

ANDOVER

TOWN

CENTRE

PUBLIC REALM DESIGN GUIDE

2022

For
Consultation.

Test Valley
Borough Council

UNTITLED
PRACTICE

urban
movement

GELLING
LANDSCAPE STUDIO

HemingwayDesign

NEW masterplanning



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Public Realm Vision & Principles

01

Vision & Principles

Emerging from the 2020 town centre masterplan, a vision for the town centre was developed with local people and stakeholders. This vision will be translated and applied to Andover's public realm to ensure that public realm improvements play their part in delivering on the shared vision for the town. As a result, Andover town centre's public realm will be:

Social & Inclusive

The town centre public realm will be accessible to all, by foot, wheelchair, cycle, bus, rail or car. The town's public realm will provide a range of opportunities for people to socialise and come together, with a diverse range of community facilities to meet the needs of all its residents - providing a public realm that is enjoyable for the elderly, young people and families.

Green & Ethical

The town centre public realm will address the climate emergency, helping to increase the town's biodiversity and eliminate its carbon footprint. The public realm will recognise the importance of ethical and local materials and will prioritise walking and cycling and enable faster uptake of electric vehicles.

A modern, healthy & green public realm



Creative & Enterprising

The town centre public realm will provide a canvas on which Andover can flourish; providing a healthy and engaging setting for a modern campus for Andover College as well as embedding local character, culture and art within the public realm, and supporting the evening economy.

Unique & Independent

The town centre public realm will value and celebrate its heritage assets, whilst creating the conditions for the modern town centre to thrive - providing a platform for local markets and events; bespoke market stalls; seating and public art - all the time enabling Andover's civic and community life to dominate.



Public realm hierarchy

The 'Hierarchy of Road Users' is a concept that places those road users most at risk in the event of a collision at the top of the hierarchy.

The hierarchy does not remove the need for everyone to behave responsibly. The road users most likely to be injured in the event of a collision are pedestrians, cyclists, horse riders and motorcyclists, with children, older adults and disabled people being more at risk.

Everyone suffers when road collisions occur, whether they are physically injured or not. But those in charge of vehicles that can cause the greatest harm in the event of a collision bear the greatest responsibility to take care and reduce the danger they pose to others. This principle applies most strongly to drivers of large goods and passenger vehicles, vans/minibuses, cars/taxis and motorcycles.

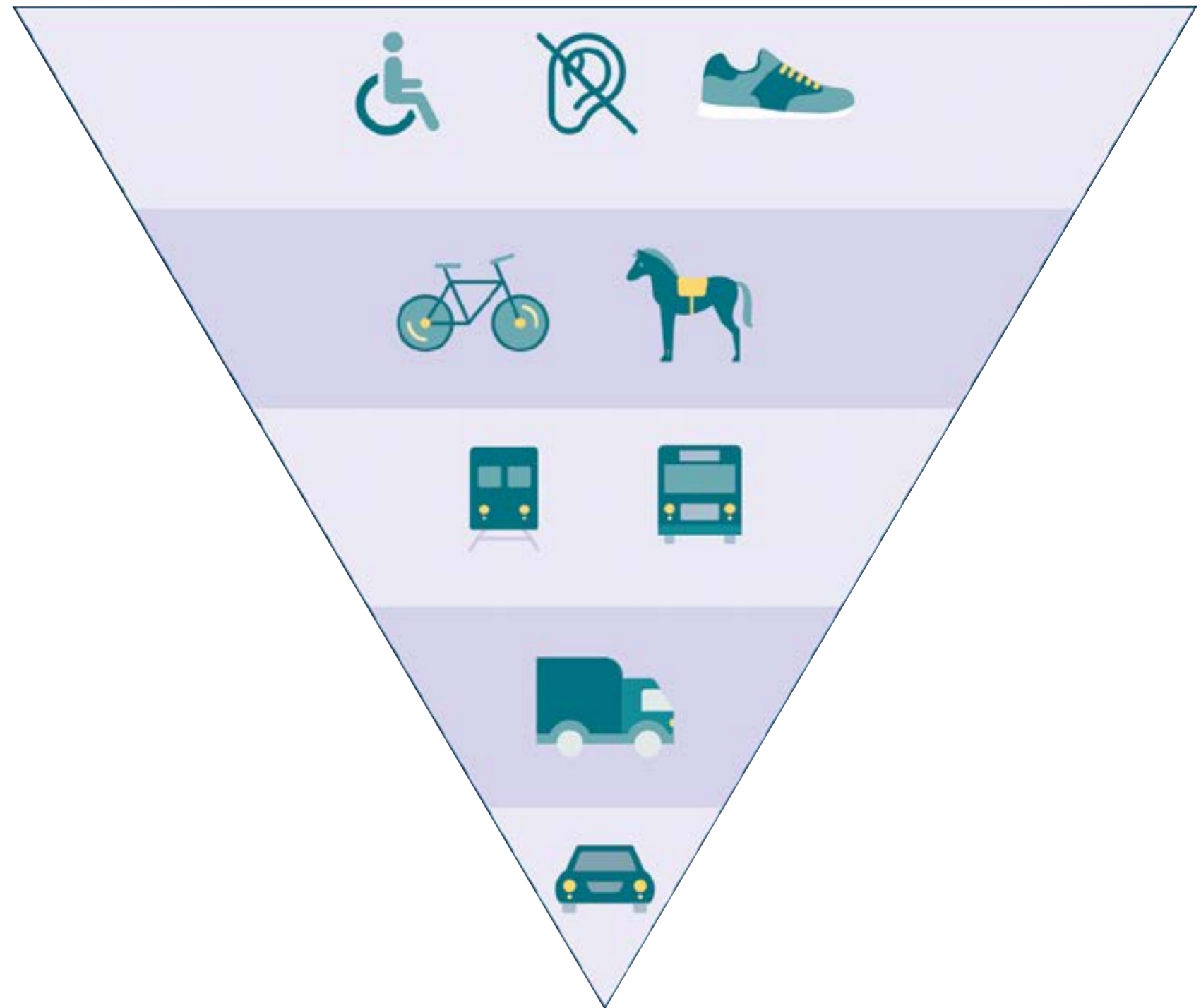
Cyclists, horse riders and drivers of horse drawn vehicles likewise have a responsibility to reduce danger to pedestrians.

This theory and design hierarchy should be applied to public realm and streetscape interventions where conflicts between different users might occur, designing the space first and foremost to protect the most vulnerable.

Hampshire County Council's Walking & Cycling Principles

Together with movements in national policy and guidance Hampshire County Council has developed new draft principles for walking and cycling as part of the development of a new Local Transport Plan. These new principles must be represented in public realm designs coming forward in Andover and have been designed to:

- enable more people to walk, cycle or use public transport in scale with our Climate Emergency;
- deliver better environments to match our 2050 Vision, both in towns and in the countryside;
- deliver better transport for all;
- play our part in addressing the factors that contribute to public health including social disparities;
- reduce social inequalities and exclusion by improving the ability for everyone to access destinations including work, education, visiting friends and family, shopping, and leisure, without reliance on private cars.



Road User Utility Framework / Hampshire County Council Local Transport Plan 4

Introduction

02

How to use

This guide should be viewed in conjunction with the 2020 Town Centre Masterplan, as well as latest policy and supporting guidance from the County Council.

This guide is not intended to replace the process of designing the public realm with local stakeholders, the public, and residents. It should be viewed as a best practice document reflecting the level of ambition the council and local people have for the public realm, which in turn should be reflected in any designs for the public realm that emerge.

This guide establishes key principles for the public realm - including green spaces, public spaces and streets - and makes clear minimum standards which should be viewed as the Andover Aesthetic.

A changing climate

Hampshire County Council declared a Climate Emergency in June 2019. The Hampshire 2050 Commission of Inquiry recognised our changing climate as the biggest long-term issue facing Hampshire. Action on climate change needs to be embedded into everything we do - the way we make decisions, deliver policy, and design the public realm to shape a healthy and prosperous future in Hampshire.

Investment in the public realm is a critical component in our collective fight against Climate Change, and as such every design decision must consider the impact it will have on this fight, and significant weight should be given to choices that have a long-term benefit on carbon reduction, sustainable use of resources and biodiversity net gain.

Greening the public realm and inviting a diverse mix of species back into our urban areas; boldly prioritising active and sustainable modes of travel; deploying innovation in our drainage systems to manage all surface water on site in natural ways; creating a town centre that is safe and inviting for children, adults the elderly, women and people from all backgrounds and beliefs; rejecting the priority given to moving through the town centre in favour of inviting people to stay; and even the materials we choose for our public realm and how they've delivered to site have a profound impact on how successful Andover will be in the future.

As such, all public realm schemes coming forward in Andover must positively affect these areas and better prepare the town for a changing future.



Town Centre Masterplan / 2020

Best practice policy & guidance

Andover Town Council has a number of policies and guidance documents which must be considered before designing the public realm, including:

- The Draft Local Plan 2040;
 - The Andover Town Access Plan SPD;
 - The Cycle Strategy + Network SPD;
 - The Green Infrastructure Strategy; and
 - The Public Art Strategy.
- Andover Conversation Area Appraisal and Management Plan

In addition to this there exists a wealth of cutting edge best practice from around the UK and globally, as well as Technical guidance notes by Hampshire County Council. For the town to capitalise on the most exciting moment in Andover's history, it must position itself against this global best practice and align itself with its ambitions.

A selection of such guidance is highlighted below, and these should be read in conjunction with this document to set the level of ambition for public realm projects, and to design with quality at every step.



LTN 1/20



Gear Change



Manual for Streets



Ciria SuDS Manual



Trees in Hard Landscape



Streets for a Healthy Life



Getting Home Safely



Designing Streets for Kids



Computer Says Road

Design process

03

Design process

Governance

A Guide such as this will inevitably be of limited practical value if adherence to its contents is left up to those responsible for individual public realm capital or maintenance projects. Consistency of application is vital - from principles to the details of techniques and materials - if Andover's streets and spaces are to reach their full potential in transforming the town for all.

Accordingly, all public realm schemes in Andover must be delivered according to a clear, common, and well-understood process. It is proposed that this process be overseen by a Public Realm Design Review Board comprised of senior officers from Regeneration; Engineering; Urban Design; Planning; Landscape Design; Active Travel; Surface Water Management; Maintenance; Safety + Security; and Lighting.

Site analysis

Start by analysing and documenting the physical, social, and environmental context of the project site.

Consider multiple scales of the space or street to identify how it functions as a part of its immediate surroundings and within larger network connections.

Document existing infrastructure that will affect the space or street design. Observe who uses the space or street and at what time, and note the various activities. Analyse who lives and works in the area, while observing local customs, cultures, and political influences.

Check legal and guiding documents in the town and region for specific goals or agendas that relate to the project site. Once the existing conditions are thoroughly observed and documented, identify and prioritise primary challenges and needs to discuss with the project stakeholders.

Engage all stakeholders

Identify and invite all stakeholders to engage in the process of shaping their space or streets to ensure long-term success and stewardship. Citizens are more likely to be supportive of a project if they have been a part of the process of identifying the constraints and opportunities that inform the design. Work with transportation, planning, development, public health, environmental groups, access groups, disability representatives and identify how space or street projects align with shared goals and priorities.

Align project proposals with existing and upcoming utilities and service projects in the area and take this opportunity to propose the introduction of progressive technology or retrofitting of vital utilities.

Nobody knows a local space or street better than the people who use it every day, so welcome input from local people to make a project more applicable to a specific context. Discuss and clarify local priorities for public health and safety, quality of life, environmental sustainability, and local economy. Make decisions together and keep all parties involved throughout the process.

Vision & design brief

With a thorough understanding of the existing site conditions, various stakeholder interests, and project constraints, develop a vision for the space or street's look, feel, and function in the future as well as a Design Brief for how to take this forward.

Identify best-practice space or street design strategies and innovative examples that are most applicable to the local context. Use visual renderings, drawings, and metrics to show and explain what is possible, and test ideas with local stakeholders.

Ensure the project vision aligns with town-wide goals and community priorities for public health and safety, quality of life, and environmental and economic sustainability. Ensure the brief will deliver on the public realm vision and principles, and where possible, develop a few options that balance the project constraints and stakeholder interests through different designs, including communities in the decision-making process.

Planning & design

Guide the transformation of a project vision into reality through planning and design. Ensure the proposed project is intrinsically linked to larger public realm and mobility frameworks and comprehensive planning strategies that shape sustainable transportation, land use, and density. At the design development stage Public Realm Principles must be adhered to and demonstrated as part of a Public Realm Design Review Board Scheme Assessment.

Coordinate with relevant stakeholders to clarify budgets, timeliness, and project scope. Ensure budgets not only cover the construction costs, but also account for funds to cover ongoing maintenance and management of the project. Design facilities and elements to align with functional priorities and local placemaking goals. Identify quick and easy wins, consider testing/trialling designs on site through temporary solutions, and offer professional design reviews for further refinement. Ensure that local conditions, climate, ongoing maintenance, security, and implementation processes inform decisions about materials, design, long-term durability, and user behaviour.

Prepare & build

Consider how access will be managed during the construction period, including ensuring walking and cycling routes remain open and inclusive as a matter of priority. Ensure each part of the process is well-coordinated, that the selected materials and resources are available, and adequate finances are secured. Construct interim phases or trial projects if initial budgets are limited.

Clearly communicate each step of the process to appropriately skilled contractors. Consider adopting suitable local skills and materials for economic, environmental, and social benefits.

Maintain & manage

Increase the usable lifespan of spaces and streets by ensuring ongoing maintenance and management. It is always more cost-effective to use quality materials and proactively maintain a space or street rather than let chronic issues develop to the point of major disrepair.

Work with local businesses and people to provide regular maintenance and to programme pedestrian-priority spaces where appropriate.

Evaluate

Measure and communicate the impacts of a completed space or street project. Collect metrics before and after implementation to inform future design approaches, convey information to decision makers and community members, and assist in building political and community support for other projects. Encourage stakeholders to agree on the metrics to be collected early in the process, and use the results to benchmark the project against prior conditions, the design brief, other local space or streets projects, town-wide data, or other relevant projects.

Update policy

Use the outcome of the evaluation to update local policies and guidelines. Develop new policies to further support sustainable spaces and streets. Ensure local codes and practices are revisited every few years to test their relevance rather than base policies on outdated best practices.

Identify impediments and challenges to implementing contemporary approaches. Base policies on the most recent documents, relevant precedents, and research available. Base policy on the desired future conditions—not on projections of past trends.

Scales of intervention

In 2009, the Mayor of London published 'Better Streets - Practical Steps'. Amongst other things, this set out a rational 'staged approach' to the delivery of improvements on any given space or street. This approach is summarised in Urban Design London's 'Better Streets Delivered' documents (two volumes to date, published in 2013 and 2017) and covers all types of intervention from easy 'quick wins' to comprehensive transformation. Whilst being published by London based agencies, these documents represent UK best practice and must be followed when designing public realm in Andover.

The five stages of public realm improvement can be summarised as follows:

- Tidy up;
- De-clutter;
- Relocate or merge functions;
- Rethink traffic management options; and
- Recreate the street.

The over-arching idea behind interventions at these different scales is that some improvements can be delivered 'tomorrow' with other interventions following that add value to the previous work. It starts from the premise that it is not always necessary to completely redesign and reimagine a space in order to achieve worthwhile change.

Sometimes simple, cheap, light-touch measures are sometimes all that is needed to make a space or street appreciably better in terms of being more functional and attractive.

In other circumstances, these light-touch measures can be achieved as the easier first steps towards more far-reaching change, which may take some time in going through the process of engagement, design and obtaining funding before being deliverable.

In still other situations, where the need is greatest and substantial funding can be secured, comprehensive change may itself be the first step.

For the purposes of this Guide, the five stages set out in the Better Streets approach have been somewhat modified and combined into the following three:

- Changes to the street furniture;
- Minor changes to the space or street; and
- Major changes to the space or street.

De-Clutter / Co-locating uses saves space



Changes to street furniture

There is so much in our spaces and streets that shouldn't be there in the first place; or that has a theoretical function that it is not fulfilling; or which is fulfilling a useful function but could be better-placed.

For the first of these groups, remedial action requires little more than the allocation of modest resources to clean, tidy, remove or enforce. For the second - such as the removal of so-called 'guardrails' that are serving no practical safety purpose - the justification for removal will need to be properly investigated and documented. For the third group, signs and other useful street kit can often be moved out of the main walking desire line or combined on one post or column, rather than two or three.

Furniture Zone / Aligning furniture to create width



Minor changes

This level of intervention involves some form of engineering works to the space or street itself, not just dealing with what's in the space or street. These works might be comparatively modest, but this does not make them unimportant. Modifying or introducing tactile paving provision so that it complies with guidance can be very helpful for blind or partially-sighted people; providing dropped kerbs at crossings where there are none is of real value to wheelchair users and others who can't negotiate steps; and implementing raised crossing over side streets, including in the form of continuous footways, can greatly increase the practical priority to walking while having no significant impact on traffic capacity.

Moving up the scale, this level also includes widening footways; adding cycle tracks; retrofitting raingardens, planting and trees; adding seating and play facilities; modifying junction arrangements, providing new crossings, as well as introducing features like footway-level parking or loading 'pads' that act as footway when not occupied by vehicles.

Though more costly or more extensive in scope, schemes like the replacement of subways with surface-level crossings or the reduction of traffic flows and speeds through area traffic management can also be considered 'minor' changes, although at the upper end of this category.

Major changes

The complete remodelling of a street or public space, though resource-hungry in many ways, not just financially, will typically be necessary and justifiable for busier, higher-profile spaces that need to perform different functions from those they are currently laid out to accommodate, or that have not been modified in line with current and foreseeable policy priorities.

Making the case for investment

In order to make informed and sound economic decisions relating to public realm, the health impacts, safety and security benefits, and delays caused need to be assessed.

This section shows how to derive costs for each of these three elements and how to weigh them against each other to form a balanced view. This process is helpful on all schemes in the public realm, but is essential for *Major Change* project business cases. Everyone who works in the public realm should be aware of the impact on these three areas for any change they make.

Health benefits are usually monetised using the Health Economic Assessment Tool (HEAT) and Transport for London has produced a document entitled, 'Guide to the Healthy Streets Indicators' on using this approach on public realm schemes which should be followed. It should be noted that benefits can only be derived or forecasted if pedestrian and cycling numbers are monitored accurately (see the flow chart right).

Safety benefits can be derived and forecasted in many ways through collision analysis. The definitive text in this area is Practical Road Safety Auditing published by the ICE.

To calculate the cost of congestion the Department for Transport has issued 'Transport Analysis Guidance' on the calculation of value of time. In practice an average number is often used in assessments of £18 per hour per vehicle.

So for example if a street has 10,000 motor vehicles a day and a proposed scheme brings 20 seconds of delay. Then the annual cost of the scheme is $20[\text{delay}] \times (18/3600)[\text{Value of time converted to seconds}] \times 10,000[\text{daily volume}] \times 340 [\text{Annualisation factor}] = \text{£}340,000$.

When using these three methods it is easy to see why most towns and cities put the cost of congestion in the billions and tailor solutions to reduce it, as congestion seems to have a large economic impact. However, just because the calculations are simple does not mean congestion is more important than safety and health.

A balance needs to be found and health benefits are often on par if not greater than congestion disbenefits for most transformation schemes improving the public realm. The graph to the right shows one clear way of presenting evidence to senior decision makers for approval.

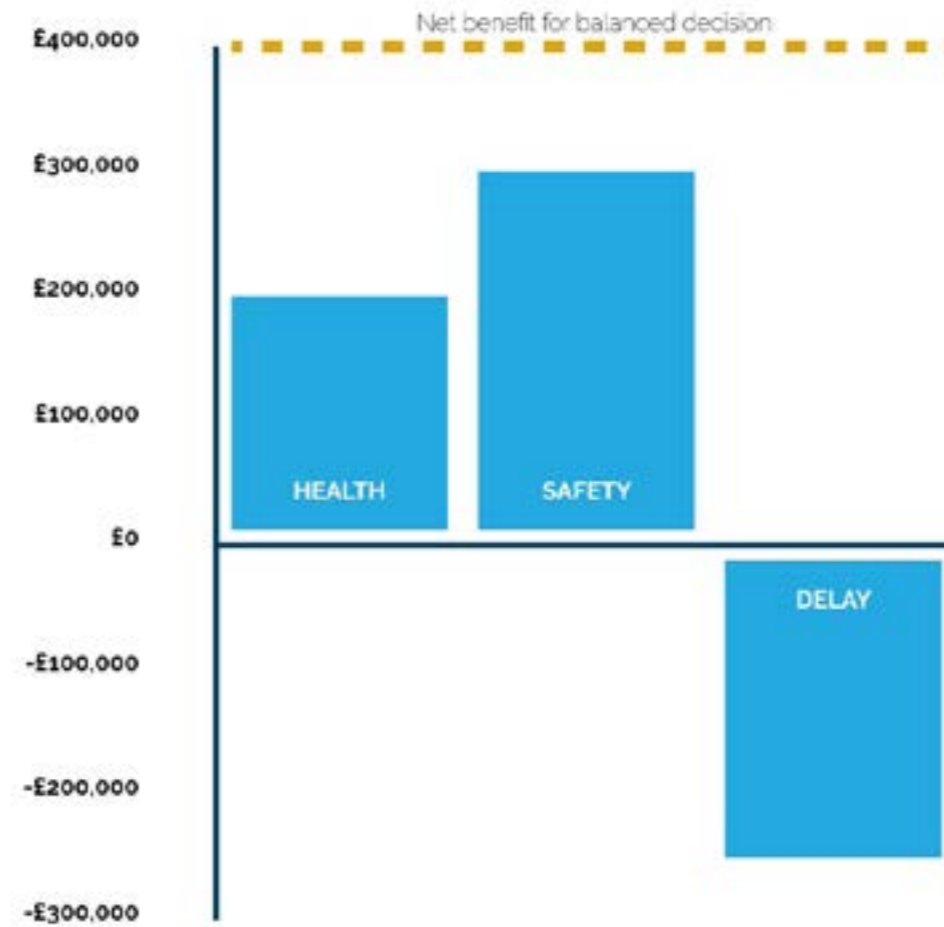
Schemes are often approved based on their first year rate of return which is a simpler form of benefit costs ratio. A first year rate of return is determined by dividing the benefits by the costs and expressing this as a percentage.

