

Saving Norwich's Trees

A Leafy Past and an Uncertain Future

by

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Section A

Foreword

This report has been prepared for the Norwich and Norfolk Portfolio Holders with responsibility for trees. For ease of reading, the introduction and summary, scope and recommendations are in Section A at the front of the report. The main part of the report and the basis on which our recommendations are made is contained in Section B.

We have been motivated to write a report by our observations of the gradual decline in large forest trees in Norwich, many of them a century or more in age and by the loss of the city's street trees.

To address the twin emergencies of climate change and biodiversity loss, we invite our councils commit to a major ongoing tree planting and maintenance programme aimed at creating a new arboreal legacy for Norwich for the next one hundred years.

We do not claim to have any specialist knowledge of trees and are grateful for information which has been provided by the County highways tree officer and by the City arboricultural officer. Any mistakes or incorrect interpretations are purely our own.

1. Introduction and Summary of the Problem

'Either a city in an orchard or an orchard in a city, so equally are houses and trees blended in', Thomas Fuller famously wrote of Norwich in 1662. As Norwich's population grew, pasture, gardens and orchards vanished, but the legacy of a city in an arboreal setting was reflected in the inter-war years by the landscape designs of Captain Sandys-Winsch, City Council Park Superintendent and a passionate advocate for trees. The Captain made room for 20,000 young trees in new spacious housing communities and parks and along roads laid out on farmland beyond the cramped medieval centre and its rings of austere terraces. Surviving trees and their layouts from that era are a dimming reminder of his horticultural prowess.¹ (Appendix A: A brief history of trees in Norwich).

Today, all is not well with Norwich's trees. Large forest trees such as beech, horse chestnut and ash have been gradually vanishing as they succumb to disease, pests, extreme weather and old age or are squeezed out by growth and development. If life wasn't already tough for urban trees, the climate crisis poses an existential threat to their health and survival.



Felled beech tree on City Council housing land,
Heigham Grove.

Trees play a crucial role in capturing carbon, reducing surface temperature by shading and through transpiration and absorbing rain. As key components in the creation of ecological corridors, trees help to reverse biodiversity loss. National and local policies support higher rates of tree planting. Whilst the City and County Councils have adopted carbon reduction and green infrastructure as strategic corporate objectives, they have not to date given sufficient attention and priority to tree planting and green infrastructure in Norwich as a means of achieving this.

Another visible sign of Norwich's flat-lining if not falling tree population is the large number of gaps appearing in residential street trees, manifested as either stumps, empty tree pits or former tree pits capped by tarmac. In Spring 2022, councillors and residents identified sixty missing street trees in Nelson ward. A re-survey in

February 2023 counted another seventeen dead or lost trees, some doubtless victims of the 2022 heatwave and drought. If a similar rate of loss of street trees was replicated across the whole city, this would add up to a substantial shortfall.



Stump of a tree that died three years ago and still needing replacement.

Norwich's tree canopy coverage, the layer of leaves, branches and tree stems that cover the ground, was assessed at 18.6% by Forest Research, part of the Forestry Commission in 2016. The city sits above the national average level of cover of 16% and compares relatively well alongside other historic cities.² On the other hand, Norwich is below the minimum 20% target standard recommended for inland towns and cities by the agency which estimated in 2020 that nine of the city's thirteen wards have cover below 20%, with Mancroft ward registering barely half.³

Norwich City Council pieced together just £9,741 from various departmental budgets for purchasing new heavy tree standards in both 2021 and 2022⁴ and planted fewer than 100 trees in this category in 2021/22. Norfolk County Council allocated a meagre £20,000⁵ on new tree stock for highways land in Norwich from its multi-million pound highways maintenance budget in 2022/23. This sum will fund a mere 49 trees⁶, representing a less than 1% replacement rate for the 11,400 highways trees passed by the City to the County Council in April 2020.

If these tokenistic levels of funding continue and the rate of tree mortality quickens as the climate warms, we could see the eventual loss of the city's forest trees outside of woodlands and the disappearance of trees from Norwich's streets and roads, apart from those in conservation areas. In the highways engineer's book, trees appear to be a safety risk to be managed rather than a resource for nurturing. The authors estimate that between £440,000 -£500,000 is needed to replace historic tree losses on highways land in Norwich if we are to reach any targets set for increasing the tree canopy cover.⁷

More than eleven hundred citizens have signed a petition calling on the County and City Councils to plant more street trees and trees generally. In addition, more than fifty residents in Nelson ward have expressed interest in becoming volunteer tree

wardens to monitor the health of street trees. Many people love trees and are quick to defend them.

This report calls on our local councils to conserve the tree legacy gifted to us and to create a new tree legacy for the next one hundred years. We want our councils to provide more space for trees; for the City Council to set challenging targets for increasing tree canopy cover and for the County Council to contribute to this. We want the councils to fund well-resourced rolling long-term programmes aimed at ensuring a diverse, healthy and resilient treescape which can help the city adapt to climate change and support the recovery of nature.

2. Scope

This report focuses on trees on local-authority owned land in Norwich, where responsibility is split between Norwich City Council - which looks after trees in parks, cemeteries, open spaces, allotments and Council housing land - and Norfolk County Council which on 1 April 2020 took over responsibility for trees on highways land - residential streets, roads, verges, and roundabouts.

Not covered by the report are trees on land owned by other public bodies and on private land such as gardens but which nonetheless make a substantial contribution to the city's treescape. Defra uses the term 'treescape' in discussing trees which it defines in the box below ⁸:

"The term 'treescape' is used to encompass all trees within a given area, whether that be a town, a city, a county, or a wider landscape. It includes individual trees, hedgerows, orchards and woodlands, and those that grow on private land as well as land owned or managed by local authorities or other public bodies. The term 'treescape' is intended to recognise the connectivity between trees and emphasise that managing them in a 'joined-up' manner can improve outcomes."

Also not addressed in this report are hedges, green spaces and other forms of urban greening which play a vital role in providing environmental services and connect trees and green spaces to create ecological networks.

3. Recommendations for Councils and Trees in Norwich

Objectives, Strategies, Targets, Action Plans

- i) Local councils to make trees and increased tree planting a strategic priority and part of the creation of Local Nature Recovery networks. This should include making more space for trees, aiding the resilience of existing and newly planted trees and enhancing the city's treescape. All this would help support the strategic goals of carbon reduction, climate adaptation and nature recovery.

- ii) Norwich City Council to adopt a vision for the city's treescape for the next century in its forthcoming strategy. The strategy to include a set of working principles for improving the resilience of existing and newly planted trees to climate change: for example, a more diverse treescape, choosing more resilient species, better planting techniques and more frequent watering during dry periods. An action plan should set targets for increasing tree canopy cover across the city, and in wards with especially low coverage and they should be made a Key Performance Indicator in the Corporate Plan. All relevant City Council departments should contribute to tree planting targets and grounds maintenance contracts and their specification must support the Council's biodiversity and tree strategies and programmes.
- iii) Norfolk County Highways to adopt a pro-active strategy, action plan and rolling programme for planting more trees on highways land and contributing to City Council targets. The plan should support action to address climate change and nature recovery alongside managing highways safety risks and take a more flexible position on planting in hard surfaces.
- iv) The City and County Councils to encourage Broadland and South Norfolk Councils to produce strategies, targets and specific action plans for the parts of their districts covering Greater Norwich. With fewer space restrictions on tree planting, suburban and rural areas need to set even higher targets.



