

The quickening pace of change and development within Birmingham has been having an increasing impact on the city's treescape. Mature trees are lost to development and often replaced with smaller canopied tree species and of limited diversity. The last 12 – 24 months has seen over 170 trees lost to road layout changes alone (Paradise Circus, Ashted Circus etc.). In particular replacement levels within the city centre can often be limited or non-existent.

To the citizens of Birmingham trees are seen as being treated as little more than furniture that can be removed and replaced with seemingly no regard given to the potential for retention of mature trees or an understanding of the benefits in terms of ecosystem services that they can and do provide.

In order to prevent public outcry reaching the proportions of that currently encountered in the City of Sheffield (which has generated interest within the national media) and other towns and cities, regular reviewing and updating of the current tree strategy, policies and processes is essential.

A reassessment of our current tree management processes and policies has been undertaken as part of this process to determine if they were still relevant and fit for purpose. In addition research into the current best practice delivered in the UK, Europe and around the world was carried out to give a base line against which to make comparisons.

While there are elements of the current documentation that are still relevant to the day to day management of the city's tree stock there are areas where work is recommended to provide a city wide tree strategy and management document that is fit for the future and will meet the need to build a more resilient Urban Forest that will cope with the pressure placed upon it, and yet still be able to deliver the multiple health and well-being benefits and ecosystem services.

Trees in development

Within planning trees are recognised as material considerations, in the Birmingham Development Plan the tree cover within the city is collectively referred to as "The Birmingham Forest".

Trees are considered in a number of different ways such as:

- Through planning applications impacts on trees are assessed by qualified Arboricultural officers who comment on and make recommendations relating to a range of issues including tree protection measures. This may also involve the use of planning conditions to secure specific works or replacement trees
- Trees in Conservation Areas are automatically protected from being cut down or having work done to them in order to preserve the special character of the area. In addition to this, a specific tree may be protected by a Tree Preservation Order. However it must be noted that the designated Conservation Areas of the City are themselves now being revisited and reviewed against more robust assessment criteria; which may lead to de-designation of some areas.

To carry out work to or remove a tree in a Conservation Area 6 weeks' notice must be given by submitting a Tree Works Consent Form (web based) or provide the notice in writing, including sufficient information as indicated in the form.

Permission is not normally required to cut down or do work to trees that are:

- Less than 75mm in diameter (measured 1.5m above ground)
- Less than 100mm in diameter (measured 1.5m above ground), if it is to help the growth of other trees
- Dead or dangerous (a reputable tree surgeon should be your first contact for advice. Typically the tree surgeon will contact the council with an 'emergency' 5 day notice of works that are urgently necessary to remove an immediate risk of serious harm)
- A fruit tree, grown for fruit production in the course of a business or trade.

However, to ensure there is no misinterpretation of the above guidelines, it is advisable to contact the city's Arboricultural officers before carrying out any work. If a protected tree is wilfully damaged or destroyed the city can prosecute or fines can be issued.

- Tree Preservation Orders (TPO) cover both individual trees and groups. There is a specific methodology applied to assess if trees are worthy of a TPO and this assessment is made by the city's Arboricultural officers. Members of the public are able to request a tree be considered for a TPO through the city's web pages. Applications for work or removal are required as per Conservation Areas.
- Trees and flooding. Trees are known to aid in water percolation into the soil and as part of their growing process require large volumes of water. Flooding and in particular dealing with surface water runoff can be an issue in hard landscaped areas. Modern construction methods are able to combine water attenuation measures within tree pit design providing twofold benefits. While these may appear to be more costly to construct long term benefits and reduction in associated costs have been shown to make these installations cost effective in the long term

Although there is a robust consideration of trees in the planning process clearer guidance on desirable canopy coverage percentage, desirable species (or those over represented and need to be avoided at present) and planting pit design / specifications should be produced to help guide applicants in their design process.

- **The developing Design Guide offers such an opportunity to provide this level of detail within appendices or via the web where these can be periodically updated.**

Trees in Streets

Highways design

It would seem that trees are often not considered within the realm of constraints in the design process (esp. highways design). Officers with specific responsibility for trees are usually not included in the stages

of design resulting in little consideration of retention, suitable tree planting design, locations and species choice for replacement planting. Ultimately this can lead to the managing departments having to undertake remedial work or replacement far sooner than should be expected resulting in increased tree maintenance costs that there should be.

