TREE RISK MANAGEMENT STRATEGY 2010

INTRODUCTION

The Council has a statutory duty of care under the Health and Safety at Work Act 1974 and the Occupiers Liability Act 1999 to ensure that members of the public and staff are not to be put at risk because of any 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. There is a need to inspect trees in or near public places, or adjacent to buildings or working areas to assess whether they represent a risk to life or property, and to take remedial action as appropriate.

The Local Authority, either in its capacity as owner or manager, is responsible for trees located on land for which it manages or has total control over. As such, it has a common law and statutory duty of care in relation to its trees. Compliance with the duty will require the operation of a reasonable systematic inspection of all its trees, which has been determined in accordance with a sufficient and informed risk assessment.

This document sets out minimum standards of inspection, competence and record keeping that the Council will commit to and is in accordance with the industry guideline document. **Tree Risk Management User Manual. (Version 3)**

THE NATURE OF TREE FAILURE RISK

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.

THE SYSTEM

Torbay 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 avoid legal liability by removing or modifying the tree.

This defect led approach results in the allocation of disproportionate resources to both tree safety surveys, inspections and to the remediation of defective trees where the risks are low if only they were actually assessed.

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.

TARGET

A 'Target' is anything of value, which could be harmed in the event of tree failure.

VALUE OF STATISTICAL LIFE

The 'Value of Statistical Life' and 'Hypothetical Life' are terms used in risk management to facilitate proportionate allocation of resources to the reduction or risk in terms of lives saved. In the UK, this value is currently in the region of £750,000 - £1,000,000 to correlate the loss of or damage to property with the value of human life.

DEFINITION OF TREE-FAILURE HAZARD

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 tree officer 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 QTRA 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.

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.

PROBABILITY

Statistical probability is a measure of the likelihood of something happening. There are rules of addition and multiplication in the probability theory. Using the QTRA system, the probability that the three primary components of the risk will combine to produce a common outcome is the product of their independent probabilities.

RISK

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

ACCEPTABLE RISK

The Local Authority are constantly exposed to risk and accept or reject risks of varying degrees.

For example, if we desire the convenience of electric lighting, we must accept that, having implemented control measures such as insulation, there is a low risk of electrocution; this is an everyday risk taken and accepted by millions of people.

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

The level of acceptable risk is identified within The British Medical Associations Guide "Living with Risk" (Henderson 1987)

The conclusion of which 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.'*

Britain in the view of former Prime Minister Blair is "in danger of having a wholly disproportionate attitude to the risks we should expect to run as a normal part of life. … The result is a plethora of rules, guidelines, responses to 'scandals' of one nature or another that ends up having utterly perverse management in Britain leads me to the conclusion that it is disproportionately risk averse and is having utterly perverse consequences." My introduction to the world of tree risk management in Britain leads me to the conclusion that it is disproportionately risk averse and is having "utterly perverse consequences".

COST AND BENEFIT

The benefits of trees are always under-estimated; they are essential to our well being and generally 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.

THE TREE INSPECTION PROGRAMME.

It is the responsibility of the Council to ensure that tree inspection procedures are in place and that they are undertaken only by staff or others who meet the requirements of competence set out within the following sections.
The tree inspection programme has four stages;

- An assessment of risk.
- An assessment of hazard.
- A prescription for remedial action.
- A plan for the recording and re-inspection process

These actions need not all be undertaken by the same person.

ASSESSING THE LEVEL OF RISK

This is undertaken by the appropriate Council Officer with sufficient local knowledge and with advice from relevant on site staff and colleagues.

The inspection regime for council-owned trees is informed by a desktop exercise which will identify risk zone categories. The application of the categories is broad based and is designed to focus resources to the highest risk areas. 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.

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 each part of a site to one of three Risk Zones. These should be clearly documented.

These zones will reflect normal 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.

