



SPONGE

SOMERSET

SPONGE 2020

LOCAL ACTION PROJECT

Using nature-based solutions to reduce surface water flooding & deliver multiple benefits



CONTENTS

Project Overview

Local Action Project	2
SPONGE2020	4
Indicators of Provision	6

Taunton Evidence Assessment

Taunton Overview	8
Current Assets	10
Parks & Amenity Green Spaces	12
Allotments and Orchards	13
Private Gardens	14
Urban Rivers	15

Strategic Mapping

Priority Areas & Drivers	16
Benefits Assessment	17
Benefit Metrics	18
SPONGE2020 Focus Areas	20

Toolbox of Urban Interventions	22
--------------------------------------	----

Delivery & Case Studies	24
-------------------------------	----

Data Sources	33
--------------------	----

PROJECT TEAM

SPONGE2020 is an Interreg 2 Seas project, funded by the European Regional Development Fund, addressing water-related effects of climate change in urban areas of Somerset. The Somerset Pilot for SPONGE 2020 is led by Westcountry Rivers Trust and Somerset County Council, and is implementing targeted interventions, which are co-created with local communities, to prevent surface water flooding and improve the urban landscape. The Local Action Project was funded by Defra and the Urban Demonstrators project was funded by the Environment Agency. These complementary projects were led by Westcountry Rivers Trust who have extensive experience of evaluating ecosystem services and working in partnership with a variety of stakeholders.





LOCAL ACTION PROJECT

Working with local communities to enhance the value of natural capital in our towns, cities and other urban spaces to improve people's lives, the environment & economic prosperity...

STRATEGIC EVIDENCE & INFORMATION

Present robust evidence in a clear way to help build consensus, facilitate local decision-making & secure funding.

LOCAL CHOICES, PRIORITIES & AMBITIONS

Talk to the local community to discover their future vision and ambition for where they live.

VALUING THE BENEFITS FROM NATURAL CAPITAL

Characterise the social, cultural, environmental and economic benefits provided by natural capital in urban landscapes and estimate potential improvements.

FUNDING & RESOURCES FOR LOCAL ACTION

Support effective stakeholder-led partnerships by increasing engagement, mobilising local delivery organisations and tapping into funding.

In this document, the natural and cultural assets of Taunton are identified and understood within the social and economic setting, and the provision of a variety of environmental benefits are assessed across the urban area. This allows an assessment of where interventions are best targeted. This review then demonstrates examples of community-led interventions already underway to create and enhance assets to provide ecosystem services and improve the urban landscape for the benefit of those living and working in Taunton.

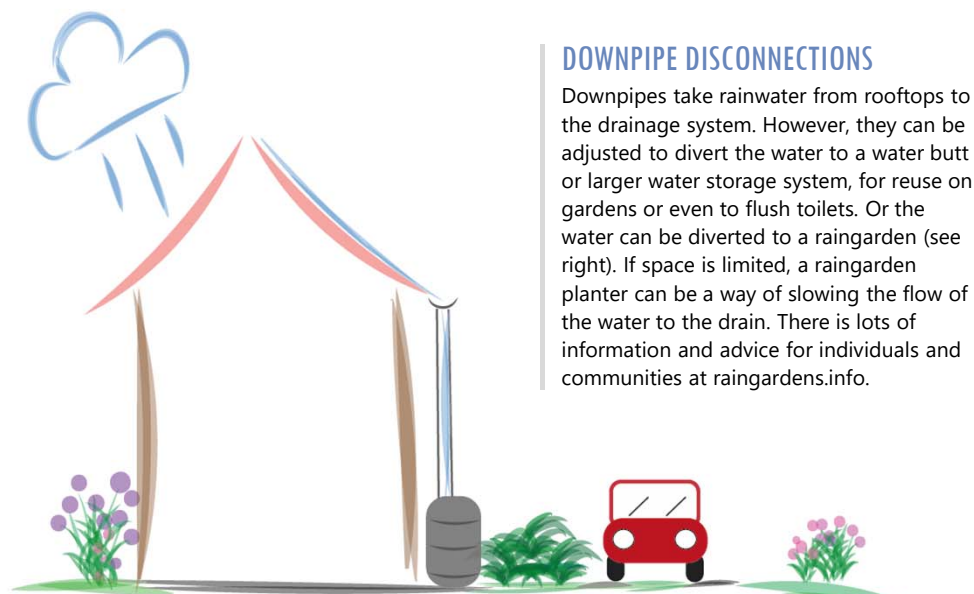
SPONGE 2020

Managing the rainwater that falls on our towns and cities is an important task. As we start to feel the effects of climate change, extreme rainfall events are expected to increase. This is creating real challenges for water managers and local authorities. SPONGE 2020, an Interreg 2 Seas project, part-funded by the European Regional Development Fund, is working with local stakeholders to co-create innovative adaptation measures across a range of settings to reduce the impact of climate change and make communities more resilient.

Paved surfaces cause water to rush into our sewers and rivers. This increases flood risk, causes sewers to be overwhelmed and together this takes pollution into our precious rivers and streams. The traditional ways of managing our rainwater have advantages and disadvantages, but typically cause problems when there is heavy rain.

We need new and better ways of managing rainfall. Fortunately, nature shows us an alternative!

Keeping water at the surface and allowing it to slowly soak into the ground or drain away over a longer time-period eases pressure on the drainage system and reduces the risk of water pollution and flooding. Sustainable Drainage Systems (SuDS), like raingardens, ponds and planters, slow the flow of water, are great for wildlife and are an interesting and attractive addition to homes, gardens, streets and local spaces. By creating lots of these features, all over our towns and cities, we can reduce the risk of flooding, clean up local streams, make more space for wildlife, and create smart green places for everyone to enjoy. Through SPONGE2020, Westcountry Rivers Trust and Somerset County Council are working with communities to install SuDS features across Somerset and encourage people to make changes in their own homes and activities.



DOWNPIPE DISCONNECTIONS

Downpipes take rainwater from rooftops to the drainage system. However, they can be adjusted to divert the water to a water butt or larger water storage system, for reuse on gardens or even to flush toilets. Or the water can be diverted to a raingarden (see right). If space is limited, a raingarden planter can be a way of slowing the flow of the water to the drain. There is lots of information and advice for individuals and communities at raingardens.info.

RAINGARDENS

If a garden or green space slopes down from a house, building, car park or other hard surface, the water running off of these surfaces can be diverted into a sunken raingarden. Raingardens help to slow the flow of water and allow it to soak into the ground, as well as offering a beautiful addition to gardens, commercial spaces, parks and neighbourhoods. Raingardens need to be at least 3m from any buildings, and the size can be varied depending on the paved area from which it is taking water. As a rule, it should be 20% of the size of the paved area. More detailed instructions can be found at raingardens.info.

MISCONNECTIONS AWARENESS

Due to errors in construction or plumbing, wastewater or sewage from homes may be connected to a surface water drain. This is known as a 'misconnection' and leads to pollution of local rivers and beaches. Raising awareness of misconnections is important for urban water quality. Connectright.org.uk has information about how homeowners can check their homes for misconnections and how they can be fixed.



DE-PAVING HARD SURFACES

Most of the rain that falls on our towns falls onto hard surfaces like roofs and roads and is taken to the drainage system. During heavy rain this can cause water to rush to the sewer and overwhelm the system, leading to surface water flooding and water pollution. Permeable paving or gravel is an alternative to impermeable surfaces which allow rainwater to soak into the ground. In addition, if areas of hard surfaces are broken up with flowerbeds, grassy areas and trees, we can make some more space for wildlife in our towns.

VISIT THE SOMERSET SPONGE WEBSITE

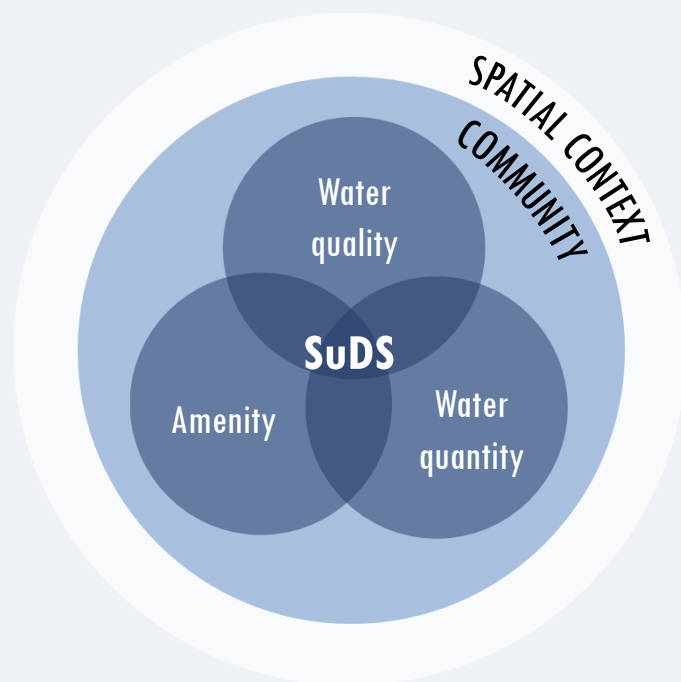
All of this information and more can be found at somerset-sponge.org

THE SUDS TRIANGLE

In traditional drainage systems, surface water is moved away from the surface as quickly as possible, with the key aim of preventing flooding. Other important issues like water quality, amenity (how useful and attractive local spaces are) and biodiversity are typically given little consideration.

Sustainable Drainage Systems (SuDS), in contrast, aim to replicate natural processes and are designed to manage surface water to provide maximum benefits. Managing the quantity of water, and therefore preventing flooding, is still important. But by allowing water to remain at the surface for longer and soak into the ground at a more natural pace, droughts can be reduced, water quality can be better protected, spaces can be created which are attractive with more green areas, and there is more space for wildlife and habitats.

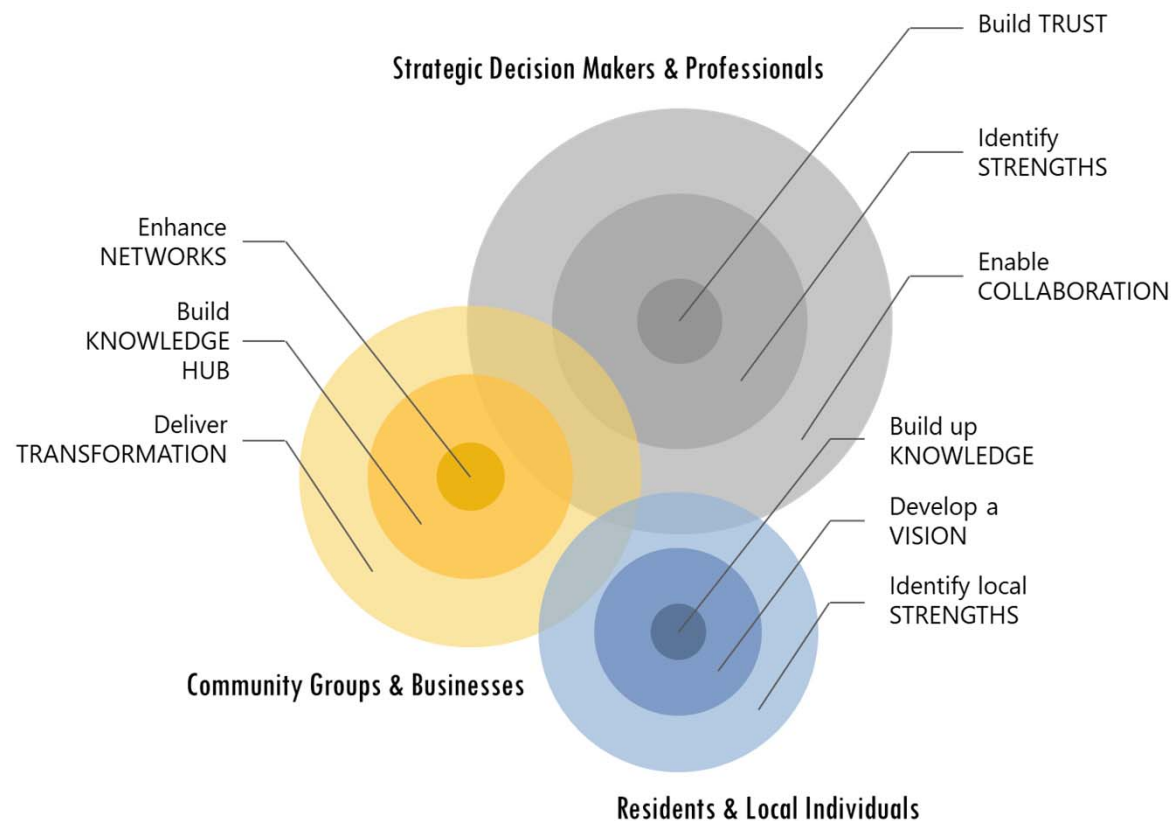
The context, in terms of both the spatial location within the urban landscape, and the people and communities affected, is also important to consider. Engaging with stakeholders at all levels is a key part of the SPONGE2020 approach, and is explored further to the right.



CO-DESIGN & CO-CREATION

An important part of SPONGE2020 is getting local stakeholders involved with Sustainable Drainage Systems, to help people understand how surface water flooding affects them and how it is affecting others, and how they can take action to increase the resilience of their town or neighbourhood.

The SPONGE2020 Somerset Pilot team are working with stakeholders at all levels to get this important message across. We are working with decision makers to promote the need for sustainable drainage and build collaborations, with local groups and businesses to share knowledge and help deliver changes across neighbourhood, and with community members themselves, to understand their needs and priorities, to gather their ideas and to get their help and support in the creation and maintenance of the SuDS features. By gaining buy-in at all these levels, we can ensure the changes we make are effective and long-lasting.



INDICATORS OF PROVISION

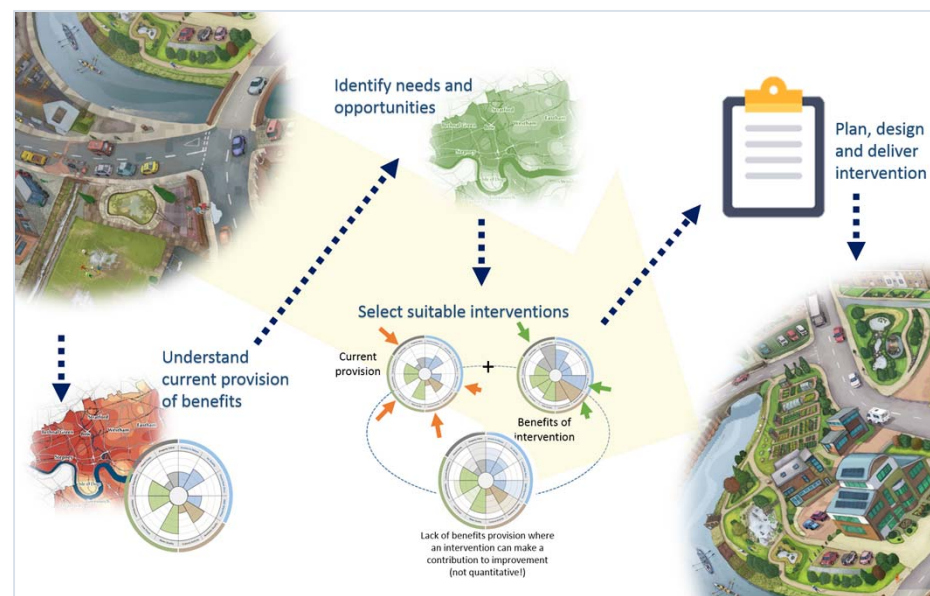
For the Local Action Project we have developed a simple, but consistent, framework for the assessment of natural capital- and ecosystem services-derived benefits in urban landscapes.