City Council Housing have allowed the Island Community Group in West Pottergate area to position a plum tree in Douro Place, but insist it is kept in a container rather than planted in the grass reducing its chances of survival.

Funding

- v) The County Council to allocate a one-off sum to address the back log of missing street trees using unspent funds from local member discretionary highways allocations. At least £400-500k spread over three years is needed.
- vi) The City and County Council to increase their core budget allocations for tree planting on public land. Additional funding will be needed to meet adopted targets and ensure the quality and diversity of trees planted and the extra care needed for their survival.
- vii) The County Council to apply for the next Local Authority Treescape Fund round which covers replacement trees.
- viii) The City Council to apply for Urban Tree Challenge Funding (20% match) to help restore the tree canopy in Mile Cross and other social housing areas.
- ix) The City Council to use Parish Partnerships funding for tree planting.
- x) The City Council to increase its budget for leaf clearance from streets to cope with a higher tree canopy cover.

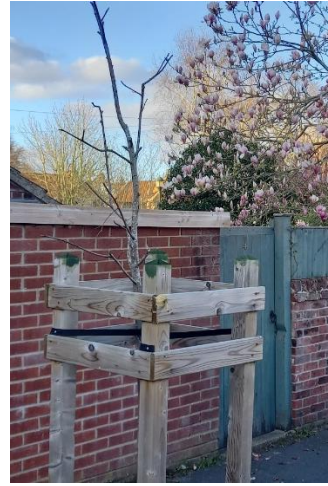
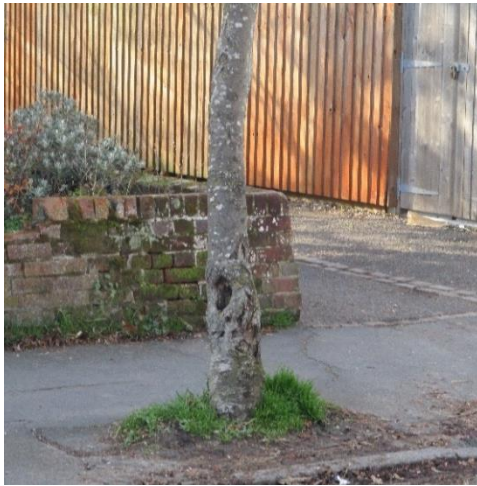
Implementation

- xi) The County Council to appoint a second arboriculture officer to assist the existing highways trees officer for Norwich.
- xii) The County Council to update historic data on missing street trees provided by the City Council as there are more gaps than were notified.
- xiii) Developers to contribute to new city-wide tree canopy coverage targets in addition to the target for Biodiversity Net Gain. The City Council to maintain an inventory of trees planted through developer contributions and to review the costs of planting and maintaining a heavy standard tree in soft and hard landscaping in new developments in the Woodland and Trees SPD (2016).
- xiv) The City Council to identify suitable undeveloped pockets of land in its ownership for planting trees. Norfolk County Council to identify new highways land with the potential for tree planting.
- xv) The City and County Councils to replace missing trees and to increase the tree stock generally in all conservation areas. For example, the Mile Cross Conservation Area Appraisal notes that many of the originally planted trees are coming to the end of their life and that although the city council has been replacing many of the lost trees, there are still significant areas that lack their original highway trees.

- xvi) The City Council to develop and implement an action plan for 'greening' the River Wensum corridor through Norwich, to include tree planting.
- xvii) The City Council to review permission for vehicles to drive across grass and tree roots for public events in Chapelfield Park.
- xviii) The Councils to end the use of herbicides around trees and more generally.
- xix) The County Council to implement parking restrictions on grass verges with trees to better protect trees stems and their root systems, beginning with a ban on verge parking along Jessopp Road to protect the mature beech trees planted by Captain Sandys- Winch in the 1920s.
- xx) The Councils to investigate purchase of tree saplings from local community tree nurseries which collect and use local seeds.
- xxi) The City Council to plant fruit and nut trees on social housing land and in parks.
- xxii) The City Council to pilot a 'mini-forest' on a suitable site.

Information/Education

- xxiii) The City Council to publish more data about local trees on their website. An interactive digital map would enable residents to find out about tree canopy cover in their neighbourhood and other tree information. The website to include an information briefing prepared by the City Council on tree planting in private gardens, for example advice on suitable native species for small gardens and the dangers of importing pests and diseases on foreign grown trees.
- xxiv) The City and County Councils to consult annually with ward members and communities over suggestions for tree planting in their areas before ordering tree stock. City Council to maintain up-to-date annual planting schedules of locations and species for heavy standard trees on their website.
- xxv) The City Council to document the remaining trees legacy of Sandys Winch.
- xxvi) The City Council to prepare a tree inventory and landscape appraisal for Earlham and Rosary Cemeteries to assist in selecting tree species for future planting which reflect the historic character of the cemeteries.
- xxvii) The City Council to educate local citizens on the importance and value of trees, of maintaining trees in their ownership and planting more trees.
- xxviii) The City and County Councils to help support a network of volunteer tree wardens in Norwich.



The tree on the left was planted without a tree cage and has been hit by parking vehicles. The tree on the right has probably died in the 2022 drought through lack of watering.



In the photo on the left, the City Council cut down 3 fir trees in the communal gardens of 21 – 51 Heigham Grove in October 2019 without consulting the residents or ward councillors. Photo on the right shows the barren garden after the trees had been chopped down and hedges reduced. Subsequently two small flowering trees have been replanted.

B . Detailed Background Material

1. Importance of Urban Trees – Above Ground

Urban trees are vital for a healthy environment. They remove and store carbon and cool their surroundings through transpiration, by providing shade and reflecting solar radiation. They slow the flow of rainfall to reduce flooding, improve air quality and screen homes from traffic noise. They also provide valuable wildlife habitats.

As organisms of beauty and wonder, trees lift people’s spirits to promote well-being, create a sense of place and add character and value to neighbourhoods. Community tree schemes such as planting orchards can also bring people together.

Forest Research, research wing of the Forest Commission, has highlighted the collective importance of single and small groups of trees in gardens, parks, fields and along streets which make up around 20% of all the nation's trees:

- half to two-thirds of the economic benefits from non-woodland trees comes from the removal and storage of carbon dioxide.
- urban trees, together with other elements of green infrastructure, reduce urban air temperatures.
- compared to young trees, mature trees provide on average 70 times more air purification and rainfall interception.
- a diversity of urban tree species (with no more than 10% of any one species) is more resilient to the pressures of climate change.⁹

It takes many years for newly planted trees to have an impact on the overall tree canopy cover and to achieve the same level of absorption of carbon emissions compared with that of mature trees, hence we need to make every effort to protect large canopy trees. Chopping down mature trees for development and replanting larger numbers of tree whips in their place does not provide 'like for like'.