The criteria to define Torbay Council tree risk zones shown in table1 below, 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 age and species. Discrete populations of trees that are mature to over mature or are known to be inherently prone to failure e.g. Planes, Willows, or key single specimen veteran specimens will be prioritised.

Table 1 – Tree risk zone categories and examples

Hazard Zone Categories	Examples of target criteria
High Hazard	1. All emergency access routes 2. Medical and emergency facilities and shelters, handicap access areas 3. Overhead utility lines, especially Electricity (LV or HV) and alarm systems 4. School playgrounds 5. In High-use parks/public areas: Permanent structures with a constant target. 6. Permanent structures with a value in excess of £50,000 or are habitable. 7. Seating areas. 8. Campsites 9. Known informal recreation “hotspots” used for impromptu “gatherings” of school children 10. Car park areas adjacent to high use public areas. 11. Footpaths/access ways with greater than 36 pedestrians per hour. 12. Individual trees or neighbourhoods with very high-risk tree characteristics such as: a. standing dead trees or those with very poor condition class ratings severely storm damaged trees b. trees that visually obstruct traffic signs, traffic lights, or street lamps c. tree roots causing severe footpath buckling 13. Railway lines. 14. Trunk roads (all areas) & above. 15. Principle Roads in built up areas. **Guide: Pedestrian rates over 36 per hour, Structures over £50,000.**
Moderate Hazard	1. Main Roads: Congested junctions and visually obstructed traffic lights/signs. 2. In High use Parks/Public areas: informal play areas, minor paths, grass recreation areas. 3. Golf Courses (excluding areas in High Hazard Zone) 4. Car parks adjacent to moderate/low use areas. 5. Bus stops in high use thoroughfares 6. Individual trees of neighbourhoods with high risk tree characteristics, such as: a. Old and veteran trees b. High density of large, mature or “problem” tree species c. Areas of recent root disturbance such as footway reconstruction, trenching, drainage etc. d. Storm damaged trees **Guide: Pedestrian rates between 1 – 36 per hour, Structures 2,000 – 50,000.**
Low Hazard	1. Secondary and low use roads: congested junctions and visually obstructed traffic lights/signs. 2. Neighbourhoods with moderate to low canopy densities of large diameter, mature or “problem” species trees. 3. Moderate to low use parks, playgrounds and picnic areas. 4. Public areas with dispersed recreation. 5. Open areas, woods, riparian and peripheral areas with limited use or access. **Guide: Pedestrian rates lower than 1 per hour and structures up to 2,000.**

ASSESSING HAZARD

This is undertaken in high risk zones by an Arboriculturally qualified Officer as specified within the Tree Risk User Manual.

It is the responsibility of the inspector to ensure that hazard is assessed to the best of his/her ability and recorded accurately.

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, unless a more detailed individual inspection is recommended. In practice only visible defects are likely to be identified during an initial drive by or walkover survey.