The method uses a series of 12 benefit-indicators, which can be used to:

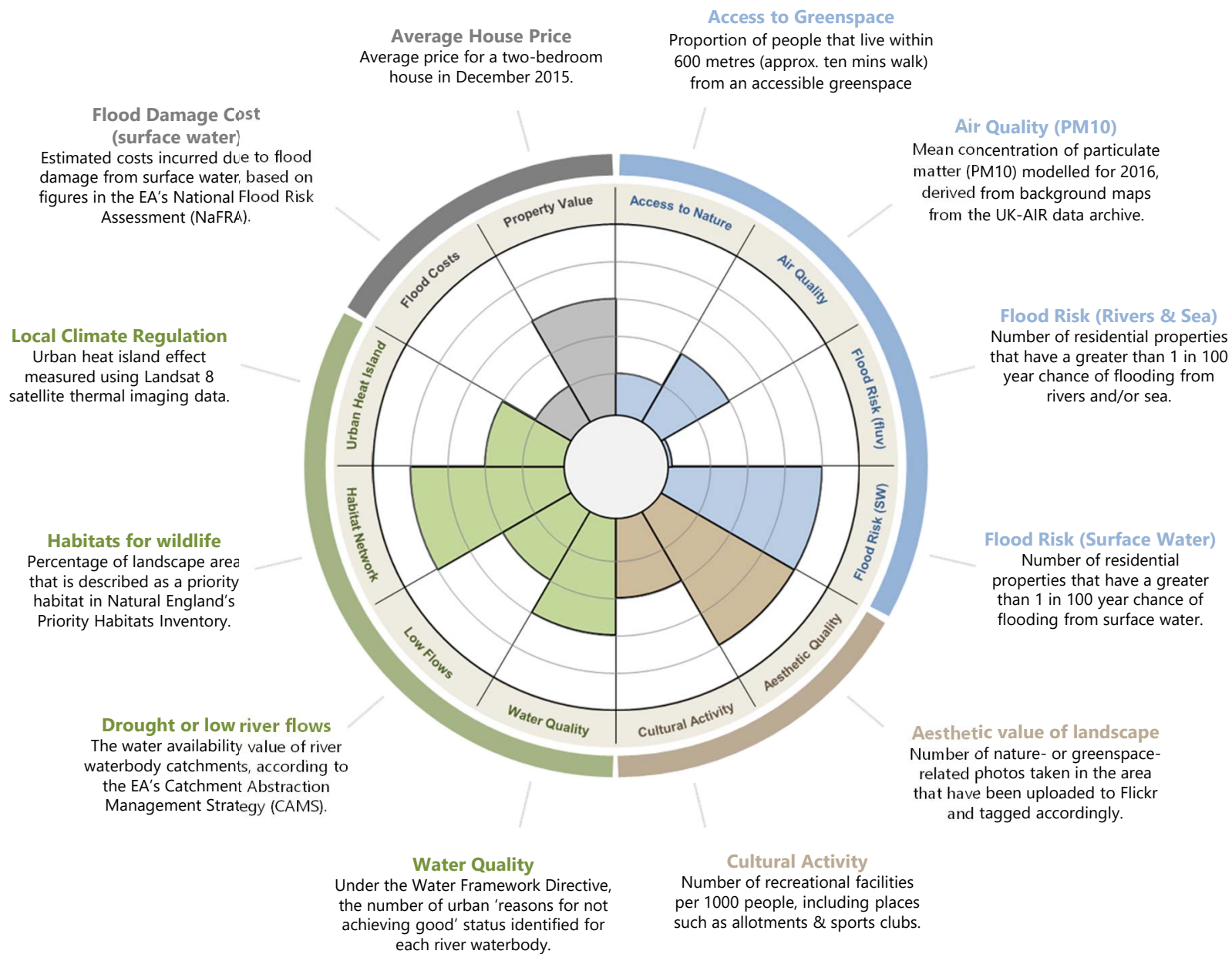
- 1) Characterise the benefits people gain from the existing natural capital;
- 2) Establish the baseline of benefits experienced by people living in specific communities, which can then allow an assessment of where there is a deficiency or need for enhancement, and
- 3) To understand and predict the level and diversity of benefits which could be gained from the delivery of a series of targeted interventions in the landscape. ➔

The "Benefits Wheel" has two main applications in this toolkit:

- 1) In the assessment of *Current Natural Capital* (pg 12-15), the Wheel shows the benefits provided by a certain type of intervention or feature. A selection of interventions are shown in this document, but for an assessment of a full range of interventions, see the [Local Action Toolkit - Urban Practitioner's 'Toolbox'](#).
- 2) In the *Strategic Assessment* (pg 17), the Wheel represents the current provision of benefits in a specified geographical unit (e.g. a ward), relative to other units in the demonstration area.



INTRODUCTION



KEY

Four Types of Benefits -

1. **Social**
2. **Cultural**
3. **Environmental**
4. **Economic**

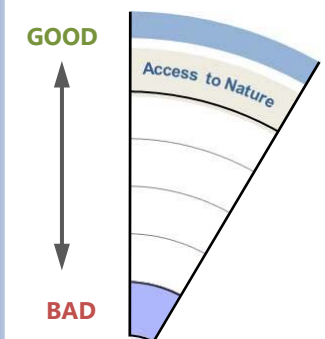
Framework applicable to -

1. Existing natural capital or green/blue infrastructure typologies
2. Strategic needs/benefits/opportunity assessment at various spatial scales
3. Intervention-derived benefits
4. Delivery 'optioneering'

Benefits/value calculated -

1. Intervention suitability to address need/deficiency (Y/N)
2. Semi-quantitative indication of likely benefits provided

EXPERIENCE



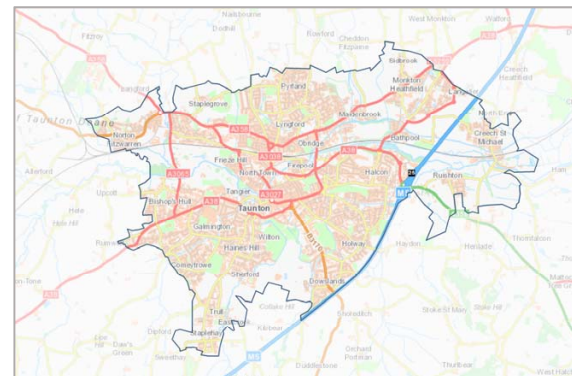
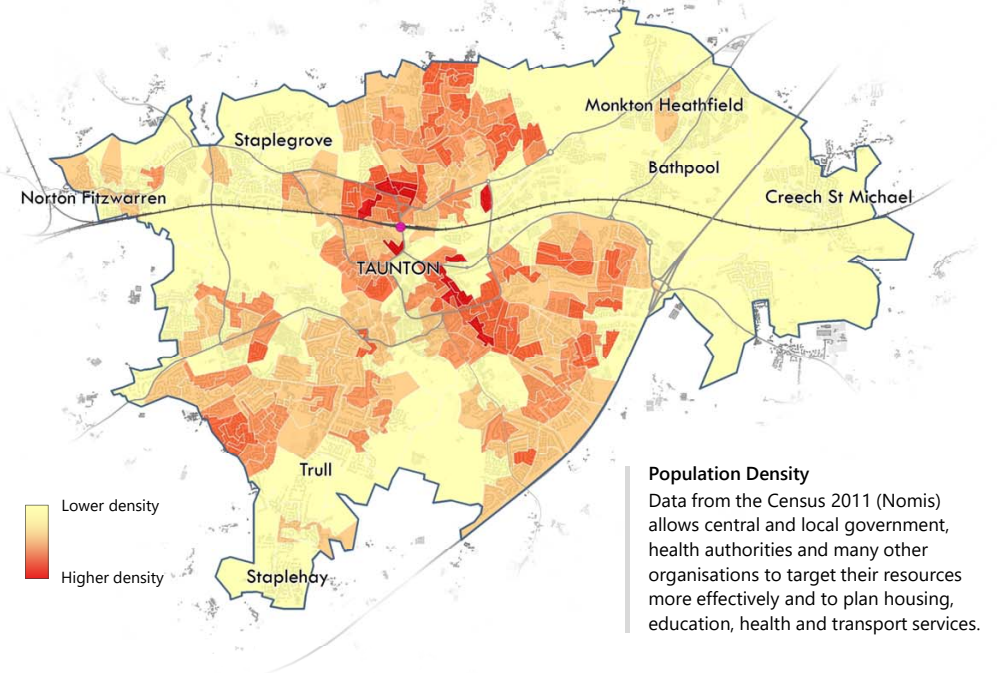


TAUNTON OVERVIEW

TAUNTON OVERVIEW

Taunton is the county town of Somerset, home to almost 65,000 people. It's name stems from the river Tone running through its centre.

In 2011, the population of the Taunton unitary authority was 64,621, making it the most populous town in Somerset. It is part of the larger Borough of Taunton Deane, which also encompasses Wellington and surrounding villages.



Study Area

The study area for this work traces around the centre of Taunton plus the surrounding parishes that make up the suburbs of Taunton. The borders have mainly been based on Lower Super Output Areas, however some areas have been merged or split to generated useful units of analysis. Where areas had to be split, the border often follows the boundaries of Census Output Areas.

The Brewhouse Theatre & Arts Centre

Based on the banks of the Tone, The Brewhouse is Taunton's biggest Arts Centre, built in the 1970s and listed as a Grade II building. It reopened in 2014 and has put at its heart the mission to enrich the lives of those living, visiting and working in Taunton.



Image © Somerset County Gazette

Bridgwater and Taunton Canal

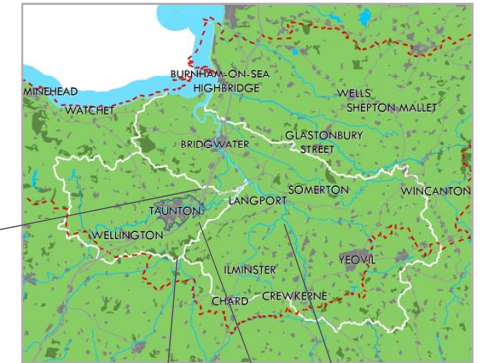
Opened in 1827, the canal was designed to link the English and Bristol Channel. While it now only connects Bridgwater and Taunton, it offers 14 miles of navigable watercourse and idyllic walkways through nature. In the past, it was used for commercial carrying and water supply.



Image by Mark Robinson CC BY-NC 2.0

River Tone Catchment

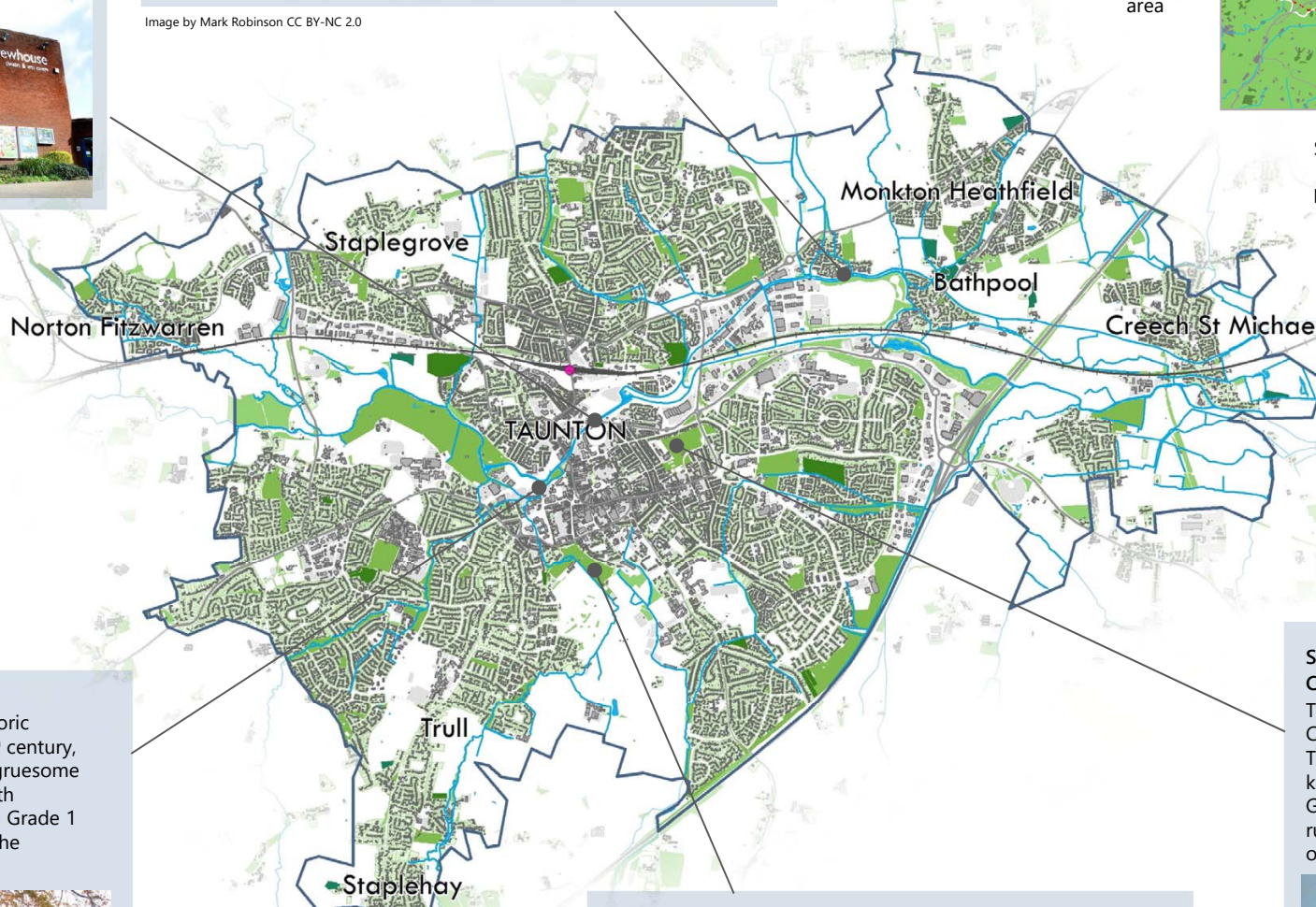
Draining an area of 143 km², the River Tone flows through Taunton before joining the River Parratt and draining into the Bristol Channel.



Study area

Somerset County Boundary

Parratt Catchment
Tone Catchment



Taunton Castle

Taunton's most important historic monument dates from the 12th century, and was the setting for some gruesome scenes following the Monmouth Rebellion of 1685! Today, it's a Grade 1 listed monument and houses the Museum of Somerset.



Image © Museum of Somerset

Vivary Park

As the name suggests, Vivary Park used to be a vivarium for the priory and castle in Taunton. Today, it is one of the town's biggest public green spaces and hosts the annual Taunton Flower Show as well as many outdoor attractions.



Image by Michael Day CC BY-NC 2.0

Somerset County Cricket Ground

The Somerset County Cricket Club was established in 1875. The Ground was originally known as the Taunton Athletic Ground and featured cycling and running tracks. It has hosted over 1000 matches.



Image by Harrias CC BY-SA 3.0

CURRENT ASSETS

A comprehensive audit of the environmental infrastructure allows an understanding of the natural capital in the landscape and the ecosystem services these assets currently provide.

This review allows assets providing important benefits to be identified and provides evidence in support of efforts to protect and enhance them and ensures this happens in a strategic and correctly targeted way.

Allotments

An allotment is an area of land, leased from a private or local authority landlord, for growing fruit and vegetables, ornamental plants, or the keeping of hens, rabbits or bees.



Image by Ruth Hartnup (CC BY 2.0)

Trees

Trees in cities are sometimes protected by Tree Protection Orders, which make it an offence to cut down or damage this important asset.



Image by Mark Ferbert CC BY-NC-ND 2.0

Parks & gardens

Publicly accessible parks, gardens and open green spaces are an important part of Britain's heritage that provide spaces for people to undertake recreation and cultural activities.



Image by Mark Ferbert CC BY-NC-ND 2.0

Wetlands & ponds

Wetlands are transitional habitats, between terrestrial and aquatic ecosystems, where the water table is at or near the surface. Taunton features Lowland Wet Grasslands, a rare habitat type.



