Spelthorne Borough Council

Climate Change

Supplementary Planning Document

May 2026

SPELTHORNE
BOROUGH COUNCIL

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1.0 OVERVIEW

1.1 Human-induced climate change is the most pressing and complex challenge of the 21st century. The UN's International Panel on Climate Change (IPCC)'s 2023 report states:

"Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850-1900 in 2011-2020."

"Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. Human-caused climate change is already affecting many weather and climate extremes in every region across the globe."

"Some future changes are unavoidable and/or irreversible but can be limited by deep, rapid and sustained global greenhouse gas emissions reduction ... Limiting human-caused global warming requires net zero CO2 emissions."

1.2 We must all play our part in tackling this emergency. To do so requires examining many aspects of how we live, including how we develop and manage the buildings, places and spaces around us.

1.3 Although the UK Government has committed to Net Zero Carbon at a national level by 2050, through the Climate Change Act, Spelthorne Borough Council (SBC) has declared a climate emergency, with an ambition of achieving Net Zero carbon status by 2030. This is supported by Spelthorne's Climate Change Strategy 2022-2030.

1.4 This Supplementary Planning Document (SPD) sets out how new development in Spelthorne Borough, that is controlled through the planning system, can play its part in reducing the effects of climate change, and in adapting successfully and resiliently to a changing climate. This SPD and the associated Core Strategy policy that it relates to is a key part of the Council's efforts to implement the strategy and achieve the overall Net Zero goal.

1.5 The changes we need to make to how and what we build and develop are more than just about avoiding a long-term future of extreme climate change. When considered as a fundamental part of the design of places, they can enhance our quality of life by:

- Making our homes and buildings more efficient, and cheaper to run
- Reducing travel costs by making it easier and more convenient to walk and cycle in our daily lives
- Encouraging daily physical activity and healthy places
- Ensuring nature has space to thrive in our towns and open spaces
- Enabling contact with nature for people, which has been shown to improve our mental health and wellbeing
- Improving air quality, road safety and reducing noise through more use of active travel, clean public transport and electric vehicles
- Preserving our valued open spaces and countryside through more compact and better-located development
- Creating places that are more socially equitable and prosperous for the long-term

1.6 These objectives align strongly with SBC's corporate objectives as a council, as expressed in the SBC Corporate Plan 2024-28 and is supported by national guidance such as the National Design Guide, the Department for Transport's Gear Change strategy, and Sport England's Active Design guidance (supported by Active Travel England and Office for Health Improvement and Disparities).

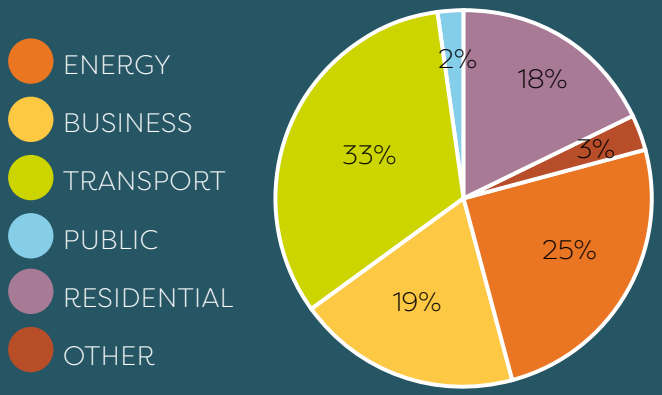


FIGURE 1: UK CARBON EMISSIONS BY SECTOR, 2022 - PROVISIONAL (DEPT FOR ENERGY SECURITY & NET ZERO, OFFICE FOR NATIONAL STATISTICS)

What causes climate change?

1.7 The immense amount of greenhouse gases humans have released into the atmosphere are causing our climate to change. The burning of fossil fuels, releasing greenhouse gases, has increased the amount of heat from the sun trapped in our atmosphere.

1.8 Carbon dioxide emissions, the primary cause of human-induced climate change, are emitted from the burning of fossil fuels such as oil, gas, petrol and diesel to generate energy, in both electricity generation plants and in vehicle engines. Because energy use is fundamental to our modern economy and way of life, this means that tackling climate change requires action that needs to be taken in a range of areas, not least in development and construction. Considerable amounts of energy consumed are also wasted through inefficiency.

1.9 UK Government statistics for 2022 (shown in Figure 1) show that 25% of the UK's emissions were from the supply of energy (electricity), 33% from transport (internal combustion engines), 18% from residential (primarily gas or oil boilers), and the remaining 24% made up of business, public sector, industrial processes and other processes.

1.10 In each of these sectors there is a challenge to reduce carbon emissions, by making our use of energy more efficient and less wasteful and moving away from energy sources that emit carbon towards clean, renewable generation.

1.11 Our electricity grid is moving rapidly towards clean, zero-carbon energy, and as a result, there is much focus on electrification of sectors as a core approach. This should also be accompanied by energy efficiency measures to ensure that the transition can happen successfully.

What effect is climate change having (and will have)?

1.12 Climate change is changing weather patterns across the world. Greenhouse gases, of which the most prevalent is carbon dioxide, trap heat and increase the average global temperature in the air, oceans and land, meaning that established patterns of weather are disrupted. This is leading to more extreme weather than we are used to, such as extended heatwaves, heavy rainfall events and storms, and higher rainfall or extreme cold weather in winter.

1.13 These have an effect on humans, through changes to agriculture, damage to property or even loss of life, as well as a reduction in overall quality of life. Recent years have shown that such events, which are becoming more likely, can inflict severe economic damage on areas affected.

1.14 An overall warming climate is also leading to changes in the ecosystems around us, as species that rely on certain temperatures, weather patterns and other climate-related signals have to adapt or lose their habitats. It means that the UK is seeing different species move in (as well as losing other native species). This can disrupt delicate ecosystems where many species rely on each other to survive and thrive.

The Planning System and Climate Change

1.15 The built environment, in its construction, operation and the effect it has on our behaviours, is a major contributor towards the carbon emissions that are causing global climate change. The planning system therefore has a major role in ensuring that new development is of the highest environmental standards, helping the UK move towards its national target of Net Zero carbon emissions by 2050.

1.16 Research has shown that the location, density[1] and connectivity of new development has a substantial effect on anticipated lifetime carbon emissions of a place. Higher density urban locations can have more sustainable transport choices and local facilities. They can have around 1/3 of the emissions of development in rural or isolated areas, which are dependent on cars[2].

1.17 Healthy habitats sequester carbon, removing it from the atmosphere and storing it away. Land can be used to either remove carbon from the atmosphere with woodland or wetland habitats, or to generate clean energy through solar or wind power. This must be balanced against other benefits of woodland and habitat restoration.

1.18 Individual buildings, primarily through how they are heated, cooled and ventilated, make a major contribution towards emissions in their operation, especially buildings with poor insulation, carbon-emitting heat sources or design that contributes to overheating in the summer. Buildings consume considerable amounts of 'embodied' carbon as part of being built, in the materials (e.g. concrete, brick and cement) and methods of construction used. Cement and concrete are particularly carbon intensive, due to the chemical processes involved in their production.

1.19 The changes that climate change is already making to our weather patterns also affects the built and natural environment, and how we use it. More extreme weather events can cause flash flooding, overheat homes, or make the public realm unusable due to excessive heat, exacerbated by the urban heat island effect. The planning system has a role in helping to ensure that the spaces and places we create now are adapted and resilient to this future.

1.20 The planning system has to anticipate changes that could occur in the future. There is already strong evidence of changing lifestyles and attitudes around these issues. The COVID-19 pandemic has also caused a rethink in how people view and interact with their local neighbourhood, the quality of the environment, and its overall sustainability.

[1]Lee, Sungwon and Bumsoo Lee. 2014. The influence of urban form on GHG emissions in the U.S. household sector. Energy Policy 68: 534-549.

[2]Source: Greater Cambridge Local Plan - Strategic spatial options appraisal: implications for carbon emissions. Scenario shown implementing zero-carbon policies for new buildings, in line with RIBA/LETI guidance and Future Homes Standard

Role of the Climate Change SPD

1.21 This SPD has been prepared to build upon and provide more detailed guidance to applicants on how to implement SBC's Local Plan policy PS1 "Responding to the Climate Emergency".

1.22 The policy states:

1) All development must respond to the climate emergency by:

(a) Directing development towards locations that minimise the need to travel and maximise the ability to make trips by sustainable modes of transport including cycling, walking and public transport.

(b) Delivering an efficient use of land especially on the most accessible sites.

(c) Providing more walkable and cyclable neighbourhoods (Twenty Minute Neighbourhoods) that reduce demand for the use of private vehicles.

2) Sustainable design and construction will be integral to new development in the Borough. All planning applications must include evidence that the below will be addressed, using as a minimum the Sustainable Construction Checklist:

(a) Maximising energy efficiency and integrating the use of renewable and zero carbon energy (demonstrated though an energy statement);

(b) Optimising the site orientation, building form, layout, landscaping and materials to maximise natural light and heat, whilst avoiding internal overheating by providing passive cooling and ventilation;

(c) Incorporate sustainable construction and demolition techniques that provide for the efficient use of minerals including a proportion of recycled or secondary aggregates, and encourage the re-use of construction and demolition waste at source or its separation and collection for recycling;

3) In residential development (including replacements, conversions and subdivisions)

(a) Achieve water efficiency of 110 litres per person per day and where feasible provide rainwater harvesting techniques;

(b) Where CHP (combined heat and power) distribution networks already exist, new developments are required to connect to them or be connection-ready, unless it can be clearly demonstrated that utilising a different energy supply would be more sustainable or connection is not feasible. The impacts of the CHP plants emissions upon air quality must be assessed in accordance with Policy E4;

(c) Incorporate measures for the secure storage of cycles and storage of waste including recyclable waste;

4) Proposals for zero carbon development are strongly supported and the development of renewable, low and zero carbon and decentralised energy, are strongly supported and encouraged.

5) Applications for major development are expected to include information setting out:

(a) how the energy hierarchy has been applied and how sustainable design and construction practice will be incorporated.

(b) applications should be accompanied by Construction Management Plans, which seek to manage the impact of construction traffic on the local and strategic transport networks

6) Smaller developments (including refurbishment, conversion and extensions to existing buildings) should include information proportionate to the scale of the development proposed.

1.23 This SPD was originally prepared to support Spelthorne's previous Core Strategy 2009, and has been updated with relevant references and necessary changes. The core principles and guidance on implementation remain the same, giving applicants certainty even as the underlying policy framework has changed.

1.24 Planning applications submitted to SBC will need to demonstrate how they have considered the guidance in this SPD as part of their design, and how they have satisfied the policy requirements. To support this, SBC's validation requirements for material submitted with different types of application has been updated to require this information. This guidance provides checklists and templates for applicants to submit along with their proposals to make this process easier. These are detailed in 'How to use this guidance' below, and in the final chapter 'Submitting your application'. **This SPD is a material consideration in decision making, meaning that whether or not a development scheme has taken into account this guidance, and demonstrated how it has done so, will be taken into account when determining the planning application.**

Other supporting policy

1.25 Along with SBC's planning policy, a number of other key documents support action on climate change within the built environment, and have informed this SPD:

- The National Planning Policy Framework (February 2025)
- Surrey County Council Transport Plan and supporting Local Cycling and Walking Infrastructure Plans (LCWIPs)
- Spelthorne Borough Council Climate Change Strategy (2022-2030)
- Surrey County Council Climate Change Strategy (2020)

MAJOR APPLICATIONS: DEMONSTRATING SUSTAINABILITY

For major applications (>10 dwellings or >1000m^2 floorspace), demonstrating how you have addressed this guidance may be facilitated through industry-accepted metrics and certifications.

Where these are available they are set out at the end of each Theme. These are not SBC policy requirements but are suggested approaches.

How to use this guidance

1.26 This document is intended to be a practical guide to achieving Spelthorne's climate change objectives through the planning system. It is set out in three key parts:

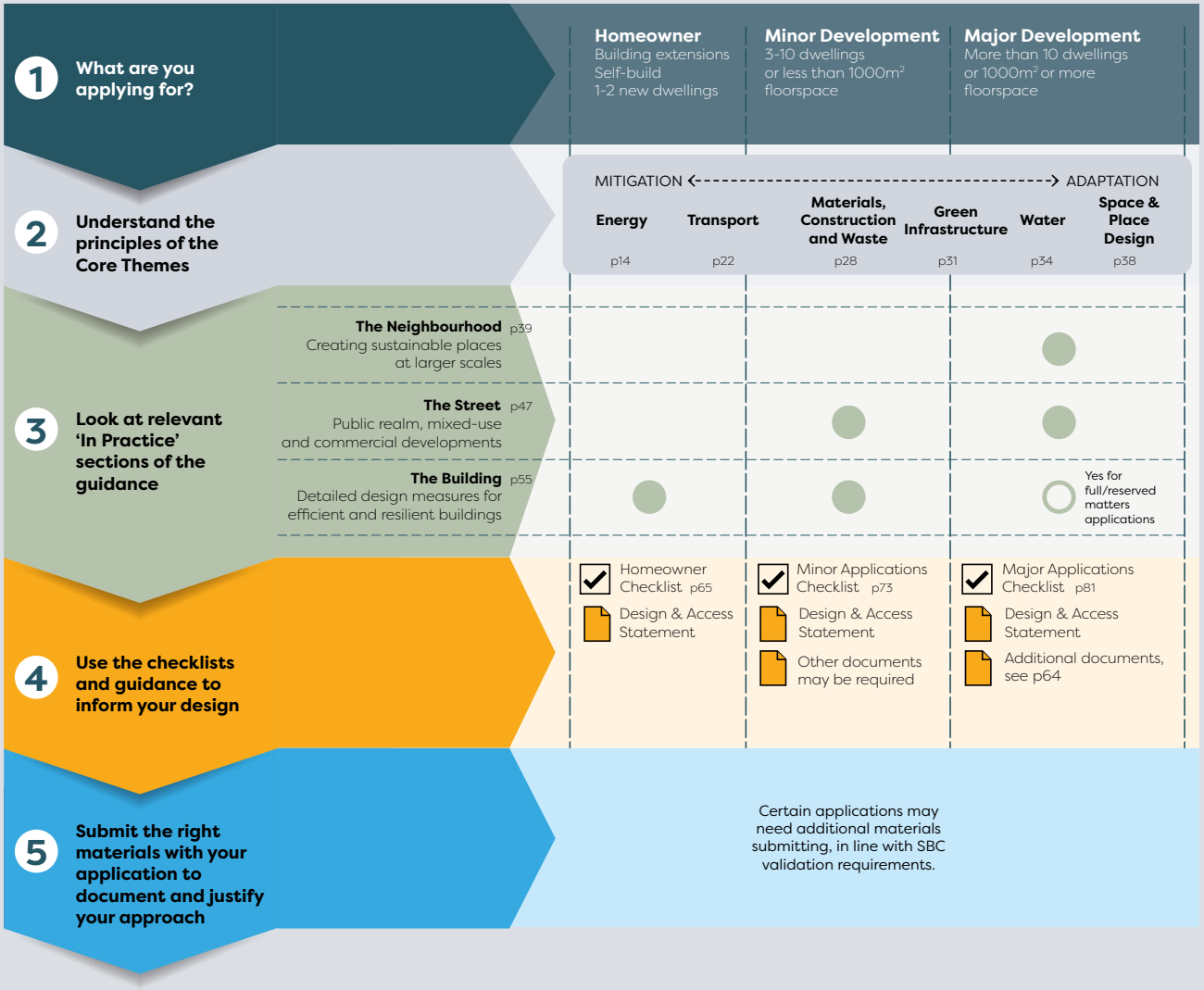
- **Core Themes:** the key principles of design that underpin the six themes of this document: Energy; Transport; Materials, Construction and Waste; Green Infrastructure; Water; and Space and Place Design.
- **In Practice:** demonstration of how the principles can be implemented in practice at a range of scales: The Neighbourhood; The Street and The Building.
- **Preparing your Application:** what materials you need to submit with your planning application to demonstrate you have considered climate change issues, with checklists for householder, minor and major applications.

1.27 For applicants preparing typical development planning applications, the flowchart in Figure 2 sets out how this document should be used for different types of development, the key sections that should be consulted, and what should be submitted with your planning application.

1.28 For specialist applications that are outside the scope of this guidance, it is recommended that SBC is consulted on relevant requirements through a pre-application process.

HOW TO USE THIS GUIDANCE

FIGURE 2: GUIDANCE TABLE

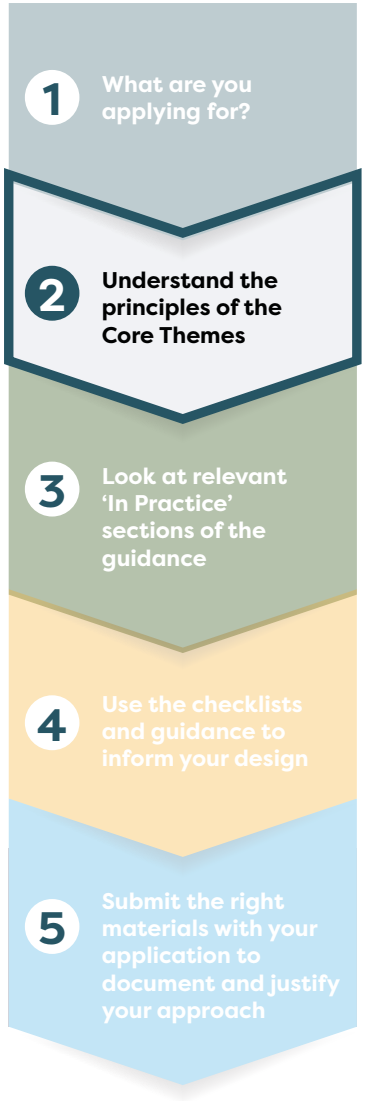


Key Definitions

1.29 Many terms are used in the field of climate change and carbon emissions may not be familiar or can be used in different ways. The following table provides definitions for the terms used most frequently in this SPD.

Term	Definition
Greenhouse Gases	*Gases, both emitted natural and by human activity, that when accumulated in the atmosphere trap heat from the sun. A natural level of greenhouse gases keeps the planet with a stable climate and prevents all the sun's energy from escaping into space. A rising and unnatural level causes a runaway 'greenhouse effect', where too much heat is trapped.*
Carbon / CO2e	*The main human-emitted greenhouse gas is carbon dioxide (CO_2), although others such as methane (CH_4) exist, which are less prevalent but often trap more heat. Collectively, they are measured by their equivalent warming effect to carbon dioxide, CO2 equivalent, to ensure consistency of measurement.* *Carbon dioxide emissions are primarily due to the burning of fossil fuels such as oil, gas, petrol and diesel for energy, in both electricity generation plants and in vehicle engines.*
Net Zero / Carbon Neutral	*A project, entity or building that balances any carbon emissions with equivalent carbon removal from the atmosphere, or does not emit any carbon emissions at all.* *This term should be used carefully and when used, it should be clearly stated whether it is a 'whole life carbon' net, and what scope of emissions it considers. (see definitions below)*
Operational Carbon	*The carbon emissions generated by a building or piece of infrastructure in its normal operation and maintenance. Typically this concerns 'regulated' energy (see below).*
Upfront / Embodied Carbon	*The carbon emissions generated during a building or piece of infrastructure's construction, for example through the choice of materials, production of concrete and cement, construction vehicles, and other activities generated by the one-off act of construction.*
Whole life carbon	*The combined sum of operational carbon and embodied carbon for a building, measured over its whole design life span.*
Regulated Energy	*Energy consumed by a building, associated with fixed installations for heating, hot water, cooling, ventilation, and lighting systems.*
Unregulated Energy	*Energy consumed by a building that is outside of the scope of Building Regulations, e.g. energy associated with equipment such as fridges, washing machines, TVs, computers, lifts, and cooking.*
Scope 1/2/3	*In order to take action to reduce emissions, scopes of emissions help understand and measure where they're sourced. They are the level of emissions considered or accounted for by a single entity, project or building.* ***Scope 1:*** *emissions from sources owned or controlled directly – for example from burning petrol or diesel in a fleet of vehicles, or from heating a building through gas.* ***Scope 2:*** *emissions caused indirectly and from where the energy purchased and used is produced. For example, the emissions caused when generating the electricity used in a building.* ***Scope 3:*** *emissions, including all indirect emissions which are not included in scope 2. It encompasses emissions that a building or entity is indirectly responsible for up and down its supply chain.*
Offsetting	*An approach to achieving Net Zero carbon emissions, by creating new natural habitats or employing other methods that will remove carbon emissions from the atmosphere, offsetting residual emissions that cannot be reduced by other means.*

2.0 CORE THEMES



2.1 Designing and planning for climate change has two aspects:

- Mitigation: reducing or eliminating carbon emissions from development, homes, transport, buildings and the lives we lead, so that Spelthorne plays its part in reducing climate change overall
- Adaptation: anticipating what a changing climate will mean for the built and natural environment, and designing to meet these changes and challenges

2.2 Mitigating and adapting for climate change covers many fields and requires a co-ordinated approach that goes beyond energy efficiency measures and should be a fundamental part of all design and planning.

2.3 This document sets out how mitigating and adapting for climate change in development proposals can be achieved, across six core themes as shown in Figure 3.

2.4 The themes are arranged on a sliding scale from Mitigation through to Adaptation (anticipating what a changing climate will mean for the built and natural environment, and designing to manage these changes). Where a theme is closer to Mitigation, it means that reduction in carbon emissions is the largest part of the measures recommended or required. Where a theme is closer to Adaptation, it means that theme deals more with the likely effects of climate change.

2.5 This chapter sets out core design principles for each theme, which should be used to guide the design process and will help assess how development proposals have considered climate change and whether this is shown in the planning application. Guidance and examples of how best to implement these principles in practice, across a wide range of scales and contexts, is contained in the following chapter 'In Practice'.

2.6 The core design principles are the first things an applicant for new development should consider when designing their schemes and submitting applications. However they are not exhaustive, and other evidenced and quantified approaches to achieve the same outcomes are encouraged.

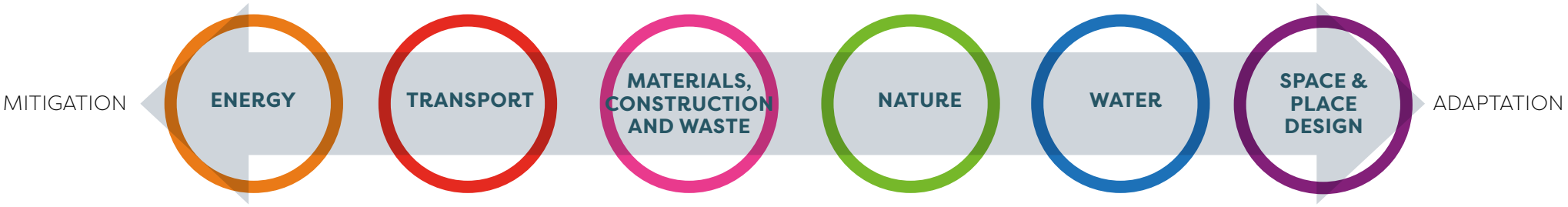


FIGURE 3: CORE DESIGN PRINCIPLES

Energy

2.7 The use of energy in the built environment, particularly for heating and cooling in homes and other buildings, is one of the top contributors to carbon emissions in the UK through the burning of fossil fuels. Although the UK electricity generation sector is decarbonising rapidly, existing carbon-emitting uses (such as gas boilers), are still prevalent.