2. Importance of Trees - Below Ground

Our appreciation of trees and the complexity of eco-systems has been deepened by recent research showing the presence of extensive underground mycorrhizal fungal networks connecting into the root systems of trees and plants. Tiny threads of fungal material deliver water and nutrients from the living soil to tree and plant roots in exchange for sugars and carbon. In this way, fungal networks capture and store vast quantities of carbon in the soil. They also increase the volume of water that the soil can absorb, making plants less susceptible to drought and they boost the ability of plants to resist pests by stimulating the production of defensive chemicals.¹⁰

This knowledge should be translated into better protection of soils, trees and forests. Urban trees will stand more chance of surviving and thriving if we allow them more room, better growing conditions, better protection of tree roots, regular watering of young trees and ending the use of herbicides.



Examples of cars parking on grass verges under trees; on the left, vehicle in Jessopp Road under beech avenue planted in 1920s by Sandys Wunsch; right, cars parked on The Avenues.



3. Importance of Trees and Woodland in National Policy and Guidance

Planting more trees and woodland plays a crucial role in national plans for net zero greenhouse gas emissions by 2050 and for reversing the decline in nature through the creation of Local Nature Recovery Strategies and Biodiversity Net Gain, mandated under the Environment Act 2021.¹¹

National policy guidance on trees has been strengthened in the National Planning Policy Framework (NPPF) which recognises the importance of trees and their contribution to the character and quality of urban environments and their ability to mitigate and adapt to climate change. There is an expectation that new streets should be tree-lined and that trees should be incorporated in developments such as in parks and community orchards.¹²

Green infrastructure, in which trees form an element, is considered a strategic priority in the NPPF and it is one of the strategic principles which local authority development plans must address.¹³

The UK government has adopted a target for increasing the coverage of woodland and trees across England from 14.5% to 16.5% by 2050, to include more trees in towns and cities. Forest Research advises local authorities for towns and cities to adopt a target of 20% tree canopy cover within ten to twenty years as the minimum standard. For urban settlements with at least 20% cover, setting targets to increase cover by at least 5% are recommended. However, a modelling study of 93 European cities by the Barcelona Institute for Global Health suggests doubling the average tree coverage of cities from 15 per cent to 30 per cent to cut the number of heat-related deaths during summer months.¹⁴

Defra's 'Trees and Woodland Strategy toolkit' encourages all local authorities to prepare a strategy and action plan on how trees in a given area, on private land as well as land owned or managed by local authorities or other public bodies, shall be managed now and in the future.

The toolkit sets out a step-by-step approach to developing a strategy, starting with establishing baseline information, developing a vision and setting targets. A strong theme is the importance of building stakeholder relationships. These include collaboration with neighbouring or other tiers of authorities to achieve landscape scale benefits and improve connectivity and resilience. Community engagement is seen as critical to implementing effective action plans.

A good example to highlight is Rother District Council's 'Tree Planting Strategy' (Feb 2023) which sets a framework for a long-term programme of tree planting in Bexhill. The report identifies where new planting could take place and to prioritise locations where new trees can have the largest impact on air pollution, flood risk and deprivation index.¹⁵

Natural England has launched a Green Infrastructure Framework for urban areas aimed at planners and developers.¹⁶ The Framework comprises an urban green mapping tool, a set of principles, a set of standards and design guidance for increasing the quantity and quality of urban green cover to 40% as part of delivering

Biodiversity Net Gain and Local Nature Recovery Strategies. A tree canopy coverage standard specifies major residential and commercial development and their design for meeting locally agreed targets for increasing tree cover.

4. Local Tree and Woodland Strategies

The following is a snapshot of the plethora of local strategies and policies, starting with the Norfolk Strategic Planning Framework which sets out the shared vision of all local authorities in Norfolk. Shared objectives include:

- *To reduce Norfolk's greenhouse gas emissions and improving air quality as well as reducing the impact from, exposure to, and effects of climate change.*
- *To improve and conserve Norfolk's rich and biodiverse environment.*¹⁷

Green infrastructure is identified as a strategic priority, with the objective expanded upon more fully in the Greater Norwich Local Plan and supporting documents.

Norfolk County Council lists 'A Greener and more resilient future' among its five Corporate strategic priorities. In working towards this, the Council's Climate Change Strategy seeks to achieve net zero carbon emissions for its estate¹⁸ and to work towards carbon neutrality within the wider area by 2030. Finding nature-based solutions and production of a Local Nature Recovery Network are two of the Council's adaptation priorities for the natural environment.

One ambitious County initiative, One Million Trees for Norfolk by 2025, works out in practical terms at less than one tree per acre and roughly one tree per head of population. In Norwich, 836 trees have been given away through this scheme as mostly whips or tree seedlings rather than replacement heavy standard trees for council land.¹⁹

Norfolk County Council is also trialling tennis court size, 'Miyawaki' forests at 5 sites in Norfolk, including at Sprowston and Hellesdon, an approach which involves dense planting of lots of different species of native trees, into healthy soil.

The County has adopted a set of strategic principles for new tree planting,²⁰ but currently does not have plans to develop a vision and action plan for Norwich.

Norwich City Council's declaration of climate and biodiversity emergencies in 2019 is reflected in the Corporate Plan:

- *Reduce carbon emissions, protect the environment and adapt to climate change, both in the council's own operations and more widely.*
- *Protect and invest in our parks, green spaces and biodiversity.*²¹

The 2040 City Vision commits the Council to achieving net zero carbon emissions by 2045.

Policies on trees in the Norwich Local Plan Development Management Plan provide a framework for determining planning applications, supported by a Supplementary Planning Document, 'Landscape and Trees', adopted in June 2016.

More recently, Norwich City Council has adopted a Biodiversity Strategy 2022 – 2032 and a Biodiversity Development Plan 2022 – 2025. It has engaged the County Biodiversity team to prepare baseline evidence on nature conservation in the city as part of its workstream on developing Local Nature Recovery Networks. A tree canopy cover measure is included in the current reporting metrics for the Biodiversity Development Plan.

The Council is also in the process of preparing a tree strategy for consultation (expected Q1 2023) which will set an ambitious target for increasing average tree canopy cover to 2040. Planting schemes will aim to improve canopy cover in wards which fall below the average.

The City Council holds a detailed database of trees in its ownership covering species, age and health. Unlike some urban centres which rely on a narrow diversity of tree species, Norwich has a wide diversity of tree species, in the view of the city's Arboricultural officer.

Norwich's urban footprint extends into Broadland and South Norfolk and so it is important to collaborate with neighbouring councils on tree strategies and action plans, especially as considerable development is taking place on green field sites around the peri-urban fringes of Norwich.

Broadland's baseline study shows a tree canopy cover of 19.8%.²² The Council has not set a target for increasing the canopy cover and will instead request annual updates (from the NCC geospatial data team) to monitor progress. As most of the trees planted are whips it will take many years before they mature and contribute to canopy cover statistics.