Image by Natural England CC BY-NC-ND 2.0

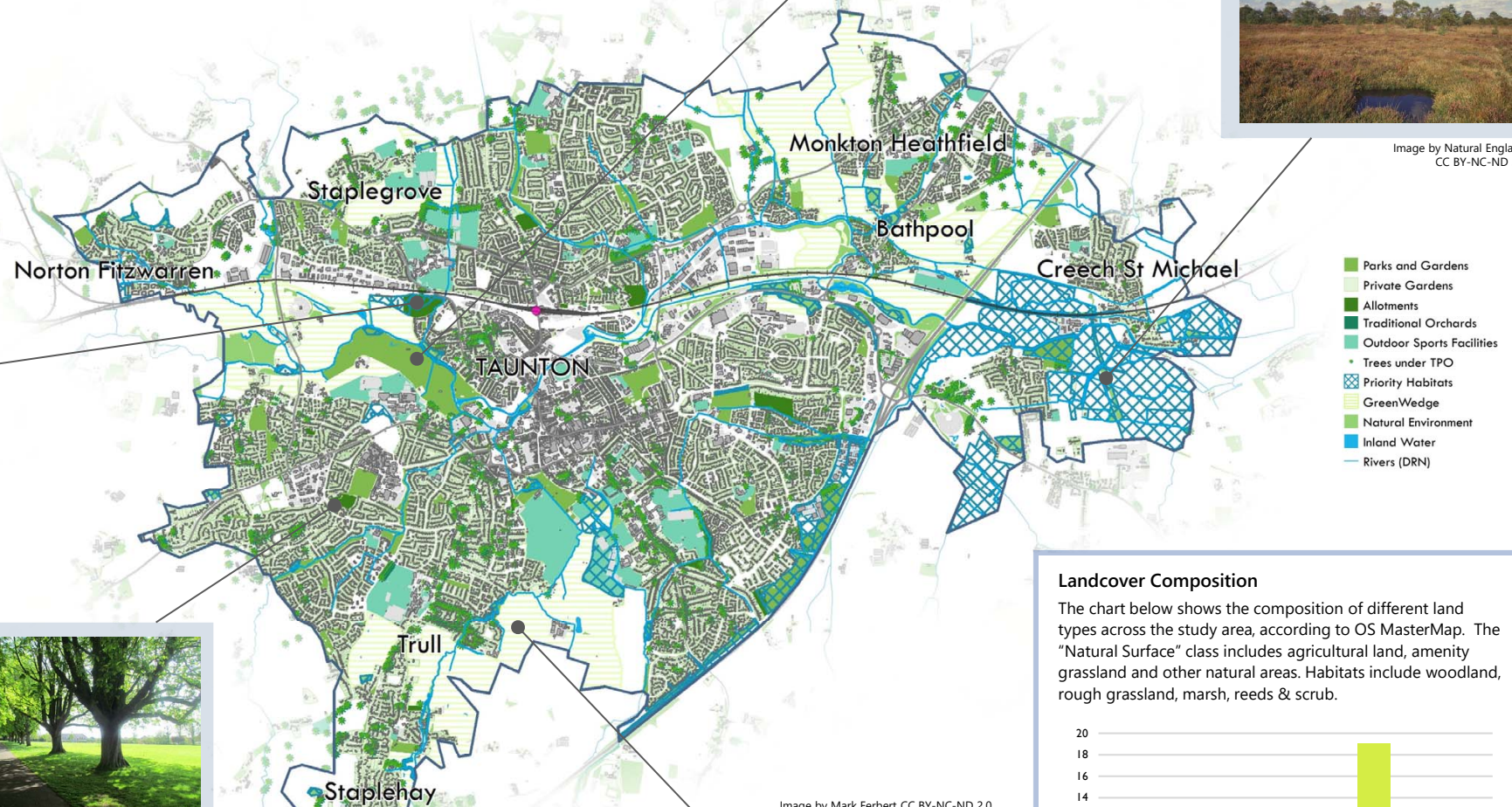
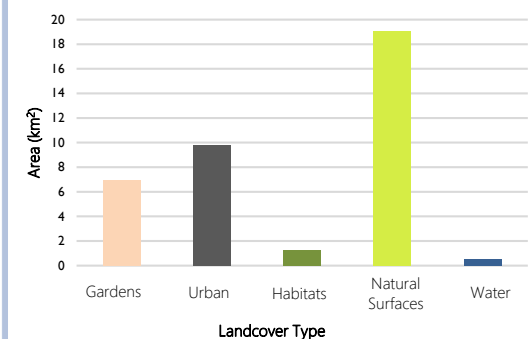


Image by Mark Ferbert CC BY-NC-ND 2.0

Landcover Composition

The chart below shows the composition of different land types across the study area, according to OS MasterMap. The "Natural Surface" class includes agricultural land, amenity grassland and other natural areas. Habitats include woodland, rough grassland, marsh, reeds & scrub.



Green Wedges

These areas of land offer a space for recreation and conservation, providing a 'green lung' to urban areas. They have been included in the planning policy for Taunton Deane since 1991.

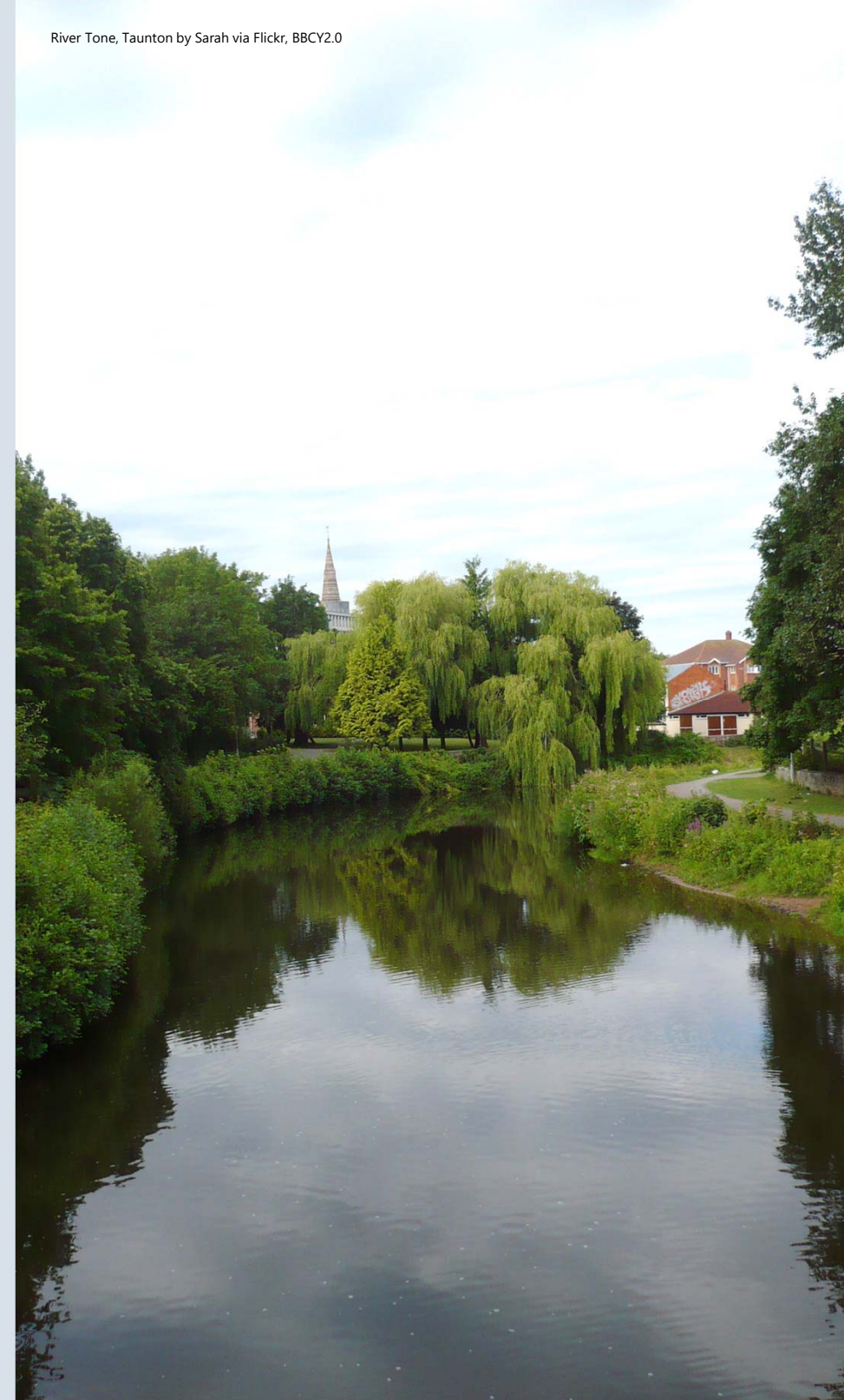
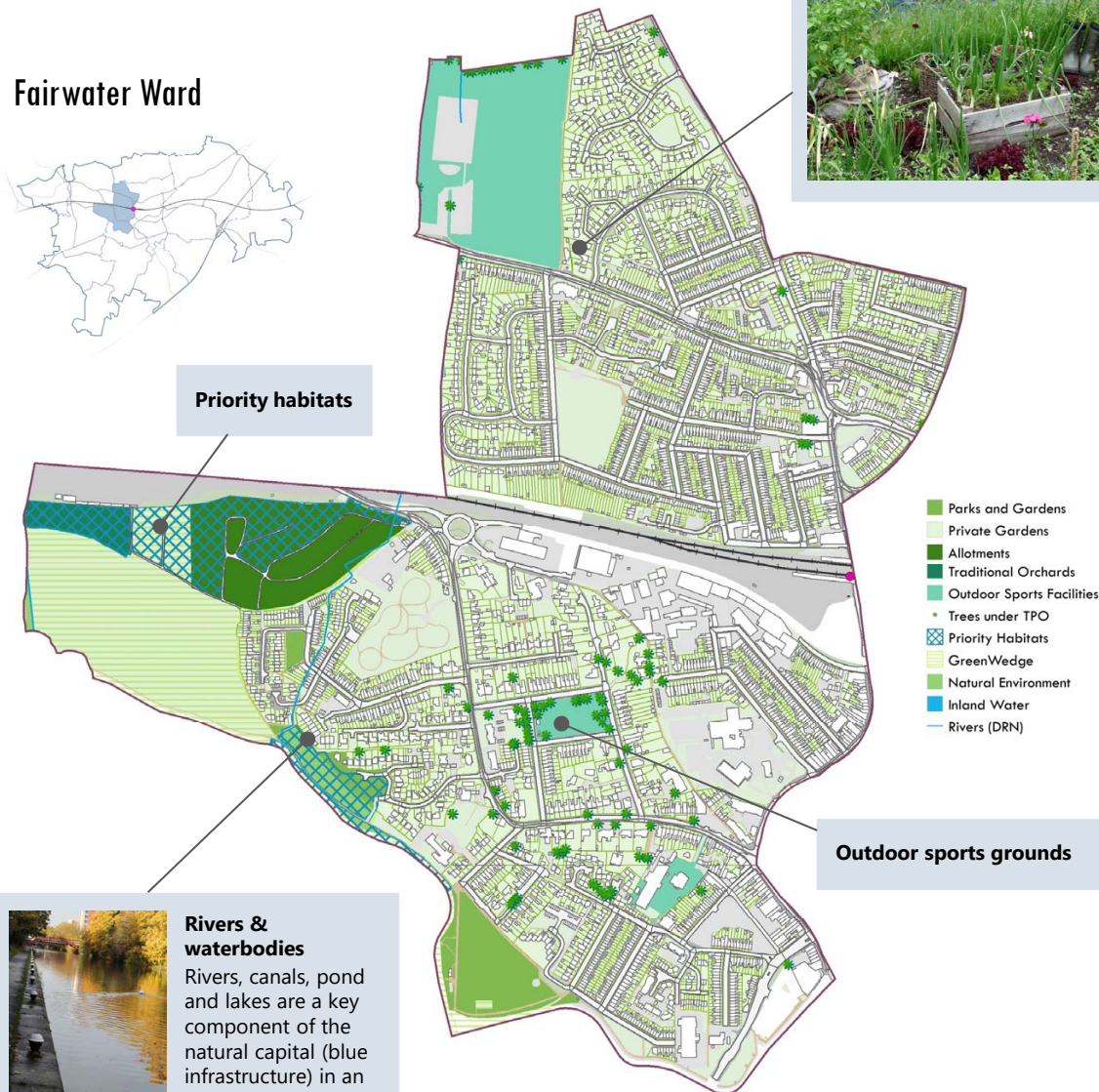
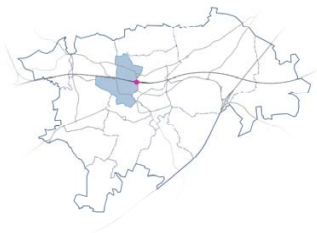


CURRENT NATURAL CAPITAL

Detailed view

Due to the high resolution datasets provided by Taunton Deane Borough Council, we are able to examine fine-scale features such as gardens, outdoor sports areas, play areas and water bodies.

Fairwater Ward





Access to Nature

The "healthiest" areas in England (those with higher levels of activity and lower levels of obesity) have 20% more green spaces than the least healthy areas.

Air Quality

Air quality is often better within parks, for PM₁₀ and other pollutants.

Flood Risk (Surface Water)

Due to high infiltration rates, grassed areas are able to nearly completely eliminate runoff, therefore having a positive impact on surface water flooding.

Aesthetic Quality

The aesthetic value of parks can be very high and is for example shown through their impact on property values as well as stress and mental fatigue.

Cultural Activity

Many parks provide venues for annual festivals, meeting spaces for community groups. Parks, as accessible local green spaces, can give rise to cultural activities like bird watching, painting or photography.

Climate Regulation

Parks, especially with high tree cover, can act as carbon sinks. In Taunton, 97.3% of the carbon pool stored in urban vegetation is stored in trees.

Air temperatures are often lower in parks. In London, air temperatures can be 2-8° lower in greenspaces.

Habitat Network

Parks have often been found to be the most biodiverse type of urban greenspace. Larger, more diverse and less isolated parks harbour more native biodiversity.

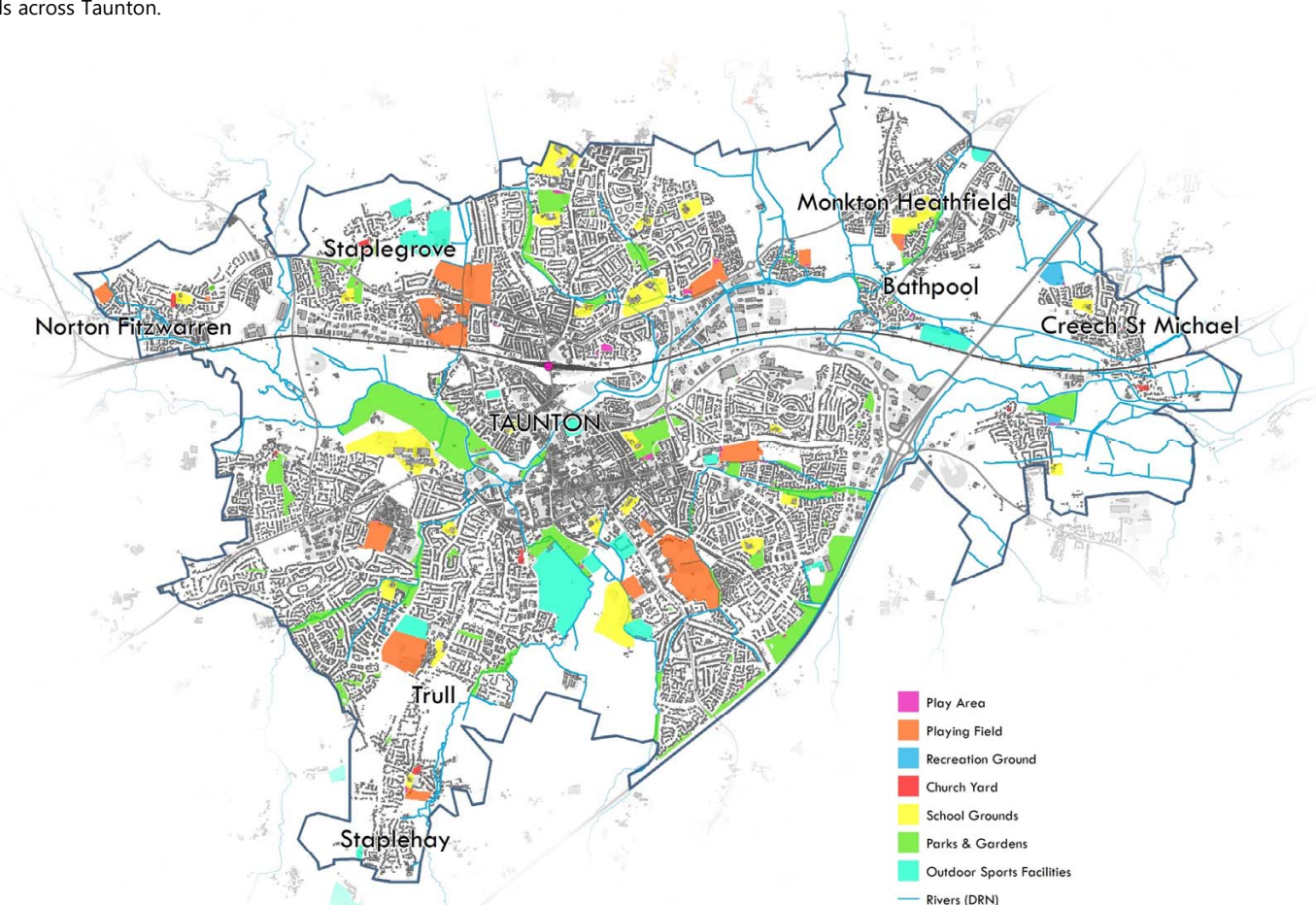
PARKS & AMENITY GREENSPACES

Public parks and gardens are vital natural assets in an urban environment. While high land prices and pressures from other objectives may make the creation of a new park in an area unlikely, this makes it all the more important for us to understand the benefits provided by existing parks, determine who receives these benefits and manage them in a way that maximises the benefits they provide.