Follow the Energy Hierarchy

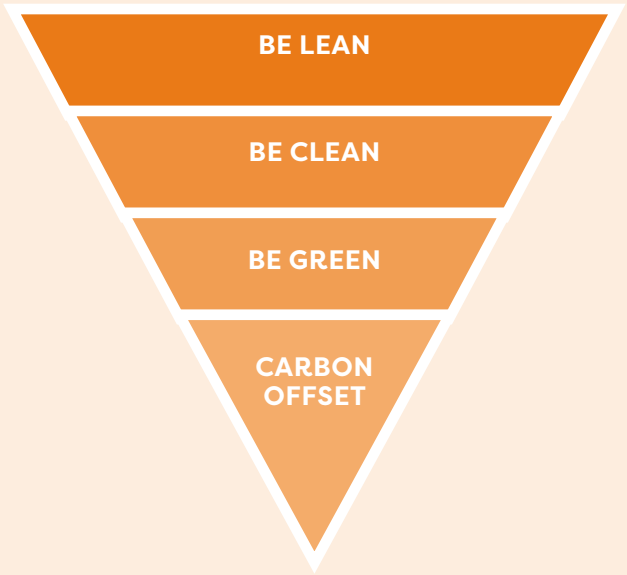


FIGURE 4: ENERGY HIERARCHY

2.8 When considering sustainable energy options, the Energy Hierarchy should be used to prioritise and asses them. It sets out a priority approach to assist progress towards a more sustainable energy system, in order of most sustainable (highest immediate impact on emissions) to least. This can help make and justify design decisions that aim to reach Net Zero in the most efficient way.

2.9 The Energy Hierarchy is, in the following order:

1. Be lean: use less energy and manage demand during operation through fabric and servicing improvements and the incorporation of measures that actively reduce usage or encourage lower demand

2. Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly by connecting to district heating networks

3. Be green: maximise opportunities for renewable energy by producing (e.g. PV panels), storing (e.g. through batteries) and using renewable energy on-site

4. Offsetting of residual emissions through external accredited carbon offsetting schemes

2.10 Proposals should demonstrate how they have maximised opportunities at each level of the hierarchy before seeking opportunities further down.

Be lean: Retrofit existing buildings

2.11 It is anticipated that 85-90% of the buildings that will be standing in 2050 have already been built, making it imperative that their operational carbon emissions are reduced. This should be undertaken, where possible, through an energy hierarchy approach of fabric-level improvements before maximising opportunities for energy generation, such as photovoltaic (PV) panels. When planning changes to existing buildings, it is therefore important to consider how energy demand could be reduced or the potential for renewable energy generation on site.

2.12 Further details on key interventions are set out in 'The Building' in the 'In Practice' chapter.

Be lean: Design buildings to be passively cooled, lit naturally and need minimal heating

2.13 Using energy to heat, cool and light buildings is the largest single source of carbon emissions from the built environment. Much can be achieved in the design of buildings to reduce this need.

2.14 Key measures include:

- Design buildings considering how the sun could provide heating and light (solar gain). This should consider aspect and how the building will respond throughout the year. Southern elevations should maximise the window area but include either fixed or moveable shades or blinds to cut sunlight in the summer and prevent overheating. East and west elevations should ensure they have moveable shading to cut out the lower sun angles at sunrise and sunset in the summer, but still able to maximise heating at other times of year. Lower floors should have more glazing as they are likely to have reduced incoming light due to surrounding buildings.

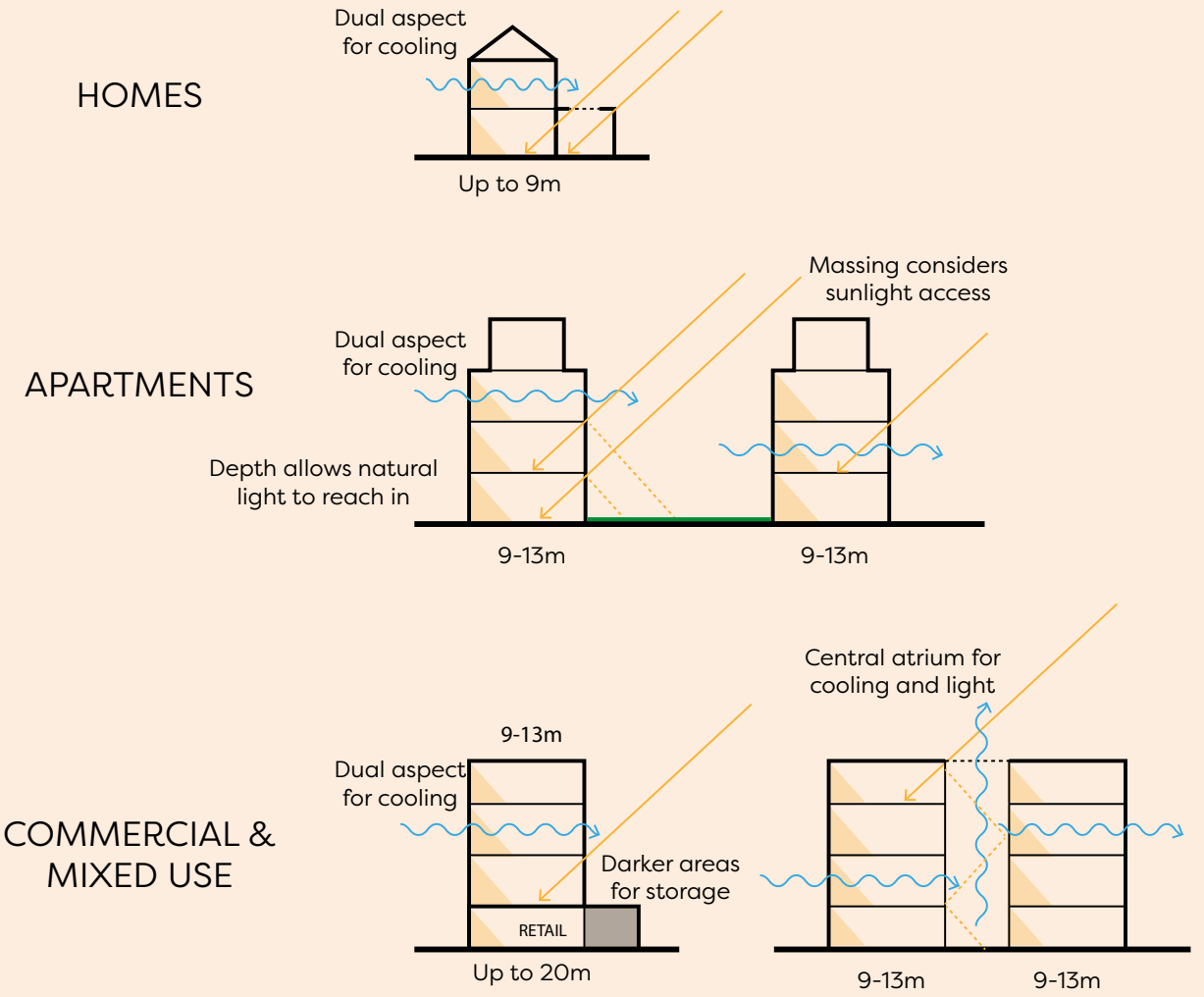


FIGURE 5: DESIGN FOR PASSIVE HEATING AND COOLING FOR DIFFERENT TYPES OF BUILDING

Energy

- Building dimensions should allow natural light to reach as much of the interior as possible., Beyond around 4-5m little light reaches an interior from a side window. Use of interior atriums, skylights and light wells can reduce the need for artificial lighting. Light analysis may be needed to demonstrate that internal levels of light are acceptable.
- Building design that creates dual aspect dwellings, where air can flow through from one side to another. This is especially important in the design of apartment buildings.
- For larger buildings, design can encourage natural interior air flow instead of relying on energy-hungry heating, ventilation and air-conditioning (HVAC) systems.
- All buildings should be insulated to the highest standards, with high levels of high-performance exterior wall and roof insulation employed. Windows are major locations of heat loss and should be either triple-glazed or have high-performance modern double glazing. Doors and other openings should be well-sealed and insulated to modern standards.
- The exterior form factor of a building (its massing) affects how much of a heated interior is exposed to the outside. Reducing the exterior surface area by simplifying the form factor reduces how much insulation will be needed and how much heat will be lost.

FIGURE 6: PASSIVE COOLING / HEATING PRECEDENTS (BOTTOM LEFT: GREAT KNEIGHTON, CAMBRIDGE; BOTTOM RIGHT: CAMPBELL HEIGHTS, MILTON KEYNES)

Be clean: Connect to heating networks and exploit local heat sources

2.15 Developments within existing district heating networks should connect to them or make provision for this to be possible. These centralised sources of heat are more efficient and can be more easily converted to clean energy sources than individual boilers. They are most suitable for denser development, such as apartments.

2.16 Waste heat from nearby generators (for example industrial fridges and air-conditioning units) can also be recovered and used within such networks. Where a district or site-wide heating system is not feasible, heat pumps or other low carbon efficient technology should supply heat.

FIGURE 7: ENERGY CENTRE AT EDDINGTON, CAMBRIDGE, WHICH REUSES WASTE HEAT FROM SUPERMARKET FRIDGES TO SUPPLY THE LOCAL AREA WITH HEAT, AND IS INTEGRATED BEHIND SURROUNDING HOMES

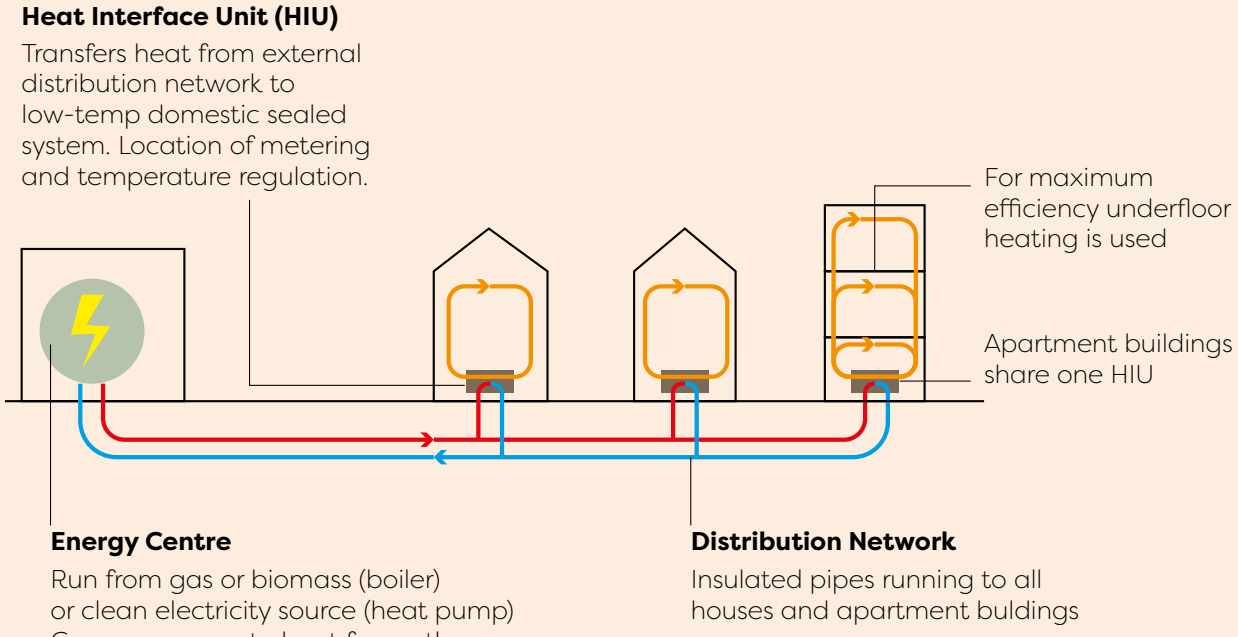


FIGURE 8: HOW HEAT NETWORKS WORK

Be green: Generate and store energy on site

2.17 On-site generation of renewable energy is typically accomplished through solar panels (photovoltaic or PV panels) on roofs, although other approaches such as wind turbines and solar water heating are also possible. They can provide a significant portion of a home or business's energy needs, and can feed into the electricity grid when they are producing in excess of on-site demand, further offsetting an individual's electricity bill. All major applications must generate at least 10% of demand from on-site renewables

2.18 Although solar panel installations will be generally supported, in designated conservation areas or other areas with Article 4 restrictions on permitted development rights there may be some restrictions on the installation of panels on roofs, to preserve a historic street scene or character. In these circumstances SBC should be consulted for advice.

2.19 The supply of renewable zero-carbon energy can fluctuate depending on weather conditions, so it is possible to store surplus energy for use later when demand is higher. Home or on-site batteries, connected as part of a solar panel installation, can be an effective way of achieving this.

FIGURE 9: ILLUSTRATIVE APPROACHES TO CLEAN ENERGY GENERATION AND STORAGE

Observe standards and obtain accreditation

2.20 Building Regulations (part L) sets the legal standards for energy efficiency and consumption measures within new and existing buildings. Beyond this, the Future Homes Standard will uplift part L requirements from 2025. This will require low carbon heating and very high levels of energy efficiency.

2.21 Other standards exist for different building types. BREEAM set detailed standards for commercial buildings, and it is expected that such buildings will attain at least 'Very Good' status, with Excellent or Outstanding preferred.

2.22 For residential buildings, standards such as Passivhaus exist, demonstrating the very highest levels of energy efficiency in design. Passivhaus principles can be applied to both new and existing buildings.

FIGURE 10: : GOLDSMITH STREET, NORWICH, DEVELOPMENT OF PASSIVHAUS HOMES (MIKHAIL RICHES ARCHITECTS)

Utilising data, monitoring and energy targets

2.23 Modern technology can assist building managers and homeowners in understanding the performance of existing buildings and identifying opportunities for improvements. Depending on the type of building technology options can include:

- Smart meters for electricity and gas giving real-time information on usage
- Thermographic surveys to identify heat loss through the external envelope, prioritising where insulation and replacement of windows and doors might best be undertaken
- Demand-responsive lighting and heating, ventilation and air-conditioning (HVAC) systems, based on presence of users
- Energy Performance Certification (EPCs) to assess key opportunities for performance improvement

2.24 Proposals for the retrofit and alteration of existing buildings should use data and information from smart meters, thermographic surveys and Energy Performance Certification (EPCs) to identify the largest opportunities for improving the energy performance of the buildings and use this to inform design proposals.

2.25 Where proposals commit to measurable targets in carbon emission reduction (or absolute targets), this must be accompanied by details of how this will be measured and evaluated over time.

Engage with Distribution Network Operators (DNOs) to support low-carbon development

2.26 Early engagement with electricity network providers is essential to enabling the transition to low-carbon heating, renewable energy generation, and electric vehicle (EV) infrastructure across Spelthorne.

2.27 A Distribution Network Operator (DNO) is a licensed company responsible for owning, operating, and maintaining the local electricity distribution system. DNOs manage the infrastructure that distributes electricity from the National Grid to homes, commercial properties, and industrial sites

2.28 Effective coordination with the DNO will reduce delays, ensure that developments are designed with sufficient electrical capacity.

2.29 Within Spelthorne, the relevant DNOs are UK Power Networks (UKPN) and Scottish and Southern Electricity Networks (SSEN). Applicants should consult their online capacity maps and technical guidance when preparing development proposals.

2.30 The transition to low-carbon technologies significantly increases electrical demand. Developments may require DNO engagement when proposing:

- Heat pumps (air-source or ground-source)
- Electric vehicle charging infrastructure
- Solar PV systems, battery storage or other generation assets

Energy

- Electrification of industrial or commercial processes
- Major refurbishments or new-build schemes requiring significant load increases

2.31 Developers should engage early with the DNO to determine whether:

- the existing local network has sufficient headroom, or
- grid reinforcements or connection upgrades are required.

2.32 Applicants should prepare the following information prior to submitting a connection or capacity enquiry:

- The building's Meter Point Administration Number (MPAN)
- Full site address and key contact details
- Existing connected electrical capacity (kVA)
- Anticipated future maximum demand (kVA) after installation of low-carbon technologies
- Site layout plan including boundaries, building locations, and proposed meter locations
- Details of planned electrical equipment including heat pumps, EV chargers and other large loads
- Details of all on-site generation or storage (existing and proposed)
- Landlord/owner consent where required

2.33 This information should also be summarised in the planning application, typically within the Energy Statement.

2.34 Grid upgrade applications can take six months or longer depending on complexity and the level of network reinforcement required. Applicants must account for this in their project planning.

2.35 Early DNO engagement is essential to:

- avoid costly or avoidable delays
- align building design with available capacity
- optimise the connection point and reduce infrastructure requirements
- determine feasibility of heat pumps and EV infrastructure from the outset

2.36 The Council encourages developers to explore all reasonable alternatives to reduce or shift peak electrical demand prior to requesting increased capacity from the DNO.

Further Reference

2.37 More detailed information on these topics can be found in the following guidance:

- LETI Climate Emergency Design Guide
- Passivhaus Trust/Etude/Levitt Bernstein - Passivhaus Design: Easi Guide
- Future Homes Standard
- UK Net Zero Carbon Building Standard
- RIBA Climate Challenge 2030
- Historic England: Energy Efficiency and Historic Buildings
- NABERS (Non-Domestic Building)

MAJOR APPLICATIONS: DEMONSTRATING SUSTAINABILITY

- ☑ BREEAM Building Certification
- ☑ PassivHaus Certification

Transport

2.38 Transport is the largest single source of carbon emissions in the UK by sector, and based on current travel patterns, one of the most difficult to decarbonise. Reducing our dependence on private vehicle transport (primarily petrol or diesel-driven cars), and encouraging walking, cycling and other active travel measures for more of our daily journeys, is the simplest way to reduce transport carbon emissions. This should be supported by wider implementation of Liveable Neighbourhood principles, and comprehensive and convenient public transport for longer-distance journeys.

What is a Liveable Neighbourhood?

Liveable Neighbourhoods are areas of a town or city that are improved to be people-centred and more 'liveable'. Typically, this may involve changes to town centres and surrounding residential areas to improve conditions for walking and cycling and reduce traffic dominance. This may include new pedestrian crossings, a network of good cycle routes, reduced parking provision, redesigned junctions, restrictions on motor traffic in town centres, high streets and residential streets, and wider improvements.

What is active travel?

Active travel is not just walking and cycling. It also includes all physically active ways of getting about, such as wheeling, which covers assistive wheeled mobilities such as wheelchairs, mobility scooters or similar. It can also include pushchairs or buggies for children.

Cycling can mean more than the traditional two wheeled bicycle, as it can also include cargo bikes, electric bikes, hand-powered recumbent bikes, bikes with trailers, tricycles and other pedal-powered transport. A full definition of cycles to consider is set out in the Department for Transport's Local Transport Note (LTN) 1/2014.

Follow the Travel Hierarchies

2.39 In line with Surrey County Councils Local Transport Plan (LTP4), design proposals should aim to, in the following order:

1. Avoid the need to travel, and reduce distance travelled by improving the efficiency of the land use and transport systems. For example, by locating shops, schools and other regularly used places close to as many homes as possible.

2. Shift to lower energy consumption travel, and more efficient modes: public transport, walking and cycling. For example, by strengthening walking and cycling networks to make them more attractive and quicker to use, and by providing high-frequency, reliable bus services.

3. Improve the energy efficiency of modes, operational efficiency of networks, and reducing vehicle emissions using technology. For example, by prioritising active travel and public transport at junctions, or by supporting electric vehicles through the provision of charging infrastructure.

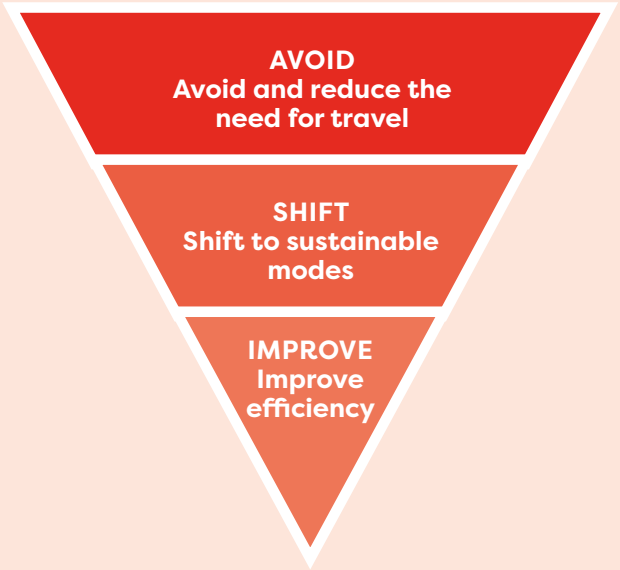


FIGURE 11: HIERARCHY FOR OVERALL APPROACH TO TRAVEL

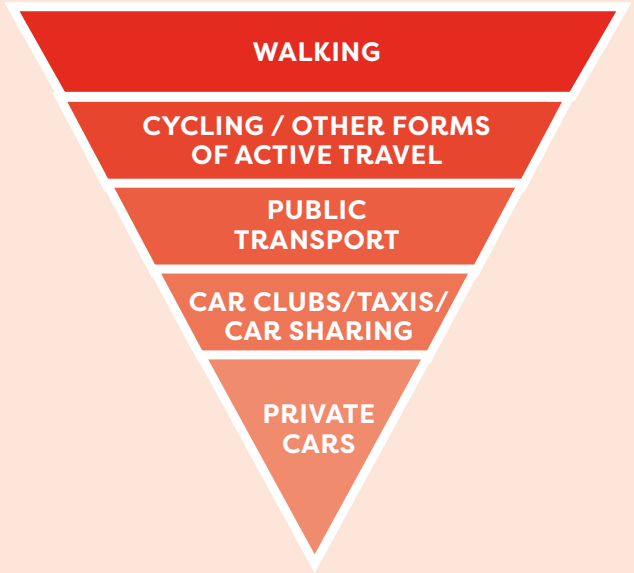
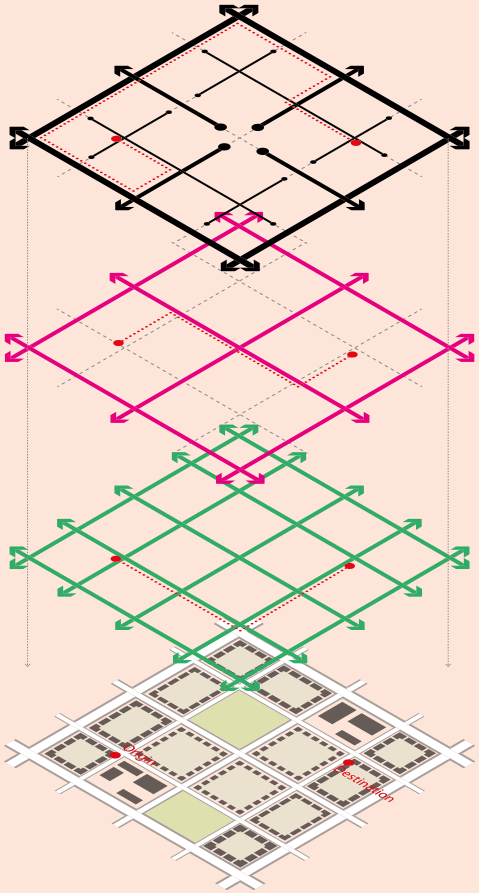


FIGURE 12: DESIGN HIERARCHY FOR MOBILITY

2.40 When considering the design of places to facilitate movement, design should encourage the most sustainable transport choices, with the lowest carbon emissions per unit travel. This can be done by following a hierarchy of design as set out in the diagram in Figures 11 and 12.