Some schemes have a small cost but generate millions of pounds worth of annual health benefits, sometimes in places where collisions and congestion are not an issue. In these circumstances traditional analysis would mean the scheme would not be justifiable but by calculating the health benefits, schemes that support people's quality of life are shown to have a very high first year rate of return. Transformational schemes which improve the public realm make sound economic sense.

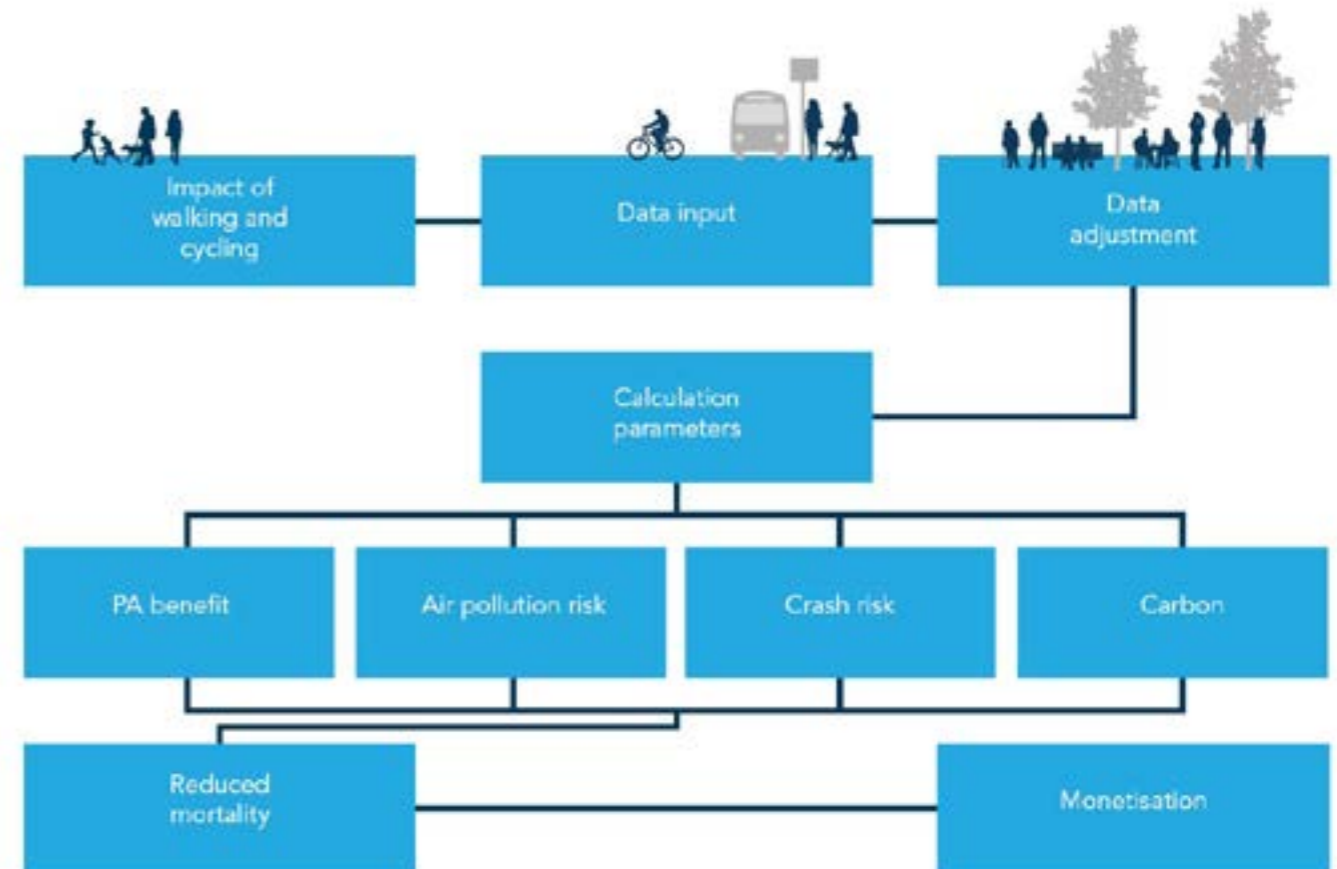
References

Guide to the Healthy Streets Indicators, Transport for London, 2017, <http://content.tfl.gov.uk/guide-to-the-healthy-streets-indicators.pdf>

Transport Analysis Guidance: WebTAG, Department of Transport, 2017, <https://www.gov.uk/guidance/transport-analysis-guidance-webtag>



Weighing costs & benefits to find a balance



Step by step HEAT input flowchart

Public realm & streetscape

04

Sustainable urban Drainage Systems (SuDS)

GENERAL PRINCIPLES

When flooding occurs in urban areas, it is often linked to surface water flows exceeding the capacity of the drainage system. This can include human made systems such as the pipes beneath the ground or natural watercourses that collect rain water that runs off from our roofs, roads and other hard surfaces. The capacity of our drainage system is being put under more pressure, and the consequence of flood events is becoming more significant due to several factors, including urbanisation and climate change.

The impact of climate change and the consequence of flooding is more significant around our towns and cities for a number of reasons:

- The air can be warmer, due to the heat that we generate during our day-to-day activities such as traveling around, manufacturing goods or heating our homes. This is referred to as the Urban Heat Island effect and results in more frequent higher intensity storms.
- Paving, or building, over areas which previously absorbed water means that rainfall runs off the surfaces much more quickly and enters the drainage system over a much shorter period of time. These human-made surfaces are also often dark in colour and absorb heat, again adding to the Urban Heat Island effect.
- The presence of people living or working in an area increases the potential for harm or damage to property as a result of flooding.

SuDS are generally made up of a sequence of components that manage the quantity and quality of water which runs off hard and human-made surfaces. Ideally the water should be managed from its source (the point where the rain lands on the surface) to the point at which it is discharged to the receiving watercourse or sewer. Managing the water from source to receptor will normally require a number of SuDS components to work in sequence to collect, store, convey and treat the water; CIRIA calls this sequence the 'SuDS management train' and this terminology is widely used in the water management industry.

For any Minor or Major change to the public realm, as described in Section 3, SuDS must be included to better manage surface water in the town as well as provide much needed amenity and biodiversity.

For detailed advice on how to design SuDS components please follow the advice in The SuDS Manual, Ciria C753, 2015.

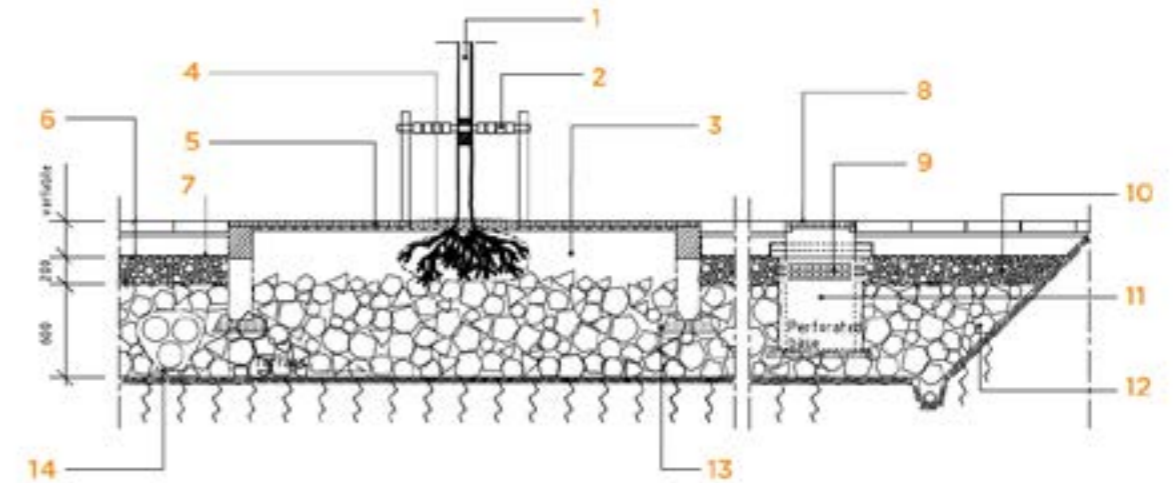
In addition to delivering improved flood management, SuDS systems need to increase amenity and biodiversity.

AMENITY

Quality of life is directly affected by the look and feel of the public realm. In Andover SuDS must be used to enhance the public realm as part of an integrated approach. SuDS should be delivered to enhance amenity by:

- Contributing to integrated green infrastructure
- Enhancing character/sense of place
- Improving the quality of space
- Providing a backdrop to existing buildings and public realm
- Supporting biodiversity
- Reducing air temperature
- Improving air quality
- Reconnecting people with the natural water cycle
- Supporting community involvement and knowledge-sharing through education, engagement and participation

Marylebone raingardens / Maximising valuable space



1. New tree size 20-25 cm
2. Tying in tree support
3. Planting soil.
4. Crushed rock at grid 4-8mm thick c. 50 mm
5. Surface grid 1400 x 2800 mm
6. Surfacing superstructure
7. Geotextile
8. Stormwater cover, dished for laying by gutter
9. Air hole placed at level of aerated bearing layer
10. Aerated bearing layer
11. Air and water supply
12. Crushed rock structural soil with planting soil
13. Fertiliser at each structural soil level
14. Pipes in structural soil protected with geotextile and gravel surround.

Section of a skeleton soil installation for new planting / Trees in hard landscape



BIODIVERSITY

Urbanisation and intensification across the town inevitably disrupts natural habitats, catchments and river ecosystems. SuDS provide an opportunity to incorporate and create a range of habitats that benefit urban wildlife. SuDS must be delivered to benefit biodiversity by:

- Creating habitats, for example with street trees, planted areas and on green roofs
- Intercepting rainwater where it falls, creating micro-habitats throughout the city
- Connecting habitats, helping fauna and flora to move through the city, for example along linear infrastructure such as road, rail, canal and river corridors
- Improving air and water quality, allowing wildlife to thrive.

Opportunities to retrofit SuDS components into existing public spaces and streets should be investigated regularly, with 'baggy' spaces - spaces which are not delivering the value they need to be - being retrofitted. A simple saw-cut, excavate, and create methodology as shown above in plan and section provides a cost effective approach to delivering raingardens and SuDS components.

KEY TECHNICAL GUIDANCE

When designing in the public realm, key guidance below should be consulted for best practice tree pit, rooting zone, SuDS design and tree selection.

- The SuDS Manual, CIRIA
- SuDS in London - A Guide, 2016
- Designing Rain Gardens: A Practical Guide (2018), Urban Design London

Trees in hard landscape

GENERAL CONSIDERATIONS

The tree planting strategy on any project should be developed with the tree officer in the first instance, with other relevant officers (planning, conservation, street cleansing, and maintenance etc.) becoming involved when necessary.

Trees should be a key feature of almost all streetscapes and public spaces, within both the public and private realms, regardless of the typology and character of the place, as their benefits are numerous and well documented.

It will probably be impossible to plant 'too many' trees as constraints placed on their satisfactory location will necessarily prevent this from happening. Projects, therefore, should seek to establish as 'many trees as possible' appropriate to the space's size, scale, character, functional requirements, constraints and design intent.

Large trees are generally preferable to small trees (their beneficial effects are generally amplified by size) but choice of tree type will obviously be influenced by the site's programmatic needs, constraints, soil conditions, micro climate, establishment and maintenance regimes.

In most instances, planting mixes should be dominated by native and/or naturalised deciduous species as these best reflect the climatic climax vegetation of the Test Valley and provide visual interest all year round. Non-native, ornamental and evergreen species will also be appropriate in many situations.

To maintain inter-visibility which enables 'natural surveillance' and sight-lines to/from vehicles, trees should generally be planted with a minimum clear stem of 3m, increasing where necessary to avoid taller vehicles.

Townscape Character

This should have an influence on the types, size, and number of trees planted, particularly if they fall within a conservation area or are close to listed buildings. Planting strategies should be developed in these instances with the conservation officer and possibly local interest groups.

SPECIES

Scale, size + appropriateness

The scale of a public space is not simply a function of its size, and trees should be planted at a size, type, and spacing appropriate to their townscape context.

Form + Habit

Often trees with an upright, columnar or fastigate habit will be most useful for planting in streets adjacent to carriageways to avoid conflicts with vehicles, although larger trees with broad and spreading (and possibly weeping) habits are often also suitable - as the London Plane and Norway Maple demonstrate.

Mix

Species should generally be mixed to increase biodiversity and reduce the vulnerability of a single species to pest and disease attack, unless the design intent requires a single species. Mixes of between 3 - 5 species should be sufficient, although on bigger projects/sites more should be considered.

Proximity to buildings

Trees should generally not be planted within 3m of buildings unless they are very small with a compact columnar or fastigate habit, and known not to cause problems associated with shrinkable soils.

Proximity to signals

Trees must be placed to avoid blocking the sightline to a signal head, both at the time of planting and through to maturity. Generally, trees should not be planted with the nearest part of the trunk at maturity within 450mm from the face of the road kerb. To avoid obscuring a signal head a sufficient clear stem must be specified and maintained.

Light + shade

Trees are important in providing shade from the sun and shelter from the wind and rain. Some species of trees can be useful in deflecting light into shaded parts of a site. Care should be taken however, in the placement of trees to avoid blocking light into adjacent buildings.

Choosing Species

Species should be chosen in consultation with the Council tree officer / arborist. It is inevitable that some non-native or ornamental trees will be planted, but native and naturalised species should be given preference as these are most likely to have the greatest biodiversity value.

Nursery stock sizes

In the public realm, clear stemmed trees smaller than Extra Heavy Standard (EHS) 18-20cm girth will be vulnerable to vandalism, particularly snapping of the leader. To try and prevent this, semi-mature trees starting at 20-25cm girth are preferred and should be the minimum size planted where it is anticipated that vandalism might be an issue.

Approximate root ball sizes

As a minimum trees in street require a growing space of 20 cubic metres, however as a rough guide the following table can be used for more information.

Girth (cm)	Rootball Diameter x Depth (cm)	Container Diameter x Depth (cm)
18-20	60 x 60	70 x 60
20-25	70 x 60	80 x 60
30-35	90 x 60	100 x 60
35-40	100 x 60	110 x 60
40-45	120 x 70	135 x 70
45-50	130 x 70	145 x 70
90-100	225 x 100	250 x 100

The rooting zone is an area adjacent to the tree pit into which the tree roots can spread as the tree develops. Ideally it should surround the tree equally on all sides to the anticipated edge of the canopy at maturity. Whilst underground realities will make this difficult, the size should be maximised. Rooting zones can also be shared by adjacent trees and must be linked together if possible.

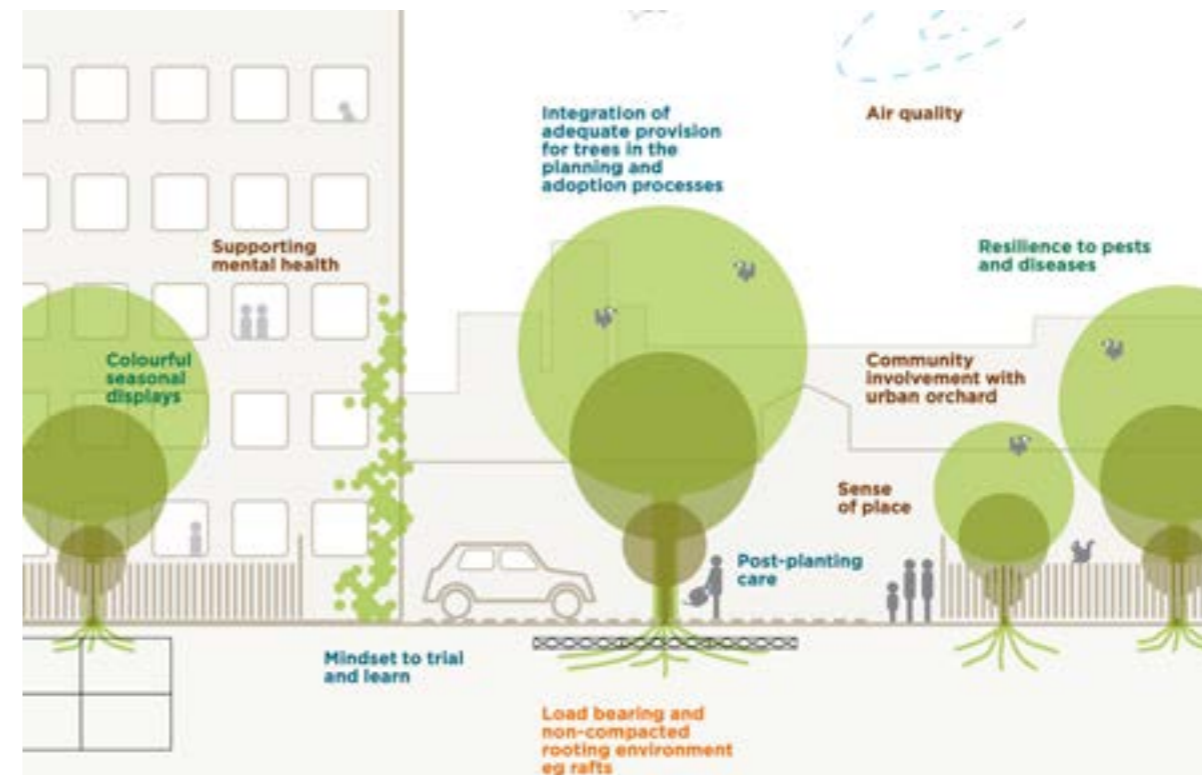
Generally the root zone should extend as far as possible to the anticipated canopy edge of the mature tree at a depth of between 600 and 900mm below the pavement construction (i.e. up to a maximum of 1.2m total depth to account for pavement construction and drainage layer) to approximate natural soil profiles.

This establishes a target soil volume and should never be regarded as an absolute. If the target volume can not be achieved the maximum root zone that the constraints will allow should still be installed and the species adjusted accordingly.

It is still absolutely preferable to plant a small species tree, at a small size, and in a pit with no adjacent rooting zone, than not to plant a tree at all.

Structural Support

Due to the constrained nature of urban sites, root zones will almost always be located under hard paved areas and as such will require some form of structural support. The two preferred methods are using a proprietary crate system (e.g. StrataCell) or a structural soil (e.g. the Stockholm Method). Either of these two systems can be adjusted to become SuDS features.



Junctions & crossovers

Junction design is about managing conflict and the key consideration is how to minimise the risks involved in these conflicts. Design responses will vary from encouraging and promoting negotiation in integrated street contexts to full separation in both time and space on strong movement corridors. Junctions should be designed in order to both make people feel safe and actually be safe. Conflicting movements should therefore be obvious but not daunting. This is especially important to vulnerable road users such as pedestrians and cyclists.

Priority

Priority junctions work by assigning priority to one movement over another. These movements are those made by vehicles but efforts can be made to assign visual priority to pedestrians in order to create a pleasant walking environment, reducing delay and reducing the potential for collisions. The choice to assign visual priority should be based on street context and the volume of traffic turning into and out of the junction.

The basic condition at all side streets in Andover should be for dropped kerbs to be provided, as without this, wheelchairs cannot cross the side street, with junction radii as tight as possible to promote slower vehicle turning speeds. Junctions can also be raised to further slow traffic and to provide an at level crossing. The strongest visual priority is assigned by continuing the footway at grade across the side street and effectively treating the side street as a crossover. In this instance the onus - and requirement following the updated Highway Code - is on turning vehicles to look out for pedestrians and yield to them. Zebra crossings can also be used across side streets in order to apply legal priority to the crossing pedestrian stream, and emerging guidance on side road zebra crossings should be followed in due course.

Quadrant detailing / Glasgow



Corner Radii

Most side streets on residential streets have been tracked so that a refuse truck can turn into and out of a side street at 30mph within the lane, but this is not appropriate. Tightening the geometry so that turning vehicles have to use space in the opposing lane on quiet streets must be explored to create safer residential streets. This will also lead to shorter crossing distances for pedestrians and slower turning traffic. Streets should be designed with the movement of pedestrians prioritised and the needs of other modes accommodated. Designers should therefore start with the tightest radii that they feel can be accommodated and not the most forgiving for motor traffic.

Forward Visibility

Reducing forward visibility can have a traffic calming effect in the right street context and so shorter stopping distances can be appropriate. Distances of 2m as opposed to 2.4m standard minimums can be used in low flow situations.

MATERIALS

Materials which contrast with the carriageway can help give visual priority to pedestrians. If the choice is made to match the material with the surrounding footway then consideration of the needs of visually impaired users should be given.

Lining

Lining can give clear instruction to motor traffic but if over used can give an appearance of motor traffic dominance in the public realm. Minimal line markings must be used where possible. Visual priority for pedestrians should take precedence over clear priority for motor vehicles.

Lining a Street / Minimal lining for pedestrian priority



Good side street detailing / Sidcup

Priority / Priority crossings of footways at side roads



Crossovers

Footway crossovers provide an entry point for motor vehicles into side streets, lanes, or private land. They should be considered as an intrusion by vehicles into pedestrian space as they have a detrimental impact on the streetscape when they disrupt the continuity and comfort of the footway.

Designers should consider the impact of crossovers on pedestrian experience and ensure that they maintain ease of passage for wheelchair users.

Consideration must be given to continuing footway and cycleway treatments across the mouth of the side road - in accordance with LTN 1/20 - to convey further necessary priority for pedestrians and cyclists. Turning vehicles will need to negotiate a change in level, and they must enter and pass through a zone that looks and feels different, and where there is a strong indication they should cede priority to other users in line with the Highway Code.

