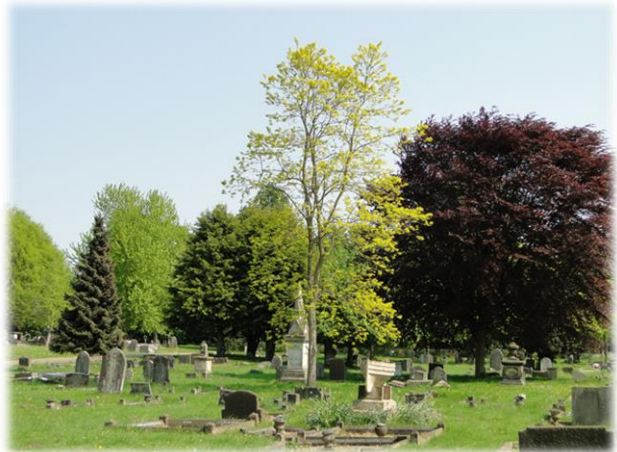


# **The Borough of King's Lynn and West Norfolk Tree and Woodland Strategy**



**A ten year programme  
for sustaining the  
Borough's urban forest**



**Period: 1<sup>st</sup> April 2017 to  
31<sup>st</sup> March 2027**

**Tree and Woodland Strategy for Consultation Complied by:**

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## **1. Introduction**

- 1.1 This strategy sets out how the Council will manage their tree stocks in a sustainable way. An important aspect of plan will be to, as far as is practicable, make the trees and woodlands more resilient in the face of threats from introduced pests and diseases and the impact of climate change. The period of the strategy is ten years from 1<sup>st</sup> April 2017 to 31<sup>st</sup> March 2027.
- 1.2 A key aim will be to increase tree canopy cover in the Borough by both planting new trees and ensuring proper development of newly established trees to maximise the benefits they can provide. A key target area will be urban King's Lynn. However, tree, planting will be encouraged throughout the whole of the Council's area.
- 1.3 The strategy seeks to strike a balance between maximising benefits provided by trees and recognising that trees can cause significant problems for home owners when in close proximity to dwellings and gardens. Where possible, long term solutions will be applied to reduce the level of conflict between trees and residents.
- 1.4 The landscape impact of historic trees in the centre of the town including the Walks will be carefully preserved. However, an important element of this preservation effort will be gradual regeneration of the tree cover on these areas. The preservation and improvement of wildlife habitats and the conservation value of the Borough's trees and woodlands is at the heart of the strategy.

## **2. Background**

- 2.1 The Borough of King's Lynn and West Norfolk extends to 1,429 km<sup>2</sup>. The population at the 2011 census was 147,451.
- 2.2 The Borough includes the town of King's Lynn, which is the major urban centre, and the smaller towns of Downham Market and Hunstanton. It is situated close to the coast and Wash in north west Norfolk where the Fens meet the sandy soils of north west Norfolk. This junction of landscapes provides a rich and diverse range of contrasting and distinctive landscapes including fenlands, and fertile arable land.
- 2.3 There has been continuous settlement since in King's Lynn the early medieval period. The town grew to become an important medieval town, port and regional trading centre. The densely populated medieval town had little space for trees. However, the town flourished and in the 18<sup>th</sup> century many town houses were built during this period which also saw the establishment of the Walks as a pleasure ground with tree lined thoroughfares. The Walks still forms the green heart of the town with over 800, mainly mature, trees, in the care of the Council.
- 2.4 The 19<sup>th</sup> century saw increasing industrialisation and population growth. It became necessary to create a new cemetery and in 1851 Hardwick cemetery was opened which is an early example of a Victorian burial ground. The trees planted since its opening form an important element of the urban forest in the town.
- 2.5 In 1962 King's Lynn became an overspill town for London and population increased significantly with new housing constructed. New estates were built at the Woottons and Gaywood in the

1960's. The new tree planting associated with these developments are still owned and managed by the Council.

- 2.6 Figure 1 shows the historic growth of King's Lynn which, to an extent, influences tree cover within the town.

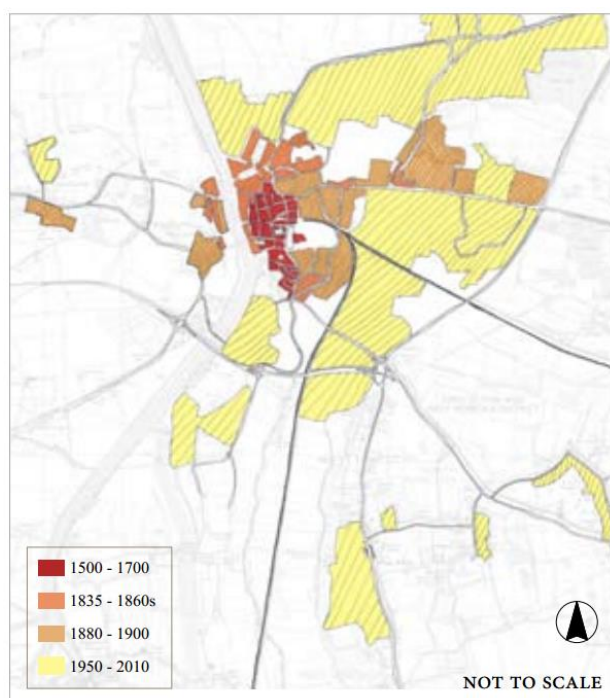


Fig 1: The growth of King's Lynn over time around its medieval core (Bolgar et al 2010)

- 2.7 The Council tree stocks in rural west Norfolk are relatively small and mainly situated in the larger settlements such as Downham Market and Hunstanton.
- 2.8 The total of Council owned green space in the Borough is 138 ha of which 9.7 ha are woodland. King's Lynn has 75.3 ha of which 6 ha are woodland.

### 3. Aims of the Strategy

- 3.1 The strategy sets out how the benefits provided by trees and woodland will be maintained and enhanced. The primary aims are summarised as follows:
- To maintain and enhance the tree population of the Borough.
  - To increase the tree canopy cover across the Borough with particular reference to urban areas with low canopy cover, both through the enhancement of current open spaces and new development by using developer contributions via section 106 agreements and the use of the Community Infrastructure Levy (CIL).
  - To protect and consolidate the historic trees and woodlands within King's Lynn.
  - To maintain and maximise the ecosystem services provided by the Council's trees.
  - To ensure, as far as possible, that the Council's tree stocks are resilient in the light of threats from introduced tree pests and diseases and climate change.

- To promote biodiversity and conserve tree and woodland eco-systems.
- To conserve and protect ancient woodland and ancient trees with significant ecological value
- To fulfil the Council's duty of care in respect of its tree stocks. The systems of health and safety checks on trees that have been developed will be maintained. The aim will be to keep risks presented by trees as low as it is reasonably practical to do so.

