 10 million chance of an individual being killed by a falling tree (or part of a tree) in any given year. The research also shows that there is limited societal concern about risks of this type (although there may be adverse publicity in the immediate aftermath of an individual incident). The analysis indicated that it would be unlikely that adjustments to the current overall management regime would reduce the risk to health and safety in any significant way.

One reason why trees fall into the “low” level of risk category is because over past decades, in the majority of cases, appropriate and timely management decisions have taken place. Hazardous trees have been identified and remedial works undertaken. It is natural for trees to shed branches and ultimately fall down. These events happen all the time and people have learnt how to live with them. However, it is accepted in risk management that it is the perception of risk as well as the actual risk itself that generates problems.

Risks associated with trees cannot be completely removed, as removing the risk will increase the loss of trees and the associated benefits they provide. However, by providing proactive inspections, risks posed by trees can be managed while still providing the benefits associated with them, and meanwhile meeting the legal requirements for safely managing CoWC trees.

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Legal Requirements

Under both the civil law and criminal law, an owner of land on which a tree stands has responsibilities for the health and safety of those on or near the land and has potential liabilities arising from the falling of a tree or branch. The civil law gives rise to duties and potential liabilities to pay damages in the event of a breach of those duties. The criminal law gives rise to the risk of prosecution in the event of an infringement of the criminal law.

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Underpinning Principles of the Policy

This Tree Risk Policy is underpinned by five key principles in the guidance produced by the National Tree Safety Group (NTSG) Common sense risk management of trees: Guidance on trees and public safety in the UK for owners, managers, and advisors.

The five key principles:

- Trees provide a wide variety of benefits.
- Trees are living organisms that naturally lose branches or fall.
- The overall risk to human safety is extremely low.
- Tree owners have a legal duty of care.
- Tree owners should take a balanced and proportionate approach to tree safety and management.
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HSE guidance in managing the risk from falling trees requires that a reasonably practicable approach be taken which is proportionate to the risk. It also highlights that the inspection of individual trees can be disproportionate to the risk they pose. CoWC will work with these key principles to ensure a balanced and reasonable approach is taken for the management of risk for its trees.

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Scope

The scope of this tree risk management policy will include the elements below to ensure inspections are robust in the approach.

- Target zoning
- Inspection frequency
- Inspector competence
- Work prioritisation
- Record keeping on CoWC chosen database Confirm

The Council does not maintain trees for the following:

- trees on private land
- trees on Wolverhampton Homes maintained land (council housing)
- trees along canal towpaths
- trees along railway lines
- trees affecting overhead BT telephone wires
- trees overhanging, unless in direct contact with structures

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Zoning, Methodology & Priorities

A reasonable and balanced approach forms the basis of a tree safety strategy and cost-effective way, typically covering three essential aspects:

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

Zoning

Given the large number of trees across the city, control measures that involve inspecting and recording every tree would be disproportionate to the risk. Individual tree inspection is only likely to be necessary in specific circumstances, for example, where a particular tree:

- is in a place frequently used by the public.
- increased targets e.g, buildings.
- has been identified, for example, as having structural faults that are likely to make it unstable; and
- a decision has been made to retain it with defects.

Public safety aspects can be addressed by tree owners as part of their approach to managing tree health. A sensible approach will ensure the maintenance of a healthy tree stock, the sound management of the environment and will usually satisfy health and safety requirements.

An effective system for managing trees should meet the requirements set out in the Management of Health and Safety at Work Regulations 1999 and the associated ACOP (guidance is contained in HSG 65 Successful health and safety management and INDG 163 Five steps to risk assessment).

Such a system is likely to address the following:

- An overall assessment of risks from trees - identifying groups of trees by their position and degree of public access. This will enable the risks associated with tree stock to be prioritised and help identify any checks or inspections needed.
- There are several approaches to managing the risks from trees that involve 'zoning' trees according to the risk of them falling and causing serious injury or death. As a minimum, trees should be divided into two zones:

Table 1: The system used for target zoning for CoWC locations.

