Tree Canopy

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1. What is Tree Canopy Cover and Why is it Important?

What do we mean by Tree Canopy?

Canopy cover describes the area of ground covered by a tree when viewed from above, including the foliage, branches and stem. Canopy cover is a two-dimensional metric and does not include understory vegetation. In woodlands and tree groups, where canopies overlap, the total area of the stand of trees should be measured, rather than the sum of any individual canopies.

Tree canopy in the context of this guidance refers to the **total combined area of ground covered by the canopy of trees or woodland.** Tree canopy cover is usually expressed as a **percentage of the total site area.**

Figure 1. Tree planting, Forthquarter Park, Edinburgh | HED

Why does tree canopy matter?

- trees are important for biodiversity with larger, mature trees and native species providing greater habitat benefits.

- trees support wildlife and act as habitat 'stepping stones' within **Edinburgh's Nature Networks**

- tree canopies slow and absorb rainwater as they grow reducing surface water run-off

- tree canopies provide shading and cooling benefits to public spaces and buildings

- trees benefit health and wellbeing

- trees enhance place quality and support the local economy

Tree Canopy Targets

For effective climate change adaptation we need to consider not just the number of trees on a site but the extent of ground covered by tree canopy. A survey published by Forest Research using the i-tree model estimated that the city of Edinburgh had an existing tree canopy coverage of 17%.

Edinburgh aims to set **new targets to raise tree canopy cover** over the whole Edinburgh Council area through a new **Forestry and Woodland Strategy**. In response to the climate and nature emergencies **an initial target of 20% will be expected for most new developments,** building on the 17% baseline. At a local scale the target the percentage of canopy cover, type and number of trees will vary as appropriate to context to support this goal.

Trees play a vital role in climate change resilience

City Plan 2030 sets out Edinburgh's ambition to significantly increase woodland cover in line with the **Edinburgh and the Lothians Forestry and Woodland Strategy** and the **Edinburgh Million Tree City initiative**.

The Council will aim to achieve this target by requiring new tree planting as well as protecting existing trees. This has particular relevance for new developments where tree planting can support healthy, climate resilient, and beautiful neighbourhoods.

This guidance is relevant to all applications incorporating useable open space and where policy Env 27 applies to landscape proposals, with the exception of applications by individual householders. In all other situations, opportunities to further tree canopy cover should have regard to the scale of development proposed, the opportunities of the site and its context.

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2. Making Space for Trees

Consider where trees will fit into the design from the outset of the site planning stage.

- Plant trees in streets, hard surfaces and grey spaces, greening streets, car parks, active travel routes and plazas along with planting in greenspace to provide greater climate adaptation benefits.

- On larger sites seeking to achieve 20-30% tree canopy targets, coverage must not be achieved solely through planting in open space as this can conflict with needs for recreational space and sunlight.

- Large tree species within communal grounds and back greens should be counted as contributing to the canopy target.

- Small trees in private gardens can complement canopy targets but they are not a substitute for structural planting of large trees through the planning process.

- Plant a variety of species within the scheme to provide climate resilience and visual interest while considering biodiversity value and allergenic pollen.

Edinburgh Street Design Guidance factsheet F5 Street Trees provides guidance on the siting, specification, planting and aftercare of street trees including tree pits, soil volumes and services. For guidance on SuDS trees see **Edinburgh's Sustainable Rainwater Management Guidance factsheet W1 SuDS Trees in Streets**

Figure 2. Trees in Streets, Sauchiehall Street, Glasgow | GBU

Figure 3. Trees in Parking Areas, The Gyle Shopping Centre

Figure 4. Trees in Public Realm, Grassmarket

Figure 5. Trees in Green Spaces, The Meadows, Edinburgh | Richard Webb

Figure 6. Trees in Communal Grounds, Lochend

Figure 7. Trees in Private Gardens | WTML /Woodland Trust

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3. Planning for Tree Canopy in New Developments

Existing Trees

All significant trees on a site should be retained as far as practicable as it will take many decades before newly planted trees can provide equivalent environmental benefits. Any retained trees will also count towards the canopy target.

Where existing trees will be removed due to their condition or the footprint of the development, the target canopy should always seek to exceed the canopy that will be lost.

Figure 8. Greener Grangetown, Cardiff | GreenBlue Urban

Tree canopy information for planning applications

In addition to a tree survey, planting plan and specification **a planning application should include the following Tree Canopy information:**

- the total area of the site in m²

- the area of existing tree canopy cover in m² and expressed as % of the site area.