3.2 This document highlights the importance of the tree resource under the stewardship of the Council and sets a standard for its management, which ensures its long term conservation and development for the benefit of the people of the Borough and future generations.

3.3 The Council will respond to the concerns and actions of residents. The removal of Council owned trees shall be resisted and, when it is necessary to do so, replacement planting will be carried out.

## **4. Current Management Systems**

4.1 Management of the Council's tree stocks is carried out by directly employed staff under the direction of a part time arboricultural officer. The direct labour team carry out general maintenance and all tree planting works. The arboricultural officer carries out tree survey works aided by contractors. All tree work is completed by contractors. All contractors are appointed by competitive tender.

4.2 A Tree Risk Management Plan was produced in 2015 setting out the staff responsibilities and procedures to be followed to fulfil the Council's duty of care. The plan has been fully implemented. A copy forms Appendix 2.

4.3 This strategy has been prepared with due consideration to current international, regional and corporate policies, and to provide a structure for compliance with the Council's legal responsibilities. The strategy will also contribute to the delivery of the broad range of the Council's aims, objectives and priorities on the environment, communities, health, and land use planning. The strategy also takes account of the latest Government Forestry and Woodlands Policy Statement issued by DEFRA in January 2013 and the UK Forestry Standard.

## **5. The Resource (an Analysis of the Council's Tree Stocks)**

5.1 In certain circumstances some species of tree can live to 200 to 300 years and beyond. However, in dynamic urban conditions with poor soils and growing conditions life expectancy can be considerably shorter, in some cases as low as 20 to 30 years. Figure 2 shows the age structure of trees which have been included in council health and safety surveys.

5.2 It can be seen from Figure 2 that the majority of the Council's urban trees are in the mature and over mature category. Mature trees, are defined as trees in the final third of their expected safe, useful life expectancy and have reached the point where they will need increasing amounts of management. Over mature trees are becoming senescent and generally in decline. While over mature trees are likely to be more valuable for wildlife conservation and habitats and in many cases need to be retained, they require careful management in terms of public safety.

- 5.3 It should be noted that there are a very small number of veteran / ancient trees present in the Borough. The veteran and ancient trees and woodlands that do exist are therefore of particular historic and conservation value.

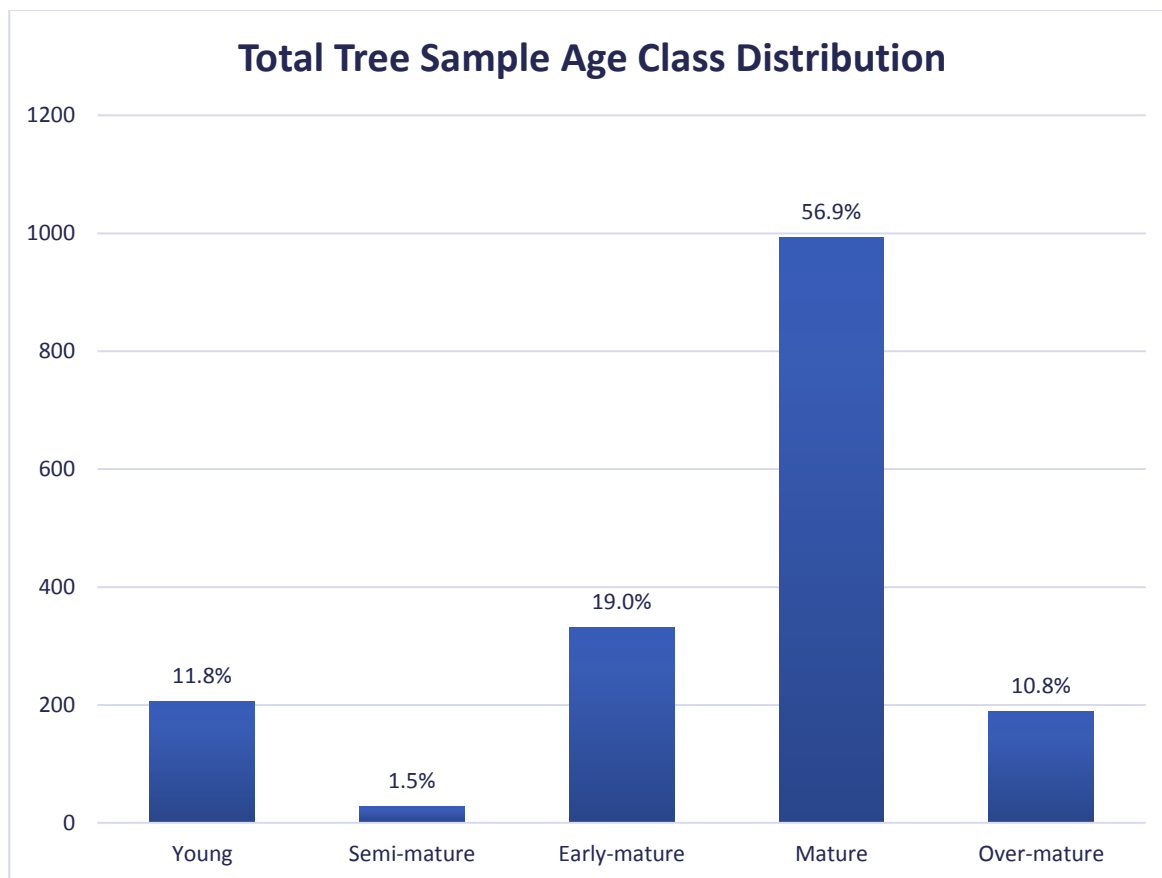


Fig 2: Bar chart showing the age distribution of the trees surveyed within urban King's Lynn.

- 5.4 In summary, the demographics of the Borough tree stocks are that in the historic Walks and Victorian cemeteries the trees consist predominantly mature and in some cases over-mature, while the late 1960's residential estates they are mainly early-mature.
- 5.5 There has been no detailed survey of canopy cover within urban King's Lynn. However, given the distribution of trees and the stratified nature of the tree stocks it is likely that the canopy cover will vary significantly over the area. To gain an impression of the canopy cover a desk study was completed sampling 0.5 kilometre squares across the urban part of King's Lynn the results are presented in Table 1 overleaf.
- 5.6 It can be seen that while the average of these samples is 18.3% canopy cover, there is considerable variation within the urban area. This is around the 18% national average quoted in "Trees in Towns II" a countryside survey of Local Authority trees. However, the Walks is not typical of the bulk of the urban area and if this figure is discounted the average canopy cover works out at 13.8 %. A table viewed on the Urban Tree Cover website shows a tree canopy of 12.8% for King's Lynn which tends to corroborate the desk study. It seems likely, therefore, that tree cover in the urban area is less than the national average.
- 5.7 As protection against pests and diseases and the possible impact of climate change it is important to have a wide range of tree species and plant families making up the urban forest. There is no

single database of the trees on Council owned land. However, data collected as part of the tree health and safety surveys has been used to produce the pie chart that forms Figure 3 overleaf.

