Growing a Green City

Planting towards Tree Equity – a 30 year view

2022 TREE CITY

Birmingham UK
as a

THE QUEEN'S GREEN CANOPY
THE PLATINUM JUBILEE 2022

Champion City

BIRMINGHAM TREE PEOPLE

Birmingham City Council

The Challenges

- Population at 1.1million and rising
- One of the youngest populations in Europe
- Significant number of wards in top 10 percentile IMD
- High levels YLL in certain quarters
- Air Pollution
- UHI
- Pluvial and Fluvial flooding
- Demand for housing.

COVID19 pandemic has brought to the fore the inequality of accessible green space
BAME more impacted by pandemic

Higher levels of BAME in areas of low GI, poorer air quality and high UHI.

Liaison with other Departments such as Public Health are critical to understanding impacts and benefits.

Past City "Improvements" - Corporation Street

Before   After

# Tree Policy Review - Summary of recommendations.

Highways

- Clear and consistent process for assessing footway crossing applications in relation to trees.
- Surveys to BS5837 must be undertaken – for all highway projects that impact trees
- CAVAT assessment for all trees within project areas
- The survey data to inform retention and replacement plans and budget
- Greater involvement of Arboricultural officers at early stages

Clearer guidance from planning:

- Aspirations for canopy cover
- Strengthen policies and planning conditions
- Planting quality – access to soil volumes and water.
- Species diversity
- Integration into multifunctional GI

Cross City

- Canopy cover target of 25% for the city
- New supplementary funding system (CAVAT) to create a "Tree Bank" to fund replacement and additional tree planting within the city.
- Formation of a "Tree Board" to oversee the management of the Urban Forest and direct spend from the tree bank. This group to be formed using stakeholders from BCC and external groups such as BTFL and Tree Wardens (Birmingham Tree People).

Birmingham Tree Policy

A report from Overview & Scrutiny

Birmingham City Council, 6th February 2018
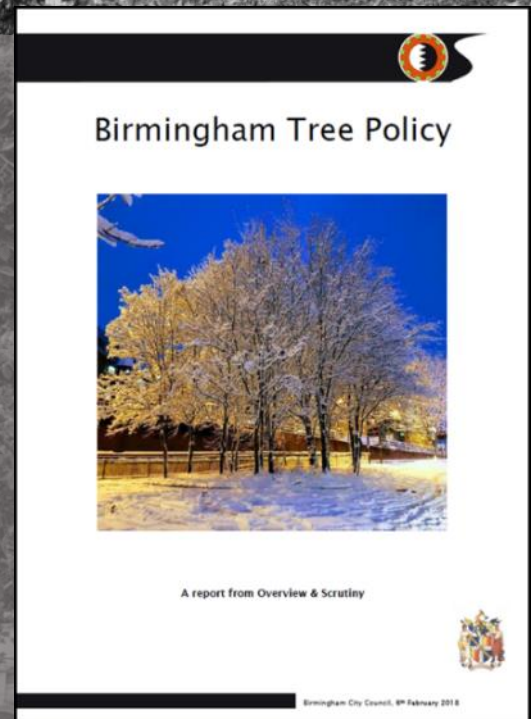
An Urban Forest Masterplan for Birmingham 2021-2051

Executive Report

We are now facing the major challenges of climate change and where the majority of the global population live.
We are experiencing changes in our weather patterns that include prolonged periods of hotter weather and of intense rainfall.

For those living in cities that brings significant impacts such as the Urban Heat Island effect and risks to health and well-being.
With an expected 70 % of the world's population living in cites by 2050 this could affect some 5.6 billion people worldwide.

The natural environment and trees especially can help adapt our living environment and mitigate some of the effects we experience from climate change.

We are already recognising the importance of trees to lock away carbon, a key component of greenhouse gases within their trunks, branches and leaves.
However trees also provide a calming visual aspect that aids mental health and wellbeing, can help in the absorption and interception of storm water and create air cooling effects amongst other benefits.

Knowing that trees play such an important part in ensuring cities remain habitable for the future we need to protect the trees we have and enhance the tree scape of Birmingham through continual planting and expansion of canopy cover.

However trees themselves are also susceptible to climate change and the rise in non-native pests and diseases.
So to ensure we have a resilient tree scape that continues to deliver all these benefits there needs to be a comprehensive plan for the management of our Urban Forest.

We therefore have great pleasure in introducing this, Birmingham's Urban Forest Master Plan for 2021-2051.

Although the Vision has a city-wide scope, it is important to work at the neighbourhood level, together with local communities and stakeholders, to ensure the successful implementation of the plan.

This new Urban Forest Master Plan is championed by Birmingham City Council and Birmingham TreePeople, and was developed in a collaborative process with representatives of the local government; interest groups; and representatives of the community; and with the support of Treeconomics. The Plan outlines key topics, priorities, and actions under three central themes:

1) Trees and Forest Structure,

2) Community Framework,

3) Sustainable Resource Management Approach.

The Master Plan is structured around a comprehensive set of key performance indicators, informed by the current state of evidence and good practices, and developed in a collaborative process. For each of these performance indicators, an assessment of the current situation is made, ambitions are laid out, and priorities are identified. Moreover, specific actions and roles and responsibilities are defined.

This ambitious Urban Forest Master Plan is an important step forward. Its future implementation, with a coordination role for the new Birmingham Urban Tree Board and in collaboration with a wide range of local partners and members of the community, will make the city greener, healthier, and more resilient to climate and other challenges.

The overall Vision for Birmingham's urban forestry program is:

Having more trees for Birmingham, that deliver benefits for health, nature, and climate change, for all the communities within the city, now and in the future, as part of an inclusive and sustainable urban forest.

This Vision is delivered by:

- **Developing a diverse and resilient urban forest.**

- **Building meaningful relationships between trees and all members of Birmingham's diverse communities.**

- **Managing the urban forest in an evidence-based and highly professional way.**

- **Working collaboratively and in partnership, crossing communities, ownership, sectors, and scales.**

"Birmingham's treescape is a legacy of both city planning and the philanthropic work of notable residents who bequeathed land for public parks and open spaces. This history of joint working for the benefit of all is something we are continuing today with the Urban Forest Master Plan, it being a truly co-created document for the long-term protection and advancement of the urban forest."