A short dropped kerb section is sometimes provided to enable more comfortable access for cyclists and others. An alternative method employed in Copenhagen is to run a stepped cycle track with a continuous treatment past a side road and continue the footway through, and this must be explored for cycle routes.

Design

Footway crossovers take one of two forms, light crossovers and heavy crossovers. Light crossovers are used to access something with a low level use, such as a lane, suitably quiet side street, or property.

Light crossovers should provide restricted access to cars or light vehicles. They should provide a continuous footway surface for the crossover with a dropped kerb.

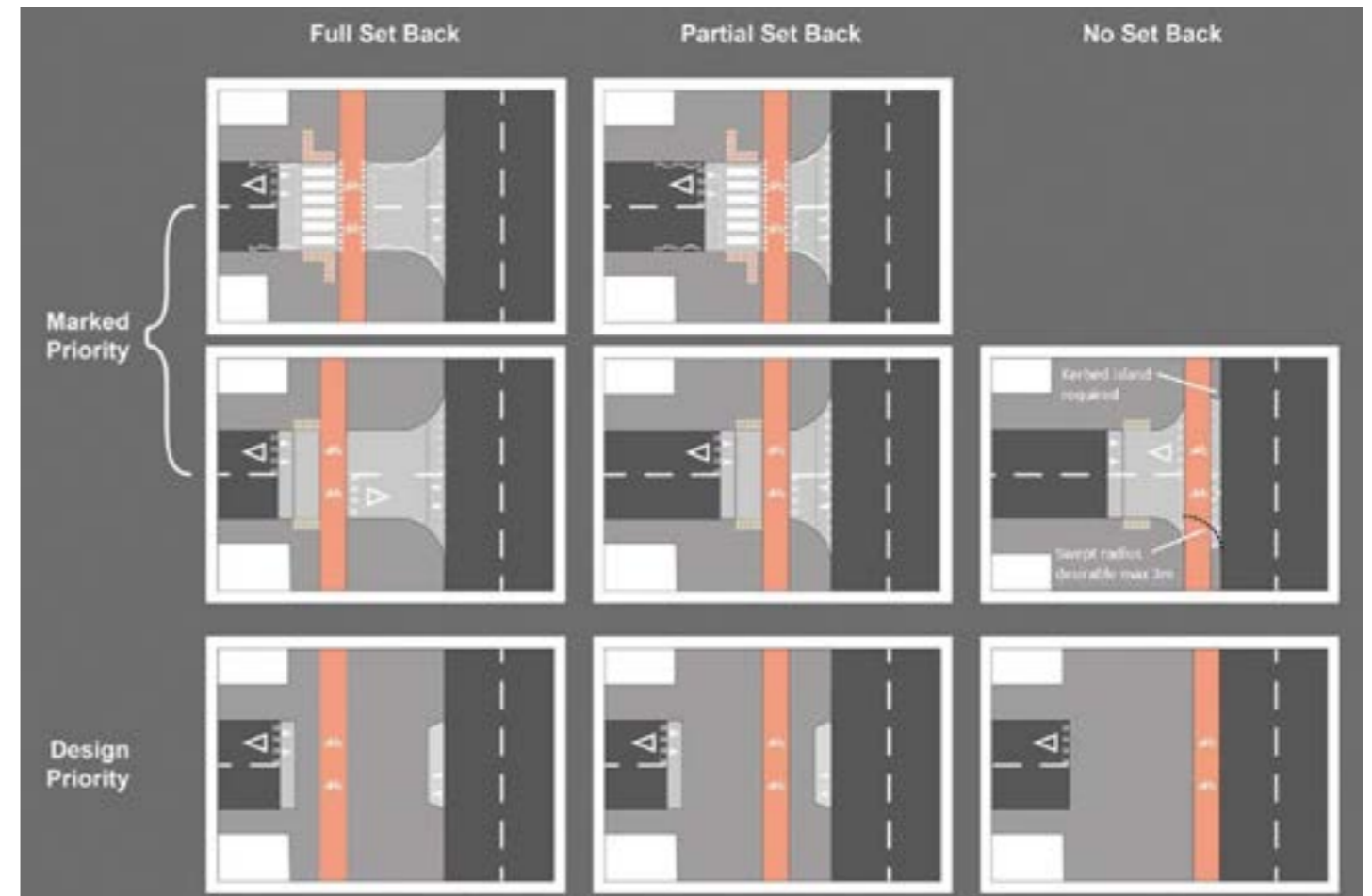
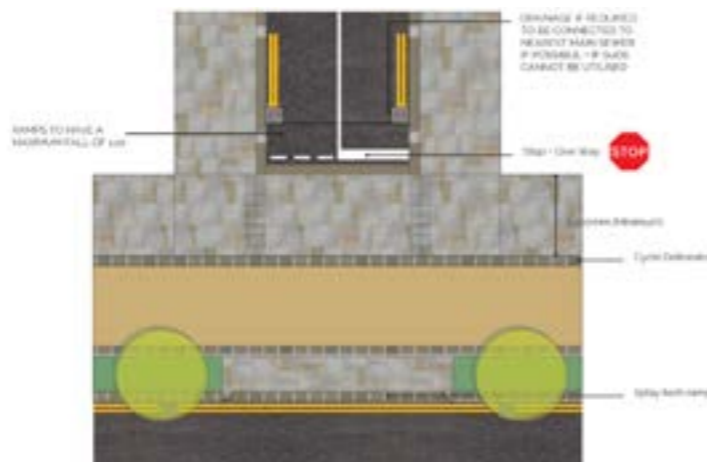
Heavy crossovers are used by heavy goods vehicles (HGVs) for deliveries and servicing requirements. A continuous footway surface is preferable which should be suitably robust. This may require using the same material but in smaller or deeper set paving units.

Designers may delineate the crossover by using matching paving but in a smaller element. The delineation should correspond to adjacent building lines rather than the upcoming carriageway so as not to delineate the carriageway through the junction.

Good practice

- Tactile paving either side of the crossover is not required
- Sightlines should be kept clear for motorists to see pedestrians on the footway and give way accordingly. Access gates to private land must not open on to the public highway as they reduce sightlines and create a physical obstruction
- Clear stem trees do not block sightlines
- Surfacing should match that of the surrounding footway for light crossovers
- Generally, the ramp to the dropped kerb should not extend across the full width of the footway, but only sufficient to accommodate a suitable gradient of 1:12 and the transition kerbs. Where the footway is too narrow for such an approach, the whole width of the footway should be partially lowered for the crossover, such that a level area of footway is achieved with a constant gradient from back of footway to carriageway level
- When an existing crossover becomes redundant through changes in access arrangements to the private land, the authority will remove the crossover and reinstate the footway and kerb alignment without charge to the landowner
- The construction of crossovers should accommodate the magnitude of loading when vehicles cross the footway. The width of the dropped kerb and crossover should enable vehicles to pass without mounting the surrounding footway.
- Surface runoff from the carriageway should not pool at the crossover or enter private land.
- Footway crossovers should not be located within bus stop cages, car parking or loading bays. Crossovers are to be constructed in accordance with section 184 of the Highways Act 1980.

Footway crossover / Standard best practice detail based on LTN 1/20



LTN 1/20 Department for Transport Guidance / Design details for side roads & crossovers

Continuous Crossing / Copenhagen



Design Standards

Typical width
2,400 - 3,000mm

Kerb upstand height at dropped kerb
25mm

Minimum distance for crossover edge from street furniture
800mm

Gradient to dropped kerb
Maximum 1:12

Calming streets

The character of the street has a measurable effect on traffic speeds: the street width, lane widths, the amount of greenery, the sense of enclosure given by the buildings, the levels of activity and the uses that the street supports. If motorists perceive that they have unbridled priority and that the street has been designed primarily for through-traffic, then they will drive accordingly. Minimising speed differentials between motorised vehicles and vulnerable users, including cyclists, has significant safety benefits and must be explored.

The 'whole street' approach advocated in 'Improving the health of Londoners (2014)' should be referred to when considering the design of a street. This emphasises the roles of streets as places to dwell and relax, and places where there are things to see and do.

All traffic calming schemes should be designed to minimise acceleration and deceleration at each feature and encourage a consistent speed through the scheme. Acceleration and deceleration between features can result in slight local increases in noise and small local reductions in air quality. Careful design and ensuring calming features are suitably spaced will help encourage smooth driving, thus minimising such effects. Reducing speeds in residential areas, while making sure that it does not result in an increase in vehicle emissions, will reduce road danger, injuries and air pollution (NICE Guideline NG70).

STREET USE & ACTIVITY

Where a street features more active uses, this can have a calming effect on traffic in the carriageway, breaking down perceptions of the space as dominated by the highway. This is related to land use – the opening hours and activities of shops and other businesses have an impact on the way the street environment is used. But it is also about encouraging people to stay in a space as well as move through it. This could be achieved in a variety of ways, including provision of places to sit, planting to offer shade and shelter or even special treatments, such as public art, water features and space for temporary stalls, and all should be explored in the design of streets and adjacent public spaces.

NARROWING & FORWARD VISIBILITY

Manual for Streets explains the relationship between visibility, carriageway width and vehicle speeds, demonstrating that limiting forward visibility and reducing carriageway widths have a speed reducing effect. Reducing carriageway widths will also allow for greater footway space to be provided, which helps to promote active uses, or for planting and use of sustainable urban drainage systems, which are a positive contribution to making people friendly places.

The advantages of speed reduction through narrowing need to be balanced against increasing the risk to cyclists riding with general traffic. Avoiding pinch-points and lane widths in the range 3.2 to 4.0 metres is essential – for further information follow advice in section 4.4 of the London Cycling Design Standards.

Textured channel detail / Romsey



MEDIAN & EDGE STRIPS

Narrowing may be visual instead of physical, using different surface materials to suggest a narrow carriageway where the usable space is actually wider. This can be a good solution where temporary uses need to be accommodated and can be applied to median strips, provided those medians can be over-run by cyclists. Use of a strip with a domed or flush profile can help achieve this, rather than the conventional median strip with kerbed upstand. A flush median strip can be a good solution to facilitate overtaking of buses in stops or to maintain emergency vehicle access.

Research described in the TRL report 'Psychological traffic calming (2005)' found that use of edge markings, such as hatching, to narrow the carriageway width had a speed reducing effect on motorists. That effect was greater, however, if the markings were substituted for surfaces that appeared unsuitable for driving on, such as setts or material changes with texture. It should be noted that central hatching does not appear to have an equivalent speed reducing effect, according to the DfT's Traffic Advisory Leaflet 01/00, Traffic calming in villages on major roads (2000), and as such central medians should be used to benefit informal crossing.

Edge strips / New Bond Street, London



Median & edge strips / Altrincham



Area-wide traffic management – on links				– at junctions		
Filtered permeability	Speed limits	Speed cameras	Emphasise place over movement	Change in priority	Signalise	
Calming through street design – on links				– at junctions		
Formal / informal crossings	Streetcape enhancements	Rebalance priorities	Objects, eg parking	Street trees/ planting	Street art	Change in materials/colour
Centre line removal	Apparent lane narrowing	Median strip	Modal filter with cycle bypass	Lane deflection / chicane	Tighten geometry	Implied roundabout
Physical traffic calming – on links				– at junctions		
Sinusoidal speed humps	Raised table (sinusoidal profile)	Cushions (cycle-friendly gaps)	Footway build-outs	Entry treatment	Raised table (sinusoidal)	

Traffic calming techniques to be explored / London Cycling Design Standards

Servicing, Parking, & Loading

If designed with marked-out bays and build-outs to create a consistent line in the carriageway, parking and loading facilities can be used as a technique for narrowing. Moving the bays out to create protected space for cycling between bays and footway can be a good way of providing a high level of service for cycling – see section 4.2 of the London Cycling Design Standards for more details. Alternating bays of echelon parking can also be used to create horizontal deflection, and therefore slowing, in the street environment and all should be explored.

Loading bays are indicated by a broken white line and optional 'LOADING ONLY' legend. Time limits and hours of operation are shown on associated upright signs. Control over the hours of operation can allow for a single bay to be used for loading for part of the day and short-term parking at other times, and this flexible use must be promoted for the town centre.

The choice of parking or loading facility depends on available carriageway width and the likely impact on the general traffic flow, as well as on the functional requirements of loading and parking and on cycling level of service. It is recommended that parking bays for cars, taxis and motorcycles should be a minimum of 2.0 metres wide and loading bays 2.4 metres.

Further technical information on space requirements is summarised neatly in Transport for London's Kerbside Loading Guidance (2009).

TOWN CENTRE DESIGN

All loadings bays in town centre locations where there are high levels of pedestrian footfall should be created as raised - footway level - pads so that they are effective footway space when not in use.

Parking spaces in the town centre should also be detailed like this if restrictions mean that they are unoccupied in the evening, so that the space can be allocated for cafe seating or simply pedestrian space.



Loading pads act as footway space when not in use / New Bond Street, London

Using parking to create safe cycle track / London



Road marking, signs, & traffic signals

ROAD MARKINGS

Road markings should be used to help road users better understand their intended operation. That is to say, first and foremost the design of a street should, as far as is possible, be self-explanatory rendering road markings obsolete.

Road markings should then be used sparingly to reinforce the desired road user behaviour. An over-reliance on road markings can result in higher vehicle speeds and lower levels of road user engagement, potentially having a negative impact on road safety. For example, a study by Transport for London that evaluated the effect of centreline removal on three A-roads found that their removal resulted in a statistically significant reduction in vehicle speeds.

Where there are options within The Traffic Signs Regulations and General Directions 2016, the narrowest line widths, the shortest kerb mark lengths and the smallest wording possible should be used. For example, by default double yellow line markings must be 50mm wide and primrose yellow.

The need for road markings can be further reduced through the application of blanket restrictions, such as Restricted Parking Zones. For more information please follow instructions from 'Streets for All: Advice for Highway and Public Realm Works in Historic Places'.

TRAFFIC SIGNALS

Traffic signal design is highly prescribed with little room for design interpretation, but efforts should be made to reduce the number of signal poles through the simplification of staging arrangements.

Signals must also be combined with lighting columns on crossings, and wherever else appropriate.

Backing Boards for traffic signals increase the highway aesthetic of the street and increase visual clutter. Efforts should be made to minimise the use of backing boards within the town, and LTN198 highlights standard details for their use.

Restricted Parking Zone to reduce lining / East Riding



The first 'Naked Street' / Camden High Street

TRAFFIC SIGNS

From 'Manual for Streets' - No sign is fundamentally required by TSRGD per se. Signs are only needed to warn or inform, or to give effect to Traffic Regulation Orders (TROs) and TSRGD simply sets out how signs must be used once it has been decided that they are necessary.

Signs are most effective when used sparingly. Designers should ensure that each sign is necessary – they should use the flexibility within the TSRGD and associated guidance documents to ensure that signs are provided as required, but do not dominate the visual appearance of streets. The non-provision of signs and markings may be appropriate in lightly-trafficked environments specifically designed to promote low speeds. It reduces clutter and the relative lack of signage may also itself encourage lower vehicle speeds. Signs which have no clear purpose must be removed to reduce clutter and to ensure that essential messages are prominent.

Much signage is provided for the benefit of motorised users, however it is generally located on the footway and can contribute to clutter. In the case of new developments, signs must be demonstrated to be absolutely necessary to be approved, before being installed. Where signs are installed, they should be co-located onto a single pole where possible. Double poles must be avoided. Signs located in the footway should be regularly audited with measures taken to improve conditions for pedestrians.

Co-Location / Combining signals with lighting



Events & temporary works

As a general principle, public spaces and streets should be designed for flexible use so that they can serve as focal points for activity when required.

Permanent event infrastructure

In areas where regular events - such as markets - are planned, or could be placed in the future, design teams should look to include additional services such as power sockets and fixtures to assist in the hosting of major events, as well as consider water provision and essential facilities such as toilets. Post mounted banner arms should also be considered for lamp columns on streets and in spaces which serve as major event routes.



Discrete & functional pop-up power / Lichfield & London



blank

Cycling infrastructure

05

Introduction

Cycling needs to play a far bigger part in our transport system from now on. We need to see significant increases in cycling in Andover, to improve physical health, reduce congestion, and support high streets.

To achieve this, the quality of cycling infrastructure must sharply improve. Properly-protected bike lanes, cycle-safe junctions and interventions for low-traffic streets encourage people to cycle.

Too much cycling infrastructure is substandard, providing little protection from motorised traffic and giving up at the very places it is most needed. Some is actually worse than nothing, because it entices novice cyclists with the promise of protection, then abandons them at the most important places. Poor cycling infrastructure discourages cycling and wastes public money.

Current guidance for highway authorities and designers (LTN 1/20) aims to help cycling become a form of mass transit in many more places. Cycling must no longer be treated as marginal, or an afterthought. It must not be seen as mainly part of the leisure industry, but as a means of everyday transport. It must be placed at the heart of the transport network for Andover, with the capital spending, road space and traffic planners' attention befitting that role.

Key design principles

Cycling is or will become mass transit and must be treated as such. Routes must be designed for larger numbers of cyclists, for users of all abilities and disabilities.



Cyclists must be separated from volume traffic, both at junctions and on the stretches of road between them.



Cyclists must be separated from pedestrians.



Cyclists must be treated as vehicles, not pedestrians.



Routes must join together; isolated stretches of good provision are of little value.



Routes must feel direct, logical and be intuitively understandable by all road users;



Routes and schemes must take account of how users actually behave;



Purely cosmetic alterations should be avoided.



Barriers, such as chicane barriers and dismount signs, should be avoided.



Routes should be designed only by those who have experienced the road on a cycle.

Cycle protection

PROTECTED CYCLE LANES

The aim of protected cycle lanes is to discourage incursion from motor traffic and provide more certainty to cyclists that clear space will be maintained. Protection must only be applied to mandatory cycle lanes with 24-hour operation. Motor traffic may cross protected lanes for access only. Separators used to protect the cycle lane must be clearly visible to all users and different contexts require different arrangements.

PROTECTION TYPE

Car Parking

Cars may not park on protected cycle lanes unless to pick up disabled passengers. Access to crossovers can be maintained with the presence of low level separators such as the mini orca. Note that mini orcas must only be used in combination with more visible separators. Separators may also be used to float parking away from the kerb to create space for cycling. In this case a buffer of at least 500mm must be provided from the parking to the cycle lane.

Low Level (Orcas etc)

Low level separators should be used in combination with posts. Posts should mark the start of a run and be considered on bends and after side roads. WandOrca separators combining flexible posts and low level separation are preferred in most street contexts but Orcas may be considered for use. Mini Orcas should be used exclusively in the presence of crossovers.

SPACING + LAYOUT

For most street contexts WandOrcas can be used at a spacing of 10 to 20m. Orcas can use a spacing of between 0mm and 500mm. All separators must be placed on the nearside of mandatory cycle lane markings. They must not be placed on top of the markings to obscure the marking.



Floating parking with Orcas / London



Designing protection in / Glasgow



Mini-Orcas / London



Designing protection in / Vancouver

Modal filters

An ideal cycling network would be one that maximises permeability for walking and cycling, but exerts tighter controls on through-movement and access for motorised vehicular traffic. When applied to cycling, this approach is often known as ‘filtered permeability’. This conventionally involves selective point closures to motor vehicles (or ‘modal filters’), contraflow working for one-way streets, and the use of linking off-highway paths and routes through green spaces.

ACCESS CONTROLS

The minimum clear width (eg kerb-to-kerb or kerb-to-bollard) for cycle access through a point closure should be 1.5 metres to allow for access by all types of cycle. A greater width is desirable for two-way cycle gaps, particularly where cycle flows are high – bollards, spaced by 1.5 metres, are usually provided to restrict access to cycles.

Where emergency vehicles need access, a folding bollard is recommended. Where a larger gap is provided, supplementary measures to prevent unauthorised use by motorised vehicles, particularly powered two-wheelers, should be considered. For more detailed information around access controls, please follow guidance in section 4.5 of the London Cycling Design Standards.

Access controls should be positioned so as to minimise deviation for cyclists and avoid putting them into vulnerable positions relative to parked cars. Allowance should be made for the larger turning radii of many non-standard cycles when considering cycle movements through gaps and past other obstructions.

INCLUSIVE ACCESS

Dropped kerbs are needed to maintain level and comfortable access through a point closure, and are essential for those who need step-free access or for whom pushing a cycle up a kerb is not an option. Access to dropped kerbs should be at least 1.5 metres wide, and wider when the approach creates an oblique angle. Dropped kerbs should be specified with zero upstand within 6mm tolerance; any upstand of more than 10mm could destabilise the rider when approached at an angle.

Safety and security for pedestrians and cyclists need to be carefully considered where routes are closed to motorised vehicles. Provided they are well-lit with natural surveillance, which relies on levels of use and depends on the wider urban context, they can feel safe and be safe. Underpasses, alleyways and tunnels can also provide a good, safe environment for pedestrians and cyclists when designed with good lighting, clear sightlines, no dead ends and ideally a degree of overlooking, or possibly CCTV.

Filtering a crossroads / London



Creating safe routes for cycling and calmer streets for people, play and community / London

Modal filter designs should follow the Scales of Intervention as outlined in section 3. Bollards can be used to test and trial a proposed filter, leading up to the complete design of the feature which should include SuDS features, seating and other amenity spaces and functions. Some filter points will be able to be implemented like this straight away, and should be designed with the local community.

Cycle storage, including e-mobility

Cycle parking must:

- Be accessible to all and signposted as necessary
- Meet recommended space requirements but use space efficiently
- Serve identified uses, with an appropriate balance between long- and short-stay
- Provide for flexible use during the day and week
- Be integrated well with other uses of a street or public or private space.
- Respond to the character of the area, using appropriate parking for commercial areas and for residential areas.