2.41 This hierarchy is set out in Surrey's Local Transport Plan (LTP4). In practice, it means placing the needs and requirements of those users who are higher in the hierarchy (e.g. pedestrians) first, before accommodating the needs of e.g. private vehicles.

Design for 'filtered permeability' and Liveable Neighbourhoods



Cars / Private Vehicles
Through routes limited to main routes to discourage rat-running, create quieter streets, and make walking and cycling more convenient without restricting access.

Emergency vehicles could still be provided access through gaps in the network.

Public Transport
Buses able to run along key streets continuously including through bus gates that create gaps for private vehicles.

Active Travel
Connected and continuous streets for walking and cycling.

FIGURE 13: GETTING ABOUT BY DIFFERENT MODES OF TRAVEL IN LIVEABLE NEIGHBOURHOODS

2.42 Residential areas in cities and towns are often used by through-traffic, which creates noise, pollution and hazards. By reducing the dominance of vehicles, Liveable Neighbourhoods reconsider how street space is reallocated, creating healthier outdoor spaces for everyone to share, as well as vibrant places where people want to dwell and spend money.

2.43 To support this, the principle of filtered permeability is that active travel routes should form a continuous and connected grid through streets. Private vehicle movement along the same streets should be less direct, with no-through routes for cars created by design interventions such as street planting, bollards, materials changes or similar, without blocking pedestrians and cyclists. Active travel connections should have good natural surveillance from buildings for safety.

2.44 The same principle can be used to support direct public transport routes through communities, which support active travel networks by providing onward connections. Bus connections should be direct and uninterrupted, with the use of bus gates (where buses are allowed through but cars are not) at key locations to provide an advantage over private vehicle traffic.

2.45 Modern mobile app navigation has increased the use of side streets as cut-throughs for motor vehicles. Filtered permeability, by removing such through routes for vehicles (but not cyclists or pedestrians) in residential streets, puts traffic back onto main streets, which are designed to be able to accommodate through vehicle movement. This can make smaller, residential streets more attractive, with a better environment, improved air quality and safer for active travel.

Locate development for sustainable travel choices

2.46 The location of development has the biggest impact on whether residents and users need to travel (point 1 in the travel hierarchy), and if they do need to travel, the modes and choices available to them. Development should be located close to other destinations, active travel networks and public transport services.

2.47 This means that locations such as town centres, public transport corridors and local centres should have higher densities of development and a greater mix of uses and services than less well-connected areas. This principle is known as 'transit-oriented development'. It means that people in those locations have a choice of services on their doorstep, and a choice of sustainable transport options for longer journeys elsewhere. It also ensures that everyone connected to those locations by active travel and public transport can access a wide variety of services by sustainable means.

2.48 When masterplanning larger sites, mixed uses and higher densities should be located close to sustainable transport choices and active travel routes.

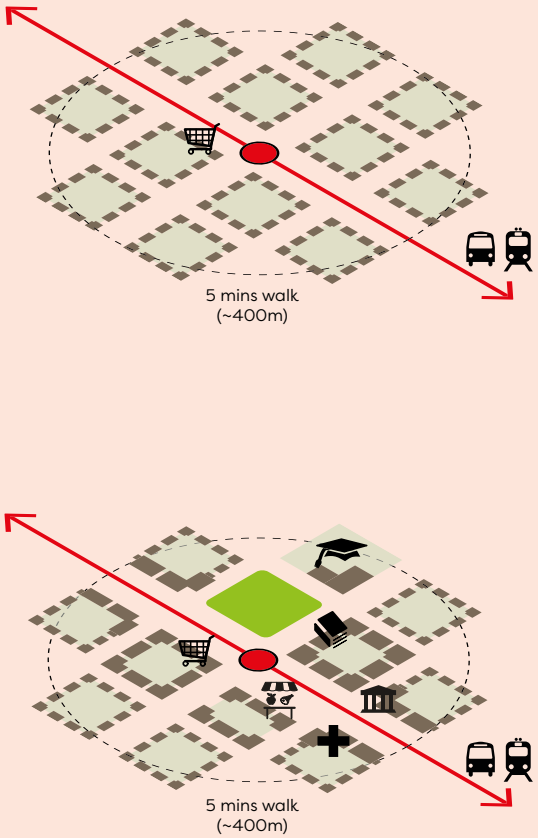


FIGURE 14: LOCATING DENSITY, FACILITIES AND DEVELOPMENT NEAR TO PUBLIC TRANSPORT

Provide infrastructure for sustainable transport

FIGURE 15: ILLUSTRATIVE INFRASTRUCTURE TO SUPPORT SUSTAINABLE TRAVEL

2.49 Many vehicles are now being electrified. This change requires a rethink in the infrastructure provided to power vehicles, moving from fuel filling stations towards charging points. Electric charging points for cars and e-bikes should be provided where possible. Car parks and areas of parking within local and town centres should include public charging points.

2.50 All buildings should ensure that active travel is the easiest choice for most journeys, with secure and convenient cycle parking that is easier to use than getting in the car. Secure visitor cycle parking in the public realm should be in prominent locations and close to entrances of buildings.

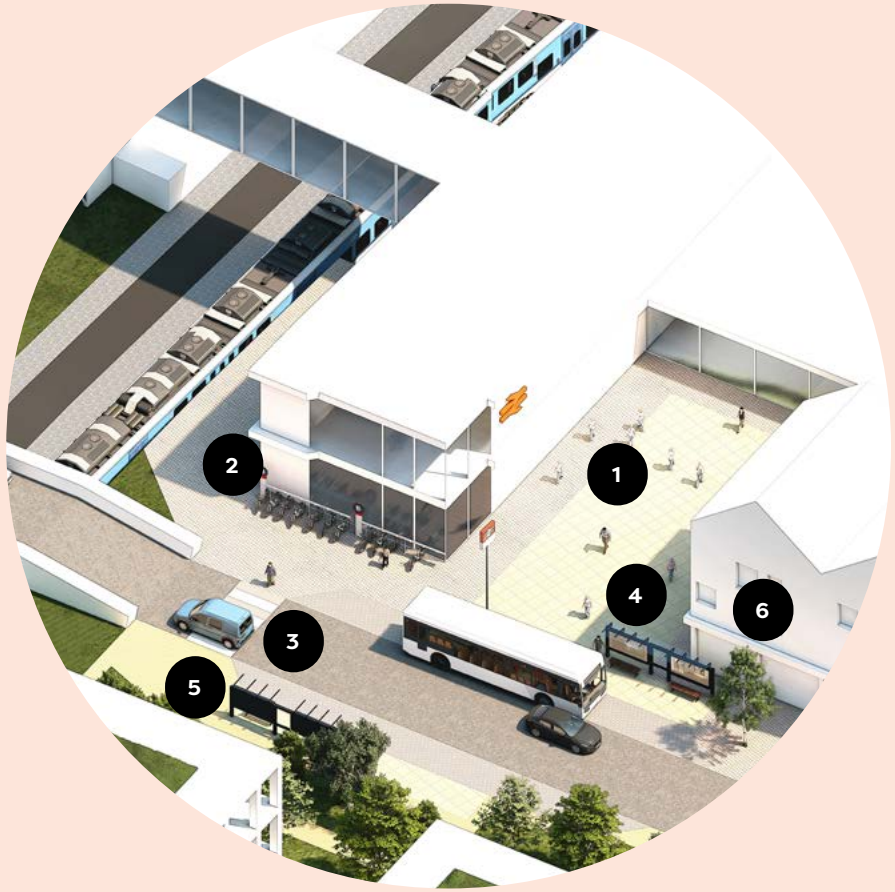


FIGURE 16: DESIGN PRINCIPLES FOR EFFECTIVE SUSTAINABLE TRAVEL MOBILITY HUBS

1. A clear and simple interchange between modes
2. Secure cycle storage
3. Safe pedestrian movement and crossings
4. Covered, safe waiting areas
5. Real-time travel information
6. Supporting shops and facilities

2.51 Where different sustainable modes of travel interchange (e.g. between walking/cycling and bus, two different bus routes, or rail/bus), consideration should be given to providing a mobility hub. These should provide:

2.52 Mobility hubs should also integrate other transport choices, such as car clubs, licensed e-scooter and e-bike hire, and EV charging points.

Further Reference

2.53 More detailed information on these topics can be found in the following guidance:

- RTPI: Net Zero Transport
- TCPA: The 20 Minute Neighbourhood Guide
- Surrey Local Transport Plan 4
- Local Cycling & Walking Infrastructure Plans (LCWIPs)
- Surrey Bus Service Improvement Plan
- Active Design (Sport England, Active Travel England and Office for Health Improvement and Disparities)
- Healthy Streets for Surrey Design Guide
- Surrey Electric Vehicle Parking Guidance in New Developments

Materials, Construction & Waste

2.54 The construction industry is responsible for around 20% of emissions from the built environment[3]. This is primarily through the sourcing and production of materials such as cement, concrete, glass, steel and aluminium, and direct emissions from vehicles and equipment used in the construction process. New materials and construction approaches have the potential to reduce this, and using a whole life carbon methodology can assess the climate change impact of new development versus improvements to existing buildings.

MAJOR APPLICATIONS: DEMONSTRATING SUSTAINABILITY

☑ RICS Whole Life Carbon Assessment

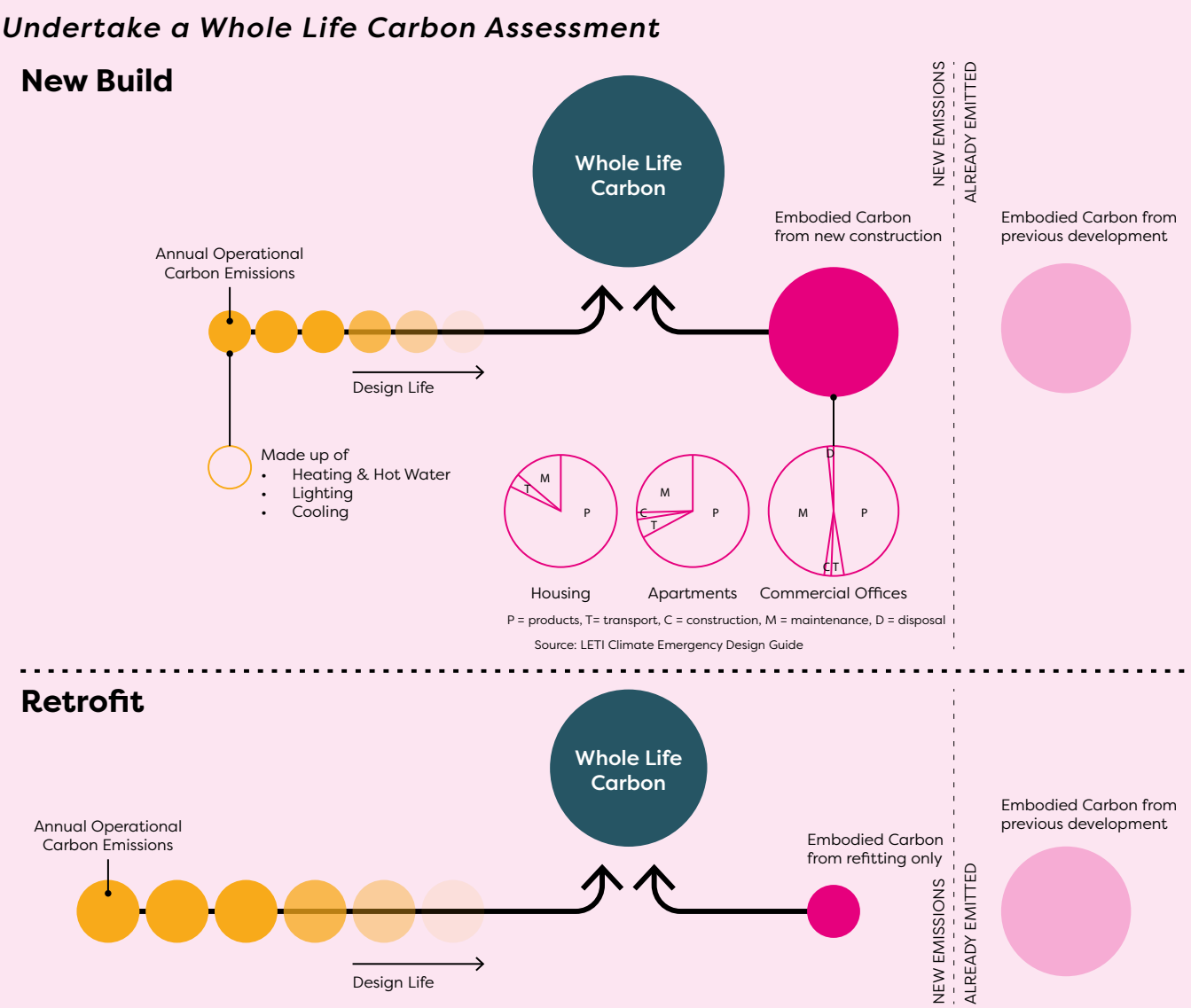


FIGURE 17: WHOLE LIFE CARBON CONSIDERATIONS FOR NEW BUILD AND RETROFIT DEVELOPMENT OPTIONS

[3]UK Green Building Council, 2023

Materials, Construction & Waste

2.55 'Embodied carbon' is the emissions produced during the construction of a building. It is a 'one-off' cost and is the result of materials production (such as concrete), energy for machinery and fuel used by construction and delivery vehicles.

2.56 Although a new building may be more operationally efficient than an old building, this may be offset by the emissions generated in its construction, leading to an overall increase when considered as lifetime or whole life carbon emissions.

Whole Life Carbon = embodied carbon + (operational carbon x years of operation)

2.57 It is important to assess whole life carbon when considering development projects if there is an alternative scheme available that would, for instance, re-use an existing building. It is often the case that refitting and adapting existing buildings has lower whole life emissions. Before considering new construction, it is important to consider through such analysis whether retrofit of an existing building would be feasible or would result in higher whole life carbon emissions compared to new-build.

Follow the Construction Hierarchy

2.58 The whole-life carbon approach underpins a hierarchy of construction that should be considered early in the design process:

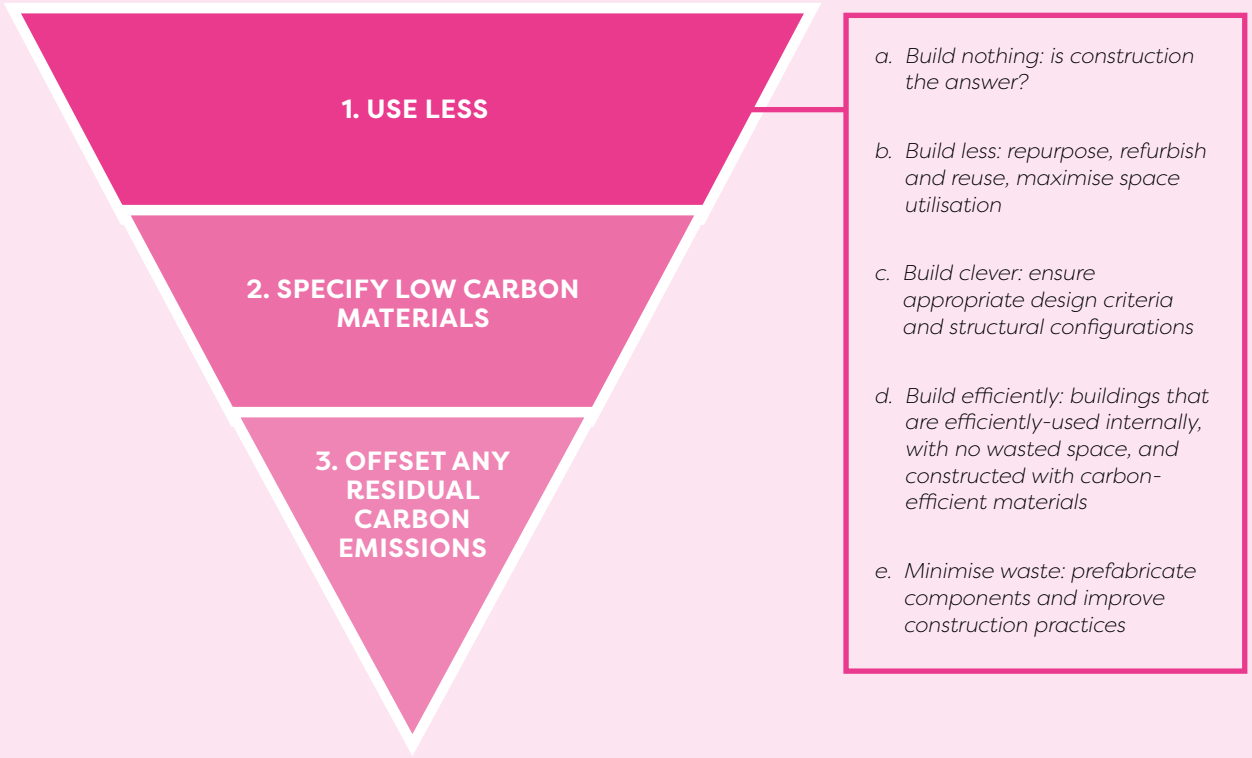


FIGURE 18: CONSTRUCTION HIERARCHY

Materials, Construction & Waste

Use low-carbon construction materials

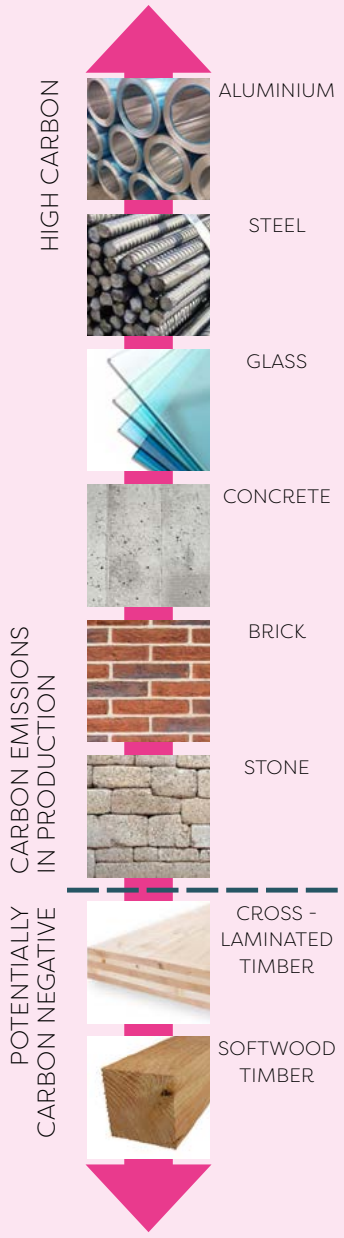
2.59 If a new building or new construction is necessary, it is essential to consider the carbon emissions embodied within materials used, either through their sourcing, mining, or creation (e.g. concrete). Each material should be chosen only where it is the best at performing the function it is required to perform with the lowest whole life carbon impact. It may be that higher embodied carbon materials are chosen due to their roles in reducing operational carbon over a building's lifetime.

2.60 As a preference, locally-sourced or reclaimed materials should be used. Materials chosen should also prioritise potential for recycling and reuse, to ensure that in the future the embodied carbon impact of their reuse is as close to zero as possible.

2.61 Low carbon materials include (in this order) softwood timber, cross-laminated timber, stone and brick. These are also able to be re-used and recycled - see figure 19.

2.62 Higher carbon materials include (highest first) aluminium, steel, glass and concrete. Glass and concrete are usually unable to be reused, and steel and aluminium typically require energy-intensive recycling and transformation processes before reuse.

FIGURE 19: RELATIVE EMBODIED CARBON OF DIFFERENT CONSTRUCTION MATERIALS



Choose appropriate materials for a changing climate

2.63 Extreme weather events such as high temperatures or intense rainfall will demand a new approach to material selection. Materials with a high specific heat capacity can smooth out variations in temperature internally and provide effective insulation, retaining heat in the winter and taking longer to heat up in the summer. This must be balanced against their tendency to re-radiate heat, which could create unpleasant microclimate effects in prolonged periods of hotter weather.

2.64 Permeable materials for the public realm and landscaped spaces can reduce the effects of intensive rainfall events. This can include permeable paving or green materials for new driveways and other hard landscaped areas. See 'Water' on page 34 for more information.

Further Reference

2.65 More detailed information on these topics can be found in the following guidance:

- UK Green Building Council: The Retrofit Playbook
- LETI Climate Emergency Design Guide
- UK Green Building Council Net Zero Carbon Buildings Framework

Green Infrastructure

2.66 Vegetation, planting, trees, green open spaces and natural habitats are a vital tool in mitigating climate change, and in ensuring that our places remain habitable in extreme weather. Together they are known as green infrastructure.

What is biodiversity net gain?

Biodiversity net gain (BNG) is an approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand. Biodiversity net gain delivers measurable improvements for biodiversity by creating or enhancing habitats in association with development. Biodiversity net gain can be achieved on-site, off-site or through a combination of on-site and off-site measures.

Under the Environment Act 2021, all planning permissions granted in England (with a few exemptions) except for small sites will have to deliver at least 10% biodiversity net gain when the regulations come fully into force. Large scale or strategic BNG projects may be able to trade 'credits' with other projects that are unable to deliver BNG on-site, under certain circumstances.

Capture carbon in natural habitats

2.67 Healthy natural habitats and ecosystems absorb carbon, through plants that 'fix' carbon as part of their natural growth. Woodland habitats can provide a particularly effective ongoing carbon capture sink, especially as the trees begin to reach maturity after 5-10 years. Other habitats that provide good carbon capture are freshwater wetlands, which can be incorporated into sustainable drainage systems and river restoration/ nature recovery schemes.

2.68 Where possible, and where this is compatible with overall biodiversity strategies, such habitats should be considered as part of a proposal's overall climate change approach and corresponding biodiversity net gain strategy.

