



Urban Design Bulletin 2 Trees in Housing Development

Produced by the Quality Places Practitioners Group (QPPG) on behalf of the Partnership for South Hampshire (PfSH). The QPPG is composed of built environment professionals representing Local Authorities in South Hampshire: Eastleigh, East Hampshire, Fareham, Gosport, Havant, Isle of Wight, New Forest, Portsmouth, Southampton, South Downs National Park, Test Valley, Winchester and Hampshire County Council.

The aim of the QPPG is to promote good quality place making in South Hampshire. To find out more, follow this link:
<https://www.push.gov.uk/work/cultural-creative-industries-and-the-built-environment/>

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Introduction

Trees positively transform the character of existing and new development. They have:

Aesthetic effects¹

- » Trees soften the built environment and provide seasonal interest
- » Provide greater intimacy and reduce scale of spaces to human dimensions
- » Help create character and 'sense of place' in neighbourhoods and streets

Physical effects

- » Absorb particulate pollution, sequester carbon, and provide oxygen
- » Provide cooling through shading & evapotranspiration
- » Reduce storm runoff as part of SuDS scheme
- » Reduce wind speed
- » Offer sound attenuation

Psychological benefits

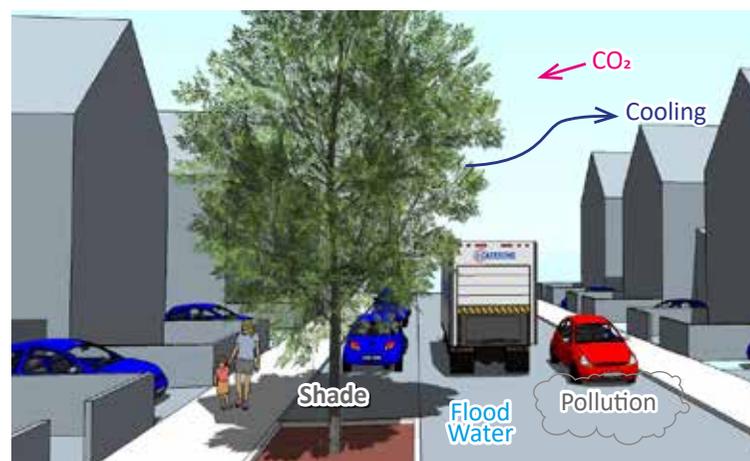
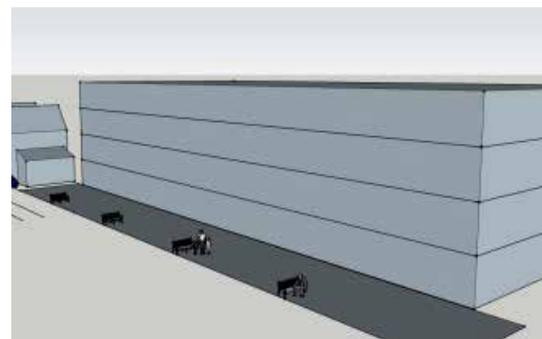
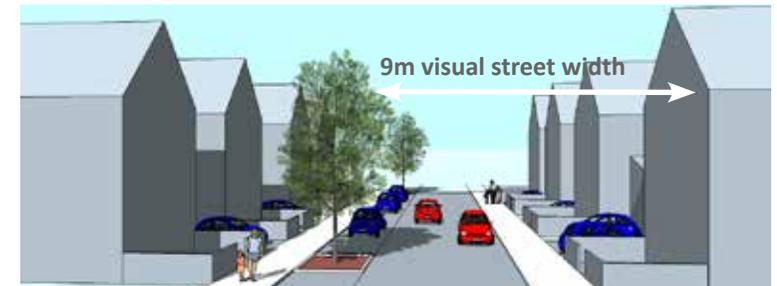
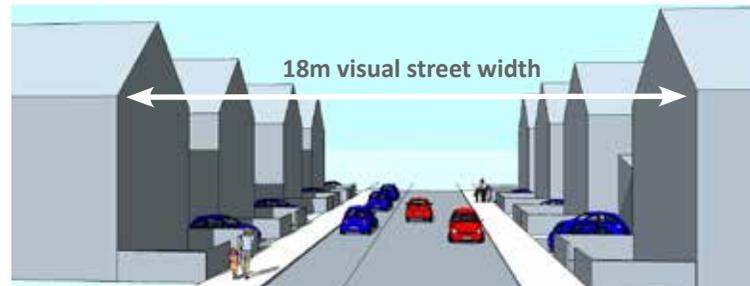
- » Add to a sense of well-being
- » Provide a vertical traffic calming effect
- » Improve links with natural world (seasonal interest, birds and insects)
- » Act as local landmarks to aid wayfinding