In their environmental strategies, Broadland and South Norfolk Councils have committed to planting a tree for each of their residents by 2025 through the 'One Million Trees' initiative. The Broadland Environment Strategy states that the Council will Adopt a 'Biodiversity Plan' for council owned woodlands and green spaces.

It would be helpful if these two districts also prepared tree and woodland strategies and action plans for their parishes around Norwich.

Both Broadland and South Norfolk have networks of volunteer tree wardens who plant, protect and promote trees in their local patches.

5. Norwich Trees in Numbers

- There are around 750,000 trees in Norwich in a wide variety of locations including woods, parks, school grounds, hospitals, cemeteries, industrial and commercial areas and streets, according to the City Council trees webpage, although the Council is unable to verify this statistic.²³
- Norwich City Council looks after 3,852 trees in seventeen conservation areas and 34,240 trees elsewhere. (total of 38,092)
- Norwich City Council also owns several woodlands and tree-belts: e.g. West Earlham woods, made up of Twenty Acre Wood and Bunker's Hill Wood,

considered to be eighteenth century plantations and part of Earlham Hall estate and Lion Wood in Thorpe Hamlet and originally part of the Mousehold estate.

- Trees in the City Council's ownership cover a spread of ages. The numbers show the low numbers of new standard trees that are being planted. ²⁴

Newly planted	804 trees
Juvenile	564 trees
Young	5218 trees
Semi Mature	8061 trees
Mature	13333 trees
Over Mature	441 trees
Veteran	36 trees (total: 28,457)

Note: we assume that the difference of 9,635 trees is accounted for by tree numbers in Council-owned woodlands.

- The City Council passed responsibility for 11,400 recorded highway trees to Norfolk County Council on 1 April 2020.²⁵
- To celebrate 100 years of council housing in 2020, the City Council planted 100 trees across the city in and around areas with council homes.
- Friends of Earlham Cemetery, a County Wildlife Site, have recorded one hundred different tree species in the grounds. They include some large specimen trees and many unusual and exotic varieties. ²⁶
- In 2016, Forest Research assessed Norwich's tree canopy cover as 18.6% (plus or minus 1.74). Norwich's tree canopy cover is broadly comparable to several historic towns such as Exeter, Colchester (both 18.8%) and Cambridge (19%). It is higher than Hereford (15.4%) and York (9.8%) but not as high as Hastings (23.4%), Winchester (27.4%), and Royal Tunbridge Wells (33.7%).
- In 2020, Forest Research conducted a desk top assessment of the tree canopy coverage for each of Norwich's thirteen wards. Nine wards fall below the FR's recommended 20% minimum level of provision:
 - Bowthorpe – 20.2%
 - Catton Grove – 12.0%
 - Crome – 16.5%
 - Eaton – 27.9%
 - Lakenham – 20.6%
 - Mancroft – 10.7%
 - Mile Cross – 18.0%
 - Nelson – 13.5%
 - Sewell – 11.0%
 - Thorpe Hamlet – 19.3%
 - Town Close – 18.4%
 - University – 20.5%
 - Wensum – 18.0%

A programme of tree planting is required across Norwich to help meet and exceed the recommended minimum tree canopy cover of 20%.

6. Transfer of 11,400 Trees on Highways Land to Norfolk County Council

Norfolk County Council ended its Highways Agency Agreement with Norwich City Council on 1 April 2020 and took control of all highways matters for the city. The

extent to which highways trees actively featured in the County's discussions with the City is unclear. Whatever the background, the County found itself responsible for highways trees and in June 2020, appointed one highways tree officer to manage the whole city portfolio.

Nelson councillors emailed the County Council to enquire about plans for replanting missing street trees and received a dismal reply:

'We have not yet been able to review lost trees although hopefully we will do so in due course as we have recently appointed a tree officer. His priority will be to assess safety work and that required to maintain safe passage of pedestrians and vehicles. It is highly likely that the only trees to be replaced will be in conservation areas, depending on funds available. I am sure you are aware of the limited budgets that are available for highway maintenance, including trees, and we prioritise these to safety work'.²⁷

The email reply contained no acknowledgment of the role of highways trees for meeting wider objectives such as carbon reduction and biodiversity and the value of planting more trees.

7. Threats to Norwich Trees

Urban trees face hostile conditions and Norwich is no different:

Pests and diseases: in the last five years, 62 Ash trees, 39 Beech trees and 25 Horse Chestnut trees have been felled on City Council land alone.²⁸ Beech and Birch trees for example are susceptible to honey fungus which is present in the soil and affects trees under stress.

Extreme weather and climate change: the hurricane of 1987 wrecked chaos on the city's trees and uprooted many mature specimens. The warming climate is massively ramping up the stress factors affecting trees. Forest Research advises that milder and wetter winters, followed by increased spring rainfall, are likely to enhance the survival and infection potential of many tree pathogens. Hotter, drier summers leading to drought stress in trees will also increase their susceptibility to disease and expand the distribution range of some pathogens. Defra has centralised a plethora of information and guidance on forestry and climate change adaptation in a new Climate Change Hub.²⁹

Lack of space for trees: Development pressures have intensified as the city's population has grown, leaving limited space for trees. Norwich district has a footprint covering 15.07 square miles. The City of Norwich population grew from 121,554 in 2001 to 144,100 in 2021 and it is now the fourth most densely populated area within the East of England, with 26 people living on each football pitch-sized area of land. Green open spaces provide room for trees and national charity Fields in Trust has classified Norwich as having less than the minimum standard of publicly accessible green space provision per head of population.³⁰ Apart from Castle Green and selected sections of Riverside Walk, no new publicly accessible green space has been created in since Norwich since the 1990s. In new developments, the city

planning authority and developers prefer 'lollipop' trees in small tree pits with small canopies to those needing more space and with a wider spread. County highways engineers are reluctant to replace missing street trees in hard paving where underground services may conflict with tree roots and the amount of available soft ground as the easier option has been shrinking. Norfolk's Highways engineers have also shown reluctance to support tree planting on highways land in new developments.

Vehicles: grass should in theory provide a soft safe space for trees, but verges and other areas of grass are often viewed as convenient places to park. Heavy weights compact the ground and damage tree roots as does driving over grass verges with trees; also drivers may knock into trees when parking. An example is Mile Cross Conservation Area, where the Appraisal notes that parking on verges is degrading landscape and damaging tree roots and recommends looking into ways of providing secure off-street parking to avoid impacts. Grass in parks is not immune to vehicle damage either. Heavy vehicles and other equipment are allowed to park on the grass in Chapelfield Gardens for open air events and the trees are vulnerable to damage and compaction.



Photo of fairground ride parked on grass close to veteran London Plane tree in Chapelfield Gardens. Corner of ride extended into the lower branches of the tree. Photo taken on 9 April 2023.

Vandalism: this appears to be a relatively minor problem with some occasional snapping of branches or newly planted trees. However, the authors are also aware of deliberate attacks on trees.



Damage to silver maple tree, Pottergate
March 2023.