Zone	Locations	Description	Frequency of Inspection
Zone 1 (High Risk)	The Adopted Highway Parks & Open Spaces	Where there is frequent public access to trees (eg parks/ recreation grounds, in and around picnic areas, schools, children's playgrounds, popular footpaths, car parks, or at the side of busy roads). As a rough guide trees in Zone 1 are those that are closely approached by many people every day.	Every 2 Years
Zone 2 (Medium Risk)	Managed City Assets Cemeteries, Allotments	Where trees are not subject to frequent public access, but where the risk increases the these should be added to Zone 1 and may recommend it for a more regular inspection than the other trees in that zone.	Every 3 Years

Table 2: Management of trees on Council-controlled land

Location	Responsibility	Management Regime	Comments
The Adopted Highway	Environmental Services	Trees close to the adopted highway (approx. 12,000, one third of highways trees) are subject to a two-yearly inspection and maintenance regime (inspection, pruning, reduction etc.). Other trees are dealt with on a reactive basis when they have been reported as potentially in a dangerous condition	Regime has been in place since 1986. Trees close to the highway are assessed as higher risk and inspection/maintenance works undertaken.
Parks, Open Spaces	Environmental Services	Two yearly inspections and reactive works only on trees considered a danger to public or property (out of total number of trees in parks, open spaces of 350,000 to 400,000)	Trees in these areas represent a lower risk except where they are close to the highway/ high footfall areas
Cemeteries	Bereavement Services	Three yearly inspections and reactive works only on trees considered a danger to public or property	Trees in these areas represent a lower risk except where they are close to the highway/ high footfall areas
Schools	Individual schools	Schools are responsible for their own tree maintenance regimes which vary and may be reactive or include a two-tree inspection. However, schools will be offered the service from CoWC from March 2023.	CoWC offer an inspection service at cost to schools on a 2 yearly inspections frequency.
Council Property	City Assets	Three - yearly inspections and reactive management.	Trees in these areas represent a lower risk except where they are close to the highway/ high footfall areas.

Trees in zone 1 and zone 2 may overlap with further zoning necessary for individual sites following the initial inspections which would change the zoning and inspection priority for each location.

Methodology and Priorities: -

The tree inspections will be carried out in the use of "Visual Tree Assessment" VTA and "Quantified Tree Risk Assessment" QTRA methodology. The inspections will use both approaches to identify significant visual defects within the trees structure and physiological condition with VTA with an assessment of defects and risk with QTRA.

The term "defect" can be misleading, as the significance of structural deformities in trees (variations from a perceived norm) can be extremely variable. Indeed, deformities can be a response to internal hollowing or decay, compensating for loss of wood strength and providing mechanical advantage, allowing the tree to adapt to wind and gravitational forces. With inadequate understanding, so-called defects may be erroneously confused with hazards and, furthermore, hazards with risk – so unless the risk of harm arising from a hazard is properly taken account of, management can be seriously misinformed, potentially leading to costly and unnecessary intervention. NTSG definition: "a defect in the context of the growing environment of a tree is a structural, health or environmental condition that could predispose a tree to failure".

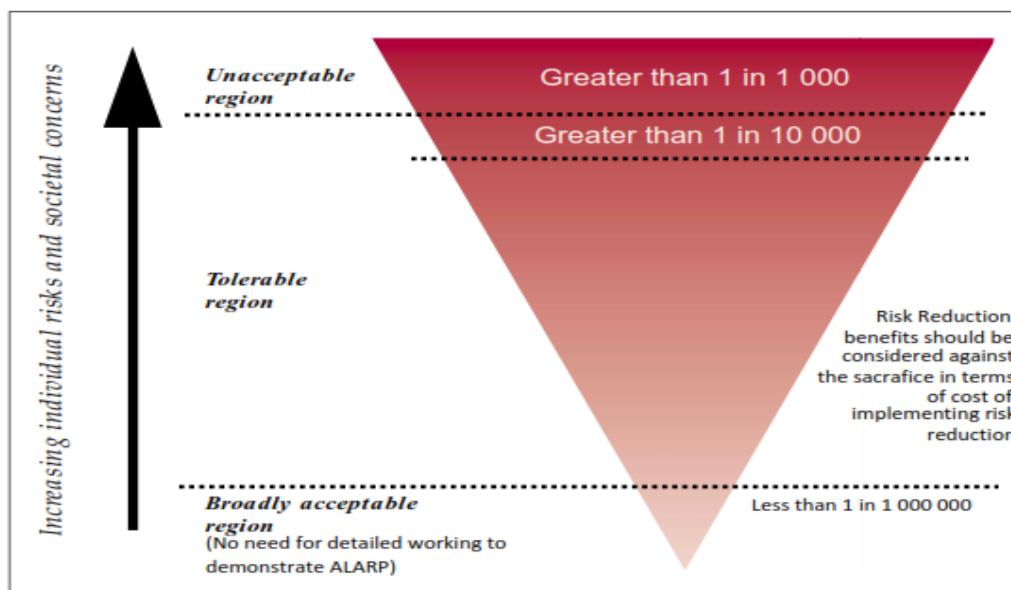
Using VTA concepts an idea founded by Prof Claus Mattheck's on his book "The Body Language of Trees" in describing the structural growth patterns of trees and specifically identifies the trees responses to abiotic and biotic effects from decay and physical damage. It enables the inspector to observe defects and identify appropriate management requirements for the benefit of the tree and safe use of land.