Cycle parking needs to take into account all user needs, so as not to exclude or disadvantage riders of certain types of cycle. This includes people who use handcycles, tricycles, tandems and models adapted to suit the rider's specific needs, as well as cargo cycles.



CYCLE PARKING + E-SCOOTER PARKING LOCATIONS

In a street environment, cycle stands and marked e-scooter parking areas should be located in space taken from the carriageway wherever possible, inset or with island protection as necessary. This requires a Traffic Order and needs careful planning and consultation in relation to potential loss of car parking or carriageway space, but it is the best way to avoid taking up footway space and creating conditions that require mitigation for visually impaired people. It can work well in streets where access is closed or restricted for motorised vehicles.

Footway build-outs can serve a similar function without reducing footway space, although impacts on users of the carriageway need to be assessed. Cycle parking and marked e-scooter parking areas on, or inset into, segregating islands for cycle infrastructure is also recommended.

Where there are no other alternatives, footway cycle parking and marked e-scooter parking areas should be located in an identified street furniture zone adjacent to the carriageway, in order to leave clear space for pedestrians – 2 metres is recommended wherever possible.

For technical guidance on layout and design of cycle storage areas and facilities, please follow guidance in Section 8 of the London Cycling Design Standards.

Cycle stands should be 'off-the-shelf' as to minimise maintenance burdens, however bespoke stands can be used with approval in order to support placemaking

Cycle accessories

Increasing the proportion of everyday journeys made by bike is a policy aim of the UK Government, as increased cycling rates help achieve wider climate change, air quality, economic and health objectives.

In order to achieve the aim cycling must be made the most attractive, easy, and pleasurable mode of transport within the town centre alongside walking. To do this the public realm must invite cycling through the creation of high quality cycling routes, but also through providing additional supporting infrastructure wherever possible and appropriate. Examples of this infrastructure are highlighted below.

In the design of public schemes, opportunities to deliver such supporting infrastructure should be identified and proposed.

E-Bike Charging Stations



Repair Stations



Hand + Foot Rails



Street types

06

Introduction

It is important to note two key points in regard to highways and transport networks:

The first is that highways and transport networks are recognised as having two key functions: that of enabling the movement of people and goods, but they should also make a positive contribution to the place in which they sit. Designing for movement has often been the main focus of government and the profession, but place is of great importance when considering accessibility and inclusion.

The second is the scale of contribution that good design can make to achieving better places. Highway and transport networks, particularly in built-up areas, account for a significant proportion of the public realm and fulfil a range of vital functions alongside their movement function, including enabling access for all to local services, shops and other businesses.

The fundamental thread in design, maintenance and operation of the highways and transport network should be that the needs of all users should be considered to create an inclusive public realm.

Shared Space

The County Council, along with designers and those responsible for commissioning the design, will review any new public realm improvement schemes that meet the criteria below and which are at the design stage:

- Incorporates a flat, level or shared surface where, as defined in the joint letter from the DfT and the Ministry of Housing, Communities and Local Government dated 28th September 2018, “the level difference between the footway and the carriageway is removed”;
- There are relatively large amounts of pedestrian and vehicular movement, such as high streets and town centres (outside of pedestrian zones);
- The intention is for the pedestrian to feel that they can move freely anywhere;
- The design speed exceeds 20mph; and
- It is proposed that the Scheme be funded or adopted by the County Council.

Moving Forwards

Recognising this position and the general move away from Shared Space Schemes three street types are proposed for Andover, with corresponding design parameters. These street types are taken from the 2018 CIHT publication, 'Creating better streets: Inclusive and accessible places', and form the framework for street improvement projects in Andover going forwards.

It has not been prescribed as to which streets in the town centre should be which street type, but this should be an early stage assessment undertaken by a diverse design team, including Highways but alongside Urban Design and Landscape teams. When the street type has been selected, measures might be required to reinforce the selection, such as traffic calming or traffic reduction, and these should be undertaken ahead of the scheme opening.



Balancing movement & place / Gävle, Sweden

Pedestrian priority environments

This type of street aims to create the conditions whereby drivers and riders feel they should give priority to pedestrians, and where pedestrians feel comfortable in accepting that priority. This approach is in spite of the fact that UK legislation does not give priority to pedestrians over vehicular traffic except in certain circumstances when using formal crossings.

Such pedestrian-prioritised streets have been adopted where traffic volumes and speeds are low and designers have sought to achieve these outcomes through the design. Pedestrian volumes in the schemes considered have been relatively high; and this is consistent with research carried out for LTN 1/11 which showed that more pedestrians occupying street space resulted in a reduction in traffic speed. In general, schemes of this type can achieve very low traffic speed, typically well below 20 mph.

The review did not consider what absolute values should define 'low traffic volumes', although Manual for Streets notes that people will treat a street as a space to be occupied and not a road to be crossed when traffic flows are not more than about 100 vehicles per hour. This is based on research carried out by TRL. A similar value is used for the application of the Dutch 'Woonerf' (Home Zone).

The designs of pedestrian-prioritised streets have meant that they are usable by cyclists without requiring any dedicated facilities. Again, the review has been mindful of research carried out by TRL which showed that conflicts between pedestrians and cyclists in fully pedestrianised streets are rare, with cyclists slowing and eventually dismounting as pedestrian volumes increase.

Street schemes of this type have generally adopted designs that do not appear to contain a well-defined carriageway so that road users (particularly drivers) do not assume that pedestrians need a defined crossing or a driver's permission to cross the street. Such schemes have often used a level surface, sometimes with similar paving types and colours across the whole of the space.

Seating and other useful street furniture has often been placed in the street to emphasise its primary function as a place to be enjoyed, but this can also create obstacles for visually impaired people where it has not been located carefully.

Key features

This type of street is designed as a pedestrianised space in which vehicles (often filtered) are permitted to use but at low speeds.

Street furniture should be placed to loosely define the vehicle movement corridor but there is no 'carriageway' or 'footway' in the typical sense.

There should be a pedestrian only clear zone next to the building edge, defined by tactile paving to allow it to be used by visually impaired people and other pedestrians who do not feel confident being in a space with moving vehicles.



Frodsham Street - a place for civic life through which some vehicles pass / A pedestrian priority street

Informal street environments

This design approach has been used with the overall aim of creating a street where the higher volume of traffic does not dominate non-vehicular users. Informal streets have been used where traffic flows are much higher than pedestrian-prioritised streets; schemes such as Poynton carry an excess of 25,000 vehicles per day, including buses and HGVs.

Informal streets have a defined carriageway for vehicles and a defining feature of this design approach is the absence or reduction of formal traffic control measures, particularly at junctions. The aim was to reduce the speed of vehicles by creating some uncertainty in drivers' minds over whether they have the right of way. Other design features were used with the intention of reducing vehicular speed and dominance such as reducing the differentiation between the footway and carriageway, for example, by using reduced-height kerbs; and providing features such as median strips which encourage more frequent crossing movements by pedestrians.

Because of the higher traffic flows, most schemes of this type have provided regular crossings of the carriageway where drivers stop or slow to allow pedestrians to cross with confidence, either through formal crossings (signalised or zebra crossings) or by design (courtesy crossings). Courtesy crossings, which do not use traffic signals, signs or markings, have been used to reduce the formality of the street, but formal crossings have also been used. Some schemes have a combination of both types. Some schemes have also provided crossing opportunities where pedestrians can cross during gaps in the flow of traffic.

Tactile paving has been used to indicate courtesy crossing points. Whilst some authorities have developed bespoke types, most have used tactile paving in accordance with national guidance.

Key features

Some of the typical 'segregation' measures (for example contrasting colours and materials and signalised crossings) are removed to create a slower more relaxed, pedestrian and cycling friendly environment. Measures to assist with informal crossing, like central medians, should be used.

An informal street will have low kerbs (25 - 60 mm) separating the footway and will incorporate trees, raingardens, seats, areas for outdoor dining and the legal minimum amount of road markings, as behaviours should be more intuitive in line with the changed streetscape character.



A lower speed street that delivers more pedestrian priority in Poynton / An informal street

Enhanced street environments

The enhanced street is essentially a conventional street where care has been taken to improve the quality of the place. This is typically achieved through the removal of unnecessary street clutter, particularly pedestrian guardrails which reduce people's freedom of movement, and by the introduction of features such as seating, public art and street trees, which improve their experience of simply being there.

Enhanced streets have typically retained conventional traffic-engineering features, such as junctions controlled by traffic signals and give-way markings, as well as controlled crossings, although courtesy and gap crossings have also been used on some schemes.

Key features

There is a distinct carriageway separated from the footways with a 100 – 125 mm high kerb.

Typical road markings such as double yellow lines and centre lines on an asphalt carriageway.

The 'enhancement' comes from new paving, trees, seats and street furniture, in a decluttered environment that afford more pedestrian priority and space for urban life



Sauchiehall Street / Glasgow

General street furniture

07

Seating

Seating can be essential for people in terms of providing somewhere to stop and rest, but can also be a valuable tool in creating a place or space which is welcoming and inviting in which people will choose to spend time.

Seating should be located such that it and its users do not reduce the effective footway width below that identified from Pedestrian Comfort Level analysis, when in use by a variety of people, including people with luggage or shopping, people with pushchairs, and people using mobility aids or assistance dogs.

In commonly used pedestrian areas, transport interchanges and stations, seats should be provided at intervals of not more than 50m.

A choice of seating options should be provided suitable for a variety of users. Appropriate accessible space should be allowed for wheelchair users to be integrated within the general seating provision. Seating should contrast with the background against which it is seen. It should not have a highly reflective finish.

Where more than one seat is to be installed in a pedestrian area, a variety of seat heights should be provided, with at least one each with a seat height of 380 mm, 480 mm and 580 mm from ground level. Where only one seat is installed, the seat height should be between 450 mm and 480 mm, and the seat should have both back support and arm rests.

A seat height of 380 mm is suitable for people of short stature; 480 mm allows for lateral transfer onto the seat by wheelchair users; and 580 mm is suitable for people who require a higher seat.

To enable a wheelchair user to transfer laterally onto a bench seat, a level transfer space 1200 mm wide should be located at one end, with an arm rest set in 500 mm to 750 mm from the transfer space. Where there is more than one bench seat, a choice of left and right transfer should be provided.

Arm rests should be provided to help people lower themselves onto the seat and stand up. These should be provided at a height of 200 mm from the surface of the seat, and should extend from the back support forwards to cover at least 80% of the depth of the seat. Arm rests should contrast visually with the remainder of the seat to ensure that they are easily identifiable. There should be a space between arm rests of at least 500 mm.

Back support should be provided at a height of at least 300 mm from seat level.

Primary seating (back and base) must be FSC hard wood to be comfortable in all seasons.

Seats should be bolted to the ground, but seating at points of activity such as markets could be provided freestanding and then cleared away after the event to allow people to create their own seating arrangements.



Typical proprietary seating throughout inner 'Town' and outer 'Park' areas / Seating needs backs and arms, in bench and seat form, to suit varying configurations and user needs



Bespoke natural stone seating / 'Highlight' areas



Informal seating / option to outer 'Park' areas

Bottle fills & drinking fountains

In total, some 7.7 billion plastic bottles are bought across the UK each year, resulting in substantial amounts of single-use plastic waste, with approximately 8 million tonnes of plastic entering the ocean from land every year.

Plastic is thought to remain in the ocean for hundreds, or even thousands, of years and if plastic pollution goes unchecked, there will be one tonne of plastic for every three tonnes of fish in the ocean by 2025. By 2050, plastic in the ocean could outweigh fish.

Once in the ocean, plastic breaks down into increasingly smaller pieces, eventually becoming 'microplastics' and 'nanoplastics'. Plastic in all its forms is killing marine creatures; they can get entangled in plastic debris and often mistake plastic for food, causing internal blockages, and death by starvation and suffocation.

65% of UK adults would not buy bottled water if tap water were freely available, so to tackle needless plastic waste, public realm projects should provide simple ways of refilling and accessing free water. To this end drinking fountains and bottle fills should be planned for larger public realm schemes and opportunities for installing them in existing situations should be investigated. These fountains must be accessible for those in a wheelchair and provide both a drinking fountain, and a bottle fill service.



Wheelchair accessible bottle fill / Spain

Public conveniences

Public toilets are especially important for certain groups including disabled people, older people, people with babies and young children, and pregnant women, as well as tourists and visitors who may be less familiar with their surroundings. Public toilets can support businesses in boosting customer footfall, by giving people more confidence to move around the city and spend more time in a place or space, as well as helping to the town centre clean.

Public toilets within the public realm or on publicly accessible private land must be provided as part of large developments that are open to the public.

Taking into account the needs of everyone, a range of toilet facilities should be provided. They should include unisex disabled persons' toilets, separate accessible baby change/family toilets, and cubicles for people with ambulant mobility impairments which can also be suitable for some older people or people who require additional space. Further guidance on the provision and design of these facilities can be found in British Standard BS8300. Consideration should also be given to the provision of gender-neutral toilets.

Public toilets which are open 24 hours can be of great benefit to people accessing the town centre night-time economy. These, whether permanent or temporary, should provide facilities which can be used by disabled people and people of all genders.

Standard wheelchair accessible toilets do not meet the needs of all disabled people. People with profound and multiple impairments, learning disabilities, and other impairments such as spinal injuries, muscular dystrophy, multiple sclerosis or acquired brain injury, often need extra facilities to allow them to use a toilet comfortably.

Changing Places toilets are different to standard accessible toilets as they are designed for assisted use, are larger, and have additional features. Without Changing Places toilets many people are limited in terms of how long they can be away from home, or where they can go. The provision of Changing Places toilets can open up new areas and experiences for people with profound and multiple impairments, and their companions, removing the barrier that the lack of provision can create.

Further guidance on the types of development where it would be appropriate to provide a Changing Places toilet can be found in British Standard BS8300. Changing Places toilets are not designed for independent use and should be provided in addition to standard unisex disabled persons' toilets, baby change and family facilities, not as a substitution.



Public conveniences can be a delight / Tokyo

Play & playfulness

Incorporating play, entertainment, enjoyment, and humour into the public realm is hugely important to making public spaces inclusive, as well as creating a relaxing and inviting environment for people of all ages and all backgrounds.

Child-friendly urban planning is essential to create places where people want to spend their lives, from childhood, through adulthood and into old age. It advocates a coherent and systematic approach to planning and designing cities that improves children's development, health and access to opportunities, moving well beyond simply providing playgrounds. It recognises the fundamental importance, not just of independence and play, but of the built environment as a whole in helping to shape a child's development and prospects, and hence their adult lives.



Murrain Street, Hackney / Bringing play and playfulness into streetscapes should be prioritised



Public space centred on relaxation / Copenhagen



Water impacts our mood hugely / London

Public art

Public art is freely accessible to everyone. It reflects society and can strengthen the sense of place by being site specific. It is a communal activity that can reach a wide variety of people. It can be engaging, inspiring and challenging and can help stimulate conversation between a diverse range of individuals and groups.

Traditionally public art was permanent with monuments, memorials, civic statues and sculptures commemorating or celebrating historic people and events. More recently the scope of public art has expanded to include more transient activities such as; performance, dance, theatre, and installations.

Street art, including murals and graffiti, whether permanent or temporary, embraces political themes and protest, adding energy and interest to the public realm.

Permanent art works remain in the public eye and require a great deal of care in commissioning, conceiving, delivering and maintaining.

Temporary art is more ephemeral and works may linger in the memory but do not generally provide a permanent physical record, and the temporary nature of some public art may allow the work to be more challenging.

Whether permanent or temporary, the best and most engaging public art should be planned from the outset of any public realm project to ensure it provides meaning for people and value for money.



Mural trail / Glasgow



Art is a point of triangulation / Marseilles

Advertising

Well designed and sited advertisements can assist in creating a positive sense of place and play an important role in defining the public realm experience. The Council also recognises that, in some instances, advertisements can create value that, in turn, contributes to delivering public services and supports the local economy and businesses. However, inappropriate signage can detract from the public realm.

The Council's objective is to balance sometimes competing interests and permit advertisements, where consent is needed, and it is appropriate to do so. Poorly sited signs can cause inconvenience to pedestrians, reduce the width of pedestrian footways, present a hazard – particularly for people with visual impairment – and make the street feel unnecessarily cluttered. Badly designed signage, for example comprising the use of poor quality materials and inappropriate levels of illumination, can also adversely affect the amenity of the area. The Council is particularly mindful of the importance of the quality of the public realm, and how it affects the character and appearance of the designated Conservation Area, and the many listed buildings located within the Masterplan area. Guidance regarding signage within the conservation area can be found in the Andover Conservation Area Appraisal and Management Plan and in particular in section 5.5.4.

Signage placed on the frontage of buildings, "A-Boards" and other forms of free-standing advertisement, directional or information signage placed on the highway may require the express consent of the council before they are displayed. Approval may also be needed from Hampshire County Council as highway authority. Early discussion with the council is encouraged. The consenting process assesses the location, size, design, and the orientation of signage and their effect on the amenity of the area and public safety.

Both the County Council and the Borough Council have enforcement powers to remove inappropriate unauthorised signage if considered necessary in each case.

Advertising in the street / London



Pedestrian guardrailing

Pedestrian guardrails are known to give the impression of vehicle dominance and clutter, as well as reduce kerbside activity, increase maintenance, and block major pedestrian desire lines. The Council has a presumption against the use of pedestrian guardrails in new schemes and is actively removing guardrails where evidence from a safety audit demonstrates they are not required.

The Local Transport Note LTN 2/09 – Pedestrian Guardrailing (PGR) notes that, 'there is no conclusive evidence that the inclusion of PGR at any type of pedestrian crossing or junction has any statistically significant effect on the safety record'. Designers are encouraged to look at TfL's 'Guidance on the Assessment of Pedestrian Guardrail' for additional advice.

Guardrail Removal

This guidance promotes the removal of existing guardrails where a proven safety requirement cannot be demonstrated. Road safety audits should be undertaken in any guardrail removal assessment to determine the safety implications. Partial removal of guardrails may be recommended to alleviate pedestrian pinch points. A cycle parking audit should be undertaken before removal to ascertain if the guardrail is used for cycle parking. Sufficient replacement cycle parking stands should be included accordingly as part of the removal process.

Monitoring

Periodic reviews should be undertaken to record any problems with guardrail removal, especially relating to collision numbers. This should be recorded for long-term collision monitoring.

Guardrail Retention

The reinstatement of existing guardrails requires Council approval. Guardrails may be retained where a road safety audit confirms that pedestrian desire lines put pedestrians at risk, or on signalised pedestrian crossings. Please refer to TfL's 'Guidance on the Assessment of Pedestrian Guardrail' for additional advice.

New Provision of Guardrail

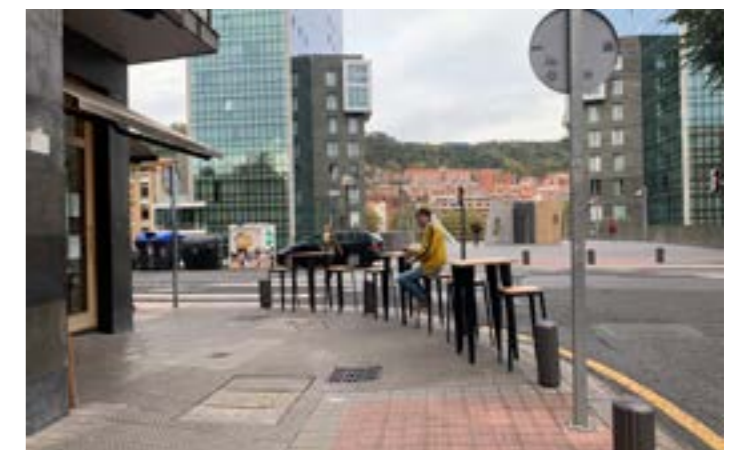
We will not support the installation of new guardrails except where a road safety audit has demonstrated a clear need. Council approval must be sought for any new pedestrian guardrails. Any new guardrails must be black.

In any circumstance where guardrail is suggested to be retained or installed, before doing so designers must propose what would need to be done to improve the street for people in such a way that would mitigate the need for guardrail, as this will have town-wide benefits and should be explored first.

Additional Information

- Transport for London: Guidance on the Assessment of Pedestrian Guardrail, 2012
- Department for Transport: Local Transport Note (LTN 2/09): Pedestrian Guardrailing, 2009

Making valuable corners / Bilbao



Bins

The regular and convenient provision of bins on footways and in public spaces provide an important contribution towards supporting a litter free environment, but can also impact on the general appearance and quality of the streetscape.

Litter bins should have a simple aesthetic which is robust and functional. Conservation and special areas require sensitive bin designs which better reflect the character of the area.

Bins should be bolted down to discourage antisocial behaviour. The use of integrated cigarette disposal units may be considered. The capacity of the bin needs to take account of the intensity of use to avoid contents spilling on to the surrounding footways. Bins and bin placement should be placed within a furniture zone, and should not reduce the effective width of footways below the required level.

Bins which combine functionality to separate several types of waste are encouraged, with recycling bins being combined with litter bins. However, when recycling bins are not combined, the design of the bins should be similar yet distinctive enough to differentiate its purpose from other litter bins.

LOCATION

Bins should be placed according to the following standards:

- Litter bins should be placed a minimum of 450mm from the kerb edge
- Bins should be positioned so as not to cause an obstruction on the footway
- Access to adjacent properties should not be constrained
- Visibility should not be obstructed
- Maintenance and access requirements should be considered
- Ensure footway width is not reduced below 2,000mm.

Bin placement should be coordinated with other street furniture, such that bins may be positioned adjacent to seating.

SECURITY

In high security areas, the use of blast-resistant litter bins with concealed ground fixings will be required. Advice should be sought from the Police and relevant Council Officers.

Thin & unobtrusive bins / Westminster



Bollards

Bollards tend to be overused or inappropriately located, which can create clutter and pose a hazard for those with visual impairments. Bollards are used to discourage vehicles from encroaching on to pedestrian or cycle space, preventing vehicles from running over hidden basements, preventing damage to footway surfaces, street furniture and buildings while reducing the risk of pedestrian injury.

