

Urban Forests for All: An approach to designing and advancing fairer urban forests *Monday 9th December 1pm-4pm*



Keynote



"We want to make sure trees in the urban environment are no longer seen as a management liability because of the costs, rather that they are seen as an important asset."

The England Tree Action Plan (UK Gov, 2021)

Keynote

- Neighbourhoods of highest income have 2x the tree cover compared to neighbourhoods of lowest income.
- 30% less nitrogen dioxide pollution, 10% less particulate pollution and are 4 degrees cooler during heatwaves.
- Neighbourhoods where most people identify with a minority ethnic group have on average about 50% less tree cover per person.
- The benefit of greener communities is disproportionately large for disadvantaged groups.
 Public Health England





Sustainable treescapes for everyone

Funding the Urban Forest A look at future scenarios for Birmingham's treescapes

John Rose Senior Urban Forest Consultant

Just carry on as normal for the next 30 years

Loss of 230ha of tree canopy cover (0.8%)

> 65,000 trees (all sizes)

Less carbon stored 20,000 tC Lower amenity £1.2 billion (CAVAT)

Context – Birmingham's Trees Today





Birmingham's Structure and	Composition Head	line Figures	
Number of Trees (estimate)	1,129,000		
Tree Density (trees/hectare)	42		
Tree Canopy Cover	15% (4,017 ha)		
Shrub Cover	11.8%		
Most Common Tree Species	Silver Birch (11.1%), Sycamore (9%) & Holly (8.3%)		
Replacement Cost (CTLA)	£858 million		
Amenity Valuation (CAVAT)	£25.3 billion		
Proportion of Trees in Good or Excellent Condition	72.9%		
Birmingham's Ecosystem Services Headline Figures			
Total Carbon Storage	419,000 tonnes	£407 million	
Annual Carbon Sequestration	12,800 tonnes	£12,500,000	
Annual Pollution Removal	80.4 tonnes	£6,420,000	
Annual Avoided Runoff	481,000 m ³	£776,000	
	£19,696,000		

Source: Valuing Birmingham's Urban Forest 2024

Build a simple model





Wards x Land use: c.345 small forecasts aggregated to city level



Business as Usual



Estimated change in canopy cover for different land use types under business as usual

Business as Usual



Tree Canopy Cover change by 2051 indexed against 2022

Just carry on as normal for the next 30 years

The city hollows out in tree terms The grey gets greyer while the green gets greener

Arrest the decline – by 2041 (& hold steady)



		2022	2051	+/-
0	ha	4,645	4522	-123
Canopy	%	17.3%	16.9%	-0.4%
Number of trees	000s	1,297	1,263	-34
Carbon stored	tonnes	419,000	408,000	-11,000
	£m	407	396	-11
Annual ESS benefits	£m	1 9.7	19.2	-0.5
Replacement Cost	£m	858	835.3	-22.7
CAVAT	£ bn	25.3	24.6	-0.7

Headline figures following late intervention

Tree Canopy Cover change by 2051 indexed against 2022

Arrest the decline – by 2031 (& hold steady)



		2022	2051	+/-
0	ha	4,645	4632	-13
Canopy	%	17.3%	17.3%	0%
Number of trees	000s	1,297	1,294	-4
Carbon stored	tonnes	419,000	418,000	-1,000
	£m	407	406	-1.0
Annual ESS benefits	£m	19.7	19.6	-0.1
Replacement Cost	£m	858	855.6	-2.4
CAVAT	£ bn	25.3	25.2	-0.1

Headline figures following early intervention

Tree Canopy Cover change by 2051 indexed against 2022

Arrest the decline

Speed matters. Slower intervention has a costly impact

Lift all wards to 25% tree canopy cover by 2051





Tree Canopy Cover change by 2051 indexed against 2022

Lift all wards to 25%

Gain of 2400ha of tree canopy cover (+9.1%)

> 680,000 trees (all sizes)

Gain carbon stored +219,000 tC

Greater amenity (+£13 billion)

Back to the simple plan



Standard Tree in
Tree Pit in Hard
LandscapesStan
Rog
Hard

Standard Tree in Rooting Cells in Hard Landscapes Whips in Soft Landscapes

trul be all high

£450,000

Per hectare of canopy @ 15yrs

Image: Tre

£2.250,000

Per hectare of canopy @ 15yrs

£16,000

Per hectare of canopy @ 15yrs

Cost established for each land use





Cost per hectare for tree canopy creation by land use Establishing new trees vs managing existing to maturity

Lift all wards to 25%

Total cost estimated at £483m* to deliver £13bn* in tree amenity Annual cost of £17m* across all land owners, public and private

Reduced by £70m* or £2.2m* annually by managing existing trees to maturity as part of the mix

What about mix ?