Table 1 – summary of the estimated Percentage Canopy Cover (PCC), hard surface cover and grassed open space within King's Lynn.

Sampled Areas Across King's Lynn;	Percentage Canopy Cover (PCC) (%)	Hard Surfaces, Building/ Housing (%)	Grass Open Space or and Gardens (%)
Section of Hardwick Industrial Estate 1950-2010	3	91	6
Town centre dating 1500-1700	4	96	0
Housing 1835-1860	11	84	5
Housing 1880-1900	24	53	23
20th century / overspill town designation 1950-2010	26	44	30
Gaywood housing Estate 1950-2010	15	73	12
The Walks including football ground and housing	45	19	36
<b>Total Percent Coverage</b>	<b>18.3</b>	<b>65.7</b>	<b>16.0</b>



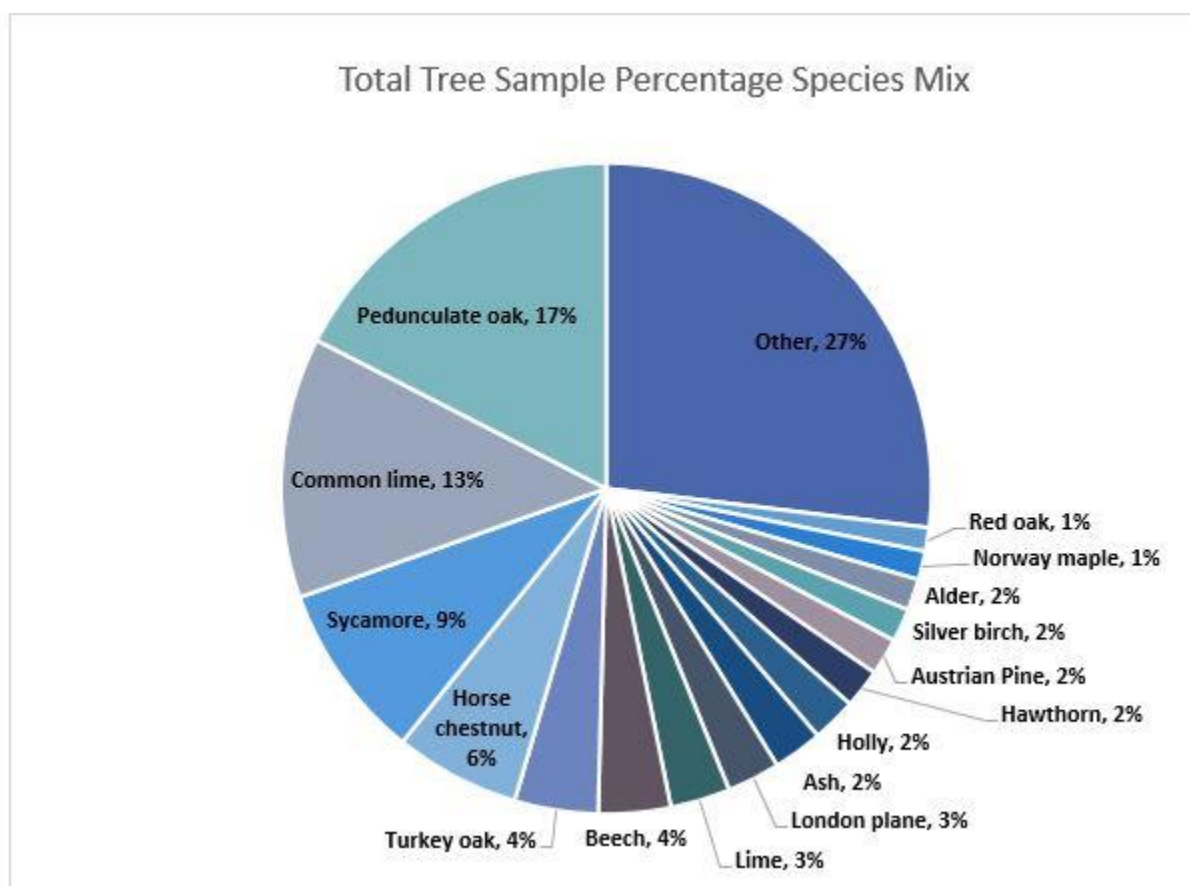


Fig 3: Species percentages from Tree health and safety survey data ('Other' includes species making up less than 1% of the total).

- 5.8 It can be seen that pedunculate oak is the most common species in the urban area and that oak and four other, species common lime, sycamore, horse chestnut and Turkey oak make up over 50% of the total number.
- 5.9 Ash makes up only 2% of the urban tree stock which reduces the vulnerability to the impact of ash dieback in respect of Council owned trees.
- 5.10 Appendix 3 provides a list of the species recorded during health and safety surveys of the Borough's trees. This includes 108 species and cultivated varieties from 45 different genera.

## 6. Benefits provided by the Borough's Trees

- 6.1 Trees are the largest and oldest living organisms in our environment. Trees and woodlands are important features of the landscape. Collectively they form one of its finest and most important features. However, they are not simply embellishments, but provide a range of important ecosystem services and contribute towards the sustainable future of the Borough. The following examples illustrate the importance of some of the ecosystem services provided. These services will become increasingly important with the onset of Climate Change bringing high summer temperatures, increased storm events and associated flooding. Examples of some of the benefits are as follows:

## **Trees Help Prevent Flooding**

Trees planted in catchment areas can reduce flooding of rivers. Large parts of King's Lynn are within the flood plain of the river Great Ouse and subject to both fluvial and tidal floods. Figure 4 shows flooding around the Customs House in King's Lynn. It is unlikely that either existing or newly planted trees in the Borough will have any impact on river and tidal flooding. However, trees can have a significant impact on flooding caused by surface water runoff.



Fig 4: The river Great Ouse in flood after storm surge 2014



Fig. 5: Flooding due to surface water, Station Road Heacham

- 6.2 Many built up areas within the Borough are susceptible to flooding due to surface water runoff. Additional tree planting particularly in conjunction with Sustainable Urban Drainage Schemes (SUDS) and the use of structural soils has the potential to intercept and slow down runoff and reduce the severity of this type of flood. Figure 5 shows flooding due to surface water.