Parks have recorded increasing visitor numbers, showing that there is a demand for their use. Over 10% of people visit or pass through their local parks daily, and over 50% at least once per month. Parks, depending on their size and design, can bring together a number of different elements of green infrastructure and SuDS features. By bringing these different features together a park can provide an effect that is larger than the sum of its parts.

PARKS & OPEN SPACES IN TAUNTON

Detailed information provided by Taunton Deane Borough Council allows us to map the provision of parks, play areas and playing fields across Taunton.



ALLOTMENTS & ORCHARDS

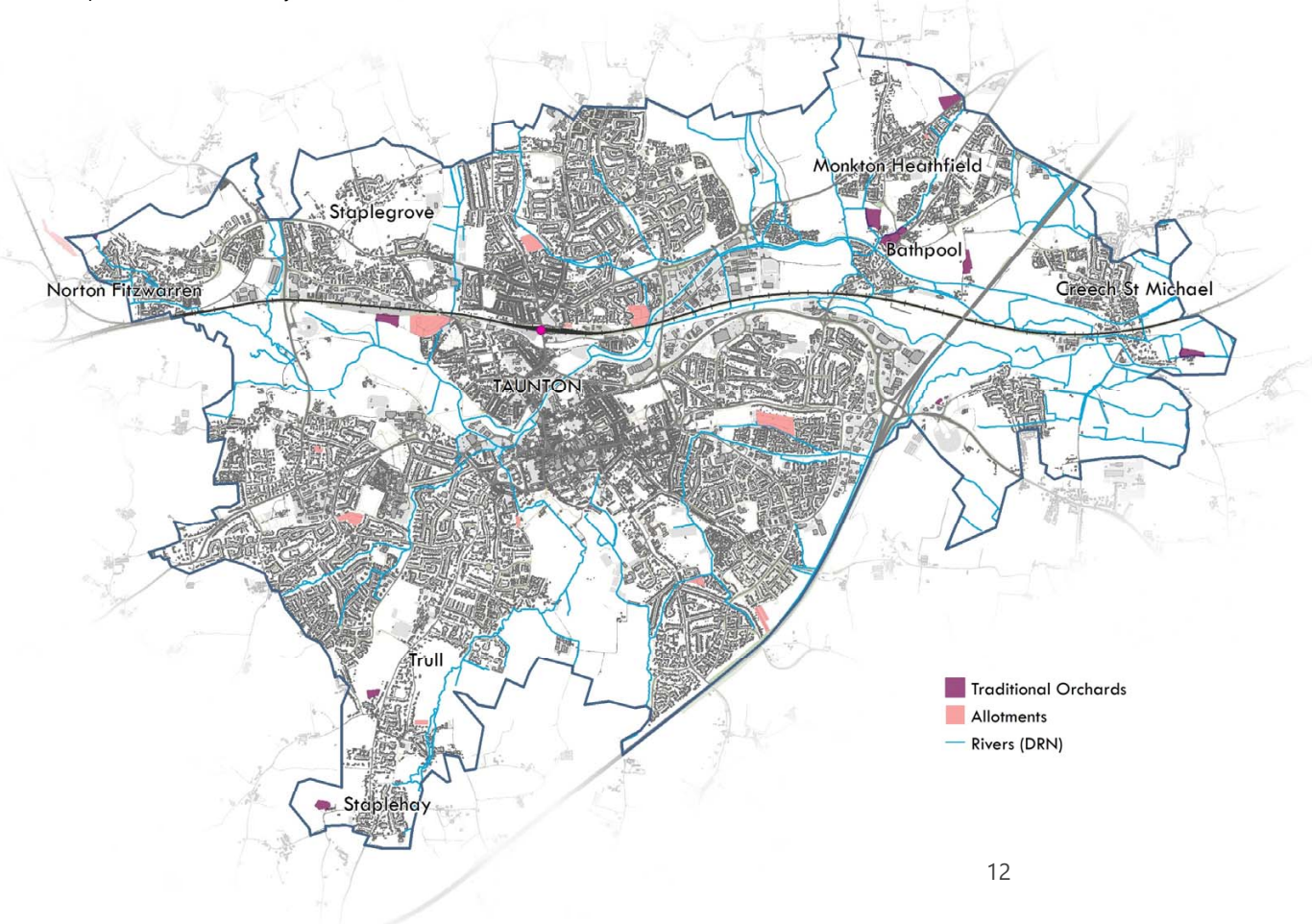
Allotments, orchards, community gardens and city farms are unique and special green spaces because of the social and cultural aspect of food production and land ownership in urban spaces.

The specific ecosystem services provided depend on how the allotments/orchards are used and therefore guidance for allotment owners and users should consider management of surface water and multiple ecosystem services. They have the potential to contribute benefits locally by infiltrating runoff, providing amenity benefits and providing the opportunity to incorporate other interventions, like ponds, water storage and swales, within them, maximising multiple benefits.

As they are not accessible to the general public, certain benefits, such as access to nature and education, can only be provided on a limited scale. However, this is likely to particularly benefit older people, which can be an important part of their role in an urban area.

ALLOTMENTS IN TAUNTON

There are 45 allotment sites across Taunton. 32 are managed by local allotment societies, the rest by the City Council. Rents range from £6.50 to £22 per plot and year. As a response to the growing demand for allotment sites, Taunton City Council opened an additional 30 plots in some of the most deprived areas of the city in 2012.



Access to Nature

While allotments are not freely accessible, they provide significant health benefits to a wide number of people, especially in an older age group.

Air Quality

Air quality is not a significant benefit provided by allotments, however they can have an impact on a regional scale. Orchards are likely to have a more significant impact as trees filter pollutants.

Flood Risk (Surface Water)

Open surfaces allow infiltration and can increase groundwater recharge, therefore improving low flow conditions.

Aesthetic Quality

The aesthetic quality has been found to be the second most important aspect in choosing an allotment site, it can therefore be inferred that they generate significant aesthetic benefits.

Cultural Activity

Growing food is an excellent – and in urban environments, rare – cultural and educational activity.

Low Flows

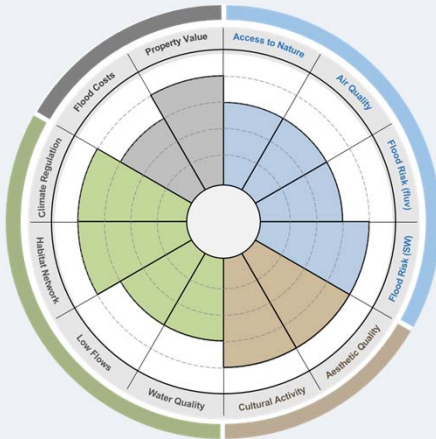
Infiltration can enable groundwater recharge and so have a positive impact on low flows.

Habitat Network

Allotments and orchards can provide great habitats for pollinators and other insects as well as mammals, birds, amphibians and more.

Climate Regulation

Allotments and orchards provide mitigation of the Urban Heat Island effect by lowering air temperatures and allowing influx of fresh air, and store carbon in vegetation and soils. This benefit is likely to be greater from orchards.



Access to Nature

When accessible, gardens can provide increased physical fitness, connection to nature, relaxation and recovery from trauma, and similar benefits related to stress avoidance and cognitive function.

Flood Risk (Rivers & Sea)

Increasing permeability of an area by 30% could lead to as much as a doubling in the magnitude of 100 year return period floods.

Aesthetic Quality

Gardens provide aesthetic benefits for neighbourhoods. One study showed that 50% of gardeners appreciate the 'more beautiful environment' created in urban areas.

Cultural Activity

Gardens allow playful, creative and place-shaping activities as well as growing food. Gardening increases sense of self-esteem, identity and ownership.

Water Quality

Bioretention and capture and destruction of pollutants in the soil can help to improve water quality. Fertilization and pesticide use however will have a negative impact.

Habitat Network

Even small domestic gardens can be important habitats for all kinds of wildlife. Collectively, gardens have been shown to hold over 1000 plant species across the UK.

Property Value

It is widely accepted that gardens add value to a property. A survey by HomeSearch found that a garden added 20% in value.

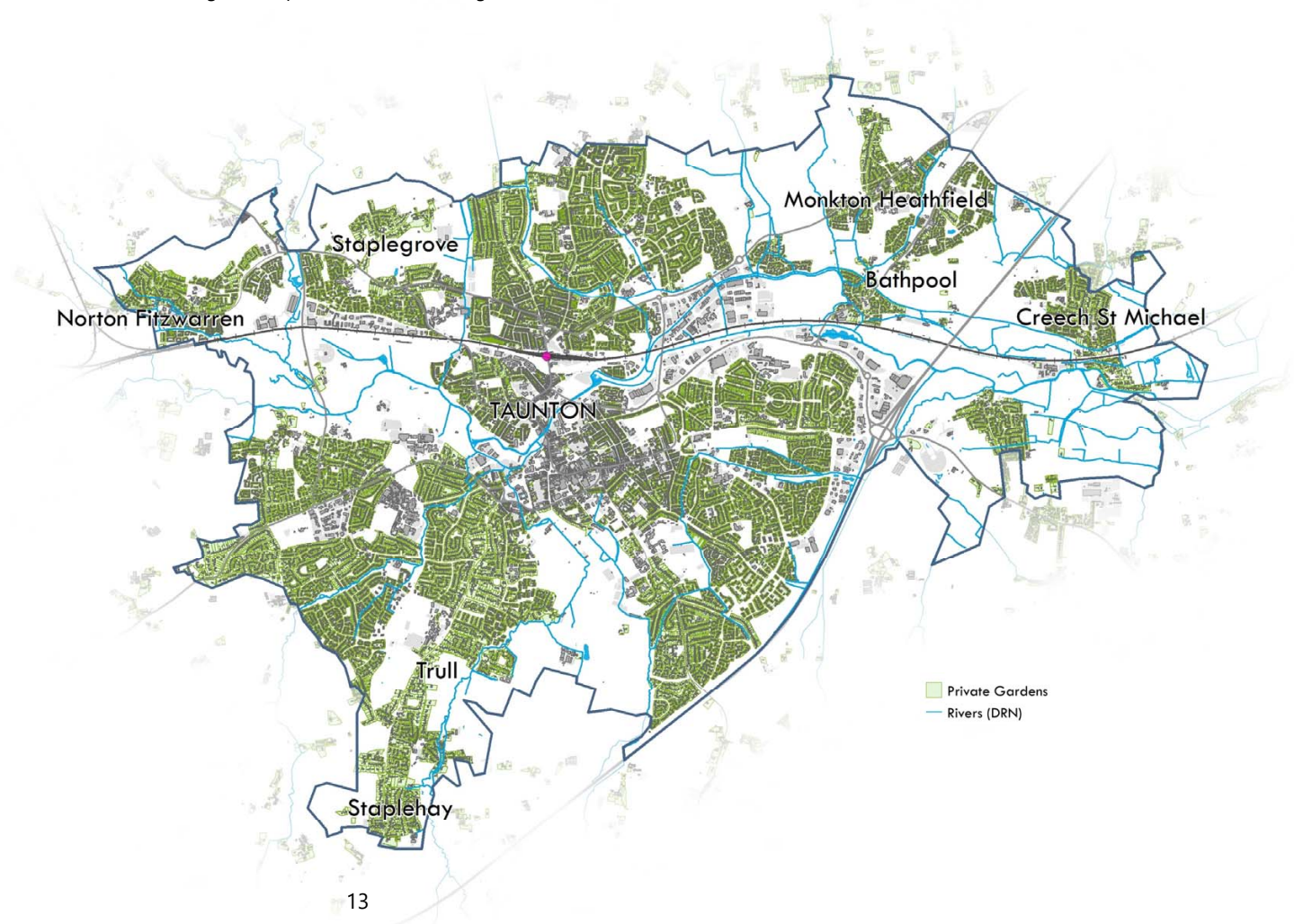
PRIVATE GARDENS

In 2002, an estimated 27 million people in the UK owned gardens. Domestic gardens contribute about a quarter of the total urban area in typical cities in the UK, and contribute up to 86% of the total number of trees in a city. In addition, the accumulated number of structures such as ponds, nesting sites or compost heaps is significant at the city-scale.

Private gardens are mainly used for relaxation and recreation, with over a third of garden owners surveyed in 2011 naming these as main activities in the garden, with gardening, eating, drying laundry and socialising being other common activities.

PRIVATE GARDENS IN TAUNTON

The vegetated, permeable area provided by gardens is being significantly reduced each year due to development pressures, individual choices regarding the design of the garden and their conversion/maintenance to provide space for private vehicles. Nonetheless, the map below shows there is significant provision of domestic gardens across Taunton.



URBAN RIVERS

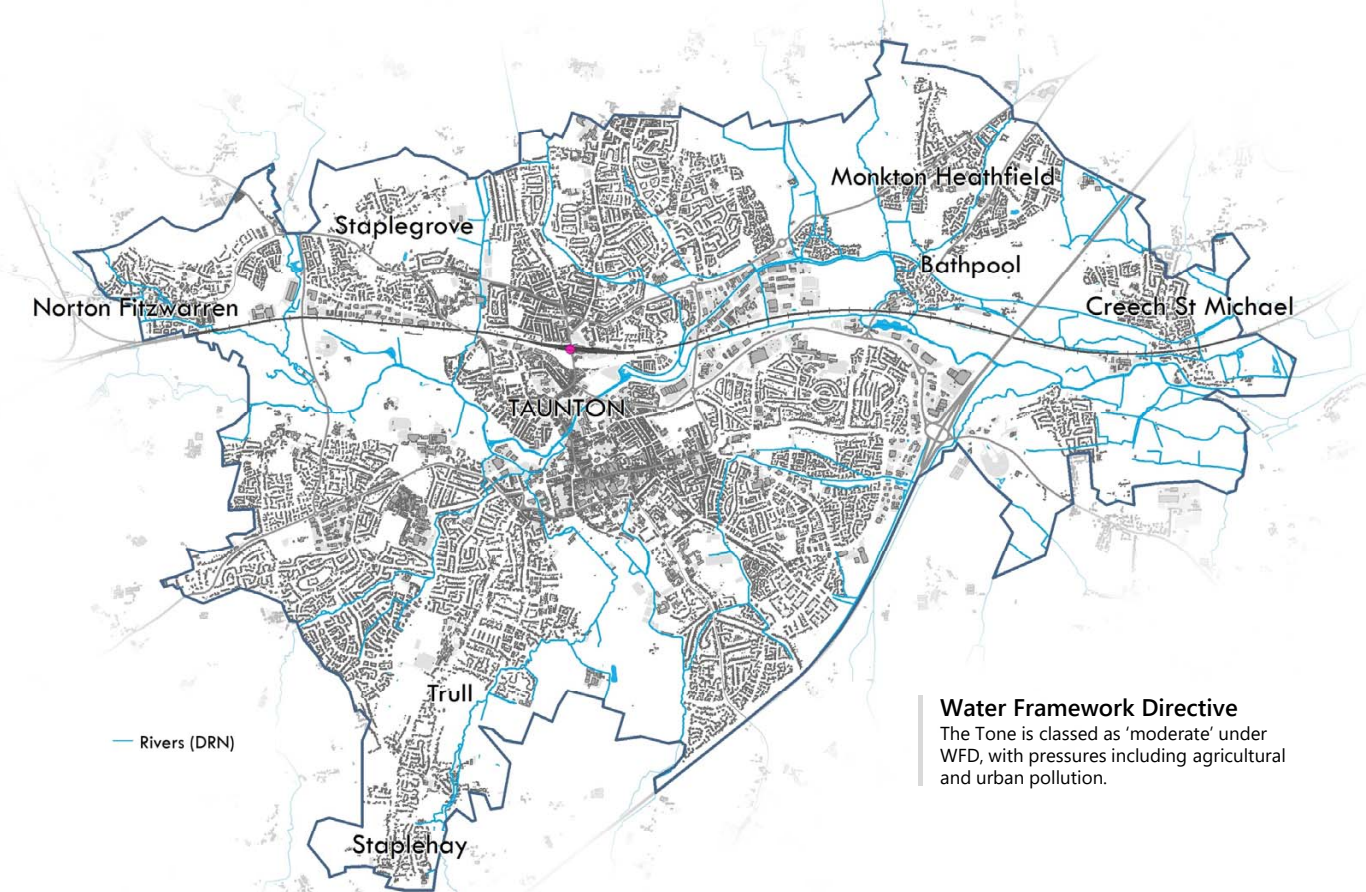
Rivers have often provided the resources and benefits necessary for the development of cities. Yet, in urban areas, rivers have often been seen as a threat to infrastructure and human health rather than as a resource, leading to their increasing degradation.