Simon Needle, Principal Arboriculturist at BCC

T1   Relative Tree Canopy Cover

Canopy cover, which is often also referred to as tree canopy cover or urban canopy cover, can be defined as the area of leaves, branches, and stems of trees covering the ground, across a given area, when viewed from above. Canopy cover is a two dimensional metric, indicating the spread of canopy cover across an area. Assessing canopy cover is popular because it is relatively simple to determine from a variety of means and it can be calculated at relatively little expense.

Several studies have already been undertaken on estimating the canopy cover in Birmingham, including the Forest Research 2017 i-Tree Canopy survey, the 2020 urban canopy cover citizen science survey and the Bluesky National Tree Map data already held by BCC. However, these studies are not directly comparable with each other as they used different methods, definitions (of what constituted urban tree canopy cover) and project boundaries. Going forward Birmingham will identify a suitable project area and method of assessment so that repeat surveys can be compared in order to track and monitor performance.

Canopy Cover	Study type	Study Year	Source
23%	i-Tree Canopy	2012	www.urban treecover.org
18.6%	Forest Research Canopy Assesment	2016	BCC website and Birminghams' tree policy
19.1%	Bluesky NTM	2019	Bluesky National Tree Map
21.3%	i-Tree Canopy Ward level	2020	https://www.forestresearch.gov.uk/research/i-tree-eco/urbancanopycover/

Table 1: Historic Urban Tree Cover Estimates for Birmingham

Percentage Canopy Cover

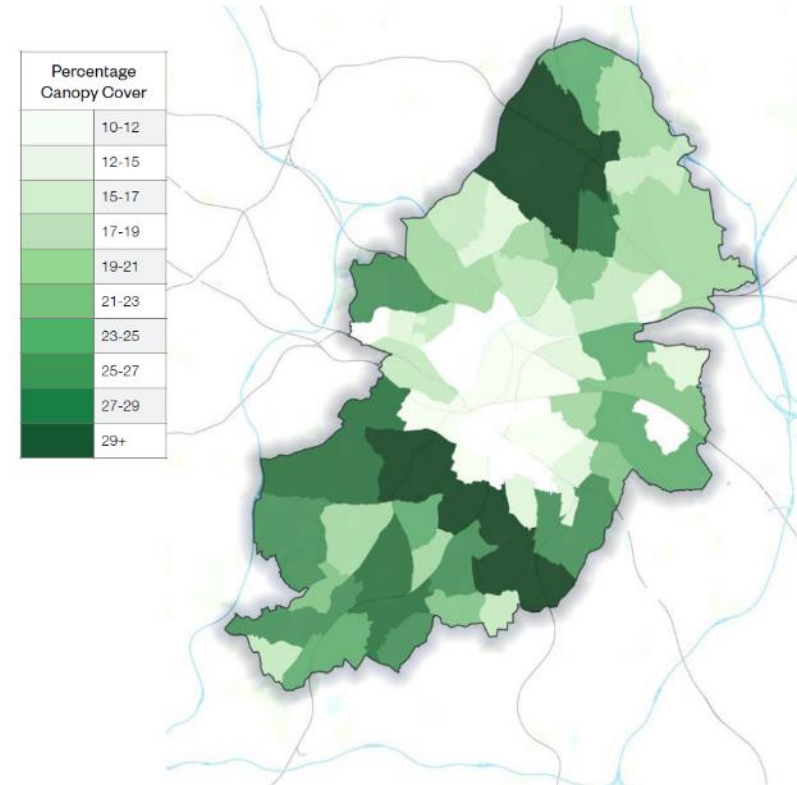| |
|---|
| 10-12 |
| 12-15 |
| 15-17 |
| 17-19 |
| 19-21 |
| 21-23 |
| 23-25 |
| 25-27 |
| 27-29 |
| 29+ |

Figure 1: Birmingham's Existing Canopy Cover By Ward measured with Sentinel Satellite Data

Actions

1. Assess and determine which sets of data are best to use for establishing Birmingham's relative tree canopy cover;

2. Determine what the potential and actual tree canopy cover are at the ward level.

| Priority	Responsibility for Action	For Review:
High	1. BCC will collate the available information from various sources including the Woodland Trust, Birmingham University and Forest Research. 2. BTP will commission a piece of work to ascertain how the existing tree canopy cover compares with the potential canopy cover.	April 2022 - Short term project

| Performance level	Performance Indicators			
	Low	Moderate	Good	Optimal
Data source decision required	The existing canopy cover equals 0–25% of the potential.	The existing canopy cover equals 25–30% of the potential.	The existing canopy cover equals 50–75% of the potential.	The existing canopy cover equals 75–100% of the potential.

Establishing Canopy Cover levels in the City

Canopy cover derived from UK National Tree Map (Blue Sky) and land area but factoring in area of exclusion such as water bodies, dedicated sporting areas (stadia, cricket, football, bowls etc.) and some designated nature conservation sites such as SSSI's.

Overall, approx. 18.6% CC by total area but with excluded areas that increases in to the low 20% range.
Distribution uneven across the city.