Biodiversity

- » Provide habitats for a wide variety of birds, insects, fungi and mosses

Economic benefits²

- » Increase property values and marketability
- » Reduce building energy consumption by shading, shielding and regulating temperatures



Common Issues

Many actions hinder the successful retention and inclusion of trees in the public realm including proposals that:

During the Design Stage

- » Do not sufficiently take existing trees or their root protection areas (RPAs) into account, this may result in the death of a tree that should be retained
- » Locate new development too close to existing trees or new trees too close to existing buildings, resulting in damage to buildings and insurance claims (impact on foundations may invalidate NHBC certification)^{3, 8, 9}
- » Locate trees too near to the highway for their ultimate size, where root heave may damage highway structures
- » Select inappropriate tree species not suited to the soil, climate or location, causing problems such as excessive overshadowing
- » Locate trees exclusively in private gardens with no long-term protection
- » Conflict with visibility splays, service design, including street lighting with tree planting layout resulting in easily avoidable tree loss
- » Fail to take account of wider landscape and biodiversity connections to new and existing public open spaces and Green Infrastructure corridors

During Construction

- » Damage the roots of existing trees⁴
- » Use inadequate quality, insufficient root soil volume or compacted soil⁵
- » Inadequately protect trees against vandalism or vehicle damage

- » Poor staking (leading to wind toppling)
- » Inadequate irrigation during establishment period

Management and Maintenance

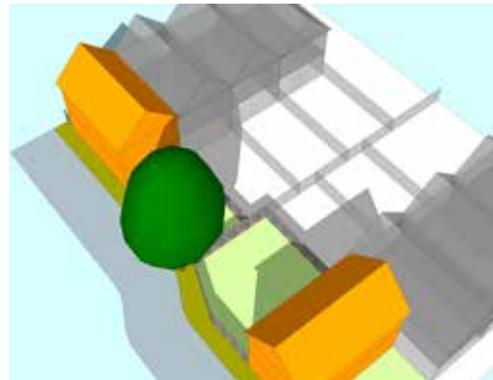
- » Strimmer damage can lead to tree death and lack of mulch can result in stunted growth
- » Practices that result in poor tree health and increased management problems may make the Local Authority reluctant to adopt the trees. Trees to be adopted by the Local Authority must be in good health.^{3, 8, 9}



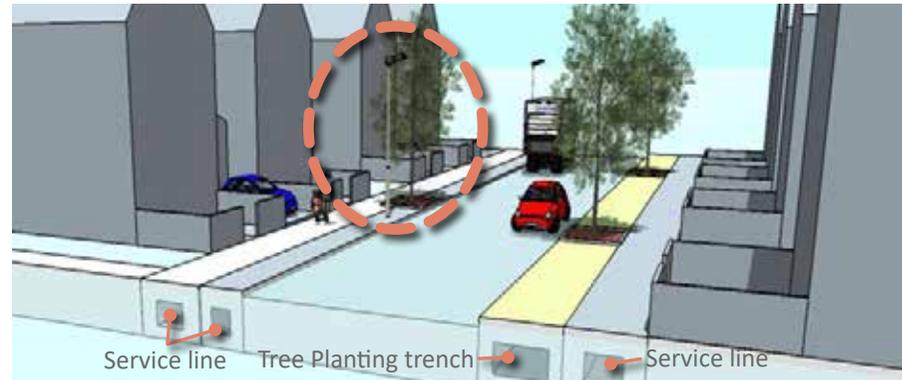
Breach of NHBC trees far too near to the building