Bollards should be treated as a last resort solution and should only be used when all other alternatives have been exhausted. This does not apply to the delivery of modal filters in the public realm, where the bollard delivers huge benefit. Other necessary street furniture or equipment should be reviewed to identify if it could be used instead to perform the same role as a bollard.

Enhanced enforcement may also be a preferable solution to bollards to deter vehicles from encroaching on the footway.

Alternatives

Design teams should consider where appropriate:

- Using street furniture or equipment to create a barrier using cycle racks, tree planting, seating, etc
- Local strengthening of the footway where vehicles are known to mount the kerb

For instances where it has not been possible to provide alternatives to bollards:

- Bollards should be arranged to minimise physical clutter while maintaining an appropriate defensive line; this may not necessarily be a straight line but could involve setting back bollards to align with other street furniture such as tree planting
- Filtered permeability, whereby motor vehicles are blocked but cycle access remains, can be achieved through the appropriate placement of bollards, trees and planting, or street furniture across the carriageway
- Bollards are not required at side road entry treatments as they create additional clutter and do not provide protection for pedestrians
- Design teams should question any pre-existing arrangement of bollards and consider removal subject to safety advice
- Bollards should be selected for their primary use, as well as secondary uses. The specification of bollards should maximise the inherent sittability for the object - being at an appropriate height; being an appropriate diameter; and being 'comfortable', for example a wood sleeve/finish rather than stainless steel.



Maximising the use of one dimensional furniture

Electric vehicle charging points

Electric vehicles will bring some benefits to urban areas, but it should not come at the expense of people and urban life. Above all, walking must be prioritised to make places the most healthy, happy, and prosperous they can be.

REQUIREMENT

Charging points for electric vehicles should be rolled out within the town centre to prioritise the use of less polluting vehicles over more highly polluting vehicles, such as petrol and diesel vehicles.

PLACEMENT + ORIENTATION

Detailed consideration should be given to the placement and location of electric charging points, and two scenarios are acceptable for Andover.

Retrofitting of lamp columns – lamp columns can be retrofitted to hold charging stations for electric vehicles, and this should be explored as a priority within the town, as this reduces street clutter and lessens the impact on the visual character of the street. Lamp column charging stations are especially suited to residential areas as they tend to offer slower (overnight) charging.

Freestanding electric vehicle charging points – where it is deemed impossible to retrofit lamp columns (due to listing/heritage reasons) or the town requires more and faster charging stations then freestanding electric vehicles charging stations can be considered.

Freestanding electric vehicle charging stations must be installed in carriageway space, in the place of an existing parking bay, or zones of single/double yellow lining. These can be protected from slow moving vehicles, as demonstrated in the images right, through the use of kerb upstands/buildouts or bollards within the carriageway.

Under no circumstances should EV charging points be placed within the existing footway, as this impacts on the pedestrian environment, prioritising vehicle use over walking, which is unacceptable in the town centre.



Charging within car parks, using solar



Efficient & unobtrusive charging banks / Paris



Residential lamp column charging / London



Free-standing rapid charging point / London



Unacceptable placement of chargers / Devon

Security & safety measures

Physical measures in the public realm must not negatively impact on citizens' and visitors' enjoyment of the town, or their ability to comfortably move around its streets and public spaces.

A fresh approach is required from designers of the public realm to ensure that Hostile Vehicle Mitigation (HVM) measures are integrated seamlessly into the environment, providing proportionate security whilst also creating beautiful places.

As security becomes an increasingly significant factor, it is important that a holistic approach is taken to develop integrated strategies that provide appropriate and balanced responses. In some instances, particularly within existing built environments, HVM measures will not have been considered at the outset and solutions may need to be retrofitted. Unless well thought through and designed, these solutions may provide less effective security, be more costly and have a negative visual impact.

Interventions will vary from a macro scale of site masterplanning to a micro scale of detailed physical restraints. Some will be discreet and some may be overt. Every scenario will be different and solutions must always cater for site specific requirements, following UK Government guidance, alongside consultation with expert bodies, such as the CPNI and the Police.

Placement + Orientation

Pedestrian flows and desire lines must be considered and protected as part of any physical intervention in the public realm.

Designers should be very aware of and consult CPNI documents before designing physical measures in the public realm. CPNI documents assist designers to protect national security by providing protective advice on physical security, personnel security and information assurance. They have also helped produce Traffic Advisory Leaflets giving advice on the planning and design of HVM schemes including their effects on pedestrian flow. Use of these documents will help ensure that measures are holistically planned and contribute to a safer wider public environment, without installing cluttered or unattractive street furniture.

Above all, delivering solutions that offer additionality - art, greenery, seating etc - must be prioritised.

Intelligently placed art & seating / London



Planters & greening

Moveable

Moveable planting and planters allow businesses and organisations to structure space in the public realm on a temporary basis, in a way that delivers additionality in terms of greening and all that this entails. Designers of the public realm should work with frontagers - especially cafés, restaurants and bars, to design in outside seating environments into the public realm, creating a standardised planter unit which businesses maintain, that can frame the seating areas rather than using stainless steel frames and barriers.

SuDS

Planters in the public realm must also perform and SuDS function, and this must be designed into any planting space. Permanent planters and planting areas can deliver large scaler and holistic benefit, but moveable features can also be used to disconnect downpipes for the period of their use.

Green walls

As part of any green infrastructure audit, blank walls should be mapped and processes begun to maximise their use to the town through greening. A variety of systems exist - from naturally climbing plants through to more complex wall-mounted crate systems - through which greening can be added and solutions should be sought and agreed with building owners.



Inviting people into planters / London

Planters within the public realm deliver increased biodiversity and habitat, create relaxing environments, and help to mitigate the negative effects of climate change and poor air quality. As a result, public realm schemes must deliver increased planting. Fixed raised planters allow for the delivery of important secondary and primary seating, as well as creating opportunities for HVM, whilst moveable planters deliver structure in the public realm for temporary events and uses.

Permanent

Permanent raised planters in the public realm should create seating opportunities in a variety of arrangements. See the seating section for specifications on sitting heights and materials. Planters should create opportunities for people to enter the perimeter of the planting so they can experience the planting rather than simply looking at it. Opportunities to embed play in planting must be explored.

Temporary planters to create cafe seating / London



Bus infrastructure

In most urban areas the bus network carries the most amount of people and so efforts should be made to reduce the delay to bus passengers through design. Furthermore stops should be designed to be as accessible as possible both for people getting on and off the bus and for those walking to and from the bus stop.

Location + Frequency

Bus stops should be located as close as possible to amenities such as transport interchanges or shops. A desirable frequency of 400m should be sought in urban areas.

On residential streets the location of stops can be controversial if for example a double decker bus has a view into a bedroom. It is also important that buses are located near crossing points wherever possible.

Bus Shelter Configuration + Design

Different configurations are required for different street contexts. For example, the shelter may have its back to the kerb if on a busier road but have it away on a high street. It may also need to be cantilevered to create space in high demand areas or when provision for cyclists is introduced.

Passenger Waiting Area

If a new shelter is proposed by any organisation the shelter ownership and maintenance responsibilities must be confirmed with the land owner / Highway Authority before installation. Bus shelters play a valuable role in delivering a broader measure of accessibility. The shelter will protect people from extremes of weather with lighting to help them feel more secure.

Seating integral to the shelter should be provided and should include armrests. Shelters also provide important opportunities to consolidate street furniture (maps, signage) into a single structure. Providing bus arrival information can make users feel more comfortable and secure.

Standard Detail Drawings and further guidance into technical requirements can be found in Hampshire County Council's Public Transport Infrastructure Technical Guidance Note - TG9.

Bus Boarder

Bus boarders are used to enable buses to stop within a traffic stream and move off without difficulty, where there is extensive kerbside parking and suitable carriageway width. They are generally built out from the existing kerb line and provide a convenient platform for boarding and alighting passengers. These are implemented where, for example, parking separates traffic from the kerb, reducing how far a bus must deviate to enter a bus cage. In Hampshire, only the full-width bus boarder will be permitted. There are also variations on the bus boarder concept. Care should be taken when building bus boarders that the necessary drainage has been provided.

Cycling at Bus Stops

Public transport and active travel are essential to keep the town moving and improve everyone's quality of life. When cycle tracks run past bus stops, bus stop bypasses should be designed with visual priority for pedestrians at designated crossing points in line with LTN 1/20 and any subsequent update. The cycle route should be deflected on the approach. Consideration should be given to removing advertising panels on bus stops so that see through visibility is maintained. These facilities are very commonplace globally, as well as in the UK, and have shown themselves to be safe for pedestrians as well as cyclists.

If there is not enough space to install a bus stop bypass or intrusion into the footway space would severely affect the character of the area then shared bus boarders can be used. Materials can either suggest that the cycle route has priority or that the cyclists are to move into a part time shared area that is only in use when passengers are boarding or alighting. Again, see LTN 1/20 and any subsequent update for designs.

Wayfinding & Interpretation



Bronze interpretation model / Edinburgh

Walking is a great way of getting around Andover; it is free, healthy, environmentally friendly, and often the quickest option yet people are put off by inconsistent signage and confusion about distances between areas. Wayfinding signage must tackle these issues and help residents and visitors walk to their destination quickly, easily, and effortlessly.

Andover already has a wayfinding system in place in the form of traditional heritage finger posts as well as modern Monolith type information boards - including maps, and walking information. Streamlining these systems into a suite of wayfinding information would be ideal moving forwards.

In addition to formal wayfinding, public realm schemes should look to incorporate Interpretation into designs that allow people to learn and discover about the history of the town and the assets around it. The Andover Heritage Trail is a very literal version of such a thing, but more creative and suggestive solutions should be explored as well.

Principles

Wayfinding signs do not need to be illuminated by internal or external lighting, or retro-reflective materials.

Design teams should provide wayfinding guidance in the public realm to aid navigation and encourage people to walk rather than seek out public transport, while aiming to minimise the total number of pedestrian signs used to reduce additional street clutter and confusion.

Signs should be located where users start their journey as a pedestrian, at key decision points and landmark destinations. Signage should be located to minimise physical intrusion within the streetscape, but should be sufficiently visible so as to serve its intended purpose.



Lighting

Light affects the quality of space. Good lighting enhances our night time experience in the urban environment. It can enhance our sense of place and articulate the architecture of the town in new ways unseen in daylight, enable wayfinding and communicate the streetscape, expressing connections between different areas of the town. Investment in the daytime presentation of the town deserves to be supported at night, with sense of place being enhanced by good lighting.

Urban lighting has evolved from lighting for highways which prioritises traffic, to lighting for streets which includes roads and commerce, to holistic lighting which is designed for streets, people and place. This final approach must be supported by all schemes coming forward.

Street lighting will need to respond to Hampshire County Council's Technical Guidance Note TG13 - Street Lighting however architectural and place driven lighting should be developed in line with the below principles in partnership with Town and County Council officers.

LIGHTING PRINCIPLES

The following points express the standards for public lighting that must be delivered by all public realm schemes:

- Improve the illumination of the town to ensure public safety and enjoyment, and support development and growth of the night-time economy;
- Express the identity of the town;
- Protect the environment and promote sustainability;
- Enhance the human experience of the town and engage all; and
- Follow a simple set of design parameters so it is deliverable and maintainable.

LIGHTING DESIGN CONSIDERATIONS

The Design Principles for lighting are supported by the following design considerations.

Context and visual impact

Lighting designs must always consider the local historical, cultural, environmental, and architectural context.

Lighting proposals within Andover must be subject to a day and night time visual impact assessment. A primary aim of the assessments is to ensure consistency of town wide lighting and cohesion with the existing environment. Nearby lighting schemes, thresholds, approaches, near views and distance views must all be considered.

The quantity, size, type, and scale of lighting columns, for example, can affect the character of a street. Brightness, contrast, colour, and dynamics also have a strong affect. Transitions between lighting zones should be carefully managed to ensure that the lighting is unified and seamless.

Cultural and historic layers of the town should be evaluated for relevance in lighting proposals and can often inspire lighting design concepts. Existing layers should be retained where possible, for example historic light fittings should be restored in preference to being replaced. These social connections help to express the identity of the town.

Lighting for parks and near water should be evaluated with consideration for the natural environment as the dominant design driver.



Striking catenary lighting / Glasgow

Engagement

Visualisations produced during the early phases of a lighting project should be shared locally. Technical information such as plans and specifications should be made available as the project develops.

Public engagement can be an essential tool in realising a lighting project, for example by determining which lighting techniques are supported, such as spotlighting from a building beyond the project boundaries. It may be a way of guiding the design process, for example by helping in the selection of light colour and refining the design scope.

Lighting proposals should be demonstrated, where feasible, with live site trials to prove the designs and share their aspirations. Lighting demonstrations with public participation provide a meaningful way for people to get involved in the making of their town. This can engender civic pride, lead to the adoption of the lighting project by the community, and in turn help the long-term sustainability of the final scheme.

Balance + Contrast

Lighting designs must recognise the importance of controlling brightness in the town to allow the ebb and flow of light, to retain pockets of urban darkness, and to allow for contrast. Lighting developments must consider their wider effect on the town skyline and adjacent lighting schemes.

Balancing brightness and contrast is essential in presenting the night view of the town, for example drawing attention to significant historic buildings in the townscape from afar. Contrast can express architectural detail from nearby. Pockets of darkness can be considered as the night time equivalent of green space in a busy town, providing visual relief from the hustle and bustle of bright streetscapes.

Lighting designs are built in layers. The fundamental layer to build from is darkness, with the next layer typically street lighting. Controlling these layers alone can provide subtle visual cues that help direct us spatially, for example main routes may be brighter and lead from point to point to nodes of brighter lighting focus. Major streets can be made more visible and apparent to people using the street network at night if the lighting of major streets is different to that of minor streets.

Lighting must ensure visual comfort and avoid glare. Bright lighting does not necessarily mean good lighting. Uniformity in light levels, where light is evenly distributed, is important in engendering a sense of security in street or area lighting. Darkness with light is contrast, contrast which makes the lit images we construct vivid when present, and pastel if it is not. Allowing a range of light and dark, rather than emulating daylight at night, brings lighting down to a natural human scale.

Efficiency

Efficiency in lighting means not only energy efficiency or the electrical efficiency of the luminaires or the complete lighting system. Good lighting design provides the right amount of light where it is needed and balances the need for light to the local context.

Design efficiency, by using the right lighting tool at the right location, reducing the amount of equipment and system complexity where possible, makes the town more efficient in terms of energy use, greenhouse gas emissions, capital spend, maintenance requirements, and end of life recycling.

Over-lighting, using too much equipment for the task, or lighting at too bright intensity is inefficient, and at its worst wasteful of energy and resources and must be avoided. It is also a potential source of sky glow, directly from upward light and indirectly from bounced light.

Dimming can mitigate the effect of over lighting but can also introduce other effects, such as when certain LED technologies are lowered in brightness without a warming colour shift. This can result in a perception of gloominess in the light quality which would be avoided if the lighting system ran at full.

Lighting systems should be vandal resistant and protected from environmental conditions such as rain and vibration. This can be achieved at the design stage by careful equipment placement and detailing such as protective mounts or housings.

Projects in the public realm must design in efficiency to ensure that lighting schemes are sustainable and maintainable, whilst having low maintenance requirements. Waste is a design flaw.

Materials palette

08

Introduction

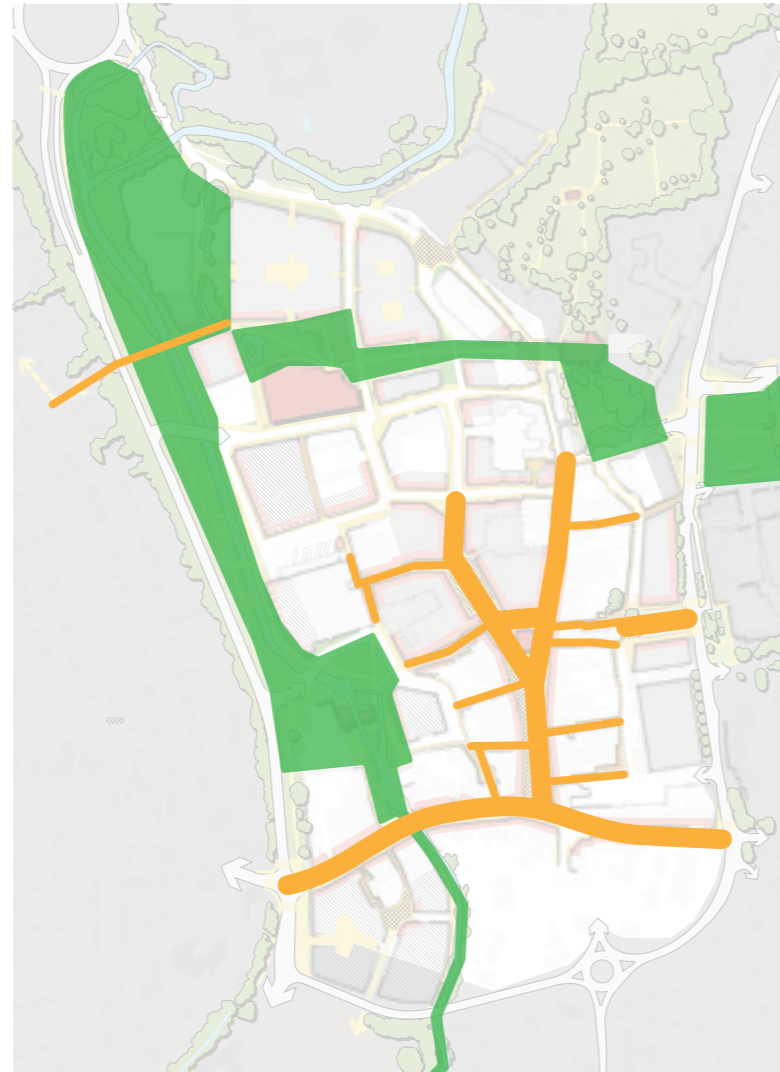
The landscape materials strategy relates to Andover's inner 'Town' and outer 'Park' character areas, which interface and overlap with each other at key places.

The inner Town area is a predominantly hard landscape, with soft green infrastructure landscape features (mostly SuDS). It has a high level of specification that relates to the quality of the Conservation Area's heritage, and its sense of place.

The outer Park area is a predominantly soft landscape, with mostly access-related hard landscape infrastructure.

Town and Park both have 'highlight' areas within them that use higher specification materials to the baseline for that area.

(Precedent projects relate to these character areas as noted: 'Town' includes High Street, London Street and Bridge Street, as well as the Lanes that connect them to outer areas; 'Park' includes Western Avenue along the River Anton, River Walk, Vigo Roundabout at the park, and Eastern Avenue).



Principles

Pedestrian surfaces should generally have a unity of appearance related to place and identity except where statutory visual contrast is required at road crossings, as well as consistent durability and maintenance qualities, to ensure visual and functional continuity. Design and material selection should be inclusive and accessible.

A number of principles and requirements are set out in Hampshire County Council's *Guidance Document for Footway & Cycleway Pavement Options*, with the key requirements being set out below.

Natural Flagstone Paving

Natural stone flags can be specified where they are a site specific requirement e.g. sites with 'listed' status or have particular, historical or aesthetic importance. Natural flagstone paving should be specified in accordance with BS EN 1341:2012 'Slabs of natural stone for external paving'. Particular consideration should be given to resistance to Skid resistance/ polishing, water absorption, flexural strength and frost resistance. When considering samples it is important to understand that the sample is only a small representation of a naturally occurring material. Colour and appearance may be difficult to replicate precisely. This is especially pertinent for products where there are significant striations or other geological features. Where possible sufficient quantities (including a reasonable allowance for 'wastage') should be procured to enable the works to be completed with materials sourced by a single order.

Block Paving

Block Paving should comply with BS EN 1338:2003. Where block paving is the selected option concrete block paving is preferred by the County unless other material has to be used to match existing blocks or as a result of a site specific requirement e.g. sites with 'listed' status or have particular, historical or aesthetic importance. Clay pavers tend to 'polish' more than concrete pavers, and are more susceptible to the growth of moss, lichens or algae, so suitable maintenance plans should be agreed in the design and specification stages.

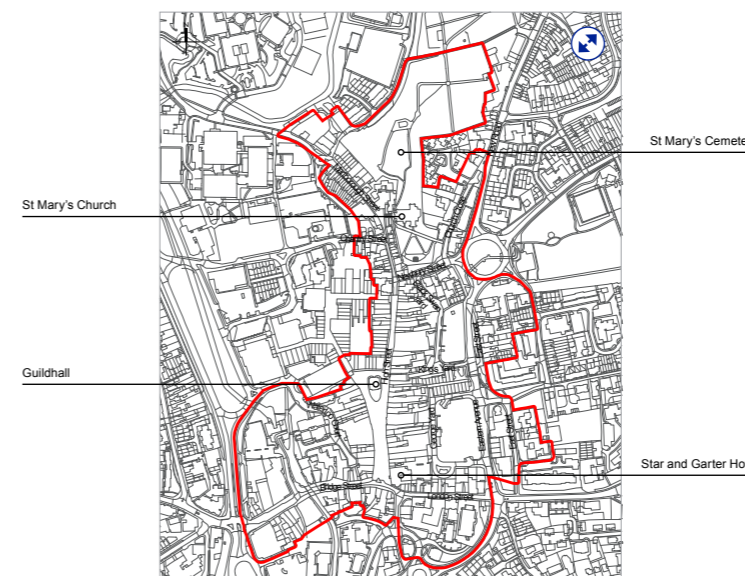
Slip Resistance

To reduce the risk of slipping, correct levels of skid resistance must be specified. An absolute minimum PPTV of 45 shall be specified for new works.