By Constituency
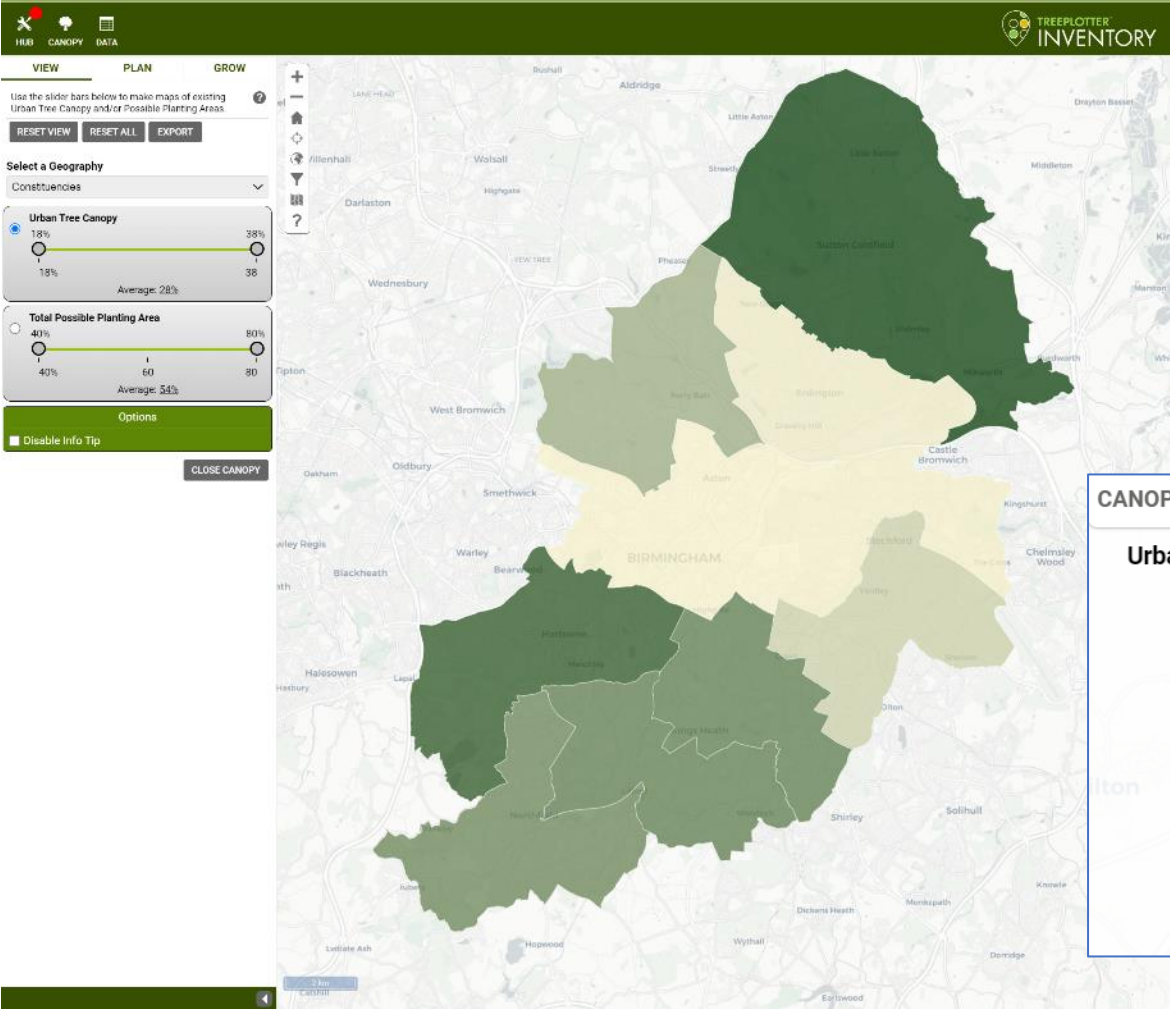
By Ward
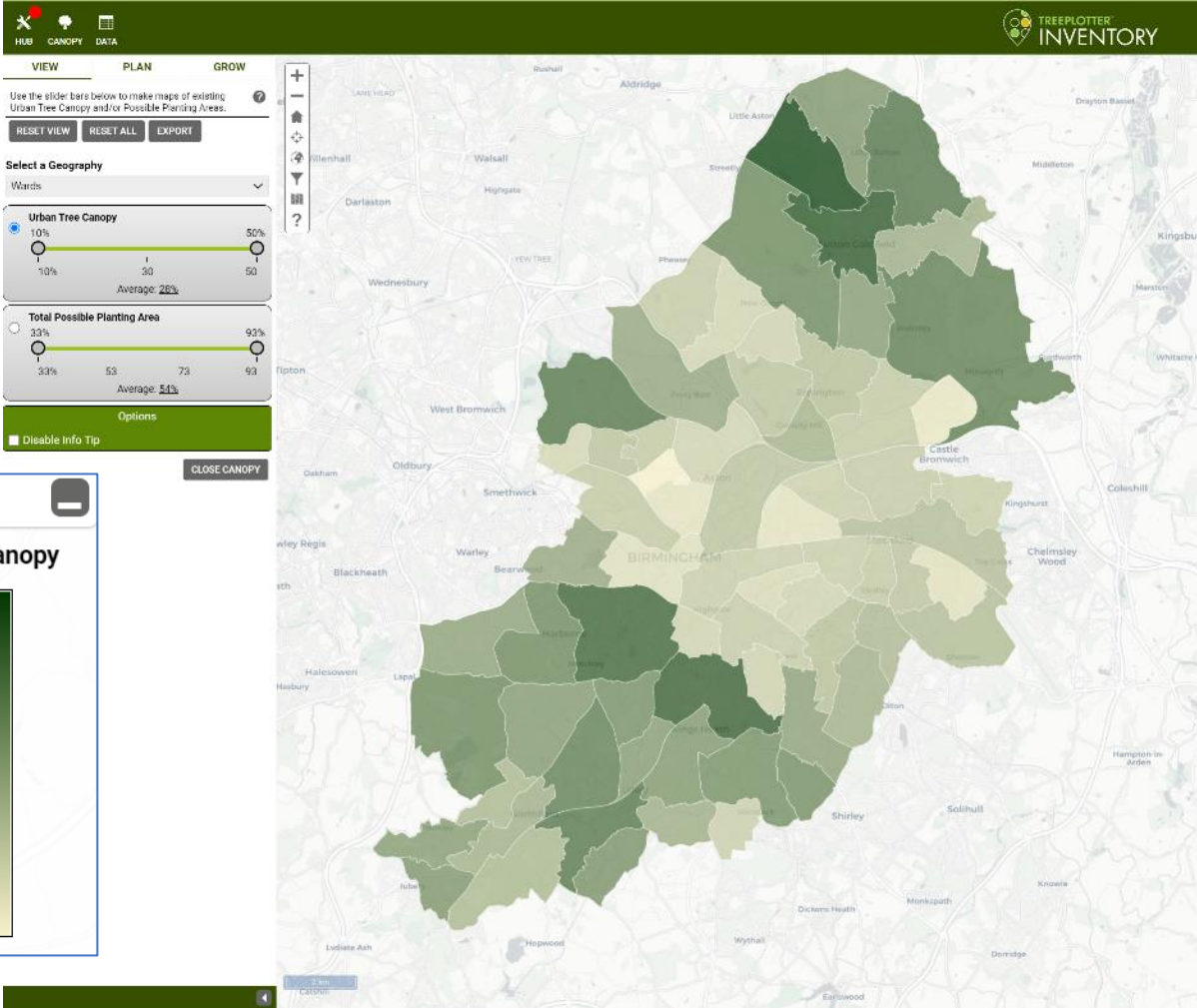
Canopy Cover by Lower Super Output Area