The benefits that arise from protecting rivers and restoration projects include access and habitat improvements. Opportunities for river restoration may be more easily found in parks & open spaces than in built up urban environments.

Rivers receive water as runoff from their surroundings, even more so due to the increasing impermeability of the urban environment. Sewers – meant to carry surface water flow, but often also carrying pollutants from misconnections – also discharge into watercourses. Other pressures in the urban environment include culverting and straightening, pesticides from roadsides or amenity areas, fertiliser and sediment from construction sites.

URBAN RIVERS IN TAUNTON

The River Tone is the main river running through Taunton. It is a tributary of the Parrett and is about 20 miles long. The Tone rises in the Brendon Hills and fills Clatworthy Reservoir with drinking water before continuing through a rural landscape. Where the river reaches Taunton, it is classified as “heavily modified” under the Water Framework Directive, with many of the smaller rivers flowing into it culverted.



Access to Nature

River restoration can improve the quality of parks. This has been shown for by the restoration of the River Quaggy in Sutcliffe Park, where about 30% of the visitors only started visiting after the restoration project had improved the area.

Air Quality

Air quality is likely to be improved due to denser vegetation and the transport of fresh air along the river corridors – however this could also mean the distribution of pollutants from busy roads.

Flood Risk (Rivers & Sea)

Restoring rivers, with actions such as re-meandering, establishing vegetation and creating wetlands, slows the flow and increases water storage capacity.

Aesthetic Quality

River landscapes are one of the most attractive landscapes, and this provides many benefits by drawing people to the area. Rivers also have a positive effect on mental health and property values.

Cultural Activity

Water is connected to many activities that are not only recreational and benefit human health but also have cultural traditions connected to them.

Water Quality

Freshwater systems can dilute and store pollution - to a certain level. River restoration and protection through GI can impact positively on a river's health.

Habitat Network

Rivers are amongst the UK's most diverse ecosystem, and provide connectivity through a landscape.

Property Value

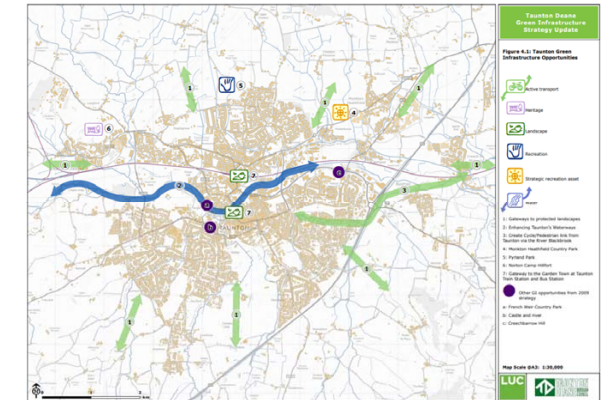
View of water or a garden adjacent to water can have a significant positive impact on property values, with studies showing increases in value of 10-30%

PRIORITY AREAS & DRIVERS

Before assessing the baseline of benefits received by local communities, it is important to consider any existing priority areas and drivers for improving natural infrastructure, including legislative drivers and restrictions, socioeconomic patterns, funding incentives or local plans.

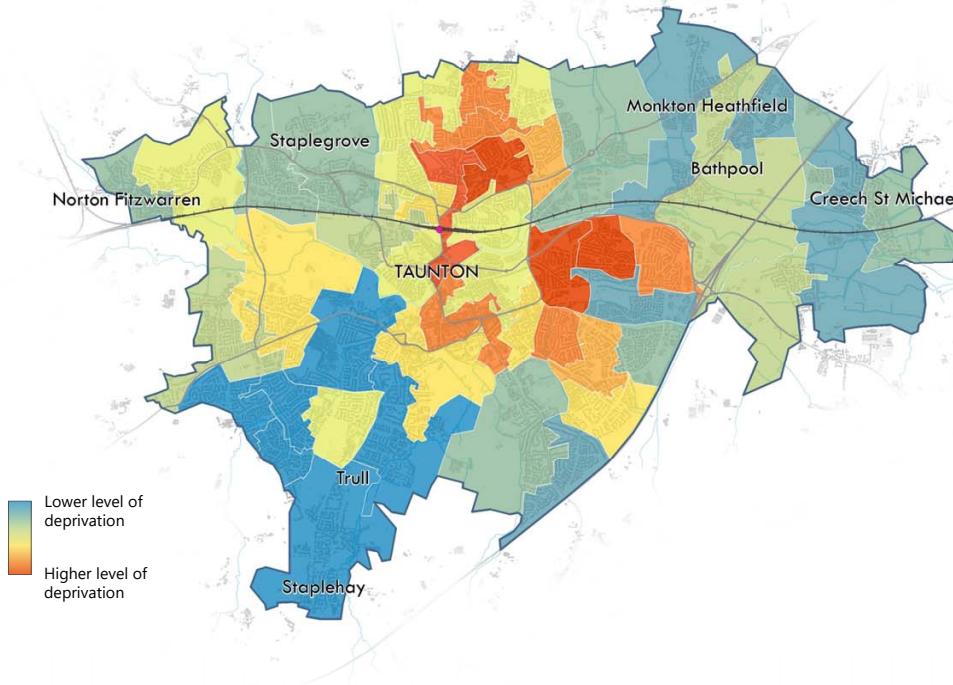
There are numerous priorities and drivers that affect the management of natural resources in an urban area. The maps on this page highlight two of these for Taunton; social deprivation and health. The Taunton Deane Green Infrastructure Opportunities document is also highlighted as an existing strategy being implemented across Taunton.

It is well-documented that areas of social deprivation are often linked to poorer health, reduced air quality, increased crime rates and lower access to natural spaces. Many types of natural interventions provide benefits that address some of these issues. It is important to assess which parts of the city are suffering from socioeconomic problems and to investigate whether natural infrastructure could contribute to resolving them. These factors should be kept in mind throughout the strategic targeting process.



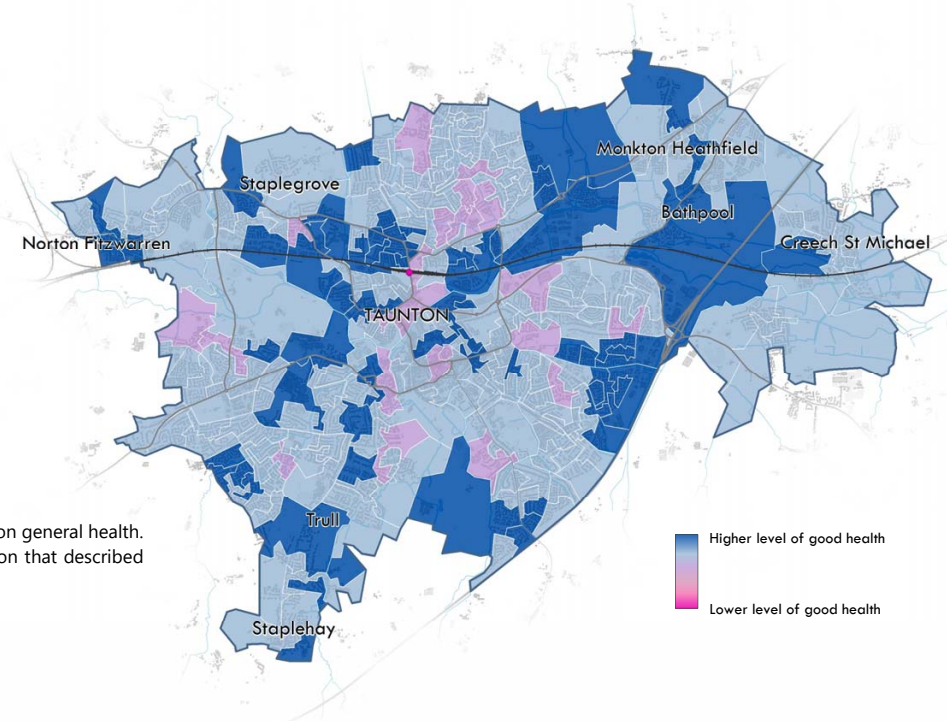
Existing Green Infrastructure Strategy

In 2017, Taunton Deane Borough Council published their updated GI strategy, identifying existing initiatives and future opportunities.



Social deprivation

The Index of Multiple Deprivation (2015) shows relative deprivation for neighbourhoods in England. It uses 7 indicators of deprivation, including income, employment, health, crime and the environment.



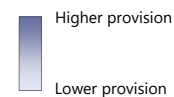
General health

The 2011 Census collected self-assessment data on general health. This map shows the distribution of the population that described their health as 'good' or 'very good'.

STRATEGIC TARGETING

BENEFIT METRICS

The level of provision of each benefit in the Wheel can be mapped individually, to give a clear view of how areas are performing against each benefit. The 12 metrics have been assessed in detail for each of the areas and neighbourhoods of Taunton.



ACCESS TO NATURAL SPACE

This indicator was assessed by calculating the percentage of people in each area that live within a 600m (~10 mins) walk of an accessible natural space.



AIR QUALITY (PM₁₀)

This indicator was assessed by calculating the average concentration of PM10 (using modelled mean background concentration levels for 2016) in each area.



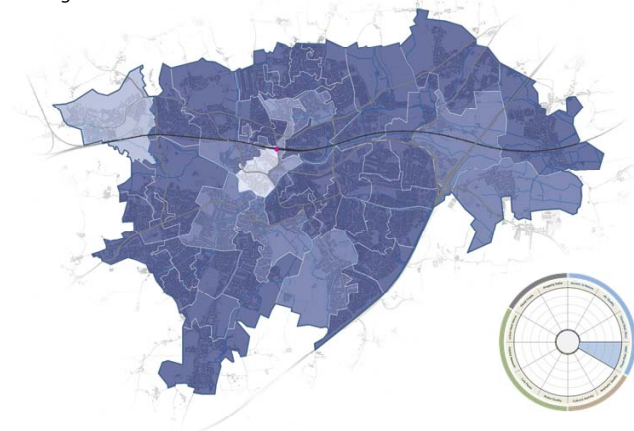
FLOOD RISK (RIVERS & SEA)

The indicator for the social impacts of flood risk from rivers and sea was assessed by calculating the number of residential properties located in areas with >1 in 100 year risk of fluvial or coastal flooding.



FLOOD RISK (SURFACE WATER)

The indicator for the social impacts of flood risk surface water flooding was assessed by calculating the number of residential properties located in areas with >1 in 100 year risk of surface water flooding in each spatial unit and ranking them.



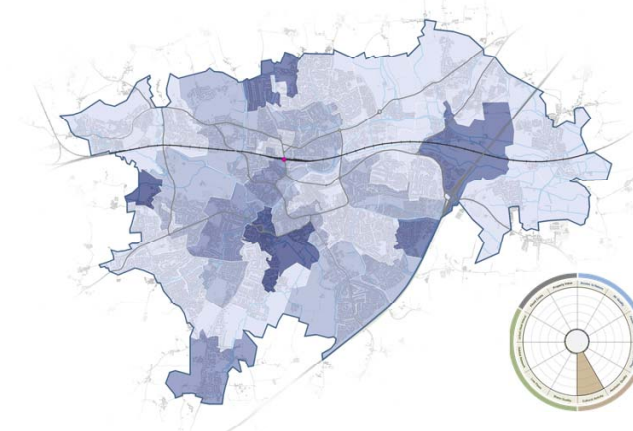
AESTHETIC VALUE

This indicator was assessed by analysing the number of Flickr-posted photos tagged per spatial unit, which had been tagged with keywords relating to ecosystems and nature.



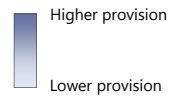
CULTURAL ACTIVITIES

This indicator was assessed by determining the number of cultural activity groups or facilities related to nature per 1000 people in each area.



BENEFIT METRICS ...continued

The level of provision of each benefit in the Wheel can be mapped individually, to give a clear view of how areas are performing against each benefit. The 12 metrics have been assessed in detail for each of the areas and neighbourhoods of Taunton.



WATER QUALITY

The indicator for water quality was assessed using the number/average number of urban Reasons for Not Achieving Good Status (from Environment Agency data) in each area.



LOW FLOWS

This indicator was assessed using the water reliability predicted for each waterbody in the EA's Catchment Abstraction Management Strategy (CAMS). *N.b. This indicator was not a relative score within the urban area, but a reporting of the environmental performance against the national benchmark.*



HABITATS FOR WILDLIFE

This indicator was assessed using the area of priority natural habitats in each local area.



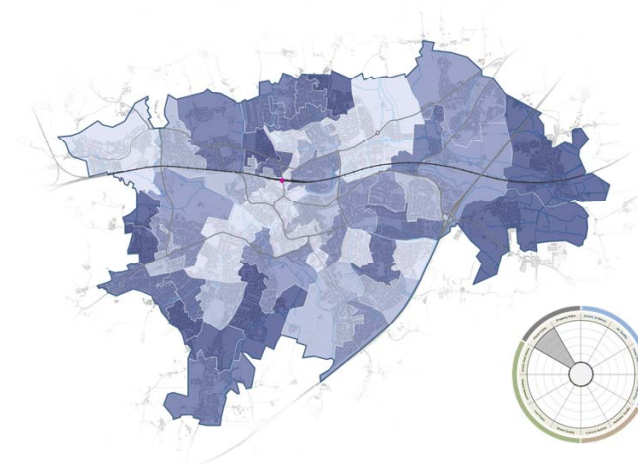
LOCAL CLIMATE REGULATION

This indicator was assessed by determining the average temperature (using Landsat 8 thermal imagery) in each area.



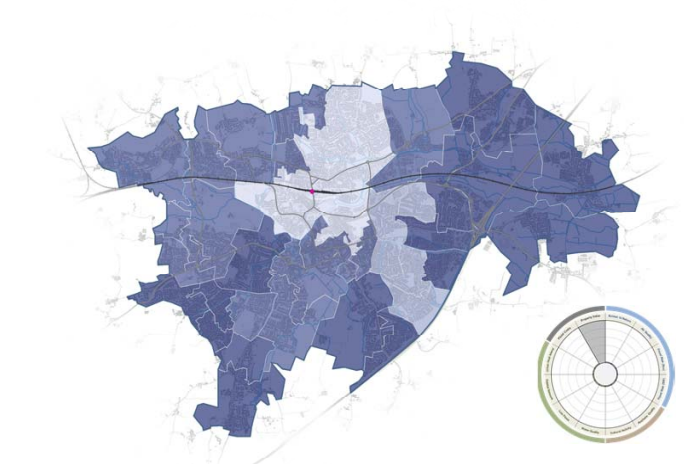
FLOOD DAMAGE COST

The indicator for the cost of flood damages was assessed using the Environment Agency's (EA) National Flood Risk assessment (NaFRA).