Know what you have today

Scale at maturity	Nominal canopy at 25 years (m²)	Proportion of publicly managed trees ^a	Proportion of all trees ^b
Massive	64	28%	26%
Large	50	42%	52%
Medium	36	15%	9%
Small	12	5%	3%

Birmingham's trees by size Sources: BCC tree inventory, Valuing Birmingham's Urban Forest

Understand the impact of size on cost



Cost to establish a hectare of trees indexed against the 'average' tree used in the model

Business as usual means the grey gets greyer while the green gets greener To be effective by 2051, our interventions need to be early and at scale Managing existing trees to maturity is an important, cost-effective option Large trees are better value for canopy creation

Treeconomics

Sustainable treescapes for everyone

- Thank you

John Rose Senior Urban Forest Consultant john@treeconomics.co.uk

Introduction to Finance Earth

Founded in 2016, Finance Earth is a leading environmental impact investment boutique, offering financial advisory and fund management services. We are an employee owned and award-winning social enterprise that makes finance work for conservation, climate and communities.

- Finance Earth provides regulated financial advisory and investment management services focused on scaling **high integrity, high impact, investment into nature**, whilst ensuring **communities are central to solutions**.
- Finance Earth has extensive experience in designing financing solutions for Nature-Based Solutions, and in building ecosystem services markets.





2023 Winner onmental fund

of the year - Europy

Consultancy of

Finance Earth

the year



Urban Green Spaces interventions and their benefits

A range of Urban Green Spaces interventions exist, such as the ones noted below. Local authorities could benefit from aggregating these into larger projects (>1ha) to fit better with existing Ecosystem Service markets.

Street trees

Trees planted along city managed streets. Can also be fitted with open tree pits to better retain rainwater.

Pocket parks

Smaller open spaces (often <0.5ha) within urban areas. May include amenities like playgrounds.

Sustainable urban drainage systems (SuDS) Green drainage solutions that hold and store water, such as raingardens, tree pits, basins and ponds.

Green corridors

Strips of trees and vegetation connecting larger green spaces, often running along drainage lines/streets.



Street Trees







Pocket Parks



Green Corridors

Selected ES



Heat island reduction, carbon sequestration



Biodiversity, Pollination

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Developing new outcome focused funding models for urban green space

When operating outside existing ecosystem services markets, project developers will need to quantify ecosystem services from a project on their own and then sell these services to a buyer.

Standard structure: Intervention-based model

- Contributors are mostly driven by <u>'qualitative' factors</u> such as the project's story, image and marketing
- Contributors rely on simple metrics such as the number of trees planted. Funding is provided without expectation of returns.

Example: Camden Old Rail Line fundraising model



Heat island reduction, flood risk reduction, air quality improvements, etc.

Quantification of benefits

Potential structure: PES model

- Buyers seek to purchase <u>'quantified' ecosystem services</u> that are backed by science-based measurement methodologies and monitored on a regular basis
- Buyers seek to make claims, reduce costs, and potentially receive financial returns from projects

Example: <u>DC Water Environmental Impact Bond</u>⁽¹⁾



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⁽¹⁾ The DC Water Environmental Impact Bond was used to finance the deployment of green urban infrastructure to absorb and slow stormwater runoff during periods of heavy rainfall. DC Water committed to share the savings if this new green infrastructure achieved a reduction in costs associated with floods.

Why outcome-based models?

Outcome-based models represent an opportunity to adapt nature markets to urban contexts and meet the needs of both funders and project developers.



1. Replicate the success of other codes and standards to urban areas

Woodland Carbon Code, Peatland Code and Biodiversity Net Gain are the main environmental markets but are of limited applicability in urban contexts.

An urban-oriented nature market could fill a gap that exists in current environmental markets.



2. Enhance the connection between the value of Urban Green Spaces and the benefits generated by them

Urban green spaces provide significant benefits that are often not quantified. Valuing benefits would help local authorities make better use of funding by targeting projects with the highest benefit.

3. Meet the needs of funders interested in urban tree benefits

Potential funders have expressed interest in supporting urban tree projects and are interested in many of the benefits urban trees provide (such as heat, flooding and health), but need quantified outcomes for sustainability targets reporting.