Branch snapped on Fir tree in Chapelfield Gardens. Photo
taken on 9 April 2023.

Poor maintenance: this can include not removing tree ties, lack of watering and damage by mowers, strimmers and herbicides.



Tree on open space behind Heathgate.

Continued care and maintenance of trees already planted is vital. An example of a planted tree being 'throttled' by a tie that has

Loss of historic character: Sandys Winsch's tree legacy, for example, has been gradually disappearing. Inappropriate species of trees have been planted in historic landscapes, such as silver birches among the evergreen, weeping and exotic trees in Earlham Cemetery's Victorian grounds.

Lack of funding: Trees have been hard hit by Council budgetary cutbacks and by their low priority status.

Norfolk County Council Funding

For the whole of Norwich, the annual budget 2022/23 for Verges, Hedges and Trees (including planting) is £374,000 which includes annual mowing and flailing as well as planned and emergency tree work.³¹

Of this sum, £20,000 has been allocated for new tree stock for highways land in Norwich. This is lower than the £28,029 allocated to the City Council by the County highways budget in 2018 and in 2019.

Up until that time, the City Council replaced on average around 250 – 380 trees highways trees per year depending on budget, locations, species and size.³²

In winter 2022/23, the core tree budget will stretch to just 49 replacement highways trees across Norwich; dividing the money equally across thirteen wards will pay for three or four trees per ward. This represents a 0.43% replacement rate. If this level of is repeated into the future, Norwich will have no trees left on highways land left apart from those in conservation areas.

The cost of replacing trees in soft landscape (based on 21/22 season prices) is approximately £1,200 which includes three years maintenance:

- £500 – tree, cage and irrigation system
- £220 – Year 1, maintenance per tree
- £220 – Year 2, maintenance per tree
- £220 – Year 3, maintenance per tree
- plus additional cost of £350 - £450 cost for stump removal

The cost of replacing a tree in hard landscape can involve an extra £1,350 (£2,550 in total) as it requires a design team to work with a tree surgery company to grind the stump. For all works that penetrate the ground, the tree officer must apply for drawings of underground services to ensure the replacement tree work does not cause any issues to underground equipment such as a high-pressure gas pipe.

All prices have risen, ranging from purchase of tree stock to more exacting standards for planting. Cost factors include:

- Grinding and removal of stump
- Potentially moving the pit if the ground is diseased. This involves engineering costs.
- Engineering cost for repairing any damage to existing pit surround.
- Possible conflicts with underground utilities.
- Planting a 2 metre tree with a wooden tree guard.
- Putting in place a 3 year management schedule to establish tree.

The additional sums involved in planting hard landscapes means that it is cheaper and easier to plant soft landscapes, adding to the fear that street trees in tarmac pavements may not be replaced at the end of their life.

The County tree officer for Norwich is developing a more cost-effective method for planting street trees in hard landscaping next winter which will involve preparing the tree pit, planting the tree and trimming the tarmac in one rather than separate stages.

Norfolk County Council won £140,000 from Defra's Local Authority Treescapes Fund (LATF) in August 2022 for spending in 2023/24. The bid included 111 tree standards for Norwich highways to be planted over two years and maintenance for three years, after which time maintenance costs fall to local highways maintenance. In year one, 2022/23, the Council is planting 68 trees in soft landscape. In year two, 2023/24, the Council will plant the remaining 40 trees in hard landscape, 23 of which are in Nelson Ward.

Another competitive government fund is the Urban Tree Challenge Fund which supports planting standard trees in urban and peri-urban areas. In the current round which requires only 20% match funding, higher scores are awarded for planting in socially deprived areas with low canopy cover.

In response to calls for more budget for highways trees in Norwich, a spokesperson for the county council commented that the County prioritises maintenance of existing

trees over planting new ones and that the LATF and One Million Trees for Norfolk project offered tree planting opportunities. However, the numbers of heavy standard trees obtained through competitive bidding for government funds are relatively small compared to overall need. This source cannot be relied upon ad infinitum and it does not replace sustained core funding from annual Council budgets. The trees distributed by One Million Trees are new trees requiring minimal maintenance rather than replacement trees in more challenging urban locations on council land.

A potential source of County Council funding for highways trees is the local member discretionary highways budget introduced in 2017 for spending on highways improvements. The amount given to each county councillor has increased from £6,000 to £10,000, totalling some £840,000 available per annum and funding scope has been widened to include environmental initiatives such as tree planting. Demands on the local member discretionary highways budgets are substantial and varied. On the other hand, the size of unspent local member budgets can be considerable: for the five-year period 2017 -2021 around £2 million was unspent and yet the unallocated allowances reverted to the general highways budget.³³

Norwich City Council Funding

In the past four years out of five and excluding the County Council Highways contributions in 2018 and 2019, the City Council has spent £9,741 annually on tree standards using small contributions from four Council department budgets, apart from 2020, when Housing contributed an additional £14,079. ³⁴

2022	
£2,877.00	Parks
£4,540.00	Housing
£947.00	Stewardship properties
£1,377.00	Cemeteries

2021	
£2,877.00	Parks
£4,540.00	Housing
£947.00	Stewardship properties
£1,377.00	Cemeteries

2020	
£2,877.00	Parks
£18,619.00	Housing
£947.00	Stewardship properties
£1,377.00	Cemeteries

2019	
£947.00	Stewardship properties
£1,377.00	Cemeteries
£2,877.00	Parks
£4,540.00	Housing
£28,029	Highways

2018	
£1,377	Cemeteries
£2,877	Green Spaces
£947	Stewardship properties
£4,540	Housing Common
£28,029	Highways

Whilst the tree planting budget remained broadly similar, the number of tree standards purchased has fallen as the prices have risen. In 2019/20, Norwich City Council planted 132 tree standards 164 in 2020/21 and 98 in 2021/22.³⁵

Developers are expected to contribute to tree planting and maintenance. A schedule of charges is contained in Appendix 3 of the Landscape and Trees Supplementary Planning Document (adopted June 2016), updated annually in line with the retail price index. In that year, tree planting and establishment costs in year 1 were estimated at £250 per tree. For years 2 – 4, watering and maintenance costs came to a total of £148.70. These costs seem low relative to the County's estimate of £1,200 for planting and maintaining a heavy standard in soft ground for 3 years and extra for hard landscape.

The City Council also operates a Tree Sponsorship scheme at a cost of £250 per tree. Twenty-six new trees were sponsored between 2014/15 and 2017/18.

The City Council used Section 106 funding to purchase 2,000 young trees such as hawthorn, guelder rose, hazel and plum and planted by volunteers on land cleared of sycamore in North Earlham Woods in winter 2021/22. and 900 at Neville's Wood.

£85,000 from the Department for Levelling Up, Housing and Communities' Levelling Up Parks Fund will improve the woodland area in Wensum Park in autumn 2023 to include thinning of trees and replanting with a mix of native tree species.

A forthcoming initiative by The Greenhouse charity will encourage planting of 7,000 trees on land belong to public institutions and on private land such as gardens.