Ensure biodiversity resilience

2.69 As the climate changes, plants and animal species will have to adapt to the new conditions. Natural ecosystems are complex and interconnected, and this will have a number of effects, many of which cannot be anticipated fully:

- Native species being unable to thrive in the new climate and dying off
- The arrival of non-native species, which may disrupt local ecosystems. An example is invasive species of beetle or other insects such as Oak Processionary Moth that can destroy natives trees
- Some native species becoming dominant, leading to a loss of biodiversity and poor natural ecosystems

2.70 When creating new habitats, or including trees or planting in new proposals, biodiversity resilience should be considered. This means choosing a mix of plants that are likely to be robust to changes, and avoiding monocultures that may be vulnerable to invasive species. Planting species chosen should also aim to reduce water consumption.

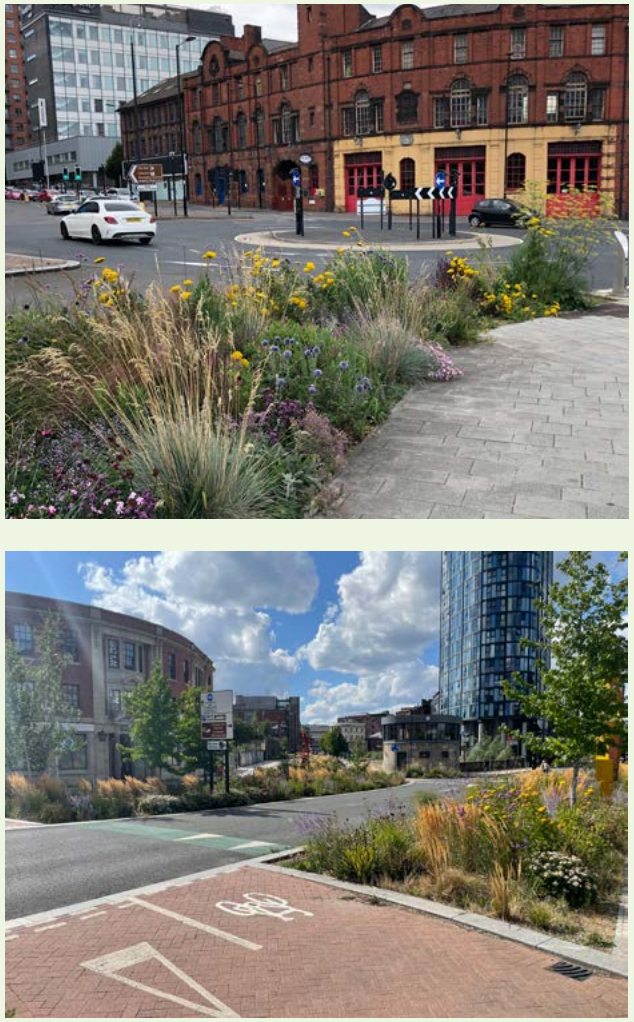


FIGURE 20: EXAMPLES OF GREEN INFRASTRUCTURE IN THE PUBLIC REALM (SHEFFIELD)

Green Infrastructure

Provide green infrastructure throughout built environment

2.71 The inclusion of green infrastructure throughout the built environment has wider benefits relevant to climate change and environmental sustainability, that include:

- Reduction in temperatures of spaces during hot weather, through shade and the evaporation cooling effect of trees and planting
- More effective management of heavy rainfall events through absorption
- Improvements in air quality
- Biodiversity improvements and the potential to link habitats through networks of green infrastructure

2.72 Proposals should consider how to integrate green infrastructure throughout to maximise these effects.

FIGURE 21: EXAMPLES OF GREEN INFRASTRUCTURE IN DEVELOPMENT (MALMO, SWEDEN TOP & CENTRE, DERWENTHORPE BOTTOM)

Further Reference

2.73 More detailed information on these topics can be found in the following guidance:

- NHBC Biodiversity in new housing developments
- Building with Nature
- Natural England Green Infrastructure Guidance
- Forest Research: The Urban Tree Manual
- Healthy Streets for Surrey Design Guide
- Surrey Sustainable Drainage Systems Guidance

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- ☑ Urban Greening Factor (UGF) as set by Natural England
- ☑ DEFRA Biodiversity Net Gain Metric v4

Water

2.74 Extreme weather events that cause heavy and sudden rainfall are likely to increase under conditions of climate change. Effective management of water flows through urban environments will be even more crucial, to protect homes and critical infrastructure and ensure the public realm remains usable.

2.75 Although the intensity of water in storm events will increase, climate change is likely to make overall water resources scarcer, especially in the south-east of England. This means that efficiency of water usage is essential for all new development.

Integrate Sustainable Drainage Systems (SuDS)

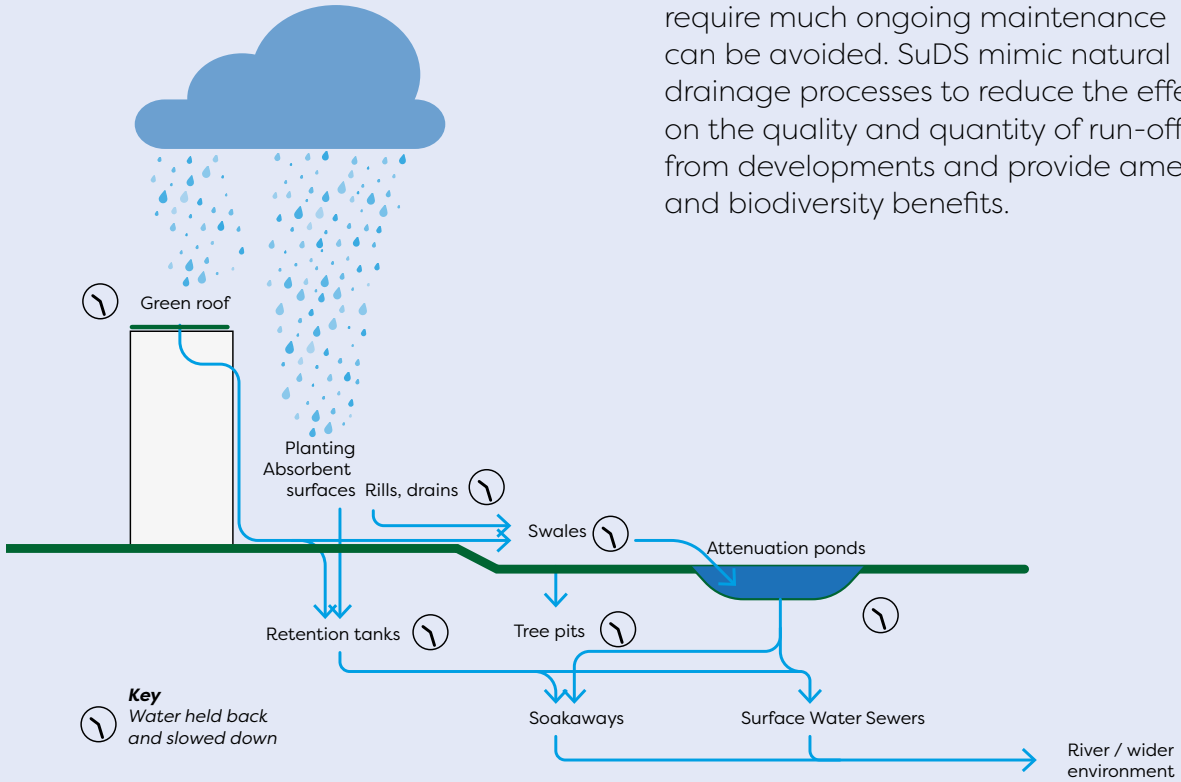

FIGURE 22: PRINCIPLES OF URBAN SUSTAINABLE DRAINAGE SYSTEMS

2.76 All proposals should follow the principles of sustainable drainage systems, by absorbing and slowing down runoff through permeable surfaces, before allowing it to be filtered and infiltrate slowly. By doing so, expensive and complex engineering approaches that require much ongoing maintenance can be avoided. SuDS mimic natural drainage processes to reduce the effect on the quality and quantity of run-off from developments and provide amenity and biodiversity benefits.

Water

FIGURE 23: EXAMPLES OF SUSTAINABLE DRAINAGE SYSTEMS IN BUILT UP AREAS (TOP ROW: MALMO, SWEDEN; UPTON, NORTHAMPTON, HAMMARBY, SWEDEN) (BOTTOM ROW: CAMBRIDGE; MALMO, SWEDEN; MALMO, SWEDEN; NEWPORT)

2.77 SuDS are applicable to green-field development and to built-up areas. They can take many forms to adapt to their context, and can form an attractive part of the public realm and create new habitats for wildlife. Existing built-up areas can be adapted to improve their performance, through changes to the public realm or green roofs and walls. The use of rain gardens within built-up areas can provide an attractive and visible feature of a more natural surface water management chain.

Calculate your Urban Greening Factor

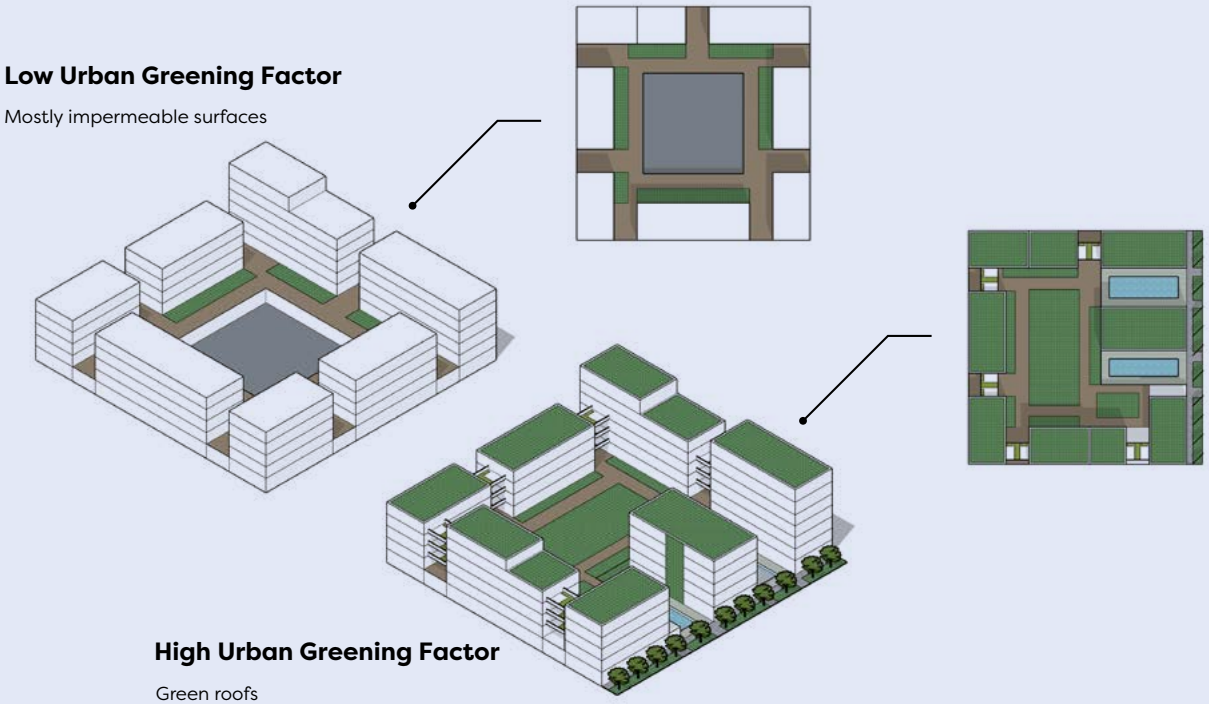

FIGURE 24: APPLYING THE URBAN GREENING FACTOR TO MAKE AN APARTMENT SCHEME MORE PERMEABLE FOR WATER

2.78 The Urban Greening Factor (UGF) is a tool endorsed by Natural England to help understand how permeable proposals are and helps design teams maximise green infrastructure and sustainable drainage systems throughout new development. It can provide multiple benefits, including amenity space, biodiversity net gain, green open spaces and improving air quality, as well as surface water management. It can also, when integrated with the design process, create an attractive and comfortable environment for everyone using the space.

2.79 The UGF (and similar tool Green Space Factor) have been adopted as part of the London Plan, with a recommendation to deliver a score of 0.4 on major residential developments, and 0.3 on commercial developments. Although it is not a formal policy requirement in Spelthorne, its use is encouraged as part of a holistic design process and is supported by the Spelthorne Design Code.

Be efficient with water

FIGURE 25: HOME RAINWATER CAPTURE SYSTEMS

FIGURE 26: LARGE-SCALE WATER RECYCLING SCHEME (EDDINGTON, CAMBRIDGE)

2.80 One of the likely effects of climate change is a reduction in overall rainfall in the south-east of England, an area already under water supply pressure. New residential development is strongly encouraged to demonstrate water efficiency measures in their design that limit piped water usage to 110 litres per day per resident.

2.81 In residential settings, the vast majority of water usage is within the home, and only a small proportion in the garden[4]. Water efficiency measures should concentrate on appliances, such as the toilet, showers, washing machines and dishwashers. Renovation and retrofit projects are often an opportunity to upgrade fixtures and fittings, and new build construction should fit low-flow and efficient appliances as standard.

2.82 Outdoors, the installation of water butts connected to downpipes, or more comprehensive rainwater recycling systems in larger schemes to provide 'grey' water for compatible uses should be considered.

[4]*At Home With Water, Energy Saving Trust (2013)*

2.83 The public realm requires water for planting and street trees. Species that require less watering should be considered, balancing other needs set out earlier under Green Infrastructure.

Further Reference

2.84 More detailed information on these topics can be found in the following guidance:

- Ciria: The SuDS Manual
- Urban Design Learning: Designing Rain Gardens – A Practical Guide
- Mayor of London - Urban Greening Factor SPG
- Natural England – Urban Greening Factor and Green Infrastructure Framework
- Surrey SuDS Guidance

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- ☑ Urban Greening Factor (UGF)
- ☑ BREAAM (Water Efficiency Credits)

Space & Place Design

2.85 As the climate changes, extreme weather events are more likely to occur, along with the potential for extended heatwaves that will make being outdoors uncomfortable or even impossible for some groups. As well as buildings, our outdoor spaces will need to change to consider this future.

Keep spaces usable and enjoyable in hotter weather

2.86 Access to shade on streets and in spaces is an essential part of adapting our public realm to a hotter future. This can be accomplished through:

- Natural approaches: e.g. street trees and planting
- Temporary approaches: e.g. canopies, parasols and other shading in the public realm
- Built form approaches: e.g. arcades and overhangs on building ground floors along streets, canopies on bus stops and covered seating areas

2.87 The cooling effects of water, green infrastructure and appropriate materials in public and amenity spaces have been noted in other themes above. They can play multiple roles, including surface water management, areas for relaxation, gathering, children's play, space for exercise and recreation.

2.88 Seating and access to drinking water is essential to ensure that groups who may be more vulnerable in the heat can continue to confidently use the public realm in hotter weather.

2.89 Frequent crossings along streets are essential, so that people can easily cross to the shadier side in hot weather. It is important to ensure that any unshaded areas are interspersed with areas of shade to break up longer periods in the sun.

Further Reference

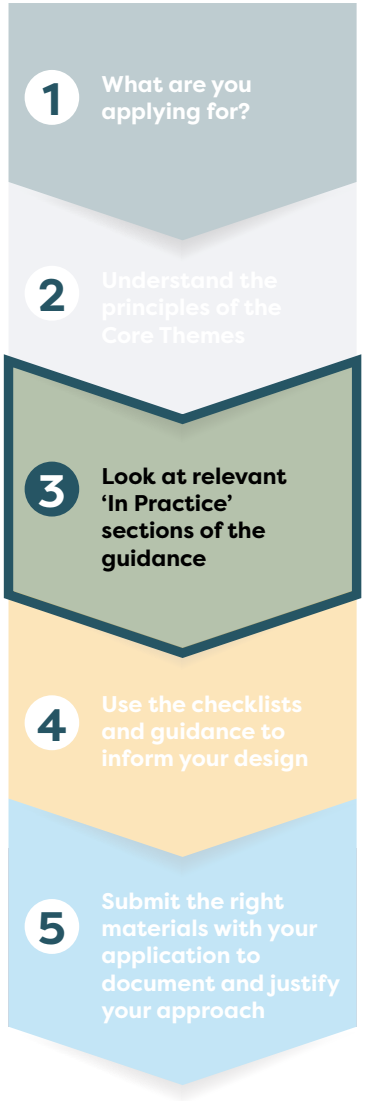
Healthy Streets for Surrey Design Guide

MAJOR APPLICATIONS: DEMONSTRATING SUSTAINABILITY

☑ WELL Certification

3.0 IN PRACTICE

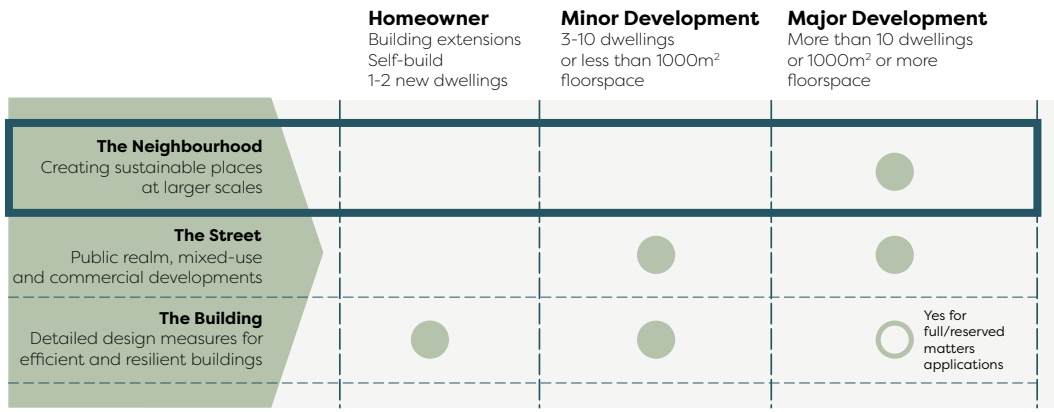
3.1 This chapter sets out a series of examples of how the principles of the Core Themes can be successfully implemented in practice. The measures shown are not illustrative and not exhaustive. There may be other appropriate ways of achieving the principles of the Core Themes, especially with the use of constantly improving technology.



The Neighbourhood

3.2 Tackling climate change will require a whole systems approach, with changes working together to achieve the overarching goal. A sustainable, low-carbon neighbourhood is one where most daily travel can be undertaken by walking, cycling or other active travel modes. Low or zero-carbon public transport is reliable, convenient and serves the places people want to go to. Regular destinations such as shops, schools and community facilities are near to people's homes, and there is sufficient density of people within their catchment to support them viably. Nature is strengthened and woven throughout, to ensure resilience in future climate change scenarios.

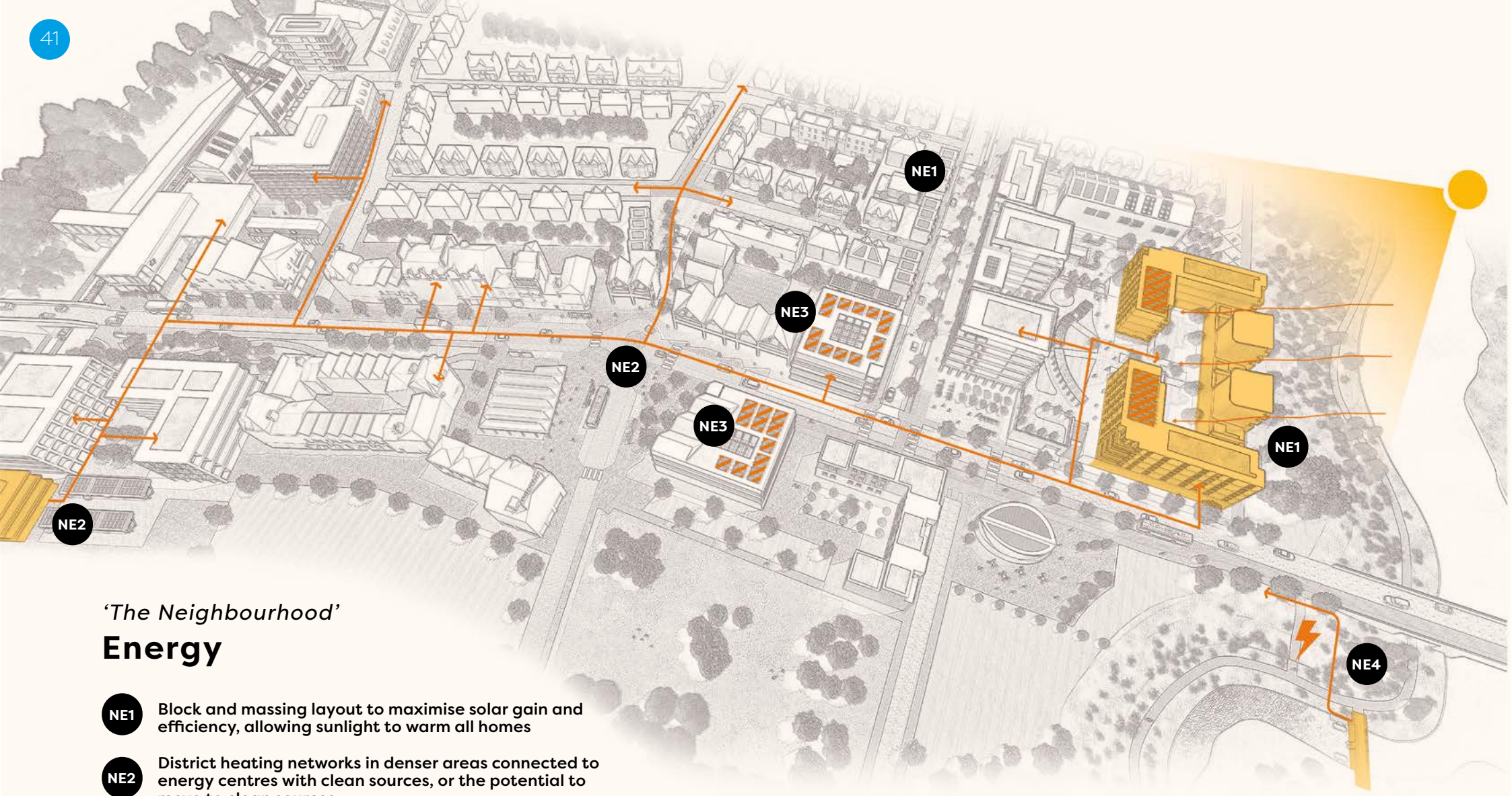
3.3 This section illustrates how climate change can be considered and designed for at a neighbourhood level, and is directly relevant for large-scale applications, and for strategic changes such as transport infrastructure and public open spaces.