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Assessing demand for ecosystem services

Understanding the motivations of funders to contribute to GI projects is important. Local authorities and project developers can engage with potential buyers to understand preferences and gauge willingness to pay.



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(1) Listed potential payors for illustrative purposes only and do not reflect these organisations' willingness to participate in funding GI.

Practical steps





Developing urban green spaces projects

The feasibility of a specific green infrastructure project can be better assessed by undertaking data collection, cost modelling and site baselining as part of the initial scoping of a project.



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Urban Tree Cost Modelling Tool

A tool designed by Finance Earth and National Trust with support from Anne Jazulot (Urban Forest Consultant). The tool has been tested with several tree officers across the country.

- Purpose: The Urban Tree Cost Modelling Tool has been designed to assist users in estimating the lifetime costs for urban tree projects. It provides a comprehensive, but not exhaustive, list of activities often required at different stages of a project
- **Cost data:** Where available, indicative cost data range estimates are included to provide high-level guidance to the Tool's users

• **Demonstration session:** Finance Earth will be hosting a more detailed demonstration session on the tool in January 2025 as part of Nature, Towns and Cities.

Snapshot of the Urban Tree Cost Modelling Tool

Inputs Sheet

Colour Code	
Manual Input with Automatic Costs	ka k
Manual Costs Override	{\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$ £ \$\$\$\$ £ \$\$ £ \$\$\$ £ \$\$\$\$\$ £ \$\$\$\$\$\$\$\$
Input Switch / Dropdown List	{;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Key Outputs pulled into Cashflow	£X
Checks / Summary Outputs	OK - No change Required
Checks / Summary Outputs	Issue – Change Required

0. Summary of Key Inputs and Profile of Trees 1. Pre-planting costs

2. Tree purchasing costs

3. Tree planting costs

4. Tree establishment and maintenance costs

5. Monitoring, Reporting and Verification (MRV) costs

6. End of life costs

	3. Tree planting costs		
	HARD LANDSCAPE	Current setting is in below section	Soft Landscape, will not function
Category	Civil engineering and excavation costs / Tree planting volume construction costs	Units	Required?
General	Labour Costs - Urban Tree Planting Contractor	Total (£) per day	
abour Costs	Number of days Urban Tree Planting Contractor will be needed	Total number of days	
	Mark area, cut and break out hard surface [retrofitting]	Total (£)	
Demolition	Demolition [retrofitting]	Total (£)	
	Removing contaminated soils / excavation spoils [retrofitting/new]	Total (£)	
	Creating a build-out [retrofitting/new]	Total (£)	
ľ	Re-using existing tree planting [retrofitting/new]	Total (£)	
	Installation (excluding excavation and reinstatement)	Total (£)	
	Specialist planting method requirements (e.g. cells, concrete) [retrofitting/new]	Total (£)	
	Volume of planting medium needed (Topsoil to BS3882:2015) [retrofitting/new]	Total (cubic metre)	
nstallation	Cost of planting medium needed for tree planting [retrofitting/new]	Total (£)	
	Tree opening surface treatment choices (grass verge treatment around the tree; could include: grill/tray/crumb etc) [retrofitting / new]	Total (£)	
	Surface reinstatement, e.g. reinstating footway [retrofitting]	Total(£)	
	Tree protection [retrofitting / new]	Total (£)	
	Tree watering bag or irrigation choices	Total (£)	
Additional	[Additional costs #1] - unitary costs	Total (£)	
	[Additional costs #2] - unitary costs	Total (£)	
	[Additional costs #3] - unitary costs	Total (£)	
COSIS	[Additional costs #4] - unitary costs	Total (£)	
	[Additional costs #5] - unitary costs	Total (£)	

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Progressing towards an outcome-based model

Transitioning to an outcome-based model can occur in stages, depending on the degree of quantification and market infrastructure available





Urban Tree Tokens

A 'token' of benefits that urban trees are known to deliver (e.g. carbon sequestration, biodiversity, water quality services, climate regulation) could be promoted by an urban green space project directly.



One 'Urban Tree Token'

- Create a sellable certificate representing one street tree or one sqm of green space, along with the associated benefits
- Buyers can purchase tokens to support action in their local area and pre-fund tree maintenance
- Value of the token could be linked to maintenance costs (e.g. 'sponsor a tree' model)
- Project partners will need to clearly agree target outputs, tokenisation methodology and benefit sharing



Overview of an Urban Greening Code



An Urban Greening Code could define a new funding model and increase access to this capital. Finance Earth, Natural England and National Trust are working on the development of an MVP Code for Urban Greening projects.