## **Trees Store Carbon**

- 6.3 The Council's reported Carbon emissions from all Council owned buildings, vehicles and equipment in 2014/2015 was reported as 6183 tonnes of carbon. The Council has a target of reducing emission of 5% annually. It is likely that the Council's trees sequester a significant percentage of its own annual emissions. These sequestration levels could be more firmly established in the light of a more detailed audit of tree stocks. There is scope to improve sequestration levels by planting larger woodland blocks on the urban fringe or planting short rotation coppice for biofuel. A modest extension of the planting of trees could significantly reduce the carbon footprint of the Council's operations.

## **Trees Promote Human Health and Wellbeing**

- 6.4 Access to green space is intrinsically linked to good health. In the UK it has been estimated only one third of the population does the recommended level of exercise. Ill health due to obesity is estimated cost of £1 billion per year. The accessibility of woods and green space has been shown to encourage exercise and also have positive impacts on mental health. Being involved woodland projects contributes to human wellbeing and self-worth as shown in figure 7.



Fig.6 Family exercise on a King's Lynn woodland track



Fig. 7 Young people working on a Conservation Project

### **Trees Reduce Air Pollution from Traffic**

- 6.5 Air pollution from vehicles and industrial processes produces minute particles known as particulate matter (PM) as well as gasses such as ozone, nitrogen dioxide and sulphur dioxide. These present a risk to health and it has been estimated around 30,000 deaths in the UK are attributable to air pollution. Trees trap particulates on the leaves and take in gasses through the pores. Figure 8 shows the traffic on Hardwick Road (this area would benefit from increased tree cover).



Fig.8 Trees trap harmful particulates from vehicle emissions on their leaves.



Fig. 9: Trees providing screening and noise reduction on the A47

- 6.6 Trees reduce traffic noise levels. A 30m width of woodland, can reduce noise to the human ear by approximately 50%. Figure 9 shows woodland belts edging the A47 to the south of the urban area screening and reducing the impact of this busy trunk route.

### **Trees Cool the Urban Environment**

- 6.7 The urban heat island effect can prevent cooling and have a negative impact on human health. Trees provide, cooling and shading of buildings and streets as shown in Figure 10 Shading from trees can reduce energy needed for cooling buildings. Trees reduce urban temperatures particularly in heat waves.



Fig. 10: Shade cast by trees in Tennyson Road



Fig.11 High urban temperatures can be damaging to health

- 6.1 The examples of ecosystem services listed above undoubtedly have a considerable monetary value and systems are available that attempt to quantify these. However, the range and scope of the benefits provided by trees almost defy quantifying and are intrinsic to the quality of life for the Borough's residents.

## 7. Problems Caused by the Council's Trees

### 7.1 Tree Proximity Issues

It must be recognised that trees can be responsible for ecosystem disservices. For example they cause problems for residents where they are growing close to private property and gardens. The Council will deal promptly with all enquiries and consider concerns of residents about problems caused by Council trees. However, in order to preserve the Borough's tree stocks for the benefit of all, the Council's response will be limited. The Council's policy on common enquiries are detailed below:

#### Tree debris includes leaves, fruit, sap and bird droppings.

- The council will not prune or fell a council owned tree to remove or reduce debris fall.
- The council will not remove fallen debris from private property.
- The loss of leaves from trees in the autumn is part of the natural cycle and can't be avoided by pruning.
- The maintenance of gutters is the responsibility of the landowner and we are not obliged to remove leaves that may have fallen from council owned trees- where gutters are regularly blocked by fallen leaves, gutter guards may be fitted to provide a low maintenance solution.
- For roads, streets or the highway, extra teams are working in the autumn to clear fallen leaves.
- In parks and green spaces, paths or areas of hard standing are regularly cleared of fallen leaves - but leaves on grass / shrub beds are generally left until the majority of leaves have fallen before they are removed (unless leaving them would damage the grass, in which case the accumulated leaves will be removed sooner)



## Light

- The Council will not prune or fell a council owned tree to improve natural light in a property. In law there is no general right to light - any right to light would need to be established via a specific grant (rare) or by prescription. This can only occur where the right has been enjoyed uninterrupted for a minimum of 20 years.
- Following this, a legal right to light can only be enjoyed in relation to a specific opening (such as a window) in a building.
- There is no right to light in connection with open land, such as a garden.
- Further, if the above conditions are met, then an owner of the building is 'entitled to such access of light as will leave his premises adequately lit for all purposes for which they may reasonably expect to be used'.
- If natural light is being blocked by the growth of a hedge then action may be taken to reduce the problem under the High Hedges Act, Part 8 of the Anti-social Behaviour Act, 2003.

## Trees that are too big or tall

- The Local Authority will not fell a council owned tree because it is considered to be 'too big' or 'too tall'.
- A tree is not dangerous just because it may be considered too big for its surroundings. Other problems would need to be shown such as those described in our dangerous tree policy (Appendix 2).

## Tree and TV reception

- The Council will not prune or fell a Council owned tree to prevent interference with TV, satellite, broadband internet-installation, or reception.
- A satellite or TV provider will be able to suggest an alternative solution to the problem, for example relocating the aerial/dish or means to boost the signal.

### **7.2 Damage to Property Caused by Tree Roots**

- 7.3 A range of soil types are found within the Borough including free draining calcareous soils in the north as well as soils formed from peat and alluvium and isolated outcrops of Jurassic or calcareous clay these soils are potentially subject to volume change when moisture is drawn out of shrinkable clay soils by vegetation, particularly trees. The clay shrinks which can lead, in some circumstances, to property damage. Most volume change is seasonal and as soils rehydrate in the winter months, and levels are restored. Modern buildings are designed to cope with some seasonal movement. Since 1976 the National House Building Council (NHBC) Chapter 4.2 recommendations for foundation depth when building near trees has reduced the incidence of damage.
- 7.4 When soils no longer rehydrate a permanent water deficit is formed. If large trees are removed, after they have created a permanent water deficit, water uptake stops and the soils can rehydrate lifting any building that has been built on the dehydrated ground. This type of property damage known as heave is rare and mainly found on very plastic clay soils such as London clay. Local soil types are not normally associated with heave and the damage it can cause.
- 7.5 In the NHBC guidance tree species are classed depending on their water demand. It is often high water demand species such as poplar and willow that are linked with subsidence damage to

properties. However in some circumstances tree species listed in the NHBC guidance as moderate or low water demand can be implicated in structural damage to buildings.