Smallest unit for ONS stats – approx. 1000 – 1500 residents/ 650 households – 639 LSOA's

- **Establishing Canopy Cover levels in the City**

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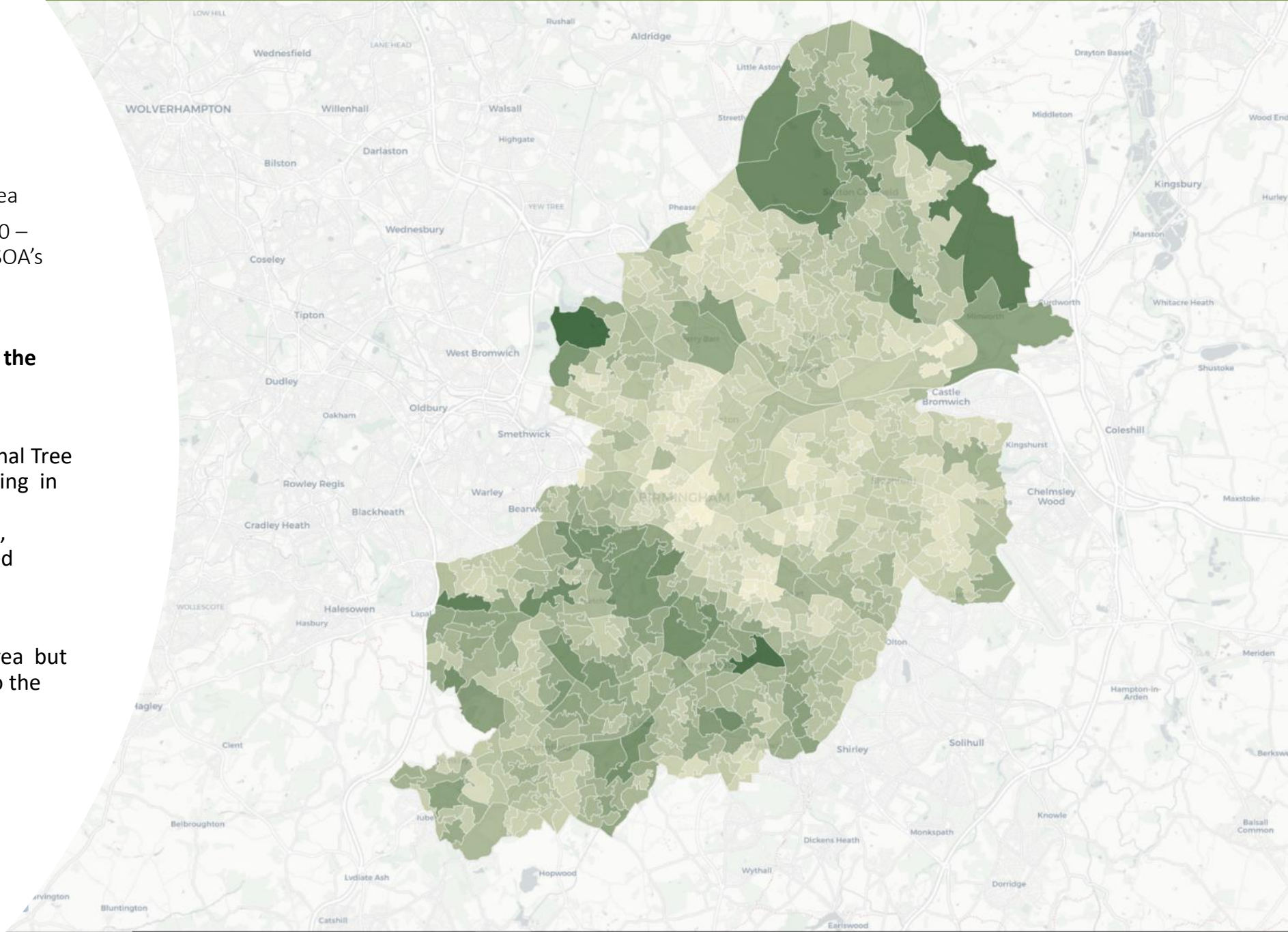
T10   Wider Environmental Considerations

Trees have a vital part in the fight against climate change and can be part of both adaptation and mitigation strategies. Urban trees are particularly important as a way of reducing the urban heat island effect, and in removing air pollution from built up areas and highways. In certain situations, trees can also reduce the energy use of buildings by providing shade in summer (reducing the need for air conditioning) and insulation from cold winds in winter (reducing the heating costs).

With the UK target of carbon net neutrality by 2050, and the Birmingham Development Plan target of a 60% reduction in CO_2 emissions by 2027 and by at least 80% by 2050 (compared to 1990 levels), the trees and other elements of the urban forest in Birmingham are key.

Climate change poses a direct risk to the residents in Birmingham; a warming climate increases risk of heatstroke, while increased rainfall will cause more frequent and more severe flooding. Biodiversity is also at risk, as species will struggle to adapt to warming climates, earlier springs and mild winters.

These considerations should be taken into account when managing the urban forest to ensure that the correct management practices are being enforces, tree and shrub species are as suitable to the future environment as possible, and that biodiversity is protected and enhanced, with biodiversity net gain as a key drive. Monitoring species and numbers will be important, and considering opinions from outside groups regarding more specific systems and locations will be key to preserving existing environments in Birmingham. Working with the most up to date and location relevant climate and weather data is important to avoid generalisations and achieve the best results for the future.