A tree survey to identify tree constraints, compliant with BS 5837 2012 (Trees in relation to design, demolition and construction), should be commissioned prior to any design process. In addition a valuation of the individual trees or tree stock affected should be undertaken. The relevant professionally qualified Arboricultural officers need to be included within the design process. Any design proposals that require tree works or removals should not be signed off without the appropriate Arboricultural professional's approval.

Footway crossings

Each year there are a substantial number of requests for tree removals to facilitate footway crossing, this is either to create new off street parking or create new access roads for developments. While there is a process for the compensation for, or replacement of, street trees lost through this process there needs to be a clear standardised process for assessing whether we should be agreeing to these removals. This process needs to set out a clear methodology for assessing both the value of the tree and the levels of demand for parking within any given street. A draft policy was drawn up in 2011 but has not been formally adopted. This draft policy should be revisited and included as part of an adopted new tree management strategy.

Street tree management

Amey were awarded the 25 year contract for the management of trees within the Highway Maintainable at Public Expense (HMPE). Under this contract they are obliged; at the end of the contract hand back as many trees on the network as were adopted or to a figure that has been adjusted through funded additions to the network.

Amey base their management of street trees on the current (2009) tree management strategy. This identifies suitable survey periods for inspection, sets parameters for levels of work required to ensure a healthy and safe tree stock is maintained as well as details of the quality of work (adhering to BS 3998 2010 Tree work – recommendations). Where trees are removed Amey will aim to replace trees as close to that location as possible or planting that within the same ward.

There is perhaps an opportunity to redistribute trees over a wider area if % tree cover was managed on a city wide basis. There are areas of the city with particularly low tree numbers while other areas enjoy significant tree cover. Planting could be directed in these low tree'd areas where availability of new planting locations are limited due to existing tree cover. This would obviously need to be discussed with Amey and Highways Asset management.

Amey choose tree replacement species based on suitability for the location, this takes in to account rooting area and canopy size when mature. Smaller specimens are planted in restricted locations while those larger canopied trees are directed to larger grass verges and central reservations.

While Amey are able to have control of the tree management process they have no input to tree removals undertaken as part of highways redesign. Where significant numbers of trees have been removed and fewer replaced Amey can be left with a backlog of trees to put in but with no new planting spaces created or identified as part of that process. This could place the city in a difficult position if Amey are not able to maintain tree levels by our actions.

Trees and Health (Air Quality, Forest Bathing, positives and negatives- psychological stress)

There are significant volumes of research indicating the benefits of trees to health and society at large.

Dr Kathy Wolf from the University of Washington has compiled over 40 years' worth of research into the benefits of trees and green infrastructure and this can be found on the [Green Cities – Good Health web pages](#) and much research is being undertaken by Universities in Birmingham, and the UK.

There is too much to go into here but some of the multiple benefits are listed here:

- Reductions in heat island effect – leading to decreased mortality rates for the young and elderly
- Reductions in stress levels and improved overall well-being.
- Trees on streets reduce stress levels of drivers (perhaps leading to less road rage)
- Educational achievement is increased when students can view trees and green infrastructure
- Increased birth weight of children born to mothers in green environments – this leads to fewer long term health issues.
- Increased spend in shopping centres where trees and GI is integrated into the developments.

Japan and China are leading on, amongst other natural health areas, Shin Rin Yoku or Forest bathing. Participants are able to measure stress levels prior to undertaking forest bathing and post activity and see a significant improvement overall. This is being rolled out nationally at specifically identified locations although it can be undertaken in any tree'd location.

There are however a number of real and perceived negatives. Many trees are wind pollinated and this could have an impact on asthma sufferers, a few limited species (mainly male clonal varieties) can produce excessive pollen levels. A few other species can also exacerbate existing or underlying health issues however careful consideration and using the principles of right tree right place these can be minimised or avoided.

Within areas of poor air quality trees (and GI) can improve air quality however where there is low levels of air movement and closed canopy poor quality air can become trapped and have a negative impact on citizens. It needs to be remembered that it is vehicles, plant and street design contributing most to this and not solely the fault of the trees. Careful consideration and right tree right place would aid in reducing these sorts of issues in the future.