Trees planted at the same time in restricted root soil volume have resulted in the trees on the right suffering stunted growth



Shadowing impact after planting



Proposed tree conflicts with proposed lighting design & underground services



a. Proposed trees are near houses, so can only be small or fastigate species (ideal 7m minimum distance for medium sized trees)
b. Proposed tree and lamp post position in conflict



Strimmer damage- no mulch, no stake, no strimmer guards

Addressing Issues

Allow valuable existing trees to be retained

- » Tree surveys should inform the design, with existing valuable trees integrated into the layout. CAVAT⁹ is a useful tool to calculate the value of existing trees.
- » Retained trees and their RPAs must be protected during construction

Layout should allow for new street trees

- » Incorporate on through routes (large trees) and side streets (medium sized trees). Highest level in street hierarchy should be tree-lined⁸
- » Ideally 10m and 7m minimum distance from houses for large and medium sized trees respectively⁶
- » Incorporate occasional large species in streets and parks⁷
- » Meet standards for adoption in the highway (where relevant)
- » Plot trees on same plan as proposed services and lighting design⁶
- » Plant trees in groups with continuous trenches and shared soil space where possible

Tree varieties need to be selected for the site and purpose⁷

- » They should suit soil type, shade/ sun, water, space, pollution and salt winds
- » Adding biodiversity value, seasonal interest (fruiting, leaf fall), air quality benefit and, be of appropriate size and shape. Certain tree varieties are better for SuDS and mitigating air pollution.

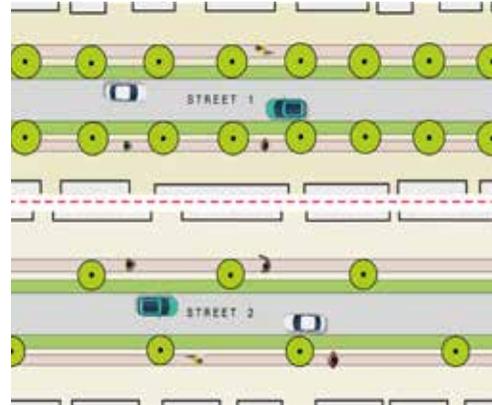
- » At countryside edges, trees chosen based on landscape character help developments 'fit' into wider context
- » A site wide Landscape Strategy ensures tree selection reinforces character area differences

The detailed design and specification of tree planting and protection¹

New trees need:

- » To be staked or supported properly
- » To be mulched in grass areas and protected from strimmer damage
- » A sufficient tree establishment period
- » Suitable tree pits often with soil crates or special soils to prevent compaction⁹ in hard surfaced areas

They may also need tree guards in car parks and, wire guards in high vandalism areas.



Trees used to reinforce distinct character areas



Strimmer guard



Ideal distance for medium tree from building



Ideal minimum distance for large tree from building



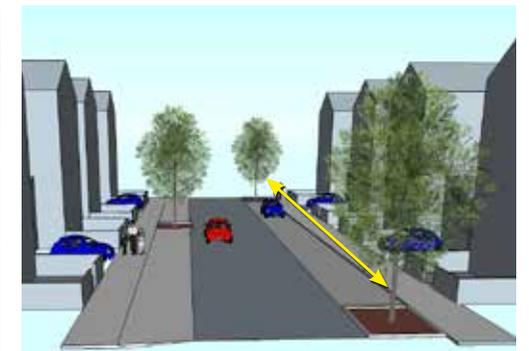
A good example of a tree with correct staking and mulch



Tree guard protection in car park



Tree wire mesh vandalism deterrent



To achieve a good street tree presence, trees should be planted at regular intervals

Case study: Monk's Brook

Monk's Brook is a recent 168 mixed dwelling development in Eastleigh.