- 7.6 Any cases of property damage resulting from encroachment of the roots of Council owned trees on to private land will be investigated by the Council on a case by case basis. It is not reasonable to remove all trees that could conceivably damage property when no damage has occurred, this would involve a huge loss of amenity and ecosystem services. However, the potential of Council owned trees for root encroachment will be considered in the management of the existing trees and when new trees are being planted. Where, in the past, trees and woodlands have been planted with unsuitable species in unsuitable positions in relation to buildings there will be a policy of restructuring and management to enable trees and buildings to co-exist.
- 7.7 Trees in close proximity to light structures such as free standing walls, patios and paved areas can cause damage by direct pressure from the stems and roots as they grow and expand. Stem and root expansion can cause cracks in free standing walls, and surface roots can lift pavements and other hard surfaces. The Council will seek to minimise the impact of roots of council owned trees particularly where these present a risk to the public safety. BS 5837:2012 gives guidance on the clearance needed to avoid direct damage and trees need to be very close, normally under 1 m from a structure, for this class of damage to occur.
- 7.8 Tree roots can proliferate in drains, which offer ideal rooting conditions, sometimes blocking them. However, tree roots have little capacity to enter well maintained and intact drainage systems. In the case of drainage problems linked to tree roots a drainage expert is the best source of advice.

## **8. Threats and Challenges**

- 8.1 In the last 20 years there has been a steady rise in the number of introduced tree pests and diseases some of which have the potential to cause significant loss of tree cover and the benefits they provide. The reasons for this include increasing levels of world trade particularly in plant material, world travel and changes in the climate making it suitable for pests from warmer environments to establish in the UK.
- 8.2 To illustrate the destructive potential of tree diseases the virulent strain of Dutch elm disease, which was imported into the country in the late 1960's on elm logs, killed around 23 million trees changing landscapes and reducing tree cover over large areas of the UK countryside.
- 8.3 Among the recent introduction or occurrences of pests and diseases the following two examples pose a particular threat to the Borough's trees and landscape:

### **Ash Dieback (*Hymenoscyphus fraxineus*)**

- 8.4 This fungal disease has caused extensive tree losses in continental Europe, for example killing over 90% of the ash population in Sweden. It was first found in the UK in 2012 and has rapidly spread from east to west across the country.
- 8.5 The level of infection is currently low but expected to rise significantly in the next few years. The symptoms are initially browning and dead leaves and diamond shaped stem lesions as illustrated in Figure 12. This is followed by a fairly rapid dieback in the crown on larger trees. Typically, an

infected tree will have tufts of re-growth that eventually succumb to the disease as illustrated in Figure 13. The progress of the disease can be quite rapid with large trees killed in a single growing season in some cases



Fig. 12: Dead leaves and diamond shape stem lesions are symptomatic of the disease



Fig. 13: Typical crown dieback with tufts of regrowth.

- 8.6 There is, currently, no proven cure or treatment that can be applied. However, there has been extensive research to try to isolate resistant individuals and indeed, in areas of high infection, some trees appear to remain free from infection.
- 8.7 It is not clear how the disease will progress in the Borough so, at this stage, ash on Council owned land will not be pre-emptively removed. The exposure to the disease in urban King's Lynn is relatively low due to the species making up an estimated 2% of the tree stock. However, the impact on the landscape of rural west Norfolk is likely to be more severe.
- 8.8 Ash will be excluded from new tree planting schemes and alternative species planted. However, in woodland conditions, natural re-generation of ash should, as far as possible, be retained as it may contain resistant individuals.
- 8.9 The condition of Council owned ash 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 ash dieback will be reviewed on an annual basis. The Council's approach to dealing with the disease will follow the Tree Council's framework guidance on dealing with tree deaths and decline due to the disease.
- 8.10 Simple biosecurity measures such as cleaning boots, shoes and tyres after visiting woodlands or open spaces with ash trees present will be adopted. The fungus over winters in fallen leaves therefore, in some situations, clearing the leaves in autumn will help reduce to source of spring infection.

### **Oak Processionary Moth (*Thaumetopoea processionea*)**

- 8.11 The caterpillars of this moth feed on oak trees and defoliate the tree by eating the foliage. However, perhaps a more serious problem is the effect of the caterpillars urticating hairs, which detach from their bodies, causing serious allergic reactions and respiratory difficulties in humans and animals.

- 8.12 This pest was introduced on imported trees into the London area in 2005. It was hoped to contain or eradicate the species by volume spraying foliage with insecticide and destroying the communal silken nests which have an accumulation of toxic hairs. Unfortunately, this policy has not been successful and the pest is spreading outside the London area. The current most northerly sighting is at Watford, some 113 miles south of King's Lynn.
- 8.13 The hairy caterpillars are shown on Figure 14. Perhaps their most distinguishing feature is that they cluster near food and follow each other in a nose to tail line when moving to and from feeding areas. They make silken nests on the stems and branches of oak trees as shown in Figure 15.



Fig. 14 A cluster of caterpillars on an oak leaf clearly showing their urticating hairs



Fig. 15 A communal nest on an oak tree full of toxic hairs



- 8.14 High populations of this insect will lead to repeated defoliation of oak trees which could seriously weaken them. However, trees are generally resistant to browsing insect damage and their lost leaves will generally grow back even after complete defoliation. This pest is more of a public health problem than a tree issue.
- 8.15 Oak trees form an estimated 17 % of the urban tree stock and they are widely distributed around the Borough.
- 8.16 Given the public health risk the Council will take prompt action to try to eradicate populations of this insect as they are discovered on their land and offer help to private landowners to deal with the problem. The Council will also periodically review its policy on controlling this insect.
- 8.17 Members of the public that notice either the caterpillars or their nests on oak trees in the Borough should report the sighting to the Council immediately. AVOID CONTACT WITH THE INSECTS AND DO NOT TOUCH OR DISTURB THE NESTS WHICH WOULD RELEASE CLOUDS OF TOXIC HAIRS. Be aware of the potential health risk and teach children to avoid both the caterpillars and their nests. Pets should be restrained to prevent them coming into contact with the nests.
- 8.18 Both the Oak Processionary Moth and Ash Dieback present a serious threat and, if they become established, are likely to require a large amount of staff time and expenditure to deal with.

### Other Pests and Diseases

- 8.19 Other recently introduced diseases that have the potential to impact on the tree cover in the Borough are detailed in Table 4 below

Table 2 – Recently Introduced tree pests and Diseases their likely impact

Species	Vulnerable Tree Species	Symptoms	Implications for the Borough's trees	Status
Sweet Chestnut Blight  ( <i>Cryphonectria parasitica</i> )	Sweet chestnut	Death and dieback	Sweet Chestnut forms only a small proportion of the Council's tree stocks. However this disease has the potential to kill most of the Sweet Chestnut in the wider landscape.	Recently introduced into UK
Ramorum Disease  ( <i>Phytophthora ramorum</i> )	A fungus-like disease affecting a wide spectrum of species including oak, sweet chestnut, and beech. Currently a serious pathogen of larch.	Dieback and death	The wide range of potential hosts. Formally known as 'Sudden Oak Death'. Urban and rural trees within the Borough are susceptible	Introduced but now well established