Citizens often complain about trees in their neighbourhood, blocking light, dropping leaves etc. and site that this is causing stress and impairing their health. While there may well be some foundation to this it is most likely that there are other underlying factors at work but the tree or trees are being used as a focus

for venting frustration. Removal of the trees may provide a short term affect but will not address other long term issues.

Public and Trees

Given the number of trees in the city and the number of citizens issues relating to trees are relatively limited by comparison.

Common complaints include:

- Lack of phone or TV signal
- Sticky deposits on cars / property
- Loss of light
- Leaves being dropped
- Roots or branches affecting property (including subsidence claims)

These common complaints are listed on the council's web pages and have responses as to the level of action that will be taken by the council.

While we have processes in place to deal with these issues some of these will be reduced in future years as new trees are planted, using the principles of right tree right place will. However evidence of the public reaction to tree removals can be seen on social media where s thousands of comments can be received in a relatively short period of time when a story breaks of tree at risk of removal showing that Birmingham really does care about its green environment.

Information on when street trees are to be inspected and when works to street trees can be expected can be found on the city web pages under Highways, Information on TPO's and conservation areas is under Planning with all other tree works information is under Parks. We do need to be clearer on who manages trees and where, what our management practices are and why we no longer follow certain methods of tree pruning; for example, some of the past practices were detrimental to the long term health of the tree and also resulted in increased maintenance costs from the need to repeat work on a cyclical basis.

The process for claims of subsidence need to be clearly set out, it has recently been agreed that the city will adopt the joint mitigation protocol for dealing with subsidence claims. This will minimise costs to both parties and ensure that timely action is taken to resolve claims or provide sufficient evidence where the city wishes to refute a claim or provide alternate solutions to tree removal.

While each section should still be responsible for its own information there needs to be better cross referencing of trees. There is no link to parks or highways from planning tree information and vice versa. There is a Local View map of TPO and Conservation Area trees but all other tree mapping is in a separate location on the city web pages. None of the tree information mentions the ecosystem services valuation so the general populous cannot easily see just what a contribution the trees in their local park or street make to the local environment.

As a city we should actively promote the value of our collective tree stock just as we would promote the increase in jobs or increase in income from new businesses or major events.

Combined interactive mapping could achieve this using current data.

Valuing Trees

Currently valuation of the city's public tree stock as a valuable asset is not a regular practice and current policy just sees a two for one replacement as the go to standard where trees have needed to be removed for reasons other than health and safety. More recent thinking has seen the need to portray a more realistic value based on the visual amenity and the value of the ecosystem services that trees provide and thereby justify retention over removal or investment into suitable replacements. There are a number of systems available for valuation. Some are more suited to individual trees while others relate better to broader populations of trees.

[Treezilla](#) is an open data source platform where citizens can upload data about individual trees and can get an estimated value for their tree covering a range of ecosystem services.

I-Tree is a US Forest Service developed system that uses a broader range of measures to provide more detailed information on the value of their ecosystem services – providing a Natural Capital value

CAVAT – [Capital Asset Valuation of Amenity Trees](#) is a process used by a number of Local Authorities and London Boroughs to provide a valuation for individual trees and small groups on a replacement basis. Taking a number of factors a valuation to replace a tree of the same size and amenity value can be arrived at.

This CAVAT process has been used to arrive at compensation values for loss of trees and for loss of value where trees have been recklessly damaged especially where expected levels of tree protection have not been deployed. Within LA's that operate this system these funds are allocated to a ring-fenced pot to be spent on facilitating suitable alternate planting or remedial tree work to damaged trees.

Future Canopy-

The UK as a whole is one of the least tree'd countries in Europe with around 13% canopy cover. Birmingham currently has a canopy cover of around 18 – 19% which while admirable is below the level of many major world cities. It is widely accepted that in order to meet the challenges of climate change (increased temperatures, increased rainfall) that a figure of around 25 – 35% canopy cover is required.

Using GIS data we are able to calculate the current canopy cover levels and determine what these are for certain land use types. This data can be used to inform where tree planting is required most and to set desirable levels of tree planting for any given region of the site or land use type. When you overlay this data with air quality, heat island, flood risk, social deprivation etc. there is a distinct correlation between lack of trees/ GI and the worst instances of these issues. Directing tree planting and using this to inform the planning process should help to address some of these key problems.