Code Overview

Best Practice Guidelines and Standards

- Basic principles of the code (ex. additionality, permanence, transparency, do no harm)
- Project eligibility requirements and documentation necessary for project validation and verification
- Guidance to developers for best practice

Quantification methodologies

Codification of methodologies for calculating specific benefits, such as:

- Water/flood risk reduction
- Carbon sequestration
- Physical and mental health
- Shading/heat reduction

Key Benefits

- New pools of private funding are more accessible through payments for ecosystem services (PES)
- Repayable finance structures become more viable
- Allows projects to **better compete for grant funding** especially in the case of green infrastructure
- A code could serve as the basis for a token or credit model that could allow tradeable outcomes
- Tokens / credits representing outcomes could be used to **meet reporting requirements** such as B-Corp or SBTi
- Sale of tokens would provide an **additional revenue stream** that could improve funding access

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Thank you for listening.

For more information, please contact:

Elizabeth Beall Managing Director E elizabeth@finance.earth Enabling investment into conservation, climate and communities.



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www.finance.earth

Plymouth Funding the Urban Forest

Kat Deeney Head of Environmental Planning **Plymouth City Council**



England's Community orests







- There is a breadth and depth to the current level of urban forestry work in Plymouth
- The following documents and activities set the foundations for action
- 2010. <u>Plymouth's Green Infrastructure Delivery Plan</u>
- 2017 <u>Plymouths Tree Canopy Cover Report</u>
- 2018 Valuing Plymouth's Urban Forest (unpublished)
- 2019 <u>Plymouth's Tree Management Principles 2019-2024</u>
- 2019 <u>Plymouth Plan for Trees</u>
- 2019 Joint Local Plan. Policy Dev 28; Trees, Woodlands and Hedges
- 2021 Launch of Plymouth and South Devon Community Forest

Plymouth's Urban Forest



Valuing Plymouth's Urban Forest

- The Valuing Plymouths Urban Forest report was a collaboration between Plymouth City Council, Treeconomics, local organisations and volunteers.
- It applied the I-Tree Eco approach across Plymouth. This approach maps and values trees. It identified 394,000 trees across the city.
- Much of the work was undertaken on the ground by volunteers.

THE BENEFITS OF PLYMOUTH'S TREES



Tree Equity – a challenge and opportunity

Use of Tree Equity, alongside other approaches to targeting planting, will deliver high impact outcomes for public health and wellbeing benefits.

In Plymouth tree canopy cover at local level ranges from 3% to 45%

Planting of 5,885 medium sized trees in targeted locations would make a significant initial impact on addressing Tree Equity in Plymouth



England's Community

Forests





Equitable and Inclusive. An equitable and accessible woodland network connecting the people and places of Plymouth and South Devon, with significantly increased numbers and diversity of people regularly interacting with and receiving the environmental, social, physical, and economic benefits of their community forest.

Resilient. An enhanced network of trees across Plymouth and South Devon bringing improved health and wellbeing to individuals, communities, and climate, alongside dedicated woodland citizens growing with the forest and protecting future generations of trees, people, and wildlife through sustainable management and care.

Pioneering. An enterprising and innovative woodland culture enhancing lives through jobs, skills development, volunteering, and wider interaction with the blue/green network, supporting an embedded woodland approach to community businesses and forestry integral to community life.

- **Delivery costs** Need to be embedded long term and stable. Need sustained arrangements and commitment. Also need to be creative.
- Project costs Easier to fund as one off but need to ensure "back office" management costs are covered. One off grant funding can pump prime longer term revenue streams.
- Maintenance costs Crucial that these are factored in, ring fenced and then deployed. At least 10 years for Nature for Climate and 30 years for Biodiversity Net Gain related funds.
- Blended Model No silver bullet, need to be adaptable.