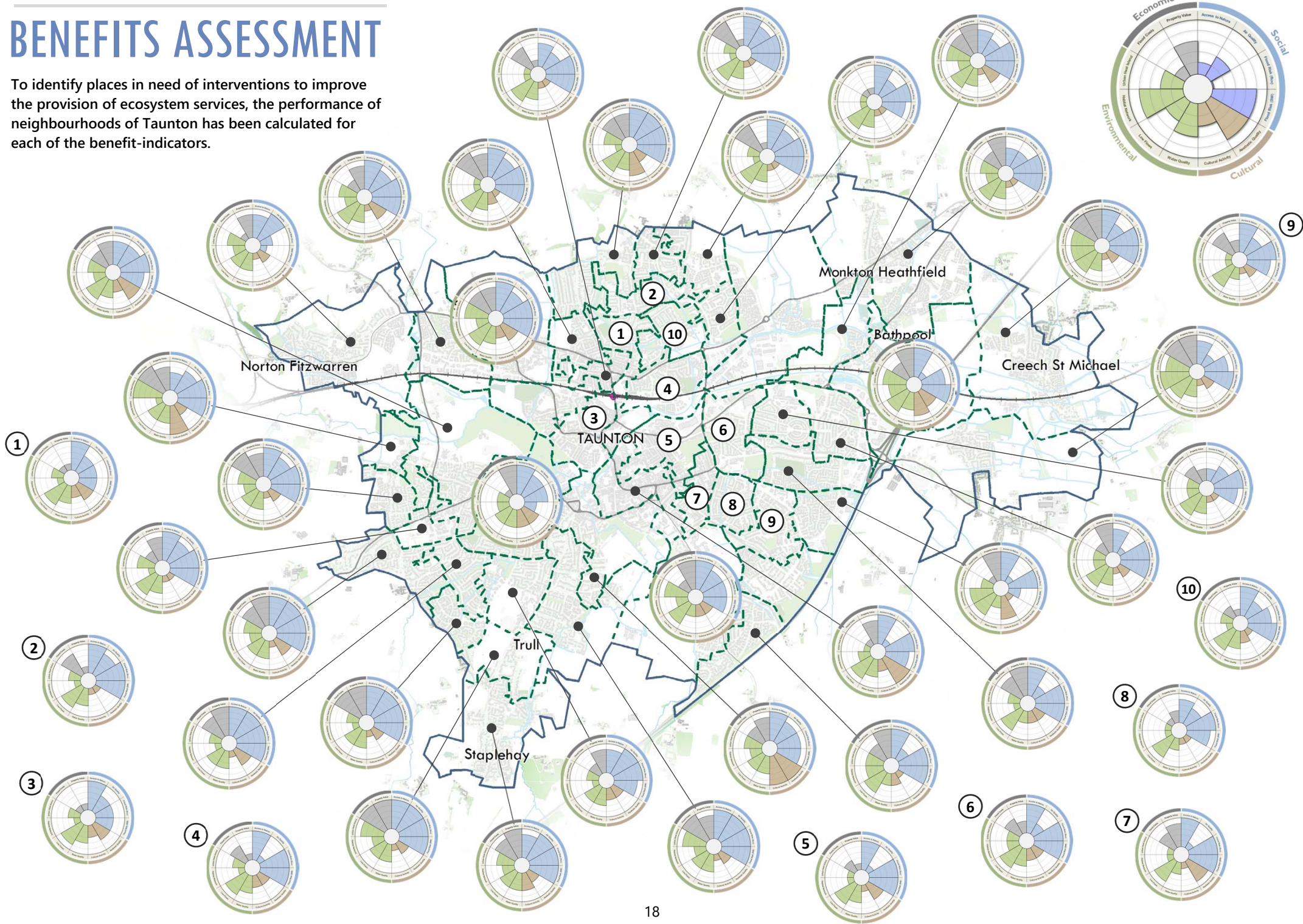
PROPERTY VALUE

This indicator was assessed by calculating the average price paid for a 2-bed house in December 2015 in each area.



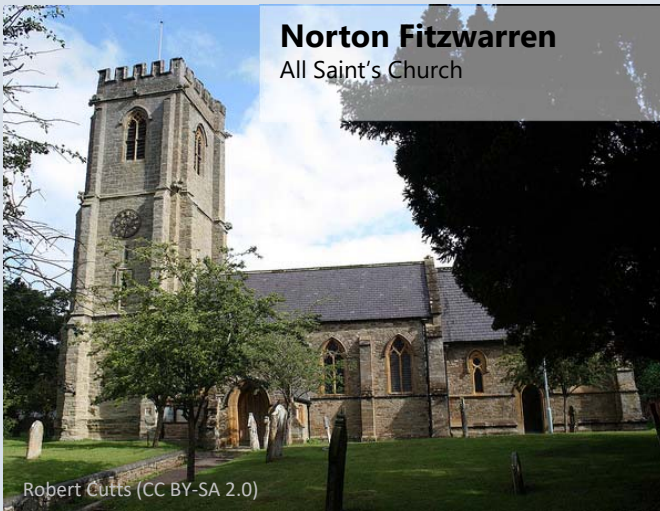
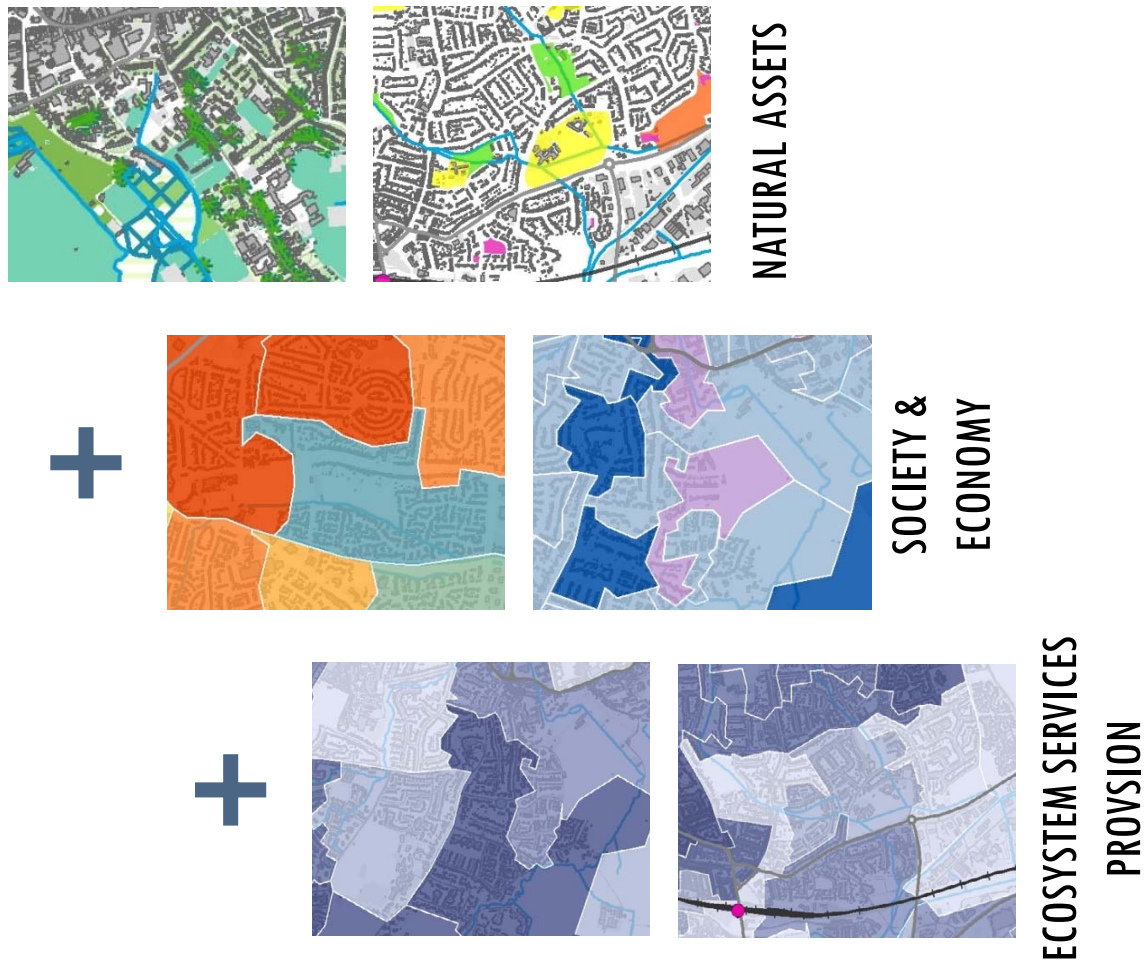
BENEFITS ASSESSMENT

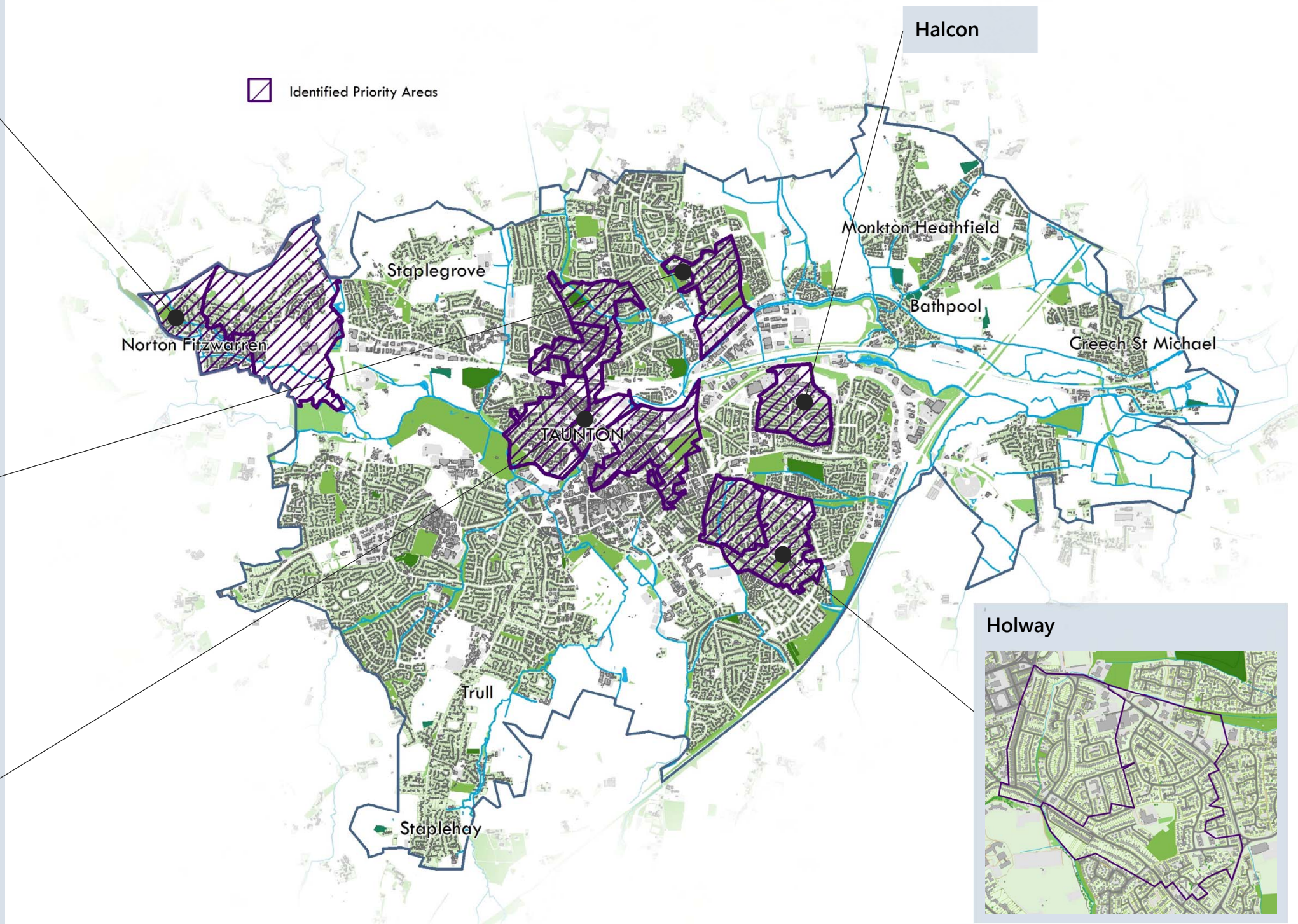
To identify places in need of interventions to improve the provision of ecosystem services, the performance of neighbourhoods of Taunton has been calculated for each of the benefit-indicators.



SPONGE 2020 FOCUS AREAS

Using all of the data and evidence examined so far, including issues such as deprivation, health, and the benefit-indicator metrics, several areas of Taunton have been chosen as target areas for the SPONGE2020 project.





URBAN TOOLBOX

There are lots of ways to create and improve green spaces and to combat some of the pressures these spaces may be under. Some can be used in individual gardens, and others will need to be promoted and supported by wider communities. This page summarises some of the tools. For more information on the different tools, see the LAP Urban Toolbox.

REDUCING SURFACE WATER FLOODING

Surface water flooding is a complex issue. It can be mitigated by reducing the volume of water on hard surfaces like roads and pavements by creating surfaces which water can infiltrate into, or by leading the water away from vulnerable areas and collecting it in more natural storage areas where it can drain away slowly.



Green Roofs

Green roofs may be 'intensive' or 'extensive'. Extensive green roofs are more suitable for fitting to existing buildings as they have a thin layer of soil, supporting plants like succulents or grasses. Extensive green roofs reduce the impermeable surface of an area and are most effective in small rainfall events.



Rainwater Harvesting

Water butts or larger storage features can be fitted to almost any building. Larger stores can reduce surface water flooding and any water butt can reduce water usage on private gardens.



Permeable Paving

This feature allows rain water to infiltrate into the ground, reducing surface water flooding and filtering pollutants.



Swales

Swales collect rainwater and, if they are vegetated, can help to filter pollutants, improve aesthetics and create new habitats.



Wetlands

Wetlands have different zones which may be permanently or temporarily wet – holding excess water during heavy rainfall events. The vegetation helps to filter water and stabilise sediment, while providing habitat for wildlife.

IMPROVING WATER QUALITY

By providing the time and conditions for pollutants to break down, or by intercepting polluted waters, these interventions help improve water quality.

HABITATS & WILDLIFE

These interventions provide habitats for plants and animals, forming part of a joined up network of habitats across an urban space.

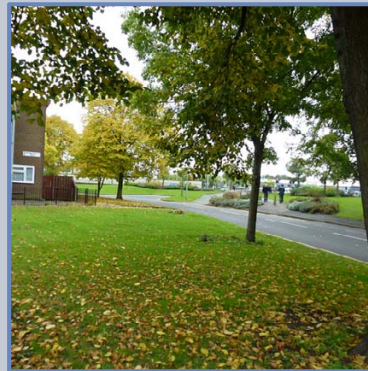
NATURAL BEAUTY

These interventions help improve the aesthetics of an urban location.



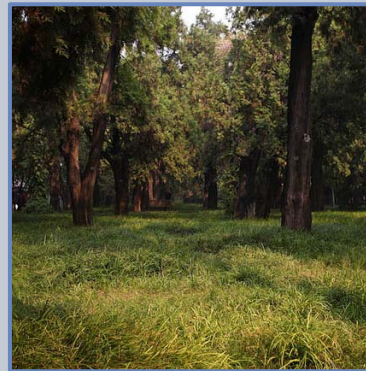
Rain Gardens

Raingardens hold the water from the guttering of buildings and from other urban features. They help to reduce surface water flooding, improve water quality, and can be an opportunity for communities to be a part of improving their local area.



Tree Planting

Trees leaves can trap air pollutants and remove them from the surrounding air. They also intercept rainfall, increase infiltration where permeable surfaces are available and reduce runoff through evaporation and root uptake.



Improving Green Spaces

Often, urban green spaces are closely-mown grassland. This provides a permeable green surface. However, such spaces could provide many more benefits. For example, areas mown less regularly can become wildflower meadows. Moreover, green spaces need to be accessible, safe and appealing to provide the many benefits to people of using green spaces.