'The Neighbourhood'

1. People can move around safely and conveniently by walking, cycling and other active travel means, making seamless connections to public transport for longer journeys
2. Facilities are available locally and concentrated near public transport so they can be accessed widely without needing a car
3. Resilient green infrastructure is integrated throughout, providing water management, microclimate improvements and habitats for nature
4. Energy generation and distribution of cleanly-generated heat is considered and shared at a neighbourhood level

FIGURE 27: THE NEIGHBOURHOOD



'The Neighbourhood'

Energy

NE1 Block and massing layout to maximise solar gain and efficiency, allowing sunlight to warm all homes

NE2 District heating networks in denser areas connected to energy centres with clean sources, or the potential to move to clean sources

NE3 Strategic opportunities for energy generation such as PV panels on roofs of major commercial and civic buildings

NE4 Opportunities for community-run hydro power generation on rivers, integrated with nature recovery schemes

FIGURE 28: THE NEIGHBOURHOOD - ENERGY

'The Neighbourhood'

Transport

NT1 Facilities and services located near to public transport stops and mobility hubs

NT2 Development intensity and density concentrated near public transport

NT3 Connected and direct active travel networks, with a choice of utility and recreational routes, both quiet and busy, for different users

NT4 Public transport prioritisation measures such as bus lanes and bus gates on key corridors and at junctions

NT5 Network of mobility hubs and interchanges between sustainable travel modes of different scales

NT6 Travel planning and sustainable transport subsidy support [not on diagram]

FIGURE 29: THE NEIGHBOURHOOD - TRANSPORT

'The Neighbourhood'

Materials, Construction & Waste

NC1 Reuse of existing buildings, reducing embodied carbon emissions from new construction

NC2 Local and low-carbon materials for major projects as an early part of design consideration, e.g use of cross-laminated timber to create distinctive building

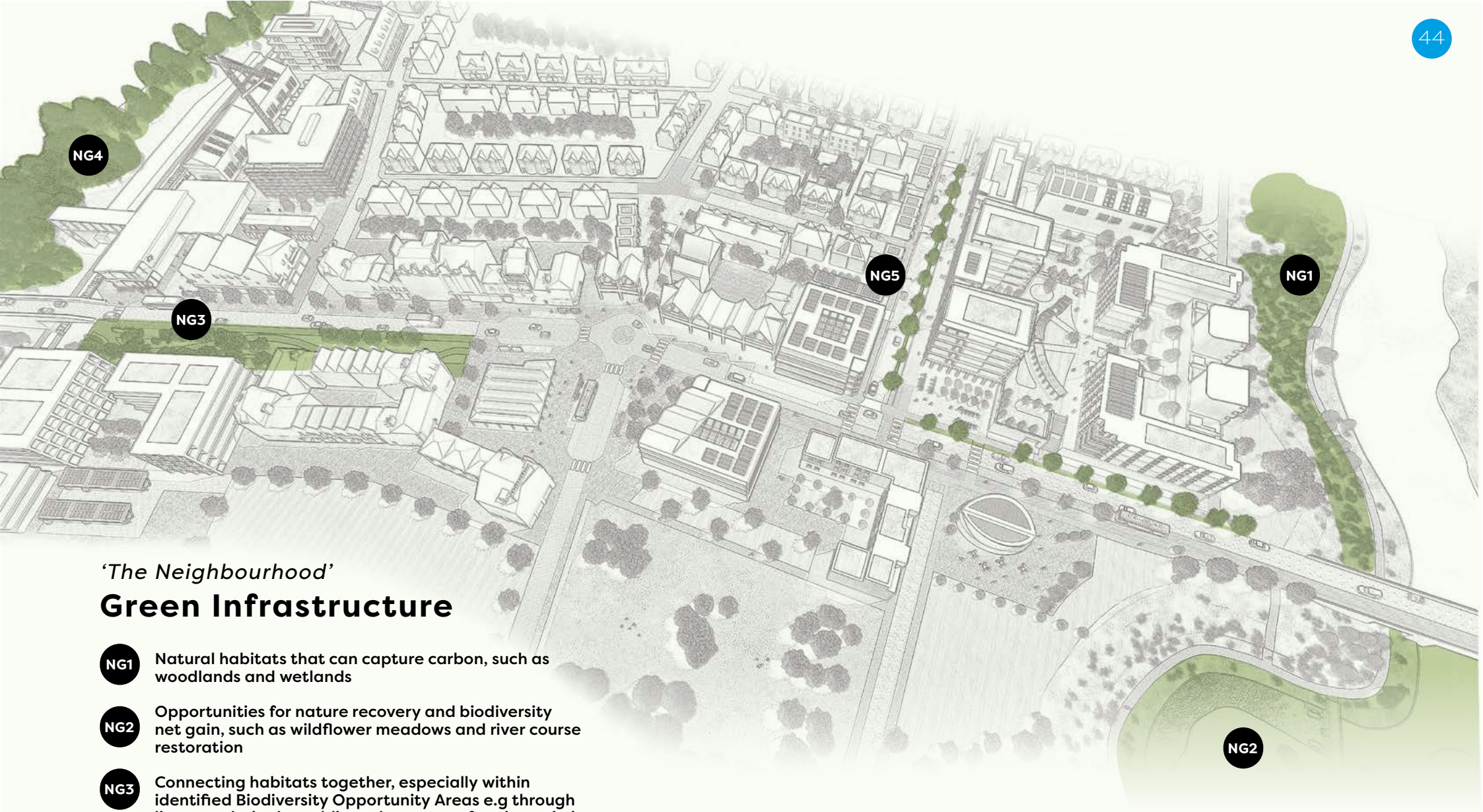
NC3 Reductions in the infrastructure that produces most carbon emissions in construction, e.g. excessive highways and use of tarmac

NC4 Construction waste management plans that recycle and retain materials on site where possible

NC5 Sharing and local recycling between facilities and businesses – e.g. reuse of coffee waste for fertiliser, feeding local food production, to be sold in local cafés

NC6 Permeable materials in public realm

FIGURE 30: THE NEIGHBOURHOOD - MATERIALS, CONSTRUCTION & WASTE



'The Neighbourhood'

Green Infrastructure

NG1 Natural habitats that can capture carbon, such as woodlands and wetlands

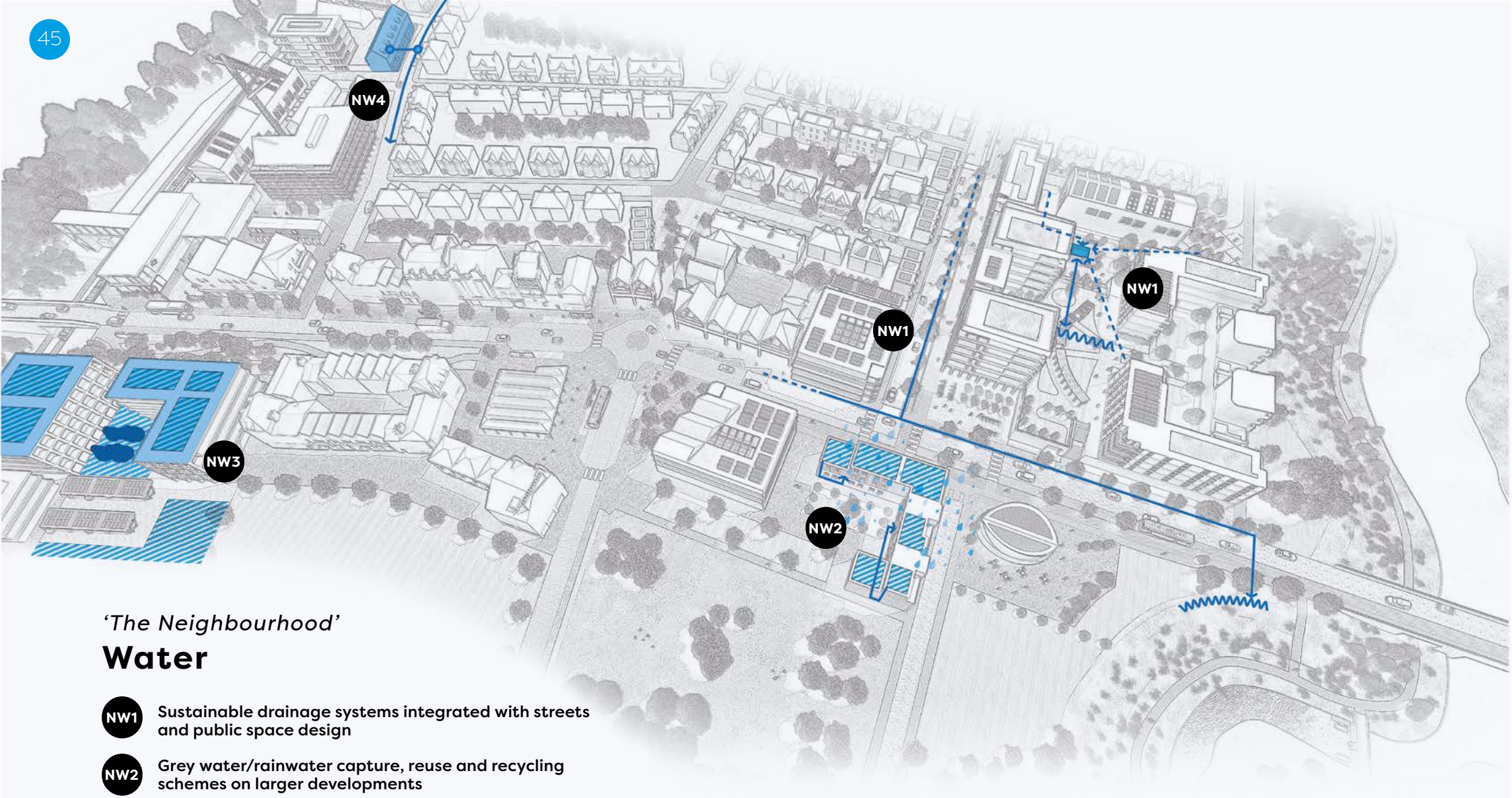
NG2 Opportunities for nature recovery and biodiversity net gain, such as wildflower meadows and river course restoration

NG3 Connecting habitats together, especially within identified Biodiversity Opportunity Areas e.g through linear parks in the public realm, or transforming existing grey infrastructure (surface parking, excess road space) into green links

NG4 Strengthening existing habitats for the future through the trading of BNG credits for schemes that cannot provide new habitats on site

NG5 Use of street trees, swales, verges and other green infrastructure to provide urban habitat links and ecology 'sinks'

FIGURE 31: THE NEIGHBOURHOOD - GREEN INFRASTRUCTURE



'The Neighbourhood'

Water

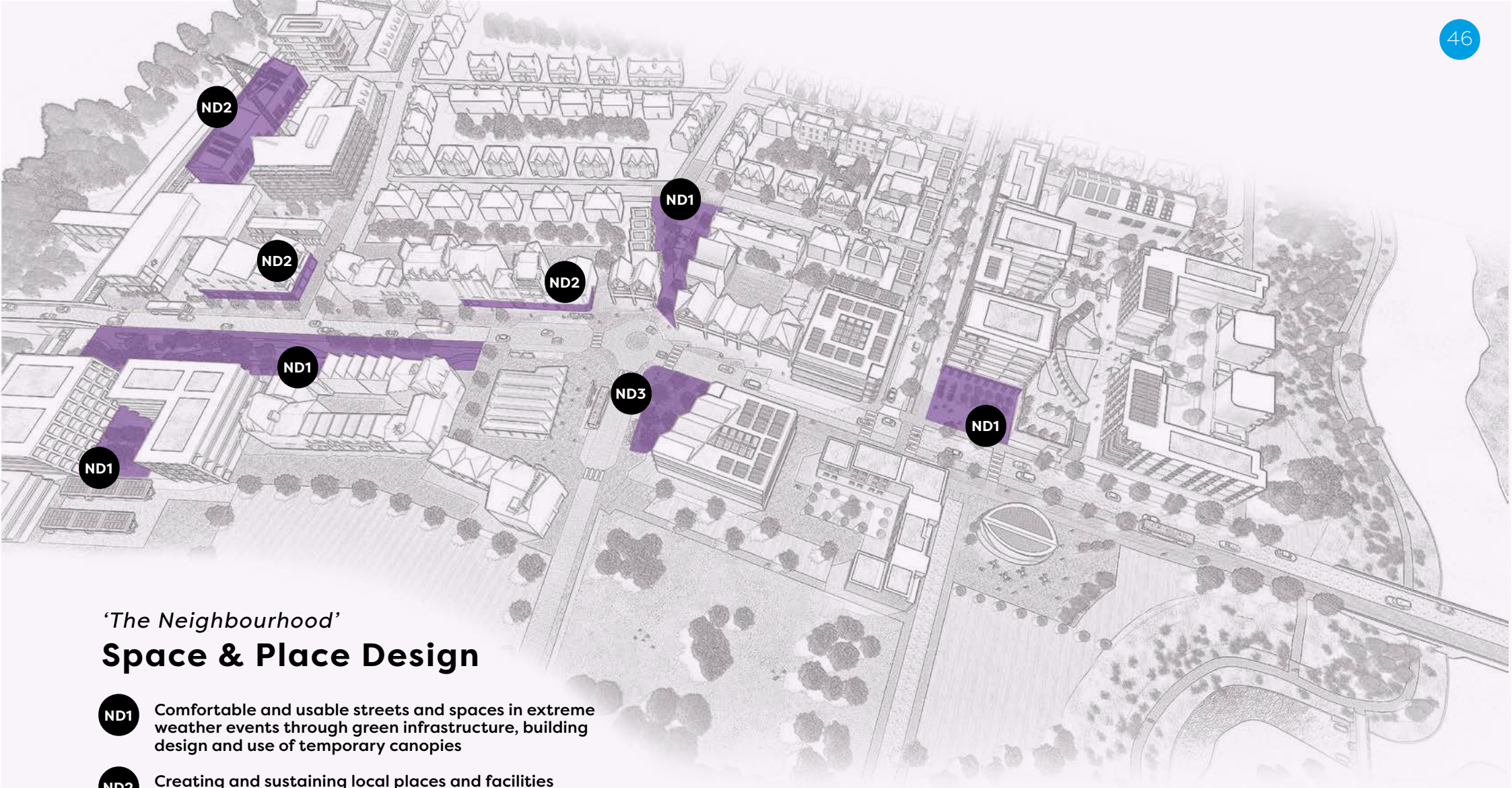
NW1 Sustainable drainage systems integrated with streets and public space design

NW2 Grey water/rainwater capture, reuse and recycling schemes on larger developments

NW3 Scheme calculation of Urban Greening Factor to demonstrate surface water permeability and maximise absorption of water on site

NW4 Water use targets for new developments and water metering

FIGURE 32: THE NEIGHBOURHOOD - WATER



'The Neighbourhood'

Space & Place Design

ND1 Comfortable and usable streets and spaces in extreme weather events through green infrastructure, building design and use of temporary canopies

ND2 Creating and sustaining local places and facilities to minimise need to travel using the 20 minute neighbourhood principle

ND3 Use of water and natural habitats in the public realm as part of distinctive placemaking approaches

FIGURE 33: THE NEIGHBOURHOOD - SPACE & PLACE DESIGN

The Street

3.4 At a more detailed level, climate change will have practical implications for many types of development, and the weather conditions that streets and spaces will need to deal with, if our communities are to remain liveable and enjoyable into the future.

3.5 There are also major opportunities to deliver clean energy, be more efficient, and for our streets to be more walkable and friendly to active travel and sustainable modes.

3.6 This section illustrates in practice measures in the public realm (e.g. on the street), and key features within larger developments such as a commercial office building or apartments.

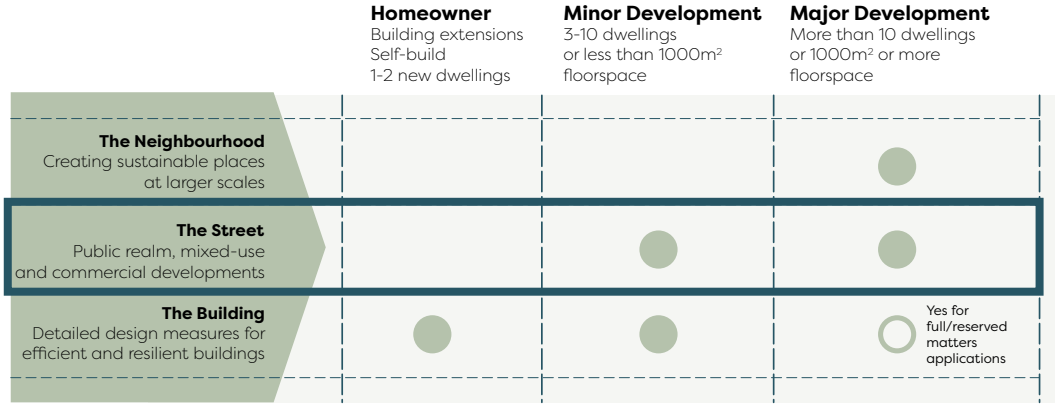
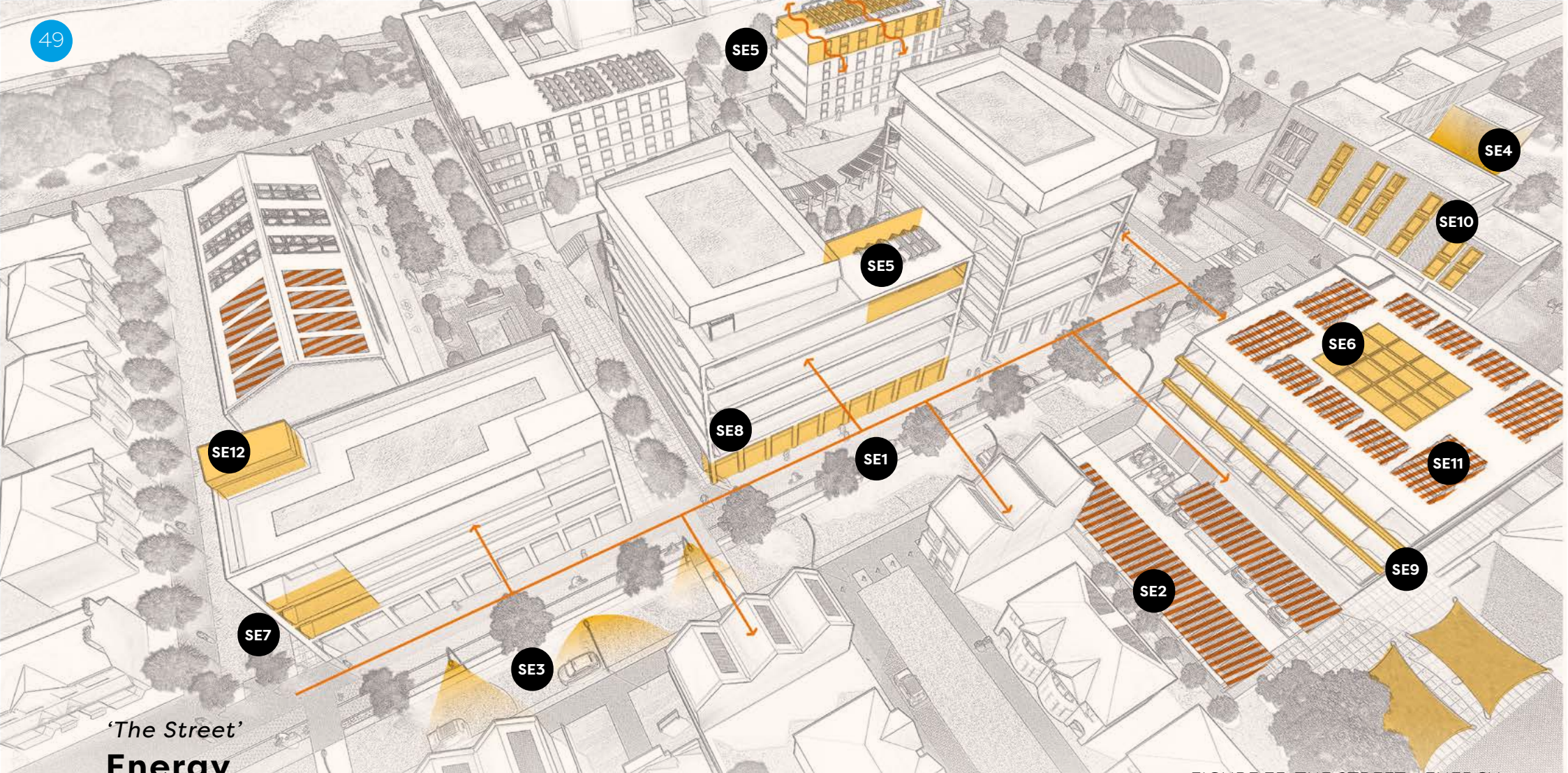


FIGURE 34: THE STREET

'The Street'

1. Lifetime carbon calculations demonstrate the benefit of retention and refurbishment of existing buildings, especially those that can become key local landmarks and community assets
2. Natural light and ventilation, material choices and layout helps buildings reduce their energy needs in both cold and hot weather
3. All streets and spaces integrate active travel, green infrastructure and water management and consider how to adapt to extreme weather events in the future



'The Street'

Energy

FIGURE 35: THE STREET - ENERGY

SE1 Make connections to existing district heat networks

SE2 PV solar energy generation above surface car parks, bus shelters or cycle parking

SE3 Energy efficient LED street lighting

SE4 Central heat sources such as heat pumps using clean energy within apartment or commercial buildings, or reusing waste heat from adjacent sources

SE5 Dual aspect buildings and building design to allow for passive air circulation

SE6 Skylights, openings and depths designed to allow natural light into buildings to minimise need for artificial lighting

SE7 Shading and ventilation of indoor and outdoor spaces to minimise overheating risk in hotter weather