There is scope for the County and City Councils to pool funds from other sources:

Community Infrastructure Levy (CIL): 15% of CIL revenue collected must be spent on supporting the development of the area by funding either:

(a) the provision, improvement, replacement, operation or maintenance of infrastructure; or

(b) anything else that is concerned with addressing the demands that development places on an area.³⁶

When first introduced, CIL contributed to tree planting but latterly money has been focused on social capital projects and particular types of green infrastructure such as sports pitches.

Parish Partnerships funding available for highway improvements. In 2016, the scope of the scheme was extended to include unparished wards in Norwich. 50% match funding can be found from sources such as CIL Neighbourhood Funding.

Developer contributions: either through a planning obligation to plant more trees on site or if trees cannot be planted on site, the developer should be asked to make a financial contribution as a commuted sum.

8. Local Tree Campaigns and Citizens Concern

Trees have become a totem of citizen concern about the environment. Fierce protests by residents over the axe wielded by Sheffield City Council to healthy mature street trees prompted the Secretary of State to add a clause to the Environment Bill, enacted in 2021, requiring councils to consult members of the public before felling a street tree which exceeds 8 centimetres in diameter at 1.3 metres above ground level.³⁷

There have been several long running citizens tree campaigns in Norwich. A public outcry in 2011 followed Norwich City Council's suspension of its tree planting budget, apart from fulfilling a statutory duty to replant trees in conservation areas.³⁸ A petition led the Council to reconsider its decision in 2014 and to find new ways of bringing in funds for tree planting that included a tree sponsorship scheme and use of the Community Infrastructure Levy.

A major campaign from 2010 onwards unsuccessfully opposed the extensive felling of trees for 300 new houses on 9 acres of Racecourse Plantation in Thorpe St Andrew, part of Thorpe Woodlands. The high ecological value of the 82 hectares of woodland, on ground once occupied by ancient woodland is recognised by the Norfolk Wildlife Trust designation as a County Wildlife Site.³⁹

In 2020, more than 1,800 people signed a petition to stop Norfolk County Council from chopping down two mature lime trees in Tombland for a street enhancement project. Spirited protests ended in failure.⁴⁰

More successful was a 500 signature petition in 2021 objecting to the axing of six healthy lime trees along the boundary of a C19th river warehouse on King Street where developers wanted to build 20 homes. The city's planning committee refused permission despite a planning recommendation, backed by the Local Plan, to allow the scheme. The developer appealed but later withdrew the challenge.⁴¹

Norwich has at times taken a high-handed attitude to trees on social housing land. In 2019, the Environmental Services Development Manager cut down three fir trees on communal housing land at Heigham Grove without consulting residents and ward councillors.

Norwich City Council's refusal to back down over the sacrifice of a healthy Rowan tree on social housing land at Barnard's Yard as part of plans to install a heating plant prompted a Green Party city councillor to table a motion in 2021 calling on the Council to do more to protect the city's trees and to notify councillors when a tree in their ward was proposed for removal.

In an ongoing battle, 13,600 people have to date signed a petition opposing the County's plans for a Norwich Western Link across the River Wensum valley which would blast a swathe through several woodlands known to provide important roosting and feeding grounds for a major colony of rare Barbastelle bats. ⁴²

Battles over trees are likely to intensify as Norwich continues to grow and as the warming climate impacts on the survival of many urban trees.

9. Nelson Ward Campaign for Re-Planting of Its Street Trees

In response to residents' concerns, Nelson councillors have taken steps to reverse the serious decline in street trees in our ward and across the city.

Twenty of Nelson's residential roads are lined by street trees, mostly in hard tarmac. No planting of street trees has been carried out in Nelson since winter 2017/18. In Spring 2022, the councillor ward team and several residents surveyed Nelson streets and found 60 gaps; either tree stumps, empty tree pits or former pits capped with tarmac. The street with the highest number of missing street trees is College Road, between Avenue Road and Earlham Road, where 18 gaps were counted due to the original Whitebeams becoming infected by fungus and reaching the end of their life.

A re-survey in February 2023 has shown another seventeen dead or missing trees: five young trees that have died, five new tree stumps and a further seven empty or capped pits.

Three trees had been programmed for planting in winter 2022/23. This number has been increased to nine following an unexpected £10,000 grant from Amey lighting contractor from unspent 2022/23 budget, topped up by a contribution from the County member's discretionary highways budget. Twenty-three new street trees are programmed for winter 2023/24 using monies from the Local Treescape Fund, and match funding made up of £3,000 contribution from the local member's highways budget and £3089 for in-kind time provided by volunteer tree wardens.

Small numbers of replacement trees do not make up for five missing years when few trees were planted on highways land, nor the need to increase tree canopy coverage in Nelson from 13.5% to the Forest Research target of at least 20%.

Nelson councillors have collected expressions of interest from over fifty residents willing to act as 'community tree wardens.' Their role will be to help water newly

planted trees and generally monitor their health and that of mature trees. During the 2022 heatwave, residents on Glebe Road communicated via a Whats App for their road to water visibly wilting street trees on their street. Councillors also collected over eleven hundred signatures on a petition calling on the County Council to replace more street trees and the City Council to develop a tree strategy.

Appendix : A Brief History of Trees in Norwich

Trees and woodland played an important role in the growth of Norwich, for building, fuel, industry and trade. Thorpe Wood once covered the once extensive Mousehold Heath and cloaked the escarpments above the River Wensum. Henry 1 in 1101 granted Thorpe Wood to the bishopric of Norwich, from which oaks were taken to build Norwich Cathedral. Felling and grazing turned Thorpe Wood into heathland and later agricultural enclosure and speculative building chipped away much of the heath. Secondary oaks and birches have recolonised the remaining 184 acres of Mousehold Heath and a few fragments of Thorpe Wood cling onto steep slopes at Lion Wood in Thorpe Hamlet.⁴³

A striking characteristic of medieval Norwich within its city walls was the extent of its open land. Thomas Fuller described Norwich in 1662 as 'either a city in an orchard or an orchard in a city, so equally are houses and trees blended in'. Sixty years later, Daniel Defoe observed in 1724 that much of the ground in Norwich lay 'open in pasture-fields and gardens.'⁴⁴ Maps and views of Norwich in the c17th and c18th show private pleasure gardens and walks richly planted with trees for ornament, for the enjoyment of its wealthy citizens. All the city's historic gardens except Chapel Field have been lost to buildings.⁴⁵

In the nineteenth century, housing outgrew the city walls, but even so, pasture and orchards still occupied parts of the Gildencroft in Norwich 'over the water'. Gardeners were able to draw on a vast array of tree and plant species collected from around the world. The new burial ground at Earlham displayed some notable specimen trees, its design following the fashion of planting avenues. Early postcards of Norwich feature fine avenues of elms and limes along public highways. Trees were grown for their public health benefits as well as for ornament. The Public Health Act 1875 made provision for urban authorities to purchase or lease land for the laying out and planting of public pleasure grounds.⁴⁶

Newly-planted trees beautified new social housing communities built in the inter-war years as Norwich spread beyond its cramped medieval centre and outer shell of Victorian and Edwardian artisan terraces. Captain Sandys-Winsch, Norwich Parks and Allotments Superintendent, channelled his passion for trees into planting 20,000 in new council housing estates, public parks and along highways and residential streets.⁴⁷ Mile Cross was planned as a model estate along garden suburb principles to create 'homes fit for heroes.'⁴⁸ Some of the farmland trees incorporated into its layout still survive⁴⁹ as do some other mature and veteran trees across the city.