- the area of canopy cover due to be removed and retained as % of the site area.

- a breakdown of the planting specification to show the numbers of large, medium and small tree species, and the number of long-lived species. Reference sources for the tree size information should be provided.

- the projected canopy extent of proposed new tree and woodland planting at full height and spread in m²

- the % of ground within the site that will be ultimately covered by tree canopy including existing trees that are retained

The City of Edinburgh Council anticipates that increasing canopy cover will contribute to the overall objectives of City Plan Env 37, Edinburgh's Biodiversity Action Plan (EBAP) and the Scottish Biodiversity Strategy. The tree canopy target will not, in many cases, be sufficient to fully satisfy Env 37 on its own but can be used alongside other methods (including recognised metrics) to maximise opportunities for biodiversity enhancement. In line with the expectations of Env 37, proposals should be based on an up to date ecological appraisal and should:

- apply the mitigation hierarchy, first avoiding then minimising impacts on species and habitats of biodiversity value

- retain key areas that support irreplaceable biodiversity and/or Nature Networks

- fully mitigate for any remaining adverse impacts

- provide a measurable positive effect for biodiversity

Tree Canopy Targets in Other Cities

City	Belfast	London	Bristol	Plymouth	Cambridge	Torbay
Existing Canopy Cover	14.5% (2022)	21 % (2015)	18% (2018)	18.5% (2017)	17% (2008)	12% (2011)
2050 Target	30%	30%	30%	20%	19%	20%

Source: Belfast Tree Strategy (2023), [https://www.belfastcity.gov.uk/Documents/Belfast-tree-strategy#Table3]

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4. Edinburgh's Tree Canopy Targets in New Developments

Tree canopy targets

The City of Edinburgh Council is targeting 20% tree canopy cover for all residential proposals (excluding householders) and residential or commercial led mixed-use development.

The Council will expect tree canopy targets of up to 30% for major new development areas outwith the city centre as shown in City Plan 2030 Map 1 Spatial Strategy[1], in particular those that fall within Edinburgh's Green Blue Network.

'Where development is within a dense, urban environment with a tight urban grain, a lower canopy cover of 10% is likely to be acceptable

The target will reflect the individual scale, context and opportunities of the site and should be established prior to submission with reference to the tree canopy target most appropriate to the site and its context (refer to figure 9) or as established through pre application advice. Sufficient space should be allowed to protect existing trees and set out provision for new tree planting.

Target values are set out opposite, alongside considerations which may determine the extent of tree planting achievable. The initial set of targets will be monitored to evaluate benefits achieved in terms of securing an enhanced urban tree canopy and adjusted as required.

30 % Tree Cover

©Getty
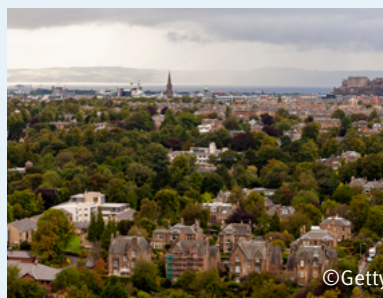
Larger sites located within or adjacent to Edinburgh's Strategic Green Blue Network, or its planned extension should target 30% tree canopy cover.

This should also include major new development areas subject to comprehensive masterplans or place briefs and incorporating new large greenspaces. This could apply to both new high density flatted development, proposals with a higher proportion of houses and colonies or sites where lower densities are appropriate to context.

The target should be met within the streets and open spaces forming the wider landscape framework.

Target: 20 % Tree Cover

Most medium to high density sites should target 20% canopy cover, including larger sites with a mix of flats, colonies, and townhouses.

The targets should be met within street design, civic spaces and parking areas, not solely within public open space and private communal greenspace. Layout should prioritise connectivity of new stands of trees, street trees and woodland.

Smaller ornamental tree planting within private front gardens will not normally be counted towards achieving the target .

10 % Tree Cover

Smaller sites in existing high-density areas, with a fine urban grain of flatted development should target 10% canopy cover.

A lower % canopy cover may be justified in circumstances such as: the setting of historic assets, archaeology, wayleaves and easements, the need for other priority habitat types, open ground for recreation and sunlight, or to maintain views and public safety. Airport safeguarding could also affect planting density.

A lower canopy cover may be compensated for by other green-blue infrastructure to manage surface water e.g. rain gardens and green blue roofs.