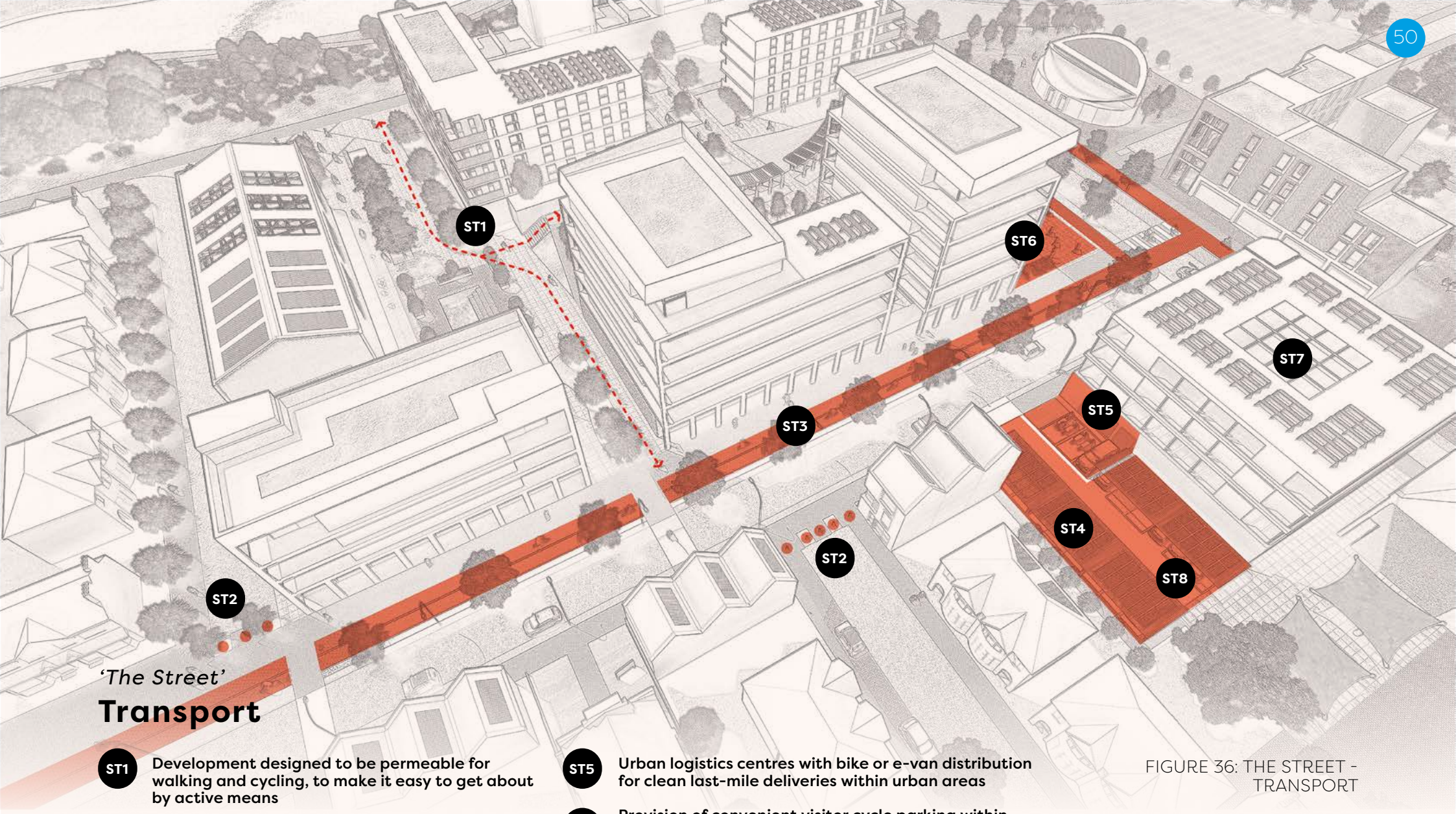
SE8 High efficiency / low energy HVAC and MEP systems within ground floor retail uses

SE9 Shading for larger windows on south-facing aspects via the use of brise soleil

SE10 Appropriate glazing percentage depending on elevation aspect to maximise solar gain, with shading options to prevent overheating

SE11 PV panel installation on roofs

SE12 Demand-responsive building HVAC systems to lower energy usage when spaces have fewer occupants



'The Street'

Transport

ST1 Development designed to be permeable for walking and cycling, to make it easy to get about by active means

ST2 Streets prioritised for through movement for walking and cycling, to create calm and attractive residential streets, friendly to active travel

ST3 Segregated active travel provision on main roads

ST4 Design of proposals to demonstrate how any car parking provided can be repurposed in a lower-car future, e.g. for new homes, open space or other uses

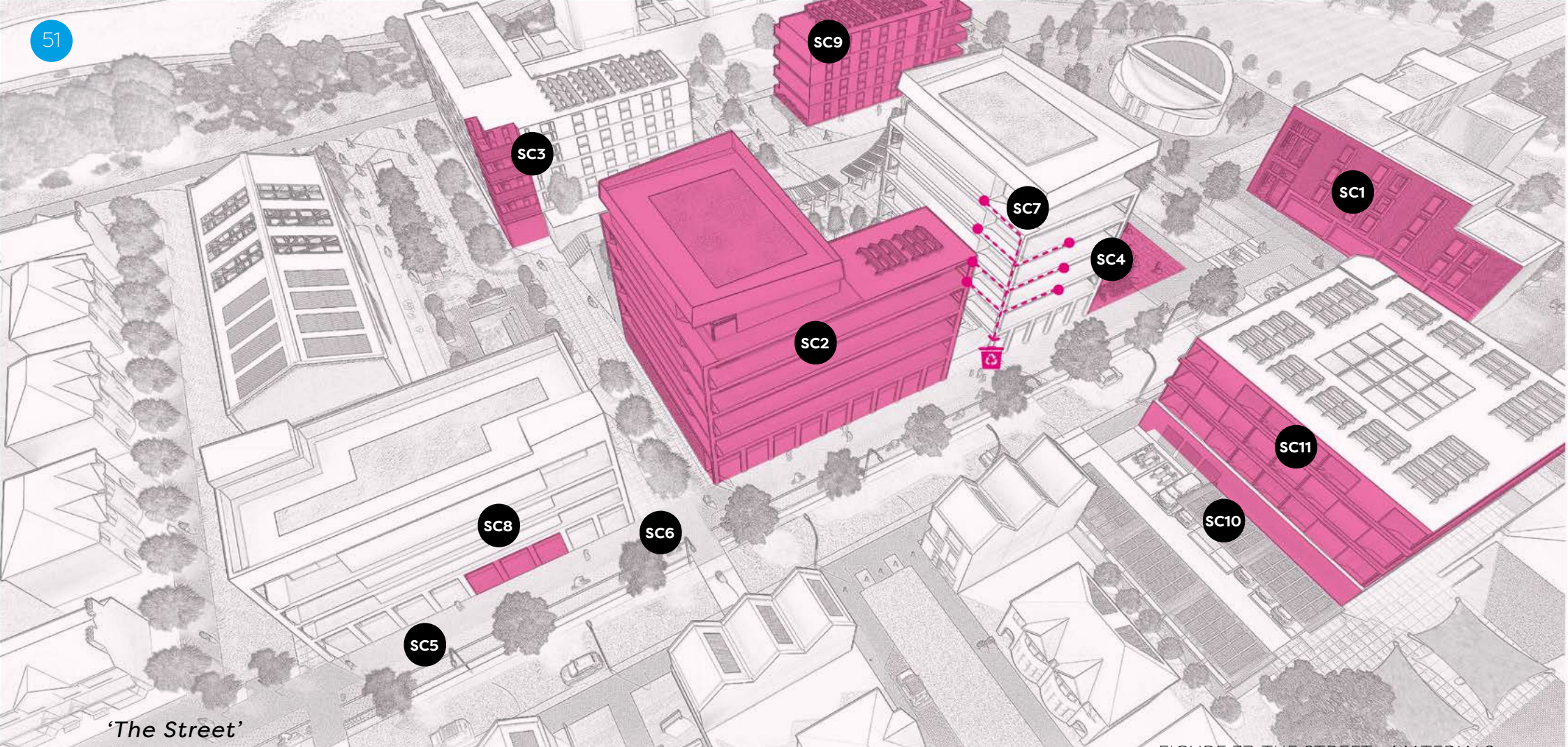
ST5 Urban logistics centres with bike or e-van distribution for clean last-mile deliveries within urban areas

ST6 Provision of convenient visitor cycle parking within the public realm and as part of commercial or apartment developments

ST7 Shower and changing facilities within commercial buildings, with secure employee cycle parking

ST8 Car parking of commercial buildings located so as not to dominate frontage, and make arrival by active modes the easiest option

FIGURE 36: THE STREET - TRANSPORT



'The Street'

Materials, Construction & Waste

FIGURE 37: THE STREET - MATERIALS, CONSTRUCTION & WASTE

SC1 Prioritisation of low-carbon and locally sourced materials in design

SC2 Balance massing and embodied carbon, recognising that high-rise construction requires use of higher carbon materials and operational emissions. Density can often be achieved more sustainably at lower heights.

SC3 Demolition processes to consider and prioritise potential for reuse of usable materials in new construction

SC4 Long-lasting public realm using low-carbon or reclaimed materials with a long design life

SC5 Shared utility channels to minimise waste and emissions involved in digging up services

SC6 On-street waste and recycling facilities

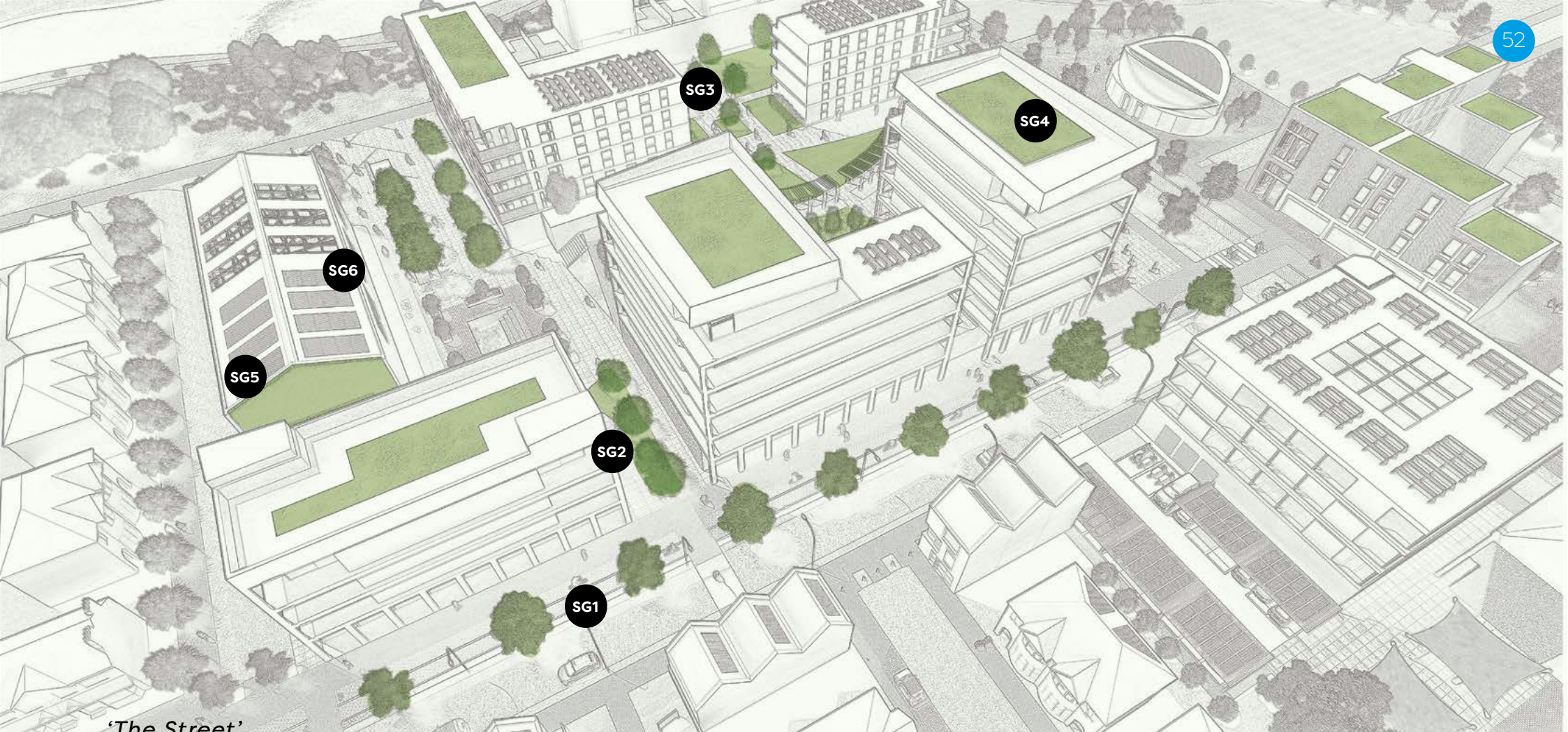
SC7 Communal or shared waste management systems in apartment buildings, with enough space within apartments for waste and recycling

SC8 Flexible ground floor design with ceiling height of 4m+ to accommodate a range of future uses without reconstruction

SC9 Massing and design that considers future redevelopment needs, allowing smaller-scale change of individual buildings rather than complete demolition of entire block

SC10 Design for future commercial adaptability without demolition, considering appropriate dimensions, access to services, space for future HVAC and MEP

SC11 Design of buildings to allow for disassembly and reuse of materials in the future



'The Street'

Green Infrastructure

SG1 Provision of street trees and planting within public realm, with a biodiverse mix of native and resilient species. Ornamental species used sparingly for clear purposes as part of placemaking.

SG2 Wildflower and species-rich grassland in public realm and green open spaces

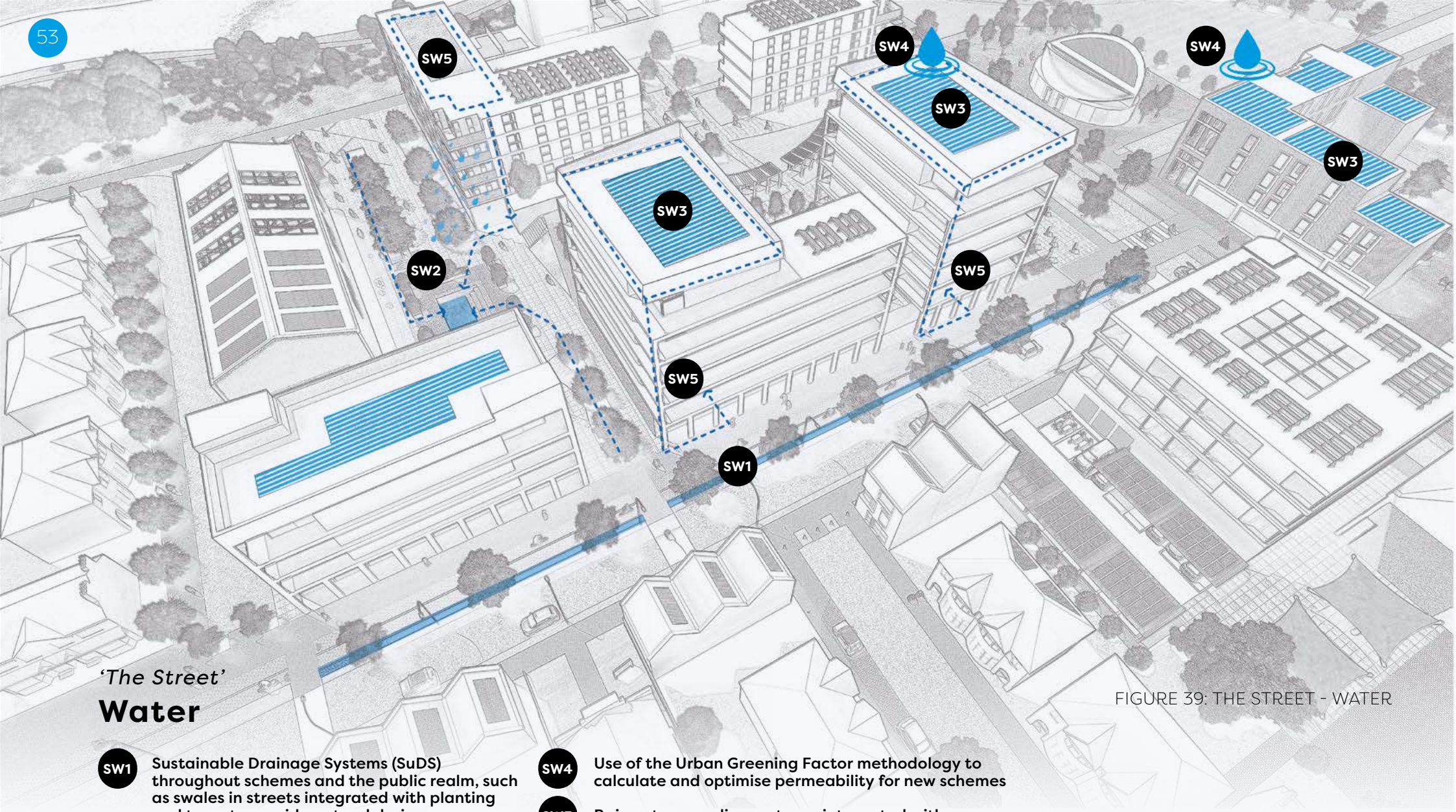
SG3 Inclusion of natural habitats within amenity space in developments

SG4 Low maintenance green roofs to provide surface water management, heat insulation and moderation, and biodiversity benefits

SG5 Low maintenance green walls to provide biodiversity benefits and improve urban microclimate

SG6 Retention of habitats for birds and bats etc through the re-use of existing buildings

FIGURE 38: THE STREET - GREEN INFRASTRUCTURE



'The Street'

Water

SW1 Sustainable Drainage Systems (SuDS) throughout schemes and the public realm, such as swales in streets integrated with planting and trees to provide natural drainage

SW2 Use of rills, channels, rain gardens, permeable paving and natural features to absorb and channel surface water, and enhance the quality and amenity of spaces

SW3 Low maintenance green roofs to absorb water

SW4 Use of the Urban Greening Factor methodology to calculate and optimise permeability for new schemes

SW5 Rainwater recycling systems, integrated with green roofs or other absorption systems, to provide grey water to developments for non-potable use

FIGURE 39: THE STREET - WATER

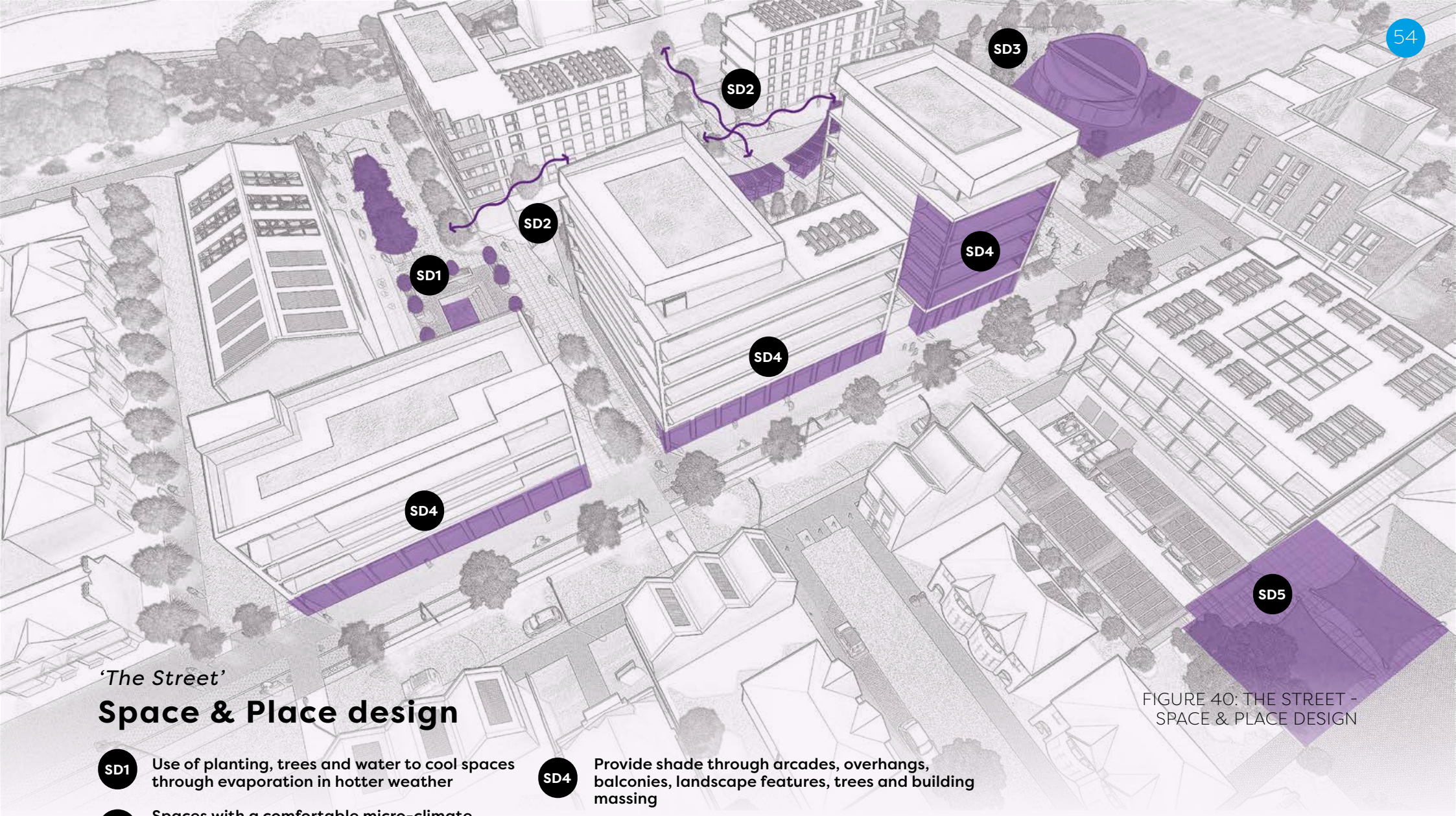


FIGURE 40: THE STREET - SPACE & PLACE DESIGN

'The Street'

Space & Place design

SD1 Use of planting, trees and water to cool spaces through evaporation in hotter weather

SD2 Spaces with a comfortable micro-climate under anticipated climate change scenarios, considering solar heating, wind and wind patterns from surrounding buildings and shading, to ensure spaces can be used throughout the year

SD3 Use of appropriate materials and green infrastructure to reduce local heat island/ microclimate effects

SD4 Provide shade through arcades, overhangs, balconies, landscape features, trees and building massing

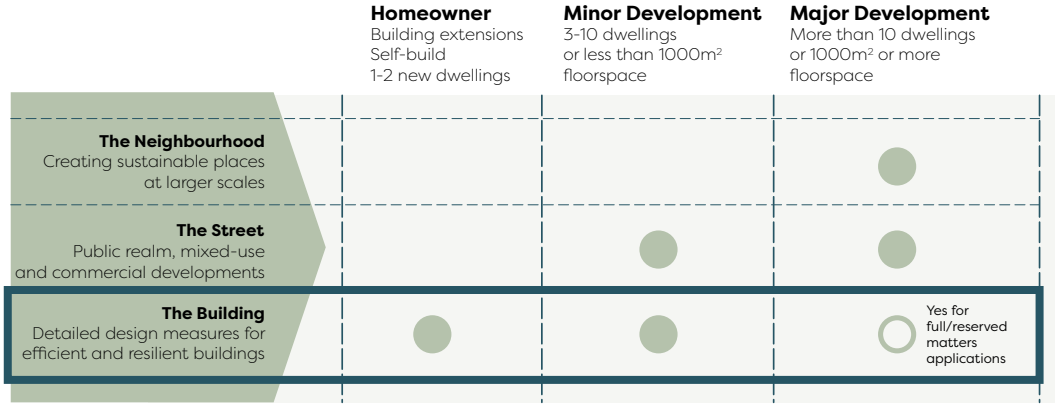
SD5 Shaded outdoor amenity areas for commercial buildings

The Building

3.7 Sustainability begins at home, and the vast majority of existing houses in Spelthorne could be adapted to improve their energy efficiency and improve their resilience to future extreme weather conditions. Many of these improvements have a financial and quality of life benefit for homeowners. New homes should be constructed to the highest standards of efficiency and sustainability.

3.8 The in practice measures illustrated here are not exhaustive, but are intended to give an overview of potential measures that could be considered and incorporated as part of an extension or adaptation project on an existing home, or as a key part of the design of a new home.