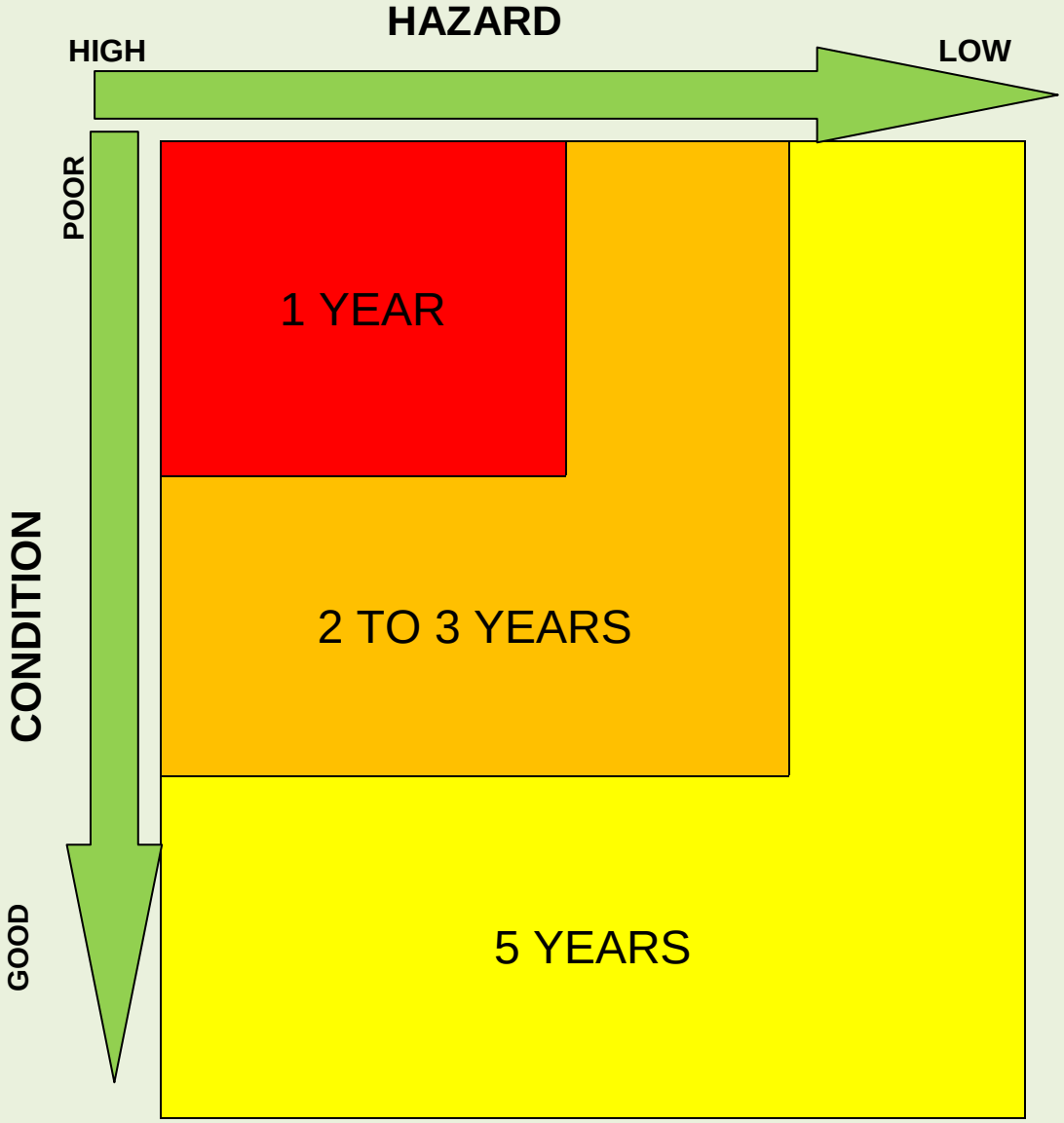
The frequency, condition and method of inspection will reflect the designated Risk Zones shown within the tables below.

you are thus only under a duty to protect those who are 'reasonably' likely to be affected by any omission on your part, and only if you can 'reasonably' foresee that they are likely to be injured as a result; even then you are only required to take reasonable care to avoid such omissions.' MEGAW L.J

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	Annual	Walk-by/individual Level 2 tree inspections	Consideration could be given to extending the period to 18months (leaf on/leaf off regime?)
Moderate Hazard	2 to 3 Years	Walk-by/individual Level 2 tree inspections.	Consider a drive-by survey in off years.
Low Hazard	5 yearly	Walk-by/individual Level 2 tree inspections or Drive-by survey.	
All Zones	After storm conditions occur	Drive-by survey	If potentially hazardous trees are noted then follow up with a walk-by survey

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



The timing of inspections is to be lead 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 would still be 5 years.