Actions

1. *All the other work within the Tree Board and in the UFMP being undertaken mean that this target will be acted upon and the Key Objective will be met.*

2. *Prioritised zones to be identified where specific benefits can have the highest impact. (Shade, storm water, pollution etc.) with species choice related to species ability to deliver required benefits.*

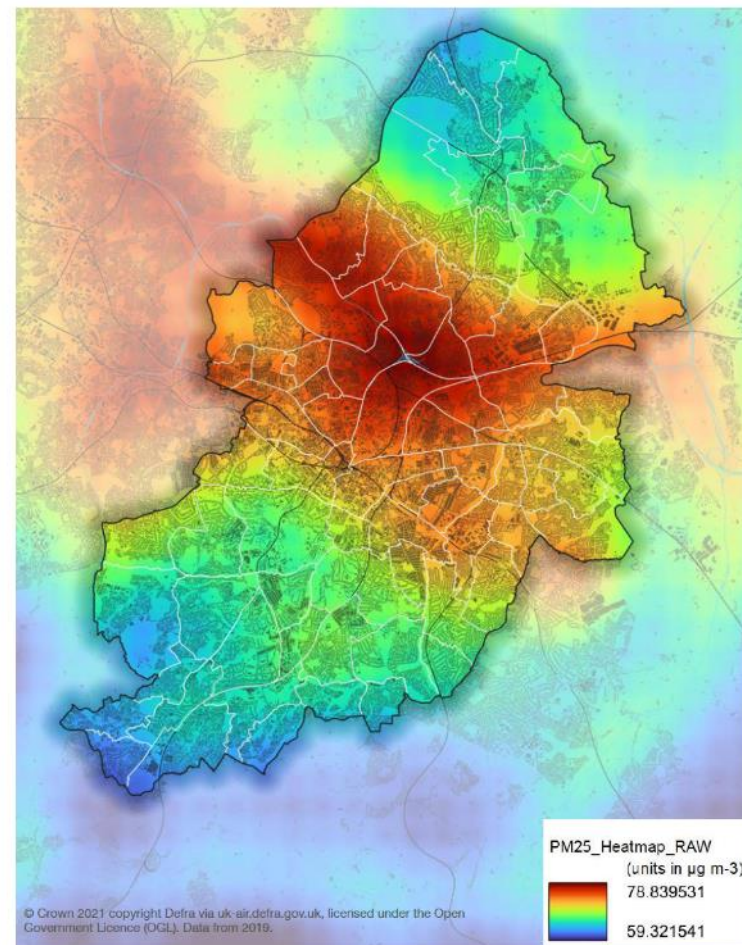| Priority	Responsibility for Action	For Review:
Medium	1. BTP and BCC 2. BCC to identify zones and environmental priorities where trees can make a significant contribution. Others may be involved for inventory data ie. Kier.	April 2022 - Medium term project

© Crown 2021 copyright Defra via uk-air.defra.gov.uk, licensed under the Open Government Licence (OGL). Data from 2019.

PM25_Heatmap_RAW (units in μg m-3)
78.839531
59.321541

Figure 9: PM2.5 concentration across Birmingham

| Performance level	Performance Indicators			
	Low	Moderate	Good	Optimal
Good	No consideration/information that relates urban trees to climate change, air quality, water.	Some consideration of environmental aspects in relation to urban trees, e.g. looking at climate change.	Consideration of at least major environmental aspects in relation to urban trees.	Full consideration of environmental aspects in relation to trees, based on comprehensive, state-of-the-art information.

Climate vulnerability & risk - using trees for Climate Adaptation
Prioritising areas for action