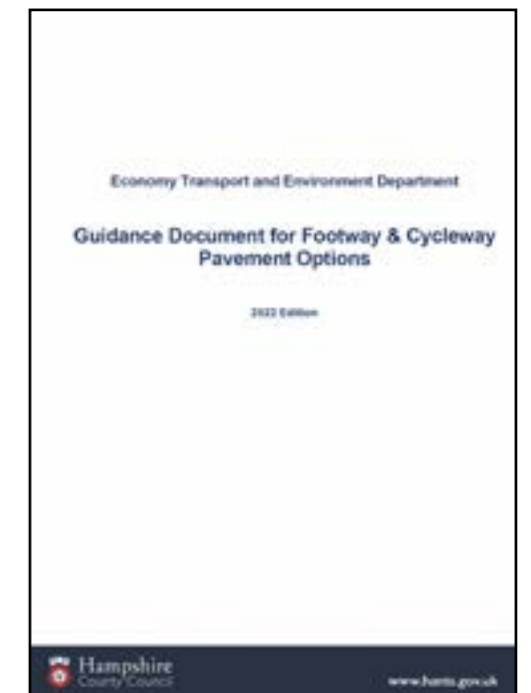
For heavily pedestrianised areas, locations likely to be used by vulnerable people e.g. outside a care home for the elderly, or where gradients steeper than 5% exist, a minimum PPTV of 55 shall be specified for blocks/ pavers/slabs/flags whether manufactured from clay, concrete or natural stone.

Construction

For local construction standards please refer to Hampshire County Council's *Guidance Document for Footway & Cycleway Pavement Options*



Boundary of Andover Conservation Area



Footways & hardstanding / TOWN (Highlights)

A locally appropriate natural stone flag paving is the preferred footway material for the inner town centre, selected to create a more unified setting and ground plane appropriate to Andover's historic context and commercial and cultural activities. The design process of any project should ensure that there isn't a blanket coverage of material, rather that materials support the existing heritage and character.

Flag sizes can be selected appropriate to the scale of space, from a range of standard widths and random lengths which can be combined to create a varied floor pattern where desirable.

A locally appropriate natural stone flag and sett paving is the preferred material for parking and loading areas, selected for its high strength and performance. Flags and setts can be selected from a range of standard widths and random lengths. A warm grey mix with brown and beige tones is recommended to tone successfully.

All material depths and structural design to engineering specification subject to loading requirements in accordance with BS7533-101: 2021



Footway / Natural Stone Flag Paving



Footway detail / Matching natural stone detail highlighting thresholds.



Loading + Parking zones / Porphyry to footway-flush vehicle accessible zones. Zones.



Natural Stone flag / Flag paving, sawn edge, 400mm wide x random lengths.



Natural Stone sett / Square setts, sawn edge, 100mm x 100mm.



Grey mix Porphyry setts / Rectangular setts, cleft edge, 100mm wide x random lengths.

Footways & hardstanding / TOWN (Highlights)

Certain spaces will benefit from being finished with a varied surface treatment that complements the more typical paving materials to highlight their role and significance within the town centre.

Purbeck limestone natural flag and sett paving is one of a range of preferred materials for signifying primary key highlight spaces, for example, in relation to special buildings or to define key thresholds.

Flag sizes can be selected appropriate to the scale of space from a range of standard widths and random lengths according to the desired function and arrangement. Purbeck is a British limestone and stone colours vary from light cream to beige, browns, greys and bluish tones.

Clay pavers are the preferred surface for signifying secondary highlight spaces, such as passageways, yards or lanes, with a preference for slim proportioned pavers and muted colours such as browns and brownish reds, laid in an appropriate bond pattern.

Porphyry natural stone paving in flags or setts is suggested as an alternative to clay pavers for particularly demanding situations.

All material depths and structural design to engineering specification subject to loading requirements in accordance with BS7533.



Public Spaces / Limestone as high quality highlight material to key public space features, eg Lower High Street 'runner'.



Yards / Utilitarian brick to smaller scale connecting passageway spaces.



Purbeck Limestone / Flag paving, sawn edge, 400mm wide x random lengths.



Clay Pavers and Edging to Public Footway / Moulded edge, 85mm wide x 200mm.

Footways & hardstanding / PARK (Typical)

The public realm immediately beyond the inner town centre is defined by a virtual ring of streets, roads and green spaces that interface with Andover's historic core, including Western and Eastern Avenue, Riverside Walk, and connections between the Health and Wellbeing Quarter towards Vigo Park. It is worth noting that the dominant existing paving material to footways in this area is asphalt. The overall intention within these areas is a move towards park streets and green spaces with paving materials that help reduce the urban heat island effect using lighter colours.

Precast concrete flag paving with coloured aggregate is the preferred typical material for footways in streets within these areas. Flags can be selected from a limited range of standard sizes and bedded on sand. Resin bonded gravel is the preferred alternative footway material to both concrete flag and asphalt paving as it can be relatively easily applied to both new and existing asphalt surfaces (in good condition) due to its minimal build up compared to resin bound gravel. Resin bonded gravel is a monolithic poured material. Resin polymer should be UV stable and used in conjunction with a locally sourced light coloured gravel aggregate.

Resin bound gravel is the preferred typical pathway material for parks and green spaces. Resin bound gravel is a monolithic poured material. Construction should allow for permeability where conditions allow. Resin polymer should be UV stable and used in conjunction with a locally sourced, light coloured gravel aggregate. Tar spray and gravel is the preferred alternative to resin bound gravel for pathways to parks and green spaces. Again, a monolithic material with surface application of light gravel aggregate giving a more informal appearance.

Coloured asphalt is the preferred typical cycleway material. Coloured asphalt is a monolithic poured material using a pigmented binder and stone aggregate. Lighter coloured pigments such as buff or muted red are preferred. Flags, setts, pavers asphalt and resin bound gravel can be installed as permeable paving with correct depths, joints and base layers where appropriate. Proprietary permeable paving products can also be considered for specific areas where desirable.

All material depths to engineering specification subject to loading requirements in accordance with BS753



Footway / Enhanced precast concrete flag paving as typical street paving material outside of the Conservation Area.



Precast Concrete with Coloured Aggregate / 600mm wide x 750mm, or as proprietary.



Pathway / Resin bound gravel appropriate to routes through green park spaces.



Beige Mix Resin Bound Gravel / Monolithic poured material.



Cycleway / Dedicated and shared space cycle routes.



Coloured Asphalt Cycleway and Clay Paver Footway / Monolithic poured material with clay pavers.

Footways & hardstanding / PARK (Highlights)

Certain spaces will benefit from a distinct material surface finish that complements the more typical paving materials to highlight their role and significance within the outer zones of the town centre. These are anticipated to be relatively small areas that link the identity of the outer town centre areas with specific more central spaces.

Purbeck natural flag and sett stone paving is one of a range of preferred materials for signifying primary key highlight spaces, for example, in relation to special buildings or to define key thresholds. Suitable alternatives to Purbeck are porphyry flags and setts, clay pavers or concrete blocks and also recycled materials such as York stone or suitable bricks.

All material depths to engineering specification subject to loading requirements in accordance with BS7533.



Public Space Feature / Limestone e.g. Purbeck as one of a range of high quality highlight material to key public space features, eg Pocket Square beside Bus Station.



Riverside Terrace / Porphyry to terraced edge spaces.



Purbeck Limestone / Flag paving, sawn edge, 400mm wide x random lengths.



Grey mix Porphyry setts / Rectangular setts, cleft edge setts 100mm wide x random lengths.

Kerbs & edges

Kerbs and edges help to define and separate specific areas of paving. They may also separate hard and soft materials. Kerbs are a key part of the streetscape acting as both a clear visual guide, and also structurally, providing a rigid edge against which different materials can be laid.

It is worth noting that most existing kerbs in the town are pre-cast concrete, with localised use of granite or Purbeck natural stone. A range of edging materials are found including brick, pre-cast concrete, and occasionally, York stone setts.

Within the inner town centre, the preferred kerb material is granite, in varying widths to suit the scale and context, with full cut quadrants and/or curved corner stones. Using reclaimed granite kerbs is also a consideration. Within the outer town centre the preferred kerb material is likely to remain as pre-cast concrete tying in to the wider road network although opportunities to upgrade to granite kerbs should be explored where appropriate. Where integrated drainage kerbs are required, matching granite, conservation units or precast concrete units are suggested.

Within both the inner town centre areas and the outer park areas, the generally preferred approach to edging is to use the same material as the preferred paving material where possible, to create a seamless appearance. For example, York stone edging, in either setts or flags, with York stone flag paving, or clay paver edging with clay pavers etc. There may be exceptions to this general approach for example, situations involving granite kerbs laid flat containing a contrasting material related to continuous crossings or defining areas of vehicle standing integrated into footways for example or where steel edging may be required as a separator. Concrete edging should be discouraged and replaced where possible.

Steel edging is the preferred material where monolithic surfaces within green spaces are required such as resin bound gravel to footpaths. Steel performs well in comparison to other materials for creating curved edges. Stainless, corTen or galvanised finishes are recommended for different applications.



'Conservation' style kerb / natural stone aggregate in concrete kerb product, similar to various existing kerbs used in the town centre area. Example: St Albans



Granite kerb laid flush / 3 courses of setts laid longitudinally emphasizes different footway areas. Example: Kings Cross St Pancras, London



Granite kerb and granite kerb laid flat / form kerb zone. Example: Leyton High Road



Granite quadrants and 'specials' / improve appearance of kerbline at junctions. Example: Leyton High Road



Granite kerb with extended granite channel / edge detail helps to minimise extent of asphalt in the carriageway. Example: New Bond Street, London



Steel edging / separating resin bound gravel path from planting area.

Channels

Consideration of surface water flow and drainage techniques are key to the successful design and detailed resolution of the public realm. Where channels are required or desired to direct water, for example where footways do not drain to carriageways, or that levels, falls or land ownership dictate requirements, it is preferable to direct surface water towards channels that are unobtrusive, easy to move over and are co-ordinated with gulleys and drains or tree pits/rain garden areas. Kerbside channels in carriageways can be expressed

The preferred general approach for channels to public realm areas in the inner town centre is to create a flat (not dished) linear strip using the selected footway material as either flag or sett laid to correct falls and integrated with drainage hardware.

Where shallow falls dictate, or a more heavy duty approach is required, for example, where paved areas require vehicular access the preferred approach is to use an appropriate channel drain with internal falls and cast / ductile iron cover. Where it is desirable to direct surface water towards planted areas, for example across a footway - decorative cast covers can be considered.

Where upstanding granite kerbs to carriageways are proposed, the preferred approach to forming kerbside channels is to use either: a granite kerb laid flush with the carriageway, or alternatively setts laid lengthways, in 2-3 rows depending on the scale of the road.

Where street improvements are being considered, particularly to outer 'Park' areas it may be appropriate to create extended kerbside channel areas to direct surface water flow and encourage responsible driving. Preferred materials are natural stone setts or imprinted concrete.



Unobtrusive longitudinal pennant sandstone flag channel / laid flat directing surface water to linear slot drain and gully in the City of Bath



New laid kerbs / with two courses of setts laid longitudinally to form channels within the carriageway draining to traditional gully points in White Hart Yard, London



Heavy duty channel drain with cast iron cover / draining both carriageway and footway. 'Birco' type heavy duty channel drain from Marshalls with slotted cast iron cover. Care should be taken to specify heel and slip resistant finishes, Exhibition Road, London



Decorative cast iron cover / channel drain cover in footway directing surface water to planted area. Iron Age Grates



Extended kerbside channel / using 6 rows of small setts directs water flow and encourage responsible driving. In Poynton

Carriageways & median

Most carriageways of Andover's adopted highway are finished in asphalt or block paving. While asphalt generally performs well for vehicles, it's black colour makes little contribution to the appearance of the public realm and unfortunately contributes to the urban heat island effect (UHI).

Relatively simple improvement measures to the road surface could include: the application of bauxite to improve the appearance and UHI performance via a light coloured surface; inclusion of stone aggregate/chippings with or without a pigmented binder to reduce, break up or eliminate large black surface areas. These measures can be considered in relation to the design of more generous pedestrian and cycle crossings, channels and median strips to further enhance improve the appearance and performance of carriageways.

In a few key situations such as High Street and a limited number of pedestrian priority areas, the preferred approach is to replace asphalt/concrete block paving in vehicular access areas with natural stone flags or setts to create a more seamless, high quality public realm surface. The preferred material is sandstone, e.g. York stone flags or setts.

Where it is appropriate to introduce a median strip to the carriageway this should be coordinated with other streetscape materials. Preferred materials include natural stone setts, clay paver/concrete block paving or imprinted concrete.



Light coloured stone aggregate / rolled into darker asphalt wearing course to improve appearance and reduce surface area of heat absorbing dark asphalt.



Hi-friction slip resistant resin bonded aggregate / applied to wearing course provides a lighter surface and helps prevent traffic accidents.



Sandstone flags and setts / Venn Street, a pedestrian priority but vehicle accessible street in Clapham Old Town, London



Concrete imprint / used at crossing to harmonise with general footway materials in the street on Camden Road, London.



Median strip in natural stone / separates carriageways and minimizes area of asphalt in Poynton.

Cycle lanes & tracks

Stepped tracks may be useful where motor traffic conditions dictate that a high degree of separation for cyclists would be desirable but where streets have higher pedestrian flows, more active frontages and/or more kerbside activity – for example, a high road street type.

Indicative design parameters:

- Flush, step-free surfaces need to be provided for pedestrians at informal and formal crossings – the track is likely to need local ramping up to footway level or dropping down to carriageway level to achieve this, and appropriate tactile paving must be provided
- The kerb height at each step should be at least 50mm so that they are detectable by anyone using a long cane or guide dog
- Shallow ramps will be needed wherever the track returns to carriageway level to provide a smooth transition for cyclists
- Buffer space is likely to be needed between cycle movement and parking bays or the nearside general traffic lane: one way to do this would be to suggest to cyclists, through use of a different surface treatment, that they ought not to ride in the 0.5 metre-wide zone nearest the edge
- Loading bays may be floated outside the cycle tracks, but consideration will need to be given to ramping up or dropping down at such bays
- There is a risk that motorists may mistake the track for parking bays: appropriate signs, including those that show parking restrictions, should be provided selectively, so as to minimise street clutter

Most footway and carriageway surfaces will also be suitable for cycling on. The choice of material must be sympathetic to the prevailing character of the street or space whilst being sufficiently distinct from the footway and carriageway.

Among the most important considerations in choosing an appropriate surface material are cost (and variation by colour), durability and skid resistance. Polished stone value (PSV) gives a measure of skid resistance.

A PSV of 55 is normally acceptable for road skid resistance. All cycleways/cycletracks shall have a minimum PSV of 55. Cycle lanes (i.e. as part of the carriageway) shall have the same PSV as the adjacent carriageway to avoid the risk of differential skidding. The table to the right shows, indicatively, a comparison of different surface materials and treatments according to these criteria. Only materials costs are included here. Laying costs can vary considerably depending on the area (m2) and the required traffic management arrangements – difficult and restricted access, in particular, is likely to increase costs. The cost per square metre will also be higher for smaller areas. In each case, more accurate figures should be obtained from suppliers.



Block Paving / Used here on a bus border as a clear differentiation between footway and cycle track is made.



Brick Paving / Suitable for cycle street conditions and low speed environments.



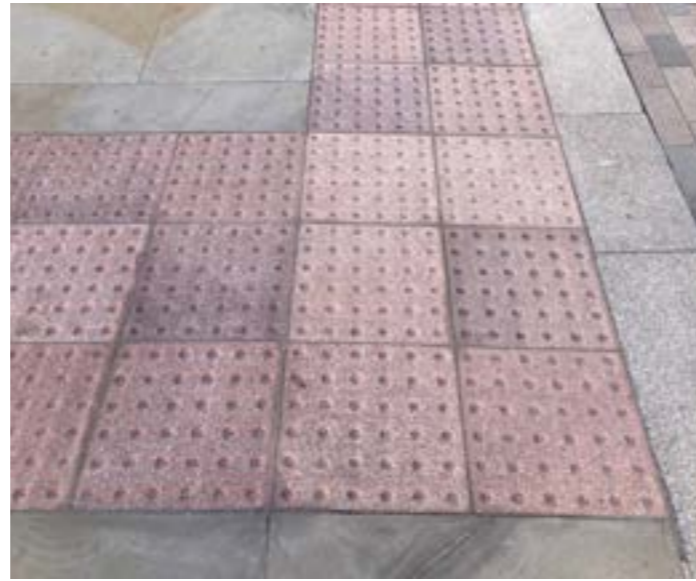
Asphalt Cycle Track / Clearly identifiable as a movement corridor with buff pedestrian crossing

Surface Material	Life (years)	Skid resistance (PSV)	Indicative cost per square metre (£)		
			Normal	Red	Blue/Green
6mm asphalt concrete	20	60+	8	12	25
Coloured TSCS, 30-50mm thick	20	55+	-	25+	25+
Block paving	20	55	20-30	20-30	-
Brick paving	20	-	-	20-40	-
Concrete paving flags	10	-	20-30	-	-
Tactile paving	10	-	30-40	-	-
York stone flags	20	-	160	-	-
Granite paving flags	20	-	100	-	-
Thermoplastic High-Friction Surfacing	4-6	70+	13	16	16
Resin High-Friction Surfacing	8-10	70+	15	18	18
Cycle Track Veneer (thermoplastic slurry)	5	55+	8	8	8
Cycle Lane Veneer (polymer binder)	10	55+	10	12	12
Slurry Seal (poor colour and life)	5	55			
Surface Dressing – Granite Stone (bituminous binder)	20	60+			
Surface Dressing – Granite Stone (clear binder colour enhance)	20	60+			
Surface Dressing – Pea Shingle Stone	20	50			

Tactile paving

Tactile paving plays its part alongside other design and management measures in creating inclusive streets and spaces. The different uses of tactile paving need to be correctly applied and is particularly important for people with visual impairment, mobility impairment and non-visible impairments. Diverse engagement in relation to public realm schemes that will include tactile paving should be carried out from an early stage and involve people with and organisations representing protected characteristics.

The key types of tactile paving include: blister paving, corduroy hazard warning paving and central delineator strips. Each has a particular application helping people to memorise and navigate their environment. Achieving contrast between tactiles and the general footway material is key. Sizes and material types can vary, however a range of slip resistant materials can be considered including granite/other natural stone materials, concrete, brick etc. In Conservation Areas, non-standard approaches such as textured steel may be considered. Please refer to Guidance on the Use of Tactile Paving Surfaces, DfT 2021; Inclusive Mobility, DfT; The Equality Act 2010 and Public Sector Equality Duty for further details and typical arrangements.



Red blister paving / for use only at designated crossings to contrast with surrounding paving. At uncontrolled crossings, buff blister paving is common - other colours are acceptable as long as contrast is achieved. Typical module sizes: 400 x 400mm as shown here with the red granite blister with yorkstone at Kings Cross, London.



Tactile hazard warning (corduroy) paving / helps visually impaired people anticipate specific hazards e.g. top and bottom of steps; transitions between footways and areas shared with other users as seen here in Salters Garden London.



Central delineator strip / for cycle track/footway surface where it is not possible to achieve a total separation between the footway and cycling route for example, at limited pinch points.

Covers & ironwork

The preferred approach for service covers in natural stone or other flag/unit paved areas to footways is to use steel recessed tray covers into which the selected paving material can be continued to create a seamless effect to the surface. Where this is not possible, alternative approaches may include using good quality castings such as cast or ductile iron; covers can also represent an opportunity to introduce art/interpretation where appropriate.

Access covers and gully grates should meet the requirements of BS EN 124 and Hampshire County Council in all situations, whether on or off roads and to all materials.



Forest Pennant sandstone / in recessed tray enabling a seamless finish to high quality public realm areas as shown here in Bath.



Bespoke cast iron manhole access cover incorporating art / interpretation as shown here in Seattle.

Treepit surface finishes

There are 3 preferred approaches to tree pit finishes in hard paved areas that correspond with their surroundings. For newly planted trees in areas of natural stone flag paving the preferred approach is to use a horizontal tree grille with a heavy duty recessed tray enabling integration of paving. Systems should include watering and aeration vents. In more informal paved areas such as asphalt footways, the preferred approach is to use resin bound gravel as the surface material.

This technique is appropriate for new and existing trees. A removable steel tree ring can also be used to separate the surface finish from the tree trunk and de-installed at a later date as needed, with significant increase in trunk diameter. While resin bound gravel is permeable, watering and aeration vents should be supplied. In paved areas in parks and green spaces, the preferred approach is to use a self-binding gravel finish, again in relation to load bearing urban tree soil and appropriate sub-base. This technique is also suitable for existing tree root protection areas in more formal paved areas. The preferred approach for tree pits in paved areas in parks is green spaces is to use a self-binding gravel to tree surrounds.



Typical coordinated and integrated heavy duty recessed tray / for newly planted trees in hardpaving ensuring flush natural stone finish with surrounding footways.



Resin bound gravel / finish to treepits where existing tree root protection areas are important in inner 'Town' areas.



Self binding gravel / finish to tree surrounds in outer 'Park' areas.

Threshold Highlights

A change in material to mark the transition between one space and another can be considered where this will contribute to the legibility and aesthetic quality of the public realm. Preferred materials will vary in relation to the context and situation. A wide range of materials can be considered including natural stone or concrete flags and setts, clay pavers, external tiles etc providing they meet the required standards for external paving. Care should be given to joint lines.



Use of Purbeck limestone setts / to announce a threshold between the high street and a narrow yard as shown along Borough High Street, London.



A small area of non-slip tiled floor / outside a shop creates a striking threshold in an otherwise simply paved space as seen here in Copenhagen.



Porphyry flags / meet reclaimed granite setts at a building interface in Coal Drop Yards, London.

Craftsmanship, detailing, & maintenance

Through all this, regardless of material choice craftsmanship, good detailing, and necessary maintenance are essential, and must be at the heart of the design process for all public realm in Andover.

During the design phase, designers must consider the materials that are already on the ground and how they can be reused - in the same location or elsewhere in the town. A robust evidence base and case must be made if materials are removed from site with no plan for reuse.