RECORDING INFORMATION

There needs to be a clear line of communication between the tree inspection regime and the tree works ordering system. The system comprises of a proprietary central electronic database. The EzyTreev Management System is a comprehensive computer programme 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. All inspections are supported where possible by photographic evidence which is attached to the specific tree inspection data field for future reference.

WORK PRIORITIES

A record of action proposed and action taken must be maintained using the means described in the Tree Risk user Manual.

The priority for implementing remedial action will depend on both the assessment of risk and hazard and related to 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.

Provision must be made in departmental budgets for the implementation of tree inspection programmes and necessary remedial action on an annual basis as revenue expenditure.

Works identified during inspections will be prioritised as follows within the table 3 below:

Table 4- Prioritisation of recommended works

FUNDING	EZY TREEV WORK CATEGORY	DETAILS	TARGET RESPONSE TIME
ARBORICULTRAL SERVICES BUDGET (Listed in priority order)	Emergency	Response to trees that are perceived Imminently as dangerous.	Onsite within **1** hour. (*Or barriered off until resources available*)
	Urgent Works	Response to trees that are perceived dangerous but where works needs to be undertaken at a safe time.	Works completed within **7** days. (*Or barriered off until resources available)*
	Normal	Works on trees posing less of a risk as identified though Torbay Risk Management System.	Works to be completed with within **42 days** of inspection.
	Nuisance	Work to abate or remove actual or potential nuisance caused by council trees *(see appendix 1)*	Completed within **12** months of inspection.(Budget constraints)
	Management (Budget Constraints)	Improvement works to enhance street scene or public space.	Works to be dealt with within **60** months of inspection.
EXTERNAL PAYMENT (Listed in priority order)	Private Emergency	Emergency response to deal with hazardous private trees blocking or threatening the public highways or POS.	Onsite within **1** hour *(Or barriered off until resources available)*
	Private Planned	Agreed works to deal with hazardous on council leased land.	Works completed with **7** days
	Recharge	Tree work projects for Council partners.	As and when required. Dependant on time scale as set by clients.
Target response times follow the Arboriculture Contact AR/R/0091			

COMPETENCE

The rating of target area's (zoning) must be done in accordance with the guidelines in table 1 above and by a member of staff or volunteer with 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.

Those trees that influence high to moderate risk areas should be inspected by a professionally trained Arboriculturalist at the prescribed intervals set. However staff or volunteers undertaking the initial assessment of tree hazards in low risk zones should ideally be appropriately trained or at the very least have some basic experience of trees and must be aware and acknowledge the limitations of their knowledge and experience in the particular matters under consideration.

Similarly any recommendations for remedial work must come from an appropriately qualified Arborist. Any external Consultants should normally be registered as consultants by the Arboricultural Association, a list is published annually or be approved by the Council's Principal Arboriculturalist.

GENERAL LEGAL DUTY

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

To achieve this, evaluation of tree hazards are only carried out by Council Tree Officers, Tree Inspectors and experienced or qualified Arboriculturists. Torbay Councils Arboricultural Officers are qualified, experienced tree experts who will apply their knowledge of tree anatomy, tree physiology, tree biomechanics, geology and environmental conditions.

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.

TREES IN PRIVATE OWNERSHIP

Trees on private land within falling distance of a highway can also present a hazard to the public. Under the Local Government (Miscellaneous Provisions) Act 1976, if a tree poses a danger not only to the public highway but also to a neighbouring property this may be dealt with accordingly at the discretion of the Local Authority pursuant to section 23 of the Act.

Any inspections carried out for Torbay Council are noted only on hazardous trees on private land that can be seen from outside the property. A clear auditable trail is kept of hazardous private trees and any actions that have been taken to reduce the risk.

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)
- Number of incidence recorded in the failure log each year.(target annual decrease)
- Percentage of re-inspections undertaken within the assigned re-inspection date.

Performance targets will be further defined as data becomes available from tree inspections. These will be informed by national statistics.

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