Map changes dynamically based on selected priorities and weighting given to each.
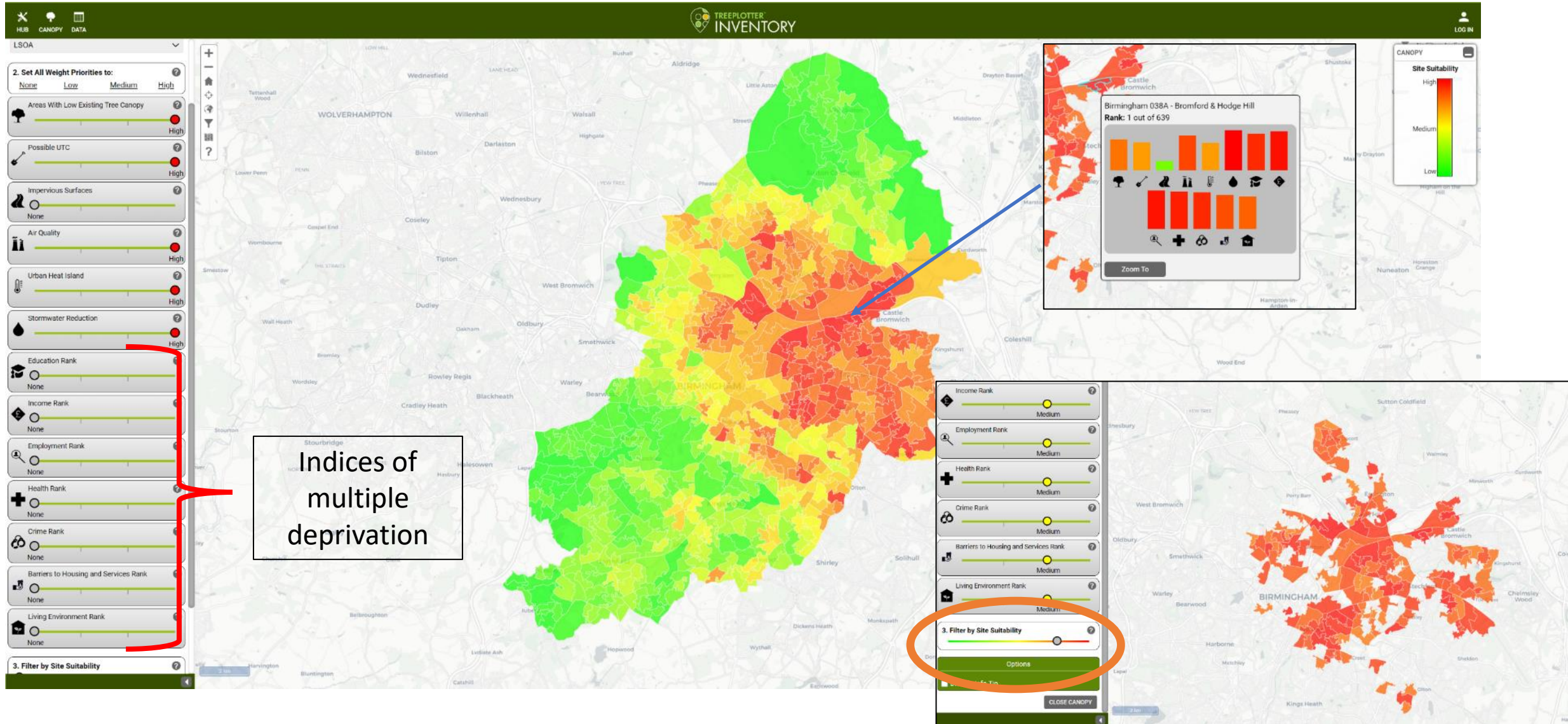
Modelling tree planting targets and delivery of Ecosystem Services
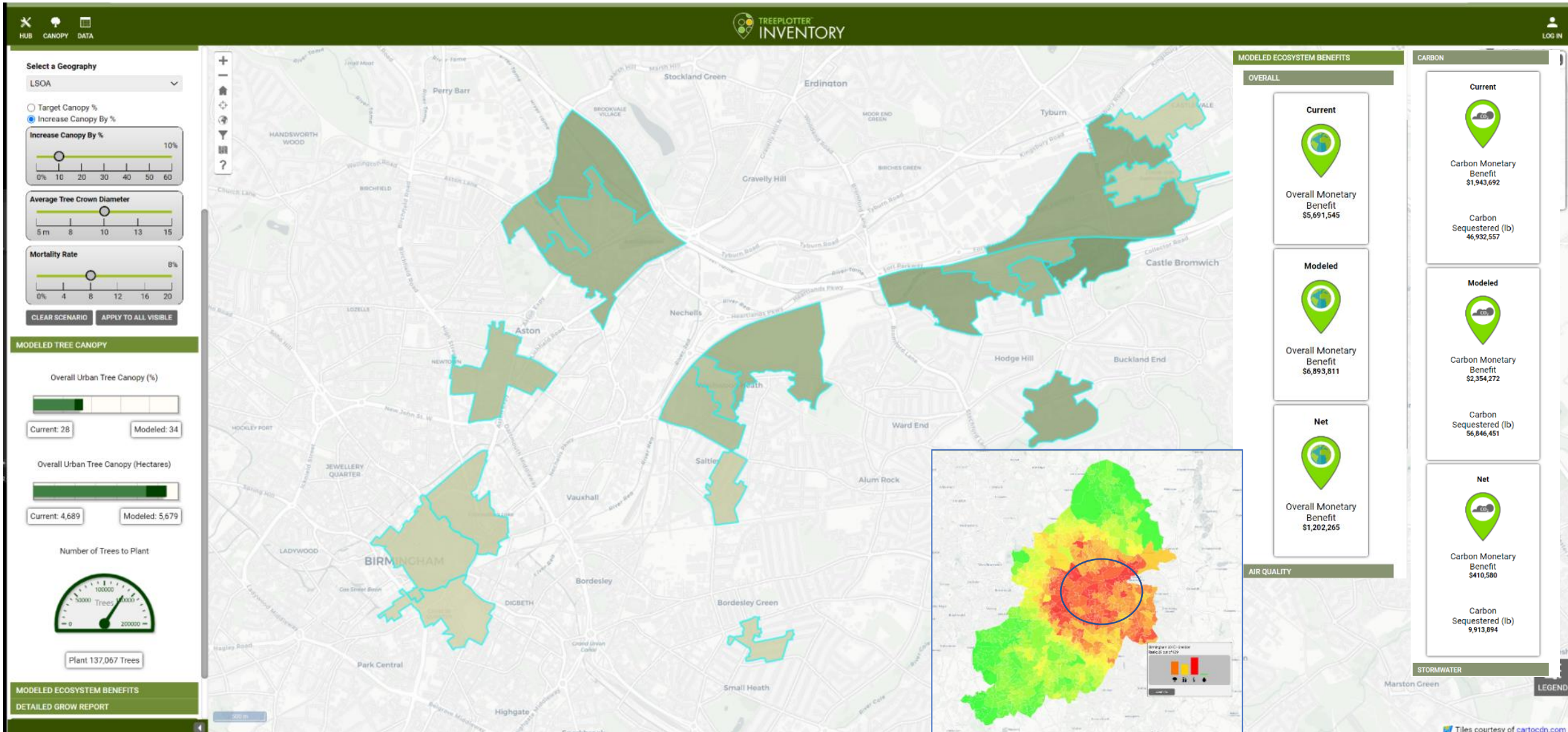
Individual urban trees are an integral and crucial part of the mix.

For a highly urban city such as Birmingham with huge competition for land (housing, recreation, non-tree habitats etc.) a few trees in thousands of locations has to be a focus rather than thousands of trees in one location. This bolsters and adds resilience to the urban forest as a whole and brings nature and ecosystem services to citizens doorsteps.

Trees in these locations are more likely to be non-native but can, through careful selection still provide significant wildlife benefits.

Training Our Tree Wardens and other community volunteers in undertaking tree planting site constraints assessments

PIE | BAR | TABULAR

Common lime	25.4%
Norway maple	10.4%
Basswood sp.	8.1%
Sycamore	8.0%
Plum sp.	7.2%
London planetre...	6.9%
Common ash	6.7%
Horse chestnut	4.1%
Pedunculate oak	4.0%
Whitebeam	4.0%
Rowan	3.9%
Silver birch	3.1%
Callery pear 'C...	2.7%
Hornbeam	2.7%
Small-leaved li...	2.6%

Most Common Genus - Top 15

PIE | BAR | TABULAR
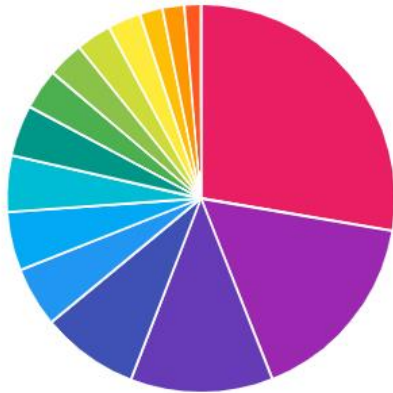
Tilia	27.7%
Acer	16.3%
Prunus	11.9%
Sorbus	8.1%
Betula	5.0%
Fraxinus	4.9%
Platanus	4.7%
Quercus	4.2%
Crataegus	3.4%
Aesculus	3.0%
Carpinus	2.9%
Malus	2.8%
Pyrus	1.9%
Liquidambar	1.8%
Corylus	1.4%