5. How to Estimate Canopy Cover
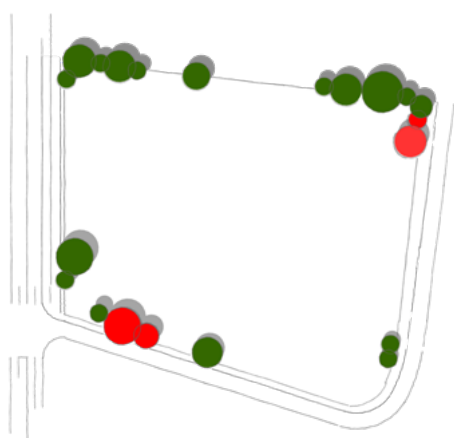
1. Using a detailed tree survey in accordance with BS 5837:2012 calculate the area of ground covered by existing trees or woodland and express this as a % of the site area. Identify trees to be retained and any to be removed due to condition or unavoidable conflicts with development. Calculate the area of ground to be covered by the canopy of trees and woodland to be retained and express this as a % of the site area.
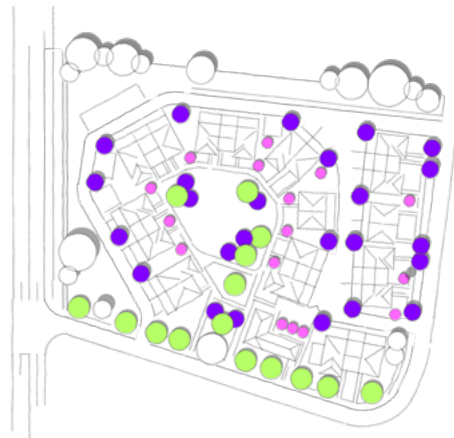
2. Divide the number of proposed specimen trees planted into three groups based on the scale of tree at maturity in line with the table (for this purpose all fastigiate trees are 'small' or 'medium', large species conifers with an upright habit can be calculated as large trees). Using the average values provided calculate the area m² of ground overhung by tree canopy when the trees are full grown in terms of height and ultimate canopy spread.

3. Calculate the ground area m² of any proposed woodland, tree belt or other feature that will form continuous canopy cover.

4. Add these values together to get the total potential area m² of tree canopy cover, express this as % of the total site area. Confirm how the proposals meet the relevant canopy cover target and justify exceptions where this cannot be achieved

Tree Sizes:

- Small Tree Canopy: <5m
- Medium Tree Canopy: 5-12m
- Large Tee: 12+m

(diameters based on average values for trees in hard landscape provided in the ESDG F5 Street Trees factsheet)

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References

Image References

Technical references:

- City Plan 2030
- Edinburgh Biodiversity Action Plan
- Forest Research
- Edinburgh and Lothians Forestry and Woodland Strategy
- Edinburgh One Million Tree City
- Edinburgh Design Guidance
- Factsheet F5 - Street Trees
- Climate Ready Edinburgh
- Factsheet W1 - SuDS Trees in Streets
- BS 5837 (2012) – Trees in Relation to Design, Demolition and Construction

Figure 1. Tree, ForthQuarter | HED
Forthquarter - Project, HED. Available at: https://www.heduk.com/projects/forthquarter-granton (Accessed: 18 March 2024).

Figure 2. Trees in Streets, Sauchiehall Street, Glasgow | GBU
Sauchiehall Street, Available at: https://greenblue.com/gb/case-studies/sauchiehall-street-glasgow/ (Accessed: 20 March 2024).

Figure 3. Trees in Parking Areas, The Gyle Shopping Centre
Image coutesy of City of Edinburgh Council

Figure 4. Trees in Public Realm, Grassmarket
Image coutesy of City of Edinburgh Council

Figure 5. Trees in Green Spaces, The Meadows, Edinburgh | Richard Webb
Webb, R. (2010b) The Meadows, Wikimedia. Edinburgh Available at: https://commons.wikimedia.org/wiki/File:The_Meadows_-_geograph.org.uk_-_6104.jpg (Accessed: 20 March 2024).

Figure 6. Trees in Communal Grounds, Leith Fort
Image coutesy of City of Edinburgh Council

Figure 7. Trees in Private Gardens | WTML /Woodland Trust
https://www.woodlandtrust.org.uk/blog/2022/10/6-uk-trees-to-plant-in-small-gardens-for-climate-change/

Figure 8. Greener Grangetown | GreenBlueUrban
Image courtesy of GreenBlue Urban.

Figure 9. Tree Canopy Targets in New Developments
Images courtesy of Getty; City of Edinburgh Council