QTRA is a system used by licensed and trained practitioners that combines the components of tree failure risk. It is possible to calculate with some accuracy the usage of vehicular, pedestrian and property targets upon which trees or parts of trees could fail. It is also possible to estimate the repair or replacement costs of property that could be damaged in the event of tree failure. The QTRA takes account of 3 principal components: -

1. TARGET – HUMAN/PROPERTY/VEHICULAR = 6 RANGES
2. SIZE OF PART TO FAIL - >450MM – 25MMDIA = 4 RANGES
3. PROBABILITY OF FAILURE – 1/10 – 1/1M MULTIPLIER = 7 RANGES

It is broadly accepted that a probability of failure score in QTRA 1/1 – 1/10,000 is the unacceptable range for risk requiring necessary work being completed to bring the risk into the tolerable range of >1/10,000. This is broadly based on the health and safety executives “tolerability of Risk Framework” fig 1 below.

Fig 1: Adapted from the Tolerability of Risk Framework (HSE 2001)



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

The benefit of using this system is that it moves away from the terms generally used “safe” or “unsafe”, and instead quantifies the risk of significant harm from potential tree failure in a way that allows CoWC to balance safety with acceptable levels of risk. Table 1 below used in conjunction with fig 1 to determine the risk rating and action required for prioritising remedial work. Anything below 1/10,000 then generally the risk should be controlled anything above 1/10,000 the cost of risk control should be assessed and controlling the risk is necessary or its tolerable (ALARP As Low As Reasonably Practicable).

Fig 2: QTRA Advisory Risk Thresholds

Thresholds	Description	Action
1/1 000	Unacceptable Risks will not ordinarily be tolerated	Control the risk
	Unacceptable (where imposed on others) Risks will not ordinarily be tolerated	Control the risk Review the risk
1/10 000	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
	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 a reasonable cost Review the risk
1/1 000 000	Broadly Acceptable Risk is already ALARP	No action currently required Review the risk

Table 3: CoWC assigns these priorities for completing remedial works

Probability of Failure Score (PoF)	Priority
1/1 – 1/1K	Emergency/Very High (Priority Works).
1/1K – 1/5K	High (Unacceptable risk where imposed on others).
1/5k – 1/10K	High Moderate (Control/review the Risk)
1/10K - 1/1M	Low (Control the risk/review the risk.
1/1M	Negligible. (No work Required).

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Data Capture and Recording

All inspections will be captured using Confirm Connect on mobile iPad devices, licenses will be made available for all surveyors.

The system will assign enquiries to inspectors from members of the public, councillors, landowners, and stakeholders where an inspection can be assessed, and enquiries updated and responded to directly in Confirm.