Species	Vulnerable Tree Species	Symptoms	Implications for the Borough's trees	Status
Acute Oak Decline	Not a specific pathogen but a syndrome. However the main cause is thought to be bacterial.	Symptoms include black exudate from stem followed by rapid dieback of oak	Has the potential to cause serious damage to the most common species in the Borough	Endemic
Bacterial Bleeding Canker of Horse Chestnut  <i>(Pseudomonas syringae pv aesculi)</i>	Horse chestnut	Bacterial disease causing black exudate from the bark of stems and branches and extensive patches of dead bark leading to branch failure and dieback.	There has been a rapid spread of this condition in the last 5 years. However, it appears to have become less virulent in the last two years	Endemic
Horse chestnut Leaf Miner  <i>(Cameraria ohridella)</i>	Horse chestnut	Larval stage of this micro-moth feed in the leaf tissue causing an early browning of foliage in mid-summer.	Attack by this pest is disfiguring in summer and may, over time, weaken the tree but is not considered a serious problem requiring action.	Introduced
Dutch elm Disease  <i>(Ophiostoma novo-ulmi)</i>	Elm	This fungal wilt disease causes rapid die back and death of elms. This virulent strain introduced in the 1970's has killed around 23 million elms.	The disease is still active killing elm species that initially showed resistance to the disease and also regrowth from elm suckers arising from the roots of infected trees removed in the past.	Introduced
Massaria Disease of London Plane  <i>(Splanchnone ma platani)</i>	London plane	A Fungal pathogen mainly found on the upper side of branches causing branch failure	Only a small number of Council trees are at risk but they are prominent positions such as The Walks. If this pathogen is found in the Borough it will necessitate regular climbed inspections	Introduced

8.20 In addition to the species listed in table two there are a number of very serious pests and diseases not yet found in the UK but are affecting trees in Europe. Three examples are:

- Plane wilt (*Ceratocystis platani*) a fungal wilt disease of plane similar in effect to Dutch Elm Disease causing die back and death of plane trees,
- OQDS or Olive quick decline syndrome (*Xylella fastidiosa*) this bacterial disease has a very wide host range and while currently devastating olive groves in southern Europe is it capable of transfer to many other shrub and tree species.
- Asian longhorn Beetle (*Anoplophora glabripennis*). The larval stage of this large beetle is a woodborer that bores through the wood rapidly killing a wide range of tree species including the five most common species found in the Borough. A small breeding population has been found in the UK but eradicated.

8.21 Council staff will maintain a high level of training and awareness of tree pests and diseases and take prompt action to, as far as is practicable, alleviate the impact when they are discovered.

### **Climate Change**

8.22 The likely effects of climate change, caused by anthropogenic carbon emissions which are enhancing the greenhouse effect of the upper atmosphere, are widely predicted to be as follows;

- Increased summer temperatures and possible drought conditions; summer temperatures are expected to rise by 4.2° 2080.
- Possible more frequent storm events; heavy rain days with rainfall > 25 mm will be between 2 and 3.5 times more frequent by 2080.
- Higher wind speeds.
- Greater potential for flooding
- Higher levels of carbon dioxide in the atmosphere.
- Increased numbers of tree pathogens and insect pests.

8.23 Measures to both mitigate and adapt to these predicted effects of climate change will be incorporated into the strategy wherever possible.

8.24 The magnitude and rate of predicted climate change means that trees and woodlands could be significantly affected. Adaptation is therefore an important issue and should be addressed at the earliest opportunity. This is particularly important, because of the long time-frame associated with any management decisions made in tree and woodland management. The difficulty for the Council is ensuring that decisions made now, particularly over planting choices, are appropriate to both the current and future climate.

8.25 Initially, the impact of climate change is likely to be most serious and apparent in southern England. Young and newly established trees, together with street trees and trees in hedgerows are likely to be the first affected. Mortality will increase and species suitability will change, therefore it is important to consider the planting stock in adapting to climate change. Recent research into drought resistance of urban trees and the search for new and lesser known species with drought resistance will be considered when making decisions on species choice.

- 8.26 It is well documented that trees offer significant benefits of removing CO<sub>2</sub> from the atmosphere through photosynthesis. This CO<sub>2</sub> is bound and stored as carbon within the tree. This carbon will remain locked in the timber until it is released by combustion or slow decay. Carbon is also held within the tree's foliage, roots and branches. Research has also shown that woodland soils sequester a large amount of carbon, and plant matter is the single most important source of carbon.
- 8.27 The potential for increased summer droughts and storm events will be considered in the context of trees and woodland adjoining residential areas. Where appropriate, high water demanding species and species prone to gale damage will be removed and replaced with more suitable species.
- 8.28 Natural regeneration of native species will be encouraged so that the natural genetic variation will provide a buffer against climatic variation.
- 8.29 Species known to be sensitive to drought conditions such as beech, silver birch and yew will form no more than 10% any new council planting. As better information on drought resistance species becomes available this will be made an important consideration in species selection.

## **9. General Policies and Priorities for Managing the Councils Trees**

### **Legal Considerations (meeting the Council's Duty of Care)**

- 9.1.1 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.
- 9.1.2 The Council has a duty of care to employees and members of the public in respect of safety of the 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 will try to keep risks presented by trees as low as is reasonably practicable.
- 9.1.3 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 out how 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.
- 9.1.4 The Council has produced a Tree Risk Management Plan which forms Appendix 2 it includes all the measures recommended in current guidance. The plan has now been fully implemented with all Council trees checked on a regular cycle.

***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.***

**Priorities:** TP 1.1: The regime of periodic tree inspections and data recording as set out in the Tree Risk Management Plan will be continued.

TP 1.2: Council staff will maintain a high level of training and continued professional development to ensure that tree management decisions are well founded and in line with current industry practice.

TP 1.3: The Tree and Safety Policy will be periodically reviewed.

TP 1.4: The Council's tree stock will be digitally mapped and the data entered into a data base to facilitate long term management and efficient working.

### **Stakeholder Involvement**

- 9.1.5 It is very important that stakeholders and residents within the Borough understand the principles set out in this strategy particularly that cyclical renewal and management of trees is necessary to ensure their long term sustainability. The strategy will be widely distributed and available on line on the Borough Council of King's Lynn and West Norfolk web site. It is hoped residents will be assured that the Borough 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 the Borough's trees, woods and greenspaces.
- 9.1.6 Before adopting the new strategy the Council will consult with a range of local organisations who will be invited to comment. These will include;
- The Local Conservation Bodies
  - Town and Parish Councils
  - Other interested groups
- 9.1.7 The Council will seek to support community based projects regarding trees, in particular to encourage schools and youth groups to become involved in the Borough's trees and woodland.
- 9.1.8 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 by the community, appropriate information will be made freely available. An example of this in action is the 'Walks Tree Trail' available on line
- 9.1.9 Partnership working promotes community involvement and so links to existing partners will be strengthened and new ones established by providing advice and support to communities with plans to plant and maintain their own trees. An example of this type of partnership is the 'Street trees for Lynn project' established by the Borough Council in conjunction with the Civic Society and Groundwork Art Gallery. Partnerships can help support applications for funding from organisations such as The Woodland Trust.