3.9 Two residential homes are illustrated (an extension to an existing house and a new home), but many of the examples features are applicable to other types of building, such as commercial or apartment buildings. These include efficiency measures, water efficiency measures and resilient green infrastructure measures.



'The Building'

1. New build homes are constructed to the highest efficiency standards and integrate energy generation and storage into the design
2. Existing homes are retrofitted as part of extensions and alterations to provide an overall benefit to homeowners

FIGURE 41: THE BUILDING

'The Building'

Energy

- **HE1** Air or ground source heat pump installation
- **HE2** Low-temperature heating system (e.g. underfloor)
- **HE3** Modern building insulation in walls, windows and lofts
- **HE4** Design responds to building orientation to place appropriate glazing, shading and ventilation on correct aspects
- **HE5** Modern high performance double or triple glazing
- **HE6** Photovoltaic (PV/solar) panel or PV tile installation on roofs
- **HE7** Smart metering and energy monitoring
- **HE8** In-home battery energy storage, integrated with PV installation
- **HE9** Installation of new energy-efficient appliances and LED lighting

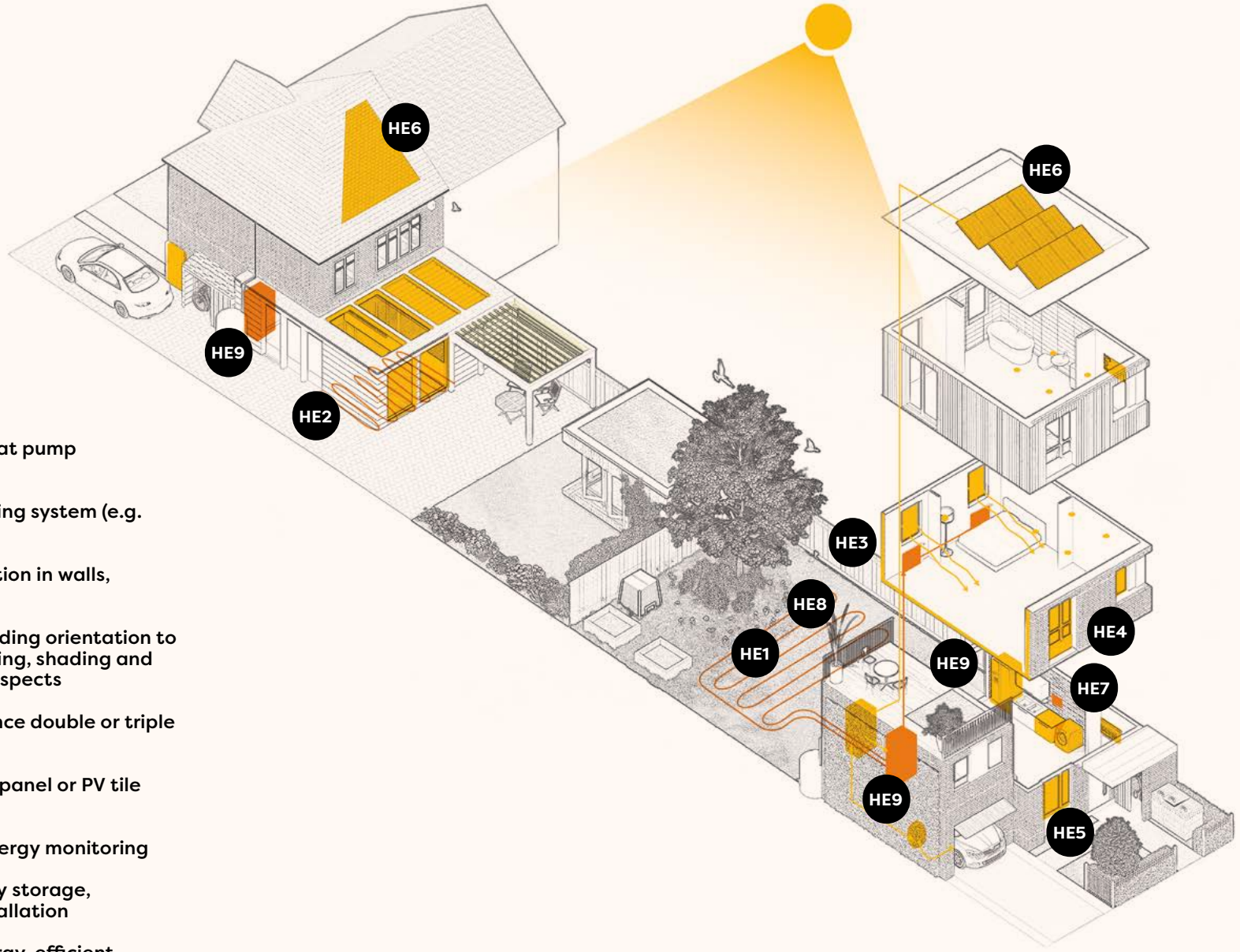


FIGURE 42: THE BUILDING - ENERGY

'The Building'

Transport

HT1 Accessible, secure cycle storage near front door

HT2 Electric vehicle (EV) charging provision

HT3 Space for home working to reduce commuting needs

HT4 Dropped kerbs to retain level footway/ cycleway (mobility kerbs and quadrant kerbs)

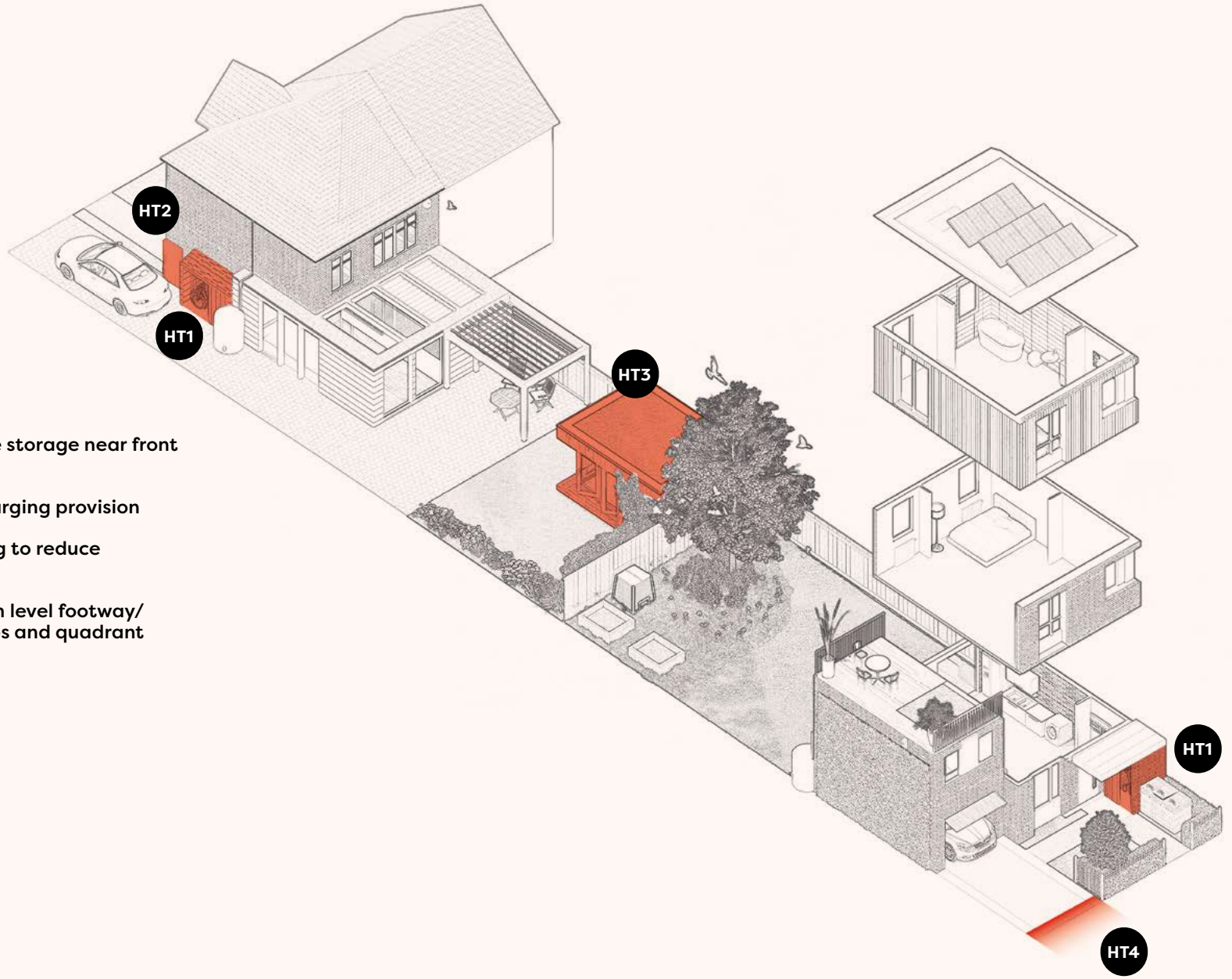


FIGURE 43: THE BUILDING - TRANSPORT

'The Building'

Materials Construction & Waste

- **HC1** Low-carbon construction materials such as timber
- **HC2** Local construction materials
- **HC3** Designed for future adaptability and change without reconstruction
- **HC4** Internal recycling storage with sufficient space
- **HC5** External bin store with space for recycling and easy access for collection
- **HC6** External space for composting

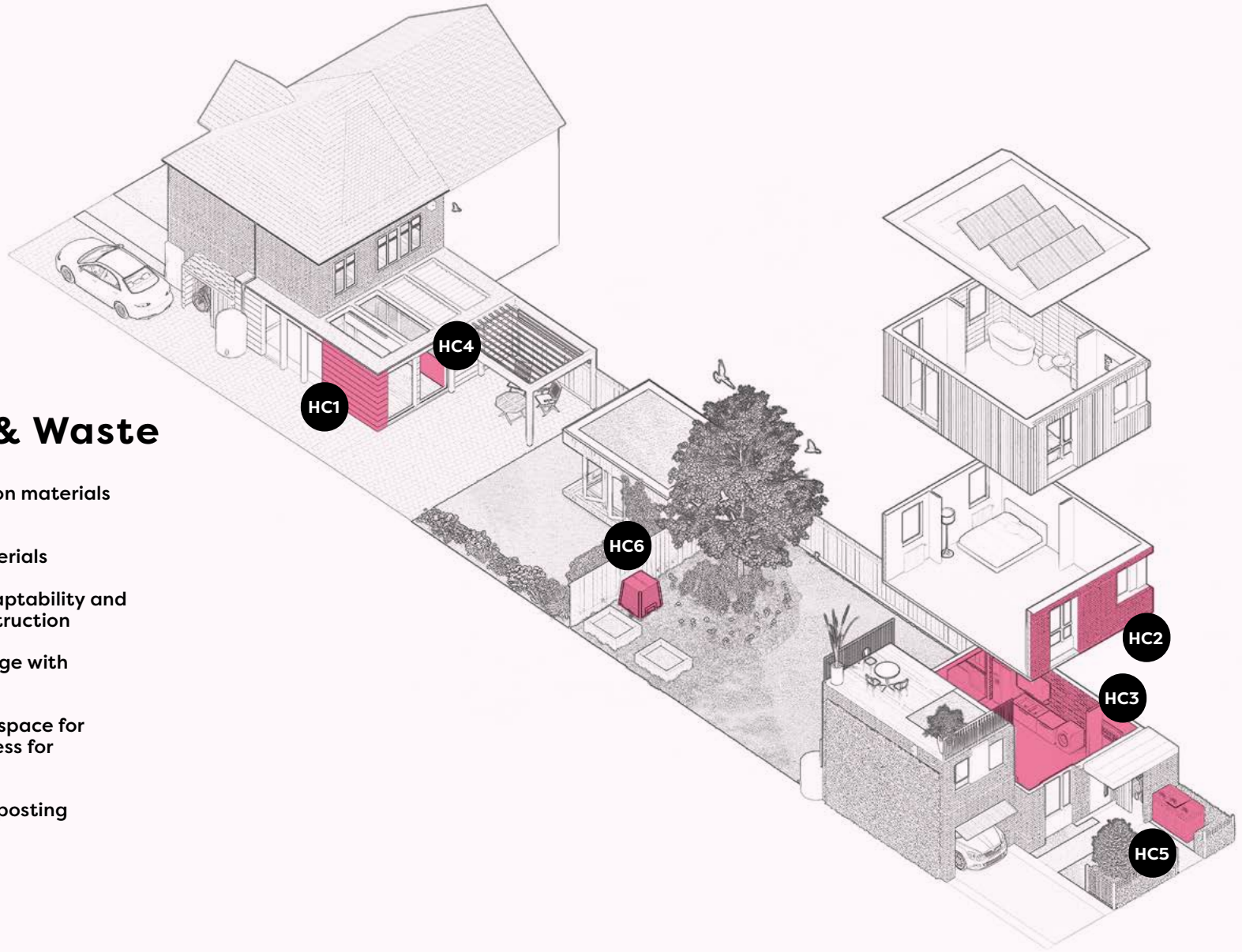


FIGURE 44: THE BUILDING - MATERIALS, CONSTRUCTION & WASTE

'The Building'

Green Infrastructure

- **HG1** Bird boxes
- **HG2** Bat boxes
- **HG3** Bee bricks
- **HG4** Hedgehog holes/highways through fences
- **HG5** New and / or retained native species hedges, planting and nature areas in gardens
- **HG6** Green roofs on homes and outbuildings

FIGURE 45: THE BUILDING - GREEN INFRASTRUCTURE

'The Building'

Water

HW1 Rainwater harvesting systems (e.g. water butts)

HW2 Separate grey water and fresh water systems

HW3 Design to minimise water use and smart metering

HW4 Retain / expand permeable outdoor areas e.g. lawn, flowerbeds, permeable paving where applicable

HW5 Drought tolerant plants used, where applicable

HW6 Water efficient washing machine and dishwasher / Low-flow toilets, taps, and showerheads

HW7 Leak detection system

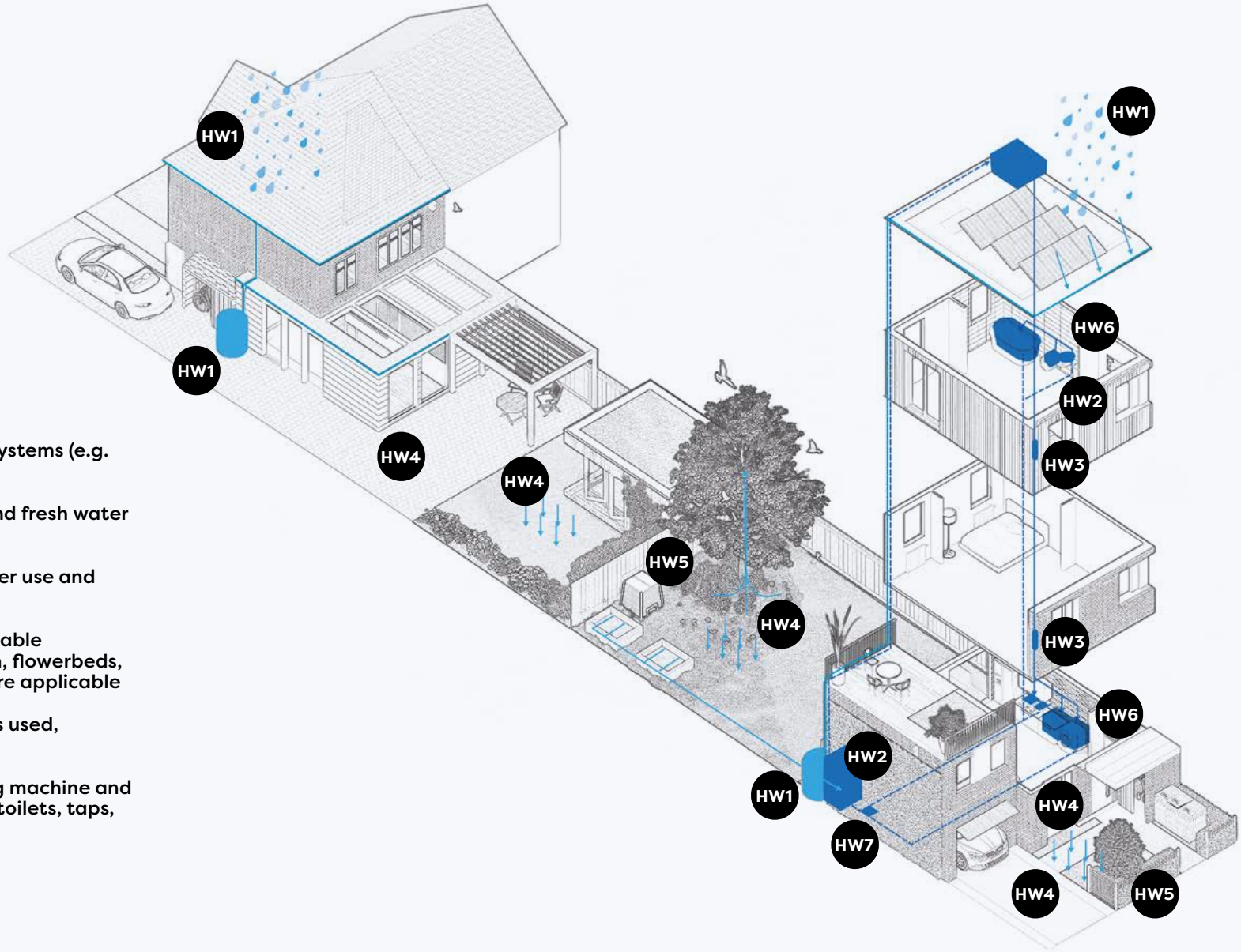


FIGURE 46: THE BUILDING - WATER

'The Building'

Space & Place Design

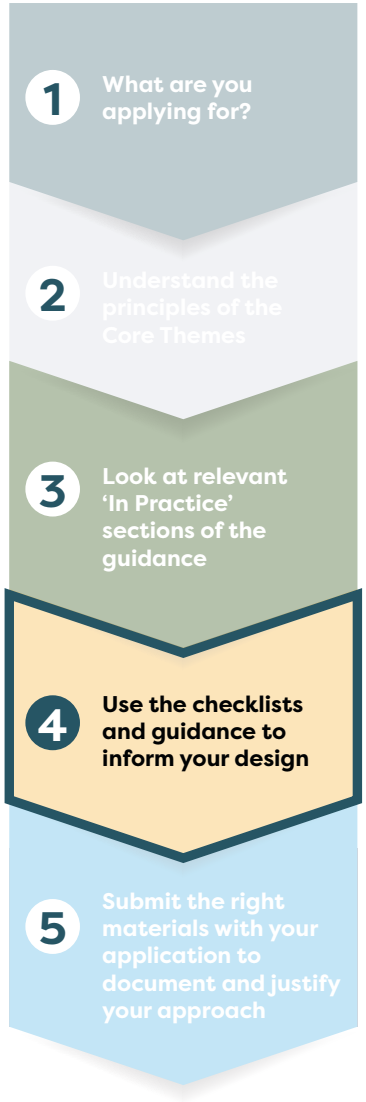
HD1 Shaded outdoor areas and amenity space

HD2 Shaded and sheltered space outside front doors

HD3 Use of materials to reduce local heating and microclimate effects, especially on south-facing aspects

FIGURE 47: THE BUILDING - SPACE & PLACE DESIGN

4.0 SUBMITTING YOUR APPLICATION



4.1 As part of your submitted application, you should complete the appropriate Climate Change Checklist to demonstrate how you have considered the core themes, and what measures you have implemented, depending on the type of application.

Using the checklists

4.2 There are three checklists available:

- **Homeowner applications:** for extension or alteration works on an existing property. This checklist is also appropriate for proposals of 1-2 new or replacement dwellings.
- **Minor applications:** for 3 to 10 homes or less than 1,000m^2 of commercial space
- **Major applications:** for more than 10 homes or more than 1,000m^2 of commercial space.

4.3 The homeowner and minor applications checklists focus on whether measures set out in the 'In Practice' section of this guidance have been applied. This gives a good assessment of whether climate change mitigation and adaptation measures have been applied on schemes of this scale, and gives practical assistance to homeowners and applicants considering how to make their proposals more sustainable.

4.4 The major application checklist focuses on how applicants have considered and responded to the principles set out in the 'Core Themes' section of this guidance. It asks applicants where in their application they have provided key information that demonstrates how the principles have been addressed. This approach recognises that contexts will vary, and that it is more important to demonstrate how principles have been observed and considered by design teams than providing a prescriptive tick-list.

4.5 Bringing these aspects together into checklists, will aid the applicant in understanding what is required and will help speed up the assessment of a scheme's compliance with the SPD.

Additional documents required

4.6 For major applications, you will be expected to provide:

- An Energy / Sustainability Statement – setting out how you have met efficiency and clean energy targets at a scale that is appropriate to the type of development proposed.
- A Construction and Waste Management Statement – detailing how recycling and waste will be handled.
- Utilities Statement – detailing the required utility networks, their availability, and incorporated usage efficiency measures for the proposed development.
- Drainage Strategy – details of the incorporation of sustainable urban drainage (SuDs) into the proposal.
- Travel Plan – provide details of sustainable transport measures for new residents / employees / customers of the development, as relevant.
- Green Infrastructure Strategy – details of the existing and proposed landscaping incorporated into the proposal and how this has considered biodiversity, the public realm, climate resilience, as applicable.
- Design & Access Statement – this should include a section on sustainability and how this has factored into the design evolution and the accessibility of the proposed development.`

4.7 For the most up-to-date requirements for each planning application type, please refer to SBC's Local List of Information Requirements or the most recent validation list available: https://www.spelthorne.gov.uk/page/1027/making-application

What to expect from SBC

4.8 Once you have prepared your planning application, completed the requisite documents (including the relevant climate change checklist) and submitted this to the Council, usually via the Planning Portal, the application will be validated. If the required plans, documents and the checklist are not included, then this may be requested from you prior to the validation of your planning application.

4.9 The consultation period will normally last 21 days and consultees / neighbours / statutory parties will assess and comment on the proposals. The planning officer and/or relevant consultees may contact you for additional details of climate change measures outlined within or omitted from the checklists and supporting statements. You are encouraged to complete the checklist as fully as possible, so that planning officers, consultees and others can quickly understand how the scheme has addressed climate change issues and where in the application documentation this is evidenced.

APPENDIX A
CHECKLISTS

CHECKLIST 1:
Householder applications/extensions and Applications for 1-2 new dwellings

This checklist is required for all HOUSEHOLDER and 1-2 NEW OR REPLACEMENT DWELLINGS ONLY planning applications.

The purpose of the checklist is to ensure that every householder planning application gives due consideration to sustainability and climate change measures that should be incorporated into the scheme.

This checklist sets out all of the potential measures which could be included in your scheme. Please review all features present in the 'measures' column and tick the appropriate Yes, No or N/A as applicable, having consideration to:

- measures included above and below ground, including matters such as utilities;
- sustainable transport measures which could be incorporated as part of a home improvement project (e.g. bicycle storage, EV charging);
- matters relating to materials and building works.