Most Common Species by Landuse - Top 10

STACKED | TABULAR

No Filters Applied

LEGEND

BIRMINGHAM TREE PEOPLE
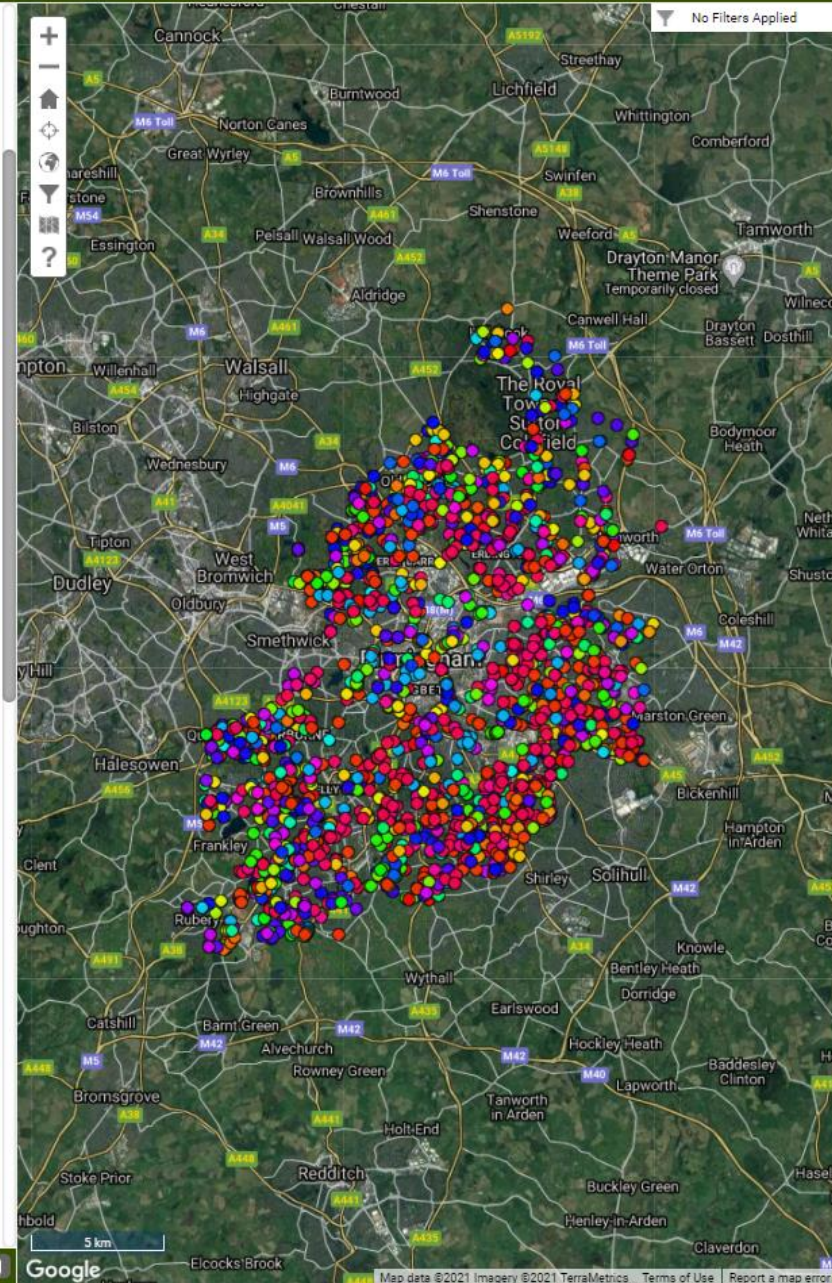
Layer: Trees
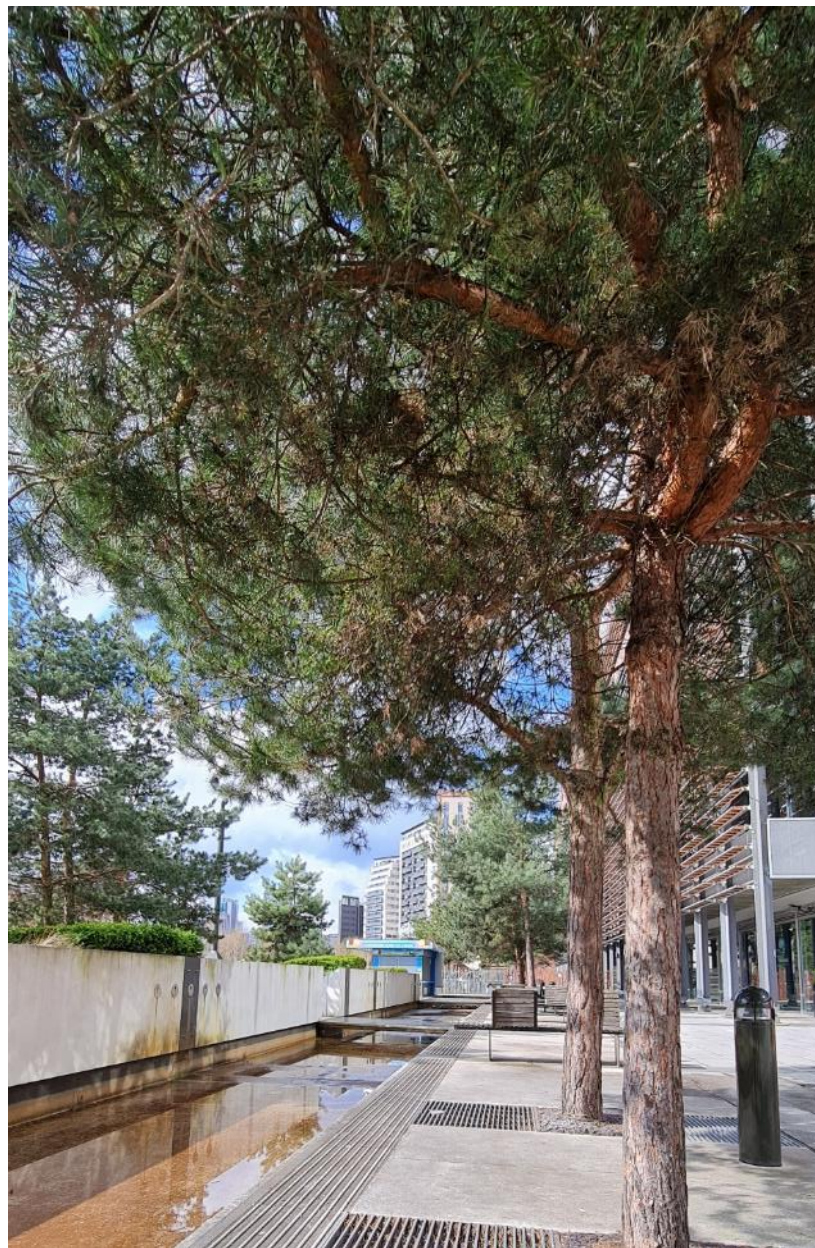Display by: Scientific Name
Symbology: None
View Filter: Off

Showing 2,000 of 73,374 sites.