- 9.1.10 The planning process is a source of possible funding for new trees through Section 106 Agreements and allocation of a proportion of CIL payments. The Council will, where practicable, work with a range of commercial partners to provide trees, woodland and green space across the Borough.
- 9.1.11 All queries on tree matters will be promptly responded to and residents views given due consideration. When making management decisions, it may not always be possible to comply with resident's wishes in respect of neighbouring trees.
- 9.1.12 The Council are committed to ensuring that, when undertaking tree work, local residents are kept informed. Notice of significant works will be published on the Council Website and, where

***TP 2: The Council will encourage a better understanding of tree and woodland management and in so doing promote community involvement.***

Priorities:

TP 2.1: The Council will seek to disseminate information on its tree and woodland activities as widely as possible.

TP 2.2: The aim will be to support and maximise community involvement in the Borough trees and woodlands

TP 2.3: The Council will seek funding through the planning process, via section 106 agreements and CIL payments, to enhance new developments.

appropriate, notices will be posted on or near the site.

## **Natural Environment**

- 9.1.13 The council owns 138 ha of woodland and green space which will be managed as a multi-functional resource, delivering a wide range of environmental benefits. Trees and woodlands are a very important part of this and play a vital role
- 9.1.14 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 in close proximity to 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. In order 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 harming the biodiversity interest.
- 9.1.15 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.

- 9.1.16 The presence of invasive non-native species such as Japanese Knotweed on Council land will be will be addressed

***TP 3: The Council will ensure that its trees and woodlands are managed with due regard to the wildlife and conservation benefits that they provide***

Priorities:

TP 3.1: The Council will work within all BAP and HAP targets and other national advice and guidelines on habitat conservation when undertaking tree management.

TP 3.2: Works, as far as is practicable, will be timed to limit disturbance to wild life particularly nesting birds and bats. If urgent work is necessary in sensitive periods this will only be undertaken in the light of the Councils ecological protocols and advice.

## **10. Policies and Priorities for the Management of Council Owned Trees**

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

- Trees in Parks and Open Spaces: These are frequently the trees of greatest local significance and provide maximum visual amenity for both residents and visitors.
- Trees in cemeteries, including Mintlyn Crematorium grounds. These areas have a high proportion of mature trees and are important in the landscape. They provide recreation opportunities and space for quiet contemplation.
- Trees in Residential Areas: which 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 mainly trees growing around 1960's housing estates built when the town was expanding to accommodate London overspill.
- Village Trees in rural west Norfolk: the Council has 22 ha of green space. The small towns and villages have a unique character to which the trees make a significant contribution.
- New and Replacement Planting: The policies and priorities in respect of new and replacement planting are a key element of this strategy and decisions made now will have a bearing on the future resilience and sustainability of the tree cover in the Borough.

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

### **Trees in Parks and Open Spaces**

- 10.2 The mature trees in the Borough's parks and green space will be conserved and carefully maintained by the Council taking full consideration of their historical and landscape importance. Management will ensure that the benefits they provide are sustainable in the long term by means of replacement and enrichment planting as required.
- 10.3 Over mature trees will be preserved and managed to reduce the risk to the public. Where possible alternative solutions such as rerouting paths and moving benches will be considered before deciding to fell a tree in a potentially dangerous condition.

- 10.4 Where open spaces contain areas of short grass. These areas provide potential for extending tree woodland planting. Research within The Woodland Trust's "Trees or Turf" report 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

***Policy TP4: To conserve and maintain tree cover within the Borough's parks and open spaces***

Priorities:

TP4.1: To replace all trees lost due to the incidence of pests and diseases, gale damage or health and safety considerations on a one for one basis.

TP 4.2: To carry out new tree planting in anticipation of the need to replace older tree stocks in the future. Working in a phased way rather than causing large amounts of disturbance and change to the landscape of the park in one operation.

TP 4.3: To increase diversity by planting species that do not feature in the existing list of species (Appendix 3).

TP.4.4: To ensure that management work takes into consideration the sensitivities of the residents who use and care about the parks. In particular ensure that the reasons for particular operations are explained to the public before commencement.

TP 4.5: To maximise arboricultural interest by planting a proportion of rare specimen trees from temperate areas of the world.

wildlife can be promoted in addition to landscape enhancement

**Trees in Cemeteries and Mintlyn Crematorium**

- 10.5 The trees within the cemeteries include mature and overmature specimens. These areas need new planting to be carried out to ensure that tree cover is sustained into the future
- 10.6 Tree planting must respect the historic, monuments and maintain the character of the area. For example, conifers were a feature of Victorian Cemeteries therefore a proportion of any new

***The Policy TP5 The Council will manage trees within the cemeteries and crematorium grounds in a way that respects the setting and ensures that tree cover is sustainable.***

TP5.1 Carry out new planting in the Victorian Cemeteries to ensure continuity of tree cover in particular using species that will ultimately be of similar stature to the existing tree cover. The Aim is to plant 1% of the existing cover by number each year and replace any failures on a one for one basis.

TP5.2 Selectively thin the woods, surrounding Mintlyn crematorium to allow proper development of the better trees and enrichment and under planting for added amenity.

TP5.3 New planting in Mintlyn to be specially selected to provide a range of seasonal interest and colour



planting should include appropriate conifers such as yew, cypress and cedar.

- 10.7 Mintlyn crematorium is set in mature woodland. The prime of management aim will be to enhance the visual amenity of the site.

### **Trees in Residential Areas**

- 10.7.1 Council owned trees in residential areas provide considerable local amenity but other than carrying out health and safety work have historically receive little management.
- 10.7.2 A large proportion of public sector housing in the Borough was built by the in the 1960's tree and shrub planting areas include individual trees and tree groups. These 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 buildings and each other and selecting inappropriate

#### ***Policy TP6 – To maintain and increase tree cover in residential areas in particular increasing the species and age diversity of the trees***

##### **Priorities**

TP 6.1: To carry out a scoping survey of council trees in residential areas identifying potential sites for new planting tree planting and areas where existing trees need management or rationalisation.

TP 6.2: To plant new trees in appropriate sites,

TP 6.3 To address problems caused by unsuitable species planted too close to buildings and in inappropriate situations by tree removal and replacement planting as necessary.

species for a given situation become evident.