Nature-friendly gardens

Gardens provide a great opportunity for wildlife, and to reduce rapid runoff of rainfall. To maximise this opportunity, garden owners can make some simple changes, like reducing the amount of man-made surfaces and planting pollinator-friendly plants.

DELIVERY

This document has summarised the assessment of the data and evidence surrounding the natural capital and ecosystem services provision across Taunton. This has led to the selection of target areas for the SPONGE2020 project, through which Westcountry Rivers Trust and Somerset County Council are working with stakeholders to co-design and co-create sustainable drainage features which both reduce surface water flooding and bring multiple other benefits to local spaces.

The Somerset Pilot for SPONGE2020 is now in its delivery phase, and, with funding also provided by Wessex Water, Somerset Rivers Authority, Postcode Local Trust, and the Royal Academy of Engineers, the team is now out working with local communities to design and install sustainable drainage features which will have a lasting impact on local spaces across Taunton.

The map below and the following case studies demonstrates where the Somerset pilot for SPONGE has been implementing co-created SuDS features with local communities in Taunton.

KILKENNY COURT

Raingarden planters to slow the flow of water from rooftops.

MIDDLEWAY

Sunken raingarden to be installed in a green space in a residential area of Taunton.

HOLWAY PARK SCHOOL

Rainwater harvested from rooftops will be used in the school's nature pond.

BISHOP FOX'S SCHOOL

Working with year 8 students to design a SuDS feature for the school grounds.



SELWORTHY SPECIAL SCHOOL

Raingarden installed in the school grounds to prevent surface water flooding from affecting emergency exits.



LYNGFORD PARK PRIMARY SCHOOL

A downpipe disconnection will take water from rooftops to a raingarden.



LONGRUN MEADOW

A series of retention ponds to slow the flow and improve water quality before it reaches the river.

DELIVERY

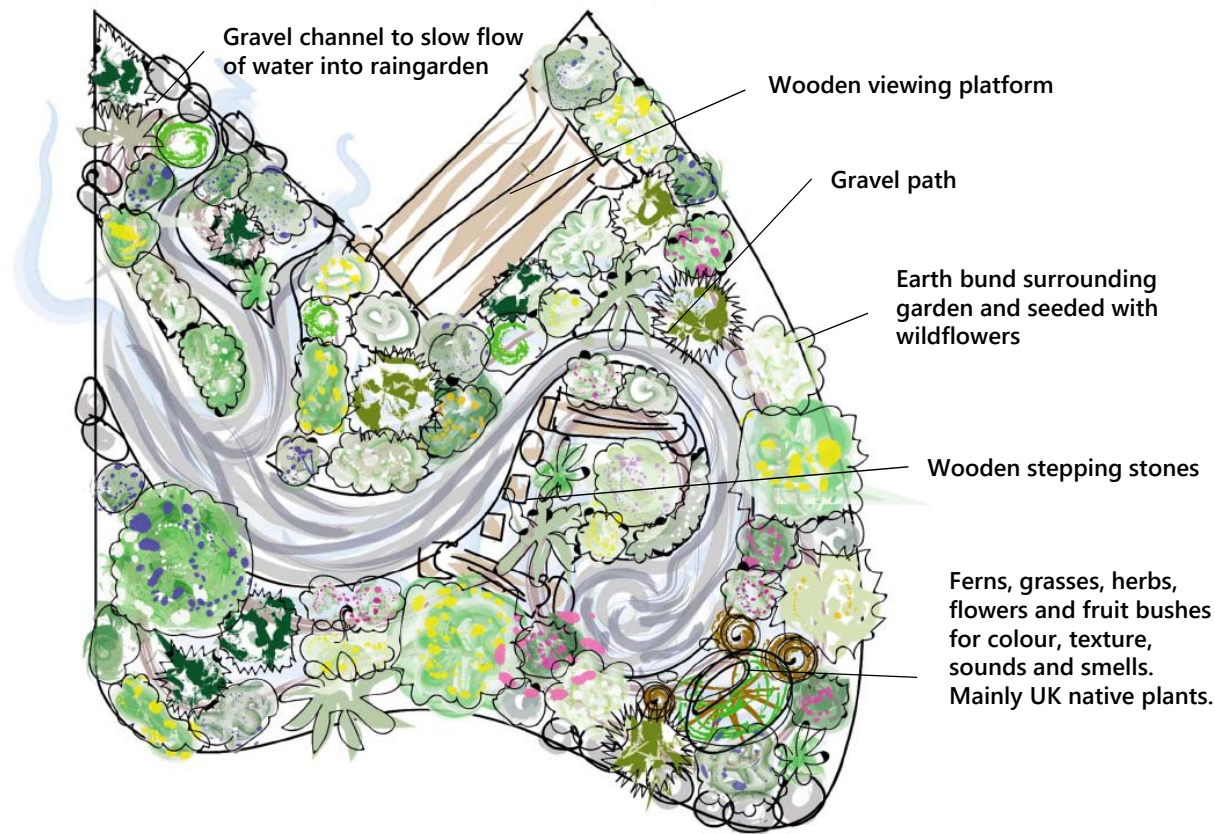
SELWORTHY SENSORY RAINGARDEN

A sensory raingarden was co-created with parents, staff and learners at Selworthy Special School in Taunton.

Selworthy is a school for children and young people with learning disabilities aged 4 – 19. The school uses outdoor spaces to allow their pupils to learn in the environment that suits them best. However, flooding due to a blocked surface drain sometimes left the grounds too muddy to be used. The raingarden was designed to capture the water creating this issue, removing the need for traditional drainage. As well as reducing flooding by storing 10m³ of water, the garden incorporates sensory and interactive elements to enhance the space for children and staff.

Children, parents and staff were involved in designing as well as planting the raingarden. In addition, workshops and interactive lessons were used to educate and engage those taking part in issues around flooding and climate change.

The work was funded through SPONGE 2020 (European Regional Development Fund) and Postcode Local Trust.



“We are incredibly excited to work with Kathi and Shona on this exciting raingarden project. The project will ... reduce on site flooding and ensuring that our learners can continue to access outdoor spaces”

Cameron Merry, Selworthy Fundraising Lead



6 workshops with kids, staff & parents

2 planting sessions

Water captured from 511m²

80% of adults involved more aware of the effects of climate change in Taunton

95% think the raingarden is a valuable addition to the school

DEMONSTRATION RAINGARDENS

The Demonstration Raingardens project, funded by Wessex Water and Somerset Rivers Authority, delivered four raised raingarden planters on two council-owned housing sites in Taunton, Somerset.

They provide approximately 6m³ storage/attenuation for roof runoff that would otherwise have fed into a combined sewer system, reducing runoff from an area of 220m².

Several consultations were held with experts, practitioners and local people and a raised planter design was chosen to fit with space constraints, maintenance levels and residents' needs. The height allows easy access for all residents, and the planters include native, exotic, edible and decorative plants, using dementia-friendly planting criteria to ensure enjoyment by all residents and provide habitats for insects.

The work was funded through SPONGE 2020, Wessex Water and Somerset Rivers Authority.

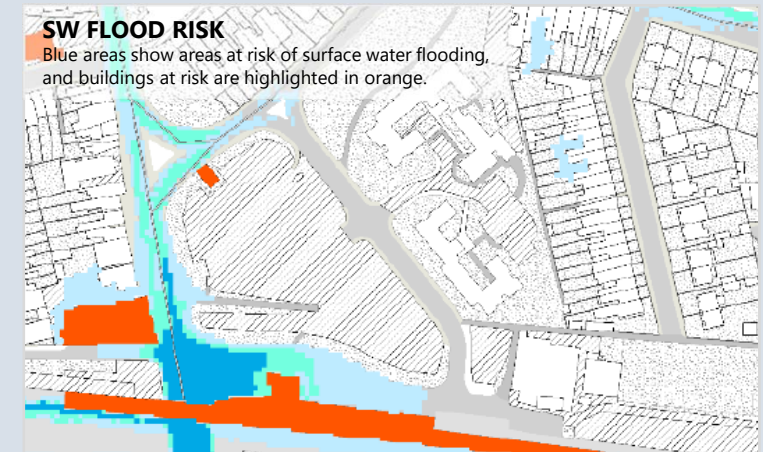
4 raingarden planters 2 sites 6 meetings with stakeholders 38 plant species runoff slowed from 220m²



DELIVERY

USING DATA & EVIDENCE

Mapping data showing surface water flood risk and modelled hydrological connectivity were used to identify sites and understand the types of intervention which would be most suitable and where they would be most effectively placed.





Plant selection: Grape hyacinth, Allium, American onion, Dutch garlic, Yarrow, Aster, Elephant's ears, Milky Bellflower, Catnip, Rosemary, Crimson flag, Lemon balm, Day lily, Moor grass, Sneezeweed, Spurge, Montbretia, Macedonian scabious, Meadow rue, Blue fescue, Japanese blood grass, Black mondo, Balkon clary, False goatsbeard, Lupin, European globe flower, Purple Moor Grass, Glaucous Sedge, Stinking Hellebore, Bugle, Ragged Robin, Meadowsweet, Water Aven, Hemp agrimony, Yellow Flag Iris, Dotted Loosestrife, Fairy Bellflower, Wood-rush



CONSULTATION



SITE SELECTION



CONSTRUCTION



PLANTING

Somerset Demonstration Raingarden Project

DESIGN

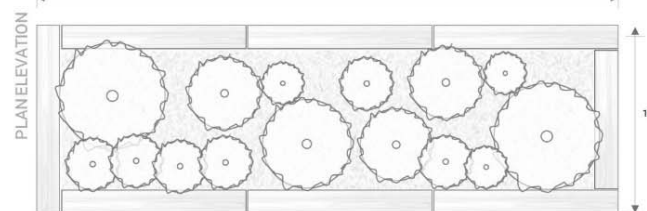
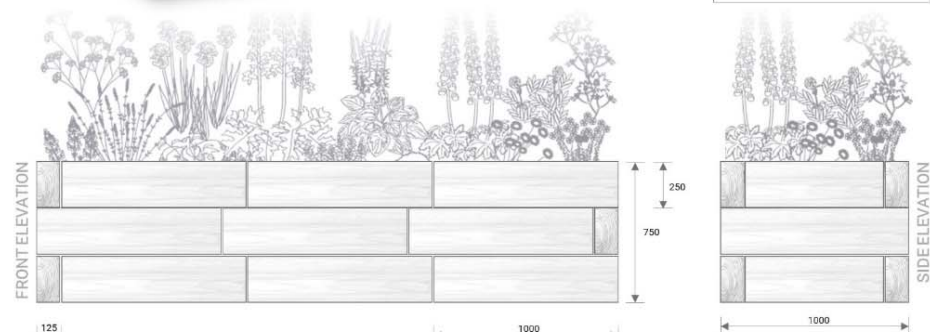
Raised Planter – Rainwater harvesting/detention basin

A rain garden is a shallow depression or raised planter, with absorbent, yet free draining soil and planted with vegetation that can withstand occasional temporary flooding. Rain gardens are designed to mimic the natural water retention of undeveloped land and to reduce the volume of rainwater running off into drains from impervious areas and treat low level pollution.



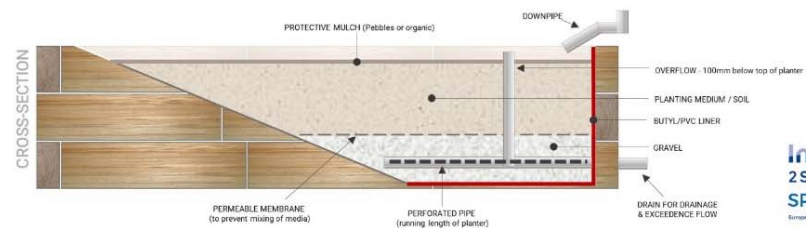
Estimated Water Storage/Attenuation

- Total volume of rain garden = 2.25 m³
- Bulk density of gravel/soil = 50%
- Water storage/attenuation capacity of rain garden = 2 m³
- Roof water volume per annum – Avg. rainfall p.a. (0.7 m) x 100 m² = 70 m³



Estimated Cost of Materials

- Sleepers – 24x1m lengths 12x1m @ £20 each = £240
- Liner & membrane – 5m x 3m 1x liner @ £30 + 1x membrane @ £10 = £40
- Gravel / topsoil – 4m³ (1.2 of each) 2x dumpys bags @ £33 = £66
- Hardcore/sub-base for footings 1x dumpys bags @ £33 = £33
- Fixtures & fittings (bolts, screws, pipes, etc) Various costs totalling ~£100
- Rain garden plants - various 20x @ £6 = £120
- **TOTAL = £599** (variable by planter length)



Interreg
2 Seas Mers Zeeën
SPONGE 2020
European Regional Development Fund

MIDDLEWAY

Following on from the Demonstration Raingardens project, we are returning to Middleway in Taunton to build a sunken raingarden to take the rainwater from the roof of one of the buildings and allow it to soak into the ground. The raingarden will be constructed in May 2019 and a planting day will be held as a final community event.

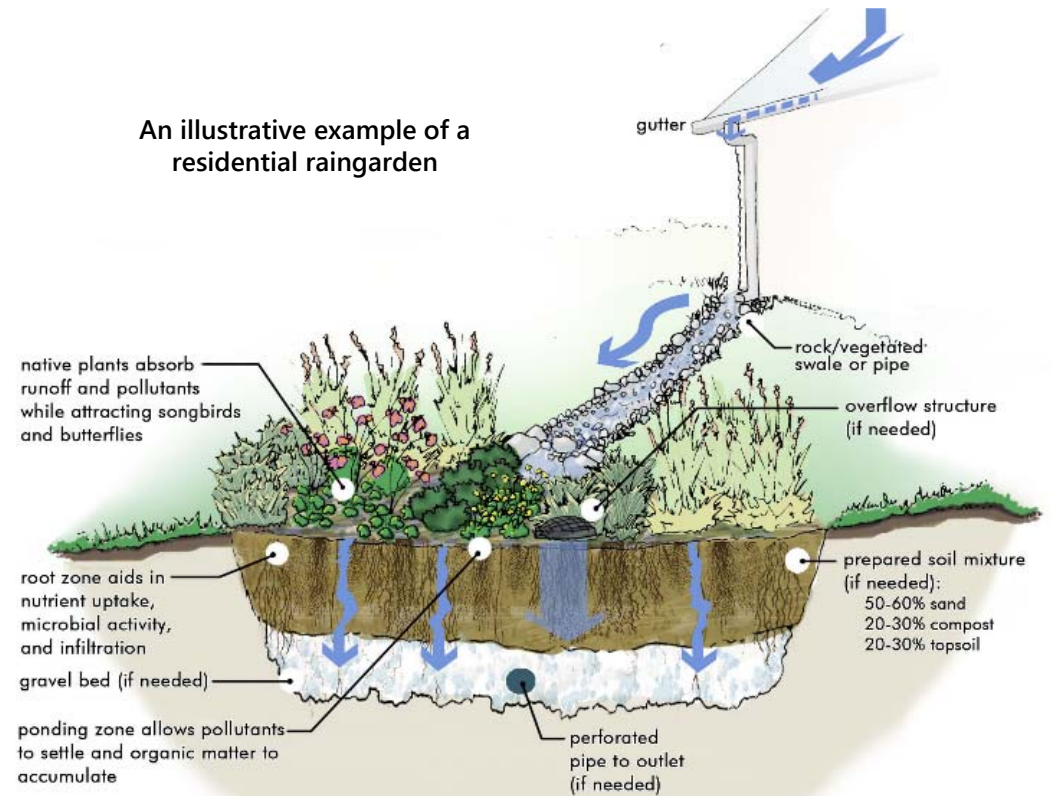
The raingarden will receive water from a roof area of approximately 70m². The raingarden itself will be approximately 19m², with the size estimated based on the roof catchment area, estimated rain levels for Somerset (with additional contingency to factor increase in rain in future years), and the infiltration rate of the soil.

The water will be taken from the downpipe along a paved channel where it will then open up into a raingarden where the water can pool during heavy rain and then soak into the ground over time. This will prevent the rainwater from going directly to the sewer, reducing pressure on the water management system.