During the design phase of public realm schemes, designers must work with the teams that will be maintaining the public realm to establish a programme of renewal and repair going forwards that is suitable for the place. Designers should design with maintenance in mind.

Another key consideration is that of repair. Block paving should be prioritised in areas that might require regular access to what is underground as it can be lifted and relaid. During maintenance and especially during utilities works those responsible for the public realm must manage the works to ensure materials are carefully lifted and relaid, not accepting patch work repairs with the promise of returning to make good.

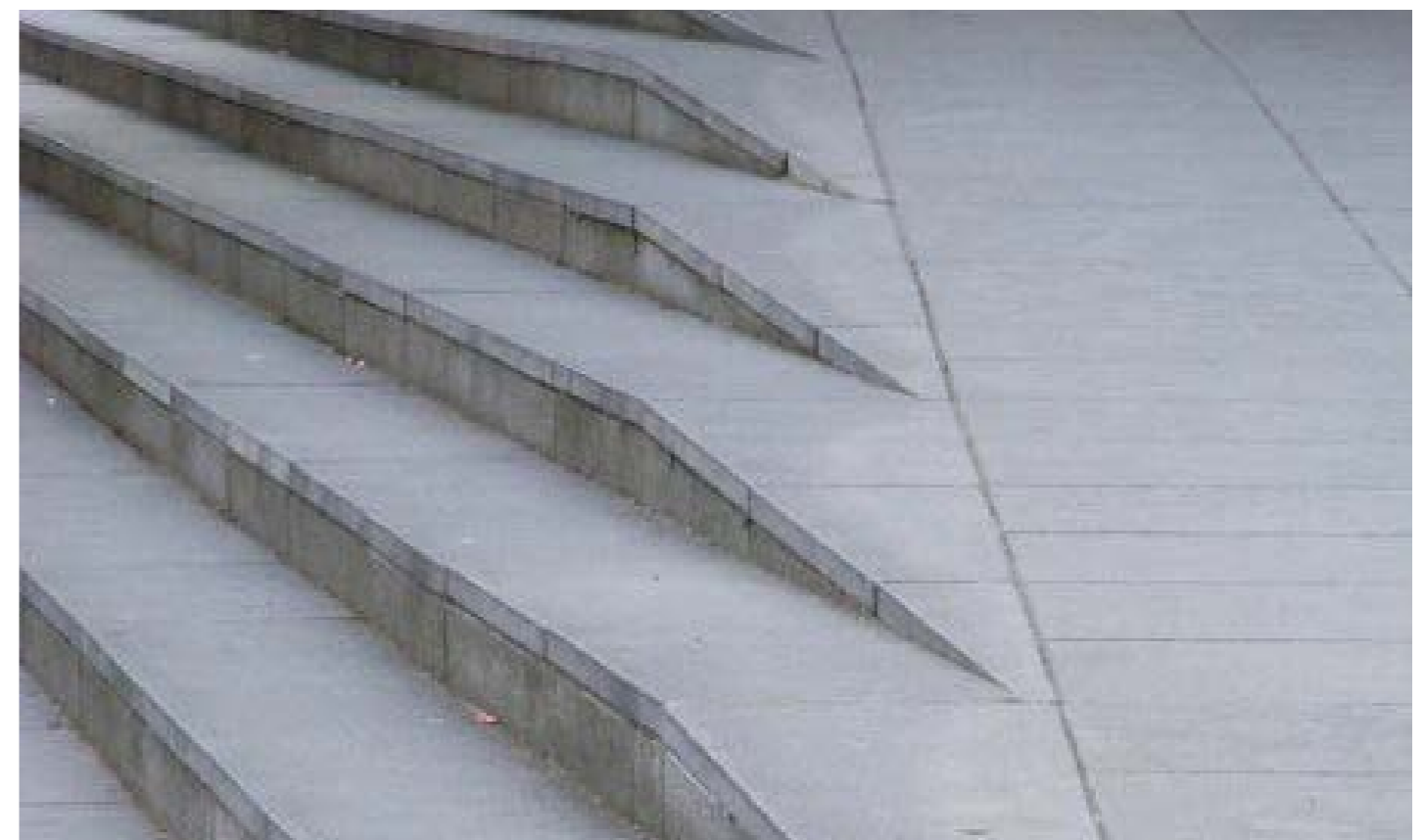
Finally, through the design process consideration must be given to how the project will be constructed in order to eliminate ambiguity or opportunity for misinterpretation. Drawings should be detailed enough to clearly communicate joins, cuts and radii detailing to avoid common issues such as the 'threepenny bit'ing' of curves with a series of straights. During any value engineering process the detailing must be a paramount consideration and if specials were required to create the design and these are no longer feasible, the design must be revisited to find a cheaper but equally elegant solution, rather than allowing a second rate solution to come to pass.

During construction those responsible for the design or those responsible for the public realm if the designers are no longer on the project must manage the works on site and sign off the quality of the work daily, based on these detailed drawings. When the works do not match the drawings, work should be paused on the section in question, reasons sought, and if the reasons for departure are not acceptable then the construction must be revisited.



Elegant detailing of a continuous footway accommodating a vehicle change in level / Sidcup

Steps and level changes need accurate and careful detailing / London



Green & blue infrastructure

09

Andover's Chalkland Landscape

“Since the Second World War, the UK has lost around 80 per cent of grasslands”

National Trust

“There are only about 200 chalk streams in the world, and most of them are in the southern half of England...”
WWF

“Rivers are found all over the world, but chalk streams are very largely English. They should be our pride and joy”

Charles Rangeley-Wilson, chair of the CaBA Chalk Stream Restoration Group

The strategy is consistent with the bio-regional approaches proposed to improve resilience to biodiversity loss, flooding, heat, drought, and other impacts of climate and ecological crises. Regenerating and developing chalkland habitats as part of Andover's identity, can therefore play an important role in shaping its future as a sustainable, resilient and unique English market town.

This guidance proposes recommended planting palettes based on the chalkland geography of Andover can be broadly split between the following:

Anton Corridor

- River Channel
- Flood Plain Corridor
- Streetscape
- Public open spaces

Chalkland Townscape

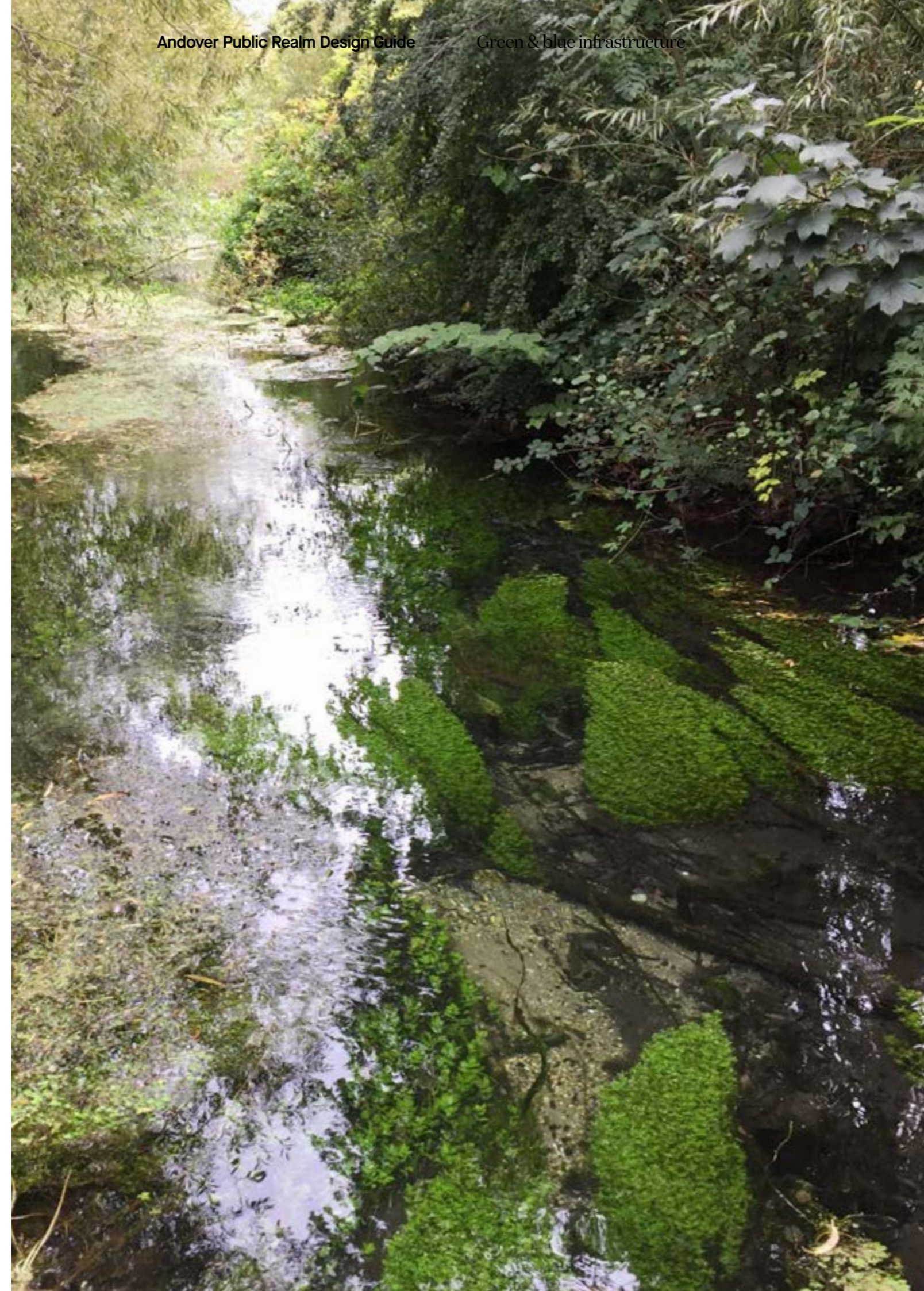
- Grassland and verges
- Hedges and shrublands
- Woodland
- Historic Town Centre
- Suburban Streetscape

Species and lists given are for guidance, and each site should be designed according to its own unique characteristics and functions. Use of the species listed, will help reinforce Andover's special chalkland natural heritage.

Landscape Strategy

Like other elements of townscape, planting and soft landscape should aim to emphasise urban characteristics which celebrate Andover's unique context. Andover's name derives from the crossing of the River Anton, of one of world's rarest and most precious habitats (chalk streams), and the town is set amongst one of England's most identifiable landscapes (chalk downland).

Emphasising the chalkland character of Andover is an approach which not only helps re-establish Andover's identity: It also supports a more regenerative approach to biodiversity and ecological objectives. Planting schemes and management which use locally endemic plants and soils will "look right" and encourage and sustain invertebrates, mammals and birds - even within a busy townscape.



Anton Corridor

The River Anton is one of the UK's internationally renowned, rare and valuable Chalk Streams. It flows from north to south, from springs beyond Anton Lakes, through Andover and towards Rooksbury Mill Lakes and the River Test to the south, linking Nature Reserves and designated a Site of Interest for Nature Conservation. The health of the Anton is critical to the health of the nationally designated River Test SSSI, downstream.

In pre-history, the Anton would have taken the form of a wet, marshy, shallow, valley bottom with many small streams - some permanent, some seasonal. The original river will have traversed a marshy valley floor, as a series of interconnecting braided channels whose flow and location could change from season to season and year to year.

Andover grew around a natural narrowing of this marshland, at a point where it was easier to cross between the downlands to the east and west.

The River and the bridge are therefore key to the origins of Andover, and the historic town centre developed on slightly raised, gently sloping ground immediately nearby – away from the risk of flooding.

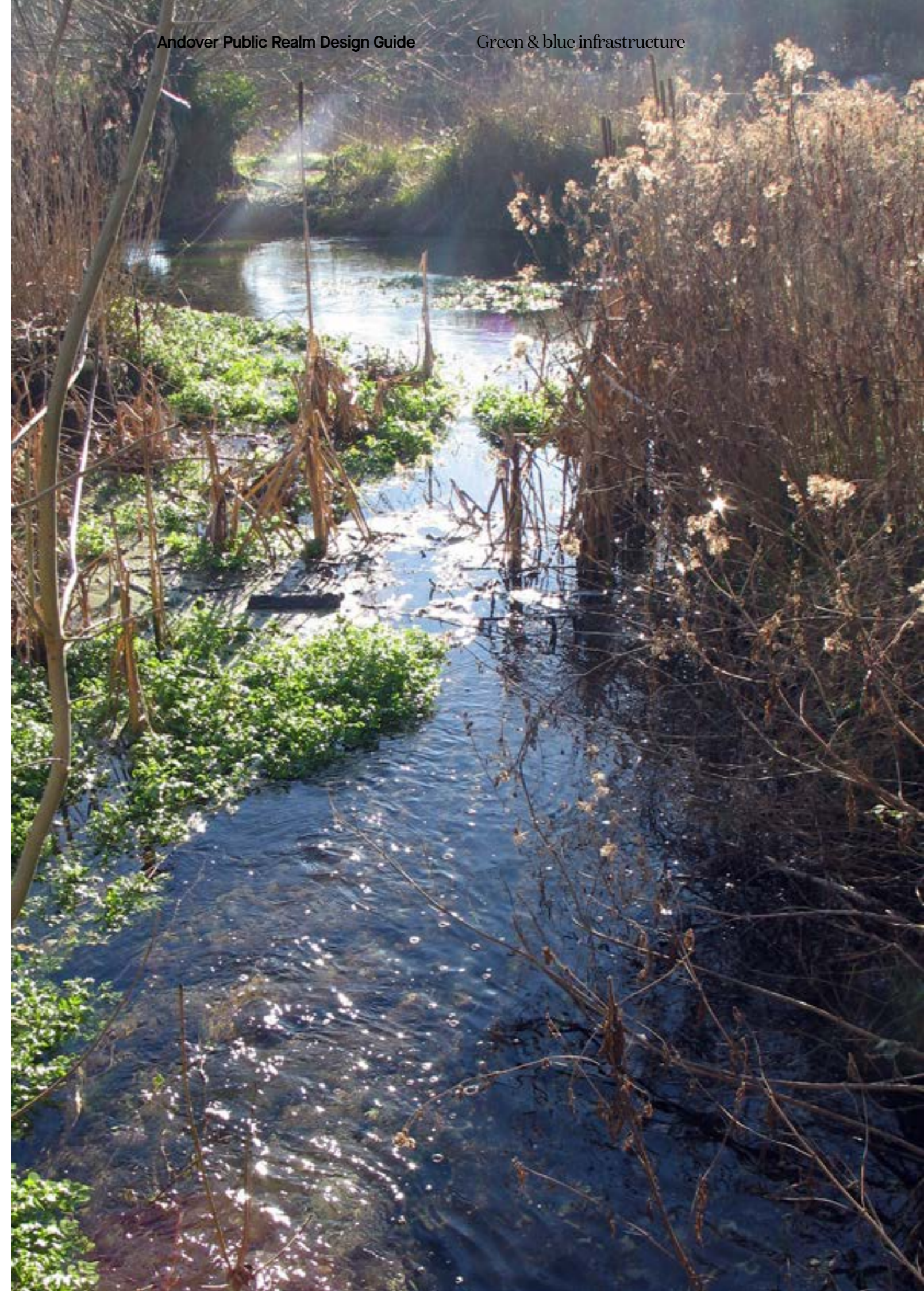
As a natural centre for trade and settlement, the valley floor was drained for agriculture and settlement, the valley bottom dried out and the flow focused into fewer channels – until only a single main river and series of mill leats and former field drains remain. The railway and subsequent road and built developments have constrained the Anton into its current, narrow channel - disconnected from its flood plain,

For the purposes of this guidance, the Anton Corridor is defined by the level area of the original flood plain. The soils within the Corridor are distinct from those of the surrounding chalk downs: They are formed from silts and clays deposited by the river, and the organic remains of vegetation.

If left to nature, undrained and unmanaged the Corridor would ultimately revert to wet woodland habitats: Alder and Willow Carr (marshy woodland dominated by alder and willow trees). Within the carr, a mosaic of more open tussocky marshy grassland habitats and ponds connected by faster-flowing braided channels would supplement the woodland.

This type of wet woodland habitat is a National Priority Habitat with exceptional biodiversity – especially where fed by clean aquifer-fed chalk stream waters, such as the Anton.

The re-introduction of aspects of the complex of small, fast flowing channels, ponds, tussocky grassland and wet woodland, would support an extraordinary range of aquatic, marginal and forest life. It would also offer potential to reduce downstream flooding, may help retain more water in the aquifer and even reduce local urban heat island effect. For wildlife, it would also create new spawning grounds for fish, and habitats for a greater range of aquatic invertebrates, mammals and birds. Adding complexity to the corridor presents the opportunity to enhance its designated and protected habitats and species, in alignment with the wider Biodiversity Action Plan.



Objectives

Development within the Anton Corridor should aspire to achieve best practice in sustainable drainage and riverine ecology by considering from the outset:

Sustainable Drainage Strategy (SuDS):

- Using SuDS to attenuate and clean surface water on site
- Identifying ways to combine SuDS with ecological objectives – creating riverine habitat using swales, ponds and other features as part of an integrated SuDS strategy

Appropriate planting design:

- Incorporating local species (where possible using local genetic stock) and ecological niche-specific plants within permanent planting proposals - such as the species suggested in the palettes in this guidance

Landscape management:

- Planning for short and long term management outcomes
- Timing and designing landscape to minimise adverse impacts and maximise benefits to protected species and habitats
- Optimising habitat creation opportunities.

Construction management best practice:

- Managing construction process and eliminating construction impacts

At outline stage, design proposals should address the following objectives:

To re-establish greater hydrological connectivity between the River Anton and its floodplain:

- To address water quality and recharge of the aquifer
- To increase diversity within the Corridor and Channel, by creating ponds, braided channels, seasonal channels and features, variation in flow, greater attenuation and flood storage.
- To increase the ecological complexity of habitat

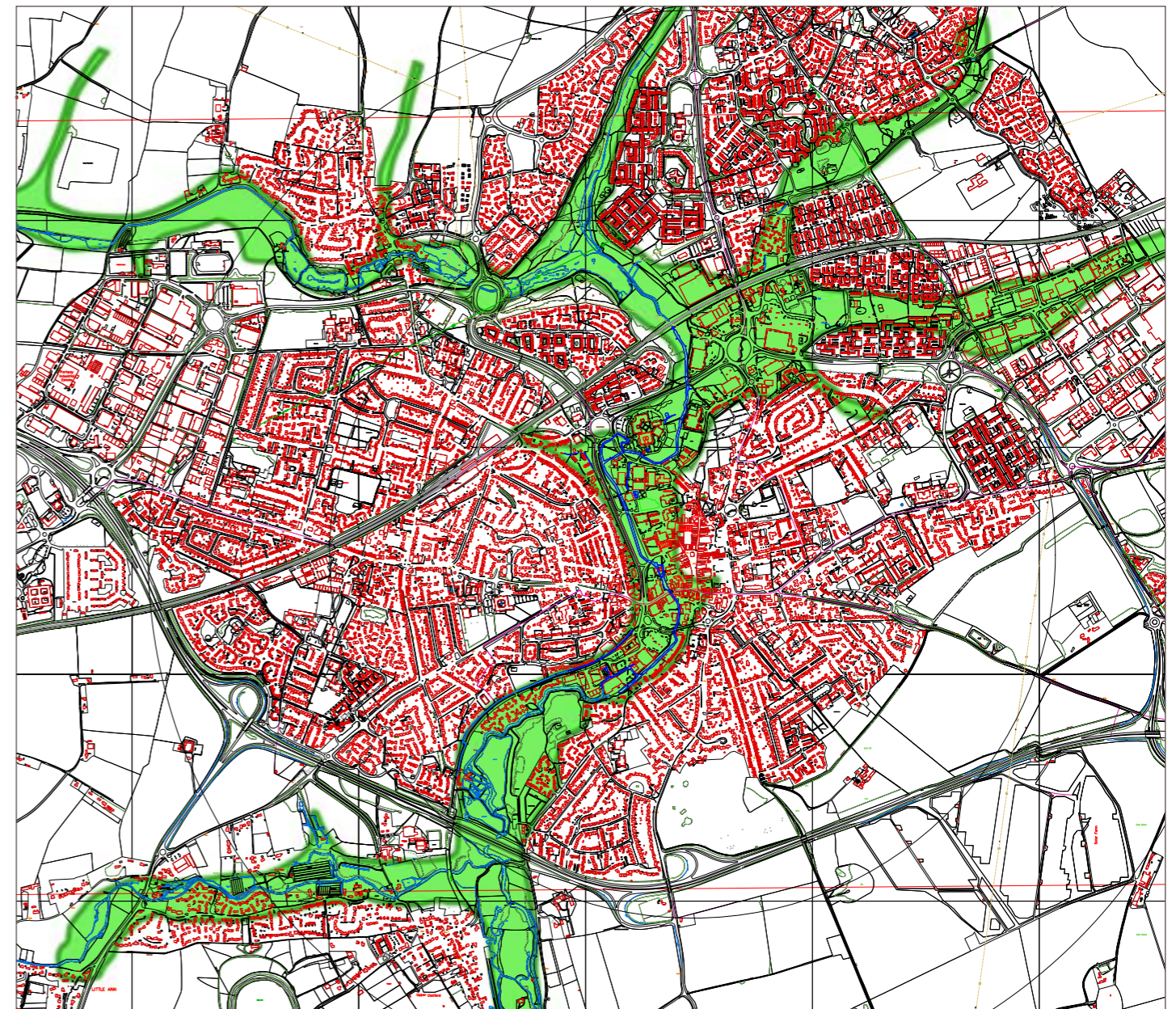
To increase habitat areas of:

- Alder and/or Willow Carr
- Pond, marginal and seasonally wet areas
- Wet tussocky grassland
- General tree cover
- Hedgerow and shrub

To establish wildlife connectivity along the length of the Anton Corridor for passage and (re-)colonisation of animal life:

- For fish and aquatic life, invertebrates, etc.
- For mammals (such as bats, water voles and otter)
- For birds.