The following information will be captured on Confirm Connect:

- Species including the botanical names
- Tree type (Deciduous/Evergreen)
- Tree Trunk (Single/Multi-Stemmed)
- Height measured in metres from the stem base. Where the ground has a significant slope, the higher ground is selected
- Crown spread is measured in metres and taken at the four cardinal points to derive an accurate representation of the crown
- Stem diameter is measured in millimetres at 1.5m above the adjacent ground level (upslope on sloping ground) or immediately above the root flare for multi-stemmed trees
- Site information
- Age
 - Young – Newly planted or self-set trees
 - Semi-mature – Large nursery stock or self-set trees in their early life stages
 - Early – mature – Trees that are in their third life cycle with significant increases in size
 - Mature – Trees in their second third life cycle reaching full size potential and slowing growth rates
 - Over-mature – Trees in their final third their life cycle showing signs of decline.
 - Veteran – Trees showing signs of retrenchment and deadwood habitat irrespective of their age.

- Defects – drop down tables with a list of defects and free text boxes.
- QTRA - Drop downs to records Target, Size of Part, Probability of Failure (PoF) and Risk of Harm (RoH).

Trees will be plotted on Confirm Connect using GPS positioning. Individual trees will be plotted where they are within falling distances of targets, any defects will be recorded, assessed, quantified and remedial works prioritised using QTRA.

Groups of trees will be plotted using polygons and those within falling distance of targets will be assessed and plotted individually (where appropriate) with any defects recorded, assessed, quantified and remedial works prioritised using QTRA.

Blue sky data will be used to inform tree numbers within groups, identify target areas for inspection and allow a correlation with data capture in Confirm.

A tree stock inventory will be built up in the Confirm system, this will enable monitoring of the inspections and but also allow for querying of the database for:

- Inspection Frequencies.
- Inspection history.
- Stock inventory.
- New tree planting.
- A record of fallen whole or parts of trees.
- Cyclical management i.e., London planes, Limes sp. etc.

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Level of Inspection & Inspector Competencies

All inspections will be completed by our internal and/or external tree inspectors who shall be qualified to a minimum of QCF Level 3-4, for example, Technicians Certificate, National Diploma in Arboriculture and hold the Professional Tree Inspectors Certificate.

All will hold a Professional Tree Inspector (PTI) certificate and be a Quantified Tree Risk Assessment (QTRA) trained and a licensed user.

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Trees on Private Land

Under section 154 of the Highways act 1980 CoWC may serve a notice to landowners where a hedge, tree or shrub is dead/dangerous and/or overhangs a highway or any other road or footpath to which the public has access so as to endanger or obstruct the passage of vehicles or pedestrians, or obstructs or interferes with the view of drivers of vehicles or the light from a public lamp, or overhangs a highway so as to endanger or obstruct the passage of horse-riders. A competent authority may, by notice either to the owner of the hedge, tree or shrub or to the occupier of the land on which it is growing, require him within 14 days to remedy the obstruction or CoWC will complete the work and recharge.

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Review of Tree Risk Management Policy

The tree risk management policy will be reviewed annually by service manager, or where there has been changes to legislation or changes to working practices or following unforeseen exceptional circumstances.

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Tree Failure Database

The tree failure database will be used to record all known or reported tree failures, whole or part. These failures will be recorded in Confirm database following reports through all channels.

The failure database will provide an estimation regarding failure patterns, risk levels and help target inspection priorities and frequencies.

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Out of Hours Emergency Response

Out of hours response is coordinated by Environmental Services, City Housing and Environment and will include, if necessary, the Direct Works Manager, Arboriculture Supervisor, Tree Inspectors and Direct Works, Arboriculture Supervisor.

Emergency response will be coordinated with in house arboriculture teams and termed contractors to attend out of hours call outs by arranging appropriate cover and response times.

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Measuring Performance

By querying our Confirm database CoWC will be able measure the performance of the management processes in place and provide necessary progress reports:

- Query Confirm database on numbers of trees falling into unacceptable risk category and resources required to manage those risk (aim to reduce numbers).
- Query Confirm database on numbers of trees falling into high/moderate risk category (aim to reduce numbers).
- Query Confirm database on numbers of trees falling into low-risk category (Monitor).
- Query Confirm database on numbers of trees falling into negligible category (Monitor).
- Query Confirm database on numbers of trees prioritised for planned work and how many have been completed on time (aim to increase numbers completed)
- Query Confirm database on numbers of trees whole or partial failures logged (aim to map, assess risk zones and reduce incidents).

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