The Council took full advantage of generous Ministry of Transport grants for tree planting along newly developed Class 1 and 2 roads such as Newmarket, Dereham, Earlham and Aylsham Roads. Colonel Unthank describes Sandys-Winsch and his

trees as making ‘probably the greatest contribution to the general well-being of Norwich’s citizens.’

Norwich has continued to expand in waves beyond its administrative boundary, absorbing rural parishes especially to the north, west and east and now covers an area known as Greater Norwich. In the last fifteen years, many trees have been felled to construct thousands of homes on farmland, or in spacious grounds of former institutions, on the former Royal Norwich golf course and on part of Thorpe Woodlands.

Norwich Northern Distributor Road, which opened in 2018, involved the destruction of 6,000 trees. A poor substitute for mature woodlands, most of the 30,000 saplings planted died through lack of watering and had to be replaced,⁵⁰ only to be decimated by the 2022 heatwave and drought. A proposed Norwich Western Link for connecting the southern bypass and NDR would, if built, involve further felling and fragmentation of important woodlands which crown the remaining area of open countryside unenclosed by dual carriageways which encircle most of Norwich, as would dualling of the A47 to the west and east of Norwich and major expansion of the A47/A11 junction to the south.

The drive for housebuilding, new roads and other development has often been at the expense of the environment, with tree felling presenting as one visible manifestation of the damage.

Footnotes and References

¹ [Norwich: City of Trees](https://colonelunthanksnorwich.com/2018/09/15/norwich-city-of-trees/), Colonel Unthank’s Norwich, 2018.

<https://colonelunthanksnorwich.com/2018/09/15/norwich-city-of-trees/>

In his engaging account, Reggie Unthank gives an overview of the prevalence of trees in Norwich from the C17th to the present day.

² [‘The Canopy Cover of England’s Towns and Cities: baselining and setting targets to improve human health and well-being’](https://www.charteredforesters.org/wp-content/uploads/2019/01/Doick-et-al_Canopy-Cover-of-Englands-Towns-and-Cities_revised220317_combined.pdf), KJ Doick, Forest Research et al, 2017.

https://www.charteredforesters.org/wp-content/uploads/2019/01/Doick-et-al_Canopy-Cover-of-Englands-Towns-and-Cities_revised220317_combined.pdf

Using the internationally-recognised I-Tree Canopy tool, the canopy cover for 265 towns and cities in England was assessed in 2016 as part of a baseline study. Full results are given in Appendix A of the report. The study places average tree canopy cover across England’s towns and cities at 16%, ranging from 3% (Fleetwood) to 45% (Farnham). Norwich is just above average with 18.6% (+ or – 1.74). Other historic cities ranged from 10% for York to 33.7% for Royal Tunbridge Wells. Norwich shares a comparable level of cover with Exeter, Cambridge and Colchester.

On the basis of the study results, the authors suggested that:

- an average tree canopy cover of 20% should be set as the minimum standard for most UK towns and cities, with a lower target of 15% for coastal towns;

- towns and cities with at least 20% cover should set targets to increase cover by at least 5% (i.e. above the $\pm 2\%$ tolerance of i-Tree Canopy) within ten to 20 years (depending on what is achievable against their baseline); and,

- targets and strategies for increasing tree cover should be set according to the species, size and age composition of the existing urban forest, based upon a ward/district level and land-use assessment.

³ UK Ward Canopy Cover Map, Trees for Cities, Brillianto, Woodland Trust, Forest Research. This is a project set up in 2016 to measure the tree canopy cover of every ward of the UK. The assessment of wards in Norwich was carried out in 2020. The interactive map can be viewed here: <https://forestry.maps.arcgis.com/apps/webappviewer/index.html?id=d8c253ab17e1412586d9774d1a09fa07>

A list of the 13 Norwich wards and the percentage of tree canopy coverage can be seen at section 5 Norwich Trees in Numbers.

The project aim is to publish the full results in 2023 with the aim of informing local authorities on how to improve the management of urban trees and where to target future planting.

⁴ Annual tree planting budget figures for the last five years and sources of funding provided by Norwich City Council Arboriculture Officer in an email to Cllr D Carlo 11 Jan 2023.

⁵ Annual Tree Budget for 2022/23 provided by Highways Tree Officer (Norwich City) for Norfolk County Council at a meeting with Cllrs Neale and Carlo at a meeting on 9/12/22.

⁶ The figure of 49 trees for planting in the 2022/23 season was provided by Highways Tree Officer to Cllr P Neale at a meeting on 25/8/22.

⁷ £400,000 to £500,000 is the shortfall which the Nelson ward councillors estimate is needed for spending on street trees in Norwich to clear the backlog of planting replacement trees.

⁸ What do we mean by Treescape? in 'Trees and Woodland Strategy Toolkit: step-by-step guidance for local action', Defra, Forestry Commission, Tree Council, 2022.

⁹ Climate Change and Urban Forests, Climate Change Factsheet, Forest Research 2022. https://cdn.forestresearch.gov.uk/2022/04/21_0024_Leaflet-CC-factsheet-Urban-forests_wip06_Acc.pdf

¹⁰ 'A powerful and underappreciated ally in the climate crisis? Fungi', Toby Kiers and Melvin Sheldrake in The Guardian 30 Nov 2021. <https://www.theguardian.com/commentisfree/2021/nov/30/fungi-climate-crisis-ally>

¹¹ 'The England Trees Action Plan 2021 – 2024', HMSO, 2021. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/987432/england-trees-action-plan.pdf

¹² *NPPF (2021), para 131 in 'Well-designed places'*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

¹³ Op cit. para 175 in 'Conserving and Enhancing Natural Environments'.

¹⁴ 'Doubling Trees in European Cities Could Prevent Thousands of Deaths' Madeleine Cuff, in New Scientist 31 Jan 2023. <https://www.newscientist.com/article/2357065-doubling-trees-in-european-cities-could-prevent-thousands-of-deaths/>

¹⁵ Rother District Council (2023), 'Bexhill's Tree Planting Strategy', Treeconomics. The project was funded by the Government's Green Recovery Challenge Fund. <https://www.treesforcities.org/downloads/files/Bexhill-Tree-Planting-Strategy.pdf>

¹⁶ 'Green Infrastructure Standards for England – a Summary.', Natural England, Jan 2023 <https://designatedsites.naturalengland.org.uk/GreenInfrastructure/downloads/Green%20Infrastructure%20Standards%20for%20England%20Summary%20v1.1.pdf>

¹⁷ Norfolk Strategic Planning Framework Shared Spatial Objectives for a Growing County and Statement of Common Ground, signed by 16 signatories including Norfolk County Council and eight local planning authorities in Norfolk, May 2021. Climate change and biodiversity objectives are two of the five objectives listed in Agreement 3. <https://www.north-norfolk.gov.uk/media/7413/norfolk-strategic-planning-framework-statement-of-common-ground.pdf>

¹⁸ Norfolk County Council has identified specific parts of its estate which it wants to make carbon neutral - buildings, street lighting and emissions from its own vehicle fleet and of those in its control, but excluding its farm and other land holdings. The Infrastructure and Development Select Committee agreed the new Climate Change Strategy on 15 March 2023.