To improve access to nature along the river corridor for the benefit of the community and to attract visitors without compromising the ecological objectives, protected sites, habitats and species.



Anton Corridor (green)

Water quality

Chalk stream ecology is dependent on high water quality. Chalk streams typically carry very little sediment, have a low nutrient content, but high dissolved mineral content. Low water temperature and rapid flow are also vital to oxygen content.

These combinations establish the unique crystal-clear chalkstream water - with few suspended particles and little algae - and provide the ideal conditions for characteristic plants and iconic fish species, such as Brown Trout and Grayling.

Aquatic invertebrates are crucial to the stream ecology, but are highly susceptible to contamination – especially from chemicals used in pesticides for agriculture and for flea/tick treatments for pets.

SuDS design within the Anton Corridor

Development and public realm proposals within the Anton Corridor must seek to address and improve water quality by ensuring SuDS proposals are fully-functioning and that any run-off entering storm water drains, ground or water courses:

- Eliminates/minimises sources of particulate pollution - silt and clay discharges (silt traps, sedimentation ponds, filter beds as necessary)
- Eliminates hydro-carbon contamination from surface run-off through trapping (e.g. petrol interceptors as necessary)
- Eliminates run-off containing salt and other de-icing chemicals
- Eliminates chemical contamination from insecticides (from agricultural/horticultural pesticides and by preventing dogs entering the chalk stream)
- Reduces nutrient status (eliminates nutrified run-off from planted areas or topsoil (using settlement and reed beds, and discouraging duck-feeding on the main water course)
- Eliminates construction impacts through implementation of a rigorous Construction Environmental Management Plan (CEMP), and measures such as interceptors, silt-dams and desilting lagoons where appropriate.

Proposals for the river channel

Where modification is proposed to the immediate river channel or connected flood plain, measures should aim to establish a more complex and fast flowing braided channel system, but must only be developed with the consent of the Environment Agency and as part of the wider Anton Enhancement Scheme (or its successor).

Proposals for the Anton's reach alongside Western Avenue will look to address flow speed and diversity, bed characteristics and bank conditions. Proposals are in development for in-channel features and removal of barriers in accordance with the Anton Enhancement Scheme aims. These measures are to be led and instigated with specialist engineering, ecological and hydrological input.

Channel treatments may include:

- Primary and secondary braided channels
- Fixed and mobile deadwood channel features
- Gravel bed reinstatement
- Riffles and oxygenating features
- Other flow modification features
- Tertiary seasonal channels

Bank vegetation management is also important to maintaining shade (for cool water temperatures) while preventing dense overgrowth from stifling biodiversity.



Water Crowfoot beds



Scoured gravel floor



Mobile deadwood channel



Deadwood shelter habitat



Secondary channel creation



Flow modification features



Semi-permanent channel



Semi-permanent channel



Riffles and oxygenating features



Stabilised channel



Tertiary, seasonal channels



Varied bank vegetation

Images: Mike Blackmore @Blacky_Himself

Vegetation Characteristics

The Anton corridor is dominated by alder, with willows and sallow, poplar and birch. The characteristic domed or conical crown, rounded leaves and cones of alder should remain a dominant and constant feature demarcating and differentiating the valley floor, from the valley sides.

Within the valley floor zone, alder is also suitable for use within streetscape and paved areas.

Multi-stem trees, coppices, pollards and hedges are all typical in the Anton Corridor, and maintaining a range of forms will contribute to the range of habitats and niches for invertebrates, birds and bats.

Clear stem trees are generally most appropriate for street tree planting,

Multi-stem trees, pollards and shrub forms should be used where space permits to diversify character within the valley floor.

Traditionally laid hedges should be used where a continuous barrier is required, and correct management can be enacted.

Tree and shrub planting species selection

Planting design will depend upon the development and context, and should be designed for the specific conditions. Native species should form a substantial component of most planting schemes, and designers should address their approach to biodiversity and native planting within design statements.

Where feasible within the Corridor, native species with local provenance should be specified. This means a local source of seed-grown (or cloned) nursery material. However, it is understood that local sources may not be available.

Native species should be from the range found within the Anton and Test valley floor. Typical native species might include:

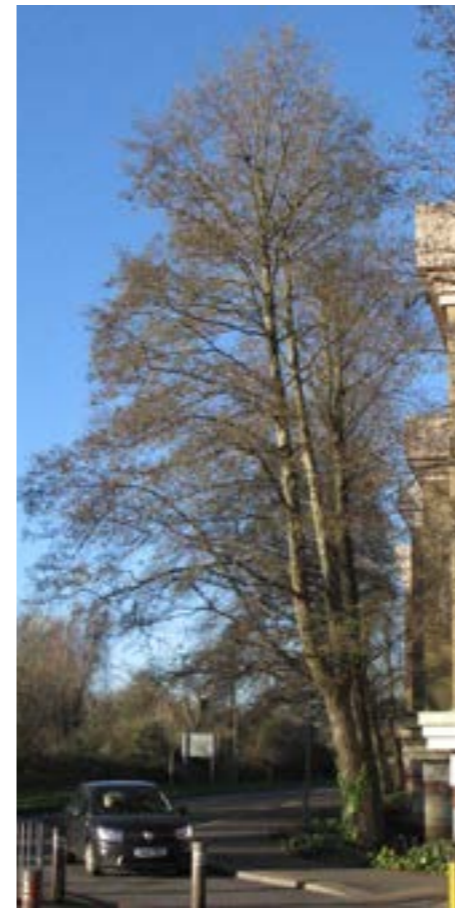
- *Alnus glutinosa* - alder (dominant species)
- *Betula pubescens* - downy birch
- *Corylus avellana* - hazel
- *Frangula alnus* - alder buckthorn
- *Ilex aquifolium* - holly
- *Populus nigra* - black poplar
- *Populus tremula* - aspen
- *Prunus avium* - wild cherry
- *Prunus padus* - bird cherry
- *Quercus*
- *Salix alba* - white willow
- *Salix caprea* - sallow
- *Salix cinerea* - grey willow
- *Salix fragilis* - crack willow
- *Sambucus nigra* - elder

For ornamental and non-native planting in high-use and special areas, appropriate exotic trees and shrubs are acceptable.

Examples of potential non-native species (or varieties) tolerant of wetter valley floor areas might include:

- *Alnus glutinosa* Imperialis - cut-leaved alder
- *Cornus florida* - Florida dogwood
- *Taxodium distichum* - swamp cypress
- *Corylus avellana* Purpurea - purple hazel

Care must be taken to prevent introduction or spread of invasive (especially non-native invasive) species within the Corridor. These include plants which reproduce either through seed or vegetative means.



Alder (Western Avenue)



Alnus glutinosa



Salix cinerea



White willow (pollard - R Anton)



Hazel (woven - Rooksbury Mill)



Salix alba



Betula pubescens



Hazel (traditional laid hedge)



Hazel (coppice)



Salix caprea



Populus nigra

Riverine and aquatic perennial planting

The Anton Corridor and SuDS features provide excellent opportunities to create locally distinctive and significant features in the landscape, as well as habitats capable of sustaining a wide range of plants and animals.

The holistic integration of locally distinctive chalk stream aquatic and marginal planting with the town, is important in re-establishing the Anton as a unique landscape feature of the town centre. Continuity of the corridor habitats is also essential in facilitating migration of wildlife within the corridor.

Growing Medium

Where appropriate and feasible, consideration shall be given to translocation of suitable topsoil from appropriate donor sites in order to translocate the seed-bank and soil biota with local provenance.

Generally, a deep low organic silty loam. Conditions within the Anton's active channel and for features within the corridor shall be varied to incorporate chalk gravel beds (with varying sizes of chalk aggregate). Design of the channels and shall be carried out by specialist designers.

Species selection

The Anton corridors and SUDs features should be planted to promote a diverse range of locally indigenous species. Non-native marginal and aquatic plants should not be permitted within chalk stream channels, and SUDs features if this could lead to spread of non-native or inappropriate plants within the chalk stream habitats.

Existing invasive species must be managed to prevent spread and eliminate where feasible.

Appropriate native species might include:

- *Achillea ptarmica* - Sneezewort
- *Angelica sylvestris* - Wild Angelica
- *Caltha palustris* - Marsh Marigold
- *Eupatorium cannabinum* - Hemp Agrimony
- *Filipendula ulmaria* - Meadowsweet
- *Geum rivale* - Water Avens
- *Hypericum tetrapterum* - Square-stalked St John's Wort
- *Iris pseudacorus* - Yellow Iris
- *Lotus pedunculatus* - Greater Birdsfoot Trefoil
- *Lycopus europaeus* - Gypsywort
- *Lythrum salicaria* - Purple Loosestrife
- *Mentha aquatica* - Water Mint
- *Pulicaria dysenterica* - Common Fleabane
- *Ranunculus acris* - Meadow Buttercup
- *Ranunculus aquatilis* - Water Crowfoot
- *Scrophularia auriculata* - Water Figwort
- *Scutellaria galericulata* - Skullcap
- *Silene flos-cuculi* - (*Lychnis flos-cuculi*) - Ragged Robin
- *Succisa pratensis* - Devil's-bit Scabious
- *Vicia cracca* - Tufted Vetch
- *Agrostis capillaris* - Common Bent
- *Alopecurus pratensis* - Meadow Foxtail
- *Anthoxanthum odoratum* - Sweet Vernal-grass
- *Briza media* - Quaking Grass
- *Cynosurus cristatus* - Crested Dogstail
- *Deschampsia cespitosa* - Tufted Hair-grass
- *Festuca rubra* - Slender-creeping Red-fescue
- *Hordeum secalinum* - Meadow Barley
- *Primula veris* - Cowslip



Caltha palustris



Lythrum



Mentha aquatica



Iris pseudacorus



Primula veris



Ranunculus acris



Ranunculus aquatilis



Silene flos-cuculi



Geum rivale

Chalkland Townscape

Outside the Anton Corridor, Andover is built on alkaline, chalky subsoils and bedrock. The townscape still retains species and characteristics of the natural and agricultural landscape which preceded the town, in the trees, hedges, verges and wild areas.

Rural chalkland landscapes can be very broadly categorised as a series of three successional stages. These three planting types form the basis of recommended basic planting palettes for Andover, but can be adapted for use as the basis for planting for verges, hedges, screens, street trees, rain gardens and ornamental planting.

- **Chalk Grassland:** Characterised by an array of wildflowers, invertebrates and fungi which are unique to the shallow, low-nutrient and alkaline soil conditions of the highly porous chalk bedrock. Chalk grasslands are known for their rich biodiversity and unique ecological communities, especially the complex interactions between flora and invertebrates, and iconic plants including orchids and meadow annuals. It is sustained through regular grazing or cutting, which prevents scrub development.
- **Chalk scrub and shrubland:** Where grazing (or cutting) is reduced, or shrubs are promoted through topography or cultivation, grassland gives way to a rich mosaic of grassland and shrub species, also highly characteristic of the underlying geology and soils. These are host plants to many of the species of butterflies and other invertebrates, and provide cover for birds and small mammals.
- **Chalk Woodland:** Left to develop, shrublands provide cover for larger woodland tree species to establish. Chalk woodlands are often found on the slopes of chalkland valleys sides, where agriculture has been less viable due to gradients. These woods, often known as “hangers”, cling to the sides of valleys and to the steep escarpments, and are found across the chalk landscapes of southern England.



Chalk Grassland



Chalk grassland scrub and shrubland mosai



Chalk woodland

Chalk grassland

Chalk grassland mixes are intended to echo the nearby downs in miniature, improve connectivity of chalk grassland habitats and species, and where possible, extend the influence of existing designated sites, Road Verges of Ecological Importance and other ecological reservoir sites. Where appropriate, the creation of chalk grassland should be considered as integral to Biodiversity Net Gain for development and infrastructure projects.. Chalk grassland is predominantly open and low-growing, especially where grazed by sheep or rabbit. Its character derives from both the alkalinity and the low nutrient status of the soils. In Andover's urban and suburban context, carefully timed mowing (collecting and removing all cuttings) can replicate the effect of grazing to maintain low nutrient and carbon content within the shallow soil. This regime will help suppress vigorous grasses, and promote floral diversity.

Floral grassland areas are appropriate in predominantly open areas character and appearance, and managed to promote both:

- A short sward of species-rich chalkland grasses and wildflowers, close mown (or potentially rabbit grazed), suited for mining bees, digger wasps and the like, and short-growing perennials.
- A longer, species-rich sward of characteristic chalkland perennials, suited to grassland invertebrates such as grasshoppers and crickets and for the development of butterfly and moth larvae.

Growing medium

Where appropriate and feasible, consideration shall be given to translocation of suitable topsoil from appropriate donor sites in order to translocate the seed-bank and soil biota with local provenance.

A typical specification might be for 100-150mm, low nutrient, alkaline chalky substrate, with low organic content. Soils should be fabricated from crushed arisings from local excavation or regrading works, with a well-graded particle size (35mm to fines). Subsoil: 400mm free-draining chalky substrate.

Species selection

Species mixes shall be designed to supporting a wide range of chalkland pollinating insects and micro-fauna, targeting lepidoptera and hymenoptera in particular. Food-plants for chalkland butterfly larvae shall be included.

Generally, a wide range of species shall be deployed initially to establish the widest possible range of species and promote the length of flowering season and diversity of flower types.

Typically species might include:

- Achillea millefolium - Yarrow
- Anthyllis vulneraria - Kidney Vetch
- Centaurea nigra - Common Knapweed
- Centaurea scabiosa - Greater Knapweed
- Clinopodium vulgare - Wild Basil
- Daucus carota - Wild Carrot
- Galium verum - Lady's Bedstraw
- Knautia arvensis - Field Scabious
- Leontodon hispidus - Rough Hawkbit
- Leucanthemum vulgare - Oxeye Daisy
- Lotus corniculatus - Birdsfoot Trefoil
- Onobrychis viciifolia - Sainfoin
- Origanum vulgare - Wild Marjoram
- Plantago media - Hoary Plantain
- Poterium sanguisorba - Salad Burnet
- Primula veris - Cowslip
- Prunella vulgaris - Selfheal
- Ranunculus acris - Meadow Buttercup
- Ranunculus bulbosus - Bulbous Buttercup
- Reseda lutea - Wild Mignonette
- Scabiosa columbaria - Small Scabious



Anthyllis vulneraria



Origanum vulgare



Clinopodium vulgare



Knautia arvensis



Leontodon hispidus



Leucanthemum vulgare



Lotus corniculatus



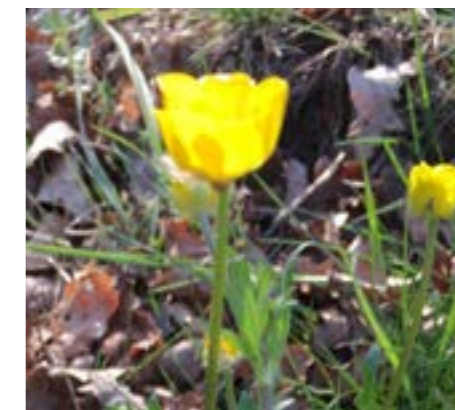
Plantago media



Poterium sanguisorba



Prunella vulgaris



Ranunculus bulbosus



Reseda lutea

Chalkland trees and shrub

Valley sides and un-grazed areas of chalk downland will develop from open grassland to light scrub of hawthorn, rowan, bramble and blackthorn to dense woodland of beech, hornbeam, yew and lime. These are well adapted to alkaline conditions and shallow soils, host a wide range of chalkland invertebrates, and should be integral to planting proposals.

Ash is also typical of the area, but is prohibited due to Ash Die-back disease. Sycamore is also not recommended due to its rapid growth and tendency to dominate slower growing trees. Box is not recommended, due to the spread of the invasive non-native Box Moth.

Most of the tree species listed can be appropriate for street tree planting. Specimen trees are best planted in communal tree-trenches or oversized pits with bases and sides broken up and good tree pit drainage essential. Topsoil should be not more than 400mm deep, installed on a chalk-based subsoil.

The volume of rooting medium (m³) should not be less than 0.6 times the area beneath the fully grown crown of the tree.

e.g. A single tree with an ultimate crown radius of 4m would have a canopy area of $(4^2 \times \pi)$ or 50.3m². 50.3 x 0.6 gives a rooting volume of 30.2m³

Where trees are planted together in communal tree pits or tree trenches, rooting volume may be shared between trees to reduce the total volume required. Similarly, where trees can root into open soft landscape areas, the rooting volume can be reduced.

Chalk woodland and shrub species

Recommended trees which are characteristic of the chalk soils of Andover include:

- *Acer campestre* - Field Maple
- *Carpinus betulus* – Hornbeam
- *Fagus sylvatica* – Beech
- *Prunus avium* - Wild cherry
- *Prunus padus* - Bird cherry
- *Sorbus aria* – Whitebeam
- *Sorbus aucuparia* – Rowan

Shrubs typical of chalkland areas include:

- *Cornus sanguinea* - Dogwood
- *Crataegus monogyna* - Hawthorn
- *Euonymus europaeus* - Spindle
- *Fagus sylvatica* - Beech
- *Frangula alnus* - Alder buckthorn
- *Ilex aquifolium* - Holly
- *Ligustrum vulgare* - Wild privet
- *Prunus spinosa* - Blackthorn
- *Rhamnus cathartica* - Buckthorn
- *Ribes rubrum* - Wild Redcurrant
- *Rosa arvensis* - Field Rose
- *Rosa canina* - Dog Rose
- *Rubus idaeus* - Wild raspberry
- *Sambucus nigra* - Elder
- *Taxus baccata* - Yew
- *Viburnum opulus* - Guelder rose



Crataegus monogyna



Sorbus aucuparia



Sorbus aria



Taxus baccata



Carpinus betulus



Fagus sylvatica



Prunus avium



Sambucus nigra



Viburnum opulus



Rosa canina



Rubus idaeus



Prunus padus

Establishing native tree and shrub stock

Trees and shrubs are often best planted at small sizes on shallow chalky soils. Large, specimen trees are more prone to both poor drainage and drought during establishment. Whip, feathered and transplant stock is often better suited to establishing screens, hedges and areas of trees.

Mulching and tree guards may be used to aid establishment in exposed conditions. However, they also have draw-backs in chalkland environments. Tree guards are prone to damage, and un-tended tree shelters degrade under UV light, to introduce non-degradable micro-plastics into the soil and environment. It is recommended that only biodegradable tree shelters are used.

Bark mulches reduce moisture loss for establishing plants and can be helpful in many environments, but they also increase the organic content of the soil and therefore promote coarse grasses and strong growing perennials in the medium term, and can prevent self-sown arable annual and ephemeral plants which are valuable for chalkland invertebrates. Consideration should be given to alternatives, such as:

- non-competing wildflora seeding - which will cover the soil to reduce moisture loss, without adding excessive organic content. This solution can also be highly attractive to invertebrates including pollinators, and mimic the combination of grassland to scrub habitat succession.
- Chalk gravel mulch - which will provide a perfect seed bed for arable annual and ephemeral plants, and refuge for invertebrates.

Both these approaches may or may not be appropriate, depending on site characteristics.

Chalk woodland floor and hedgerow perennials

Areas shaded by trees, alongside hedgerows or similar sheltered, shady conditions, should be characterised by a blend of chalkland plants and those more suited to slightly higher organic content soils than the grassland species. These include taller forbs and grasses.

Growing medium

Where appropriate and feasible, consideration should be given to translocation of suitable topsoil from appropriate donor sites in order to translocate the seed-bank and soil biota with local provenance.

100-150mm, low nutrient, alkaline chalky substrate, mixed with composted organic matter, to retain moisture. Soils should be fabricated from crushed arisings from local excavation or regrading works, with a well-graded particle size (35mm to fines), and fully composted organic materials compliant with PAS 100 and 100% peat-free.

Subsoil is recommended to be 400mm free-draining chalky substrate, with 2-4% composted organic content.



Centaurea nigra



Lathyrus



Plantago



Rhinanthus



Rumex acetosa



Hordeum secalinum



Trifolium



Phleum



Agrostis



Torilis japonica



Galium verum



Filipendula

Species selection

Species mixes shall be designed to supporting a wide range of woodland and hedgerow pollinating insects and micro-fauna, targeting lepidoptera and hymenoptera in particular. Food-plants for butterfly and moth larvae shall be included.

Generally, a broad range of species should be sown (with plug plants where appropriate) to give opportunity to the widest possible range of chalkland species, and to promote the length of flowering season and diversity of flower types.

Typically species might include:

- *Achillea millefolium* - Yarrow
- *Betonica officinalis* - Betony
- *Centaurea nigra* - Common Knapweed
- *Filipendula ulmaria* - Meadowsweet
- *Galium verum* - Lady's Bedstraw
- *Lathyrus pratensis* - Meadow Vetchling
- *Leucanthemum vulgare* - Oxeye Daisy
- *Lotus corniculatus* - Birdsfoot Trefoil
- *Plantago lanceolata* - Ribwort Plantain
- *Primula veris* - Cowslip
- *Prunella vulgaris* - Selfheal
- *Ranunculus acris* - Meadow Buttercup
- *Rhinanthus minor* - Yellow Rattle
- *Rumex acetosa* - Common Sorrel
- *Silene flos-cuculi* - Ragged Robin
- *Trifolium pratense* - Wild Red Clover
- *Agrostis capillaris* - Common Bent
- *Alopecurus pratensis* - Meadow Foxtail
- *Anthoxanthum odoratum* - Sweet Vernal-grass
- *Briza media* - Quaking Grass
- *Cynosurus cristatus* - Crested Dogstail
- *Festuca rubra* - Slender-creeping Red-fescue
- *Hordeum secalinum* - Meadow Barley
- *Phleum bertolonii* - Smaller Cat's-tail





Test Valley
Borough Council

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