Urban Forestry in Plymouth - Resources



Plymouth Tree People (PTP) – long established local charity supporting

• A network of 48 Tree Wardens

Plymouth Environmental Action (PEA)

 A volunteer group undertaking practical conservation projects

Plymouth Open Space Network (POSN)

 A network of friends and support groups working in Plymouth parks, gardens and greenspaces

SocieTree

 A Community Interest Company aim to deliver a Miyawaki forest for every Plymouth School

Valuing Plymouth's Urban Forest

Plymouth Plan for Trees

Government Funds Opportunities



- **<u>CSR</u>** Awaiting confirmation on how continued funding to deliver government 16.5% tree target is to be supported. Opportunity to seek for Community Forest's "Nature for Climate 2" or similar funding streams alongside ELMs, Stewardship, EWCO and other land management funds.
- <u>Wider Benefits</u> Enhanced environmental benefits (water, air and temperature) and social benefits (health and wellbeing for high density populations) of urban planting in particular needs emphasising.
- Place Based Need to continue to build the 'placebased' investment ask. Whilst urban planting costs roughly twice that of rural the benefits are significant.

Local Authority Funding; Opportunities



- Value Core funding will come under continued pressure so a need to recognise and quantify the wider social and environmental benefits of urban forestry.
- Focus Need to focus LA funding in ensuring in house skills and capacity to drive and manage the expansion of urban forestry.
- Prioritise Look to others to fund the actual projects and maintenance wherever possible.
- <u>Legacy</u> Secure management and maintenance costs as part of overall project costs.
- <u>Wider benefits</u> Integrate tree planting and woodland creation into highways, infrastructure, health, wellbeing & public realm projects at inception so funding support can be spread.

Charitable Funding; Opportunities



- <u>Role</u> Recognise the role Charities can play in obtaining and channelling funds for urban forestry.
- <u>Ring Fence Funds</u> Charities can hold and ring fence tax efficient funds for local action. WT has funded many Councils to deliver core urban forestry work through its "Emergency Tree Fund".
- <u>Resources</u> Charitable fundraising and contributions can also fund trees and materials.
- <u>Match Funding</u> Opportunity to count the value of these charitable contributions as match funding to draw in wider funds
- Pilot/ Copy Unique position of Woodland Trust as CF board member in Plymouth, and sponsor of Tree Equity makes Plymouth an ideal place to test income generation for Tree Equity

Developer Funding; Opportunities



- New Developments A clear opportunity for all new development to maximise on site tree and woodland creation but also contribute to off-site increases in canopy cover.
- Ocean City Nature Plymouth's own nature-based investment vehicle. Established a credible and investible model for drawing developed funds into trees and woods, through BNG. Initial projects include a focus on woodland management in Plymouth.
- <u>**Credibility</u>** Rigorous implementation, maintenance and monitoring needed to ensure long term success of schemes. BNG regime will need to have significant monitoring to secure the required benefits</u>

Tree Sponsorship; Opportunities



- <u>Demand</u> Demonstrable public appetite to fund and sponsor street and public space trees. No current Plymouth street tree sponsorship scheme but national examples exist including *Trees for Streets* and *Street Trees for Living*
- <u>Opportunity</u> Around 1,700 empty tree pits and nearly 3,000 potential locations in total. Pilot street tree replacement programme underway led by Plymouth Tree People. A chance to review, learn lessons and roll out city wide
- Adaptable Tree Equity offers a chance for contributions to be pooled and cross fund tree planting in wards with low tree cover. Sponsorship packages could then offer local and city-wide options to cater for redistribution of health benefits.

Corporate Social Responsibility and Natural Capital Funding; Opportunities



- <u>**Demand</u>** Increasing interest in corporate funding for tree projects linked to CSR, carbon net zero and other natural capital commitments.</u>
- <u>Partnerships</u> Charity partners already work with corporates delivering funds and trees locally (with a multiplier effect drawing in public funds).
- "<u>**"Urban Tree Tokens"</u>** Finance Earth developing system for accredited corporate sponsorship being channelled to tree planting.</u>
- <u>Ocean City Nature</u> has scoped in depth delivery models for accredited natural capital funding. Ocean City Carbon is a potential future opportunity for wider funds.

Key Points



- Partnerships Are essential, locally and nationally. Cross sector, public, private, charitable, community.
- <u>Adaptable</u> Lots happening in this space, need to know your Place and be ready to act. Need to rethink delivery options.
- Innovation Need to do things in new ways finance, partnerships, delivery and maintenance.
- <u>Trees in Place</u> Need the benefits to 'place' to be clear and valued.
- <u>Learn and Share</u> We all need to transition, pioneer, share, learn.

Thank you



Sign up to the mailing list to be the first to hear more information about the programme including resources and events via the website: naturetownsandcities.org.uk

If you want to get in touch, please email: info@naturetownsandcities.org.uk

If you want to talk about urban forestry, please email: David.Coughlin@nationaltrust.org.uk





Fund





Trust