¹⁹ Norfolk One Million Trees: Planting Progress Interactive Map <https://www.norfolk.gov.uk/what-we-do-and-how-we-work/campaigns/1-million-trees-for-norfolk/about/progress>

²⁰ 'Tree Planting and Resilience Strategy', Norfolk County Council, adopted 6 April 2020. <https://www.norfolk.gov.uk/-/media/norfolk/downloads/campaigns/1-million-trees/tree-planting-resilience-strategy.pdf>

²¹ Aim 2 Aim 2 – 'Norwich is a sustainable and healthy city', (p 14), Norwich City Council Corporate Plan 2022-2026. [file:///C:/Users/Denise/Downloads/CorporatePlan%20\(9\).pdf](file:///C:/Users/Denise/Downloads/CorporatePlan%20(9).pdf)

²² Information 2 Feb 2023 from the Environmental Coordinator at South Norfolk/Broadland.

²³ Norwich City Council web page on trees cites 750,000 trees, but the Council's Arboricultural Officer is unable to give the date of the figure or whether it still represents present day numbers.

²⁴ Information on age ranges of trees provided by City Arboricultural Officer to D. Carlo in an email dated 11/1/23.

²⁵ 11,400 figure was provided by City Parks and Open Spaces Manager 26/6/20. However, in an email to D. Carlo dated 17/10/22 the Arboricultural Officer cited a lower figure of 10,100 highways trees passed to Norfolk County Council.

²⁶ Some Trees in Earlham Cemetery, a list compiled by J. Bartlett et al, Friends of Earlham Cemetery. http://www.friendsofearlhamcemetery.co.uk/Trees_of_Earlham_Cemetery.pdf

²⁷ Nelson councillors emailed the County Transport Team on 30 April 2020 to enquire about plans for replanting lost street trees and received a dismal reply via the Customer Service Centre on 11/6/20.

²⁸ Information provided by City Arboricultural Officer to DC in email of 11 Jan 2023.

²⁹ The Climate Change Hub, Forest Research (Feb 2023) brings together information and practical guidance about protecting our UK woodlands and forests from the impacts and risks due to the changing climate through adaptive practice.
<https://www.forestresearch.gov.uk/climate-change>

³⁰ Fields in Trust a national charity which champions parks and green spaces, has analysed the amount of publicly accessible green space provision per head of population for every local authority and classified Norwich overall as having 'less than minimum standard'. However, it also finds that no resident in the city is more than a ten-minute walk from public green space.

The Green Space Index is the Fields in Trust's annual barometer of publicly accessible park and green space provision in Great Britain. Fields in Trust has calculated the amount of park and publicly accessible green space, notably parks, gardens and playing fields, in each of the lower super output areas in Norwich, ranging from 0.00 square metres per person in Sewell to 68.16 square metres per person in Eaton. Overall, the Trust estimates the amount of park and green space per person Norwich as 0.57sq metres or 6 square feet. It has given Norwich a Green Space Index score of 0.02, below the charity's score of 1.0 to denote a minimum standard of provision. An interactive map showing the Green Spaces Index 2022 is here:

<https://experience.arcgis.com/experience/5301c55a8189410b9428a90f05596af4>

³¹ All information and figures on Norfolk County Council funding and urban tree planting costs have been provided by the County highway tree officer for Norwich at the request of Councillors Paul Neale and Denise Carlo between Aug 2021 and February 2023.

³² Information provided by City Parks and Open Spaces Officer to D. Carlo, 26 June 2020.

³³ Figure of £1,844, 273 underspent in the Member Discretionary Allowance budget for 2017 – 2021 was obtained Cllr P Neale from the Director of Financial Management. The figure covers a period of 4 years and 5 months. P. Neale has rounded up the figure to £2m to cover underspending over 5 years. The figures are: Budget = £2,856,000; Spent = £1,011,727; Underspent = £1,844,273. The unallocated allowances revert back to the General Highways budget.

³⁴ Information provided by City Arboricultural Officer to D Calo on 11/1/23.

³⁵ Annual lists of heavy standard trees, their planting locations and species are published on Norwich City Council's website. All other information about different funding sources used by the City Council are available on the City Council website or in committee papers.

³⁶ The Community Infrastructure Levy (Amended) Regulations (April 2013) (Reg 59C).
<https://www.legislation.gov.uk/ukdsi/2013/9780111534465>

³⁷ Section 115 of the Environment Act 2021 requires local highways authorities to consult before felling street trees.
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<https://www.edp24.co.uk/news/21058821.norwichs-reputation-leafy-city-threat-due-council-cuts/>
- ³⁹ Friends of Thorpe Woodlands website <http://friendsofthorpewoodlands.blogspot.com/>
- ⁴⁰ 'Anger as trees are chopped down despite campaign', Eastern Daily Press, 5/11/2020.
<https://www.edp24.co.uk/news/local-council/20715621.anger-trees-chopped-despite-campaign/>
- ⁴¹ Campaigners fight to save mature city trees from chop, Eastern Daily Press, 19/12/20.
<https://www.edp24.co.uk/news/20711035.campaigners-fight-save-mature-city-trees-chop/>
- ⁴² Stop the Wensum Link Facebook <https://www.facebook.com/StopWensumLink/>
- ⁴³ Trees and Woodland in the British Landscape, Oliver Rackham. 1983, p136-138.
- ⁴⁴ Norwich: City of Trees, Colonel Unthank, posted Sept 2018,
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- ⁴⁵ History of Chapel Field, Chapel Field Society.
<https://www.chapelfieldsociety.org.uk/history-of-chapelfield>
- ⁴⁶ Information from Dr Lesley Cunneen, Garden Historian.
- ⁴⁷ Op. cit. Norwich: City of Trees, Colonel Unthank.
- ⁴⁸ Mile Cross Conservation Area Appraisal, Norwich City Council, June 2009.
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- ⁴⁹ 'History underfoot and hints of what was here before'. The Mile Cross Man, 5 Feb 2022. A present day account by a local historian of the survival of farmland trees incorporated into the layout of Mile Cross garden suburb. <https://themilecrossman.com/2022/02/05/history-underfoot-and-hints-of-what-was-here-before>
- ⁵⁰ 'Norwich NDR tree concerns as replanting scaled back' EDP, 2 Feb 2023.
<https://www.edp24.co.uk/news/23290805.norwich-ndr-tree-concerns-replanting-scaled-back>