### **Woodlands**

- 10.8 The total woodland holding is 9 ha
- 10.8.1 The council will manage its woodlands on a continuous cover basis not clear felling but maintaining the woods in the landscape and regenerating them by enrichment planting and natural regeneration.
- 10.8.2 Where necessary thinning will be carried out to allow proper development and provide light to reach the woodland floor.

***Policy TP 7: The Council will aim to achieve sustainable management of its woodlands and to preserve and improve wildlife habitats.***

**Priorities:**

TP 7.1: Prepare a Woodland Management Plan for all Council owned woodlands outlining work required in the next 20 years period.

TP. 7.2: The woodland management proposals will take full account of the wildlife habitats and be based on a separate ecological evaluation of the woodlands,

TP 7.3: As far as is consistent with TP 6.2 seek to improve public access and the potential for recreational use of the areas.

TP 7.4: The Council will monitor the impact of impact of ash dieback on its woodlands and take all necessary measures to maintain the integrity and conservation value of the areas.

**Village and Rural Trees**

- 10.8.3 Many of the trees in the villages and rural areas are privately owned. The Council has responsibly for a relatively small number of trees in these areas. However, it is recognised that they make a significant contribution the local landscape
- 10.8.4 Distinctive village scenes can be maintained by the use of native species which 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 be avoided.
- 10.8.5 Many trees have been planted by village communities. Where possible, the Council will help facilitate such activity by offering suitable planting locations on Council owned land.
- 10.8.6 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.

***Policy TP8: The Council will preserve and effectively manage village and rural trees in its ownership.***

**Priorities:**

TP8.1: To ensure that all Council owned trees in small towns and villages receive periodic inspection in line with the Tree Risk Management Plan.

TP 8.2: To replace all trees which are removed in these areas and attempt to expand tree cover if appropriate. Planting of low maintenance bare rooted whips with appropriate guards will be favoured over larger planting stock.

TP.8.3: To re-plant using suitable native tree species except where this would not be in keeping with the local landscape character.

## **New and Replacement Planting**

- 10.8.7 A key aim of this strategy is to increase the numbers of trees within the Borough by both new and replacement planting. The target is to increase canopy cover overall to at least the notational average of 18%. Opportunities to improve wildlife habitats and connectivity between woods and tree groups will also be a major consideration in setting out new planting areas.
- 10.8.8 Trees as living organisms have a finite life expectancy. Whilst relatively long-lived, the stress of the urban environment significantly shortens their life span. Hence the need for regeneration and renewal is paramount.
- 10.8.9 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. There is a limited range of native tree species (approximately 35 species excluding micro species drawn from 21 genera and 11 plant families) therefore where ecological considerations dictate that native species are used it will be more difficult to achieve the desired variation.
- 10.8.10 While the aim is to produce a more even spread of trees across the Borough, not all benefits can be provided in one location and the benefits that are most important to the locality will be the focus for both new and replacement planting.
- 10.8.11 Council trees that are removed for any reason will be replaced on a one for one basis. However, replacements may be allocated elsewhere in the area.
- 10.8.12 Many of the problems encountered during the daily management of the Borough's 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 a tree is suitable for its proposed planting area and that this policy is followed every time a new or replacement tree is selected and planted.
- 10.8.13 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 and Dutch elm disease will be a major limiting factor for the use of certain species or genera.
- 10.8.14 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.
- 10.8.15 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 likely ultimate size.

- 10.8.16 The constraints of the urban environment can make the enlargement of woodland and other habitats impractical. With fore-planning and management of open spaces and gardens that border these sites, effective buffers and extensions can be created.
- 10.8.17 In the urban parts of King's Lynn insufficient planting space is a serious constraint and in order to increase the tree cover. In these areas the focus will be on be locating preparing suitable sites to ensure roots have sufficient space to allow proper development of the tree. Small numbers of well planted feature trees will be used in these areas.
- 10.8.18 In areas where publicly owned sites are not available planting on adjacent privately owned sites will be encouraged. The Council will offer guidance and advice where proposed planting would have a direct benefit to the local environment.

***Policy TP9: The Council will encourage an increase in tree cover by new and replacement planting, placing great emphasis on use of appropriate tree species.***

**Priorities:**

TP 9.1: To develop a planting plan identifying specific potential tree planting sites throughout the Borough, including consultation with other council departments and stakeholders

TP 9.2: Allocate a percentage of the total tree budget to fund the replacement of trees in inappropriate situations

TP 9.3: As and when the prospect arises, to work with other organisations to secure additional funding streams for the establishment and management of tree stocks, particularly through the planning process via section 106 agreements and the use of CIL payments.

TP 9.4: To pay careful attention to the site conditions in particular providing sufficient space for root development.

TP 9.5: 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.

TP 9.6: To ensure all newly planted trees achieve independence in the landscape by virtue of a sustained programme of maintenance.

TP 9.7: Where possible reduce the tree maintenance commitment by the use of smaller planting stock that will establish quickly and require less attention.

TP 9.8 In urban Kings Lynn the emphasis will be on planting small numbers of high quality Heavy Standard trees planted in carefully prepared sites. The target will be six trees per year over the strategy period.

## **11. Summary of the Key Elements of the Strategy**

- 11.1.1 This strategy highlights the immense value of the Borough's urban forest to the wellbeing of its residents and the substantial contribution it makes to the Borough's sustainable future.
- 11.1.2 Considerable progress has been made to put systems in place to manage the Borough's trees and woodlands, particularly the steps that have been taken to fulfil the Council's duty of care in respect of health and safety. The new strategy builds on these achievements.
- 11.1.3 The focus for the ten year period of this new strategy is consolidation of the Council's trees stocks in particular making provision for the long term renewal in the light of the ageing nature of the tree stocks
- 11.1.4 The tree stock must be carefully managed to provide a degree of resilience to both imported pests and diseases and the climate change.

- 11.1.5 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. The aim to increase canopy cover towards the national average will be over a period of at least ten years.
- 11.1.6 Development in the Borough 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 through the use of section 106 agreements and CIL payments.
- 11.1.7 It is hoped that both stakeholders and residents of the Borough 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 the Borough's trees for both the existing and future generations.

## **12. Review and Performance Indicators**

- 12.1 The period of the strategy is ten years after which it will be revised. At the five year point the progress will be reviewed to ensure that sufficient progress is being made towards the key policies and that any changes of circumstances are accommodated.
- 12.2 The key performance indicators will be achieving the targets for new tree planting and increasing the canopy cover in Kings Lynn.

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## 14. 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.

**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;

**Ecosystem disservices** – Trees can cause problems in urban conditions particularly 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, reduce surface water runoff and reduce air pollution.

**Heat Island Effect** – Urban 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 night time 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 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 as 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.

**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.

**Urban Forest** – All trees and woody vegetation which grow within a town or city collectively form the urban forest regardless of ownership.

**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.