The overall tree strategy is to:

- » Retain significant individuals and groups of trees; enhance existing network of trees with new planting, providing a landscape structure that reinforces movement corridors. (See Figure 1)
- » Reinforce the character area of the main access link. A different tree species is selected to punctuate the movement corridor.⁷ (See Figure 2)
- » Ensure street lights are at least 5m away from the mature canopies of trees in order to allow access for maintenance and, to reduce the shading impact of trees. (See Figure 3)
- » Maximise the number of proposed trees that can be accommodated on constrained sites in order to reinforce the leafy character of the location. (See Figure 4)
- » Reduce the visual impact of car parking in the street and also help reduce traffic speeds. The designated open space with existing and proposed trees will provide residents with year round colour and interest. (See Figures 5, 6 and 7)



Figure 2



Figure 3

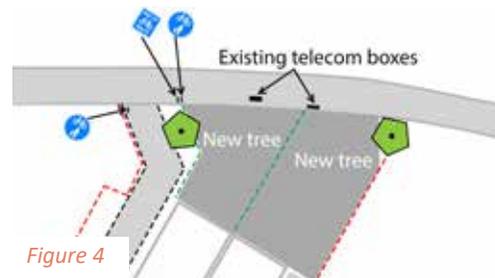


Figure 4



Figure 1

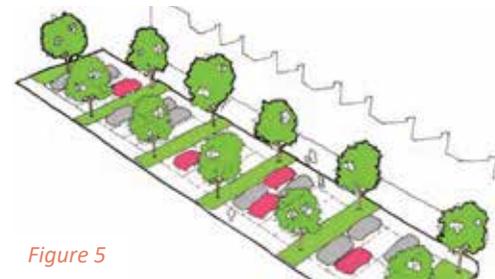


Figure 5



Figure 6

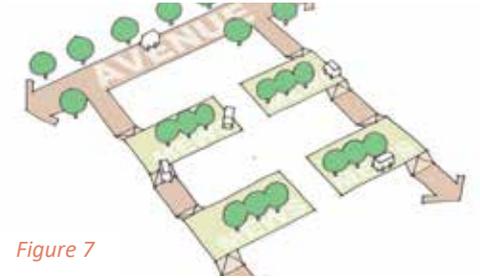


Figure 7



The proposed tree strategy and the location and extent of the existing trees together with the proposed trees (both large and medium / small tree species)



References, useful links and further information:

- 1 - www.tdag.org.uk
- 2 - [Valuing London's Urban Forest](#) - Results of the London i-Tree Eco Project, Treeconomics, 2015
- 3 - [Building Near Trees](#), NHBC Supplementary Resource - Chapter 4.2
- 4 - BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations
- 5 - [Trees, People and the Built Environment](#): Proceedings of the Urban Trees Research Conference, 13–14 April 2011. The Forestry Commission, Edinburgh, 2012
- 6 - [Quality Places](#), SPD, Eastleigh, Adopted 2011
- 7 - [Trees and the Public Realm](#), Westminster City Council, 2011
- 8 - [Technical Guidance Note 15 - Trees, Landscape & Ecology](#), Hampshire County Council, 2020
- 9 - [Capital Asset Valuation of Amenity Trees \(CAVAT\)](#), London Tree Officer's Association, 2008

Further information:

- [Tree Planting Design Guide Supporting Notes](#), Bristol City Council
- [Landscape Checklist for New Development in Hampshire](#), Hampshire Local Government Landscape Group, 2006
- www.greenblue.com
- www.urbantreecover.org
- [Urban air quality](#), Woodland Trust, 2012