Westcountry Rivers Trust have held several meetings with Middleway residents, initially through the Demonstration Raingardens project, and now through a project funded by the People's Postcode Lottery. These events have helped with site selection and raingarden design. Once the raingarden has been built in May, there will be events to plant up the raingarden. The garden will be planted with a variety of plant species, with more water-loving plants in the centre where pools of rainwater will form, and grasses and wildflowers to attract wildlife and create an attractive garden. A bench and stepping stones will allow residents to interact with and enjoy the raingarden.

The work was funded through SPONGE 2020 (European Regional Development Fund) and Postcode Local Trust.

An illustrative example of a residential raingarden



WHEN COMPLETED:

16 plant species

runoff slowed from

70m²

Planting schedule:

Ajuga reptans
Astilbe 'Fanal'
Calamagrotis brachytricha
Campanula glomerata
Carex pendula
Deschampsia caespitosa 'Bronze veil'
Dryopteris felix-mas
Helleborus foetidus
Hemerocallis 'Bertie Ferris'
Iris pseudacorus
Lobelia cardinalis
Pennisetum setaceum
Salvia ocinailis 'East Friesland'
Verbena Bonariensis
Carex morrowii 'Variegata'
Carex comans 'Bronze form'



DELIVERY



RAINGARDEN DESIGN SKETCH

LONGRUN MEADOW

A series of retention cells was created along a ditch on Longrun Meadow, a community-run nature reserve close to the centre of Taunton, to slow the flow of rainwater to the river, allow pollution to be broken down and create a more varied area of habitat.

Longrun Meadow is a green space close to the centre of Taunton. The Friends of Longrun Meadow run activities and manage the wildlife on the meadows, maintaining a natural space for the people of Taunton to enjoy.

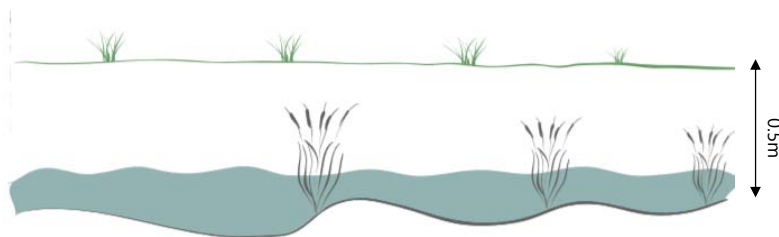
The group identified an existing drain as a potential opportunity for improvement. The drain is fed by a surface water sewer system and leads to the river, carrying with it pollutants from roads and car parks and providing little habitat for wildlife.

A series of retention cells were created, where water is slowed through the use of planting and permeable barriers. Pollution can be broken down more easily due to the increased surface area in the cells and plants taking up pollutants.

Local people were involved throughout the project. The work was initiated by Friends of Longrun Meadow reacting to a call for ideas from the project team. Meetings were held with the Friends of Longrun Meadow to design the scheme, and the proposal was presented at the AGM. Volunteers placed hazel hurdles at the downstream section of each cell, planted each with water-loving plants, and laid down coir matting on the newly bare banks to prevent erosion. A member carries out water quality sampling through Westcountry Rivers Trust's citizen science scheme – Westcountry CSI.

The work was funded through SPONGE 2020 (European Regional Development Fund) and Postcode Local Trust.

SKETCH OF DITCH PROFILE



3 retention cells created **4** meetings with Friends of Longrun Meadow **3** practical volunteer days



WESTCOUNTRY WOMEN WORKING WITH WATER (5W)

We are working with a group of engineers to inspire school children in Taunton to understand a little more about water management in their town. We will then use the everything the students have learnt to get their help designing SuDS to be built in both the schools.

Westcountry Women Working With Water (aka 5W) is a project funded by The Royal Academy of Engineers under their Ingenious program. We are working with two primary schools in Taunton to fulfil the project's exciting and important aims:

- 1) To get young people, especially girls, interested in engineering and understanding a little more about the wide range of areas engineers work in, and the important issues and problems engineering can help to solve. In particular, we will talk about water management in our towns and cities.
- 2) To give engineers the opportunity to talk about their exciting work to new groups of people, and allow them to try out a whole range of engagement techniques.
- 3) To build two new raingardens at the schools, designing the features with the help of the school pupils and their teachers and parents.

So far, we have run two different sessions with the school children. The first aimed to get the pupils thinking about where the water from their homes and towns goes, how it is managed and how nature and green spaces can play a role in managing water. The engineers ran a range of interactive activities, including making a rain gauge to measure rainfall. The children also had a chance to ask the engineers questions, including how they got into engineering, what their favourite part of their job is, and what they think is the best thing that's been invented by engineers!

The second session got the pupils thinking about how water moves around the school and gathered the ideas of the students and their parents for the SuDS to be installed in the school grounds.



TRADITIONAL DRAINAGE vs SuDS

These interactive boards were used to demonstrate the difference between traditional water management systems and sustainable drainage systems. In the board to the left, water goes down a gutter, onto some hard paving, down a drain and into the 'river' below. The water ran through the system very quickly, eventually flooding the Lego house below! On the right, the water went into a bucket (acting as a water butt), through some permeable paving, into a grassy swale and then into a raingarden. The water moved more slowly, plus the board looks a lot more green and interesting!





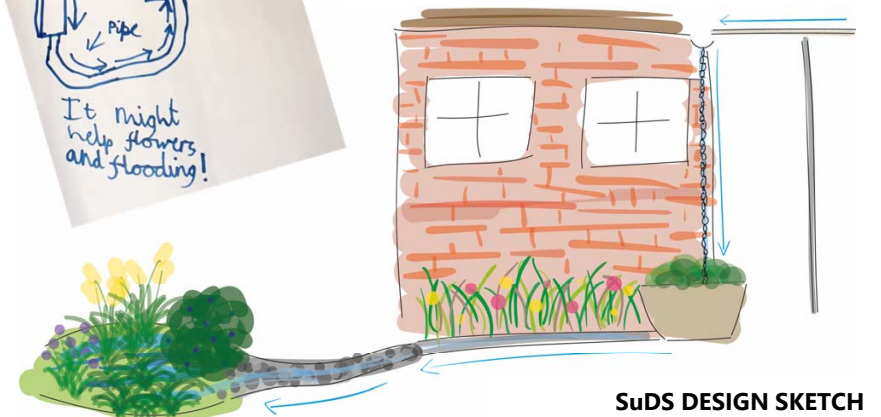
SuDS SITE

HOLWAY PARK PRIMARY SCHOOL

Holway Park has a courtyard in the centre of the school which is home to a nature pond and some guinea pigs! At the moment the pond has to get topped up from the tap – a laborious process which uses a lot of tap water. We plan to design a rainwater harvesting system which will store rainwater from the rooftops and allow it to be used to keep the pond topped up and water plants all around the school.

LYNGFORD PARK PRIMARY SCHOOL

The main school buildings at Lyngford Park have all their drainage and gutters built into the structure of the buildings – which makes it a bit tricky to retro-fit SuDS features! However the shelter at the front of the school has a gutter and downpipe, which we will use as the start of a SuDS system around the front of the school. Rainwater will travel down a rain chain and into the exiting bowl planter, which will be adapted into a mini pond feature. When water overflows it will travel along a steel rill alongside a raised planter. It will then travel along a cobbled channel and into a sunken raingarden, where the rainwater will soak into the ground.



YEAR OF THE YEO

A celebration of the River Yeo, bringing together the local community to enjoy their river and share knowledge about this beautiful habitat.

Over the course of 2017, Westcountry Rivers Trust led a year of activities celebrating everything about the River Yeo with the local community, covering a range of activities, issues and interests for all ages.

This included an event promoting the concepts of sustainable drainage and raingardens to local people and encouraging them to consider installing a sustainable drainage feature around their homes. Children were taught principles of the water cycle through interactive activities involving different materials and then built mini raingardens to take home!

The project received funding from Greener with Greggs, supported by SPONGE2020 and The Rivers Trust.

30 children built a mini raingarden

20 adults engaged with ideas around sustainable drainage



DELIVERY

Jan 28th <i>Water birds</i>	Feb 18th <i>Become a River Scientist</i>	March 25th <i>Creative writing – river stories</i>	April 26th <i>Bat walks by the river</i>
May 17th <i>River crafts</i>	June 21st <i>Tackling Himalayan balsam</i>	July 5th <i>Discover the water beasts of the Yeo</i>	August 23rd <i>Build your own rain garden</i>
Sept 16th <i>Year of the Yeo festival</i>	October <i>River music</i>	November <i>River habitat walk and talk</i>	December <i>Willow workshop along the Yeo</i>



EDUCATION & ENGAGEMENT

Alongside all of the co-design, co-creation and construction work, the project also aims to raise awareness of the impact of climate change, and what individuals can do in their own homes and behaviour to make a difference in adapting to these changes.

We have developed a website (someset-sponge.org) which include news stories of work which has been going on under the SPONGE2020 Somerset Pilot as well as information on the impact of climate change, the importance of green infrastructure, the way water is traditionally managed in our towns, the benefits of sustainable drainage systems, and tips on what people can do around their homes. We have also created advice booklets on these topics, as well as promoting these messages at all SPONGE community events.

Welcome to Project SPONGE!

The Somerset SPONGE team is working with communities across Somerset to take inspiration from nature and transform our towns!

Interreg 2 Seas Mers Zeeën SPONGE 2020
European Regional Development Fund

Somerset County Council
Westcountry Rivers Trust

What can we do in our homes?

Paved surfaces cause water to rush into our sewers and rivers. This increases flood risk, causes sewers to be overwhelmed and together this takes pollution into our precious rivers & streams. Plus, climate change is likely to make heavy, intense rainfall more common.

The traditional ways of managing our rainwater have advantages and disadvantages (see overleaf), but typically cause problems when there is heavy rain.

We need new and better ways of managing rainfall. Luckily, nature shows us an alternative!

Keeping water at the surface and allowing it to slowly soak into the ground or drain away over a longer time-period eases pressure on the drainage system and reduces the risk of water pollution and flooding.

SuDS features, like raingardens, ponds and planters, slow the flow of water, are great for wildlife and are an interesting & attractive addition to your home, garden, street or local space. Check out these tips to see what you can do...

Look for your downpipe

Downpipes take rainwater from your roof to the drainage system. However, you can adjust them to divert the water to a water butt, for use on your garden, or to a raingarden. If you've not got much space, a raingarden planter can be a way of slowing the flow of the water to the drain. Visit raingardens.info for ideas and advice or get in touch.

Plus, if your water company is Wessex Water, and you can prove that most of the rainwater from your property doesn't drain to a public sewer you might be entitled to a reduction in your sewerage bill! Visit wessexwater.co.uk/surfacewaterdrainage for more information.

Depave your front garden

Make the most of your front garden by giving it a green makeover! If you need space to park your car, consider permeable paving or gravel so that rainwater can still soak into the ground. Plus, if you just pave the areas where the car sits, you can make some space for grasses, flowers or shrubs. Even if gardening isn't your thing, the Royal Horticultural Society (rhs.org.uk) has some tips for low maintenance gardening, so you can brighten up your front garden with only a little effort!

Check that your drains are connected right

If wastewater or sewage from your house is connected to a surface water drain (known as a 'misconnection') you may be polluting your local river or beach. Visit connectright.org.uk to find out how you can check your home for misconnections and how you can get them fixed.

Questions?
Email info@wrt.org.uk
SPONGE2020 project

How is our water managed now?

Most of the rain that falls on our towns falls onto hard surfaces like roofs and roads and is taken to the drainage system.

Older buildings often have combined sewers where the foul water is mixed with rainwater and carried to the treatment plant.

If too much rain rushes to the sewer, the system is overwhelmed and an emergency outflow discharges a mix of sewage and rainwater into a river or stream.

Where can I find more info?
Learn more about the science behind SPONGE, and get help to make changes in your home or neighbourhood

Churchill Way Raingarden

What's going to happen?
In the next couple of months, we will be installing the new raingarden. Water from the roof of one of the buildings will be directed along a channel across the ground and then will flow into the raingarden. The garden will be planted with colourful flowers, textured grasses and ferns. There will also be stepping stones and a bench so you can use and enjoy the raingarden.

Why is it important?
Allowing as much rainwater as possible to stay on the surface and slowly soak into the ground, rather than go straight down the drain, eases pressure on the sewer system and reduces the risk of flooding and of pollution getting into our rivers. This will help us to be more prepared for bigger storms which are expected as a result of climate change.

How can you get involved?
Once the structures are in place we will organise a day where you can come along and help us plant up the raingarden, with some tea and cake to celebrate!

We hope you are excited to see the raingarden take shape - if you have any questions then just send an email to rosie@wrt.org.uk

Visit somerset-sponge.org for more info on the project...

Sustainable Drainage Systems (SuDS) are an alternative to traditional drains and pipes. They mimic natural processes and give water space at the surface.

Turn over to see how SuDS could fit in around your home.



DATA SOURCES

Page 7:

- Office for National Statistics, 2011 Census: Census aggregate data & Digitised Boundary Data (England and Wales); licensed under the terms of the Open Government Licence
- OS data © Crown Copyright and database right 2018

Page 8:

- OS Mastermap data; accessed under the terms of the Environment Agency Conditional License
- OS Strategi: contains OS data © Crown copyright and database right (2014); accessed under the terms of the Open Government Licence
- OS BoundaryLine: contains OS data © Crown copyright and database right (2014); accessed under the terms of the Open Government Licence
- WFD Catchment Boundaries © Environment Agency; accessed under the terms of the Open Government Licence

Pages 9-14:

- OS Mastermap data; accessed under the terms of the Environment Agency Conditional License
- OS Strategi: contains OS data © Crown copyright and database right (2014); accessed under the terms of the Open Government Licence
- Priority habitat data: © Natural England & contains Ordnance Survey data © Crown copyright, accessed via Open Government Licence
- Local data supplied by Taunton Deane Borough Council

Page 15:

- Office for National Statistics, 2011 Census: Census aggregate data & Digitised Boundary Data (England and Wales); accessed under the terms of the Open Government Licence
- IMD: published by Ministry of Housing, Communities & Local Government, accessed under the terms of the Open Government Licence.

Pages 17 & 18 - Benefit Metrics:

The following datasets were used to produce the metrics mapped in this report:

- OS Mastermap data; accessed under the terms of the Environment Agency Conditional License
- OS Strategi: contains OS data © Crown copyright and database right (2014); accessed under the terms of the Open Government Licence
- Local data supplied by Taunton Deane Borough Council
- Defra UK-AIR: published by Defra and the Devolved Administrations; accessed under the terms of the Open Government Licence
- Risk of Flooding from Rivers and Sea: © Environment Agency; accessed under the terms of the Open Government Licence
- Updated Flood Map for Surface Water: © Environment Agency; accessed under the terms of the Open Government Licence
- Scheduled Monuments; © Historic England & contains Ordnance Survey data © Crown copyright; accessed under the terms of the Open Government Licence
- WFD status: © Environment Agency; accessed under the terms of the Open Government Licence
- Pollution Incidents: © Environment Agency; accessed via CaBA data package
- Water Resource Availability (CAMS): © Environment Agency; accessed via CaBA data package
- Water Abstractions © Environment Agency; accessed via CaBA data package
- Priority habitat data: © Natural England & contains Ordnance Survey data © Crown copyright, accessed under the terms of the Open Government Licence
- Designated sites: © Natural England, accessed under the terms of the Open Government Licence
- Landsat 8 thermal imagery © USGS
- Environment Agency's (EA) National Flood Risk assessment (NaFRA) © Environment Agency
- Land Registry property price index © Ministry of Housing, Communities and Local Government; accessed under the terms of the Open Government Licence




SPONGE
SOMERSET





SPONGE 2020: LOCAL ACTION PROJECT

Managing the rainwater that falls on our towns and cities is an important task. As we start to feel the effects of climate change, extreme rainfall events are expected to increase. This is creating real challenges for water managers and local authorities. SPONGE 2020, an Interreg 2 Seas project, part-funded by the European Regional Development Fund, is working with local stakeholders to co-create innovative adaptation measures across a range of settings to reduce the impact of climate change and make communities more resilient.



Westcountry
Rivers Trust



Interreg 
2 Seas Mers Zeeën
SPONGE 2020
European Regional Development Fund