Future Funding

Currently each directorate directly funds the management of trees within its portfolio although this may be undertaken by a contractor or different department (Highways HMPE- Amey, Housing, and Bereavement Services, non- HMPE highways, Schools, Parks –Parks tree management). This funding is often under pressure and generally only covers routine maintenance and essential health and safety works. There is currently no allocated budget for proactive management or development of new planting opportunities.

Using a process such as CAVAT or similar systems (green bonds, total place making) could lever in funding to support such work. Alternatively a collection system now that could collect the money owed for non-replacement of lost trees- could be pooled into a **Birmingham Tree Bank**. (see evidence submitted by Jonathan Webster). These monies would be accrued through payments for loss of trees (excluding those removed for H&S reasons) where adequate replacement levels cannot be achieved or where there has been proven reduction in the value of public tree assets through preventable damage. These funds would be ring fenced to the long term management of the Birmingham, forest and could be allocated to projects by a Birmingham Tree Board

Future Maintenance

All policies should be periodically reviewed to ensure it is still fit for purpose. The current tree management strategy was last reviewed in 2009 and while reflective of the practices at the time needs to be updated to reflect current best practice and forward planning.

Once the need for a revised tree policy has been agreed, revision of the policies must not be done in isolation and should include colleagues from across directorates and delivery bodies (Amey) **and** in order to provide transparency external organisations that have a focus on trees in the urban landscape such as Birmingham Tree for Life, The Woodland Trust or Trees for Cities.

This grouping of experts and interest groups could form the basis of a Birmingham Tree Management Board. While the day to day delivery of standard policy would remain with the relevant Arboricultural experts within the city where requests for tree works, major plans etc. that would not meet the adopted policy these should be referred to the tree management board for advice / decision. This would place the accountability for the overall tree management directly with Arboricultural experts and the inclusion of third parties would aid in showing transparency of decision making. This board would also feed into the proposed City design and Conservation Review Panel.

Future Tree Strategy

The Government is about to release a framework for the creation of a 25 year environment plan. This would be applied nationally through Government projects and schemes- but the main delivery mechanism for improvement would come from city and regional locations developing their own 25 year environment plan. Work is ongoing for such a plan for the West Midlands to lock into and integrate with the economic growth plans. This framework would provide the ideal vehicle and timely opportunity for Birmingham to develop a 25 year Tree Strategy – and liaise across border with the other WMCA authorities.

To ensure that there is a long term view and monitoring process of the Birmingham Forest there should ideally be the development of a “25 year strategic plan”. This plan would be used to inform 5 year management plans with each (tree related) service area deriving annual operating plans from these. Consideration will need to be given as to what impact this may have on the PFI contract.

This plan should look to include the following:

- A target increase for canopy cover within Birmingham. While a long term vision would be to reach 25% this would take many years so smaller increments should be set initially such as to raise canopy cover from present levels by 2% (e.g. Move from 18 % up to 20%). Movement towards this would be monitored and reported on a 5 yearly basis
- Set out clear guidance on the assessment and valuation of tree stock (such as CAVAT) and the relationship to retention replacement. The principles of Avoid, Mitigate and Compensate should be applied to all situations as a hierarchical process.
- Provide information on the assessment of current tree stock composition (age, condition, and species) and setting of idealised composition targets. In addition this will guide developers away from species that are over represented but would still follow the principles of “right tree – right place” while considering current and future threats from climate change and pests and diseases.
- Set out clearly desirable standards for tree planting pits with examples of designs for differing locations such as open ground or had landscaped areas. Ideally in hard landscaped areas and on new road systems combined SUDS and tree planting pits would be used to maximise potential ecosystem benefits.
- Identify funding mechanisms
- The need for greater transparency in the availability of information on the distribution and management of Birmingham’s tree stock is obvious. The A review of web page information should be included as currently tree management information is disjointed – a one stop shop for tree related information is needed. The general populous should have access to clear and concise information on the value of the city’s tree stock and the role it plays in delivering benefits across the health and well-being agenda along with ecosystem services. Information of the city’s 25 year strategic tree plan should be published along with an interactive map of the publically owned tree stock. This interactive map should show Location, Species, height, DBH, condition, valuation (CAVAT or I- Tree Eco) managing dept. and contact details.

Above all any new tree policy should seek to be adopted by full council and become the single point of reference for all directorates when considering how they manager or influence the Birmingham Forest.