Search

☑ Toggle All

☑ Abies sp. (3)
☑ Acer campestre (1,113)
☑ Acer campestre 'Elegant' (748)
☑ Acer campestre 'Queen Elizabeth' (101)
☑ Acer capillipes (11)
☑ Acer cappadocicum (128)
☑ Acer davidii (7)
☑ Acer negundo (18)
☑ Acer platanoides (4,678)
☑ Acer platanoides 'Farlakes Green' (55)
☑ Acer pseudoplatanus (3,607)
☑ Acer rubrum (13)
☑ Acer rufinerve (3)
☑ Acer saccharinum (337)
☑ Acer saccharum (104)
☑ Acer sp. (43)
☑ Acer x freemanii 'Autumn Blaze' (12)
☑ Aesculus flava
☑ Aesculus hippocastanum (1,857)
☑ Aesculus pavia (14)

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Our Future City Plan – Central Birmingham 2040

Birmingham

City of NATURE

Our 2040 goals are to:

- Create a connected and diverse network of green and open spaces meeting a spectrum of community needs.

- Encourage children and young people to be connected to nature through education and play and provide opportunities to take part in sport and exercise that are accessible for all.

- Ensure delivery of nature-based solutions to support environmental, social and economic outcomes including improving citizen's health and well-being, reduced energy costs, improved drainage and water quality, and removing pollutants from the atmosphere.

- Deliver biodiverse landscapes that create new opportunities, protect and enhance existing habitats and support vulnerable species and their movements across the city.

- Restore urban waterways to become major destinations not only for development, but also for leisure and open space.

What actions could we take?

- **The Brummie urban forest**
  Grow our Tree City status by expanding the urban canopy throughout the city environment creating a 'forest' of quality, well designed range of planting within and beyond Central Birmingham linking to the city-wide and regional network. Children and young people will be involved to support education and ownership of these new green spaces. Diverse and sustainable tree planting will need to be both at ground level and atop buildings providing a multi-storey canopy and vertical and horizontal habitat connectivity.

- **City Greenways**
  Identify opportunities to transform arterial routes and remodel highway infrastructure into linear 'Greenways' to connect communities with new open spaces, cycleways and walkways. These routes will be lined by trees and diverse range of plants attracting pollinators - supporting movement and access for people, insects and animals. Remodelling highway infrastructure will also reconnect under-used sites that have been severed and isolated for over 50 years - providing opportunities for new homes and commercial activity.

- **The park web**
  Identify proposals for a network of new and improved green spaces throughout Central Birmingham. This will involve proposing a range of opportunities from courtyards within new development, local pocket parks and the improvement of existing parks and open spaces, to address the gaps in areas with low coverage of green spaces by proposing new and improved parks.

- **Edible Brum**
  Give local people the opportunity to grow their own food in urban environments. Identify public and private spaces on walls, roofs and underutilised spaces for growing of edible fruit and vegetables, bee keeping, hydroponic crops, fish farming and brewing. This could be supported by building networks and supply chains to local businesses.

- **Reviving our waterways**
  Support the ongoing renaissance and restoration of canals and rivers throughout Central Birmingham to ensure access to new and improved green and blue space, habitat creation, reduction of flood risk and improved drainage - as well as supporting viability and improving the setting of surrounding development where appropriate.

- **Building greener**
  Promote opportunities to provide multifunctional green infrastructure and renewable energy as an integral part of new and existing building designs.
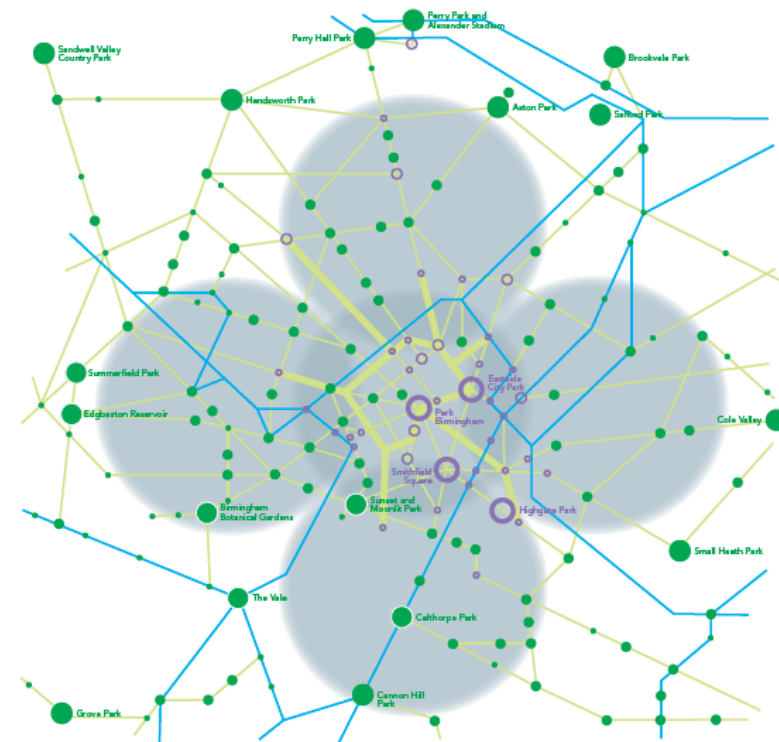
- **Green guardianship**
  We need to address the challenges of how we look after open spaces by working together across a range of organisations - and not just those responsible for parks, canals, rivers and wildlife but also to include those involved in healthcare, education and skills, heritage and culture. Community involvement and 'ownership' of our green spaces shall be developed, and new ways to look after our natural environments explored.

**PLAN 4
NATURE**

Key

- 🟢 Existing green space
- 🟣 Proposed green space
- Greenway
- Park Web
- Waterways

Birmingham's Urban Forest