Please submit the completed checklist with your planning application.

CHECKLIST 1:
Householder applications/extensions and Applications for 1-2 new dwellings

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
ENERGY						
PS1: Responding to the Climate Emergency	Inclusion of renewables, energy conservation	**HE1** Air / ground source heat pump installation	☐	☐	☐	
		HE2 Low-temperature heating (e.g. underfloor)	☐	☐	☐	
	Optimise design, layout and orientation to minimise energy usage.	**HE3** Building insulation measures	☐	☐	☐	
		HE4 Consideration of building orientation, ventilation, windows and shading for both solar gain and cooling	☐	☐	☐	
		HE5 Double / triple glazing	☐	☐	☐	
		HE6 Installation of photovoltaic (solar) panels / tiles	☐	☐	☐	
		HE7 Install smart meter / energy monitoring	☐	☐	☐	
		HE8 In-home battery energy storage, integrated with PV installation	☐	☐	☐	
		HE9 Installation of new, energy efficient appliances e.g. boilers, lighting	☐	☐	☐	
		HE Other, please state	☐	☐	☐	

CHECKLIST 1:
Householder applications/extensions and Applications for 1-2 new dwellings

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
TRANSPORT						
PS1: Responding to the Climate Emergency	Development reduces the need to travel and encourages alternatives to car use.	**HT1** Accessible and secure bicycle storage	☐	☐	☐	
		HT2 Electric vehicle charging provision	☐	☐	☐	
		HT3 Space for home working to reduce commuting needs	☐	☐	☐	
		HT4 Dropped kerbs to retail level footway / cycleway	☐	☐	☐	
ID2: Sustainable Transport for New Developments	Accessibility by non-car means Secure cycle parking provision	**HT** Other, please state	☐	☐	☐	

CHECKLIST 1:
Householder applications/extensions and Applications for 1-2 new dwellings

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
CONSTRUCTION & WASTE						
PS1: Responding to the Climate Emergency	Incorporate provision for the storage of waste and recyclable materials Use of sustainable construction materials.	**HC1** Low-carbon and/or recyclable construction materials	☐	☐	☐	
		HC2 Local construction materials	☐	☐	☐	
		HC3 Designed to be able to be adapted for needs in later life (e.g. ageing)	☐	☐	☐	
		HC4 Internal recycling storage with sufficient space	☐	☐	☐	
		HC5 External bin store with space for recycling and easy access for collection	☐	☐	☐	
		HC6 External space for composting	☐	☐	☐	
		HC Other, please state	☐	☐	☐	

CHECKLIST 1:
Householder applications/extensions and Applications for 1-2 new dwellings

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
GREEN INFRASTRUCTURE						
E2: Biodiversity	New development contributes to restoring and enhancing habitats, biodiversity and avoids harm to protected sites	**HG1** Bird boxes	☐	☐	☐	
		HG2 Bat boxes	☐	☐	☐	
		HG3 Bee bricks	☐	☐	☐	
		HG4 Hedgehog holes/highways through fences	☐	☐	☐	
		HG5 New and / or retained native species hedges and planting	☐	☐	☐	
E4: Environmental Protection	Design and energy saving measures to reduce light pollution	**HG6** Green roof / walls	☐	☐	☐	
		HG Other, please state	☐	☐	☐	

CHECKLIST 1:
Householder applications/extensions and Applications for 1-2 new dwellings

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
WATER						
PS1: Responding to the Climate Emergency	Promoting the efficient use and conservation of water resources	**HW1** Rainwater harvesting systems e.g. water butts	☐	☐	☐	
		HW2 Separate grey water and fresh water systems	☐	☐	☐	
		HW3 Water use limits and smart metering	☐	☐	☐	
E3: Managing Flood Risk	Promoting measures to reduce flooding and risks from flooding	**HW4** Retain / expand permeable outdoor areas e.g. lawn, flowerbeds, permeable paving where applicable	☐	☐	☐	
		HW5 Drought tolerant plants used, where applicable	☐	☐	☐	
		HW6 Water-efficient appliances and fixings e.g. washing machine, taps	☐	☐	☐	
E4: Environment Protection	Ensure development located near ground and surface water include measures to mitigate impacts on water quality	**HW7** Installation of leak detection system	☐	☐	☐	
		HW Other, please state	☐	☐	☐	
E1: Green and Blue Infrastructure	Should be planned, designed and managed to achieve multiple benefits					

CHECKLIST 1:
Householder applications/extensions and Applications for 1-2 new dwellings

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
SPACE & PLACE DESIGN						
PS2: Designing Places and Spaces	High standard of design for development including due regard to scale, proportions, building lines, materials and impacts on neighbouring property e.g. daylight impacts	**HD1** Shaded outdoor areas and amenity space through building overhangs, trees / vegetation or other structures.	☐	☐	☐	
		HD2 Shaded and sheltered space outside front doors	☐	☐	☐	
		HD3 Use of materials to reduce local heating and microclimate effects, especially on south-facing aspects	☐	☐	☐	
PS1: Responding to the Climate Emergency	Ensure the design and layout incorporates principles of sustainable development, respects the environment of the area. Protect and enhance areas of existing environmental character and nature conservation Promote improvement of poor-quality environments.	**HD** Other, please state	☐	☐	☐	

APPENDIX A
CHECKLISTS

CHECKLIST 2:
Minor planning applications (3-10 dwellings, <1000m2, <1ha)

This checklist is required for all MINOR (3-10 DWELLINGS OR <1000m2 FLOORSPACE / 1HA SITE SIZE) planning applications.

The purpose of the checklist is to ensure that every householder planning application gives due consideration to sustainability and climate change measures that should be incorporated into the scheme.

This checklist sets out what to include on an energy statement as well as potential measures that can be included on your scheme. Please review all features present in the 'measures' column and tick the appropriate Yes, No or N/A as applicable, having consideration to:

- measures included above and below ground, including matters such as utilities;
- sustainable transport measures which could be incorporated (e.g. bicycle storage, EV charging);
- matters relating to materials and building works
- Energy Statements should include the below checklist to clearly demonstrate that the necessary information has been provided and where it can be found. The completed Energy Statement / Energy Statement Checklists should be proportionate to the proposal

Please submit the completed checklist with your planning application.

CHECKLIST 2:

Minor planning applications (3-10 dwellings, <1000m2, <1ha)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures to be addressed through the Energy Statement	Considered in the proposed development scheme? Yes	No	N/A	If YES, information should be formatted in an Energy Statement If NO or N/A, please explain or state reasons
ENERGY (ENERGY STATEMENT CHECKLIST)						
PS1: Responding to the Climate Emergency	Inclusion of renewables, energy conservation	Completed Energy Statement / Energy Statement Checklist proportionate to the proposal	☐	☐	☐	
	Optimise design, layout and orientation to minimise energy usage.	Summary table confirming baseline, energy targets and standards being met	☐	☐	☐	
	Encouraging renewable energy equipment installation, sustainable construction materials, encouraging developments to attain high energy efficiency rates e.g. BREEAM 'very good'.	**HE1, HE2, SE1, SE4**: Heat supply strategy, including consideration of low carbon options (e.g. ASHP, GSHP, heat networks, boilers)	☐	☐	☐	
		HE3: Fabric first approach: insulation levels for walls, roofs and floors	☐	☐	☐	
		HE4: Consideration of building orientation, ventilation, windows and shading for both solar gain and cooling	☐	☐	☐	
		HE5: Glazing strategy, including performance and mitigation of overheating	☐	☐	☐	
		HE6, HE8: zero carbon energy generation, where feasible (e.g. photovoltaics)	☐	☐	☐	
		HE7: Commitment to delivery and post-construction verification through energy monitoring/smart meters	☐	☐	☐	
		HE9, SE3: Energy-efficient lighting and appliances, where known	☐	☐	☐	
		Predicted energy use and carbon emissions summary	☐	☐	☐	
		Justification for any measures not provided, having regard to viability, constraints or scale	☐	☐	☐	

CHECKLIST 2:
Minor planning applications (3-10 dwellings, <1000m2, <1ha)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
TRANSPORT						
PS1: Responding to the Climate Emergency	Development reduces the need to travel and encourages alternatives to car use.	**HT1** Accessible and secure bicycle storage	☐	☐	☐	
		HT2 Electric vehicle charging provision	☐	☐	☐	
		HT3 Space for home working to reduce commuting needs	☐	☐	☐	
		HT4 Dropped kerbs to retain level footway / cycleway	☐	☐	☐	
ID2: Sustainable Transport for New Developments	Accessibility by non-car means Secure cycle parking provision	**ST1** Permeable developments to allow walking and cycling throughout	☐	☐	☐	
		ST3 Segregated lane provision (car/bike/ pedestrian) on roads	☐	☐	☐	
		ST7 Shower/change facilities for employees in commercial developments	☐	☐	☐	
		T Other, please state	☐	☐	☐	

CHECKLIST 2:
Minor planning applications (3-10 dwellings, <1000m2, <1ha)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
CONSTRUCTION & WASTE						
PS1: Responding to the Climate Emergency	Incorporate provision for the storage of waste and recyclable materials Use of sustainable construction materials.	**HC1** Low-carbon and/or recyclable construction materials	☐	☐	☐	
		HC2 Local construction materials	☐	☐	☐	
		HC3 Designed to be able to be adapted for needs in later life (e.g. ageing)	☐	☐	☐	
		HC4 Internal recycling storage with sufficient space	☐	☐	☐	
		HC5 External bin store with space for recycling and easy access for collection	☐	☐	☐	
		HC6 External space for composting	☐	☐	☐	
		SC1 Demolition to prioritise re-use of materials	☐	☐	☐	
		SC2 Use of long-lasting materials especially for public realm/facilities e.g. boundary treatments	☐	☐	☐	
		SC3 Shared utility channels	☐	☐	☐	
		SC4 Consideration of future repurposing or use of buildings allowing for adaptability e.g. generous ground floor ceiling heights	☐	☐	☐	
		SC5 Separate facilities for Waste Recycling – enough internal space, convenient access for collection	☐	☐	☐	
		SC10 Design for future commercial adaptability without demolition	☐	☐	☐	
		C Other, please state	☐	☐	☐	

CHECKLIST 2:
Minor planning applications (3-10 dwellings, <1000m2, <1ha)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
GREEN INFRASTRUCTURE						
E2: Biodiversity	New development contributes to restoring and enhancing habitats, biodiversity and avoids harm to protected sites	**HG1** Bird boxes	☐	☐	☐	
		HG2 Bat boxes	☐	☐	☐	
		HG3 Bee bricks	☐	☐	☐	
		HG4 Hedgehog holes/highways through fences	☐	☐	☐	
		HG5 New and / or retained native species hedges and planting	☐	☐	☐	
		HG6 Green roof / walls	☐	☐	☐	
		HG Other, please state	☐	☐	☐	
		SG1 Street trees and planting in public areas including native plants	☐	☐	☐	
		G Other, please state	☐	☐	☐	
E4: Environmental Protection	Design and energy saving measures to reduce light pollution					

CHECKLIST 2:
Minor planning applications (3-10 dwellings, <1000m2, <1ha)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
WATER						
PS1: Responding to the Climate Emergency	Promoting the efficient use and conservation of water resources	**HW1** Rainwater harvesting systems e.g. water butts	☐	☐	☐	
		HW2 Separate grey water and fresh water systems	☐	☐	☐	
		HW3 Water use limits and smart metering	☐	☐	☐	
E3: Managing Flood Risk	Promoting measures to reduce flooding and risks from flooding	**HW4** Retain / expand permeable outdoor areas e.g. lawn, flowerbeds, permeable paving where applicable	☐	☐	☐	
		HW5 Drought tolerant plants used, where applicable	☐	☐	☐	
		HW6 Water-efficient appliances and fixings e.g. washing machine, taps	☐	☐	☐	
E4: Environment Protection	Ensure development located near ground and surface water include measures to mitigate impacts on water quality	**HW7** Installation of leak detection system	☐	☐	☐	
		SW1 Use of Sustainable Urban Drainage Systems in public areas, integrated with planting	☐	☐	☐	
		W Other, please state	☐	☐	☐	
E1: Green and Blue Infrastructure	Should be planned, designed and managed to achieve multiple benefits					

CHECKLIST 2:
Minor planning applications (3-10 dwellings, <1000m2, <1ha)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Measures	Considered in the proposed development scheme? Yes	No	N/A	If YES, identify where in the planning application this information can be found e.g. Plans, supporting reports If NO or N/A, please state reasons
SPACE & PLACE DESIGN						
PS2: Designing Places and Spaces	High standard of design for development including due regard to scale, proportions, building lines, materials and impacts on neighbouring property e.g. daylight impacts	**HD1, HD2** Shaded outdoor areas and amenity space through building overhangs, trees / vegetation or other structures.	☐	☐	☐	
		HD3 Materials for natural cooling e.g. stone, natural materials, reflective roofs.	☐	☐	☐	
		SD1 Use of planting, trees and water to cool spaces through evaporation in hotter weather	☐	☐	☐	
		SD2 Spaces with a comfortable micro-climate under anticipated climate change scenarios, considering solar heating, wind and wind patterns from surrounding buildings and shading, to ensure spaces can be used throughout the year	☐	☐	☐	
PS1: Responding to the Climate Emergency	Ensure the design and layout incorporates principles of sustainable development, respects the environment of the area. Protect and enhance areas of existing environmental character and nature conservation Promote improvement of poor-quality environments.	**SD3** Use of appropriate materials and green infrastructure to reduce local heat island/ microclimate effects	☐	☐	☐	
		SD4 Provide shade through arcades, overhangs, balconies, landscape features, trees and building massing	☐	☐	☐	
		SD5 Shaded outdoor amenity areas for commercial buildings	☐	☐	☐	
		MiD Other, please state	☐	☐	☐	

APPENDIX A
CHECKLISTS

CHECKLIST 3:
Major planning applications (>10 dwellings or >1000m2 floorspace)

This Energy Statement and Climate Change checklist is required for all MAJOR planning applications. These are classed as developments involving more than 10 dwellings, or the creation of more than 1000m2 floorspace, or sites of more than 1 hectare in size.

The purpose of this checklist/form is to ensure that all major planning applications give due consideration to energy and climate change measures that should be incorporated into the scheme wherever possible. During early design stages, thought should be given to achieving the energy hierarchy (Be Lean, Be Clean, Be Green) and how the design will be resilient to changes in the climate.

This Energy statement and climate change checklist sets out Spelthorne Borough Council's policies and the principles and measures which could be applied to comply with them. Please review all features present in the scheme design in the 'measures' column and tick the appropriate Yes, No or N/A as applicable, providing a justification and indication of where in the supporting documents this is evidenced, in the final column in addition to the required Energy Statement. Technical documents submitted with the planning application which may provide additional details relating to sustainability and climate change measures could include, but are not limited to, the following:

- Design & Access Statement
- Landscape Design Statement / Green Infrastructure Strategy
- Utilities Statement
- Drainage Strategy
- Travel Plan
- Environmental Statement (climate change chapter), where required
- Construction and Waste Management Plan

Please submit the completed checklist with your planning application.

CHECKLIST 3:
Major planning applications (>10 dwellings or >1000m2 floorspace)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Principles outlined in the SPD Core Themes and measures to be addressed in the Energy Statement	How has this been considered in the planning application? *Where a principle has not been considered, please provide reasoning / justification here.* *The detail provided for specific principles will vary between outline and full planning / reserved matters applications, but in all cases the incorporation of measures should be examined during the early stages of the design process and information provided within the planning application submission at the outset.*
ENERGY (ENERGY STATEMENT CHECKLIST)			
PS1: Responding to the Climate Emergency	Inclusion of renewables, energy conservation Optimise design, layout and orientation to minimise energy usage.	Development proposals should demonstrate that they follow the Energy Hierarchy by: a) Reducing energy demand Designing buildings to minimise energy use through a fabric-first approach Designing buildings to require minimal heating and to be passively cooled Designing buildings to maximise natural daylight b) Supplying energy efficiently Using low-carbon heat sources, including connection to existing or planned heat networks where available Using energy-efficient building services, lighting and fixed equipment c) Generating and storing renewable energy Generating renewable energy on site, where feasible Storing renewable energy on site, where feasible	Have you considered this? **Yes / No / N/A** Where in the planning application has this been outlined? .... Other provision: ....

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Principles outlined in the SPD Core Themes and measures to be addressed in the Energy Statement	How has this been considered in the planning application? *Where a principle has not been considered, please provide reasoning / justification here.* *The detail provided for specific principles will vary between outline and full planning / reserved matters applications, but in all cases the incorporation of measures should be examined during the early stages of the design process and information provided within the planning application submission at the outset.*
ENERGY (ENERGY STATEMENT CHECKLIST)			
PS1: Responding to the Climate Emergency (cont.)		In addition, proposals should: Consider retrofitting existing buildings as a priority where applicable Achieve BREEAM or other appropriate accreditation or building efficiency standards Include post-construction verification and ongoing monitoring measures (e.g. smart meters or building management systems) Be supported by a proportionate Energy Statement demonstrating compliance with the above principles Justify any measures not provided, having regard to site constraints, viability or scale Other equivalent or innovative measures that reduce energy demand or carbon emissions will be supported.	Have you considered this? **Yes / No / N/A** Where in the planning application has this been outlined? .... Other provision: ....

CHECKLIST 3:
Major planning applications (>10 dwellings or >1000m2 floorspace)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Principles outlined in the SPD Core Themes	How has this been considered in the planning application? *Where a principle has not been considered, please provide reasoning / justification here.* *The detail provided for specific principles will vary between outline and full planning / reserved matters applications, but in all cases the incorporation of measures should be examined during the early stages of the design process and information provided within the planning application submission at the outset.*
TRANSPORT			
PS1: Responding to the Climate Emergency	Development reduces the need to travel and encourages alternatives to car use. Supporting measures to enhance and manage Staines' role as a public transport interchange.	Following the Travel Hierarchy by a) Avoiding the need to travel b) Shifting to modes with lower emissions c) Improving energy efficiency and reducing carbon emissions of travel modes Encouraging travel by modes in the following order: 1) Walking 2) Cycling and other forms of active travel 3) Public transport 4) Car clubs, taxis and car sharing 5) Private vehicles Designing for direct walking routes to support active travel and prioritising public transport Locating development to support sustainable travel Providing suitable infrastructure for sustainable transport Travel planning and sustainable transport subsidy / contributions Other, please state.	Have you considered this? **Yes / No / N/A** Where in the planning application has this been outlined? .... Other provision: ....
ID2: Sustainable Transport for New Developments	Accessibility by non-car means Secure cycle parking provision		

CHECKLIST 3:
Major planning applications (>10 dwellings or >1000m2 floorspace)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Principles outlined in the SPD Core Themes	How has this been considered in the planning application? *Where a principle has not been considered, please provide reasoning / justification here.* *The detail provided for specific principles will vary between outline and full planning / reserved matters applications, but in all cases the incorporation of measures should be examined during the early stages of the design process and information provided within the planning application submission at the outset.*
CONSTRUCTION & WASTE			
PS1: Responding to the Climate Emergency	Use of sustainable construction materials. Incorporate provision for the storage of waste and recyclable materials	Assessment of whole life carbon as part of design Following the construction hierarchy by: a) Using less, through reuse of buildings, avoiding unnecessary construction or building efficiently b) Using low carbon or recycled materials c) Offsetting of residual embodied carbon emissions Choosing appropriate materials for: a) Hot weather events so as to mitigate overheating b) Permeable materials for public realm to absorb surface water Construction waste management plans which recycle and retain materials on site, where possible Other, please state.	Have you considered this? **Yes / No / N/A** Where in the planning application has this been outlined? .... Other provision: ....

CHECKLIST 3:
Major planning applications (>10 dwellings or >1000m2 floorspace)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Principles outlined in the SPD Core Themes	How has this been considered in the planning application? *Where a principle has not been considered, please provide reasoning / justification here.* *The detail provided for specific principles will vary between outline and full planning / reserved matters applications, but in all cases the incorporation of measures should be examined during the early stages of the design process and information provided within the planning application submission at the outset.*
GREEN INFRASTRUCTURE			
E2: Biodiversity	New development contributes to restoring and enhancing habitats, biodiversity and avoids harm to protected sites	Creation / retention of natural habitats which can capture carbon e.g. woodlands, wetlands. Consideration of biodiversity resilience as part of all green infrastructure Provision of and connectivity of green infrastructure throughout the development scheme Use of street trees, swales, verges, other GI to provide urban habitat links Other, please state.	Have you considered this? **Yes / No / N/A** Where in the planning application has this been outlined? .... Other provision: ....
E4: Environmental Protection	Design and energy saving measures to reduce light pollution		

CHECKLIST 3:
Major planning applications (>10 dwellings or >1000m2 floorspace)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Principles outlined in the SPD Core Themes	How has this been considered in the planning application? *Where a principle has not been considered, please provide reasoning / justification here.* *The detail provided for specific principles will vary between outline and full planning / reserved matters applications, but in all cases the incorporation of measures should be examined during the early stages of the design process and information provided within the planning application submission at the outset.*
WATER			
PS1: Responding to the Climate Emergency	Promoting the efficient use and conservation of water resources	Sustainable Drainage Systems integrated within streets, public spaces and throughout schemes Calculation of Urban Greening Factor and consideration of how it has been maximised Water efficiency measures, water use targets and water meters across new development schemes. Rainwater / 'greywater' capture and re-use recycling schemes Other, please state.	Have you considered this? **Yes / No / N/A** Where in the planning application has this been outlined? .... Other provision: ....
E3: Managing Flood Risk	Promoting measures to reduce flooding and risks from flooding		
E4: Environment Protection	Ensure development located near ground and surface water include measures to mitigate impacts on water quality		
E1: Green and Blue Infrastructure	Should be planned, designed and managed to achieve multiple benefits		

CHECKLIST 3:
Major planning applications (>10 dwellings or >1000m2 floorspace)

Spelthorne Local Plan Policy	Policy promotes and/or requires:	Principles outlined in the SPD Core Themes	How has this been considered in the planning application? *Where a principle has not been considered, please provide reasoning / justification here.* *The detail provided for specific principles will vary between outline and full planning / reserved matters applications, but in all cases the incorporation of measures should be examined during the early stages of the design process and information provided within the planning application submission at the outset.*
SPACE & PLACE DESIGN			
PS2: Designing Places and Spaces	High standard of design for development including due regard to scale, proportions, building lines, materials and impacts on neighbouring property e.g. daylight impacts	Design and layout of public and private spaces to mitigate effect of extreme heat events Use of high quality materials for assisting with temperature regulation/ future adaptability as a result of the effects of climate change Creation of water and natural habitats within public areas of open space to create distinctive places for people to visit Other, please state.	Have you considered this? **Yes / No / N/A** Where in the planning application has this been outlined? .... Other provision: ....
PS1: Responding to the Climate Emergency	Ensure the design and layout incorporates principles of sustainable development, respects the environment of the area. Protect and enhance areas of existing environmental character and nature conservation Promote improvement of poor-quality environments.		

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